HISTORY OF SOYBEANS AND SOYFOODS

IN THE MIDDLE EAST (1909-2007):

EXTENSIVELY ANNOTATED

BIBLIOGRAPHY AND SOURCEBOOK
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BAHRAIN, CYPRUS, IRAN (PERSIA), IRAQ, ISRAEL, JORDAN,
KUWAIT, LEBANON, OMAN, PALESTINE, QATAR, SAUDI ARABIA,
SYRIA, TURKEY, UNITED ARAB EMIRATES (UAE), AND YEMEN:

Compiled

by

William Shurtleff & Akiko Aoyagi

SOYINFO CENTER

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DEDICATION AND ACKNOWLEDGMENTS

This book is dedicated to Eliahu Navot of Herzlia – Israel’s soybean pioneer. And to Daniel Chajuss of Hayes Ashdod Ltd., a pioneer worldwide in the field of modern soy protein products and soy molasses.

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 Alamo, California, who has kept our computers up and running since Sept. 1983.

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 Soybeans in the Middle East

1909 – Turkey: Soya bean products (soya-bean oil) are first reported in Turkey (Carson 1909, p. 28).

1910 – Soya bean “production of the French possessions in Asia, of Asia Minor [which is now the large eastern part of Turkey], and of West Africa is said to be neither large nor promising enough to be of much account for export” (Times (London), July 19, p. 63).

1920. – Turkey and Persia (Iran): 0.4 million piculs of yellow soybeans are exported from China “To Turkey, Persia, Egypt, etc.” (Chinese Economic Monthly, June 1924, p. 12-19). Note: We cannot say for sure to which of these countries the soybeans were exported. Yet these are the first soybeans in the Middle East.

1924 – Lebanon: Soybeans are first reported in Lebanon, and were probably being cultivated in Beirut by the Agricultural Service (Service de l’Agriculture) (Salgues 1937).

1931 – Turkey and the Middle East: Soybeans are first cultivated in Turkey by Dr. Drahorad. The source of the soybeans was Brillmayer in Austria (Brillmayer 1947, p. 14-18). These are the first soybeans clearly cultivated in the Middle East.

1932 – Syria: Soy products (soy sauce) is first reported in Syria; it was imported to Canada from Syria (Dominion of Bureau Statistics 1934).

1933-34 – Persia. The line of soybeans bred in Platt, Austria, by Franz Brillmayer is sent to Persia via a man who was asked to visit Brillmayer by the Shah of Persia (Brillmayer 1947, p. 14-18).

1935 – Palestine: Experiments in soybean cultivation are conducted at the Rehovot Research Station from 1935-1944 (Kaltenbach 1936; Hurwitz & Golden, 1950).

1935 – Palestine: “Soya cultivation is not practised in this country though trials have been made at the Mikweh Israel School at Jaffa, but with very little success. A few variety trials were made in 1935 at the Experiment Station of the Department of Agriculture, but no satisfactory results were obtained” (Kaltenbach & Legros 1936).

1936 – Cyprus: Soybeans are being cultivated; they are still under trial or established on an acclimatisation station (Sampson 1936).

1937 – Lebanon: Earliest document seen concerning soybeans in Lebanon (Salgues 1937).

1939 – Iran: Soybeans have been cultivated in Turkestan, and trials have been conducted, mostly out of curiosity, in Persia (Matagrin 1939, p. 57).

1948 May 14 – Israel is proclaimed a state. The land had formerly been part of Palestine.

1949 – Israel. Eliahu Navot, the soybean pioneer in Israel and the Middle East, leaves on a one-year trip around the world to study soybeans and soyfoods, with the encouragement of the Minister of Agriculture and Prof. Chaim Weizmann. He collects new varieties, lives with soybean farmers, and learns how to prepare a host of tasty dishes – which he introduces to Israel upon his return. Over the next 20 years of selfless work he earns the title “Father of the Soybean in Israel.”

1948-52 – Turkey: 2,000 tonnes (metric tons) of soybeans are produced on 2,000 ha in Turkey; yield: 860 kg/ha. Production in Turkey increases to 4,000 tonnes in 1955, 5,000 tonnes in 1956, 6,000 tonnes in 1963, 9,000 tonnes in 1968, 11,000 tonnes in 1968, then 12,000 tonnes in 1970 (FAO Production Yearbook 1958, 1967, 70). These are the earliest production or area statistics seen for Turkey of the Middle East. Turkey has become the first major soybean producer in the Middle East.

1953 – Arabia: Significant shipments of Multi-Purpose Food have been sent to “Arabia” (Soybean Digest, March 1953).

1957 Nov. – Jordan: Soybeans are first cultivated in Jordan (Hashemite Kingdom of Jordan 1958).

1960 June – Iraq, and Oman: The earliest known soybean product is introduced, Multi-Purpose Food (Meals for Millions 1963).

1960 March – Israel: Soy flour is made commercially by the Etz-Haizaith Oil & Soap Industry, Israel. (Soya Bluebook 1960). This is the earliest known commercial soy product made in Israel or the Middle East.

1961 May – Lebanon: Soybeans are clearly being cultivated in Lebanon (Musharraf Ali 1962).

1966 – Iran: Active and continuous research on and cultivation of soybeans begins (Sahidi 1997).

1967 – Iran: 3,000* tonnes (metric tons) of soybeans are produced on 5,000* ha in Iran; yield: 620 kg/ha. Production in Iran increases to 11,000* tonnes in 1968, then 45,000* tons in 1969, 47,000F tonnes in 1970, and 50,000F tonnes in 1971. * = Unofficial figure. F = FAO estimate. Iran appears to have passed Turkey in 1969 to become the largest soybean producer in the Middle East (FAO Production Yearbook 1971). But note: Amirshahi (1976) stated that in 1967 Iran cultivated only 500 hectares, one-tenth the 5,000 unofficial figure from FAO (above).

1968 – Yemen: Soy products (Corn Soy Milk) first reported in Yemen (Inglett et al. 1968).
1970 – Saudi Arabia: Soybeans are first reported in Saudi Arabia. In the 1968-1970 period, 62 tonnes of soybeans were imported (Lee 1976).

1973 April 12 – Iraq: Soybeans are first cultivated in Iraq (Fadhil-Alzubaidi 1975).


1975 – Bahrain: Imported $56,000 of soybeans and soybean products from the United States. This included 53 metric tons of soybean oil (worth $56,000). In 1977 Bahrain imported 350 metric tons of soybean meal (worth $90,000) from the USA (Piason 1978). This document contains the earliest date seen for soybean products in Bahrain.

1975 – Kuwait: Imported $2,615,000 of soybeans and soybean products from the United States. This included 8,960 metric tons of soybeans (worth $2,006,000), 224 metric tons of soybean oil (worth $81,000), and 2,588 metric tons of soybean meal (worth $528,000) from the USA (Piason 1978). This document contains the earliest date seen for soybeans or soybean products seen in Kuwait.

1975 – United Arab Emirates (UAE): Imported $83,000 of soybeans and soybean products from the United States. This included 68 metric tons of soybean oil (worth $83,000) (Piason 1978). This document contains the earliest date seen for soybean products in the UAE.

1978 – Qatar: Soy products (soy sauce) first imported (Wood 1982).


1979 – Iran: This year Iran produced 150,000 metric tons of soybeans on 70,000 acres; yield: 2,143 kg/ha (Shanmugasundaram 1982, p. 139).

1979 - Mamalak (Infant Formula), Manna (Food Supplement), and Complete (Complete Meal) and made and sold in Iran by Nutrition Dynamics International in Damghan.

1990 – Turkey: The leading soybean producers in the Middle East are now Turkey 162,000 tonnes, Iran 105,000 tonnes, and Iraq 2,000 tonnes (FAO Production Yearbook 1991).

1993 March – United Arab Emirates: Soybeans are first reported in the UAE. A company makes commercial soya powder from soybeans (Soyafoods, March 1993).

2005-2006. Leading soybean producers in the Middle East: Iran 110,000 tonnes, Turkey 25,000 tonnes, Syria 5,000 tonnes.

We have seen no record of soybeans being cultivated in Bahrain, Kuwait, Oman, Qatar, United Arab Emirates, or Yemen.

ABOUT THIS BOOK

This is the most comprehensive book ever published about Soybeans and Soyfoods in the Middle East. It has been compiled, one record at a time over a period of 32 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:

- 37 different document types, both published and unpublished.
- Every known publication on the subject in every language.
- 44 original Soyinfo 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.

The bibliographic records in this book include 347 published documents and 32 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).

The book also includes details on 60 commercial food 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, and an author/company index are 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.

How to Use the Three Indexes: A subject and country index, an author/company index, and a language index are located at the back of this book. They will help you to go directly to the specific information that interests you. Browse through them briefly to familiarize yourself with their 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.”

In the subject index, a separate entry is given for each subject and company. If there are no personal authors, the author/organization name will be indexed. If there are no personal or corporate authors, the serial/periodical name will be considered the author, as in an article from Time magazine.

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.


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.

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 are given on our website.

Soyinfo Center
P.O. Box 234, Lafayette, CA 94549 USA
Phone: 925-283-2991     Fax: 925-283-9091
History of Soy in the Middle East


• 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 resident 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).


III. Competitive American exports. Tables (p. 35) show exports for 1907, 1908, and 1909 of cotton-seed meal, cotton-seed oil, and cottoleine, 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 soya bean products (oil or meal) in Turkey, Denmark, Ireland, the Middle East, or Sweden (one of two documents); soya beans as such have not yet been reported in any of these countries. This document contains the earliest date seen for soya bean 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.


* Summary: “Consul-General Edward H. Ozmun, of Constantinople, reports that the soya bean is not imported into that market in any form, although dealers in cotton-seed oil receive regular quotations for soya-bean oil from London, Hamburg, and Rotterdam, the prices ranging slightly lower than cotton-seed oil. He adds: The soya-bean oil has been tested here for cooking purposes with the intention of substituting it for cotton-seed oil if found satisfactory; but the tests have shown that the oil is not a good substitute, for it not only gives off an unpleasant odor while cooking, but spatters in such a violent way over the fire as to be positively dangerous to the person cooking, and as nearly all the cooking of food in this country is done over an open charcoal fire, there is great danger of a conflagration caused by the spattering oil taking fire. It has failed therefore to make any headway whatever in this market.”

Note: This is the earliest document seen (Dec. 2007) concerning soya bean products (soya-bean oil) in Turkey or the Middle East. This document contains the earliest date seen for soya bean products in Turkey or the Middle East (1909); soya beans as such had not yet been reported at that date. Address: Chief of Dep.


* Summary: This is part of a 96-page Times Supplement on “The Empire of Japan.” Contents: Introduction–The bean trade in Manchuria. Its introduction to European markets. The growth of exports. The home consumption remains large. Efforts to secure foreign markets. A word of caution. The trade in England (Total: 2,500 words).

“The history of the growth of the bean trade in Manchuria is as captivating as the story of the rise of Jack’s famous beanstalk of our nursery days. It reads more like a fairy tale than a page from the Board of Trade Returns.” “More than the ordinary amount of imagination is required to grasp the fact that the first commercial consignment of this crop was sent to Europe in 1906, and that the requirements for the coming season are estimated at a million tons.”

“The credit for the introduction of this useful article of commerce is undoubtedly due to Messrs. Mitsui and Co., the well-known Japanese financial and industrial firm, who sent their first trial shipment of beans to England in the winter of 1905-6. This consignment was not successful owing to imperfect packing. A second shipment met with better results and led to a succession of large orders. The beans were found to be valuable both for the extraction of oil... and also in the shape of cake for feeding cattle.

“Excellent biscuits have also been made out of one variety of these beans. The United Kingdom was at once able to take advantage of this newly-found import because of its admission free of duty, the high tariff on such produce precluding the Soya beans from access to Germany, France, and other Continental countries. So great was the demand that by the end of the season of 1908, the Mitsui Company had exported to Europe 200,000 tons of these beans... In the season of 1909 the sales to Great Britain alone are stated to have reached 400,000 tons, and several other important firms have entered the field, including the well-known firm of Samuel Samuel and Co."

“The growth of exports:... Figures supplied me by Messrs. Mitsui give the total exports for the season of 1908-9 (from the three ports of Dairen, Newchwang, and Vladivostok) at 788,916 tons and of bean cake (94 per cent. of which went to Japan) at 681,446 tons. Of the beans, 397,156 tons, or 51 per cent., went to Europe, 30 per cent. to China, and 19 per cent. to Japan.”

“The home consumption remains large:... In Manchuria the Soya bean is primarily used for the extraction of oil and for the manufacture of cake; it is also made into vermicelli and similar articles of food. Manchuria seems to have a natural monopoly in the growing of this bean for export. The other producing countries, Japan and Korea, require all they are able to raise for domestic consumption, whilst the production of the French possessions in Asia, of Asia Minor, and of West Africa is said to be neither large nor promising enough to be of much account for export. Down to the present time, the Soya bean has not been successfully produced elsewhere, though experimental efforts to grow this particular bean in other parts of the world are in progress.” Note 1. This is the earliest document seen (Dec. 2007) suggesting that soybeans may be growing or have been grown in Asia Minor [which is today the large eastern part of Turkey], or the Middle East. A similar and earlier, but weaker, suggestion appears in an article titled “The Ubiquitous Bean,” in the Manshu Nichi Nichi Shinbun (Dairen) of 25 Nov. 1909. That article states that “Asia Minor... produced something like Beans” [Soya Beans].

“Efforts to secure foreign markets: The Treaty Port of Manchuria half a century ago began the exports of beans, bean oil, and bean cake. It is strange that the potency of the little green bean–it looks more like a dried pea than the bean grown...
in England—which is furnishing three railway systems with freight, hundreds of vessels with cargoes, three ports with business, and starting up new industries in the North of England should have remained so long undiscovered by Europeans. Even now its advantages appear to have been forced upon the attention of England by a Japanese merchant who, failing his first efforts, made a second attempt to introduce the Soya bean into Europe.

“These beans raised by industrious Chinamen toiling incessantly for a few pence a day are generally brought to the river in carts and shipped in junks in the summer time, while in the winter they are often brought for miles along very bad roads by cart to Newchwang.

“After the building of the railways it was natural that these exports should gravitate more and more to the maritime outlets of these lines at Dairen, Vladivostok, and, to a lesser extent, to Newchwang, which last port, as will be seen in an article elsewhere in this issue, is still receiving the bulk of its consignments by means of junks and by carts. The Newchwang exports consisted of oil and cakes which were manufactured by the aid of numerous crude Chinese oil presses worked with mule power—the oil going to China and the cakes to Japan.

“As soon as the bean assumed an international importance, Newchwang lost its monopoly of the trade. As recently as 1907 almost all the beans available for export—namely, 120,000 tons—were exported via Newchwang. Of the 800,000 tons exported last year half went by way of Dairen, and the remainder from Vladivostok and from Newchwang. In the export of bean cake Newchwang still holds the first position because of her numerous Chinese oil presses, together with one modern factory.”

“A word of caution.” British merchants lured by the story of the rise of the Soya bean industry are warned that “it would be quite useless to start an office at some point like Dairen or Changchun in order to buy beans in the local market. The only way is to travel into the interior, to visit the country markets and to buy in small quantities for silver coins of low value, that is, 20 or ten cent pieces. The Chinese silver dollar is only worth 85 sen Japanese money, or 1s. 9d. [1 shilling, 9 pence], and 5 of the 20 cent silver pieces are worth about 2½d. less than the Mexican or Chinese dollar. The Japanese by purchasing the beans with the little silver coins obtain them cheaper than would be possible for an English firm which was paying for them in silver dollars. For some unaccountable reason, the Chinese producer prefers the small coin though its value is 10 per cent. less.”

“The trade in England: The soya bean now constitutes an important part in the Hull import trade... The imports into Hull last year were about 200,000 tons.” These large imports are likely to lead to a major decline in cottonseed imports. “The bulk of the soya beans imported into Hull are the yellow beans, and those engaged in the seed trade in the Hull district have a good opinion of the new bean. It is to the cattle grower, rather than to the oil trade, that the advent of the soya bean into this country is of importance, for the cake is cheaper than cottonseed cake and is at the same time richer in those constituents for which cake is used. The value of soya oil is also being widely recognized by soap manufacturers, and there is a notable tendency to employ it in preference to cotton oil. “The beginnings of an export trade from Hull with the Continent are now in evidence. A considerable quantity of soya cake has already been exported from Hull... Continental dairy farmers are now employing soya meal, with which, apparently, experience has been quite satisfactory.”

“With the breaking down of the prejudice of British farmers, which is gradually coming about, a real boom in the soya bean trade would appear to be imminent.

Note 2. This is the earliest document seen (June 2007) stating that Mitsui and Co. sent soybeans to Europe in 1906.


• Summary: “The principal export of Manchuria, and indeed of the whole of China, is the soya bean, which in its raw and manufactured states amounts to over 75 per cent of the value of the total exports of the Three Eastern Provinces. It would be no exaggeration to say, therefore, that the entire industry in this territory is concentrated on [soya] beans, their production, manufacture and barter. It is mainly the bean that provides the buying power of Manchuria, and stimulates its economic progress. From a primitive agricultural region Manchuria has developed along industrial lines mainly as a result of its stupendous [soya] bean resources.” Manchuria is “almost the sole supplier of soya beans to world markets. All attempts to cultivate beans out of China on any extensive scale have failed. ‘Beans’ is therefore always associated with Manchuria, and vice versa.

There are many soya bean varieties, but the yellow oliferous one (huang-tou) is the dominant variety; it is “subdivided into a number of kinds. The experimental field of the Manchurian Rural Economy Society cultivates no fewer than 200 varieties.”

Chinese official statistics, which are usually low, estimate the area under soya beans in the whole of China [including Manchuria] at 12 million acres. Statistics from the Economic Bureau of the Chinese Eastern Railway, in the C.E.R. zone (Heilungkiang and a part of Kirin province), yellow soya beans are planted over an area of not less than 4.3 to 4.4 million acres, or 25% of the entire cultivated area, while in all 3 of the provinces of Manchuria the Bureau estimates that there are 8 million acres under cultivation. On average in Manchuria, 1 acre yields about ½ ton of soya beans. Thus, the total average production of soya beans in the whole of Manchuria may be estimated at more than 4 million tons, of which about 2.4 million tons (about 60%) are exported in raw and manufactured articles.

Owing to the density of the inner provinces of China, almost all the soya beans there are consumed locally. “Inner
China looks not so much to the oil content of the bean as to the azotic stuffs [nitrogen] it contains. The export of soya beans and products from Inner China is very small and decreasing (5.5 million piculs in 1920 and 4.6 million piculs in 1922) while the exports from Manchuria continue to grow dramatically.

The world is now looking to the soya bean as one solution to its future food problems. Dr. Berczeller, a well-known Hungarian scientist, says: “It is a matter of the highest political importance that the West should learn the lesson of cheaper living as taught to them by the East in the adaptation of the soya bean as an article of food.” After prolonged investigation, he claimed to have succeeded in creating from the yellow soya bean bread, milk, and flour, which were both inexpensive and palatable. Yet the taste of many soybean products (such as “bean flour” and “bean cheese”) is unknown to Europeans.

“The extraction of oil from [soya] beans has as ancient an origin as the cultivation of the beans themselves. In the native Chinese mills it is still effected by means of the wedge press, the invention of which dates from the early days of the history of technics. The first steam bean-oil mill was opened toward the end of the last century at Yingkow [Yingkou]. At present such mills are counted in hundreds. Almost the entire bean oil export comes from steam mills. Several years ago the South Manchuria Railway Company erected a mill at Dairen for the extraction of oil with the aid of benzine. It is now under private management.” Using the solvent method, 12% of the weight of the bean is extracted as oil, using the steam mill only 19%, and using the wedges presses less than 10%. Recently, due to perfected methods of refining, an oil named “Atzetko, made at Harbin by the Anglo-Chinese Company, has begun to be used in food by Europeans.

Before World War I, the price of soya beans was much lower than today. Today the main consumer of beancakes is Japan, where they are used as fertilizer on the rice fields. There is now a dark side to the picture of soya beans in northern Manchuria. Manchurian bandits (hunghutze) are terrorizing and plundering the peasants.

Tables show: (1) Soya bean cultivated area and production in the three provinces of Manchuria in 1923: Kirin province (center east): 1.6 million shan (1 shan = 1.8 acres) produced 1.5 million tons. Heilungkiang province (furthest north): 1.2 million shan produced 1.5 million tons. Fengtien province (later renamed Liaoning, furthest south): 1.2 million shan produced 1.5 million tons. Totals for Manchuria: 4 million shan (7,200,000 acres) and 3,700,000 tons.

Note 1. This is the earliest document seen (March 2001) that gives statistics on soybean production in East Asia. (2) Export of soya beans and soya bean products from China proper. Source: 1922 Chinese Maritime Customs report. For the 3 years 1920, 1921, and 1922, gives the weight in millions of piculs (1 picul = 133.33 lb) and value in Hk. Tls. [Haikwan Taels; a monetary unit] of each of the following: Yellow [soya] beans: Grain [beans / seed], beancakes, bean oil, total. Black [soya] beans. Green [soya] beans. White [soya] beans. Other kinds. Total exclusive of yellow beans. Gross total. In percentages relative to 1920. (3) Exports from Manchuria only: Exactly the same years and products as Table 2. Note 2. One Haikwan Tael in 1920 equaled 6 shillings 6½ pence or $1.24 in gold coin; in 1922 it equaled 3 shillings 9 pence or $0.83 in gold coin.


(5) Net export of yellow soya beans from China in millions of piculs each year from 1920 to 1922: To Japan, To Dutch Indies, To Turkey, Persia, Egypt, etc. To Europe. To other countries. Via Vladivostok. Total. Note 3. Soya beans exported via Vladivostok are mostly directed to Europe (about 3 million piculs), with about 2.5 million piculs to Japan.

Note 4. In Table 5, “Turkey, Persia, Egypt, etc.” is treated as one unit or geographical area. In 1920 this area imported from China 0.4 million piculs of soybeans, followed by 0.7 million in 1921 and 0.3 million in 1922. Although we know the amount of soybeans imported to the area, we cannot say for sure to which specific countries the soybeans were imported in this area (Turkey and/or Persia). Therefore, this may be the earliest document seen (Dec. 2007) concerning soybeans in Turkey. This document may contain the earliest date seen (Dec. 2007) for soybeans in Turkey (1920-1922).

Note 5. This may be the earliest document seen (Dec. 2007) concerning soybeans in Persia (today’s Iran). This document may contain the earliest date seen (June 2007) for soybeans in Persia (1920-1922).

Note 6. This is the earliest document seen (Dec. 2007) concerning soybeans in the Middle East / Near East (Persia, and/or Turkey—today’s Iran). This document contains the earliest date seen (June 2007) for soybeans in the Middle East / Near East (Persia and Turkey) (1920-1922).

(6) Net export of [soya] beancakes from China in millions of piculs each year from 1920 to 1922: To Japan, To other countries, Via Vladivostok. Total. “Beancakes exported via Vladivostok are directed almost exclusively to Japan.”

(7) Net export of [soya] bean oil from China in thousands of piculs each year from 1920 to 1922: To Japan, To Dutch Indies, To Turkey, Persia, Egypt, etc. To Europe. To United States of America. To other countries. Via Vladivostok. Total. A note states that Bean oil exported via Vladivostok is mostly directed to Europe and to countries of Asia Minor. All the other kinds of beans are distributed mostly in Japan, Korea, and along the coasts and islands of the Pacific Ocean.

(8) Chemical composition [as-is basis] of the three main soya bean varieties cultivated in North Manchuria: White Eyebrow (pai mei). Round Gold (chin-yuan). Dark Belly (hei chi). (9) Weight (in millions of pounds) of soya beans and products carried on the Chinese Eastern Railway in 1920, 1921,
7,200,000 acres, and production 3,700,000 tons” (see beans acreage in Manchuria, however, was estimated at production of soy beans in China proper are lacking. The soy the production of soy beans. Statistics on acreage and 24 is titled “Soy beans.” It begins: “China leads the world in agriculture. PhD thesis, Cornell University, Ithaca, New York. 514 p. June. See p. 420-23. [2+ ref] • Summary: In Part V, Chief Agricultural Enterprises, chapter 24 is titled “Soy beans.” It begins: “China leads the world in the production of soy beans. Statistics on acreage and production of soy beans in China proper are lacking. The soy beans acreage in Manchuria, however, was estimated at 7,200,000 acres, and production 3,700,000 tons” (see Chinese Economic Bulletin No. 156, p. 9 {16 Feb. 1924}). “During the period 1891-1904, exports of soy beans and soy bean products were almost entirely absorbed by Japanese markets. The Russo-Japanese was in 1904 and 1905 stimulated the production of soy beans in Manchuria. After the war, the surplus beans had to be disposed of in some markets, and for the first time trial shipments were made by Japanese firms to English mills in 1908... During the period 1909-1922, acreage and production of soy beans increased by leaps and bounds” [in the USA].

The chapter then lists five major reasons that soy beans have become so important in China: “1. Soy beans thrive in a variety of climatic conditions. They do well in dry seasons and at the same time do not reduce greatly in yield in a wet season. 2. Since they are a leguminous crop, soy beans are grown to maintain soil fertility... 3. Soy beans have a high food value in comparison with other foods. They are especially rich in protein... 4. Many by-products are made from soy beans, including bean oil cake, bean meal, bean flour, bean bran, bean sprouts, bean coffee, bean milk and bean curd. Because of the large range of by-products that have been made, the price of soy beans has become stabilized... 5. Further expansion of soy bean production possible when North Manchurian lands are brought under cultivation.”

Table 45 (p. 422) shows China’s exports of soy beans, bean cake, and bean oil for the years 1913, 1920, 1921, and 1922 in piculs (133.33 lb) and taels (a monetary unit). Each of the three increased during this period which included World War. 1. In 1922 exports of bean cake were worth the most, followed by soy beans and bean oil. Soy bean exports grew from 7,419,511 piculs in 1913 to 12,462,350 piculs in 1922. [Soy] bean oil grew from 49,817 piculs in 1913 to 12,294,006 piculs in 1922.

Table 46 (p. 423) shows the weight and value of these three products exported to various countries. Beans are mostly exported to Russia, Japan, and the Dutch Indies (in that order). Bean cake is mostly exported to Japan (86% of the total) and Russia. Relatively little bean oil is exported: it goes mainly to the “Turkey, Persia, Egypt, etc.” [grouped as one unit] (380,000 piculs), Russia (250,000 piculs), Great Britain (246,000 piculs), the Netherlands (201,000 piculs), and the United States (116,000 piculs).

Note: This is the earliest English-language document seen (May 2003) that uses the term “bean bran” to refer to soy bran. Address: Cornell Univ., Ithaca, New York.

6. Samim, Vasfi. 1932. Zur Kenntnis der Einwirkung verschiedenartig entfetteter Sojaschrote auf das Blutbild des Rindes [Toward a knowledge of the influence of various types of defatted soybean meal on the blood of cattle]. Inaugural-Dissertation, Doctor medicinae veterinariae, Tierarztlische Hochschule, Berlin. 63 p. [53 ref. Ger] • Summary: The author conducted investigations into the toxicity of soybeans and soybean meal. He concluded that when the oil is extracted with benzine, benzol, alcohol, or carbon tetrachloride, the meal or cake is harmless, but when trichloroethylene is used, the soybean meal or cake can be toxic. Leucopenia with lymphocytosis is induced in cows which had consumed 2 to 6 kg of meal of cake during a period of 4 to 8 weeks. Address: Berlin; Presently Constantinople = Istanbul, Turkey.

7. Enver, Ismail. 1933. Beitrag zur Kenntnis der Einwirkung verschiedenfach entfetteter Sojaschrote auf das Blutbild bei Haustieren [Contribution to an understanding of the effect of various types of defatted soybean meal on the blood composition of domesticated animals]. Inaugural-Dissertation, Doctor medicinae veterinariae, Tierarztlische Hochschule, Berlin. 51 p. [67 ref. Ger] • Summary: This is a study of the influence of extracted soy meal on the blood formation (blutbild) of domestic animals. It includes a general section on the soybean which brings out its importance and value and some of its uses in various countries. Effects of extraction with trichloroethylene and carbon tetrachloride are compared by means of rabbits and guinea pigs. The blood picture is not appreciably altered by the use of these solvents. Address: Dedeagac, Turkey.

8. 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. In 1929, the peak year, 104,606 gallons were imported. The leading supplier was Japan, followed by Hong Kong. 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 and soya bean oil (p. 300). Imports of peanut oil and soya bean oil (p. 300). 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). Imports of peanut oil and soya bean oil for the manufacture of soap, and peanut oil for canning fish (p. 342).

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.


- **Summary**: “12. Turkey. Soya growing is not yet very widespread. Trials in aclimatization are chiefly carried out by the Plant Improvement Institute of Yesilkoy-Istanbul. The principal regions of cultivation are on the coast of the Black Sea, in Thrace and in the Adana region.

“Native varieties have no known names. Lately [sic, Lately?] the varieties Reiner Ossiek and Kleine gelbe ungarische have been introduced from Rumania.

“Yields in seed obtained with these varieties amount to 1400 and even 1800 kg per hectare on the coast of the Black Sea, and from 600 to 800 kg in Thrace. At present, soya is used for human food and also for feeding livestock. It is hoped that in time exportation will be possible, also industrial utilization.”

Note: This is the earliest document seen (Dec. 2007) concerning the cultivation of soybeans in Turkey or the Middle East. This is the 2nd earliest document seen (June 2007) concerning soybeans in Turkey. Address: Rome, Italy.


“7. Palestine. Soya cultivation is not practised in this country though trials have been made at the Mikweh Israel School at Jaffa, but with very little success. A few variety trials were made in 1935 at the Experiment Station of the Department of Agriculture, but no satisfactory results were obtained.”

“2. Hawaii–Soya growing was introduced in 1908 at the Experiment Station of Honolulu. It is grown at present only on a very small scale. Trials in adapting varieties are carried out by the Agronomical Division of the Experiment Station of the University of Hawaii, Honolulu.

“No native varieties are grown. The foreign varieties came from the United States, the principal being: Biloxi, Mammoth Yellow, Tokio and a few varieties utilised for green vegetables... The yields vary between 600 and 1200 lbs. of seed per acre.”

Note 1. This is the earliest document seen (Dec. 2007) concerning soybeans in Israel (though it was not named Israel until 1948), Morocco, and Palestine, or the cultivation of soybeans in Israel, Morocco, or Palestine.

Note 2. This document contains the earliest date seen (Dec. 2007) for soybeans in Palestine / Israel, or the cultivation of soybeans in Palestine / Israel (1935; one of two documents). The source of these soybeans is unknown. Address: Rome, Italy.

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.


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.


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, onjom, tempeh morini and tempe kedele [various types of tempeh and onchom, p. 168-70]), tao tji [Indonesian-style miso], tao dfi [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 albumen, 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, bufaloes, 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 (Cyrenaïque, 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 onjom 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.
SOY IN THE MIDDLE EAST (c) Soyinfo Center 2008


**Summary:** “The information furnished in this Inventory of Cultivated Crop Plants, which was asked for by the Conference of Colonial Directors of Agriculture held in 1931, is based on the replies to a questionnaire issued by the Director of the Royal Botanic Gardens, Kew, and forwarded by the several Departments of State concerned to all Tropical and Sub-Tropical countries of the British Empire and to the Anglo-Egyptian Sudan. A copy of this questionnaire, together with the explanatory notes and covering letter, is printed as Appendix B to this publication. The information thus furnished has of necessity had to be condensed. There may be, and probably are, numerous errors. The officers who have made these returns may not in some cases have had the necessary facilities to enable them definitely to determine the species of the plant referred to, nor have they always the knowledge requisite for the task.”

“Where the actual date of an introduction, and the country from which the plant was introduced are known, these are shown in brackets after the name of the country concerned.”

A major part of the book is titled “List of Cultivated Crop Plants,” arranged by Genus name. Pages 85-86 discuss Glycine Linn. Leguminosae.

*Glycine max* (Linn.) Merr. Known as “Gari kalai” in Bengal, “Pe-ngapi” in Burma, “Vilayati Chowra” in Sind, and “Kachang sapon” in Malay. “There appear to be two types; the northern type whose seeds are rounded in shape and often light colored and which grow on an erect plant, and the more tropical type which has a flattened seed, often dark colored, on a plant with a definite trailing habit.

(a) Indigenous or an early introduction in Burma, Sarawak [joined Malaysia in 1963], and the United Provinces [became a state of India, Uttar Pradesh, in 1947].

(b) Successfully introduced in Assam, Bahamas, Bengal (many varieties), Bihar & Orissa, Fiji, Hyderabad, North-West Frontier [became part of Pakistan in 1947], Queensland, South Africa, Southern Rhodesia, S.S. & F.M.S. [Straits Settlements & Federated Malay States; later Singapore and Malaysia] (by Chinese), Uganda (occasionally), W. Australia (occasionally).

Note 2. This is the earliest document seen (Jan. 2000) that clearly refers to soybeans in Southern Rhodesia or the cultivation of soybeans in Southern Rhodesia. Note 3. This is the earliest document seen (July 2007) that clearly refers to soybeans in Fiji or the cultivation of soybeans in Fiji.

(c) Still under trial or established on an acclimatisation station in Baroda [India], Bermuda (as a green manure), Bombay, British Guiana [later renamed Guyana] (1905; Venezuela, 1913; Trinidad, 1927), Central Provinces [India], Cyprus, Grenada, Kenya, Madras, Mauritius, Mysore (2 varieties from Java are promising), New Guinea (black and white seeded kinds), Nigeria (from U.S.A. and Fiji), Northern Rhodesia, Nyasaland, Punjab, St. Kitts, St. Lucia (Trinidad, 1925), St. Vincent, Seychelles, Sind [became part of Pakistan in Aug. 1947; capital is Karachi], Anglo-Egyptian Sudan, Tanganyika Territory, Trinidad.

(d) Introduced, but the cultivation has subsequently disappeared or has been abandoned, in Basutoland (abandoned as the seed shatters badly), Ceylon, Dominica.

(e) Introduced but has failed to become established in Antigua, Gambia, Gold Coast [Ghana] (Russia, 1929), Montserrat, North Borneo, Palestine, Sierra Leone (S. Russia, 1913; Botanic Garden, Regent’s Park, England, 1928).

Pages 201-04 give a detailed description of Glycine max including: Introduction, plant habit, leaves, flowers and fertilisation, fruit, seeds, conclusion.

Note 4. This is the earliest document seen (Dec. 2007) concerning soybeans in The Bahamas, Basutoland (later renamed Lesotho), Palestine, the Seychelles, Saint Kitts and Nevis, Saint Lucia, or Saint Vincent and the Grenadines, or the cultivation of soybeans in The Bahamas, Basutoland, Palestine, the Seychelles, Saint Kitts and Nevis, Saint Lucia, or Saint Vincent and the Grenadines. This document contains the earliest date seen for soybeans in The Bahamas, Basutoland, the Seychelles, Saint Kitts and Nevis, Saint Lucia, or Saint Vincent and the Grenadines, or the cultivation of soybeans in The Bahamas, Basutoland, the Seychelles, Saint Kitts and Nevis, Saint Lucia, or Saint Vincent and the Grenadines (1936 or before). The source of these soybeans is unknown.

Note 5. This is the earliest document seen (Dec. 2007) concerning soybeans in Cyprus, or the cultivation of soybeans in Cyprus. This document contains the earliest date seen for soybeans in Cyprus, or the cultivation of soybeans in Cyprus (1936). The source of these soybeans is unknown. However another document published the same year contradicts this claim: Institut International d’Agriculture (International Institute of Agriculture). 1936. Le soja dans le monde [The soybean in the world] (which see). Unfortunately, Sampson gives no details about the soybeans said to be cultivated in each country.

Note 6. This document contains the earliest date seen for soybeans in Guyana, or the cultivation of soybeans in Guyana (1905). The source of these soybeans is unknown.

Note 7. This is the earliest document seen (July 2007) concerning soybeans in New Guinea, or the cultivation of soybeans in New Guinea. This document contains the earliest date seen for soybeans in New Guinea, or the cultivation of soybeans in New Guinea (1936 or before). However New Guinea is an island (the second largest in the world, after
Greenland), which (as of 2007) is administratively divided into Western New Guinea, a province of Indonesia (formerly known as Irian Jaya and formerly part of the Dutch East Indies) on the West and the independent country of Papua New Guinea (formerly British New Guinea) on the east. Since this is an article about plants of the British Empire, the soybeans were almost certainly grown in what is today Papua New Guinea.

Note 8. This document contains the earliest clear date seen for soybeans in Sierra Leone, or the cultivation of soybeans in Sierra Leone (1913) (one of three documents). The source of these soybeans was probably South Russia via Great Britain.

Note 9. This is the earliest document seen (March 2006) that clearly refers to soybeans in Northern Rhodesia (later Zambia), or the cultivation of soybeans in Northern Rhodesia. This document contains the earliest clear date seen for soybeans in Northern Rhodesia, or the cultivation of soybeans in Northern Rhodesia (1936 or before). The source of these soybeans is unknown.

Note 10. This document contains the earliest date seen for soybeans in Venezuela, or the cultivation of soybeans in Venezuela (1913). The source of these soybeans is unknown. Soybeans were probably being cultivated in Venezuela in 1913, but we cannot be certain from this document.

In 1905, Jos. Burtt-Davy, government agrostologist and botanist in Transvaal, South Africa, (p. 261): “On January 1st Mr. H.C. Sampson, B.Sc., was transferred from the Education Department to be my assistant for Seed and Plant Introduction.” Address: Economic Botanist, Royal Botanic Gardens, Kew; Indian Agricultural Service, Retired.

14. Salgues, René. 1937. Étude agronomique et chimique de quelques variétés de Soja, cultivées en France [Agronomic and chemical studies on some varieties of soybeans grown in France]. Revue de Botanique Appliquée & d’Agriculture Tropicale 17(194):724-37. Oct. [1 ref. Fre] • Summary: The author has conducted soybean trials with various varieties since 1921 in the region of Brignoles, France. Some of the best studies on soya in France have been written by Mlle. Marie-Thérèse François, Professor at the Faculty at Nancy, France. They appeared during 1935-36 in the Actes et Compte-rendus de l’Association Colonies Sciences. A table gives statistics for the world’s principal countries importing and exporting soybeans and soy oil, during 1925-29, 1932, 1933, and 1934.


An analysis of the chemical composition of the seeds of most of these varieties is given on p. 722, and a detailed analysis of the oil of six varieties is given on p. 733.

Details on large scale cultivation of 11 other varieties of soybeans at Vaucluse are also given (p. 734-36). The variety names (in French) are: Jaune de Pologne, Soja brun, Soja saumon, Mandarin, Hato tacheté noir, Vert monstre, Hato noir, Tokyo noir, Sun Yat Sen, Mandchou [Manchur]. 206 vert. For each is given: Color of the seeds, color of the pods, density, yield in 100 liters per hectare, yield in kg/ha, weight of 1000 seeds in grams, number of seeds per kg, seedling rate (kg/ha), number of times the seeds were harvested.

A final section on soymilk gives the composition of soymilk made by the author from 5 varieties of soybeans.

Note: This is the earliest document seen (Dec. 2007) concerning soybeans in Lebanon, and (probably) the cultivation of soybeans in Lebanon. This document contains the earliest date seen for soybeans in Lebanon, or the cultivation of soybeans in Lebanon (1924, probably). The source of these soybeans is unknown. Large green soybean seeds were sent from Beirut to France in 1924. Address: Fondation Salgues de Brignoles (France) pour le developpement des sciences biologiques.

15. Dominion Bureau of Statistics, Ottawa, Canada. 1937. Imports for consumption: Agricultural and vegetable products. Trade of Canada. Fiscal year ended March 31. • 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 the 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. Address: Ottawa, Canada.


• 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 meal 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.


In 1889 Beverly T. Galloway, head of USDA's Division of Plant Pathology, brought David Fairchild, age 19, to Washington, DC, to join five plant pathologists who were working in attic rooms of the old red brick department building. P. Howard Dorsett, Galloway’s Wisconsin classmate, soon joined the group. Soon shy and scholarly Walter T. Swingle, Fairchild’s Kansas State classmate and close friend since their student days in Germany, arrived with his growing library of agricultural references in 5 or 6 languages. Seeking an opportunity to learn about the flora of foreign countries, Fairchild accepted a Smithsonian fellowship to study entomology in Naples, Italy, and resigned from the USDA. Fairchild’s pioneering work with plant introduction traces its roots back to late 1893. On board a ship, the young plant pathologist met Barbour Lathrop, a wealthy San Francisco gentleman who later took him on an extended tour of the Pacific and showed him fruits, grains, and ornamental plants that could be valuable in America. In 1895 Lathrop gave Fairchild the money to begin his study of the plant treasures of the tropics. Returning to the USA in 1897 (with Mr. Lathrop), after an absence of 4 years, David Fairchild knew exactly what he wanted to do with his life. He visited his parents in Manhattan, Kansas, and learned that a wave of “Populism” (resembling Bolshevism) had caused his father to resign as president of the college (p. 105). In August 1897 he reached Washington, DC—without a job. James Wilson, the Secretary of Agriculture, firmly believed that “what agriculture needed most was more knowledge.” “The idea of plant introduction as a government activity was germinating in other minds besides Lathrop’s and mine” (p. 106). Secretary Wilson’s first act after taking office had been to send N.E. Hansen to Russia in search of cold-resistant cereal grains and fruits for America’s great plains. Swingle has recently presented a paper on introducing subtropical plants to Florida.

Fairchild and Swingle conceived a plan to divert $20,000 dollars of the funds appropriated for the wasteful
Congressional Seed Distribution Service (which was already spending several hundred thousand dollars a year) in order to finance a section for the specific purpose of introducing new, useful, and carefully selected crops into the United States. He enthusiastically presented the idea to Secretary Wilson, who approved the plan and asked him to organize the new Foreign Seed and Plant Introduction Section (p. 107). Housed on the fifth floor under the eaves of the old Department of Agriculture building and staffed by one teenage secretary, it became a reality when Congress passed the revised appropriation bill in July, 1898.

“In 1899, all that existed of the Department of Agriculture was housed in an ugly old building with a mansard roof topping its red-brick walls. It was situated in a park south of Pennsylvania Avenue, just beyond one of the most disreputable quarters of the city” (p. 18).

In 1916 David and Marian Fairchild purchased a piece of property located in Coconut Grove on Biscayne Bay, Florida; they named it The Kampong. On the property was a very old stone barn, a huge stone entrance gate, and many fine old tropical trees (p. 452-53, 456A, 472C). A Kampong is a Malay word (first used in English in 1844) meaning “a native hamlet or village in a Malay-speaking country.”

Good photos show: (1-4) Members of the USDA Section of Plant Pathology taken in the early 1890s: Walter T. Swingle, Joseph James, David Fairchild, Theodore Holm, Beverly T. Galloway, Merton B. Waite, and P. Howard Dorsett (p. 26A-B). (5) Barbour Lathrop and David Fairchild in the cabin of a boat, off Sumatra, Christmas, 1895. (6) The uniform of a worker at Mr. Suzuki’s nursery in Tokyo, Japan. The back is decorated with large Chinese characters. (5) Fermentation vats with conical bamboo covers in a soy sauce factory at Ichang (I-ch’ang or Yichang), a city in west Hupeh / Hubei province with conical bamboo covers in a soy sauce factory at Ichang. (5) Barbour Lathrop and David Fairchild in the cabin of a boat, off Sumatra, Christmas, 1895. (6) The uniform of a worker at Mr. Suzuki’s nursery in Tokyo, Japan. The back is decorated with large Chinese characters. (5) Fermentation vats with conical bamboo covers in a soy sauce factory at Ichang (I-ch’ang or Yichang), a city in west Hupeh / Hubei province in Central China (p. 256F, probably taken by Frank N. Meyer in 1917). (6) page shows “A prolific Soy Bean plant ripe for harvest” and loaded with pods (p. 256F). (7) David Fairchild (seated) and Howard Dorsett (standing), each in two-piece suits, by at a desk, examining various fruits (p. 472A). Address: USDA.

• *Summary:* This bibliography was compiled under the direction of Mary G. Lacy, librarian at the Bureau of Agricultural Economics. Contents: Foreward, 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, Indochina, 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.

• *Summary:* “Leaf rust of soybean was reported in a list of field crop diseases in Palestine (from AVRDC 1992, #322).


• *Summary:* Contents: Introduction. 1. The agricultural, industrial, and commercial history of soya: Asiatic origins and propagation in Europe, soya in America (its cultivation and industries), soya in Europe, Asia, Africa, and Oceania (1936) (1. Admission of soya in the agriculture and industry of European nations (p. 35): Soya in France, soy industry and commerce in central and northern Europe {England, Germany, Holland, Denmark, Sweden, Poland, Austria and Hungary, Switzerland), penetration of soya into southern Europe {Iberian peninsula, Italy, Balkan countries of Dalmatia, Istria, Yugoslavia, Greece (p. 47), Bulgaria, Romania, Ukraine}, the grandeur and decadence of soya in Russia. 2. Soya in modern Asia (p. 51): China and Manchuria, Japan, Korea, Formosa, French Indochina {Tonkin, Cambodia, Cochin China}, the
British and Dutch Indies (Siam, Assam, Bengal, Burma, Ceylon, India, Straits Settlements [later Singapore] / Malacca), western Asia (Turkestan, Persia (p. 57)). 3. Soya in Africa and Australia (p. 57-58): South Africa, Rhodesia, Nigeria, Gold Coast (later Ghana), Cote d’Ivoire, Dahomey, Togo, Algeria, Tunisia, Morocco, Egypt, Australia (Queensland, New South Wales, Victoria), Tasmania, New Zealand, not yet in British New Guinea (later Papua New Guinea), Philippines, Java.

2. The botany and agronomy of soya: The plant, its names, its botanical characteristics, its varieties (original and created by selection), the cultivation of soya. 3. The general chemistry of soya: Chemical composition of the plant, structure and chemical composition of the beans. 4. Using soya in soyfoods and soyfood products: Whole soybeans (fresh, dry, sprouted, roasted and salted (Fève grillée, fève salée de soja, fèves de soja salées, p. 166-67), soynut butter (un mélange rappelant les beurre végétaux), soy coffee, soy confections, soy chocolate, soy sprouts), soymilk and tofu (le lait et le fromage de soja), okara (pulpe résiduaire de la préparation du lait de soja), fermented soy products (solid, paste, and liquid condiments; natto, miso, and shoyu [soy sauce]; kiu-tsee and lactic ferments), soy flour and bread. 5. The soy oil industry and products derived from it: Extraction and refining of soy oil, properties and use of soy oil. 6. The vegetable lecithin industry: Extraction of vegetable lecithin, properties and use of vegetable lecithin. 7. The vegetable casein industries and plastic materials based on soya: Soybean cakes and flours from which the oil has been removed, use of such cakes and flours, in the crude state, as a raw material for plastics, manufacture and use of vegetable protein, soybean cellulose for artificial silk, soya furfural and furfuraldehyde (phenolic resins).

Conclusion: How to launch soya industries in France. Important terms:

Note 1. This is the earliest French-language document seen that uses the terms Fève grillée, fève salée de soja, or fèves de soja salées, “roasted soy beans” to refer to soynuts.

Note 2. This is the earliest French-language document seen (April 2005) that mentions soynut butter, which it calls un mélange rappelant les beurre végétaux. Address: France.


**Summary:** “Western Asia—Only a few permanent crops are mentioned, already there for a long time or propagated by the Russians, in the plains of Turkestan [see p. 48], and of trials, conducted rather out of curiosity, in Persia.”

Note 1. This is the earliest document seen (Dec. 2007) that clearly refers to soybeans in Persia, or the cultivation of soybeans in Persia [renamed Iran in 1935]. Unfortunately, only the very brief statement quoted above is given.

Note 2. Turkistan or Turkistan is an historical region of central Asia, usually thought to comprise Turkmenistan, Uzbekistan, Kyrgyzstan, Tajikistan, southern Kazakhstan, western China, and northeastern Afghanistan. Notice that it does not include today’s Turkey. Address: France.


**Summary:** The author presents herself as a glamour girl, who lives in Miami, Florida. She is “Your ‘Mystic Pot, with herbs and spice. I charm your meals and make them nice.”

“Foreword: You must have wondered how the Movie Stars keep so glamorous, vivacious, young-looking and slender, they seem more like gods and goddesses that real people. No wonder they are fairly worshipped by the Movie Fans! This book will disclose to you the beauty secrets of the Movie Stars...” The key is a healthy diet and herbs.


Also discusses: Garbanza pie crust (p. 36, 212). Electric vegetable juicer (p. 68). Importance of alkaline diet (p. 68-69, 238-39, 388-91). A table (p. 101), titled “Raw nut butters, lists 12 types: “Peanut, butternut, lychees, almond, pecans, pignolia nut, pistachio nut, paradise nut, cocoanut, hazelnut, beechnuts, cashew, walnut, chestnut, Brazil nut, and sesame tahini. Note: These butters are sold at the fancy grocer’s or Health Food Stores.” Note: This is the earliest English-language document seen (Aug. 2007) that mentions “tahini” or “sesame tahini”—a smooth paste of sesame seeds. According to Webster’s Dictionary, the word “tahini” comes from the Turkish tâhin and was first used in English in about 1899.


Glamour guide (p. 360-61). Planetary foods and menus (by astrological sign, p. 277-341). Tables showing the best food sources of various vitamins and minerals (p. 365-417).
In the chapter titled “Snacks and Beverages” is a recipe (p. 76-77) for a Date and goat’s milk shake, which is “better than any soda treat” and which calls for use of an “electric blender.” The recipe for “Orange honey nanny shake” (p. 77) states: “For a more frothy drink, whip with electric blender...” See recipe for soymilk made from soy flour. Recommends buying foods and herbs in health food stores.

In the section titled “Recognition and gratitude” (p. 392) near the end of the book, she thanks “Henry Lindlahr, M.D.,” “Otto Carqué, Mausert, M.D.,” and many other lesser-known people.

Talk with Akasha Richmond. 2004. June 5. Akasha has been able to find out very little about the author of this book, who she thinks self-published it. Although she lives in Florida, she talks about “glamour girls” and Hollywood. Address: 1265 S.W. 11th St., Miami, Florida.


• Summary: Collection No. 1107. Repository: UCLA Library, Dep. of Special Collections, Los Angeles. Physical location: Stored off-site at SRLF (Southern Regional Library Facility). Please contact UCLA for paging information.

“The Meals for Millions Foundation of Los Angeles was a non-profit organization dedicated to the eradication of hunger in the world through ‘three-cent meals.’ The plan for such a program was formulated by Clifford Clinton (of Clifton cafeterias in Los Angeles, California), who, with the assistance of Dr. Henry Borsook of Caltech organized the foundation in the 1940s. The basic product of the foundation, known as Multi-purpose Food, was a tasteless additive that could be mixed with virtually anything. Developed by Dr. Borsook, MPF was said to provide one-third of the daily vitamins, minerals, and protein needed by the average adult.

“Shortly after setting up the Foundation, Clinton brought in Florence Rose and Ernest Chamberlain to be co-directors and take over the day-to-day management. This collection or archive consists primarily of the office and personal files of Miss Rose, most of which she rescued from destruction when Meals for Millions began to change course in 1965. Florence Rose left the Foundation at that time and was then associated with Investors Overseas Services until her death in 1969.

“The collection came to UCLA indirectly (via Smith College) from Ernest Chamberlain, close friend and confident of Miss Rose. The files have been alphabetically listed and their arrangement retained as originally filed. Consequently, a great deal of duplication exists throughout and the interrelationships of materials are often cloudy at best” (Quoted from the Biographical narrative on the website, July 2007).

Boxes 38 to 47 are MFM projects in foreign countries or regions, listed alphabetically: Africa, Alaska, Argentina, Bolivia, Brazil, Ceylon, Chile, Finland, Germany, Haiti, Honduras, Hong Kong, Hungary, Iceland, India (5), Indonesia, Israel, Japan, Korea, Lebanon, Mexico, Pakistan, Paraguay, Peru, Philippines, South Vietnam, Taiwan, Tanzania, Thailand, Uruguay, Vietnam. Box 48 is oversize materials. Address: Los Angeles, California.


• Summary: At the Agricultural Institute of Ankara, in the course of a series of investigations which also pertain to the nutritional value of gourds and squash, beetroots, cottonseeds, peanut milk etc., soya was also studied. It was fed to flocks of poultry, mixed with dried clover. An analysis of the dry beans shows that they contained: protein 36.71%, fats 14.9%, cellulose 4.32%, non-nitrogen extract 25.07%; the starch equivalent approached 100%. Because of the high digestibility of their protein (34.94%), soybeans were declared superior, for raising livestock, to the other legumes produced in Turkey.

Note: This seems to imply that soybeans were being grown in Turkey at the time, but we cannot be sure. Address: 1. Prof. Dr. Ziraikimya Professor; 2. Doc. Dr., Ziraikimya Doçenti. Both: Turkey.


• 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 per 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.


• 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 soya 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 soya bean 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 Mährren [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 Wölker, 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 soya bean 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 soya bean 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.


• Summary: In 1928 a breeding station was opened for the CSR by Dr. Georg Hanreich at Wositz in south Mähren [Moravia] and on the existing steam mill (Dampfmuehle) a soya factory (Soja-san) was constructed.

Also in 1928 the experiences with soybean culture in Austria were self-published in a brochure by Brillmayer-Drahorad entitled Die Sojabohne, ihre Bedeutung, Kultur, und Verwendung. J. Helmus translated this brochure into Dutch under the title Soja-Cultur, een National Belang. It was published by Ten Hagen’s Drukkeriy en Uitgevers Mij, den Haag.

In 1931 Dr. Drahorad was asked by the Turkish government to take charge of growing the first Austrian-bred soybean seeds they had purchased. He received a leave of absence and traveled via Constantinople to Samsun on the Black Sea. The growing went smoothly, despite floods which the soybeans survived miraculously. The growing area was steadily expanded.

“Two or three years later [in about 1933 or 1934] a man was sent to visit me by the Shah of Persia to buy Austrian-bred soybeans. Astonished, I asked him how the Shah came to know about Platt in Lower Austria. He answered that the director of the sugar factory in Alpullu, Turkey, while visiting the Shah, spoke so enthusiastically of the success of the soybeans bred in Platt, that the Shah decided to send a buyer to Austria for soybeans and to Germany for fodder turnipseeds (Futterruebensamen; Brassica rapa). According to reports of the Director of the Agricultural Academy in Tehran, Dr. E. Gauba, the soybean cultures are growing nicely there.”

In the early 1930s, because of the propaganda in Austria, there was much interest in growing soybeans, especially among the small farmers of the Alpine districts who did it on a trial basis. Some got good results; some were disappointed. Here and there large operations started. Enthusiastic letters arrived; most wanted to sell the harvest at a high price as seeds, which hurt expansion of the crop as it was too expensive for industry to buy. In those days, Austria was flooded with low-cost soybean meal (Sojaschrot) for fodder use, so there was little stimulus for home production of soybeans. They could not sell for more than the cost of production. The production of soybeans for seed in Austria was only about 1,000 kg/year.

“Meanwhile in Germany agronomic trials were conducted, especially in Lower Silesia (Niederschlesien), where the Platt Yellow Giant ripened. There were also good results in Schleswig, and in Westfallen the crop became established. On the average in these days, we delivered seeds for trials to about 100 operations each year.

“In 1932, because of a tax on the license for the multiplication and selling of seeds inside Germany, the way was paved for dealings with Delitzsch Rapeseed Breeders, Inc. in Delitzsch [near Leipzig]. But it was broken off at a discussion in Berlin. The next year brought unification, and then in Delitzsch I started the first breeding nurseries (Zuchtgärten) and helped with many operations in the area to build seed multiplication fields.

“In 1934 the Soja Cultur en Handelmaatschappij Nederland NV was founded in Voorburg, Holland. It bought soybeans from Austria but the climate was not very favorable and the organization had little drive.

“In 1935 Mr. A. Dieckmann from Heimburg am Harz came to Platt to see the soybean breeding operation and fields, and for negotiations on selling breeding material in Germany. Dieckmann had already, years ago, conducted soybean trials. The negotiations came to no conclusion and he ended up acquiring breeding material for Heimburg from Professor Dr. G. Riede in Bonn, Director of the Institute of Plant Culture and Breeding (Pflanzenbau und Pflanzenzuechtung). I was invited to Heimburg and helped with the establishment of the first breeding nurseries.

“At the same time [in 1935] the Department of Agriculture of the Greek government purchased a large amount of soybean seeds. Despite enquiries, no news could be obtained concerning their success.

“In 1936 a finance group in Paris took an interest in soybeans from Platt. A delegation consisting of Messrs. Leplanquais, van der Weyde, and Rousseau came to Vienna to inspect the breeding and seed multiplication operations, as well as Dr. Winkler’s processing factory (Veredlungsfabrik). On the best of terms—which still exist today—a corporation was
founded named SAIS (Société Agricole et Industrielle du Soja, S.A.), with capital of 1 million francs. The headquarters were in Casablanca, French Morocco, with a central bureau in Paris. “At St. Sylvain d’Anjou near Angers in the Loire valley they bought land and planted Austrian soybean seeds. I traveled to Germany four times a year for the establishment of the breeding nurseries, observation of the vegetative stage, harvest, and working up of the material. The successes were encouraging.

“At the same time (1936) a large planting of soybeans in Morocco was planned. According to climatological data obtained from several weather station in Morocco, Dr. Drahorad and Dr. Kopetz in Vienna came to the opinion that the weeks between Christmas and New Year would be a good time for planting.” But there were delays. In 1936 or 1937 the director in Morocco ordered 15,000 kg of Platt Yellow Giant and inoculum, via Casablanca. All went well with the shipment—but then there was no rain. The seeds sprouted, then withered under the Moroccan sun. Not a single seed was harvested.

Thereby SAIS lost half its capital. They planted smaller plots the next year. Brillmayer was supposed to supervise it and fly to Casablanca, but the Spanish Civil War prevented him from getting a visa at the French embassy in Vienna. So he guided the crop by remote control from Austria in an exchange of airmail letters and photos. The crop succeeded in Austria.

During the German occupation of France, Brillmayer was called to France to continue the breeding work done earlier. How was he, assigned as a military commander for France, to do large scale propaganda encouraging French farmers to grow soybeans. The breeding nurseries were established in the south of France at Lamagistere on the banks of the Garonne. Colonel Fauché was in charge. The original SAIS was rebuilt during the war; the group Beauvois Freres entered. General Médecin Saurel was its president. The soybeans prospered, and acreage was expanded into the provinces near the French-Spanish border: in Basses Pyrennées, in the valley of the Adur, in Tarn et Garonne, and in Lot et Garonne. By the time of the American invasion (June 1944), several thousand hectares were planted with Austrian soybean varieties.

In 1937, a Sojaring, consisting of Austrian soybean growers, was founded in Vienna to represent their interests. (In 1947 its headquarters were at Schauslergasse 6, Wien 1, Austria). In 1939 two new soybean varieties were introduced, Angerner and Wolfsthaler. Much good work was done and the area planted in soybeans expanded from 68 hectares (ha) in 1937 to 654 in 1938, to 1,527 in 1940, to 2,461 in 1944. Likewise, the number of participating farm operations grew, from 16 in 1937 to 868 in 1944. From small beginnings—from a matchbox of seeds—a considerable soybean growing movement had arisen in Austria. The main producing area was Lower Austria (Niederösterreich), which produced a peak of 803 tonnes in 1940. Next was Vienna, then Kärnten, and Steiermark was far behind with 76 tonnes. The peak yield in Steiermark was 3,300 kg/ha in 1939. The best yields in the area ranged from 2,100 to 3,300 kg/ha during the period from 1937 to 1943. Detailed statistics for hectarage, production, and yield are given for each area from 1937 to 1944.

Note 1. This document contains the earliest date seen (June 2007) for soybeans in Greece, or probably for the cultivation of soybeans in Greece (1935). Yet we cannot be sure that these soybeans were actually cultivated in Greece.

Note 2. This is the 2nd earliest document seen (Dec. 2007) that clearly refers to soybeans in Persia, or the cultivation of soybeans in Persia [renamed Iran in 1935]. This document contains the earliest date seen (Dec. 2007) for soybeans in Persia, or the cultivation of soybeans in Persia (1933-34). The source of these soybeans was Brillmayer in Austria.

Note 3. This document contains the earliest date seen (Dec. 2007) for soybeans in Turkey, or the cultivation of soybeans in Turkey or the Middle East (1931). The source of all these soybeans was F.A. Brillmayer in Platt, Lower Austria. Address: Braunsdorf–Vienna, Austria.


In the chapter on “Vegetables” there is a section titled “Soybeans” (p. 92-95) with this contents: Introduction (“The soybean is one of the richest of all foods in protein and in minerals, and it also makes a very delightful addition to good meals... but only in recent years have Americans and Europeans become awakened to its possibilities as a meat substitute and also its great value as a food staple”). How to make soybean


In this book, Bragg uses the word “amino.” “The link between protein and body tissues is the amino acids. When the aminos enter the blood stream, they are carried to every part of the body, where they set to work repairing, rebuilding, and maintaining body tissue, building up rich red blood, and ‘conditioning’ the various organs” (p. 6).

Note 1. Throughout his life, Paul Bragg seems to have had an ambivalent feeling about eating and recommending red meat and poultry. In his later years, fish became his favorite flesh food.

Note 2. This book contains no autobiographical information about Paul Bragg. Address: P.O. Box 428, Burbank, California.


• Summary: 1. Austria’s food situation: The country cannot feed itself. 2. The human organism as a motor (with certain fuel/nutritional/food needs). 3. How do we feed ourselves? How to grow enough food when the percentage of agricultural land is constantly shrinking. 4. The soybean (Die Soja) as a nutritional factor: The soybean is the most concentrated foodstuff, and is also called “meatless meat.” Comparison of the nutritional value of soybeans with animal products. Protein and fat. 5. Soya in our kitchen: 20 years ago the use of soya in Austria was promoted in the form of Edelsojamehl, made largely from foreign-grown soybeans. Products now made from soya (dry egg substitute, soybean paste, nuts, almonds, cocoa, coffee). Debittering of soybeans (Sojaentbitterung). How does one cook with soya? Green vegetable soybeans (Gruene Sojakoerner; similar to green peas in the pods), soy sprouts, soya tea. Soybean recipes for 6 people by Frau Friedl Brillmayer (17 pages of Austrian-style recipes). 6. Soybean production in Austria and the possibilities for its expansion: Statistics on increase in planted hectares and number of growers from 1937-1944. 7. Possibilities for industrial uses of soybeans. 8. Soya as a fodder plant: Green fodder, hay, silage, ground soybeans (Sojapflanzenmehl), straw and chaff, soybean cake and extracted meal, industrial waste. 9. The effect on agriculture, the nutrition of the people, and maintenance of their good health: Measures needed for gaining acceptance and success in Austria.

Page 68 notes: “The soybean pioneer in Austria was Prof. Friedrich Haberlandt of Vienna, starting in 1878. His interest in the significance and relevance of soya for Austria was aroused by the Chinese booth at the Vienna World Exhibition (Wiener Weltausstellung). In the following years he worked successfully to introduce the plant and make it better known. On the basis of extensive variety trials, he confirmed his hypothesis, that the soybean would do well wherever maize (corn) would ripen. In those days, however, the varieties used did not ripen as early as those available today, and because of this the main areas where trials were conducted lay in south Hungary, Croatia [before 1991 a republic of Yugoslavia; the capital is Zagreb], and Dalmatia [a region on the Adriatic coast of Yugoslavia, and a former Austrian crownland]. Haberlandt’s varieties ripened too late to be grown in the area that is today Austria. And since the Monarchy had enough food, the soybean soon disappeared and came to be forgotten.

In 1920 in Austria, after a long pause, the first soya acclimatized in Austria was planted. Once again soybean production began in this country.

‘Starting in 1921 Prof. Dr. Drahorad and I began cooperative work at Platt in lower Austria (Niederoesterreich). The varieties we used were adapted over a number of years using strict selection processes. Then in the following years we initiated preliminary trials in all the Austrian provinces (Bundeslaendern).

In 1929 the first soybean exposition was held in the banquet hall of the country villa at Linz (Landhaus in Linz), sponsored by the Austrian Department of Agriculture (Landwirtschaftskammer), and there were already more than 100 samples exhibited, all from upper Austria (Oberoesterreich).

‘Up until 1937 about 1,400 farmers in Austria were registered, part of them grew soybeans experimentally and part of them expanded their production area year after year.

‘But there was no ready market. Soya was so cheap on the world market, that its production in Austria was not profitable. The world market price dropped to its lowest level in 1933, £6.07 sterling per tonne! The unassuming and easily satisfied Chinese peasant could produce soybeans so cheaply that the nutritional value of a kg of meat cost 5 times as that from a kilogram of soya...

‘The Viennese soybean industry that existed at the time using primarily imported soybeans, decided to support and
Austrian-grown soybeans and voluntarily paid the higher price. Nevertheless, because of the low world market price, the possibilities for sale were at hand, but the price offered no incentive to expand soybean acreage.

“Contrary to this was the promotion I did for soya as being excellent fodder, and defatted soybean meal soon came to be widely used in this way.

“Thus did the soybean breeding work, with financial support, start again. We then succeeded in moving our Platt breeding operation partially to foreign countries, to Voorburg in Holland, to St. Sylvain d’Anjou in France, and to Casablanca in Morocco. On a modest scale, soybeans grown in Austria could also be exported. Also several large batches were dispatched. So to Turkey and Greece, to Dobruja [a region now in southeast Romania and northeast Bulgaria], to Persia, Holland, and France, and a shipment of 15,000 kg of “Platter gelben Riesen” to Morocco.

“In 1937 the Austrian soybean growers formed a “Soya Ring,” in order to better represent their position as a solid organization. Soon new soybean breeding places developed, and from them came new varieties: the Angerner and the Wolfsthaler. The Soya Ring continues to expand.

“During World War II, I.G. Farben had large areas planted to soya in Romania, Bulgaria, and Yugoslavia. This total area reached a peak of about 150,000 hectares in 1942.

In 1937 in Austria, only 16 farmers (Betriebe) grew 68.14 hectares yielding 83,521 kg of soybeans (1,226 kg/ha). In 1940 this increased to 315 farmers growing 1,526.99 ha yielding 957,809 kg of soybeans (627 kg/ha). In 1944 868 farmers grew a record 2,461.17 ha of soybeans (production not given). The four main growing areas, in descending order of number of hectares grown in 1944, are: Lower Austria and Burgenland 1,311.67, Kaernten and Steiermark 71.54, Vienna 46.27, and Upper Austria 1.24. The climate in Austria varies widely from 957,809 kg of soybeans (627 kg/ha). In 1944 868 farmers grew a record 2,461.17 ha of soybeans (production not given). The four main growing areas, in descending order of number of hectares grown in 1944, are: Lower Austria and Burgenland 1,311.67, Kaernten and Steiermark 71.54, Vienna 46.27, and Upper Austria 1.24. The climate in Austria varies widely from region to region. Production is measured in units of Doppelzentner (dz); 1 Doppelzentner = 100 kg. In 1943 the best yield in one region was 28.00 dz/ha (2800 kg/ha or 41.6 bu/acre) in Lower Austria. The best yields per region rose from 2,100 kg/ha in 1937 to 2,800 kg/ha in 1943, both in Lower Austria. Address: Austria.


• Summary: The authors discuss the value of soybeans and strongly recommend their wider cultivation in Turkey. Address: 1. Ziraat Sanatlari Professörü; 2. Ziraat Sanatlari Sefi.


• 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.


• Summary: “Introduction of Soybean into Israel and its Problems” (Hurwitz and Goldin, 1950, p. 73) contains the following in Hebrew: Table 19 (titled ‘Dry matter content of soybean plants’) gives test data from experiments conducted in 1941 concerning the dry matter only. It can be said that at certain ages one can see in the dry matter a pattern to evaluate the quality of the green matter. Among the external factors that influence the composition of the dry matter, the soil moisture and the last watering time are the most important. Across the top of Table 19 are dry matter content (%), growing period (days), interval after last watering (days), and date of sampling. Figures are given for two soybean varieties (Jaune Grain, and Biloxi), each at 3 different plant development stages: budding, partial blossoming, and full blossoming leaf shedding. The dry matter content of the soybean plants was highest (26.3% and 25.9%) for the two varieties at the last stage. For Jaune Grain this was a growing period of 78 days, and for Biloxi 94 days.

Note 1. This is the earliest document seen (June 2007) concerning soybeans in Israel (after the nation was created in 1948), or the cultivation of soybeans in Israel. But a 1936 document by the International Institute of Agriculture
(Kaltenbach and Legros) discusses soybeans in the country when it was named Palestine. Note 2. In the Hebrew citation, the date of publication of this work appears to be 1942, i.e. 5709 in the Hebrew calendar. Address: Israel.


• Summary: A survey conducted during the summer of 1950 showed that soybeans are not adapted to the climate of the northern part of western Europe. Soybeans show some promise of being adapted for seed production in the river valleys of south Germany (South Rhein valley and Neckar valley), some areas in Bavaria, southeast and southwest France (Rhone and Garonne valleys), and the north and central part of Italy. In Turkey, the areas of possible production are along the Black Sea, and in North Africa in the irrigated sections of both Morocco and Turkey.

Only in Turkey and French North Africa, and to some extent in southern France does an expansion of oil crops seem feasible without displacement of other crops, the authors believe. In France, 3,000 ha of soybeans were reported to have been planted in 1950. In Italy, the area (in hectares) planted in soybeans was 11 in 1938, 695 in 1946, 2,905 in 1947 (the peak year), 1,976 in 1948, and 1,145 in 1949. In general, oilseeds in Europe, and particularly northern Europe, yield less and cost more to produce than grains. In peace time it is doubtful if they can compete with imported oilseeds and oils.

Address: 1. Asst. Director, Fats and Oils Branch, Production and Marketing Administration, USA; 2. Asst. Prof. of Crop Production and Plant Genetics Research, Univ. of Illinois.


“Experiments in soybean cultivation were conducted in the Rehovot Research Station from 1935 to 1944. The main objects were: selection of varieties, determination of sowing methods and the correct time of harvesting, and, finally, an assessment of the feeding value of the herbage.”

Particular points studied were pod splitting, seed viability, and seed vernalization. Seventy soybean varieties were imported from various countries for this investigation. The highest soybean yields under irrigation were obtained from the varieties Wood’s Yellow, Haberlandt, Creole, Jaune Grain, White Biloxi, Palmetto, and Missoy; and without irrigation from the early varieties Dunfield, Macoupin, and China.

Note: This is the earliest document with an English-language summary seen (Dec. 2007) concerning soybeans in Israel (after the nation was created in 1948), or the cultivation of soybeans in Israel. But a 1936 document by the International Institute of Agriculture (Kaltenbach and Legros) discusses soybeans in the country when it was named Palestine. This document contains the earliest date seen for soybeans in Palestine/Israel, or the cultivation of soybeans in Palestine/Israel (1935; one of two documents). The source of these soybeans is unknown. Address: Div. of Agronomy and Seed-Breeding.


• 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 Khabarovsky territory, the largest seed-producing area.

“South of China, the soybean is cultivated to some extent in the Netherlands Indies, India, Siam, Cochin China, Philippines, and Australia. Until 1932, the production of soybeans in the Netherlands 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.


• Summary: This article is reproduced by permission from an article in Great Britain and the East, by Mr. Charles Holland. Of Persia’s 650,000 square miles, 10-15% is under cultivation, 15% is grazed, and another 20-30% is suited for cultivation. Agricultural methods have changed little since Biblical times. Breeding of livestock (especially sheep and goats) is the principal occupation of Persian peasants.

Cotton has declined in importance. Castor oil and sesame are the most important oilseeds, apart from cottonseed. The section titled “Possible new products” (p. 17) states that, because of the shortage of linseed oil and linen, the flax plant, “which could be grown in many parts of Persia, should not only prove a most remunerative crop but might lead to the establishment of a linen industry. The soya bean, needed for the paint and plastic industries, would be another extremely useful crop.” Some 25 major irrigation plans are being undertaken. A map shows Iran and some of these projects.


• Summary: The author emphasizes the many nutritional benefits of using soy flour (he used the term “whole soy flour”), roasted soy flour, and soy milk in the Paraguayan diet. He believes that soya can be used to improve the diet without increasing its cost. In 1950 the author conducted experiments, in collaboration with the distinguished biochemist Prof. Dr.
Ramón Codas of the Faculty of Chemistry and Pharmacy (Asunción), feeding soy milk to undernourished families living in the Department of Caazapá. When 1 liter/day of soymilk was added to the usual diet for 2 months, “most of the groups had increased their weights, and better coloring and greater activity could be noted in all the members of the groups under observation. He recommended using the resulting okara in soups or tortillas.

Chapter 8, “World production of soy,” states: “Cultivation of soy began in 1921, the year in which I introduced the plant to our country. Although its cultivation is only slowly increasing, at the present time there are already many villages where soy is cultivated, though on a small scale.”

In 1950 a group of renowned scientists (Bergmann, Weizmann, and Willstater) at Weizmann’s Institute of Science at Rehovoth, Israel, confirmed the importance of soy in banishing world hunger. They developed a soy powder and Bergmann wrote a report about it.

Note 1. This document contains the earliest date seen for soybeans in Paraguay, or the cultivation of soybeans in Paraguay (1921). In 1989 E.R. Alvarez-Britos wrote: “In 1921, Dr. Pedro N. Ciancio, considered the apostle of soybean cultivation in Paraguay, introduced the varieties Hollybrook, Manouth [Mammoth?], Pekin [Peking], and Shanghai, from Argentina, the USA, and Japan.”

Note 2. Much of this book was written between 1940 and 1942. Address: Prof., Dr., Asunción, Paraguay.


• Summary: Output of the principal oils in 1951 in Iran were (in short tons): Cottonseed oil 4,410, castor oil 3,200, sesame oil 1,210, olive oil 940, poppy seed oil 930, and linseed oil 600 tons.

“A new margarine plant and oil processing mill is being built in Tehran. It is claimed that the plant will utilize the oil from around 33,000 tons of oilseeds per year. This could further production of oilseeds, and will probably tend to reduce oilseed exports. A start is being made at growing soybeans, and it is believed that production will increase rapidly.”


• Summary: From a correspondent in Rome, Italy. The United Nations International Children’s Emergency Fund (Unicef) has just finished a meeting at the Food and Agriculture Organization [FAO] headquarters in Rome to consider methods by which to improve child nutrition. Mr. Pate, Unicef’s executive director, emphasized at a press conference, “that children suffer severely where animal milk is not available. which is the case in most countries in southern Europe, the Near East, and Asia, where there is not enough milk to supply 1 per cent. of the real needs of the children. Malnutrition was, in fact, the primary problem facing Unicef.”

Since Unicef was created 6 years ago, Unicef has assisted more than 60 million children and expectant mothers throughout the world. Since taking over the work among children previously done by Unnra (United Nations Relief and Rehabilitation Administration) it has helped to feed 6 million children in Europe alone, 1.3 million of them in Italy.

One problem facing Unicef is how to increase supplies of local protein-rich foods that could serve as a substitute for milk where local livestock were insufficient. FAO “had been considering what assistance could be given to increase the production of pulses, including the soya bean, and progress had been made toward establishing a plant in an unspecified country in south-east Asia for the production of milk from soya bean flour.”

Note: In 1957, Saridele, a dried nondairy milk based on soybeans, was introduced. Made in Yogyakarta, Indonesia, it was the result of a joint program by FAO and UNICEF.


• Summary: An excellent history by an expert in the subject. The first fats used by man were probably of animal origin—tallow and greases—which were separated from other tissue simply by heating or boiling with water. Extraction of oils from fruits and seeds was more complex and difficult, yet vegetable oils were used from the time of the earliest records, so methods for their separation must have been developed before the dawn of recorded history.

“The ancient Egyptians and Phoenicians used vegetable oils for food and for anointing their bodies, but not for illumination. The Egyptians used olive oil as a lubricant in moving large stones, statues, and building material. As early as 1400 B.C., Egyptian chariot wheels were lubricated with axle greases consisting of fat and lime. Earthen vessels predating the First Dynasty [2920-2770 B.C.] have been found which contained several pounds of oxidized palm oil. From the Egyptians and Phoenicians, knowledge of how to apply fats and oils spread to the Hebrews, and thence to the Greeks.

“The Hebrews had oil mills powered by treads that were usually operated by prisoners. Pliny [23-79 AD] left the earliest description of an oil mill, which was used to crush olives. It resembled the ordinary edge runner, the stones being flat on the inner side and convex on the outer side. The Greeks and Romans are said to have employed screw presses, similar to wine presses for recovering olive oil.”

“The wedge, edge-runner, and screw press were used in Europe for oilseed processing until the invention of the hydraulic press. Their efficiencies were increased somewhat by precrushing and heating the seed in the presence of moisture, a practice in use today.
“The development of the hydraulic press in 1795 made possible a marked increase in the recovery of oil... By 1815, improved forms of the hydraulic press were introduced in France and Germany, where their use spread rapidly.” Bags were soon replaced by press cloths.

In the 20th century, the continuous screw press or expeller was invented in the United States; it is still in use (see p. 504).

“The rise of the soybean processing industry in the United States in the 1930s created a further demand for these presses. Efficiency, as well as capacity increased until it became possible to process soybeans so as to reduce the residual oil content of the cake to 3.5 or 4.5 percent.” But “oil technologists were not satisfied to leave even this amount of oil in the extracted cake.”

“The first practical process for the solvent extraction of oil from oilseeds was developed by Jesse Fisher in Birmingham, England, in the 1840s, but no patent for the solvent extraction of fatty oil was granted until 1856... Solvent extraction has been practiced on a fairly large scale in Europe since 1870. The first extractors were single-unit, unagitated, batch vessels. Soon multiple unit, agitated, counter-current extractors appeared. Many attempts were made to develop a continuous solvent-extraction process, and about 1920 Hermann Bollmann in Germany developed an extractor that was especially adapted to the recovery of oil from soybeans. This extractor and its operation are discussed in detail in the next chapter.”

Soon Karl Hildebrandt in Germany developed another type of continuous solvent extractor. It “is a combination of two vertical enclosed screw conveyors connected at the bottom by a cross conveyor so that the whole forms a U. The previously rolled or flaked oilseed moves in one leg in the same direction as the flow of the solvent, and in the other leg in the opposite direction.

“This type of extractor was introduced in the United States for processing soybeans in 1934 [By ADM, began operation in April and by Glidden in Nov.] and was followed very shortly by the Bollmann, or paternoster, extractor” [By Central Soya, began operation in Nov. 1937]. Somewhat later, an extractor of American design—the rotating plate, vertical gravity extractor—was introduced [in late 1937 to American Soya Products Corp. Evansville, Indiana, by Allis-Chalmers & Michelle Bonotto]. It was followed by a modified type known as the stationary-plate [plate?] extractor.

“The rapid adoption of continuous solvent extractors for processing soybeans resulted from the fact that such plants are almost completely automatic and yield a meal containing only 0.6 to 0.8 percent of oil, or a recovery of about 97 percent.”

There follows a good history of refining crude oils. “The earliest methods consisted simply of settling and filtering out the solid or gummy materials. Later certain earths or clays were added before filtering to help remove solid impurities and also some of the pigments., thereby imparting a clear and bright appearance. One of the most important in the refining process consists in removing the free fatty acids naturally present in the oil.” Address: Head, Oil and Oilseeds Div., Southern Regional Research Lab., New Orleans, Louisiana.


• Summary: “Nearly 23 million 3-cent meals of the ‘Multi-Purpose’ food have been distributed on the hunger fronts of the world, according to a report issued by the non-profit Meals for Millions Foundation, Los Angeles...

“More than ¼ million meals, the report states, have gone to feed Korean refugees (813,000 meals since last June). Shipment to India total 3,880,000 meals of which nearly a million have been shipped since June. Popularity of the food has been enhanced by development of special native recipes printed in the Korean and Tamil languages.

“Significant shipments have gone to the Middle East, Hong Kong, Formosa, Burma, Africa, Arabia, Japan, Philippines, Latin America, Europe, and Caribbean and South Pacific Islands.

“World-wide distribution has been through 133 American relief and religious agencies and health departments of foreign governments...

“For further information or to make contributions contact Meals for Millions Foundation, 648 South Broadway, Los Angeles 14, California.”

Note: This is the earliest document seen (Dec. 2007) concerning soybean products (soy flour) in Arabia [this term usually refers to the Arabian Peninsula, but in this case it may well refer to Saudi Arabia]; soybeans as such have not yet been reported. This document contains the earliest date seen for soybean products in Arabia (March 1953); soybeans as such had not yet been reported by that date.


• Summary: The colorful story of Clifford Clinton (an illustration shows his portrait), Henry Borsook, Multi-Purpose Food (based on soybean grits), and Meals for Millions Foundation, Inc. To aid the Foundation and its humanitarian work, “Clinton donates office space in one of his Los Angeles cafeteria buildings (located at 648 S. Broadway, Los Angeles 14, California). To reach it one passes through a dim ‘landscaped’ dining room with pools, grottos, singing birds and organ music, then up innumerable stairs, through a bakery and a carpentershop, and arrives finally in a bustling, crowded office. Here orders come from individuals, churches, social and governmental agencies. The Multi-Purpose Food business is handled by a small staff is headed by a bouncy, enthusiastic woman named Florence Rose.”
“Four million Multi-Purpose meals have gone to India, three million each to China and Japan, two million each to Germany and Korea, one million to France.” Some 333,000 people in Lebanon, 250,000 people in the Philippines, and several hundred thousand in Austria and Greece have been saved from hunger by Multi-Purpose meals. Shipments have gone to the Vatican for distribution to Italian poor, to migrant labor camps in California and Arizona, to the Navajo and Hopi Indian reservations. The largest buyer and distributor is the Roman Catholic Church, followed by the Friends Service Committee.

Note: This is the earliest document seen (Feb. 2001) concerning soybean products (Multi-Purpose Food containing soy grits) in the Vatican; soybeans as such have not yet been reported.


• 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.


• Summary: “A characteristic difference was found between feeds of plant and animal origin. Protein feeds of animal origin contained a protein fraction with 20-30 amino acid residues in the molecule, which dissolved in buffer solutions pH of about 8 and was precipitated by trichloroacetic acid (TCA).” This fraction was not found in animal proteins; that might be one of the reasons for the lower nutritional value of plant proteins as compared with animal proteins. Address: Agricultural Research Station, Rehovoth, Israel.


• Summary: Soy bean introductions: Glycine max (L.) Merrill.

164885 (p. 120). “From Guatemala. Seeds presented by Dr. I.E. Melhus, Iowa State College, Guatemala, Tropical Research Center, Tiquisate. Received June 1, 1948.” No. 15. Seed black.


• Summary: This is the story of Multi-Purpose Food, which can be sold for only 3 cents a meal. “Clifford Clinton is the man responsible for getting MPF experiments underway. He is the son of a missionary who worked in China... His work for the last eight years has been that of carrying out his boyhood dream of supplying cheap meals for hungry millions. His two Los Angeles cafeterias were the starting points in his battle.

“During the depression he contrived a meal costing five cents. It consisted of soup, meat, potatoes, and green vegetable...”
and a pudding. This served to allay hunger for thousands of the jobless.

"Yet Mr. Clinton was not content. His next venture was to enlist the help of other suppliers in the area and to serve meals at a penny a portion. These consisted of a bowl of rice with a ladle of soup poured over it. He had rolls of tickets printed and sold them indiscriminately for one cent each.

"As soon as the government relief programs began operating, this penny restaurant was discontinued but the five-cent meal (without the ticket idea) continued to be served at Clinton's during afternoon hours. These meals were hash or beans, two vegetables, bread and butter, a beverage and a dessert.

"Although Mr. Clinton was running in the red with all such meals, he was just as determined as ever to find a way of supplying an adequate diet at a low cost. He knew much more about the problem now, for he had served nearly a million bowls of soup in less than six months! By the end of World War II he was ready to give $5,000 to California Institute of Technology in 1947 to start a project with these stipulations: 'I want a cheap food that is high in nutrition, can be easily shipped and will not spoil if stored for long periods. And it must not violate any religious or social food taboos.'

"Dr. Henry Borsook, one of the Institute's biochemists, agreed to undertake the work. He was able to cut the cost from the five-cent limit to three cents a meal.

"Borsook knew that soybeans are plentiful and contain much protein. He knew also that there is no scarcity of the solid vegetable matter called 'grits' that is left over from firms using soybeans to make margarine fats and cooking oils. So he used 90 percent soy grits and added minerals and vitamins to produce the formula now known as Multi-Purpose Food...

"Norris E. Dodd, Director-General of Food and Agriculture Organizations of the United Nations, has said: 'I don't believe you can build a just or lasting peace in a hungry world.'

"One answer is the Meals for Millions Foundation, which in six and one-half years has had a total of $800,650.36 from contributions by individuals and purchases made by relief agencies. They have supplied from this: 250,000 meals to the Philippines; 330,000 to Lebanon; several hundred thousand to Austria and Greece; and many more thousand meals for the poor in Italy as well as for the Navajo and Hopi Indian reservations and the migrant labor camps in California and Arizona."

Note: This is an early record of soyfoods in Lebanon.

47. Product Name: Soybean oil, and Consoex soybean oil meal.
Manufacturer's Name: Consoex Ltd. Subsidiary of Izhar Oil Industry of Palestine Ltd.
Manufacturer's Address: Tel-Aviv, Israel. Phone: 23217-9.
Date of Introduction: 1955.
Ingredients: Soybeans.

How Stored: Shelf stable.

Note 1. The 1956 Blue Book shows that the word "Palestina" in the 1955 edition should have been spelled "Palestine."

Note: This is the earliest known commercial soy product made in Israel or the Middle East.


Soy-related recipes: Chapter 3, “Wholegrain flours,” contains a photo of bags of five such flours, including “Soya flour.” A paragraph (p. 5) explains: “Soya flour can be a full fat flour (all of the fat left in) which many consider nutritionally superior, or it can be a low fat flour (part of the fat removed) for low calorie diets.” Note 2. This is the earliest English-language document seen (Nov. 2003) that uses the term “low calorie” or “low calorie diets” positively in connection with soybeans for human diets. Throughout most of human history, people wanted calories, which provide energy.

Unleavened Indian chapatis (with ½ cup soy flour, p. 52). Basic muffin recipe—Soya muffins variation (“Substitute ½ cup soya flour for ½ cup of the pastry [flour]. Gradually increase the soya and decrease the pastry until you are using half and half after several batches have been made.” p. 54). Chinese chow mein (with up to ½ cup “Show You sauce,” p. 62). Japanese sukiyaki (with about ½ cup “Show You sauce,” p. 63). Egg white leavened waffles (with a bit of soya flour, p. 67). In Chapter 25, the section on “Vegetables” contains brief instructions for making soy bean milk, and using soaked, "liquefied beans direct from the blender" in making bread. The Chinese never eat soy bean products without first soaking the beans. “It is the secret of successful soy cookery.” The chapter on sesame seeds notes: “Sesame seed ground into a
butter like peanut butter is used in some countries—Turkey in particular—like our dairy butter is here, and is used in almost every food in some degree. It makes first-class salad dressing when mixed with vinegar and prepared mustard. With honey and milk powder a very tasty cream candy can be made... In Roman times the emergency ration for soldiers was a candy made from sesame seed and honey. A very tasty and nutritious ice cream can be made from sesame butter; honey and milk powder. The sesame seed can be used for these purposes instead of the sesame butter if the seed is liquefied with the honey in a blender or Osterizer. Sesame butter is an ideal shortening for bread and cookies.” Note 3. This is the earliest English-language document seen (Aug. 2007) that contains the term “sesame butter”–a smooth paste of ground sesame seeds.

This book also discusses: Carob brownies, peanut butter, sunflower seeds, how to sprout mung beans, herbs, etc.

Note 4. This is the earliest English-language book seen (June 2003), published after World War II, with the term “natural food” in the title.

Note 5. This is not a vegetarian cookbook. Recipes (p. 55-58) call for steak, pork, ground beef, spare ribs, lamb chops, ham, chicken, tuna, and salmon.

49. **Product Name:** Soybean oil, and Shemen soybean oil meal.

**Manufacturer’s Name:** Shemen Israel Oil Industry Ltd.

**Manufacturer’s Address:** Haifa, Israel. Phone: 4681-83.

**Date of Introduction:** 1956.

**Ingredients:** Soybeans.

**How Stored:** Shelf stable.

**New Product–Documentation:** Soybean Blue Book. 1956. p. 88. 10 screw presses. Capacity: 100 tonnes (metric tons) per day. Allis Chalmers and De Smet benzine solvent extractor. Capacity: 225 tonnes per day. Storage capacity: 200,000 bushels. Approximate soybean operations up to 1,600 tons monthly. Served by Haifa Port.


**Summary:** Contents: The invention of margarine in France. Other countries follow. The coinage 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 butter, 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 C17H34O2. 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.


**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 capita 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
SOY IN THE MIDDLE EAST (c) Soyinfo Center 2008

(209,000 tons), and Canada (61,000 tons). In Germany shortening is called Plattenfett and Kunstseifefett.

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.


• Summary: In the introductory section, page 2 states: “The continuing high world prices for the oil and oilseeds of castor, safflower, sunflower, and soya bean were incentives to test several varieties of each in preliminary trials.” The opening paragraph (p. 1) notes that this report concerns activities at the Deir Alla Farm from Oct. 1956 to September 1957. Most of the work was done at Deir Alla, “but where possible trials were also made in the uplands of Jordan.”

Note 1. This is the only place that the soya bean is mentioned in this report. On page 60 we read: “Deir Alla–8th March, 1958. Alan Goodman. Director of Agricultural Research.” Page 2 states that Goodman, who has an M.Sc. degree and is from London (England), was appointed director on 10 Jan. 1956.

Note 2. This is the earliest document seen (June 2007) concerning soybeans in Jordan, or the cultivation of soybeans in Jordan. This document contains the earliest date seen for soybeans in Jordan, or the cultivation of soybeans in Jordan (1957). The source of these soybeans and the exact date of their cultivation are (unfortunately) not given. More details are given in next year’s report, which states that soybeans were sown on 14 Nov. 1957. Address: Deir Alla, Jordan.

53. Steinmetz, E.F. 1957. Codex vegetabilis. Amsterdam, Netherlands: Published by the author. n.p. 28 cm. *

• Summary: Names of medicinal plants in Latin, English, French, German, Dutch, and some other European and Oriental languages.

Soybean are used medicinally in several countries of the world. In Turkey, Soya Fasulyasi is used to treat diabetes. In China, under various names (Shu, Jen Shu, Jung Shu, Shih Tou, Hei Tou [Black Soybean], Huang Tou) the soybean is used as a medicinal plant but no specific uses are given by the author.


• Summary: Soybean introductions: Glycine max (L.) Merrill. Fabaceae.


205899-205915 (p. 63). “From Thailand. Seeds presented by the American Embassy, Bangkok. Received March 10, 1953.”


209831-209839 (p. 210). “From India. Seeds presented by G.V. Bowers, American Embassy, New Delhi. Received May 12, 1953.” Selections made at the Bureau of Plant Industry, Soils, and Agricultural Engineering, Beltsville, Maryland, gave seeds that were brown, green, yellow, and black.


• Summary: “Spain and Turkey will continue to be good markets for U.S. soybean oil, depending on the continuation of P.L. 480.” Address: Technical Consultant, Soybean Council of America, Inc.


• Summary: The section titled “Fodder and forage crops 1958” (p. 54) states: “Introducing such legumes like Berseem, Alfalfa, Vetches, Soya Beans, etc. helps to reserve soil fertility... The trials on forage and fodder crops were carried out on the following sites: Deir Alla. Wadi Yabis...”
On page 58 we read: “Forty five varieties of grasses and legumes were sown at Deir Alla on 14.11.77 [i.e. 14 Nov. 1957]. They included some of the varieties which were tried in the past and proved doubtful. The following varieties gave best growth while the other varieties which are not mentioned, either gave poor yields or could not continue growing: (Appendix 10).

There follows table 37 (p. 58) titled “Deir Alla 1958.” The names of 20 varieties are listed including “Coja max [Soja max] (Soya bean),” Medicago sativa (alfalfa / lucerne) from 9 different countries, etc. For each variety is given the height (45 cm for soya bean) and the green yields in kg/square meter (1.2 for soya bean). Note: This is the earliest document seen (Dec. 2007) that gives a clear date for the earliest cultivation of soybeans in Jordan, 14 Nov. 1957. But the sixth annual report strongly implies that soya beans were planted before Sept. 1957. Address: Deir Alla, Jordan.


- **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 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 less 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.


- **Summary:** Contents: General considerations: Early sources of protein for human food, competition for food between man and his domestic animals, vegetarianism and vitamin B-12, protein requirements (of children, of adults). Plant proteins now in use: Foods that can be prepared in the home (cereals, legumes {incl. groundnuts, soybean}, sunflower seed, sesame), plant foods used after factory processing (cereals, legumes, sunflower seed meal, cottonseed meal). Other forms of plant food: Plankton, algae, food yeast, leaf proteins (p. 237-38). Future extensions of the use of plant proteins: The theoretical basis of selection, assessment of the value of foods intended for human consumption, practical measures for the future.

In 1957 some 160,000 tons of soybeans were used to make tofu in Japan. “Magnesium or calcium salts are the precipitants of the curd from the soybean milk; the product is eaten by nearly every family in Japan with its breakfast miso-soup.”

During World War II, the attempt was made to introduce soya as a food crop to Uganda. But “no instruction was given in the necessary details of preparation, with the result that the crop was very reasonably declared inedible by the Africans. They retain a violent prejudice against it and are suspicious that it has been added to any food, such as yellow corn meal, that they find distasteful.

“One of the most interesting methods for making soya edible has evolved in Indonesia and was described in full by Van Veen and Schaeffer (1950). It takes advantage of the ability of the mold *Rhizopus oryzae* to grow on the bean and alter its constituents... The product made from soya is called *tempeh kedeelee* (*kedeelee = soybean).*” Details of the production process are given. A description of natto and its composition is also given (p. 218).

The section on algae gives detailed information on chlorella, a type photosynthetic single-cell protein. As early as 1954, Morimura and Tamiya in Japan were experimenting with the used of powdered *Chlorella ellipsoidea* in foods. Note: This is the earliest document seen (Aug. 1997—one of two documents) that mentions the use of algae or other photosynthetic single-cell protein as food.

The section on leaf proteins (p. 237-39) begins: “Protein synthesis is one of the chief activities of the leaf, and proteins are comparable to animal proteins in their amino acid composition (Lugg 1949). The young leaf is especially rich in protein...” Pirie (1953) has suggested a process for recovering the leaf protein from the fibrous residue left after mechanical separation; the protein is usually very difficult to free. Pirie (1953) has also described the likely structure of an efficient plant. “There are also obvious possibilities in such abundant and little-used material as the leaves of sugarcane, cassava, and bananas” (p. 238-39).
The section titled “Sesame” (p. 219-20) states that the Zande people of southwestern Sudan steep the seeds in water for a few minutes, then pound them lightly to loosen the outer coat. They then dry the seeds and the outer coat is sieved or winnowed away. The seeds are then roasted and ground to a paste, which is sometimes used to make a sauce (Culwick 1950). “The use of sesame as a sweetmeat or condiment is fairly widespread in the Near East. A sweetmeat called tahini or tahinaya is made in the Gezira [Sudan] by cooking the roasted seeds in sugar; sometimes the seeds are crushed before the cooking, and sometimes not” (Culwick 1951). Describes how to make the condiment. Address: Medical Research Council, Mulago Hospital, Kampala, Uganda.


- **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). Note: This is the earliest document seen (Jan. 2005) that gives soybean production or area statistics for Argentina.

- 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


- **Summary:** Ground and polished artificial stone made of aluminous cement and mineral powders, such as basalt, quartz, and glass, become air- and moisture-resistant and acquire improved color and general appearance by rubbing with a soft cloth a quick-drying vegetable oil, e.g. linseed, castor, or soybean oil, into their surfaces until the oil is not visible to the eye.


- **Summary:** “A contract for a 1-year market development project for U.S. soybeans and soybean products in Israel was recently signed by representatives of the Soybean Council of America, Inc., and the Israel Crushers Pool, Ltd., at Tel Aviv, Israel.”


- **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 Canada”). 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.” Address: Washington Correspondent for the Soybean Digest.

• **Summary:** “The ‘soybean’ has been heard a lot of during recent years. This wonder-bean known the world over, is today also grown here, in Israel, in considerable quantities and many are being sustained by it. For our having it here we owe thanks to one man, the incomparable Eliahu Navot, the pioneer of agricultural experiments.

“Eliahu Navot lives at Herzlia and his home there is something like a private experimental station. He is endowed with great patience and unlimited energy. For ten years he devoted himself wholeheartedly to the search for the strain of soybean most suitable to Israel’s climate.

“Eliahu Navot is well known in many institutions and settlements, for he spares no effort to go from settlement to settlement and from institution to institution, everywhere giving directions and advice on how to raise soybeans and how to cook them. He has himself already prepared 14 recipes, and is still going strong. Have any of you seen falafel made of soybean? In Herzlia this is already available.

“The work of Eliahu Navot deserves appreciation. May he ‘harvest in rejoicing what he sowed with tears.’”


• **Summary:** The addition of soya-flour to wheat flour when making bread substantially increases both the protein quality and the nutritive value of the loaf—especially when the wheat flour is of a low extraction rate (i.e., typical white flour). However there exists a prejudice against the use of soya-flour to the editorship of the *Soybean Digest, the Blue Book and Late News,…* Address: Executive Vice President and Secretary-Treasurer, American Soybean Assoc. [Hudson, Iowa].


• **Summary:** Last year U.S. soybean production topped the 500 million bushel mark for the first time in history. “For the first time in history we will export over 100 million bushels of soybeans as beans during the present crop year ending Sept. 30. That means that 1 bushel out of every 5 produced on the farms of American finds its way to plants in Japan, Germany, England, Israel and the other countries of the world. This year again we will export about one-fifth of our [soybean] oil production… The soybean have all been sold for dollars, while some portions of the oil have been sold for dollars and the remainder for foreign currencies under Public Law 480.

“The U.S. soybean crop has truly become an international commodity”—thanks in large part to ASA [American Soybean Assoc.] market development programs in Japan, Spain, Italy, Israel, and Germany. The Japanese program is the biggest and most successful; a long description of its activities is given. In India, the Soybean Council exhibited at a trade fair in Madras. Also discusses problems with grading standards (broken soybean particles are now classified as foreign material) and ASA’s need for more members (it now has only 7,000).

The entire soybean industry has been saddened by the death of W.J. Morse on July 30. “More than any other man in the United States he was responsible for soybeans as we know them today. He made the plant exploration trips that uncovered the thousands of varieties and strains of soybeans that were brought to the United States for trial purposes, and which supplied the germ plasm for all [sic, many] of today’s varieties of soybeans. One of the first two honorary life members chosen by this Association, Bill Morse retired from his work in the U.S. Department of Agriculture just 10 years ago. His contributions to the present billion-dollar soybean industry can never be adequately appraised.”

Thanks to the nine men (serving without pay) who have represented ASA on the board of directors of the Soybean Council of America.

“Thanks to Kent Pellet for his continued faithful allegiance to the editorship of the *Soybean Digest, the Blue Book and Late News,…*” Address: Ministry of Commerce and Industry Food Testing Lab., Haifa, Israel.

68. **Soybean Digest.** 1959. Soy flour in bread in Austria and Israel. Oct. p. 22. [10 ref]

• **Summary:** “Israel recently passed a law requiring the use of 5% soy flour in bread produced by commercial bakers in that country, as a means of fortifying the protein intake of her people.

“Problems involved in such usage are being solved in conjunction with representatives of the Soybean Council [of America].

“Austria has recently passed a law making up to 5% soy flour or other protein sources permissible in bread baked for commercial distribution. This change in law is due largely to the Council’s efforts through local contacts in Austria.”


• **Summary:** About Eliahu Navot of Herzlia, Israel’s soybean pioneer. “With the Navot family you can eat fish and meat, bread and soup, cakes and even borscht [borscht]. And, having
finished, and blessed God and your host, from whose table you have eaten, he will tell you his big secret, that all this food was made of that wonderplant, the soybean.

“Mr. Eliahu Navot has with his soybean recipes entertained our President, Ministers, mayors and workers, and even prisoners in Tel-Mond... May his hands be blessed.”


• Summary: About Eliahu Navot, Israel’s soybean pioneer, one of the first settlers of Herzlia. He is amicably referred to as ‘the soybean monomaniac,’ and he developed this variety.

“Mr. Navot has brought the seeds with him from a soybean study tour which took him to many countries in Europe, America and Australia. The seeds, which have been acclimatized in Mr. Navot’s private farm originally came from California. Following ten years of breeding and selection they are now distributed to farmers as well as to ‘Yizur uFituah’, a cooperative society running several large farms...

“During the Second World War, Prof. Weizmann told workers of the Agricultural Research Station at Rehovot that the successful cultivation of soybeans has priority over the production of cannons, because whereas cannons are of no use on land, soybeans may be turned into cannons. Yet the major use of soybean is food, as it is extremely nutritious.”

Immediately after this article was published, a spate of other articles appeared.

71. Product Name: Soybean oil, Etz-Hazaith 50% soybean meal, Etz-Hazaith Soy Flour, Ground soybean hulls. Manufacturer’s Name: Etz-Hazaith Oil & Soap Industry. Manufacturer’s Address: Plant: Kiriat Arieh, near Petach-Tikna, Israel. H. Leibovitz & Sons Ltd., P.O. Box 1282, Tel-Aviv, Israel. Phone: 911132-4.


Letters (e-mails) from Daniel Chajuss, soy expert in Israel. 2005. Dec. 1 and 3. “Defatted toasted soy flour, made by fine milling of soybean meal, was manufactured and used quite extensively in Israel during the 1950s and 1960s as it was required by law to enrich with about 5% defatted soy flour the ‘standard’ wheat flour intended for standard and subsidized bread.” This was to ensure that the population had “at least basic protein nutrition in times when protein food was in shortage and food provided only by special coupons.”

“Etz Ha’ait,” a soybean oil producing company founded by the Leibowitch family, was the largest manufacturer of soy flour for use mainly in admixing to standard wheat flour but the other oil mills [in Israel] also made soy flour for this purpose. The production stopped in the 1970s as it was no longer required to add soy flour to breads. The product was of poorer quality than is made today, but was well suited to the purpose.” “Etz Hazait” in Hebrew means “Olive Tree” and is always written as 2 words in Hebrew. Leibovitz is not a Hebrew word. Some people write it with “v” some with “w” depending on where the family lived before coming to Israel.

Note: This is the 2nd earliest known commercial soyfood product made in Israel or the Middle East.


• Summary: “A simple and rapid method for estimating protein solubility of soybean meals on the basis of changes in the refractive index of dilute sodium hydroxide solution extracts was tested and found to be highly correlated with the usual protein solubility test.” Address: Government of Israel, Ministry of Commerce and Industry, Food Testing Lab., Haifa.


• Summary: “Since processed soybean oil meal is being used increasingly for animal feeding throughout the world, a rapid laboratory test for control of meal processing is needed.” A dye absorption test was developed and is now being used in this lab for “routine testing of commercial soybean oil meals.” Address: Agricultural Research Station, Rehovot, Israel.


• Summary: Tells the story of Clifford Clinton, Meals for Millions, and MPF (Multi-Purpose Food). Describes how many different Rotary Clubs in the USA have sent MPF overseas for use in relief and rehabilitation projects in Costa Rica, Portugal, Greece, Korea, Mexico, Ceylon, Hong Kong, and India. “Last year $247,000 poured into the Foundation’s headquarters on Seventh Street in Los Angeles and sent ‘meals’ on their way to the hungry.”

“But the chief aim of the Foundation is to aid Governments in developing their own versions of MPF, using food products of their regions. An Indian version, based on peanuts, is already in production, and the building of nine plants has been authorized for this purpose. A soy-based MPF is being produced in Brazil. Research is going ahead in the Philippines to develop MPF-type food with fish and coconut meal, in Mexico with soy, in Iraq with sesame and dates, and in the South Pacific with coconuts. Independent, self-supporting Meals for Millions affiliates are active in Brazil, Burma, Ceylon, Formosa, Hawaii, India, Israel, Japan, Mexico, Pakistan, the Philippines, and Thailand, studying, interpreting.
and expanding the program.” Address: Former president, George Pepperdine College; Past District Governor, Rotary International; Rotarian, San Diego, California.


• Summary: It has been shown repeatedly that the nutritional value of wheat flour proteins rises with the “extraction rate.”

Note: White flour has an extraction rate of about 72%, whereas wholewheat flour is 90%. It is also well known that adding soya meal [or flour] to wheat flour improves the nutritional value of its proteins. Table 1 shows detailed results. Address: Hebrew Univ., Hadassah Medical School, Jerusalem, Israel.

76. **Product Name:** Soyatamin.

**Manufacturer’s Name:** Unknown.

**Manufacturer’s Address:** Israel.

**Date of Introduction:** 1960. June.

**Ingredients:** Soy flour.

**New Product–Documentation:** J. Mazur. *Soybean Digest.* 1961. June. p. 45. “Role of soy products in Israel.” “An infant food preparation called ‘Soyatamin’ has been on the market for the last year. This product contains a high percentage of specially prepared soy flour…”

Letters (e-mails) from Daniel Chajuss, soy expert in Israel. 2005. Dec. 1 and 3. “Soyatamin was made in the 1960s and 1970s by a small company (a one man show). It was made, as I recall, from ground cooked (toasted) full-fat soybeans and was used in various foods as an additive. It was an interesting product, but again was not produced in the late 1970s. I do not recall the manufacturer’s name but I do recall the product.”

“I am not sure where Soyatamin was made in Israel. I vaguely recall the product packed in small (about 200-500 gm) paper packages and sold to household consumers. It had a slight brownish yellow color and a slight soy flavor. It was not a big commercial success and the turnover was small.

Note: This is the 2nd earliest known commercial soy product made in Israel or the Middle East.


• Summary: “A ready market for $367 million worth of U.S. soybeans and soybean products is ours for the taking. That was the message that Howard L. Roach, president of the Soybean Council of America, Inc., delivered to officials of USDA’s Foreign Agricultural Service and others in the Department of Agriculture after his last trip abroad in behalf of soy products markets... Mr. Roach presented a carefully documented report, country by country, following a 70-day trip covering 16,000 miles through Europe, the Mid-East, India and Pakistan. He left the United States Jan. 23 and returned April 4...”

“The international marketing program is being developed under P.L. 480 on a 42-nation contract between FAS and the Council signed last January.” In the report, Mr. Roach discussed the present and/or potential status of soybeans in Egypt, Greece, Israel, Lebanon, India, Pakistan, Iran, Turkey, Yugoslavia, Spain, Germany, Netherlands, Belgium, France, the United Kingdom, and Ireland. A photo shows Howard Roach and FAS administrator Max Myers.

Note 2. This is the earliest document seen (March 2001) concerning the activities of the American Soybean Association in the Middle East, or in Israel, Lebanon, or Iran.


• Summary: Soybean introductions: Glycine max (L.) Merrill. Fabaceae.


215688-215693 (p. 146). “From Israel. Seeds presented by the Ministry of Agriculture and Development, Agricultural Research Station, Rehovot. Received April 22, 1954.” Six varieties including one local variety.


• **Summary**: Note: This is the earliest English-language document seen (Dec. 2007) that contains the term “trypsin inhibitors” (plural). Address: Israel.

80. **Product Name**: Soybean oil, and Soybean oil meal.
**Manufacturer's Name**: Teth-Beth Co.
**Manufacturer’s Address**: Petah-Tiqva, Israel. Phone: 912377-79.
**Date of Introduction**: 1960.
**Ingredients**: Soybeans.
**How Stored**: Shelf stable.
**Capacity**: 250 tonnes (metric tons) per day. Storage capacity: 4,000 tonnes. Soybean operations: 10-12 months. Served by Haifa, Tel-Aviv Railroad.


“This book is dedicated to my friend, Art Linkletter, in grateful appreciation for his generous support and sponsorship of my trip to Hunza.” The Hunzukuts, the citizens of Hunza, number about 25,000 and live in tiny autonomous region in high, remote mountain valleys near where the borders of China and Pakistan meet. They live in health and happiness, many past the age of 100. Fair skinned, they trace their lineage to soldiers of Alexander the Great, who took Persian wives. They are Muslims. Dr. Banik, an eye doctor, visited Hunza alone in the summer of 1958. There he confirmed a theory that he has long advocated, that people with good eyesight generally enjoy good health. He also found a better way of living through a balance of one’s physical, mental, and spiritual aspects. Dr. Banik came away convinced that the lifestyle (including diet, hygiene. Soon Navot began lecturing on his pet crop, extolling its many virtues. “When the American Soybean Council began collecting seeds, living with soybean farmers, and learning how to prepare soybeans for human consumption. In Asia, he first saw soybeans grown on a large scale. He visited Malaya, Singapore, Australia, Fiji, Hawaii, and California.

In 1950 he returned to Israel with scores of varieties of seeds and proceeded to plant them in his experimental plots near his home in Herzlia [Herzliya / Herzliyya]–located just north of Tel Aviv. A soybean variety named Ogden [later renamed Herzlia] performed the best. His goal was finding ways to feed the people, and he developed and served many recipes. His work received widespread publicity. One especially gratifying article was published in the official organ of the Israel army; it called him the “Father of the Israel Soybean” and included a photo of him dancing the hora (a circle dance). Another fascinating report was published in "Eitanim," an important monthly devoted to health and hygiene. Soon Navot began lecturing on his pet crop, extolling its many virtues. “When the American Soybean Council began to operate in Israel, Navot was one of the first to offer his services."

The private war of Eliahu Navot: “As early as 1953, Navot published in Hassadeh, the major Hebrew journal devoted to agriculture, a technical article summing up his own experiments aimed at the acclimatization of the soybean in Israel. That article evoked great interest, but Navot was not satisfied with the opportunities provided by the press and other public bodies and launched a private campaign aimed at that bastion of conservatism, the kitchen. By means of pamphlets, circulars and manifestoes he was out to convince his fellow-


• **Summary**: Contents: Introduction. The life of E. Navot: “Eliahu Lipovitsky, as he was called before he adopted the Hebrew name Navot, was born in 1894 at Uman in the Ukraine. He immigrated in 1912 and, like all other youngsters who came to Palestine–then part of the Ottoman Empire–he became a hired labourer and guard.” At that time the kibbutz (the communal settlement typical of Israel) was beginning to take shape, and various organizations, such as the World Zionist Federation, were founding agricultural farms.

Shortly after World War II he obtained his first soybean seeds from Mr. Mason (then Director of the Dept. of Agriculture in the British Mandatory Administration). He met Prof. Haim Weizmann, the first President of Israel and in 1949, with his encouragement, left on a study trip around the world, collecting seeds, living with soybean farmers, and learning how to prepare soybeans for human consumption. In Asia, he first saw soybeans grown on a large scale. He visited Malaya, Singapore, Australia, Fiji, Hawaii, and California.
citizens that the soybean well deserves a place of honour among the staple foods of the Israeli family.

“Some of the mimeographed pamphlets written by Navot in the course of his campaign are given below:”


Photos show: (1) Eliahu Navot (full page portrait photo). (2) E. Navot with four of his grandchildren. (3) E. Navot riding on his horse during the 1936-1939 disturbances. (4) Navot’s first prize certificate as a cattle grower received at the 1936 Levant Fair. (5) Navot wearing a hat, sunglasses, and medals, and smoking a pipe. (6) Navot dancing the “hora.” (7) Navot’s medals. (8) Navot among the founders of the “Histadrut”–the General Federation of Labour in Israel. (7) A smiling girl with a plate of soyfoods. (8) Navot with cupped hands holding soybeans he has grown. (9) Navot in Herzlia holding a bunch of soybean plants, heavily laden with pods, grown in Israel. (10) A wedding feast where all the dishes served were made with soybeans. (11) Navot standing behind a table as he preaches at one of his soya dinners to a group of agricultural school teachers at Kfar Ata. (12) Navot distributes his soya felafels to a group of children with outstretched arms. (13) Navot, the soybean pioneer in Israel, shakes hands with Ogden Reid, U.S. Ambassador to Israel, as George Strayer looks on. (14) Navot seated next to the mayor of Herzlia. In the background are several soybean plants in jars atop a bookshelf. (15) Mr. Navot with a group of young people, enjoying a soya meal. (16) Participants seated at a seminar in Israel from Ceylon, Ghana, and India, invited to a “soya dinner” at Mr. Navot’s home. (17) Navot standing at a dinner party behind Mr. Itzhak Ben-Zvi, President of State. (18) Navot shaking hands with and talking to Supreme Court Justice, E. Sussman. (19) Navot shaking hands with and talking to Minister of Development, Mr. M. Ben-Tov. Between them is the Mayor of Tel Aviv, Mr. M. Namir. Address: Jerusalem, Israel.


*Summary*: The mechanism of chick growth inhibition by raw soybeans is still obscure. Many studies since 1945 have given contradictory results. Address: Dep. of Animal Nutrition, Agricultural Research Station, Beit Dagan–Rehovot, Israel.

84. **Product Name**: Soybean Oil, and Soybean Oil Meal. **Manufacturer’s Name**: Refinery of Olives Ltd. **Manufacturer’s Address**: Tel-Aviv, Israel. Phone: 64498. **Date of Introduction**: 1961. March. **Ingredients**: Soybeans. **How Stored**: Shelf stable.


*Summary*: Growth depression of chicks by soybean antitrypsin can now be explained as follows: (1) Unavailability of amino acids, caused by inhibition of intestinal proteolysis until the age of 3 weeks. (2) Increased requirement for protein and energy due to stimulation of pancreas activity. Address: Dep. of Animal Nutrition, Agricultural Research Station, Bait Dagan, Israel.


*Summary*: “Heating of soybean meal enhances the availability of methionine for animals as shown by the in vitro digestion with pancreatin and the determination of the methionine in the digest.” “The quickest and simplest method for the evaluation of soybean meals is the empirical one based on the absorption of cresol red, which increases with heating.” Address: Faculty of Agriculture, Rehovoth, The Hebrew Univ. of Jerusalem, Israel.


*Summary*: “The inclusion of moderately heated (20 minutes at 100°C) soy flour was found to increase the loaf volume by up to 27% at the 5% and 10% soy flour levels. At the 15% level, gave generally smaller loaves than the pure wheat control.” Both unheated and overheated soy flours reduced loaf volume.

The taste of “soy breads”–containing 5, 10, or 15% full-fat soybean flour or flakes by weight–was always preferred by taste panels to that of pure white bread, so long as the flour was neither raw nor overcooked.

"Farinograms revealed the following effects of soy flour on the mechanical properties of the dough: (1) The ‘weakening’ was reduced. (2) The mixing tolerance was increased. (3) The ‘Peak time’ was not influenced.” Address: Div. of Food and
Biotecnology Technion-Israel Inst. of Technology, Haifa, Israel.


• Summary: Describes experiments “to inactivate the soybean trypsin inhibitors (SBTI) present in soybean meal (SBM), without a simultaneous destruction of soybean proteins.” Treatment with mild HCl, and digestion by pepsin and papain enzymes caused a very significant decrease in “the antitryptic activity of the SBM digest.” Address: Faculty of Agriculture, Rehovoth, The Hebrew Univ. of Jerusalem, Israel.


• Summary: Contains 15 papers or summaries on soy by various authors, each cited separately. Address: Israel.


• Summary: 20 kinds of bread were prepared and fortified with soya meal (soy flour) at 0, 6, 9, and 12% levels. The nutritional value was assessed in rats by the net protein ratio (NPR). Address: Lab. of Nutrition, The Hebrew Univ.-Hadassah Medical School, Jerusalem, Israel.


• Summary: Soybean meal was fed to young rats. Address: Lab. of Nutrition, The Hebrew Univ.-Hadassah Medical School, Jerusalem, Israel.


• Summary: “The most satisfactory method for the preparation of a white, tasteless, powdered [soy] protein isolate was found to be: (a) Extraction of dehulled soybean oil meal in water (with sodium hydroxide to neutralize the suspension to pH 7.0). (b) Filtration of extract from the non extracted material. (c) Precipitation of the protein curd by lowering the pH of the extract to pH 4.5. (d) Separation of the curd from the whey. (e) Resuspending the curd in water and neutralizing to pH 6 with dilute alkali. (f) Spray drying this suspension at a temperature of 70°-80°C.

“The possibility of adding such isolates to wheat flour in the making of bread was tested. Doughs containing as little as 5% of the isolates (based on flour weight) failed to give bread of reasonable loaf volume and texture.” Address: Div. of Food and Biotecnology Technion-Israel Inst. of Technology, Haifa, Israel.


• Summary: “It was generally believed up to now that heating of soybean meal, although improving its nutritional value for chickens, is without effect on its value for ruminants [cows, sheep, etc.].” Research conducted recently has shown that the biochemical processes in the rumen are affected by the quality of the feed and that these processes are most important in determining the efficiency of the feed.

When protein in the feed is consumed, it is quickly attacked by micro-organisms in the rumen and “undergoes its first proteolysis and deamination.” The ammonia formed is partially used by bacteria and protozoa in biosynthesis of protein. The unused ammonia passes into the blood, is converted to urea, then excreted; thus it is not used by the animal.

Sheep were fed soybean meal subjected to different degrees of heating. The best results were obtained from solvent extracted soybean meal, evaporated at 80°C for 5 minutes, then toasted at 120°C for 15 minutes. Address: Faculty of Agriculture, Hebrew Univ., Rehovoth, Israel.


• Summary: Soybeans are discussed in three places in this annual report. Section III, titled “Industrial Crops,” (p. 26, 27, and 34) describes work supervised by Y.A. Attiyeh, research officer. He begins by giving 5 reasons that research work on oilseds is continuing. “(1) Jordan spends about 1.5 million J.D. for buying vegetable oils and vegetable ghee... (3) By growing oilseds locally, Jordan can save the valuable olive oil for export, thus providing the country with some foreign currency.” Linseed, safflower, castor beans, sunflower, and soybeans were tested. The best planting dates for soybeans were tested at Deir Alla.

The section titled “Soybeans” (p. 34) states: “Because of the high feeding value of the soybeans and because of the plans to encourage more livestock in the Jordan Valley, in addition to the many other uses of the Soybeans in feeding...
poultry and human beings and in oil production; the Station has included in its programme the study of the possibility of growing soybeans in the Jordan Valley. It has introduced the variety Lee from the U.S.A.

“A preliminary test for sowing dates was designed at Deir Alla on the arrival of the seeds. It started on the 18.2 then sowing was done every month until 17.5. The seeds were sown in ridges spaced 70 cms apart and the seed holes 15 cms within the ridge. 2.5 kgs were used per dunum [or dunam, a unit of land area used in and around Israel equal to 1,000 square meters or about ¼ acre] in a randomised block design replicated four times.

“It seems that the dates were not suitable for the variety used because, in spite of the good vegetative growth especially in the last two sowings the yield of grain was very poor in the first sowing while the third and fourth sowings gave no seeds. The vegetative growth was good and the yield of about one tonne per dunum of green fodder was obtained. This fodder was found very palatable and cows liked it.

“The results indicate that further detailed trials to study the varieties that might be suitable for our conditions, and the most suitable sowing dates in addition to the water requirements should be made.”

Section IV, titled “Fodder and Forage” (p. 35), supervised by S.H. Dajani and F. Damati, states: “A series of comparative yield trials on sorghums was started in cooperation with F.A.O. [FAO]. The Station has also started to study the possibilities of introducing of maize, soybeans, and fodder legumes like vetches and cowpeas.”

Section V, titled “Rotations” (p. 43), supervised by M.H. Salim (Director of the Station) and Z. Ghosheh, states: “The soil of the Jordan Valley is deficient of humus because of the high temperature which helps to deteriorate any organic matter that might be added, and even with this case present, very little organic matter is actually added because of the lack of livestock on the farms. The Station has, therefore, in an effort to restore the fertility of the land, recommended the encouragement of rearing livestock on all the proposed units of the East Ghor Canal through encouraging the industrial crops (which give concentrated fodder as a by-product), and forage crops as berseem, cowpeas, alfalfa, soybeans, sudan grass and fodder sorghum (which all proved well under the Jordan Valley conditions, and give more income than the vegetables).”

On the last page of this report is an “Acknowledgement” dated May 1961, written by Mohammad H. Salim, Director of the Station at Deir Alla. Address: Deir Alla, Jordan.

• Summary: “Israel declared her interest in the use of soy flour for human nutrition some several years ago, when by government promulgation all flour used for baking had to be supplemented with 2%-3% soy flour. This was a time of severe food rationing in Israel, when there was a shortage of animal protein such as egg, poultry and meat... An infant food preparation called ‘Soyatamin’ has been on the market for the last year. This product contains a high percentage of specially prepared soy flour...” Address: Director for Israel, Soybean Council of America.

• Summary: Wheat is not a complete protein; its proteins do not contain the ideal proportions of essential amino acids for complete utilization of these proteins in the synthesis and functioning of human body tissues. Therefore, oil-free soy flour has been recommended as a protein supplement for bread since the soybean contains essential amino acids that are in short supply in wheat. Supplementation is much more important in diets in which wheat products are the predominant source of protein. The beneficial effect of soy flour supplementation was recently demonstrated in both white and dark breads fortified with 6%, 9% and 12% soy flour. Soy protein isolates could also be used but they are about 3 times as expensive as soy flour on a comparable protein basis. Photos show: (1) Y. Pomeranz. (2) A man loading bags of soy flour from the United States into a truck at Genoa, Italy. Address: Kansas Agric. Exp. Station, Manhattan, KS.

• Summary: The Council will soon open offices in England, Turkey, Pakistan, and Peru.

• Summary: In 1952 Egypt set out on an industrial awakening, which has resulted in a marked increase of per capita income. “The Soybean Council chose Cairo to set up an office to serve the Arab World comprising 60 million inhabitants in Africa and Asia. Taking the area as a whole, fats and oils consumption is estimated at 10 kilos per year per person, and totals 600,000 tons a year. The demand is partially met by foods produced in the various regions.” Egypt uses cottonseed oil. Syria uses sheep fat. North Africa produces mainly olive oil. The Arab Peninsula, including Jordan and Lebanon, relies mainly on imports. “At the recent Cairo Fats and Oils Symposium... it was unanimously decided that soybeans and their products have helped and will continue to be needed in aiding nutrition in this area. As an example, Egypt imported 6,000 tons of oil in 1959 for use in soap. In 1960, 17,000 tons were used in vegetable butter manufacture and the demand is constantly rising. The housewife is switching from higher priced animal...
fats to the good, cheap vegetable shortening that is available.”
Address: Director for UAR, Soybean Council of America, Cairo, Egypt.

[Eng]
• Summary: The Introduction begins: “It is a well-known fact that good forage, green or preserved, is the foundation of efficient livestock production. The need for more forage in Jordan in both the irrigated and rainfed areas has been emphasized by the past three years drought as an urgent matter for all concerned.”

Table 1, titled “Strains of grasses and legumes tested at Deir Alla, 1956-1958” (p. 6-9) contains a one-line entry on page 9 for “Soja max (Soya beans).” Height attained: 45 cm. Green weight of 1 square meter: 1.20 kg. Grade: Promising.

The Forward (by Salim Nashef, Director of Research) begins: “This Research Bulletin is adapted from a paper presented to the Agricultural Research Seminar composed of the agricultural technical personnel of the Ministry of Agriculture and the agricultural advisors of the United States Operations Mission to Jordan and experts of the Food and Agriculture Organization of the United Nations [FAO]. The information presented in this bulletin is based on original research work conducted by the author at Deir Alla…” Address: Forage Crops Research Officer, Deir Alla Agricultural Research Station, Ministry of Agriculture, Jordan.

• Summary: “Analyses of residual trypsin inhibiting activities showed that hemagglutinating activity was completely destroyed even when incubated with HCl [hydrochloric acid] alone, whereas trypsin inhibiting activity was destroyed to a varying extent, depending upon the material examined.” Address: Dep. of Agricultural Biochemistry & Animal Nutrition, Faculty of Agriculture, Hebrew Univ., Rehovot, Israel.

• Summary: “The pronounced stability of purified acetone-insoluble inhibitor to acid and pepsin suggests that this inhibitor may pass the stomach undamaged and reach the site of trypsic and α-chymotryptic activity. Therefore it may play an important role in the growth-depressing activity of raw soybean meal.” Address: Faculty of Agriculture, Hebrew Univ., Rehovot, Israel.

• Summary: Isolated soy proteins as supplements for bread dough. Address: Technion–Israel Inst. of Technology, Haifa.

• Summary: A summary of the use of lecithin as a food supplement. Address: Technical Advisor, Soybean Council of America, Inc.

• Summary: Wide scope exists for study of chemical modification of soy protein aimed at improving their nutritional qualities. Address: Dep. of Biophysics, The Weizmann Inst. of Science, Rehovoth, Israel.

• Summary: Contents: Experiments in poultry feed supplementation with fats (incl. soya lecithin, acidulated soya soapstock). Technical aspects of the addition of fats to poultry feed. Economic considerations.

Conclusion: Acidulated soapstock is a good product. Eventually farmers will want to use it if the price is reasonable. When they do, this will be an “ideal state of affairs in which the soya oil industry gets rid of a not especially desirable by-product, and the farmers obtain a desirable and economically feasible supplement.” Address: Agricultural Research Station, Beit-Dagan, Israel.

Address: 1. M.D., Director, Medical Geography Dep., American Geographical Society, New York City, NY; 2. M.P.H.


• Summary: The National Academy of Sciences was established in 1863, the National Research Council in 1916, and the Food and Nutrition Board in 1940.

In Aug. 1960, 33 researchers from 18 foreign countries joined with 42 researchers from the USA in a 4-day conference to review the results of a worldwide research program for the development of protein products suitable for infants and children from indigenous resources such as soybeans, cottonseed, peanuts, and similar products in countries where protein deficiency is most prevalent. This research program has been conducted by the Committee on Protein Malnutrition with funds provided by the Rockefeller Foundation in cooperation with UNICEF, FAO, and WHO. The researchers also met to survey the areas of greatest need for further research, and to evaluate the status of knowledge in protein nutrition.

The 45 research reports in this volume constitute a comprehensive summary of the status of protein nutrition around the world and the technological problems involved in the development of economical protein foods. The papers are divided into the following groups: Central and South America (7 papers), Africa and the Middle East (10), India and the Far East (10). Relevant research in the United States (6). Experimental protein malnutrition in animals (4). Basic principles of protein and amino acid evaluation and potential protein resources (10). Protein problems around the world (3). Summary of the conference. Nomenclature guide to plant products cited.

Autret (p. 537) stated “the No. 1 problem for F.A.O. and for national agricultural departments is the production of protein foods of good quality.” Address: Washington, DC.


• Summary: Lysine content of nine milled flours was determined microbiologically. “High-extraction flours contained higher lysine contents than did white flours. No significant content was found between protein content and lysine concentration in the protein... It is proposed to characterize protein-enriched breads according to their protein and lysine contents, instead of designating them by level of supplement added.” Soya flour was used as an ingredient (p. 79); its nutritional composition is given on p. 80. Address: Ministry of Commerce & Industry, Food Testing Lab., Haifa, Israel.


• Summary: Soybean meal added improves the nutritive value of bread proteins. Address: Lab. of Nutrition, Hebrew Univ.–Hadassah Medical School, Jerusalem, Israel.


• Summary: The NRRL had previously developed a vapor-type desolventizer to recover hexane solvent and concentrated alcohols. This paper describes the use of this desolventizer to recover dilute alcohols. “Soybean meals washed with aqueous alcohols are debittered to yield a better flavored product with a significant increase in protein content.” Washing with methanol (which gave the best flavor), ethanol, or isopropyl alcohol in a concentration range of 50-70% gave a vegetable protein concentrate whose protein content was increased to about 72-74% from about 50%. Its Nitrogen Solubility Index (NSI) ranged from 4 to 16.

Note: This is a very important, pioneering document. Daniel Chajuss wrote (Dec. 2007) that his work at Hayes Ashdod Ltd. in Israel making soy protein concentrates using the aqueous alcohol wash was influenced by this important article and concept. Address: NRRL, Peoria, Illinois.


• Summary: The section titled “Insects” (p. 44-45) states that in Jordan, the soybean was one of many plants which was a host for the cotton leaf worm (P. litura). Address: Deir Alla, Jordan.


• Summary: Through the soya test kitchen, established by the Soybean Council in Israel, over 160 recipes calling for the use of soy flour were developed to suit the tastes of seven ethnic groups living in Israel: Arabs, Iranians, Syrians, Yemenites, Egyptians, Indians, and Moroccans. After a rigorous series of taste tests by women from each ethnic group, the recipes that receive the highest scores are printed and distributed. “By showing how to substitute soy flour in native dishes throughout the world, countless markets can be opened.” A photo shows Joseph Mazur. Address: Director for Israel, Soybean Council of America Director.

**Summary:** Gives a summary of progress on grants approved prior to Sept. 1971 in Finland, France, Israel, Italy, Japan, Poland, Spain, and the United Kingdom. There are now additional proposals under consideration in France, Indonesia, Israel, Japan, Italy, and Spain. For each project, the size of the grant in that country's currency is given.

In Finland, for example, a grant has been approved for an “Investigation of continuous multistage countercurrent crystallization of linseed and soybean fatty acids as a practical method of producing pure unsaturated fatty acids,” by the University of Helsinki, Viik, Malmi. Amount: $70,500. Approved Feb. 1960. Address: Asst. Director, Foreign Research and Technical Programs Div., ARS, USDA.


**Summary:** A large photo shows the entire staff of the Soybean Council of America at Waterloo, Iowa, June 4-15, standing in four rows. Since the Council was formed a little over 5 years ago, business and market development has increased to where exports [of soybeans and products] amount to over $1.5 billion per year from the United States. The International Operations Office of the Soybean Council is now operating in over 42 countries throughout the world. For each person is given the name, position, country, and city. These include: Andre Tawa of Egypt. Dominic Marcello and Dr. Fred Marti, international relations, Rome, Italy. Howard L. Roach, SBC president, Waterloo, Iowa. Dr. James W. Hayward, SBC director of nutrition, Minneapolis, Minnesota. Dr. Carlos Giraldo, Columbia. Reginald L. Wood, United Kingdom. Vasfi Hakman, Turkey.


In addition, there is a full page of candid photos from the conference and a half page of photos of the SBC's activities in Italy, Spain, England, Norway, and Pakistan.


**Summary:** A study on improving the human diet by improving its protein content through the use of soy protein. Address: National and Univ. Inst. of Agriculture, Rehovot, Israel.


**Summary:** Discusses U.S. foreign trade with these three countries. Contains an appendix on Jordan—but soy is not mentioned in it. Malta, an area within the British Commonwealth, has a general economy that is closely tied to military and naval expenditures of the United Kingdom. Malta's excellent deep seaport of Valletta has port-handling and bulk facilities for grains and vegetable oils. Malta imports each year with free currency over 3,000 tons of crude degummed soybean oil in bulk, and about 2,000 tons of margarine and shortening. From its excellent, relatively new refinery, Malta re-exports fully refined soybean oil to neighboring countries. “U.S. crude soybean oil was exported directly to Malta for the first time in 1960... Following a gradual introduction of 500 to 1,000 tons of soybean meal, import requirements for this high-amino-acid meal could average 5,000 tons a year by 1965, especially if the planned 30,000-unit poultry farms are set up. The United States, which is currently delivering bagged soybean meal to Greece, can export soybean meal to Malta at a per-protein-unit price that is competitive with other proteins now being imported.

“Imports of crude soybean oil, begun in 1958, have now all but replaced other seed oil imports. Refined soybean oil has been supplied primarily by Denmark, the United Kingdom, Japan, and the Netherlands. Crude degummed soybean oil is currently being imported from Denmark and the United States, but in earlier years it had originated from Israel and Japan.

Table 10 (p. 33) shows Malta’s imports of selected animal fats and vegetable oils, 1957-1961. In 1957 Malta imported 1,228 tonnes (metric tons) of refined soybean oil and no crude soybean oil. In 1958 the country imported 1,440 tonnes of refined soybean oil and 1,446 tonnes of crude soybean oil. In 1961 (preliminary figures) Malta imported 43 tonnes of refined soybean oil and 3,186 tonnes of crude soybean oil.

Page 35 states: “The vegetable oil industry of Malta is represented by The Edible Oil Refining Company, Ltd., with its plant at [72 Merchants Street] Marsa, a suburb of Valletta. The refinery has always concentrated on the refining of crude degummed soybean oil, imported primarily in bulk from Western Europe.” Photos show the refinery. Soybean cultivation in Malta is not mentioned.

Note: This is the earliest document seen (Feb. 2001) concerning soybean products (soy oil) in Malta. This document contains the earliest date seen for soybean products in Malta (refined soybean oil in 1957); soybeans as such had not yet been reported by that date. Address: Fats and Oils Div.

- Summary: Contents: Advantages of soy oil. Symposium on soy derivatives for human use will be held at the Northern Regional Research Laboratory on Sept. 13-15. A symposium on soy oil has been organized in Tehran, Iran, on April 4-5 by the Soybean Council of America. Whey (Petit-lait de soja) from making soy protein isolates. Soy flours. Soy macaroni. Soy noodles (moullles). Soy bread. Neutralization of soy oil to make soaps. Efforts in Paraguay (the government wants to develop soya cultivation; the crop was first introduced in 1920 by Prof. Cianco, who was returning from a stay at the University of Naples where he had studied the biological value of soy protein with Prof. Filippo Botazzi. From 1936 on some 161 ha of soya were growing in Paraguay of four varieties: Mammoth, Hollybrook, Shanghai, and Pekin. By crossing the two best (90% Mammoth and 10% Hollybrook) a new variety was created named Soja Paraguaya). The soy oil market in Spain. Fertilizing soybeans in Arkansas. Autoxidation of soy oil.

A large photo shows a ship discharging barrels of soy oil at the port of Cadix [Cadiz, Andalusia, southwestern Spain].


"Ten years ago, Spain used very little soy oil. Spain has large olive groves and olive oil is 'king' there. The mere suggestion that Spain export its olive oil and purchase soybean oil from the U.S. seemed ridiculous to those who knew the eating habits of the Spanish people. Now, 10 years later, Spain is our largest off-shore buyer of soybean oil; Spanish people are using and, in many cases, preferring soybean oil as a food oil; and Spanish olive oil is being exported at a price considerably above its replacement cost as soybean oil. As a result, Spain has a net export income that is much greater than if they continued to utilize their olive oil production in Spain." Address: Director of Edible Protein Products, Specialty Products Div., General Mills, Inc., 9200 Wayzata Blvd., Minneapolis 26, Minnesota.

119. Musharraf Ali, Syed. 1962. Effect of spacing of plants between and within rows on yield and other characteristics in soybean. Master of Science in Agriculture thesis, Faculty of Agricultural Sciences, American University of Beirut, Lebanon. viii + 53 p. 28 cm. [38 ref]

- Summary: This experiment was conducted for two years, 1961 and 1962, at the American University farm situated in the Bekaa plain about 80 km (49.3 miles) east of Beirut, under irrigated conditions. Three soybean varieties were used: Clark, Grant, and Hawkeye. The first year, the soybeans were planted on the 9th and 10th of May 1961 (two replicates each day). The second year they were planted on 25 April 1962. The author reported that increasing the distance between soybean rows increases the protein content of the seed. The oil percentage of the three varieties was not influenced by the various distances between and within rows. The variety Clark performed best in both seed yield and protein content when compared with the other two varieties.

Note 1. This is the earliest document seen (Dec. 2007) that clearly refers to the cultivation of soybeans in Lebanon. This document contains the earliest date seen for the cultivation of soybeans in Lebanon (9 May 1961 at the American University of Beirut). The source of these soybeans was probably the USA.

Note 2. The writer’s chief advisor was Dr. W.W. Worzella. Because of U.S. AID (U.S. Agency for International Development) the writer was able to study at AUB. Address: Lebanon.


- Summary: The age of chicks was found to affect their sensitivity to raw and unprocessed soybean oil meal. The growth of younger chicks are more adversely affected. Address: Div. of Poultry Husbandry, National & Univ. Inst. of Agriculture, Rehovot, Israel.


- Summary: “A thorough survey of the present and potential markets for both the oil and meal fractions of the soybean.” Discusses food uses of soybean oil, fats and oils used in margarine (1946-61; graph), sources of high-protein concentrates or livestock and poultry feeds (1937-61; graph), polyunsaturated fatty acids in the U.S. diet, feed and food uses of soybean meal, growth in oilseed meal consumption, tofu, miso, tempeh, UNICEF’s clinical trial with soy beverage for infants in Taiwan, Public Law 480 and soya. To date 12 projects sponsored by the NRRL and funded by P.L. 480 on various food aspects of soybean utilization have been activated in Italy, Spain, Scotland, Finland, Israel, and Poland.

Figure 1, “Fats and oils used in shortening (1946-61)” is a graph showing that in 1945, soybean oil was the main oil used, followed by cottonseed oil, with animal fats a distant third. In 1961 soybean oil is still the leader (47.6% of total fats used), followed by animal fats (33.3%), then cottonseed oil (16.7%). Figure 2 is a graph showing that per capita consumption of liquid edible oils increased from about 6.2 lb in 1945 to
11.2 lb in 1961.

Figure 3, “Fats and oils used in margarine (1946-1961)” is a graph showing the total increasing from about 450 million lb in 1946 to about 1,350 million lb in 1961. In 1946 soybean oil and cottonseed oil each accounted for about 50% of the total oil. In 1961 soy oil accounted for about 78% of the total, followed by cottonseed oil and corn oil. Address: Director, NRRL, Peoria, Illinois.


• Summary: A protein fraction (c-1) from soybean meal inhibits the growth and proteolytic activity in vitro of the larvae of the insect Tribolium confusum. This study reports the separation of C-1, an isolated protein fraction in soybeans, from the accompanying trypsin inhibitor and soybean amylase. It is hoped that this protein fraction will serve as a helpful tool in the study of insect proteolytic enzymes. Address: Faculty of Agriculture, Hebrew Univ., Rehovoth, Israel.


• Summary: Soybeans contain growth-depressing substances which can be destroyed by heat. “Among these alleged anti-nutritional factors are the saponins, which are generally characterized by their bitter taste and foam-forming and haemolytic activities.” In order the elevate the nutritional value of soybean oil meal for chicks and rats, the authors examined the effect of heat processing on the haemolytic activity of soybean saponin extract, which was found to be highly haemolytic compared with saponins from other sources. This activity is not affected at all when soybean meal is autoclaved under optimal conditions.

Note 1. This became part I in a series of articles by this group on soybean saponins. Note 2. This is the earliest English-language document seen (Feb. 2003) that uses the term “anti-nutritional factors” (spelled exactly like that). Address: Faculty of Agriculture, Hebrew Univ., Rehovot, Israel.


• Summary: Miss Elizabeth Klagg (member of the American Dietetic Association) and Dr. Madge Miller (of the food and nutrition department, Iowa State University, Ames, Iowa) visited the offices of the Soybean Council of America in England, Denmark, Italy, and Israel.

They “observed the activities of the staffs in these countries; toured food processing plants manufacturing foods using soy products; toured home economics colleges, university research departments, high school economics departments, clinics, hospital diet kitchens, school lunch and commercial food service departments an test kitchens.

“For 10 days, they assisted at the catering exhibition of American foods at the U.S. Trade Center in London.” And they “observed the work of the Soybean Council in Common Market countries when they spent a week in Brussels,” Belgium.


• Summary: Turkish consumers are now being introduced to Soya, the first packaged soybean oil sold as such in an olive oil producing country. Prior to this year, Turkish imports of soybean oil have been used only in margarine and shortening products and in soap. The Soybean Council of America has spent 3 years in paving the way for the new product. Olive oil is also twice as expensive as the soybean oil.


• Summary: A new trypsin inhibitor has been discovered. An existing acetone insoluble trypsin inhibitor was further purified and separated from a highly active amylase. Its purity was established using two methods. The molecular weight of the new inhibitor was found to be 24,000 and its isoelectric point was pH 4.2. It’s non-identity with the crystalline trypsin inhibitor was further proved by its higher specific activity (13-fold) against chymotrypsin and by the absence of tryptophan. Address: Faculty of Agriculture, Hebrew Univ., Rehovot, Israel.


• Summary: Note 1. This is the earliest document seen (Dec. 2007) concerning soy molasses, which it calls “a molasses-like syrup.”

Note 2. This is the earliest document seen (Dec. 2007) concerning the work of Daniel Chajuss or Hayes Ashdod Ltd. (Israel).


• Summary: In 1961 the Soybean Council of America (SBC) opened its office in Turkey. In 1962, Turkey imported 35,000 tons of soybean oil. This figure is expected to reach 65,000 tons in 1963—an increase of 85%. “A multi-year agreement has been signed between Turkey and the United States.” It states that Turkey will import $60.3 million worth of soybean oil and cottonseed oil. It is expected that about 74% of this will be soybean oil.

For a long time vegetable oil has been distributed to the margarine industry by the Turkish government. SBC efforts
have changed this. In March 1963, fully refine liquid soybean oil was introduced to the market under the name of “Soya.” It is presently supplying the needs of both the margarine and liquid oil industries. This liquid oils sells for 4.6 Turkish liras per kilo, versus 6.00 liras for margarine and 10.5 liras for olive oil. Photos show: (1) Vasfi Hakman. (2) A customer purchasing soybean oil at a store in Istanbul. Address: Director, Soybean Council of America, Turkey.


• Summary: The market for soybeans in Israel has been growing steadily and reached 235,000 tons in 1962. On a per-capita basis, among the 2.2 million inhabitants of Israel, this is probably the largest in the world.

“There is now a widespread interest in Israel in fresh soybeans, green soybeans of the edible type among vegetarians, whose number is steadily increasing. Health food stores are opening up and one of their main items, for which they come to the Soybean Council, is edible soybeans.

“Soy flour and grits of various types, and especially lecithinated soy flour, are becoming widely used ingredients by housewives and industry... If this continues, Israel will probably be the first country in the world outside of the Far East where soy proteins will become a substantial part of the diet of population.”

Photos show: A portrait of Mr. Mazur. A soybean exhibition at Tel Aviv in March 1963 with J. Mazur and Eliahu Navot (an Israeli soybean pioneer) sampling soy cookies with members of the Russian embassy. Address: Soybean Council Director for Israel.


• 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 (306,185), 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).


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 Cameroon [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 (Dec. 2007) 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 (Dec. 2007) 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.


- **Summary:** This is the third in a series of USDA research reports under the P.L. 480 program. Discusses progress on active projects: Soybean oil in Seville, Spain; Chemical changes in steros during refining of soy oil by Prof. H. Niewiadomski in Gdansk, Poland; Flavor stability of soy oil in by Prof. Y. Toyama at Toyo Univ. in Japan; Improving the frying quality of soybean oil by Prof. G. Varela at Univ. of Granada, Spain; Meal constituents.

Oriental foods: Production of shoyu (soy sauce) using U.S. vs. Japanese soybeans, use of dehulled soybean grits for making miso, miso-type food in Israel, use of U.S. soybeans in making tofu, or soybean curd, by the Japan Tofu Association, Tokyo.

Industrial applications: Polymerization studied in Milan, Italy. Soybean constituents. Oriental foods #2: Dried tofu in Japan, *Saccharomyces rouxii* yeast in shoyu and miso, development of fermented products from soybean milk in Japan, fermented soybean cheese in Taiwan, fermented soyfoods (tempeh, onjtom, ragi) in Indonesia.

Domestic research for increasing imports: Work with soy oil, UNICEF trainees from Brazil studying tempeh, projects saponins, protein complexes, and isolated protein quality in Israel.

A small portrait photo shows F.R. Senti. Address: Director, Northern Utilization Research and Development Div. (also known as the Northern Regional Research Lab.), Agricultural Research Service, USDA, Peoria, Illinois.


- **Summary:** In the Cyprus International Fair in Lamassol, the first U.S. agricultural commodity group to participate in this exhibition will be the Soybean Council of America. The first imports of U.S. meal are now moving into Cyprus and are expected to increase. U.S. soybeans will be crushed there on an experimental basis for meal and oil.


- **Summary:** Contents: Introduction (world food shortages), Technological assistance (by NRRL). Oriental traditional foods: Tofu, shoyu or soy sauce, miso or soy paste, monosodium glutamate, natto and kinako, soy beverage, tempeh (tempe). Recent food developments. Address: NRRL, Peoria, Illinois.


- **Summary:** Benefits of using soybean oil is the theme of an exhibit by the Soybean Council of America at the Izmir International Trade Fair, Izmir, Turkey, August 20–September 20. Big attention-getters are expected to be a soybean oil fountain, and “soybean portraits” of George Washington and of Mustafa Kemal Ataturk, founder of Turkey.

Note: Izmir, historically Smyrna, is the third most populous city of Turkey and the country’s largest port after Istanbul. It is located in far western Turkey on the Gulf of Izmir, by the Aegean Sea. The city is one of the oldest human settlements of the Mediterranean basin, starting roughly 6500 to 4000 BC.

135. **Product Name:** Haypro (Soy Protein Concentrate).

**Foreign Name:** Haypro.
Soy Molasses.

Manufacturer’s Name: Hayes Ashdod Ltd. Renamed Solbar Hatzor Ltd. in April 1987.
Manufacturer’s Address: Habosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel.
Date of Introduction: 1963. October.
How Stored: Shelf stable.
New Product–Documentation: Letters from Daniel Chajuss, founder and owner of Hayes Ashdod Ltd. 1992 June 23, and 1993 Jan. 5 and 14. In 1963 Daniel Chajuss (pronounced ha-YUT) established and owned the first soy protein factory (Hayes Ashdod Ltd., Habosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel) which was using a newly self-developed, proprietary, counter current aqueous alcohol extraction system to obtain soy protein concentrate from non-toasted, hexane-extracted flash desolventized “white” soybean flakes. An aqueous alcohol immersion extraction system was already in use commercially by Central Soya Co. (and is still used by Central Soya in the USA). The name of Hayes’ first soy protein concentrate product, introduced in late 1963, was Haypro. It was the first commercial soy protein concentrate manufactured outside the USA. The main applications for Haypro were as a meat extender, and in hypoallergenic formulas (especially for babies and children allergic to cow’s milk). Most of the product was sold outside Israel, mainly in Europe.

Soy molasses, a concentrated extract of soy solubles obtained during the production of soy protein concentrate, was also introduced in 1963 by Hayes Ashdod Ltd. This product is used in animal feeds and as a source of oligosugars [oligosaccharides] for elderly people to maintain proper digestive-tract flora and regularity (mainly in Japan).

Note 1. This is the earliest known commercial soy product made by Hayes Ashdod Ltd. (Israel).

Note 2. This is the earliest known commercial soy protein concentrate made using the aqueous alcohol extraction or wash system.

136. Product Name: Soy Molasses.
Manufacturer’s Name: Hayes Ashdod Ltd. Renamed Solbar Hatzor Ltd. in April 1987.
Manufacturer’s Address: Habosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel.
Date of Introduction: 1963. October.
How Stored: Shelf stable.
New Product–Documentation: Letter (e-mail) from Daniel Chajuss, founder and owner of Hayes Ashdod Ltd. 2005. April 8. Hayes Ashdod started selling soy molasses in 1963, at the same time it started making soy protein concentrate. A by-product of making concentrates, this soy molasses was manufactured according to the company’s patent submitted in 1963 (“Process for the production of molasses-like syrup, Israel Patent 19,186 (1963)). “The name that we gave to the product from the start was always only “soy molasses” because it looked much like sugar molasses, being a brown viscous syrup with a typical bittersweet flavor, smelled the same as sugar molasses, and was intended for animal feeding purposes—just like sugar molasses. It was thus easier to sell it for animal feeds when it was labeled ‘molasses.’ Central Soya did make a product like soy molasses at about the same time we did, but they called it ‘soy solubles.’ Aarhus Oliefabrik A/S of Denmark, which bought our engineering designs for a soy protein concentrate and molasses plant, got the name ‘soy molasses’ from us as well, and have been using it since about 1974, when they started selling the molasses. They mixed it into the soybean meal they made and/or sold it to feed mills. ADM started making alcohol washed soy protein concentrate many years later. They actually made and still are making a very diluted soy molasses; they use it as a fermentation aid for their industrial alcohol [ethanol] manufacturing plant, and as a source of isoflavones. Soy molasses is now generally used as an ingredient in mixed feeds, as a pelleting aid, added to soybean meal (e.g., by spraying it into the soybean meal desolventizer toaster), mixed with hulls and in liquid feed diets for ruminants. Pigs are able to digest the oligosaccharides present in soy molasses; the stachyose and raffinose are apparently completely fermented by the hindgut bacteria of the weanling pig. Soy molasses is also used as a fermentation aid, as a prebiotic (Bifidobacteria growth promoter), and as an ingredient in specialized breads. It can be used as a substrate for lactic acid production by *Lactobacillus salivarius*, as a plywood adhesive, and to stabilize sandy loams. In the late 1960s Hayes Ashdod Ltd. sold appreciable quantities for this latter purpose. In the early 1970s, Dr. Micha Naim, of the Hebrew University, Faculty of Agriculture, Rehovot, used soy molasses from Hayes to isolate, characterize, and study the biological activity of soybean isoflavones for his PhD thesis; and he found a new isoflavone he called glycitein. In 1995 we got a patent (D. Chajuss, 1995. A novel use of soy molasses. Israel Patent 119,107) We did not make this product commercially as we had sold Hayes Ashdod, but the know-how is used today by others.

Note: This is the world’s earliest known commercial soy molasses product.

• Summary: The use of defatted soybean flakes, “the protein-rich residue remaining after commercial oil extraction from the whole soybean,” in place of whole soybeans, gave a product which compared favorably with Japanese miso and with miso prepared locally from whole soybeans. Address: Dep. of Biochemistry, The Bar-Ilan Univ., Ramat-Gan, Israel.

Predictions for soybean exports. The need for research and production of livestock is superior to one which uses grain or• Summary

Publications
University of Beirut, Faculty of Agricultural Sciences, Publication No. 25. 23 p. Feb. See p. 10-11, 21.

139. Maun, M.A. 1963. Effect of row-width on yield and other characteristics of forage crops. MSc thesis, Faculty of Agricultural Sciences, American University of Beirut. *

140. Product Name: Soybean oil, and 44% Soybean meal.
Manufacturer’s Name: Tavlin Ltd. Oil & Soap Factory.
Manufacturer’s Address: Rishon Lezion, Israel. Phone: 941-224.
Date of Introduction: 1963.
Ingredients: Soybeans.
How Stored: Shelf stable.

• Summary: Identified four sapogenols, designated A, B, C, and D respectively. Soybean saponins were prepared from ether-extracted soybean meal. The saponins were then subjected to acid hydrolysis in ethanolic hydrochloric acid. The resulting sapogenols were precipitated by adding water.


• Summary: A system of farming which uses forages in the production of livestock is superior to one which uses grain or specialized cash crops. A forage system helps to maintain soil productivity and economic stability. Yet in the Middle East, research on forage crops is very limited. These experiments were conducted at the Agricultural Research and Education Center located in Lebanon’s north central Beqa’a plain.

In the section titled “Irrigated experiments” is a subsection on “Trials with different crops” (p. 10-11). Soybeans and a corn-soybean mixture were grown under irrigation during the 2-year period 1962-63. The results (based on data from a 1963 M.S. Thesis by Maun) are shown in two tables. Table 4 gives the average yield (air-dry) of four different forage crops during 1962 and 1963: Sorghum, corn, soybean, and corn-soybean. Sorghum gave the highest yield (2.96 tons/dunum avg.), followed by corn (2.04), corn-soybean (1.60), and soybean (0.90).

Table 5 gives the protein content of these same four crops: Sorghum 5.45%, corn 6.28%, corn-soybean 7.45%, and soybean 11.76%. This protein content is approximately inversely proportional to yield. Total protein produced per dunum was: Sorghum 161.3, corn 128.1, corn-soybean 119.2, and soybean 105.8.

• Summary: Although Turkey is an agricultural country, it cannot produce enough oil to meet domestic needs. There are now 12 margarine plants in Turkey, with an annual capacity of 80,000 metric tons (tonnes) of soybean oil. Kitchen and acceptability tests show that liquid soybean oil is favored in Turkish dishes. At the Izmir International Trade Fair, 1.5 million people saw potatoes fried in soybean oil. In Dec, 1963, SCA held two oil industry seminars in Izmir and Adana. A Turkish Vegetable Oil Council was established in March 1964, and 27 organizations are now members. The first bulk oil terminal in Turkey, with a capacity of 20,000 tonnes / year, is now under construction at Izmit Bay on 15 acres of land. Later, bulk terminals will be constructed in Izmir and Mersin.

In 1961 no soybean oil was imported to Turkey. In 1962, 34,798 tonnes were imported, increasing to 59,663 tonnes in 1963.

Photos show: (1) Vasfi Hakman. (2) Soybean oil in 55 gallon barrels in the hold of a ship in Istanbul. Address: Director, Soybean Council of America for Turkey.

• Summary: Israeli research. Soapstocks increased Vitamin A storage in livers of chicks fed a Vitamin A deficient diet. Biological activity was mainly associated with one carotenoid,
3'-hydroxyl-3,4-dehydro-B carotene, a dehydration product of lutein. Address: National and Univ. Inst. of Agriculture, Rehovot, Israel.

• Summary: Israeli research note. The test is based on direct determination of the action of trypsin on an insoluble dye-soy protein. Address: Dep. of Biochemistry, Bar-Ilan Univ., Ramat-Gan, Israel.

• Summary: On July 1 the Soybean Council of America, Inc. moved across the street in Waterloo, Iowa. The new address is: “200 East 5th St., Waterloo, Iowa 50703. The telephone number will remain the same. The new offices are located on the ground floor at the corner of East 5th and Sycamore Streets.”

“A visitor at the Waterloo office and of President Howard L. Roach early in July was Eliahu Navot of Herzlia, Israel. Mr. Navot had a chance to become acquainted with the soybean crop and industry in this area. Mr. Navot is a pioneer with soybeans and soy foods in Israel, where he has been engaged in introducing soybeans into the Israeli diet for many years.”

• Summary: Three photos show: (1) SBC home economist Miss Gunel Ataisik is preparing Turkish dishes in the kitchen of a low income family in Ankara, Turkey. (2) Archbishop of Palermo, H.E. Cardinal Ernesto Rufini, visiting the SBC stand in Palermo, Italy, at the Sample Fair. (3) SBC director for India, Maharajkumar Virendrasingh, inspecting the East Asiatic Co. refinery at Madras, India.

• Summary: The Soybean Council of America plans to send three of America’s top vegetable oil research and production men to Iran to work at the “shirt-sleeve” level with technicians from Middle Eastern and Asian countries at the Council-sponsored Regional Oil Conference at Tehran, Oct. 20-24.

Representing the Council at the conference will be: Dr. A.R. Baldwin, director of research of Cargill, Inc., Minneapolis, Minnesota; Dr. Karl F. Mattil, associate director of research, Swift and Co., Chicago, Illinois; and Dr. John C. Cowan, chief, oilseeds crops laboratory, Northern Regional Research Laboratory, Agricultural Research Service, USDA, Peoria, Illinois.

The conference will put primary emphasis on modern methods of soybean oil extraction, refining, and processing. It will also discuss technical modification of soybean oil for use in vanaspati, margarine, shortening, cooking oil, salad oil and dressings, mellorine, filled milk, and other potential uses in the Middle East and Asia.

• Summary: During the last decade researchers have learned much about the structure and properties of glycoproteins isolated from animal tissues. However our knowledge of the occurrence of plant glycoproteins is still scanty. Here, the isolation of a glycopeptide from a proteolytic digest of soybean hemagglutinin is described, thus establishing the glycoprotein nature of this phyto-hemagglutinin. Address: Dep. of Biophysics, The Weizmann Inst. of Science, Rehovoth, Israel.

• Summary: Major changes are planned for the soybean market development program in a move to consolidate and strengthen overseas operations. Effective December 31, soybean promotion will be administered from a new Washington, DC, headquarters, replacing that in Waterloo, Iowa. The European headquarters in Rome will be closed, along with all country offices except those in Spain, West Germany, and Belgium—with the latter to handle promotion in the Benelux countries, Denmark, France, Greece, Israel, Norway, Portugal, Sweden, and the United Kingdom. A South American office in Bogotá, Colombia, will direct activities in Chile, Colombia, Ecuador, Peru, and Venezuela.

152. Product Name: Haysoy Soy Flours [Full Fat, Defatted, Toasted, Untoasted].
Manufacturer’s Name: Hayes Ashdod Ltd. Renamed Solbar Hatzor Ltd. in April 1987.
Manufacturer’s Address: Habosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel.
Date of Introduction: 1964.
How Stored: Shelf stable.
In 1964 the company introduced Haysoy brand soy flours in full fat and defatted, toasted and untoasted forms, mainly for the baking and fermentation industries.


He has written a paper titled “The VioBin process for solvent extraction and dehydration of wet-fat products” indefinitely.”

Ezra Levin, president of VioBin, states that his process can solve the world’s animal protein deficit and that a one-time $300 million investment could finance enough permanent, self-sustaining facilities to overcome the world’s animal protein deficit indefinitely.” He has written a paper titled “The VioBin process for solvent extraction and dehydration of wet-fat products” (Monticello, Illinois, Sept. 1963) (p. 78).

IV. Are potential protein resources available?: Animal vs. vegetable protein. Oilseed resources. Marine resources. Protein resources and individual countries. V. The role of governments: United States government: Cooley loans, guarantees, information, research, Food for Peace, competition. Local governments.

VI. Commercial feasibility–attitudes and opinions: How well is industry informed? What approaches are being considered?: Commercial ventures, individual projects, incremental basis, licensing arrangements, cooperative efforts, government involvement. What are the bottlenecks?: Finding the commercial market, distribution, changing food habits, product development, motivation and personnel, technical problems, risk and economic return. What are the opportunities?: Profitability, future markets, public relations value, local government relations, social responsibility. Lack of consensus.

VII. Conclusions, reflections, and advice: Product development, production, promotion, distribution, getting started, words of caution. VIII. Bibliography. IX. Appendix.

Concerning Food for Peace (p. 102-04). “The Food for Peace program was an outgrowth of Public Law 480, passed in 1954. The original purpose of the law was to provide the United States with a means of disposing of surplus commodities by selling them for local currencies of needy countries. Total exports under this law accounted for 28% of total U.S. agricultural exports for the first nine years the law has been in operation.” These exports were composed of the following: wheat and wheat flour (56%), fats and oils (16%), cotton (13%), feed grains (5%), rice (4%), dairy products (2%), and other commodities (4%). “In 1963 these exports amounted to 34% (in dollars) of the total United States economic assistance effort abroad.

“In administering Public Law 480 the various agencies involved are governed by the provisions of the four sections: Title I–sales for foreign currencies (63% of total shipments); Title II–emergency relief and economic development (11%); Title III–donations through voluntary agencies (25%); Title IV–credit sales for dollars (1%).

“The Department of Agriculture administered the program from 1954 until 1960, when President Kennedy created the office of the Director of Food for Peace program. This person reports directly to the President and coordinates the efforts of the many governmental agencies that are involved in the administration of Public Law 480.” A diagram (p. 103) shows the Food for Peace operational [organization] chart. Immediately below the Director of Food for Peace are USDA, AID (Agency for International Development), State Department, Treasury Department, BOB [Bureau of the Budget, later Office of Management and Budget], Defense USA & OEP Commerce [OEP is Office of Economic Programs within the Business and Defense Services Administration].

“Much of the free food is distributed through voluntary agencies (‘Volagencies’ on the chart). Such organizations as CARE, the Church World Service, Catholic Relief Services, the Jewish Joint Distribution Committee, and others have many projects that are largely dependent on PL–480 for food and
seed. Shipping charges on these products are often paid by AID. Within the recipient country, the local government usually pays the distribution charges...

“Perhaps the broadest Food for Peace activity is the school lunch feeding program under which 40 million children (as of August, 1963) receive daily lunches in many countries. Another important use of this food is as wages for community development projects; present Food for Work projects in 22 countries employ an estimated 700,000 workers. In this manner, the food has been used to encourage the building of schools in Bolivia, the planting of trees in Tunisia, and the construction of a road in Iran.”

Note: This is the earliest document seen (Nov. 1999) that mentions Nestle’s work with soy. Address: Boston, Massachusetts.


• Summary: Acidulated soya bean soapstock (ASS), a by-product of the edible oil refining industry, is used as an energy-rich supplement for poultry feeds. When fed at the 6% level, it was found to increase vitamin A storage in chicken livers. Address: National and University Inst. of Agriculture.


Address: Lab. of Nutrition, Hebrew Univ.–Hadassah Medical School, Jerusalem, Israel.


[31 ref]

• Summary: Lambs and adult male and female sheep of the Awassi breed were used. Table 1 shows the “Content of digestible crude protein and the starch equivalent of the feedstuffs used in the ration.” These included soya-bean meal (untoasted), which contained 45% digestible crude protein and a starch equivalent of 0.895 kg. Groundnut meal had almost identical numbers. Seven conclusions are given. Address: Faculty of Agriculture, Hebrew Univ., Rehovot, Israel.


“Under the new setup the office in Brussels, Belgium, will be responsible for market development activities in the United Kingdom, Belgium, Luxembourg, the Netherlands, Sweden, Denmark, Norway, France, Italy, and Greece. The work in these countries will be headed by Jack Ward, who has been area supervisor for Northern Europe, and Rex Wood, who has been the Council’s director for the UK in London. Mr. Wood will move from London to Brussels.

“The Hamburg, Germany, office under Dr. Karl W. Fangauf, will be responsible for the program in Germany, Austria, and Switzerland. And market development work in Spain and Portugal will be under Director Gonzalo Rivera in Madrid.

“Glenn Pogeler, president of the Soybean Council, has been visiting the country offices in Madrid [Spain], Hamburg [West Germany], Rome [Italy], Cairo [Egypt], Ankara [Turkey], Tehran [Iran], Karachi [Pakistan], and New Delhi [India]... Mr. Pogeler participated in the Fats and Oils Symposium at New Delhi, India, Dec. 18 and 19. After completing his itinerary, he will return to the Washington office to resume activities there.”


• Summary: Israeli research on reduction of time for fermentation of Japanese miso or Israeli miso-type products. Address: Dep. of Biochemistry, Bar-Ilan Univ., Ramat-Gan, Israel.


• Summary: Discusses inhibition of cholinesterase, proteolytic activity of chymotrypsin, trypsin, papain, etc. Saponins from soya and alfalfa have been reported to inhibit many enzymes, including alpha-chymotrypsin, proteases, and cholinesterase. Address: Faculty of Agriculture, Hebrew Univ., Rehovot, Israel.


• Summary: Soybean-bean meal was one of the main concentrates tested. Lucerne hay and soya-bean meal differ greatly in their content of non-protein nitrogen (NPN). A nitrogen balance experiment was conducted using 8 rams of the Awassi breed. Address: Faculty of Agriculture, Hebrew Univ., Rehovoth [Rehovot], Israel.

**Summary:** A mixture of vegetable foods rich in protein and available in Middle Eastern countries consists of 47% autoclaved chick peas, 35% defatted sesame flour, and 18% heat-processed low-fat soy flour. It contains 37.8% protein, has a biological value of 74 and its protein efficiency ratio (PER, assessed on young rats in a 28-day trial) is 2.90. The mixture is a good source of B vitamins, calcium, and iron.

There are various regions of the world where protein deficiency in infants constitutes a major problem for public health and nutrition. Efforts are being made to introduce low cost, high quality proteins from local sources. Such foods have already been introduced to India and Central America. Address: Lab. of Nutrition, Hebrew Univ.—Hadassah Medical School, Jerusalem, Israel.


**Summary:** In the interrelated evolution of plant and insect groups, some plants may contain substances that protect them from insects. The “developmental incompatibility of soybeans for *Callosobruchus chinensis* L. is partly attributed to the presence of soybean saponins... This incompatibility has been evidenced by the fact that [certain strains of] the first instar larvae, after burrowing beneath the seed coat, subsequently die without moulting.”

“The integral saponins are characterized by their bitter taste, foam-forming activity, and ability to haemolyse red blood cells.” Address: The Hebrew Univ., Faculty of Agriculture, Rehovot, Israel.


**Summary:** In the rural areas of Turkey, animal fats and butter are widely consumed. Olive oil is the most commonly used vegetable oil in Turkey, which produces 50,000 to 100,000 metric tons (tonnes) per year. The 2nd most important oil crop is cottonseed, with 35,000 to 48,000 tonnes / year. Sunflowerseed is now making a comeback.

In the Black Sea region of Turkey, only about 5,000 tons of soybeans are produced annually. They are interplanted with corn and in past years have been exported. Now a plant with 10,000 tons / year capacity is being built at Ordu, where locally grown soybeans will be processed to make oil and meal.

A table shows the amount in tons of vegetable oil imported into Turkey from 1957 (the first year of imports) to 1964, and the percent of this that was soybean oil each year. For example, in 1958 soybean was first imported—accounting for 61.3% of the 69,900 tonnes imported. In 1960 soybean oil accounted for 100% of the 19,700 tonnes imported, and in 1964 for 66.5% of the 73,700 tons imported.

Oils imported from the United States come through the Oil Purchasing Agency of Turkey (Et ve Balik Kurumu). A photo shows the front panels of various containers of vegetable oil sold retail in Turkey. Address: Director for Turkey, Soybean Council of America.


**Summary:** Of total oilseed and product exports, soybeans and soybean products are expected to account for about $750 million in cash export earnings, more than any other single U.S. farm crop. This is a new record high in cash exports of soybean and also is the third fiscal year in a row that this crop has been the No. 1 dollar earner in the export market. Soybean and soybean product shipments this year represent nearly 15% of the value of total agricultural exports (including concessional sales and donations under P.L. 480). Soybean exports prior to 1945 were negligible. This leading dollar export earner wasn’t even listed separately among crops shipped abroad prior to 1938 when total exports of soybeans and soybean oil were a meager 2 million bushels in bean equivalent.

The rapid increase in soybean sales to these markets abroad is the result of a number of factors, but primarily reflects a growing demand for high-protein feed components for expanding livestock industries and intensive market promotion by the U.S. soybean industry in cooperation with the U.S. Government. While dollar sales account for about 90% of total oilseed and product exports, government programs are an important factor in shipments of soybean and cottonseed oils. More than half of U.S. exports of these vegetable oils are under government programs, mainly sales for foreign currency under Title 1 of Public Law 480. Largest buyers under the concessional sales terms of this legislation are Turkey, Pakistan, and the UAR (Egypt).


**Summary:** “Among the various biologically active proteins present in soybean meal, the most important ones, from the nutritional point of view, are amylase, inhibitors of proteolysis, and urease.” Trypsin inhibitors inhibit proteolysis and urease is important in ruminant metabolism.

No significant quantitative difference was found between these activities in three soybean varieties—Adams, Harosoy, and Lincoln.

Fig. 1 (p. 201) is a graph showing the effect of pH on amylase activity of three soybean varieties. No urease and
trypsin-inhibiting activities and only slight amylase activity could be detected in the leaves, stems and empty pods of the soybean plant. Young seeds (3 weeks after setting) were compared on a dry weight basis with mature seeds and were found to contain only 50% of the trypsin inhibiting activity, 34% of the amylase, and 3% of the urease of the latter.

Note: This is the earliest document seen (Dec. 1998) that uses the term “biologically active” in connection with soybeans. Address: Faculty of Agriculture, The Hebrew Univ., Rehovot, Israel.


**Summary:** It is an established fact that raw soybean (RS) interferes with the normal growth of animals. Several reasons have been suggested this depression of growth compared to heated soybeans (HS): (1) Lower digestibility, hence lower utilization of the RS protein. (2) Slightly lower digestibility, but much lower biological value (protein quality). (3) Lower availability of the methionine in RS compared to the other amino acids. (4) Reduced proteolytic activity in the small intestine of chicks—the main site of protein digestion in chicks.

This paper comes to four conclusions related to the above suggestions. Address: Dep. of Animal Nutrition, National & Univ. Inst. of Agriculture, Rehovot, Israel.


**Summary:** Fumigation of four oil seeds (sunflower, soybean, groundnuts, and cotton) with ethylene dibromide (EDB) was performed at two concentrations in order to determine the effect of seed structure and oil content on the sorption and reaction of EDB. The amount of fumigant absorbed was proportional to the amount of fat in the seeds. Hulls generally inhibited absorption. The amounts of bound bromine were not affected by the presence of fat and were proportional to the initial concentration of the EDB in the seeds.

A graph (p. 466) shows the bromine content of soya-beans during airing for 40 days. Initially, soy flakes contain the most bromine and whole seeds the least, with oil meal in between. About 90% has evaporated after 15 days. Address: National and Univ. Inst. of Agriculture, Rehovot, Israel.


**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.

**Summary:** The 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 ‘non-dollar’ 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.”

172. Farhad-ud-din, K.M. 1965. Effect of variety and date of planting on yield and other characteristics in soybeans. M.S. (Ag.) thesis, Faculty of Agricultural Sciences, American University of Beirut, Lebanon. *

Address: Beirut, Lebanon.


174. **Product Name:** Soybean oil, and Florin soybean meal. **Manufacturer’s Name:** Sumerbank Soya Fabrikasi A.S. Soya Fabraksi Montaj Mudurlugu. Affiliate of Sumerbank. **Manufacturer’s Address:** Ordu, Turkey. **Date of Introduction:** 1965. **New Product—Documentation:** Soybean Blue Book. 1965, p. 108. 4 expellers. Capacity: 50 tonnes (metric tons) per day. Bollman type solvent extractor. Capacity: 35 tonnes. Storage capacity 7,000 tonnes. Note: This is the earliest known commercial soy product made in Turkey.


**Summary:** Conclusions: Soybean saponins are harmless when ingested by chicks, rats and mice even in a roughly three-fold concentration of that in a 50% soybean meal supplemented diet. They are decomposed by the caecal microflora of these 3 species. 2. Their non-specific inhibition of certain digestive enzymes and cholinesterase is counteracted by proteins which are present in any natural environment of these saponins.

“3. The haemolytic activity of soybean saponins on red blood cells is fully inhibited by plasma and its constituents”– which naturally accompany red cells in blood. 4. Soybean saponins and sapogenins are not absorbed into the blood stream (Note: Or perhaps not observed in the blood stream).

“It may therefore be concluded that haemolysis—one of the most significant in vitro [in glass / test tubes] properties of soybean saponins and others—bears no ‘obligation’ for detrimental activity in vivo [in living organisms].” Address: Hebrew Univ., Faculty of Agriculture, Rehovot, Israel.


**Summary:** A procedure is given for the preparation of purified soybean hemagglutinin from untoasted soybean flour. The purified hemagglutinin was found to contain mannose (4.5%) and glucoseamine (1%). The carbohydrate moiety was released from the protein in the form of a glycopeptide with a molecular weight of 4,600. Address: Dep. of Biophysics, The Weizmann Inst. of Science, Rehovoth, Israel.


**Summary:** Scientists have long realized that β-amylase attacks the starch chain from the non-reducing end of the molecule, removing maltose molecules by hydrolytic scission and simultaneously inverting the glycoside linkages.

The “non-competitive inhibition pattern of soybean β-amylase by p-mercuribenzoate (PMB) indicate that sulphhydryl groups do not participate in binding the substrate and their role in the enzymatic action is related to the catalytic step only.

“The extent of inhibition of soybean β-amylase by PMB is inversely related to the concentration of the acetate buffer
used, indicating the ‘protective’ effect of the acetate ions.”

There are 5 sulphydryl (SH) groups. The β-amyloses studied to date have been from soybean, barley, sweet potato, and wheat. Address: Faculty of Agriculture, Hebrew Univ., Rehovot, Israel.


- **Summary:** “Exports of soybeans and soybean products during the past year have continued to expand at a rapid rate in all areas and prospects for future expansion seem unlimited. New markets are being opened for soybean meal due mainly to the rapid development of the poultry industry in practically all areas. Oil demand continues to expand as the economies of our overseas friends improve and we expect this trend to continue.” The Soybean Council of America now has 11 offices in 10 countries. The address and director of each is given: Rome, Italy; Bogota, Colombia; Cairo, Egypt, UAR; Hamburg, Germany; New Delhi, India; Tehran, Iran; Casablanca, Morocco; Karachi, West Pakistan; Ankara, Turkey; and Madrid, Spain.

“In the Tehran, Iran, office [whose director is Iraj Dehlavi] is Fred Martin, SBC oil technician, who serves Turkey, Iran, Pakistan and India. Our oil technicians also serve any other countries on special assignment.” A photo shows Pogeler. Address: President, Soybean Council of America, Inc.


- **Summary:** The subtitle reads: “No problem presses more remorselessly on this generation. Giving food away only postpones crises and may compound them. What the U.S. should be exporting is a practical version of the capitalist revolution that made its own agriculture one of the wonders of the world.”

How can we feed whose population is now doubling every 30 years or so, and is expected to reach 7.4 billion by the year 2000? And population growth is most rapid in those regions least able to support more people. Most burdensome is India, with its 500 million. The challenge is to raise the Third World to a state where it can feed itself. Note: This is the earliest English-language document seen (July 2003) that uses the term “Third World” for what French call the tiers monde, to refer to “underdeveloped countries not in the CoMmunist bloc.”

During the 1940s population worldwide began to accelerate at a remarkable rate. During the past year have continued to expand at a rapid rate in all areas and prospects for future expansion seem unlimited. New markets are being opened for soybean meal due mainly to the rapid development of the poultry industry in practically all areas. Oil demand continues to expand as the economies of our overseas friends improve and we expect this trend to continue.” The Soybean Council of America now has 11 offices in 10 countries. The address and director of each is given: Rome, Italy; Bogota, Colombia; Cairo, Egypt, UAR; Hamburg, Germany; New Delhi, India; Tehran, Iran; Casablanca, Morocco; Karachi, West Pakistan; Ankara, Turkey; and Madrid, Spain.

During the 1940s population worldwide began to accelerate as DDT and antibiotics reduced the death rate in the Third World from about 30 per 1,000 right after World War II to about 20 per 1,000 at present. Meanwhile the birth rate in the Third World continues to exceed 40 per 1,000. Before World War II, the Third World had next exports of about 11 million metric tons (tonnes) of grain to industrial nations. From 1948 to 1952 the flow reversed: the Third World imported an average of 4 million tonnes a year, increasing to 13 million/year from 1957 to 1959 and 25 million in 1964.

Economist Theodore W. Schultz of the University of Chicago, Illinois, in his book *Transforming Traditional Agriculture*, has shown how Western European farmers have successfully substituted capital for land. With a population density much greater than that of Asia and a generally poor endowment of farm land, farmers in Italy, Austria, Greece (and Israel) have been increasing agricultural production at a remarkable rate.

The U.S. Public Law 480 (once called “Food for Peace” and first developed during the Eisenhower administration) has failed; it may have helped feed hungry people but it has not helped the needy countries to be able to feed themselves. During the past 11 years the U.S. has shipped, mainly to Third World countries, food that cost it some $25 billion. When food was shipped in emergencies, the recipient countries were not billed at all. Taiwan and Japan have used this food successfully so that now they no longer need it. But the three countries which have received the most PL 480 aid, India, Pakistan, and the United Arab Republic [Egypt and Syria] have not. Turkey, for example, received soybean oil in exchange for an agreement not to export its olive oil.

Can U.S. private enterprise help Third World agriculture and food? Corn Products sells Maizena—a mixture of edible corn oil and soybean oil. And in order to make this new food more profitable, Corn Products is teaching Brazilian farmers how to grow soybeans, which now have to be imported to Brazil from the U.S. In Brazil, Mexico, and Peru, Anderson, Clayton provides agricultural service for local farmers who grow soybeans, peanuts, and cotton seeds for a line of cooking and salad oils, shortening, and margarine that the company processes and markets. “It finances seed, fertilizers, and insecticides, and gives advice on planting and harvesting.” Anderson, Clayton plants provide 6,000 jobs in Brazil, 4,500 in Mexico, and 800 in Peru.

The Ford and Rockefeller foundations are also doing important work in the Third World. The Ford Foundation has already spent $300,000 in an experiment to crossbreed West Pakistan’s wheat with high-yielding Mexican dwarf strains.

Americans must realize that the world will be unsafe unless there is economic and political stability—and adequate food—throughout the Third World.


- **Summary:** A modified acid hydrolysis method was used for the hydrolysis of total soybean saponin and of four of its fractions. The sugar portions of the extract were shown to consist of glucose and xylose in addition to the already reported galactose, arabinose, rhamnose, and glucuronic acid. The amounts of each were determined. Address: Hebrew Univ., Faculty of Agriculture, Rehovot, Israel.

• **Summary:** There are five known soya saponins: Soya sapogenols A, B, C, D, and E. The saponin content of six different soya bean varieties has been determined and found to amount to about 0.60% of the defatted soya bean meal. Address: Hebrew Univ., Faculty of Agriculture, Rehovot, Israel.


• **Summary:** Many plants are known to contain proteins with hemagglutinating activity (lectins). The soybean hemagglutinin (SBH) was first isolated in 1952 by Liener and Pallansch. In this study, soybean oil meal was found to contain four distinct hemagglutinins chromatographically separable on columns of DEAE-cellulose. The most abundant one is identical with that previously described by Liener and Pallansch. The four hemagglutinins are all glycoproteins containing mannose and glucosamine. Address: Dep. of Biophysics, The Weizmann Inst. of Science, Rehovoth, Israel.

183. Badawi, Y.M. 1966. The effect of variety and date of planting on yield and other characteristics of soybeans. M.S. (Ag.) thesis, Faculty of Agricultural Sciences, American University of Beirut, Lebanon. *

• **Summary:** Four soybean varieties, varying in maturity, were planted at 15-day intervals from April 5 to May 20 during the three-year period 1964 to 1966. Thus, the first soybeans in these trials were planted on 5 April 1964. Each variety was planted in rows 50 cm apart at a planting rate of 10 kg per dunum. This study shows that soybeans planted on about April 20 in the Beqa’a Plain will produce the highest yield with seed that contain high oil (23.8%) and satisfactory protein (34.2%) contents. Address: Lebanon.

184. **Product Name:** Hayprotex, and Contex (Textured Soy Protein Concentrates).

**Manufacturer’s Name:** Hayes Ashdod Ltd. Renamed Solbar Hatzor Ltd. in April 1987.

**Manufacturer’s Address:** Habosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel.

**Date of Introduction:** 1966.

**How Stored:** Shelf stable.

**New Product–Documentation:** Letters from Daniel Chajuss, founder and owner of Hayes Ashdod Ltd. 1992 June 23, and 1993 Jan. 5 and 14. In 1966 Hayes Ashdod Ltd. introduced texturized soya protein concentrates under the brand names Hayprotex and Contex. Hayprotex was mainly designed as a minced meat extender, while Contex was mainly designed for vegetarian analogs.

Letter (e-mail) from Daniel Chajuss. 2005. April 8. “The Hyprotex and Contex textured soy proteins were started on a small scale in late 1966. The technology was simple; we used the same technology used by Shefa Protein Industries in Arad, Israel.” They used a Wenger single screw extruder to extrude defatted, non-toasted soy flour obtained from sifted “fines” from white flakes (used for soy protein concentrate production). Hayes used the same extruder.

Note: This is the world’s earliest known textured soy protein concentrate, developed by Daniel Chajuss of Hayes Ashdod Ltd.


• **Summary:** Includes a guide to observance, by Seymour Siegel.


• **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.


• **Summary:** Soybeans contain 0.6% Bowman-Birk trypsin inhibitor. Address: Faculty of Agriculture, Hebrew Univ. of Jerusalem, Rehovot, Israel.


• **Summary:** Isolated soybean proteins can be used, but they are too expensive. Address: Dep. of Food and Biotechnology, Technion, Israel Inst. of Technology, Haifa, Israel.
Summary: Last year the U.S. produced a record “931 million bushels of soybeans and present estimates are that approximately one-half of the crop will find its way to overseas users of soybeans, soybean oil and soybean meal.” “Soybeans are truly a crop of the future.” He will “talk about the part that the Soybean Council of America [SCA] has had in the expansion of this crop overseas.”

Some background: In the mid-1950s there were large agricultural surpluses in the USA. This led to a concentrated effort by U.S. industry and government “to expand the markets for American agricultural products.” In the mid-1950s, “Public Law 480” was passed. “This bill was designed to expand the sale of surplus agricultural commodities around the world on a concessional basis with built-in encouragement to convert foreign buyers from concessional purchases to dollar business.” The USDA was authorized to “negotiate with foreign countries to sell them surplus agricultural commodities in exchange for foreign currency. The foreign currencies received by the United States government were to be used for projects within the countries in which the agreements and trades were made and were to be used primarily as loans for the development of agriculture and industries related to agriculture.” Part of the funds received by the USDA were to be used to expand exports.

The Soybean Council was organized in 1956. A full page of its Articles of Incorporation is given, showing its various purposes. “The major emphasis of the Soybean Council is to explore market potential and to conduct promotional and servicing activities that will help to expand the markets for the U.S. soybean industry throughout the world.”

Back in 1955, at a convention of the American Soybean Association [ASA] and the National Soybean Processors Association [NSPA], it was decided to explore the possibilities of setting up the organization. A committee of five, including growers and processors, was appointed to study this matter and report back to the two sponsoring organizations. It was my fortune to be elected to this committee.” After much discussion and research, the committee strongly recommended the establishment of SCA.

The Soybean Council as an organization consists of a board of directors totaling 21 members, with 9 directors selected by ASA, and 9 by NSPA. In addition, there is 1 director from each of the following: the North American Export Association, the Farmer cooperatives, and the National Grain Trade Association. The two types of members are regular and participating. “The bulk of the funds collected for the Soybean Council are generated through the collection of 1/20 of one cent for each bushel crushed by the member soybean processors. Other trade interests have contributed to our budget on the basis of negotiated amounts. The soybean growers are at the present time actively engaged in a program of setting up state soybean organizations and hope to soon generate funds for the Soybean Council’s work through a minimum per bushel deduction from soybeans bought at the local level. At present, a number of states are attempting to pass legislation that would require a deduction from the farmer by the first purchaser. This money would be funneled through a state organization charged with the responsibility for distributing such funds for plant breeding work, market research and market development programs.

“Dollars that are used in the United States to cover the costs of the Executive Office and staff total about $250,000 per year. The balance of the funds, used for our market development projects, which has run from a total of about $700,000 per year up to slightly over a million dollars, are funds that are contracted from and furnished by the Foreign Agricultural Service of the U.S. Department of Agriculture.

“The Soybean Council presently has ten offices oversees which are located in Bogota, Colombia; Madrid, Spain; Hamburg, Germany; Rome, Italy; Casablanca, Morocco; Cairo, Egypt; Ankara, Turkey; Teheran [Tehran], Iran; Karachi, Pakistan and New Delhi, India. We have a market development program in each of these countries and, in addition, we have limited market development activities in an additional 19 countries.”

The Council’s main emphasis is on selling soybean oil, which has been in surplus in the USA for a number of years. “We have produced motion pictures in which special emphasis is given to the quality of U.S. processed soybean meal. We have conducted, over a period of years, feeding tests that are designed to demonstrate the value of soybean meal in feeding rations of all kinds.

“At present, we are especially interested in the expansion of poultry production in a number of the areas of the world and it is our sincere belief that we are about to witness a tremendous expansion in the production and consumption of poultry in many of the meat-short areas.”

The SCA has been very active in promoting the use of hardened soybean oil in the form of vanaspati in Pakistan and India. “In liquid oil consuming countries such as Spain, Turkey, Morocco, Tunisia and Italy we have found a ready acceptance for high quality soybean oil.” “Spain and Iran are shining examples of P.L. 480 countries that have switched to dollar purchases. Soybean crushing has expanded at a tremendous rate in Europe, and Spain is presently crushing about 20 million bushels of soybeans a year.” As recently as 1960, Spain was not crushing any soybeans at all.

The future promises to hold increased competition and higher soybean yields. Address: President, Soybean Council of America, Inc.


**Summary:** “The process of soybean-protein isolation, comprising extraction in dilute calcium hydroxide and precipitation with hydrochloric acid at pH 4.5 was evaluated.”

Address: Dep. of Food and Biotechnology, Technion-Israel Inst. of Technology, Haifa, Israel.


This paper was presented by Leon Marie Andrè.

Note: This is the earliest English-language document seen (Jan. 2007) that contains the term “roasted soy flour.” We read (p. 22): “This product is produced in small amounts and consumed with rice cake [mochi]. There is hardly any information on the nutritive value of the product.” Address: 1-2. Food and Agriculture Organization of the United Nations, Rome, Italy; 3. FAO Liaison Officer and adviser to UNICEF.


**Summary:** “The consumption of vegetable oil in Persia started on a very small scale only about 15 years ago and has developed tremendously during the last 10 years. Undoubtedly vegetable oil was used in ancient Persia many centuries ago. We have good evidence that the people of the Caspian Seacoast [on the northern border of Persia] were regular users of sunflowerseed and cottonseed oils which were extracted in a very primitive way. Moreover the old Iranian minorities such as Zoroastrians and Jews were well acquainted with the extraction and consumption of sesameseed.

“Some people are of the opinion that cottonseed oil was already being extracted in Persia and western India when Alexander the Great’s armies marched to this part of the world [about 330 BC].

“However, we must classify the Iranian nation as being a steady consumer of animal fat mainly up to early 1950. The regular consumption of cottonseed by animals as a well-known cattle feed and a favorite camel feed has been the subject of many interesting stories and poetry by Iranian writers and poets. Therefore the problem of switching the taste of the nation from the accustomed animal fat to the unaccustomed vegetable oil and to erase from their minds that it is an old cattle feed which is now consumed by human beings has always been the basic problem of this business promotion.

In about 1950, the “first serious introduction of vegetable oil to the public was made by Bank Melli Iran (National Bank of Iran) which had imported considerable quantities from Holland and distributed it among the few thousand employees of the bank which were scattered throughout the country.

“Ten years later, in 1960, the Iranian army decided to take advantage of imported soybean oil in larger quantity for the first time. They purchased over 2,000 tons at a time from the United States.

Discusses in detail current development and statistics. During the past 10 years, the progress of the Iranian vegetable oil industry has been remarkable. “Soya oil is now the basic raw material of this industry.” A photo shows Dr. H. Kermanshahchi. Address: Dr., President, Shiraz Cotton Gins and Oil Mills Co., Tehran, Iran.


**Summary:** This new protein-rich vegetable mixture, made with U.S. soybeans and chick-peas, was developed by biochemist Karl Guggenheim, Hadassah Medical School of Hebrew University in Jerusalem, Israel, under a Public Law 480 research grant awarded by the USDA’s Agricultural Research Service (ARS). Such grants are made from local currencies paid by countries that receive surplus U.S. food. The best mixture tested contained 47% steam-heated chick-peas, 35% defatted sesame flour, and 18% heat-processed low-fat soy flour. A photo shows a nurse at Hasharon Hospital, Israel, feeding the mixture to an infant as a liquid in a bottle.


195. Mizrahi, Sylvia; Berk, Zeki; Cogan, Uri. 1967. Isolated soybean protein as a banana spray-drying aid. *Cereal Science*

**Summary:** Isolated “soybean protein at levels ranging from 4 to 20% on a dry basis may be used as a spray-drying aid, as an anticaking agent, or as a nutritional supplement in the manufacture of banana powder.” Address: 1&3. Technion, Israel Inst. of Technology, Haifa; 2. MIT, Cambridge, Massachusetts.


**Summary:** Miso darkens in color as the fermentation time increases. “When stimulated with koji and miso-extracted enzymes or with taka-diastase, the time required to produce the dark brown color for the Israeli type miso products has been shortened from several months to a few weeks.” This browning reaction is viewed as the result of interaction between the products of the activity of the proteolytic enzymes and amylases of koji and if its extracted enzymes or taka-diastase. It is suggested that the intensity of this color could be used in quality control of miso or miso type products. Address: Dep. of Biochemistry, Bar-Ilan Univ., Ramat-Gan, Israel.


**Summary:** These studies described in this publication “were undertaken to investigate various cultural practices in order to stabilize production, improve the quality and increase the yield of crops in Lebanon. Soybeans are discussed under the experimental results on date of planting, row width, and within-row plant spacing. “Much information presented in this publication are the results of the research of graduate students supervised by the writer and conducted at the Agricultural Research and Education Center of the American University of Beirut, in the Beqa’a Plain, Lebanon during the 8-year period 1959 to 1966.” (p. 8).

Soybeans planted on about April 20 in the Beqa’a Plain [in Bekáa Valley] will produce the highest yield with seed that contain high oil (23.8%) and satisfactory protein (34.2%) contents.

Row width: “Various rates of seeding for soybeans were established by planting seed 2, 3 or 4 cm apart in rows 25, 50 or 75 cm apart during the 2-year period 1961 to 1963. The seeding rates varied from 6 kg of seed per dunum to 35 kg per dunum. Three varieties of soybeans, varying in maturity were used. The data for yield, protein and oil percentage of soybeans grown in rows” are shown in a bar graph. The soybean yield was highest when planted in rows 25 cm apart, followed by 50 cm. The protein content was highest in rows 50 cm apart, followed by 75 cm. The oil content was highest in rows 25 cm apart, followed by 75 cm. “For environmental conditions similar to those in the Beqa’s Plain, satisfactory soybean yield and quality can be produced by planting soybeans in rows 50 cm apart. Soybeans planted in rows narrower than 50 cm are more difficult to irrigate and weeds become difficult to control.” (p. 16).

Within-row plant spacing: “Three varieties of soybeans, varying in maturity, were planted 2, 3 or 4 cm apart in rows that were spaced 25, 50 or 75 cm apart during the 3-year period from 1961 to 1963.” Seeding rates varied from 6 kg to 35 kg per dunum. The results are shown in a bar graph (Fig. 15). “Considering both within-row spacing and between-row spacing results, satisfactory soybean yield and quality can be produced in the Beqa’a Plain with planting seeds 2 or 3 cm apart in rows 50 cm apart.” Address: Prof. of Agronomy, Faculty of Agricultural Sciences, American Univ. of Beirut, Beirut, Lebanon.


**Summary:** The Protein efficiency ratio (PER) of spray dried isoelectric proteins was significantly higher than that of the same proteins that had been freeze dried. “Toasting of the spray-dried proteins did not improve their nutritional value.” PER of isolated soy proteins from unheated and from toasted meal showed identical values. Address: Dep. of Food & Biotechnology, Technion, Israel Inst. of Technology, Haifa, Israel.


**Summary:** Discusses CSM [corn, soy, milk], its applications, and flavor constituents. CSM contains processed corn meal, toasted soy flour, and nonfat dried milk. Proper heat treatment destroys the lipid active enzymes: lipases, lipoxidase, and peroxidases.

Table I lists locations of CSM acceptability trials: Bolivia, Colombia, Dominican Republic, El Salvador, Guatemala, Honduras, Venezuela, Peru, Greece, Spain, Portugal, Jordan, Turkey, Yemen, Malagasy, Senegal, Sierra Leone, Tanzania, Macao, Singapore, Taiwan.

Note: This is the earliest document seen (Dec. 2007) concerning soybean products (cereal-soy blends) in Yemen. This document contains the earliest date seen for soybean products (cereal-soy blends) in Yemen (1968); soybeans as such had not yet been reported by that date. Address: USDA, Peoria, Illinois.

• **Summary**: Almost all Iranian use of vegetable oil is in a hardened [hydrogenated] form; half as granulated semiliquid vegetable ghee and half as shortening.

“Iran consumed around 118,000 metric tons (mt) of vegetable oil in 1967; approximately 40,000 mt were produced in the country and about 78,000 tons were imported. Local production consisted primarily of cottonseed oil. Imports were mostly sunflowerseed oil from the USSR and Eastern Bloc countries, from Rotterdam and other sources, with some soybean oil from the United States.”

In 1967, Iran exported about 5,000 tons of shortening to Afghanistan and Kuwait. Discusses the advantages of USSR sunflowerseed oil. Address: Director for Iran, Soybean Council of America.


• **Summary**: The year 1968 was a difficult one—a year of change. “Right now it seems as though the heavy artillery of our competitors is zeroed in on the soybean industry.” “Presently the major emphasis of the Council is placed on increased utilization of soybean oil” [which is in surplus]. The council has supplied technical experts on feed and oil to European and Asian countries. “A number of supervisory and sales trips were made by our staff in Arlington” [Virginia]. The biggest competitor to soybean oil is sunflower oil. An increasing number of the Councils activities are “carried out through third party cooperative agreements with overseas organizations. The German Oil Millers Association, the German Mixed Feed Association, Assalzoo and Assoliosemi in Italy, the Oil Technologists Association of India, and the Pakistani Vanaspati Manufacturers Association are organizations that cooperate with us in joint activities.”

Last year the Council “closed offices in Casablanca, Morocco; Cairo, Egypt; Bogota, Colombia; Rome, Italy, and our Spanish country office. Soybean Council offices in New Delhi, India; Karachi, Pakistan; and Ankara, Turkey have been converted from the utilization of funds provided by the Foreign Agricultural Service for the administration of these offices to dollars which are supplied from our U.S. budget. We will maintain our joint contract with FAS...” A portrait photo shows Glenn Pogeler. Address: President, Soybean Council of America, Inc.


• **Summary**: Discusses the situation in Eastern Europe, Korea, Australia, and Iran.

“Poultry farming is one of the most advanced areas of agricultural industry in Iran, but product prices tend to be relatively high in comparison with other countries. Iranians pay an equivalent of ten times as much as U.S. citizens do for a pound of poultry.”

The Soybean Council of America has suggested improving the feed formulation used as well as overall operating efficiency. A photo shows Council Vice President Ferenc Molnar visiting a poultry farm near Tehran.


• **Summary**: “More than 50,000 people visited the soy protein stand at the Food Fair at Beyrouth and sampled ADM’s textured vegetable protein in Lebanes foods.”

“The Lebanon, a tiny Arab republic tucked away on the eastern corner of the Mediterranean Sea, is well known in international finance as the oil banker of the Gulf.

“The 2 million people of Lebanon, in ritzy-Riviera-like Beyrouth, or on the snow covered slopes of the ski resorts in the Cedars, do make an ideal market for any new food product.”

“Estimated consumption of all meats is around 40,000 mt/year, 90% of which is imported.” Note: “mt” = metric tons.

“Poultry growing is expanding rapidly and has become one of the major agricultural industries.”

“Last year’s imports of soybean meal rose to about 10,000 m.t., mostly bulk, from the U.S.”

“A more challenging market, which is practically untouched, is the one for soy proteins in human consumption.”

ADM is introducing its TVP to Beyrouth, Lebanon under the brand name Aminos; their goal is 1 lb/year per capita consumption. “Other soy proteins just being introduced to this market are soy flour for bakery products, soy milks, and other soy extenders for the meat packing industries.”

204. **Product Name**: Haypro-T (Calf Milk Replacer Based on Soy Protein Concentrate).

**Manufacturer’s Name**: Hayes Ashdod Ltd. Renamed Solbar Hatzor Ltd. in April 1987.

**Manufacturer’s Address**: Haborosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel.

**Date of Introduction**: 1968.

**How Stored**: Shelf stable.

**New Product–Documentation**: Letters from Daniel Chajuss, founder and owner of Hayes Ashdod Ltd. 1992 June 23, and 1993 Jan. 5 and 14. “In 1968 Hayes [Ashdod Ltd.] started producing Haypro-T, a special soy protein concentrate, free of trypsin inhibition and free of antigenicity, for calves milk replacers as a substitute of milk proteins.” Note: This is the earliest known commercial soy product used as a calf milk replacer.

205. Ilisulu, K. 1968. [Characteristics of the variety ‘Yemeklik Yesil’ (Cooking Green) and its comparison with other soybean varieties]. *Ankara Universitesi, Ziraat Fakultesi Yilligi* 18(3-4):454-82. [17 ref. Tur; eng]*

Address: Ankara Univ. Ziraat Fakultesi, Turkey.
December.
a market development organization, conceived by the
and expanded by the newly named American Soybean Institute,
office as of June 30. The work of this office will be taken over
plans were made for closing the Soybean Council of America
Washington [DC], in company with Sheldon Houck,
• Summary: This miso is made using defatted soybean flakes
instead of whole soybeans. Nutritional evaluation (PER) on
weanling rats was difficult since this miso, a seasoning, had a
high (8%) content of sodium chloride / table salt. The miso
was found to contain no methionine and to lack adequate
tryptophane, arginine and possibly histidine. Address: Dep.
of Biochemistry, Bar-Ilan Univ., Israel.

206. Wright, H.E., Jr. 1968. Natural environment and early

207. Diamant, E.J.; Laxer, S. 1968. Nutritional evaluation of
miso. Israel J. of Chemistry (Proceedings) 6:147p. (i.e., page
147p. of the Proceedings). Proceedings of the 38th Meeting of
the Israel Chemical Society... Held 8-10 Oct. at Beersheba,
Israel. [1 ref]

• Summary: This miso was prepared by 6-12 month's fermentation
of steamed soybeans with Aspergillus oryzae grown on rice
and salt. For miso-type products, defatted soyflakes were used
instead of whole soybeans. Nutritional evaluation (PER) on
weanling rats was difficult since this miso, a seasoning, had a
high (8%) content of sodium chloride / table salt. The miso
was found to contain no methionine and to lack adequate
tryptophane, arginine and possibly histidine. Address: Dep.
of Biochemistry, Bar-Ilan Univ., Ramat-Gan, Israel.

208. Barnes, Harris H., Jr. 1969. President’s report: Let’s put
our men where the action is. Soybean Digest. April. p. 4-5.

• Summary: “New marketing organization: Recently in
Washington [DC], in company with Sheldon Houck,
representing the National Soybean Processors Assn., final
plans were made for closing the Soybean Council of America
office as of June 30. The work of this office will be taken over
and expanded by the newly named American Soybean Institute,
a market development organization, conceived by the
American Soybean Assn. in St. Louis [Missouri] last December.

“The sole purpose of the new organization will be to
increase sales of whole soybeans and soybean meal and
soybean oil all over the world, including the U.S.

“ASA members think this is the time for action. Never
was there a time where unity in the soybean industry was
needed as much as today. With this in mind we have asked the
processors—who along with the growers will be the greatest
financial contributors to this agency—to band together with the
exporters and country elevators and the terminal elevators,
the exporters and transporters of soybeans, the soybean trade
such as farm machinery, chemicals and fertilizers, the national
farm organizations, extension service, research and Foreign
Agricultural Service.

“It is felt that this band of interested soybean people can
pool knowledge and be able to come up with concrete
recommendations where market development money should
be spent and in what amounts.

“As I write this, Chet Randolph, our executive vice
president, is winging his way to Japan to supervise our
activities there, under the capable leadership of Scott Sawyers,
our Far East director. From Japan, Chet will move on to Taiwan
where we hope to do our next market development work in
the Far East.

“Markets in Europe:

“Europe will be included in Chet’s trip this time as we
contemplate new markets and the enlarging of markets which
we will take over from the Soybean Council as more funds
from growers, processors, and agribusiness become available
to ASI.

“Money is the only thing that keeps us from moving right
now into countries like Taiwan, Iran, Egypt, Turkey,
Yugoslavia, Australia, and North Africa... to mention several.”

“If we are to sell soybeans, we have to have people where
the action is... in purchases of soybeans and soybean products!
It takes big money to open offices in spots where we need
them. And the grower must be motivated in the direction of
market development.

“In the fall we are going into our Phase 2 program, that of
collection of the 1/2¢/bu at first point of sale... the elevator of
the oil mill. Your help will be greatly appreciated as you visit
with your neighbor and with your good friend, your elevator
operator.” Address: President, American Soybean Assoc.

209. Ilany-Feigenbaum, J.; Diamant, E.J.; Laxer, S.; Pinsky,
A. 1969. Japanese miso-type products prepared by using
defatted soybean flakes and various carbohydrate-containing

• Summary: Miso was prepared by 6-12 month’s fermentation
of steamed soybeans with Aspergillus oryzae grown on rice
and salt. For miso-type products, defatted soyflakes were used
and wheat/corn/bananas etc. replaced rice. Differences in
fermentation time, flavor color content etc. are given. Address:
Dep. of Biochemistry, Bar-Ilan Univ., Ramat-Gan, Israel.

210. Soybean Digest. 1969. Randolph on market development

• Summary: Chet Randolph, executive vice president of the
American Soybean Assn., is on a worldwide supervisory visit
for soybean market development. Most of his time will be
spent in Japan, reviewing details and progress of ASA’s active
program in the Far East. Then he will visit market development
contacts in Hong Kong, Iran, Israel, Italy, Germany, and the
Netherlands. The trip is entirely financed by soft currency
generated by PL 480 programs. A photo shows ASA’s men in
Tokyo: Scott Sawyers (Far East Director) and Mitsugi “Jack”
Yamashita (assistant country director).

58.


“Thailand: The first Thai International trade fair—held Dec.
12-29 in Bangkok—drew over750,000 people and introduced
them to 422 U.S. food products including new textured
vegetable protein items made from soybeans.”

“Korea: Response to a new U.S. soy beverage tested as
part of a Korean school lunch program has encouraged early
introduction into the commercial market.”

“Iran: Vegetable oil extraction and processing equipment
worth $750,000 has been ordered by Iran from a British

70
engineering firm...”


• Summary: “Arlington, Virginia—The Soybean Council of America, Inc., with headquarters here, will be discontinued by June 30, according to Glenn H. Pogeler, council president.” The Council was organized in 1956.

“Action was taken at a membership meeting held in Chicago to discontinue the overseas market development work of the council.” Gives a list of current offices. On July 1, the American Soybean Association (ASA) plans to reopen the offices in Hamburg, Germany, and Tehran, Iran. NSPA plans to take over the activities of the council in India, Pakistan, and Turkey.


• Summary: Though Turkey has long been a farming country, “it is still a beginner in the feed industry. But there is such a large number of poultry and livestock in the country that the feed industry has a great potential.”

The Turkish government’s development plan shows the importance it is giving to livestock. Both milk production and livestock fattening will be promoted. During the next 3 years about 10,000 pure-bred breeding cows will be imported.

A table shows that in 1967 there were about 35 million sheep, 32 million poultry, 15 million ordinary goats, 14 million cattle, etc. It has been decided that 150,000 cattle and 150,000 sheep will be fattened.

Turkey’s mixed feed industry dates back to 1958, when the first substantial plant was opened but only 429 metric tons (tonnes) were manufactured. That amount passed 10,000 tonnes in 1961 and reached 128,745 tons in 1968. Today there are 13 such plants in Turkey and it is projected there will be 33 in 1972. There is a large potential demand for soybean meal.

Presently there is only one processing plant in Turkey that produces soybean meal. It is owned by the government and located in the Black Sea region. This meal will soon be used to make soy flour, so no soybean meal will be left for the needs of the feed industry.

Photos show: (1) The inside of one of Turkey’s 13 mixed feed plants. (2) A truck loading feed at an Ankara plant, to be sent to poultry farms. Address: Soybean Council of America Representative for Turkey.


• Summary: To understand the importance of soybean oil to Iran, its best to go back some 16 years. “At that time, the industry had a production capacity of around 10 tons of shortening a day. The current daily production capacity [of shortening] is around 460 tons.” During the following 5 or 6 years six major shortening manufactures came into being and exist today.

The first shortening in Iran was made from cottonseed oil, a byproduct of the country’s cotton industry. Prior to this, “the Iranian people had cooked mainly with boiled sheep’s or goat’s butter, a substance closely akin to if not the same as Indian ‘ghee.’ Once shortening became popular, the local supply of cottonseed oil proved inadequate.

“To meet the demand, oil had to be imported and still is today. At first, soybean oil in drums from the U.S. was the answer. This, however, was quickly discontinued as being impractical and uneconomical... Storage facilities–land tanks–soon sprang up, and soybean oil, again from the U.S., began to arrive in bulk tanker vessels via the southern Iranian entry port of Khorramshahr.”

Today Iran relies more and more on oils produced locally, and is aiming for self-sufficiency. About 126,000 metric tons per year of vegetable oil are now used to make shortening in Iran. Of this, about 25.8% is produced domestically and the rest is imported. There are three main ways of importing vegetable oils: Barter, purchase from the U.S. under P.L. 480, or purchase commercially. U.S. soybean oil is now too expensive.

Ten years ago, per capita consumption of vegetable oils in Iran was about 1.6 kilos. Today—with a population of some 27 million—it has risen to about 4.7 kg. By comparison, however, the corresponding figures for neighboring countries are: Egypt 7.2 kg, Turkey 8.2 kg, Lebanon 13.2 kg, and Israel 17.7 kg.

A table shows the predicted growth rate in Iranian consumption from 1968 to 1972 and the amount supplied by Iranian oil vs. imported oils. Photos show: (1) G. Ladjeverdi. (2) Aerial view of the Beshahr vegetable oil processing and refining plant in Tehran. Address: Finance Director, Beshahr Industrial Co.


• Summary: During the past decade, the poultry industry in Iran has experienced remarkable growth. Ten years ago, rural areas supplied urban areas with eggs and poultry. Today, modern poultry farms around the cities not only meet the urban demand, but also “export” eggs and chickens out to the villages. Poultry is gradually taking the place of mutton, the most important traditional source of animal protein consumed by Iranians.

The Soybean Council of America is now organizing a Poultry Nutrition Seminar in Tehran. The main problem of the poultry industry in Iran lies in the feed. The mix is not optimal and too expensive. Soy protein is being imported in the form of soybean meal (rather than as soybeans) because there is a 5 rial per kilo ($66.60/metric ton) tariff on the importation of soybeans, but not on soybean meal. “This duty was levied several years ago partially to protect the local
production of soybeans. But since then it has been proved that local conditions for soybean cultivation are not suitable and that other oilseeds, essentially sunflowerseed, can be cultivated much more easily here to supply vegetable oil processing plants with raw material.” It is expected and hoped that the import tariff on soybeans will soon be removed.

The advantage of importing soybeans, rather than soybean meal, is that the meal will end up selling for much less. “Fortunately, feed plants in Iran have the machinery and capacity to crush soybeans into meal.”

Photos show: The inside of a poultry farm in Iran. (2) Mehr-Ayin, the writer. Address: Economic Editor, Kayhan International Publications.
Tikva, Israel. Address: Dep. of Nutrition, Hebrew Univ.-Hadassah Medical School, Jerusalem, Israel.


- **Summary**: The six proteolytic fractions of the soybean can be separated by column chromatography; each has a different Michaelis constant and optimum pH value ranging from pH 5.0 to 5.4. They differ in their specificity on synthetic substrates. None of the fractions exhibited trypsin-like activity.

Address: Biochemistry Dep., Bar Ilan Univ., Ramat Gan, Israel.


- **Summary**: Soy protein isolate was reported to increase the requirement for alpha-tocopherol in the chick as measured by growth, mortality, exudative diathesis, and encephalomalacia. Thus soybeans appear to have antivitamin E activity.

Note: Whether this factor is the alpha-tocopherol oxidase described by Murillo and Gaunt (1975) remains to be proved.


- **Summary**: “Soybean saponins did not impair the growth of chicks when added at five times the concentration in a normal soybean-supplemented diet.” Address: Faculty of Agriculture, Hebrew Univ. of Jerusalem, Rehovot, Israel.


- **Summary**: “The Soybean Council built the market in Iran... from practically nothing to 70 million pounds of U.S. soybean oil. The U.S. had 90% of the oil market 3 years ago. Then the Russians rolled across the border with sunflower oil on a favorable barter basis and took the market completely. “Since Iran is buying a lot of oil,” the duty is important to the federal treasury as a source of income, and it will be hard to get this removed. But Iran is buying practically no [soy] beans so there will be no loss to the treasury if the duty on beans is eliminated.

“An attempt should be made to find a way to get U.S. soy oil back into Iran right away.” “Iran has the crushing capacity and the oil demand to buy 7 million bushels of beans or more as soon as tariff is eliminated. But unfortunately she doesn’t have the meal demand for anything near that much. In fact, probably for only half that amount at the most.

“While the poultry industry totals 25 million birds and is increasing 20% a year, it is still only large enough to take roughly 20,000 tons of meal.” So SBC has another big market development job besides the oil—“to find a market for, say, 50,000 tons of soybean meal in that area of the world.” An illustration shows Chet Randolph next to a microphone. A photo shows Dr. H. Zahedi, Iran’s Minister of Agriculture, addressing the recent poultry nutrition congress in Tehran.

Address: American Soybean Assoc.


- **Summary**: “ASA, which pioneered commodity market development in Japan 13 years ago, is now undertaking such projects in 17 countries. ASA signed a long-range agreement with USDA’s Foreign Agricultural Service in mid-June. The agreement guarantees financing of the projects totaling approximately $1.6 million for a 2-year period. Industry organizations in other countries are expected to match that amount, which will mean an action program of over $3 million in the next 2 years to expand soybean markets in many parts of the world.”

“Offices in Germany and Iran are being opened... The German office will handle projects in Germany, Austria, and Switzerland. The Iranian office will be responsible for market development programs in Iran and the Middle East...” An American Soybean Institute is being developed.


- **Summary**: The Jewish National Fund has proposed a memorial forest on the shores of the Sea of Galilee in memory of the late Howard L. Roach of Plainfield, Iowa. Roach was the first president of the Soybean Council of America. Eliyahu [Eliahu] Navot of Israel is enlisting support from organizations in Israel. Mr. Navot has been called the “Mr. Soybean of Israel.” He worked closely with the Soybean Council office in Israel. For each $2.50 contributed, a tree will be planted in memory of Mr. Roach. A photo shows Howard Roach.


- **Summary**: “Israel uses a larger percentage of soybean meal in its livestock and poultry rations and consumes more vegetable oil per person than almost any other country in the world. Religion and international politics work in favor of soybeans, While Israel has a few hogs [they are not kosher], basically Israelis prefer vegetable oil to animal fats. The
margarine and shortening are mostly 95% soybean oil and many brands are 100% soybean oil. While margarine sales are 32,000 tons/year, butter sales are 3,000 because of religious customs and price.

“Israelis consume over 400 eggs per year per capita—the highest in the world.” The broiler business has increased rapidly. Practically all protein fed is soybean meal.”

Soybean imports to Israel last year totaled nearly 9 million bushels (240,000 metric tons). Over the years, Israel has exported about as much oil as they have imported. They have also had large exports of soybean meal.

The government buys all the soybeans, and sets the price of the soybeans, meal, bulk oil and consumer oil. But the export of soybean meal is unregulated. There are feed cooperatives throughout Israel. “The interest now is in soy protein foods.” An illustration shows Chet Randolph.


• Summary: A complex study with nine conclusions. Address: Faculty of Agriculture, Hebrew University, Rehovot, Israel.


• Summary: At the annual meeting of the American Soybean Assoc. in New Orleans last year, there was evidence of a new outlook and attitude. “An entire section of the growers’ convention dealt with market development and more precisely the need to mount a massive program to move soybeans and soybean products.” The ASA’s 15-year-old program in Japan has provided experience and the nucleus for expansion into other countries, including Taiwan, Korea, Germany, and Iran. The ASA has signed a $1.6 million agreement with the Foreign Agricultural Service for market development in 17 countries during the next two years.

“It’s particularly encouraging to note that three states have now held soybean checkoff referendums that passed by sound majorities. In Louisiana it was 77%, North Carolina 82%, South Carolina 80%... In addition, Minnesota, Missouri, Texas, and Ohio have all passed enabling acts... The above is evidence growers support the ASA effort to step up market development work.” Yet ASA membership has failed to grow. Address: 1. President; 2. Executive vice president. Both: American Soybean Assoc.

228. Product Name: [Vegetarian Schnitzel / Cutlet {Dry}].

Foreign Name: Schnitzel Tsimchi.

Manufacturer’s Name: Shefa Protein Industries Ltd.

Manufacturer’s Address: P.O. Box 39, Industrial Zone, Arad, Israel.

Date of Introduction: 1969. October.

Ingredients: Defatted soy flour.


New Product—Documentation: Letter from Mrs. Ronit Sklar, Plant Manager, Shefa Protein Industries Ltd. 1991. April 14. The company’s first product was Schnitzel Cutlett, a Soya Hamburger [or Cutlet].

Letter from Daniel Chajuss, Managing Director, Hayes General Technology Company Ltd. 1993. Jan. 14. “Dr. Sol Katzin [Katzen], the founder of Shefa Protein Industries Ltd. (the correct full name) is still alive and lives at 62 Itzakhi St., Herzelia [Herzliya, or Hertseliya], Israel (Phone: 972-52-586369). Although commercial production of texturized soy flour probably started in 1967 (as Mrs. Sklar, the present Managing Director of Shefa Protein Industries Ltd. told you), trials and first the first non-commercial production of texturized by Shefa were probably earlier. If I am not mistaken, I was shown samples by Dr. Katzin as early as 1965.”

Talk with Sol Katzen, co-founder of Shefa Protein Industries Ltd. 1993. March 14. Very shortly after Shefa’s first product, SVP, was launched, they realized that they wanted a larger chunk in the shape of a cutlet. In Arad they built a die that cut and shaped this cutlet as it emerged from the extruder. Then it dropped directly into a roller (while it was still plastic), which compressed it to twice its original density and gave it a much meatier texture. A typical schnitzel (which was a dry product) was about 3 inches wide by 4 inches long. There were many schnitzels in each 250 gm box. The product was sold only to retail consumers in Israel. The Hebrew word “tischmi” is pronounced “Tsim-HEE”. The instructions read: “In order to use SVP it must be hydrated in a ratio of 1 to 2 in water, in either of two ways: Approximately 5 minutes in boiling water or in cold water. In both cases the SVP has to be soft inside. To make sure there is not too much water, we usually advise to squeeze out the excess while flattening the schnitzel. In both cases, instant chicken soup, salt, pepper, garlic, onion, and cumin is added to the rehydration water. Then when the schnitzel is rehydrated and flattened, you treat it in the same way as regular schnitzel, dipping it in beaten eggs, and then bread crumbs, and finally frying until it is brown.”


• Summary: Contents. 1. Brief history—The FAO/WHO/UNICEF Protein Advisory Group was established in 1955 with the purpose of advising WHO on nutritive problems concerned with the development of special protein-rich foods. 2. PAG’s scope of activities—Focus on development of protein foods for infants and children. 3. Focus on utilization of soy-beans and soy-bean products in human feeding—since 1956. 4.
Attention to fermented soya bean products. 5. Saridele project for spray dried soy bean extract [soy milk] in Indonesia.

6. Survey of soy products available for human consumption. 7. Development of processing equipment for full fat soy bean flour. One Wenger unit, donated by UNICEF, has been installed in Taiwan. Another unit, also provided by UNICEF, will be installed at the Kaira Dairy Cooperative in India for the production of protein food mixtures for infants and children. 8. Dairy type foods based on soy protein isolates. 9. Studies on the economics of soy bean production, supply, processing and marketing. Two projects, in Turkey and Madagascar, are discussed briefly. 10. Conclusion.

The two projects: “One refers to Turkey where soy beans are produced in a restricted area on the Black Sea. The remodelling of the soy processing facilities through UNICEF and FAO assistance makes it possible to produce edible soy bean protein concentrates for the production and distribution of an enzyme treated and precooked infant food in Turkey. The second project, in its very early stage of preparation concerns Madagascar where there is a very serious effort of the Government to expand the culture of soy beans. Here it is anticipated that the commercial production of protein mixtures based essentially on rice and soy for infant and young children could be developed. In the same country, where there is a substantial production of bananas, some development work encouraged by FAO is now under way for the production of soy flour-banana mixtures for feeding of all age groups.

“In conclusion, it could be said that the PAG and its sponsoring Agencies are trying to find ways and means for introducing and expanding the culture of soy and for the utilization of it and its products in human feeding.” Address: Nutrition Div., Rome, Italy.


• Summary: Phase II is a voluntary ½ cent per bushel checkoff on soybeans at the first point of sale. This American Soybean Assoc. program has been kicked off in several states according to ASA field director Merv Syverson. Funds collected from this program will go for market development in Japan, Germany, and Iran. Some states have moved directly into Phase III, which uses state enabling legislation to gain the ½ cent per bushel deduction. “North Carolina, Louisiana, and recently south Carolina have circulated referendums and will automatically collect the funds at the first point of sale.”

Progress from other Midwest states: The Ohio legislature has passed a checkoff bill and is anticipating a referendum. In Indiana a checkoff bill has not yet passed, but the Indiana Soybean Growers Assn. has voted to go to Phase II. In Illinois the Land of Lincoln Soybean Assn. has gone into Phase II both at the elevator and later on in direct grower contact. Minnesota has passed a checkoff bill but has not yet set the date for a second referendum. The Minnesota Soybean Growers Assn. is working on a membership drive and has instituted a voluntary checkoff. The Nebraska Soybean Assn. plans a drive in December for the minimum 400 members for affiliation with the ASA. The Missouri legislature has passed a checkoff bill and the Missouri Soybean Assn. is preparing for a referendum; the date is to be set.


• Summary: The section titled “Soyabean” (p. 2) notes that some 132 observation plots were planted. Each soyabean variety was planted twice. 24 varieties had been planted previously and 42 varieties had been recently imported from Zambia, Southern Rhodesia, and Fiji. The seed of many of the newly introduced varieties had a low germination rate. The varieties that gave the best yields are listed. Only one (Wilson Black) has a name; the others are designated by initials or numbers. The yields are not given.

The next section titled “Fertilizer trials” (p. 2) begins: “Yields, bean size, and oil content of the locally produced soyabean have been disappointing. Private enterprise has found the growing of soyabean to be uneconomical and has ceased growing them. It was thought that with improved cultural methods, yields and quality may be improved.”

Experiment II was conducted on land at Okea. Urea (200 lb/acre) and elemental sulphur (100 lb/acre) were applied and not applied. The variety was Light Speckled. Soybeans were inoculated or not. The highest yield (2,744 lb/acre or 45.7 bushels/acre) came from inoculated soybeans with the urea + sulphur treatment. These results were considered excellent.


Appendix II, titled “Soyabean observation plots III and IV” has 110 entries and the same column headings. All came from Tanzania. Address: Agricultural Officer, Rice Experiments.


• Summary: The first official census conducted in China, during the Han period, counted 60 million people. A later census conducted in A.D. 280 showed only 16 million people (Chang 1977, p. 71).

The famine in China in the year A.D. 194 may have been the result of too many mouths to feed and thus responsible, at least partly, for the discrepancy of the two censuses. But in addition, famine forced the price of millet to skyrocket in relation to soybeans, resulting in an increased consumption of the latter—often in the form of bean congee or gruel.

234. Product Name: [Soy-Bit (Soybean Fiber. Later renamed So-Bit or Sobit)].
Manufacturer’s Name: Hayes Ashdod Ltd. Renamed Solbar Hatzor Ltd. in April 1987.
Manufacturer’s Address: Habosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel.
Date of Introduction: 1969.
How Stored: Shelf stable.
Nutrition: Protein 50%, dietary fiber 30-40%.

New Product–Documentation: Food Report (Lehmann). 1982. Dec. The product, sold in Austria, is called “So-Bit.” This natural slimming agent, suitable for diabetics, was developed in Israel [by Hayes, Ltd. in Ashdod] from soya bean extract. The product is in powder form and is essentially protein soya fibre which should be taken in addition to a normal diet in treatment periods of three weeks. It is claimed that a weight reduction of 5-6 kg can be achieved in the first 4-5 weeks and of 40-50 kg in 7-12 months. This powder is packed in canisters.

Z. Madar. 1983. American Journal of Clinical Nutrition. Sept. p. 388-89. “The effect of brown rice and soybean dietary fiber [Soy-Bit] on the control of glucose and lipid metabolism in diabetic rats.” “This study demonstrated the potential benefit of soybean dietary fiber [Soy-bit] over rice fiber in diabetes treatment with additional advantages resulting from its ease in usage either in a mixture of water or milk products and cooking. As well, being devoid of a disagreeable taste so characteristic of other fibers, patients acceptance is more forthcoming.” It is not clear what type of soy fiber (okara?) Soy-bit is. Containing 50% protein 30 to 40% dietary fiber, it was donated by Hayes Ltd. (Ashdod, Israel), which also partially supported the research.


Letter from Daniel Chajuss, founder and owner of Hayes Ashdod Ltd. 1993. Jan. 5 and 14. In 1969 Hayes introduced So-Bit (also spelled Sobit), a fiber product which was removed from the soy protein concentrate by a tail-end dehulling system containing both aqueous alcohol washed hulls and fibers obtained from soybean cotyledons. This product has proven to be beneficial as a source of dietary fiber, especially for diabetic patients.

235. Product Name: Primepro (Soy Protein Concentrate with Enhanced Functionality and Solubility).
Manufacturer’s Name: Hayes Ashdod Ltd. Renamed Solbar Hatzor Ltd. in April 1987.
Manufacturer’s Address: Habosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel.
Date of Introduction: 1969.
How Stored: Shelf stable.

Address: Dep. of Plant Industry, Ankara Univ., Turkey.


• Summary: “History: Protein malnutrition, later termed ‘protein-calorie malnutrition,’ drew international recognition following the first meeting of the FAO Nutrition Committee held in Baguio, Philippines, in 1948. It was not until the Joint
FAO/WHO/Expert Committee on Nutrition met for its first session in Geneva in 1949 and recommended that ‘kwashiorkor be investigated in the areas where the condition occurs,’ that international action was initiated. That recommendation led to surveys conducted by Brock (WHO) and Autret (FAO) in Africa in 1950 (published 1952) and by Autret (FAO) and Béhar (WHO) in 1951 in Central America (published 1954). Similar surveys were conducted in the following years in other parts of the world and indicated that ‘protein-calorie malnutrition’ prevails in most of the developing countries.”

Address: FAO, Rome, Italy.


• Summary: William Irving Kaufman was born in 1922.


• Summary: Multi-Purpose Food (MPF) showed good results in feeding tests with Iranian school students, according to Dr. A.M. Setayesh, author of a report on the subject.

“MPF, which contains 50% vegetable protein balanced with the required vitamins and minerals, is produced by [sic, for] the Meals for Millions Foundation in California. Students on the test received 20 grams of MPF mixed with water daily.

“There is considerable malnutrition in Iran, partly due to a shortage of food but in large part due to ignorance of what constitutes a good diet.”


• Summary: “Under the wise leadership and rule of their beloved, His Imperial Majesty the Shahanshah Aryamehr [the Shah], the people enjoy living in the growing economy of this country with its social and political stability.” A few years ago the USAID (U.S. Agency for International Development) decided to close there mission in Iran, showing that the country is on the path of progress.

Discusses the advantages of “sun oil” (sunflowerseed oil), and the reasons that soybean oil has recently been making a comeback. Iran is now importing about 100,000 tons of edible oils for the production of shortening.

Photos show: (1) H. Babaian. (2) Inside the margarine plant of Pars Cotting Ginning and Oil Mill Corp., Teheran [Tehran].

(3) Inside the solvent extraction plant of Pars Animal Feed, Teheran. Address: Managing Director, Ahmad Ghassemieh & Co., Teheran.


• Summary: Contents: Introduction. Soybean exports. Our foreign expenditures: India, Pakistan, Turkey.

“Nearly 700 million bushels of your 1970 soybean crop will pass through the plants and elevators of the nation’s soybean processors. A significant number of these bushels will be exported abroad in the form of soybean oil and meal.” “Last year more than 40% of all U.S. soybean oil exports went to” India and Pakistan–two great oil-deficient nations.

Current estimates indicate that about 45% of the 1970 soybean crop will be exported overseas–either as soybeans or as oil and meal.” “The U.S. now accounts for over 90% of the world’s total soybean trade.”

“The 40 member companies of NSPA will invest $120,000 in foreign market development during 1970. Nearly $70,000 of this amount will go to support representatives and their efforts in the three Asian nations [India, Pakistan, and Turkey].

Address: President, National Soybean Processors Assoc.


• Summary: Raw soybeans appear to have antivitamin B-12 activity in rats. This substance causes increased excretion of metabolites associated with enzymes that require vitamin B-12 as a coenzyme. Address: Dep. of Nutrition, Hebrew Univ.–Hadassah Medical School, Jerusalem, Israel.


• Summary: Table 20 is titled “Title II, Public Law 480–Total commodities by program type, fiscal year 1969.” The three main program sponsors and distributing agencies are (1) Volag (American voluntary agencies, UNICEF and UNRWA [United Nations Relief and Works Agency] unless otherwise noted), (2) Government to government, and (3) WFP (World Food Program). Each of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. Only two foods containing soy protein were distributed: CSM (Corn soya mix) and WSB (wheat soya blend). They were lumped together in the statistics and sent in the following amounts (in thousands of pounds) to the following continents and countries: Africa total 89,470 lb: Cameroon 600, Congo 162, Dahomey 80, The Gambia 385, Ghana 976, Kenya 478, Lesotho 775, Malawi 39, Mali 4,500, Morocco 300, Nigeria 78,232, Senegal 80, Sierra Leone 1,810, Tanzania 365, Togo 18, Upper Volta 670.


Far East total 57,861: Burma 360, Indonesia 3,669, Korea 9,698, Laos 53, Macao 113, Malaysia 2,474, Philippines 3,140,

Latin America total 45,291: Bolivia 72, Brazil 19,851, Chile 2,605, Colombia 1,696, Costa Rica 142, Dominica 4, Dominican Republic 6,680, Ecuador 608, El Salvador 1,178, Grenada 68, Guatemala 1,773, Guyana 58, Haiti 1,585, Honduras 435, Jamaica 124, Martinique [French] 75, Panama 734, Paraguay 2,477, Peru 4,847, Uruguay 279.

Grand total: 415,439,000 lb of CSM and WSB. The following amounts of CSM/WSB (in 1,000 lb) were distributed by the three groups: Volag 292,587, Government to government 122,851, and WFP 1. Countries receiving more than 1 million lb of CSM and WSB combined (in millions of pounds): India 216.2, Nigeria 78.2, Vietnam 38.1, Brazil 19.9, Korea 9.7, Dominican Republic 6.7, Peru 4.8, Mali 4.5, Indonesia 3.7, Philippines 3.1, Zambia 2.7, Chile 2.6, Malaysia 2.5, Paraguay 2.5, Sierra Leone 1.8, Guatemala 1.8 Colombia 1.7, Haiti 1.6, Jordan 1.5, El Salvador 1.2, Jordan West Bank 1.0.

Note: This is the earliest document seen (Feb. 2002) concerning soybean products (cereal soy blends) in Martinique, or Panama. This document contains the earliest date seen for soybean products in Martinique, or Panama (1969); soybeans as such had not yet been reported by that date. Address: Washington, DC. Phone: 703-875-4901 (1991).


**Summary:** “A decree removing the duty on soybeans by the Cabinet of Ministers in Iran is already resulting in the sale of more soybeans to that country.” The previous Iranian tariff on soybeans was so high as to effectively prohibit their import. Those involved in removal of the tariff include the U.S. ambassador to Iran, the FAS Agricultural Attaché, and Enoch Lachinian, American Soybean Association country director for Iran.

Iranians have been buying soybean meal bagged in New Orleans, Louisiana, with expensive overland shipment that made the meal very expensive. Processing the soybeans in Iran will reduce the cost of the meal–to everyone’s benefit.

There are two new plants in Iran that can crush soybeans. One of the firms is now arranging to purchase large quantities of U.S. soybeans, while the other is looking at equipment to build another plant. Iranians may sell some of their new soybean meal into Eastern Europe and possibly Russia. However Iran is expect to continue buying large amounts of soy oil from the U.S.

Photos show: (1) U.A. Ambassador Douglas MacArthur II and Enoch Lachinian at the recent American Soybean Institute (ASI) booth of the U.S. Exhibition in Tehran. (2) A wide view of the ASI booth in Tehran, demonstrating a wide variety of uses for the soybean.


“The there are no published statistics on the volume of production of isolates and concentrates. One estimate for production in 1967 in the United States is 17 to 30 million pounds for isolates and 22 to 35 million pounds for concentrates. Guesses for the present production volumes range from 5 to 20 million pounds for isolates and from 30 to 40 million pounds for concentrates.” Address: Technion–Israel Inst. of Technology, Haifa, Israel.


**Summary:** A superb history of the American Soybean Association on its 50th anniversary and of soybeans in America. Contents: Introduction. Market-oriented from the first. ASA’s founding at Camden, Indiana (3 Sept. 1920 at Soyland). George M. Strayer takes helm; founds *Soybean Digest* (Nov. 1940 at Hudson, Iowa). The great growth of the markets. Restrictions on margarine. The market for exports (after World War II, Japanese American Soybean Institute, Soybean Council of America, American Soybean Institute {ASI}, and USDA Foreign Agricultural Service). Soybeans are big business. State soybean associations and field staff (including the legislative program and referendum [checkoff]). The task confronting us all.

Concerning state soybean associations and financing: The Minnesota Soybean Growers Association, the first affiliated association, was founded in 1962 [but did not affiliate with ASA until Jan. 1965]. Since then, 16 other state associations have been formed, and a field staff has been established to service them. There are presently 1,900 directors of county committees, state associations, and ASA itself. A Mid-South office was opened in Memphis, Tennessee, a year ago. Financing of the soybean program is done in many ways. Many states are participating in Phase II, a voluntary checkoff at the first point of sale.

“The legislative program and referendum, Phase III, which enables an automatic deduction of ½ cent per bushel from all soybean sales in a state, was passed in North Carolina, South Carolina, and Louisiana, but was defeated in Minnesota and Missouri. The memory of the defeated checkoff in those two states is still painfully fresh. Texas and Ohio have passed enabling legislation for referendums this year.

“Funds for market development work have also been provided by the marketing boards or departments of agriculture in Iowa, Ohio, Mississippi, Missouri, Louisiana, and Tennessee.”
Photos show: (1) Kent Pellett, soybean historian for 28 years, managing editor then editor of *Soybean Digest*. (2) ASA President D. Leslie Tindal, of Ten-Dale Farms, Pinewood, South Carolina. He raises 500-600 acres of soybeans annually, helped organize the South Carolina Soybean Assn., and has made 2 trips to Europe on behalf of ASA’s marketing program. (3) Taylor Fouts, the first ASA president. He and his two brothers held the first meeting of the ASA on their Soyland Farm at Camden, Indiana, in 1920, when they had 150 acres in soybeans plus another 200 acres of soybeans interplanted with corn. Several soybean field days had been held at Soyland Farm in earlier years. (4) Panoramic photo (courtesy of George M. Briggs, of Wisconsin) of the more than 1,000 people who attended the “First Cornbelt Soybean Conference” at Soyland Farm in Sept. 1920. Note: As of March 1999, this photo is owned by Bill Fouts of Indiana. On page 26, from right to left, the people seated in the second row are: Unknown, Louanna Fouts (wife of Finis), Finis Fouts, Lillie May Fouts (wife of Taylor), Taylor Fouts, Lillie Jane (wife of Noah), Noah Fouts. (5) Some ASA firsts: Paul C. Hughes, the first ASA fieldman, 1948-1951. He is now manager of the Farmers Soybean Corp., Blythville, Arkansas. David R. Farlow was the first executive assistant 1958-61. He is now manager of the Bunge Corp. vegetable oil division in New York. Shizuka Hayashi was managing director of the Japanese American Soybean Institute for ASA in Tokyo from its founding in 1956 until his retirement in 1968. (6) Dr. Steve Chen, director of the Taiwan office, with staff. (7) Scott Sawyer, Far East director, in Tokyo, with Karl Sera, Yoshiko Kojima, and his staff. Ms. Kojima, who has been with ASA since 1957 and is the longest serving overseas employee, is chief of the food section of ASI’s Far East Office. (8) Dr. Karl-Wolfgang Fangauf, director of the German office in Hamburg, with staff. (9) Enoch Lachinian, director of the Iran office, with staff: (10-14) ASA staff in the United States, which started with one part-time person in 1940 and has grown to 45 in 1970, including regional offices and overseas staff of 19 in 4 foreign offices. Incl. Chet Randolph, Howard E. Grow, George McCully, Merv Syverson, Larry Krueger. (15) Princesses and queens: Mary Ellen Laatz of Illinois and Julie Carlson of Minnesota were the first to be named national “Princess Soya” in 1968 and 1969. But “soybean queens” were being named as long ago as 1948, when Edith Harris of Dyersburg, Tennessee, was given that title at Portageville, Missouri.


by rats subsisting on unheated soybeans. Address: Dep. of Nutrition, Hebrew Univ.-Hadassah Medical School, Jerusalem, Israel.

253. Product Name: Soybean oil, and meal.  
Manufacturer’s Name: Behpak Oil Mills.  
Manufacturer’s Address: Plant: Behshahr, Mazandaran Province, Iran. Office: 285 Zahedi Ave., Tehran, Iran. Phone: 621424.  
Date of Introduction: 1970.  
Ingredients: Soybeans.  
Note: This is the earliest known commercial soy product made in Iran.

254. Product Name: Soybean oil, and meal.  
Manufacturer’s Name: Pars Animal Feed.  
Manufacturer’s Address: Ave. Karadje, 14 Kilometery, Tehran, Iran. Phone: 621424.  
Date of Introduction: 1970.  
Ingredients: Soybeans.  
Wikipedia. 2007. Nov. 22. Behshahr is home to Behshahr Industrial Company which is the biggest producer of vegetable oil in Iran since 1951.

255. Product Name: [Krunch {Crunch, Breakfast Cereals} (Korn Krunch, Bran Krunch, Malt Krunch {Barley with Malt}, Wheat Krunch)].  
Foreign Name: Krunch.  
Manufacturer’s Name: Shefa Protein Industries Ltd.  
Manufacturer’s Address: Industrial Zone, Arad, Israel.  
Date of Introduction: 1970.  
Ingredients: 80% cereal, 20% whole (full-fat) soy flour, sweeteners, vitamins.  
Wt/Vol., Packaging, Price: Cardboard cartons.  
How Stored: Shelf stable.  
New Product–Documentation: Talk with Sol Katzen, co-founder of Shefa Protein Industries Ltd. 1993. March 14. This was the company’s third product, introduced in 1970. They made their own full-fat soy flour from soybeans. They mixed all ingredients and extruded them together. It was sold only to retail consumers in Israel. They sold fairly well.


• Summary: The oviposition preference of the cowpea weevil, Callosobruchus maculatus F., was tested on six kinds of legume seeds produced in the U.A.R. [United Arab Republic, a union of Egypt and Syria, formed in 1958, dissolved in 1961]. The cowpea weevil was found to feed on soya beans, but losses were observed only after 5 months, at which time they amounted to only 6.2% of their weight.  
Note: It is not clear whether these soybeans were grown in Syria or Egypt; it seems more likely that they were grown in Syria since all three researchers are stationed in Syria. If they were, this would be an early document concerning soya beans in Syria. Address: 1-3. Stored Grain Insects Investigations, Plant Protection Dep., Ministry of Agriculture and Agrarian Reform; 4. Entomological Research Station, Ministry of Agriculture, Syria.

• Summary: Randolph has just returned from a trip to Europe and Iran, where the demand for vegetable oils and meals is expected to grow rapidly. “Livestock production, most often poultry and hogs, is increasing rapidly in many countries as the standard of living rises and people demand more meat at the table.” “There is a tremendous increase in broiler production... all over the world.” Soybean oil is facing competition from sun oil and palm oil.  
Discusses: United Kingdom, Italy, France, Germany, The Netherlands, Belgium, Yugoslavia, Russia, China, Iran. A small photo shows Chet Randolph. Address: American Soybean Assoc. Director of Market Development.

• Summary: This paper was compiled from background documents presented by the authors at the 18th PAG [Protein Advisory Group] meeting held on 9-12 Feb. 1971 at Rome, Italy. Contents: Introduction. Spun monofilament products. Extrusion-expansion products (currently marketed at about $0.45/lb). General considerations. Case studies: Thailand (ADM’s TVP), Brazil (Swift & Co.’s textured meat analogs), India (Swift & Co., ditto). Textured vegetable protein products: Fibroprotein–Spun Protein Fibers (Worthington Foods Div., Ohio), Textured Edi-Pro (Ralston Purina Co., Missouri), Texgran (Swift & Co., Illinois), Bontrae (General Mills, Minnesota; spun vegetable protein products), Carne Vegetal (Industria e Comercio de Productos Alimenticios Vegetal Ltd., Brazil). LiveLong–VP (Nisshin Flour Milling Co. Ltd., Japan;
a wheat gluten extract in the form of a dried or frozen mincemeat-like product. “It seems to be made by a filament extrusion process using isolated wheat gluten protein”). The Farmarco Co. (Far-Mar Co., Kansas), The Fuji Oil Co. (Japan; thermoplastic extrusion), and Shefa Protein Foods Ltd. (Israel) each manufactures texturized soy food products by thermoplastic extrusion.

Introduction: “The chief virtue of the individual members of this new class of foods rests in their ability to supply precisely reproducible balanced dietary inputs of essential amino acids with greatly enhanced agronomic efficiency and with high consumer acceptance... At the moment two broad classes of meat analogues are apparent. The extrusion–expansion products sell for US 10-15¢ per pound; the spun monofilament products sell at present in the USA for 20-25% less than meats, but are still too expensive to be of interest for developing countries.”

“General considerations: Meat analogs do not appear to have a negative connotation to vegetarians; there are many examples of eager acceptance of meat analogs by such groups. The textured protein approach is also a stride forward in food efficiency, since conversion of soy to animal protein averages about 7% efficiency.”

“Over the past few years US/AID has entered into contracts with twelve different U.S. commercial companies to investigate and evaluate low-cost proprietary protein products in some ten developing countries.”

Note 1. This is the earliest document seen (June 2001) concerning the work of Fuji Oil Co. (Osaka, Japan) with soy.

Note 2. This is the earliest English-language document seen (Dec. 2004) that uses the word “Fibroprotein” to refer to edible spun soy protein fiber. Address: 1. ADM, Decatur, Illinois; 2. General Mills, Minneapolis, Minnesota.


• Summary: In recent years oil crops such as soybeans, sunflower, safflower, and sesame have been the subject of much interest in Iran. “Under the leadership of His Imperial Majesty Shananshah the cultivation of oil crops has been extended to all regions of Iran. This intensive interest has been due to the need for more vegetable oils. Today the average annual per capita consumption of oils and fats in Iran in 13.5 lb, of which 10 lb is vegetable oils. In the past 9 years the consumption of edible oils has tripled.

Soybeans can play a more important role in Iran than other oil crops because they contain an abundance of both oil and protein. A supplementary protein source is badly needed for feeding both livestock and poultry. This has led to the establishment of the Behpak Oil Mill for processing soybean oil and the Pars Animal Feed Co. for the use of soybean meal in animal nutrition. So soybean production in Iran now has the strong support of both government and industry.

“The history of soybean production in Iran is rather short, but the experimental data from the Iranian Ministry of Agriculture experiment stations and the university farms is promising. In 1963 cultivation of soybeans started in northern Iran along the Caspian Sea.

“In these areas an average yield of 30 bu/acre (2,000 kg/ha) has been obtained in scientifically conducted experiments. At the Pahlavi University agronomy farm in Shiraz an average yield of 24 bu/acre (1,600 kg/ha) has been obtained under irrigation.” Address: 1. Asst. Prof. of Agronomy; 2. Head, Dep. of Plant Sciences. Both: Pahlavi Univ.


• Summary: “The protein value of raw, heated and shelled Vicia faba beans (VFB) was compared with that of heated soyabean meal (HSB) when fed at 10% and 15% protein levels to rats of both sexes. While females grew equally well on VFB and HSB diets containing 15% protein, males fed VFB grew more slowly than those fed HSB at the two levels of protein in the diets (the difference being smaller on the 15% protein diet). The lower N utilisation of VFB seems to be the main reason for the differences in the growth response.” Address: Volcani Inst. of Agricultural Research, P.O. Box 6, Bet Dagan, Israel.


• Summary: Two years ago, European “buyers tended to prefer other oils and to ‘poormouth’ soybean oil, which they considered of second quality. Sun [sunflower] oil was looked on as the great star and peanut oil the longtime standard in such countries as Germany, France, and Italy. Today there is a different.” Buyers say: “We realize soy is the oil of the future.” Soybean oil is less expensive and in more abundant supply. The quality is steadily improving. “Research is leading the way to margarines containing 50 to 100% soy oil.”

“In a consumer study of 300 German homemakers that compared sun versus soy oil, homemakers in a blind test in their homes showed little preference between the oils. This gives the clear go-ahead to promote identified soy oil on a brand-name basis in cooperation with major companies or chain stores in Germany.”

“Two years ago 90% of the food oil being used in France was peanut oil, but this usage has declined.

“The Vandemoortele Co. of Belgium is now selling a sizable volume of soy oil in France, mainly under supermarket brand names. They are putting the words “Soybean Oil” in small letters on the labels to test consumer reaction. They have already captured a substantial part of the Belgian market where they are selling soy oil boldly identified as such on the label.

“Vandemoortele has been selling soybean oil in Germany, Holland, and Italy as well as France since 1968.
“The Bohm Co. of Stuttgart, Germany, has put a 100% identified soy oil on the market.

The outlook for expanded use of soybean meal is also improved. Details are given for Austria, Belgium, and Italy. Highlights of Randolph’s report are given for the following countries: Common Market (EEC), Germany, France, Italy, and Iran (which has become a major cash customer for soy oil). Address: Director of Market Development, American Soybean Assoc. [Hudson, Iowa].


- **Summary**: 6,7,4′-trihydroxy flavone was isolated from defatted soybean meal. This uncommon isoflavone glycoside was isolated from an extremely “browned” sample. Address: Stored Products Research Lab., Plant Protection Branch, Ministry of Agriculture, P.O.B. 15030, Jaffa Israel.


- **Summary**: A locally-made “soybean protein concentrate, Hypro” (produced by Hypro [Ashdod] Ltd., Ashdod, Israel) was tested as a substitute for all of the nonfat dried milk in a commercial calf milk replacer formula (Milkvit). Hypro is made from unheated dehulled defatted soybean meal from which some of the high molecular weight carbohydrates have been removed. Heating improved the digestibility of the soybean protein from 72% for the raw to 88% for the heated. Soybean diets diminished markedly the incidence and severity of diarrhea. Address: 1. Dep. of Poultry Science; 2-4. Dep. of Dairy Science. All: The Volcani Inst. of Agricultural Research, Bet-Dagan, Israel.


- **Summary**: During the last few years, this mites—which is not a newcomer—has become a serious pest on these two crops in the northern part of Iran. This article discusses the results of field trials to find a effective acaricide against this mite during 1970 and 1971. Address: 1. Asst. Prof.; 2. Prof. and Dean. Both: Agricultural College, Karaj, Iran.


- **Summary**: A complex study with numerous conclusions. Address: Dep. of Animal Nutrition and Agricultural Biochemistry, Hebrew University, Faculty of Agriculture, Rehovot, Israel.

267. **Product Name**: [Vegetarian Hamburger, and Vegetarian Schnitzel {Rehydrated, Seasoned and Frozen}].

- **Foreign Name**: Frozen Schnitzel Tsimchi.

- **Manufacturer’s Name**: Shefa Protein Industries Ltd.

- **Manufacturer’s Address**: 12 Htaasya St., Arad, Israel.

- **Date of Introduction**: 1971.

- **Ingredients**: Textured soy flour, hydrolyzed yeast.

- **Wt/Vol., Packaging, Price**: ½ kg or 1 kg shallow tray pack with a film wrap overlay.

- **How Stored**: Shelf stable.

- **New Product–Documentation**: Talk with Sol Katzen, co-founder of Shefa Protein Industries Ltd. 1993. March 14. These were Shefa’s fourth and fifth products. Sol and his brother set up a food processing line in the Shefa’s plant. They purchased fresh yeast, when they hydrolyzed. They made a solution of this yeast hydrolyzate, dehydrated onion and garlic (both locally produced), and pepper. Then they rehydrated their dry Vegetarian Schnitzel and their SVP in this solution to yield a frozen Vegetarian Schnitzel and Vegetarian Hamburger. The yeast hydrolysate served two purposes: (1) It flavored the structured soy protein; and (2) It reduced the flatulence factor. The idea of producing a frozen TVP-type product was quite novel at the time. They marketed it for various applications: It could be mixed with egg or egg white and fried to make vegetarian patties, or it could be mixed with meat and served as desired.


- **Summary**: Soybeans contain at least three different proteinase inhibitors; Proteinase is the enzyme that digests protein. (1) The Kunitz soybean trypsin inhibitor (SBTI). (2) The acetone insoluble trypsin inhibitor reported by Bowman; it is also a strong chymotrypsin inhibitor. (3) The *Trilobium* larval proteinase inhibitor. Address: Faculty of Agriculture, The Hebrew Univ. of Jerusalem Rehovot, Israel.


Note: This is the earliest document seen (Aug. 2002) concerning Alfa-Laval’s work with soy products (soy protein isolate). Address: Senior Food and Agricultural Industries Officer, Food and Agricultural Industries Service, FAO.


• Summary: The following nations are listed for the first time as soybean producers in the FAO Production Yearbook. * = Unofficial figure. F = FAO estimate. Peru: Produced 1,000 tonnes (metric tons) in 1961-1965 (yield = 14.6 kg/ha), and 1,000 metric tons in 1967 (yield = 17.2 kg/ha). No production or area statistics are given for Peru for 1968 to 1971, but the yields were: 13.8 kg/ha in 1968, 11.2 kg/ha in 1969, 10.8 kg/ha in 1970, and 11.3F kg/ha in 1971.

Iran: Produced 3,000 metric tons on 5,000* ha in 1967 (Yield: 620 kg/ha), 11,000* tonnes in 1968, 45,000* tonnes in 1969, 47,000F tonnes in 1970, and 50,000F tonnes on 16,000F ha in 1971.

Under Oceania (the first time this term is used): Australia: Harvested 1,000 ha in 1961-1965, 1,000 ha in 1967, 2,000 ha in 1968 and 1969, 4,000 ha in 1970, and 16,000F ha in 1971.

Name changes: Cambodia is changed to Khmer Rep. Congo D. Rep. [Democratic Republic] is changed to Zaire. In 1969 South Rhodesia is changed to Rhodesia. “China, Taiwan” disappears and “China (Main)” is changed to “China P. Rep.” [People’s Republic].

Other interesting listings: Turkey.


• Summary: The section titled “Materials and methods” (p. 267) states that “The investigated foodstuffs dated from 1968, 1969, and 1970.”

The section titled “Soya bean” (p. 274-75) contains table 12 titled “Crude nutrient content of soya bean samples” gives the average crude nutrient content (percentage) of 12 samples grown in the Douma region. The values of crude fat and crude fiber were higher than the reported mean values from six German-language documents. The feeding value of the soya beans was also higher than that reported in the German-language literature.

Note: It appears that the soya beans analyzed were grown in Syria, probably during 1968-1970–but this is not clearly stated. Address: Experimental and Training Station for Animal Production, Deir el Hajar, Syria.


• Summary: This historical novel is set in Israel. In 1948, with fierce fighting and a blockade in place, there was little food left in the Jerusalem’s New City restaurants, so Maria (a nurse) took Amos (her husband) to the hospital canteen. “They went to the counter. It was soya sausages, potatoes, cabbage. He knew they were lucky to get it.”


• Summary: Clark variety soybeans were grown in Lebanon. Some plots were treated with pre-emergence or post-emergence herbicide sprays. The seeds were harvested on 4 Oct. 1968, dried, ground and used for chemical analysis. For example, one pre-emergence herbicide increased the protein percentage by 10.6% over the handweeded check, whereas 2 other pre-emergence herbicides decreased the protein values significantly at all rates tested. Likewise both types of herbicides effected the oil content and composition. However “no significant difference was observed between the chemical composition of soybean seeds harvested from handweeded and unweeded plots... This may suggest that weed competition had no influence on the nutritional characteristics studied.”

“The authors gratefully acknowledge the support of the Lebanese National Research Council and the American University of Beirut in providing funds to present this paper at the 10th British Weed Control Conference.” Address: Faculty of Agricultural Sciences, American Univ. of Beirut, Lebanon.


• Summary: Table 19 is titled “Title II, Public Law 480–Total commodities by program sponsor, fiscal year 1970.” The main program sponsors and distributing agencies, listed alphabetically, are AJJDJC (American-Jewish Joint Distribution Committee), CARE, CRS (Catholic Relief Service), CWS
(Church World Service), LWR (Lutheran World Relief), SAWS (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), WFP (World Food Program). Each of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. Only two foods containing soy protein were distributed: CSM (Corn soya mix) and WSB (wheat soya blend). They were sent in the following amounts (in thousands of pounds) to the following continents and countries: Africa (50,362 CSM and 6,087 WSB): Cameroon (82 CSM), Ghana (1,104 CSM and 201 WSB), Malagasy [Madagascar] (425 CSM), Malawi (61 CSM), Nigeria (41,343 CSM and 5,886 WSB), Rwanda (200 CSM), Senegal (5,301 CSM), Sierra Leone (699 CSM), Tanzania (887 CSM), Togo (260 CSM).

Near East-South Asia (192,116 CSM and 2,504 WSB): Ceylon (50 WSB), Gaza [occupied by Israel since 1967] (814 CSM and 1,892 WSB), India (189,044 CSM and 105 WSB), Jordan (680 CSM), Jordan-West Bank [occupied by Israel since 1967] (1,110 CSM), Lebanon (160 CSM), Pakistan (457 WSB), Syria (308 CSM).

East Asia (21,530 CSM and 451 WSB): Hong Kong (384 CSM and 100 WSB), Indonesia (9,245 CSM and 150 WSB), Korea (4,586 CSM), Laos (275 CSM), Malaysia (220 CSM), Philippines (1,545 CSM and 201 WSB), Ryukyu Islands [located south of Japan, incl. Okinawa, Sakishima, and Amami island groups. Self governing from 1946. Returned to Japan in 1972] (50 CSM), Vietnam (5,225 CSM).

Latin America (53,761 CSM and 2,305 WSB): Antigua (37 CSM), Bolivia (555 CSM and 173 WSB), Brazil (29,919 CSM and 506 WSB), British Honduras [Belize] (225 CSM and 20 WSB), Chile (1,726 CSM and 151 WSB), Costa Rica (679 CSM and 100 WSB), Dominica (23 CSM), Dominican Republic (7,429 CSM and 105 WSB), Ecuador (1,295 CSM), El Salvador (836 CSM and 200 WSB), Grenada (114 CSM), Guatemala (1,944 CSM), Guyana (72 CSM), Haiti (1,010 CSM), Honduras (674 CSM), Jamaica (208 CSM and 100 WSB), Montserrat (18 CSM), Panama (765 CSM and 450 WSB), Paraguay (491 CSM and 400 WSB), Peru (5,842 CSM and 100 WSB), St. Kitts (59 CSM), St. Lucia (69 CSM), St. Vincent (30 CSM), Uruguay (81 CSM).

Grand total by commodity: 317,769,000 lb of CSM and 11,347,000 lb of WSB. Agencies distributing the most CSM and WSB (in million lb): CARE 180, CRS 68, UNICEF 42.

Countries receiving more than 1 million lb of CSM and WSB combined (in millions of pounds): India 189.1, Brazil 30.4, Indonesia 9.3, Dominican Republic 7.5, Peru 5.6, Vietnam 5.2, Korea 4.6, Guatemala 1.9, Chile 1.8, Philippines 1.7, Ecuador 1.3, Jordan-West Bank 1.1, Haiti 1.0. Address: Washington, DC. Phone: 703-875-4901 (1991).


Note: This paper was received by the publisher in England on 6 Sept. 1971. The dates that soybeans were planted in Lebanon are not given, however they must have been planted by mid-1971. A paper by Saghir and Bhatti (1971) strongly suggests that they may have been first planted in about August 1968. Address: Dep. of Crop Production and Protection, Faculty of Agricultural Sciences, American Univ. of Beirut, Lebanon.
Address: Dep. of Nutrition, Hebrew Univ.–Hadassah Medical School, Jerusalem, Israel.


• Summary: In 1963 commercial soybean production in Iran was initiated by the Beshar Industrial Group. They planted 32 ha of soybeans along the Caspian Sea. Table 2 shows that from 1967 to 1970 in Iran, the area under soybean cultivation increased from 3,837 ha to 6,000 ha and the average seed yield increased from 535 to 750 kg/ha. In 1971 soybeans were planted on some 13,000 ha, of which 11,000 ha were planted with the Hill variety and 2,000 ha with the Clark variety. Soybean production is limited to areas along the Caspian Sea, specifically the Mazandaran and Gorgan province.

Corresponding figures are given for sunflower and safflower. Safflower production is concentrated in East Azerbaijan province [an Iranian province whose capital is Tabriz], while sunflower production is concentrated in Mazandaran and Gorgan province. In most regions of Iran, safflower can be grown more economically than sunflower or soybeans. Address: College of Agriculture, Pahlavi Univ., Shiraz, Iran.

Address: The Volcani Center, Agricultural Research Organization, Bet-Dagan, Israel.


• Summary: Soy protein concentrates give better results than soy flour. Address: The Volcani Center, Agricultural Research Organization, Bet Dagan, Israel.


• Summary: Contents: Acknowledgements. Foreword. I. Introduction: the protein problem and approaches to it. II. Protein-rich food schemes (69 schemes are described): Introduction, schemes no longer in operation–and which ceased within a year of inception or after a market trial period, schemes no longer in operation–but which ran for more than one year before termination, schemes operating irregularly, schemes currently in regular production (beverages, other products), schemes at exploratory stages. III. Some aspects of protein-rich food schemes: Location, source of the idea, ownership of the enterprise, characteristics of the products (ingredients, composition, type of product), promotion, external assistance. IV. Evaluation of the protein-rich food approach: Summary of the outcome of the various schemes: Operational status, sales volume (the largest are Bal-Ahar, Vitaso, and Pronutro), sales trend, distribution outlets. Reason for the outcome (success or failure). Impact on the protein problem: Production capacity, sales of Incaparina in Guatemala, income levels, prices of protein-rich foods (Bal-Amul is the most expensive since it is canned, followed by Pronutro), prices in relation to incomes, prices of competing products, distribution of protein-rich foods in rural areas. Impact made by protein-rich food schemes on the protein problem: Summary (very small). Future contribution of protein-rich foods to the protein problem. V. Initiation of protein-rich food schemes: guidelines for Government Administrators. References. Statistical appendix.


• _Summary_: Estimation of serum protein-bound iodine (PBI) remains a standard and well proven test in the evaluation of thyroid function. However, a large number of factors can influence the PBI level. This paper reports elevation of serum PBI levels in eight infants in whom excessive intake of iodine was found in the form of a locally made soybean preparation which the infants had consumed as a milk substitute for various periods of time. Seven of the infants were allergic to milk proteins. After thorough investigation, hyperthyroidism was excluded as a cause of high BPI levels.

“Lack of iodine is the principal cause of soybean goiter.” The soybean preparation fed to these children had an iodine content of 1,400 micrograms/liter, which is ten times higher than the content of several well known soybean preparations (Mull-Soy, Soybean). “Due to our findings the makers undertook to reduce the iodine content of their preparation. Iodine goiter can appear in subjects who receive large amounts of iodine for prolonged periods of time.” “Fortunately, in our children the quantity of soya milk preparation was reduced, usually over a period not exceeding two months, as other foods were introduced into the diet.” _Address_: Pediatric Gastroenterology Research Unit, Shaare Zedek General Hospital; Hadassah Univ. Hospital, Jerusalem [Israel].

283. Bergmann, Ernst D. 1972. Studies of the isolation, identification and characterization of sterols in soybean oil to provide basic information important to the utilization of soybeans in Israel. Jerusalem: Hebrew University. 53 p. Final report of research conducted under grants authorized by U.S. Public Law 480. [30+ ref]*
_Arredit_: Hebrew Univ., Israel.

_Arredit_: Dep. of Agronomy, College of Agriculture, Pahlavi Univ., Shiraz, Iran.

_Arredit_: Soil Dep., Agricultural College, Rezaieh, Iran.

286. _Product Name_: [Eggstra {Egg Extender–Dry}].
_Foreign Name_: Eggstra / Egstra.
_Manufacturer’s Name_: Shefa Protein Industries Ltd.
_Manufacturer’s Address_: 12 Haasya St., Arad, Israel.
_Date of Introduction_: 1972.
_How Stored_: Shelf stable.
_New Product–Documentation_: Talk with Sol Katzen, co-founder of Shefa Protein Industries Ltd. 1993, March 14. Shefa’s fifth product, this was a dry product with instructions for reconstituting. The product “was not a real big winner. We kept it on the market until the company was sold in 1976. The new owner dropped it at that time.”

287. Frankul, W. 1972. Inter-relationships between the dietary protein level and the copper content of the body. _J. of the Faculty of Medicine, Baghdad, Iraq_ 14(4):179-189. [Eng]*
_Arredit_: Dep. of Biochemistry, College of Medicine, Baghdad, Iraq.

• _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.

• _Summary_: Review of earlier literature on trypsin inhibitors of soybeans. _Address_: Depts. of Nutrition and Surgery A and Gastroenterological Service, Hebrew Univ.–Hadassah Medical School, Jerusalem, Israel.

• _Summary_: Nine herbicides were screened. _Address_: Faculty of Agricultural Sciences, American Univ. of Beirut, Lebanon.

• **Summary:** These field trials were conducted at the Agricultural Research and Education Centre of the American University of Beirut, Lebanon, situated in the Beq'a’s plain [Bekaa Valley]. Soybean cultivars Ford, Perry, and Clark were sown with between-plant spacings of 2, 3 or 4 cm, and between-row spacings of 20, 50 or 75 cm. The seed protein contents of Ford, Perry and Clark averaged 35.62%, 35.58% and 36.19% respectively, and were not affected by spacing. The highest protein content was obtained with Ford grown at 3 x 25 cm spacing, and the lowest protein content with Ford grown at 4 x 25 cm spacing. Ford seeds contained an average of 22.39% oil and these values were not affected by spacing.

“Acknowledgement: The author is grateful to Prof. W.W. Worzella, Head of Crop Production and Protection Division, Faculty of Agricultural Sciences, American University of Beirut, Lebanon for guidance and constructive criticism and to the U.S. A.I.D. for financial support during the course of this study.”

Note: This study is part of the author’s M.S. Thesis of the American University of Beirut, Lebanon. Address: Agriculture Div., Atomic Energy Centre, Bangladesh.


• **Summary:** The introduction begins: “Soya beans contain glycosides of the isoflavones genistein and daidzein. Gyoergy et al. (1964, in *Nature*, p. 870) reported the presence of 6,7,4' -trihydroxyisoflavone in fermented soya beans, which, however, was shown to be a product of the fermentation process. In this communication evidence is presented for the occurrence of an additional isoflavone—glycitein—in soya beans, the structure of which has been determined.” Glycitein, which was isolated from defatted soybean meal, is 7,4' -dihydroxy, 6-methoxyisoflavone.

Note: This is the earliest document seen (May 2005) that mentions glycitein, an isoflavone found in soya beans. Address: Faculty of Agriculture, The Hebrew Univ. of Jerusalem, Rehovot, Israel.


• **Summary:** The authors determined the nutritional and chemical properties of whole soy flakes, canned whole soybeans (water packed), and whole soy-banana flakes (weaning food). These were made from enzyme-inactive soybeans with and without methionine supplementation. The protein cost ratio (PCR; grams of weight gain per cents cost) was calculated. The product with the highest PCR (43) as plain whole soy flakes supplemented with methionine (5%). Supplementation with methionine did not noticeably increase product cost but resulted in a higher PCR is every case; the rise in PCR was a remarkable 44% for canned soybeans. Address: Dep. of Food Science, Univ. of Illinois.


• **Summary:** A complex study with complex conclusions. Address: Dep. of Biophysics, The Weizmann Inst. of Sciences, Rehovoth, Israel.


• **Summary:** The goitrogenic substance in soya beans has been reported to be a compound of low molecular weight, probably an oligopeptide composed of two or three amino acids, or a glycopeptide made up of one or two amino acids and a sugar. It inhibits iodine uptake by the thyroid. Address: Dep. of Nutrition, Hebrew Univ.–Hadassah Medical School, Jerusalem, Israel.


• **Summary:** Soybean agglutinin (SBA) was found to be composed of four subunits. Address: Dep. of Biophysics, Weizmann Inst. of Science, Rehovot, Israel.


• **Summary:** “Isoflavones are present either in the free state or as glycosides in a number of leguminosae. They have shown estrogenic, antifungal and antihemolytic activities... The known isoflavones in soybeans are genistein and daidzein. A new isoflavone has been isolated recently from a mixture of isoflavone glycosides... The new isoflavone, designated glycitein is a 7,4'-dihydroxy, 6-methoxyisoflavone.” Address: Faculty of Agriculture, Hebrew Univ., Rehovot, Israel.


• **Summary:** Soybean bean meal was used in each of these four digestibility trials of on 6 Awassi wethers of 30 kg liveweight. Address: 1. Dep. of Animal Science, American Univ., Beirut, Lebanon; 2. College of Animal Husbandry, Lahore, Pakistan.
300. **Product Name**: SFB: Soy-Fortified Bulgur.

**Manufacturer’s Name**: P.L. 480 Food for Peace Program.

**Manufacturer’s Address**: USDA, Washington, DC.

**Date of Introduction**: 1973.

**Ingredients**: 1989: 85.0% bulgur wheat (cracked), 15.0% soy grits (defatted, toasted), vitamins and minerals.

**How Stored**: Shelf stable.

**Nutrition**: Per 100 gm: Energy 350 kilocalories, protein 17.3 gm, carbohydrate 70.0 gm, fat 2.0 gm.

**New Product–Documentation**: This product was developed for Middle Eastern countries. Shipments rose from 140,200 tonnes (metric tons) in 1973 to a peak of 305,700 tonnes in 1979. That year, it became the most widely used soy fortified food in the history of the Food for Peace program, and has never since been surpassed. Moreover, as of 1980, total shipments of SFB surpassed that of any other soy fortified food at 1,505,800 tonnes.


• **Summary**: Table 3 (p. 257-58) gives the ingredient composition of some high protein-containing foods. For each food the product name, country of origin, main ingredients, percentage of protein, the PER (protein efficiency ratio) or NPU (net protein utilization), and main use are listed. Commercial products containing soy flour are: 1. Incaparina No. 14, Colombia, 25% protein, 2.5 PER, gruel. 2. Incaparina No. 15, Colombia, 25% protein, 2.0 PER, gruel. 3. Soyacyt (with full-fat soy flour), Mexico, 21% protein, PER unknown, drink. 4. Pro Nutro, South Africa, 22% protein, 71 NPU, cereal & soup mix. 5. Duruya, Colombia, 28% protein, 2.40 PER, weaning food. 6. CSM, worldwide from USA, 19% protein, 2.40 PER, gruel. 7. VPM, Middle Eastern countries, 37.8% protein, PER unknown, gruel. 8. Vitalia, Colombia, 17.8% protein, 2.69 PER, macaroni. 9. TRL, location not given, 21% protein, 2.30 PER, weaning food. Note: The meaning of the terms VPM and TRL are not given; nor is the address of CRC Press. Address: INCAP, Guatemala.


• **Summary**: Note: This is the earliest document seen (Sept. 2007) that mentions Michael Shemer in connection with soy or soy protein. Michael later founded Tivall, a maker of meat alternatives. Though headquartered on a kibbutz in Israel, they export and market their products throughout the Western world. Address: Univ. of Illinois at Urbana-Champaign.


• **Summary**: Table 18 is titled “Title II, Public Law 480, total commodities shipped by program sponsor, fiscal year 1972.”
The main program sponsors and distributing agencies, listed alphabetically, are AJJDC (American-Jewish Joint Distribution Committee), CARE, CRS (Catholic Relief Service), CWS (Church World Service), LWR (Lutheran World Relief), SAWS (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), WRC (World Relief Commission). Each of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. The following foods containing soy protein were distributed: CSM (corn soya mix), WSB (wheat soya blend), and small amounts of soya flour. The vegetable oil which was shipped to many countries was soybean oil; it is not recorded here. The foods containing soya protein were sent in the following amounts (in thousands of pounds) to the following continents and countries:

Africa: Africa (8,131 CSM and 5,311 WSB); Botswana (2,198 CSM), Burundi (99 CSM), Cameroon (220 CSM and 245 WSB), Central African Republic (153 CSM), Gabon (33 WSB), Gambia (271 CSM), Ghana (1,056 CSM and 150 WSB), Guinea (100 CSM), Liberia (243 CSM and 111 WSB), Malawi (132 CSM), Morocco (676 CSM and 54 WSB), Nigeria (867 CSM and 4,124 WSB), Rwanda (173 CSM), Senegal (300 CSM), Sierra Leone (1,510 CSM), Tanzania (96 CSM), Tunisia (4 CSM and 43 WSB), Upper Volta (33 CSM and 41 WSB), Zaire (510 WSB and 30 soya flour).

Near East-South Asia: Afghanistan (699 CSM), Ceylon (1,462 WSB), Gaza [occupied by Israel since 1967] (1,622 CSM and 1,410 WSB), India (234,993 CSM and 27,006 WSB and 8,726 soya flour), Jordan (2,137 CSM), Jordan-West Bank [occupied by Israel since 1967] (758 CSM and 1,067 WSB), Lebanon (385 CSM), Nepal (55 WSB), Pakistan (1,197 CSM and 325 WSB), Syria (570 CSM), Turkey (275 WSB), NESA regional; emergency feeding of East Pakistani children by UNICEF (106,405 CSM and 65,745 WSB).

Far East [East Asia]: China (27,014 CSM and 4,121 WSB); China, Republic of [Taiwan] (15 CSM), Indonesia (6,791 CSM and 2,380 WSB), Korea (2,347 CSM), Laos (1,699 CSM and 1,741 WSB), Malaysia (102 CSM), Philippines (9,107 CSM), Vietnam (6,953 CSM).

Latin America: Bolivia (2,197 CSM and 660 WSB), Brazil (25,171 CSM and 11,204 WSB), British Honduras [Belize] (507 CSM and 215 WSB), Chile (300 CSM and 2,812 WSB), Colombia (6,284 CSM and 4,608 WSB), Costa Rica (3,042 CSM), Dominican Republic (8,118 CSM and 3,309 WSB), Ecuador (2,013 CSM and 1,722 WSB), El Salvador (1,195 CSM), Grenada (11 CSM), Guatemala (2,037 CSM and 962 WSB), Guyana (370 CSM and 474 WSB), Haiti (1,121 CSM), Honduras (716 CSM and 51 WSB), Jamaica (364 CSM and 198 WSB), Nicaragua (375 CSM and 760 WSB), Panama (409 CSM and 639 WSB), Paraguay (759 CSM), Peru (7,850 CSM and 3,806 WSB), St. Vincent (17 CSM), Surinam (2 CSM), Uruguay (950 CSM and 284 WSB).

Grand total by commodity: 447,891,000 lb of CSM and 138,051,000 lb of WSB. Agencies distributing the most CSM and WSB (in million lb): CARE 268, UNICEF 174, CRS 89.

Note: This is the earliest document seen (April 2004) concerning soybean products (Corn-Soy Meal) in Botswana. This document contains the earliest date seen for soybean products in Botswana (1972); soybeans as such had not yet been reported by that date. Address: Washington, DC. Phone: 703-875-4901 (1991).


• Summary: This database is more academic than OCLC. According to the Directory of Online Databases (July 1990), this database comprises nearly 19 million cataloging records from LC MARC tapes, GPO (Government Printing Office) tapes, National Library of Medicine tapes, tapes of member libraries, etc.

Talk with Jennifer Heartisll of RLIN. 1990. Sept. 27. The database was developed at Stanford University and originally named BALLOTS (Bibliographic Automation of Large Library Operations using a Time Sharing system). Jennifer was there while it was being developed. RLIN originated at about the same time as OCLC; the two were developed independently and in parallel. OCLC took a very different approach to how they capitalized and began operations. RLIN first became available for use in 1973. Shortly thereafter they became the system of choice for RLG, which originated on the East Coast. BALLOTS preceded slightly RLG; they were separated by the continent. Then the system began to grow, with much of the funding from members. In 1989 the system became free of debt. Each user pays a fee for use; formerly this was on a transaction basis, now it is on a search basis. In RLG, there are now 34 governing members, 3 principal members, 60 special members, and a multitude of users—any library or individual can use RLIN. RLIN was originally located on the Stanford campus, but recently the organization moved to nearby Mountain View. RLIN, a non-profit group, still uses the Stanford computers. There is a flat annual fee for members.

OCLC has a large database and each record in it is for a unique title; appended to the record are holding symbols which show which libraries own that title. In RLIN, any library can have a complete record for its copy of a title, and include any special notes about the work (such as branch library location, autographed copy, etc.). Thus RLIN contains over 40 million bibliographic records, but only about 15 million unique titles, compared with 20-22 million for OCLC. RLIN has some unique databases, such as citations files, and the holdings of archival repositories. There are 9 bibliographic files in RLIN based on “material type”: books, archival and manuscripts control (which have notes like abstracts), citations, maps,
sound recordings, the 18th century Short Title Catalog (everything published in English or in an English-speaking country up to the year 1800), art, research in progress, etc. Both subscribe to the same records that the Library of Congress (LC) and the National Agricultural Library (NAL) put out on tape, but LC enters some records directly into the RLIN database for some things such as East Asiatic and Hebrew vernacular via Multiscript Workstations. They are now going out and looking for machine readable data. They have just added a new “citations file” from Engineering Information Inc. that gives article level information within serials and proceedings. RLIN and OCLC both use the MARC format, with numbered fields, and both now have a CJK (Chinese-Japanese-Korean) language service.

Update: Talk with reference librarians at Cal-Berkeley and Cal-Davis. 1991. March. RLIN is having serious financial troubles. It may either try to merge with OCLC (but OCLC may not want to buy it) or it may just die. The cost for cataloging has been too high. It started out being used only for cataloging, then backed into being a reference tool.


Update from Western Archives Institute. 1993. June. RLIN is generally considered a better quality database design than OCLC and catalogers like it better; it allows more subject headings and longer record length. But OCLC is a stronger organization and it is easier to do interlibrary loan on OCLC.

Talk with research librarian at University of California at Berkeley. 1994. July 20. The records in RLIN are of better quality and done to a higher standard than those in OCLC; many of the OCLC records are entered by public libraries. RLIN also has a much better search engine. Address: Mountain View, California. Phone: 800-537-7546.


• Summary: Soybean flour used in this study was obtained from Yoshihara Oil Mill, Ltd., Osaka, Japan. It was defatted, heated with live steam, and fortified with 0.15% DL-methionine. Bread made from wheat flour alone contained 11.57% protein. With 4, 6, 8 and 10% of soya bean flour it contained 13.24%, 13.84%, 14.62%, and 15.40% protein respectively.

The net protein utilization (NPU) of the bread made from wheat flour alone for rats was 37. With the four levels of soya bean flour it increased to 50, 50, 54, and 55. Bread made with 10% soya bean flour was recommended for use in orphanages and refugee camps. Address: 1. Assoc. Prof.; 2. Research Asst.; 3. Research Asst. All: Dep. of Food Technology and Nutrition, American Univ., Beirut, Lebanon. Jabr’s current address: Food Chemist, Ghandour Factory, Beirut, Lebanon.


• Summary: “The INTSOY variety evaluation trials were established in early 1973 to determine the adaptability of soybeans throughout the tropical and subtropical areas of the world. Commericially available soybean varieties were used because of the quantity of seed required. Large quantities of experimental lines were not available.”

In 1973, soybean trials were conducted in 33 different countries. In 11 of these countries, FAO cooperated in the trials. The 1973 trials consisted of 20 varieties which were replicated four times in a randomized complete block design. Table 1 titled “1973 INTSOY variety evaluation trials” (p. 22) lists the names of the 33 cooperating countries and the number of variety trials conducted by each country during 1973. A total of 90 trials (the number for each country is shown after the country name) were conducted during the year. An asterisk (*) shows the 11 countries in which FAO cooperated. Africa: Egypt* 1, Ethiopia* 3, Ghana 3, Kenya 1, Sierra Leone 2, Somalia* 2, South Yemen* 1, Sudan* 1, Tanzania 3.

Asia: Afghanistan* 1, India 2, Indonesia 5, Malaysia 2, Pakistan* 3, Philippines 3, South Viet Nam 3, Sri Lanka 12, Taiwan 2, Thailand 7, Tonga 2.

Mesoamerica: Belize 3, Costa Rica 4, Guatemala 2, Mexico 3, Nicaragua 1, Puerto Rico 6.

Middle East: Iran* 1, Iraq* 1, Jordan* 2, Syria 1.

South America: Colombia 3, Ecuador 2, Peru 2.

Specific results for all varieties tested are given for Sri Lanka (4 sites), Philippines (2 sites), Puerto Rico (2 sites), Pakistan, and Indonesia. At most locations the protein and oil content was greater than when the same varieties were grown in the USA.

A comparison of the Appendix of this report (p. 33-37, unnumbered) with the “International soybean variety experiment: First report of results” (Whigham, Oct. 1975. INTSOY Series No. 8) shows that cooperators in six countries who were sent soybeans for trials did not send back any results: They were: (1) South Yemen–Dr. H. Idris, Agricultural Research Station, El Kod, Aden, South Democratic Yemen. Note: This is the earliest document seen (Dec. 2007) concerning soybeans in Yemen. (2) Sudan–Dr. M.O.M. Salih, Director of Agric. Research Corp., Wad Medani, Sudan; (3) Tonga–Mr. Merle M. Anders, Agronomist, Dep. of Agriculture, Box 14, Nuku’alofa, Tonga. Note, however, that Mr. Anders reported his results in 1976 in the Fiji Agricultural Journal 38(2):77-80.

Note: This is the earliest document seen (July 2007) concerning soybeans in Tonga; they arrived there in 1973 and were planted by Anders on 27 June 1973 (See Anders 1976).
The source of these soybeans was INTSOY at the University of Illinois.

(4) Guatemala–Dr. Albert N. Plant, USAID, Guatemala City, and Dr. Ricardo Bressani, Jefe de la Div. de Ciencias Agrícolas y de Alimentos, Carretera Roosevelt, Zone 11–AP Postal 1188, Guatemala; (5) Iran–Dr. N.C. Amirshahi, Head, Dep. of Agronomy, Karaj Agric. College, Univ. of Tehran, Iran; (6) Iraq–Mr. Haji Abdul Sattar, Director, Research Ind. Crops, Abu Ghrabi Agricultural Research Station, Baghdad, Iraq. For a report on the results of these trials, see Fadhila-Al Zubaidi 1975. Note: This is the earliest document seen (Dec. 2007) concerning soybeans in Iraq.

The cooperator in Belize in 1973 was (p. 35): Dr. J.P. Cal, Agronomist, Department of Agriculture, Central Farm–Belmopan, Caijo District, Belize, British Honduras. No results for soybeans in Belize are given.

The cooperator in Nicaragua in 1973 was (p. 36): Mr. Mack H. McLendon, Deputy Food & Agri. Officer, USAID/ Nicaragua, c/o American Embassy, Managua, Nicaragua. No results for soybeans in Nicaragua are given. Address: Asst. Prof., Dep. of Agronomy, INTSOY, Univ. of Illinois at Urbana-Champaign.


- Summary: This stimulating article summarizes the history of the world’s preoccupation with the “protein gap” and in particular the reasoning by which the UN agencies came to identify protein as the weak point in the world’s nutritional defences. “The concept of the much-publicised world protein ‘gap’, ‘crisis’, or ‘problem’ arose from the description of kwashiorkor in Africa in the 1930s and the assumption, which has turned out to be wrong, that malnutrition in children takes this form throughout the world. As a result, measures to detect protein deficiency and treat and prevent it by dietary means have been pursued until the present time. The price that has been paid for these mistakes is only beginning to be realised.” The major protagonist of the protein gap theory is the Protein Advisory Group (PAG) of the United Nations. “The PAG is now caught in a crossfire of criticism and is experiencing a crisis of identity.”

In 1959 Dr. Jeliffe introduced the term “protein-calorie malnutrition” to cover not only the entire clinical spectrum of marasmus, kwashiorkor, and intermediate forms, but also mild and moderate subclinical stages.

“Once the emphasis had been firmly placed on kwashiorkor and protein deficiency, it followed that protein should be described as the cure.” Yet “more and better protein is not the answer. The only exception is those populations subsisting largely on starchy roots such as cassava and yams, or plantain, which are very low in protein. However, these people form only about 5% of the world’s malnourished and owing to changing food habits and the urban drift they are diminishing actually and relatively.”

Scores of protein-rich foods have been developed but have not helped much in solving the problem of infant protein-calorie malnutrition. “The original principle of using locally available vegetable-protein sources has been largely abandoned, and the major share of the world production in 1971 consisted of C.S.M. (corn-soy-milk) and W.S.B. (wheat-soy-blend) in the United States. Today ‘Incaparina’, the most publicised mixture, costs nearly 4 times as much as the cornmeal it replaces, would use up more than one-sixth of a Central American peasant’s daily wage to feed one 12-month-old child, and even in its home country ‘has not been consumed in nutritionally significant quantities.’ Vitasoy constitutes 25% of the soft-drink industry of Hong Kong, but they have had no malnourished children there for years. Elsewhere another product sells mainly as a pet food. There is not a single study to show that these mixtures can justify under practical field conditions the extravagant claims made for them.”

“U.N. Agency Involvement: In the reports of the Expert Committee on Nutrition of F.A.O./W.H.O. from 1950 to 1971 and other documents published by these agencies and UNICEF, one can readily trace the involvement of the U.N. agencies in the protein fiasco. The undue emphasis put on protein deficiency and on the measures related thereto is clearly documented. After the establishment of the Protein Advisory Group in 1955 the approach became phrenetic [frenetic = frenzied, frantic], reaching its zenith with an unsuccessful attempt to set up a world council on protein and an abortive effort to convince the U.N. that there was an impending protein crisis [see United Nations. 1968. “International Action to Avert the Impending Protein Crisis”].

“Food consumption data and dietary surveys incriminate energy rather than protein deficit.” In the cause, “poverty, ignorance, bad housing, poor hygiene, and lack of family planning all conspire.” Address: Nutrition Research Lab., School of Medicine, American Univ. of Beirut, Beirut, Lebanon.


- Summary: When compared with crude soy oil, the refined oil contained less tocopherols (by 31-47%), less sterols (by 25-32%), and less squalene (by 15-37%). No significant differences were observed in the composition of thesterol and tocopherol fractions of the crude and refined soya bean oils. Address: Dep. of Food Engineering and Biotechnology, Technion–Israel Inst. of Technology, Haifa, Israel.


- Summary: “U.S. soybean producers may be seeing an increased use of U.S.-produced, identified soy oil and shortening in the Caribbean and Middle East areas as the result
of an export incentive agreement signed in late July between ASA (American Soybean Assoc.) market development officials and Antonio Teijeiro of the Cadur Trading Corp. of Miami, Florida...

“All identified soy oil marketed by Teijeiro is produced in the U.S. and sold under the ‘Olivano’ brand name. When the first contract was signed in 1972, Teijeiro was marketing only about $250,000 worth of oil in the Caribbean. Through Teijeiro’s contact with ASA, however, activities expanded this past year to the Middle East (primarily Saudi Arabia and Kuwait). Cadur’s sales have now increased to $1.5 million for the Caribbean and Middle East.

“The success of this promotion program can be seen in Nassau [capital of the Bahamas] in the Caribbean. When the program was started [1971], soy oil was fourth on the market, but now 3 years later, soy oil is first in the market–well ahead of other competitors.

“‘Soy oil has had an image problem in the Middle East, but new technology which improved the quality is proving that it can be as good as any other oil. It is improving its position based on the fact that all these countries consider American products the finest in quality and dependability,’ Teijeiro said.”

Note: This may be the earliest document seen (Dec 2007) concerning soybean products (soy oil) in Kuwait, or Saudi Arabia. This document may contain the earliest date seen for soybean products in Kuwait, or Saudi Arabia (1974); soybeans as such had not yet been reported by that date.


• Summary: The content of isoflavones in soybeans was found to be about 0.25% (250 mg per 100 gm) and 99% of the isoflavones are present as the following glycosides: genistin 64%, daidzin 23%, and glycitein 7-O-β-glycoside 13%. Soybean oil does not contain isoflavones. These isoflavones are the main phenolic compounds in soybeans. A diagram shows the structure of these 3 glycosides plus the aglycones genistein, daidzein, and glycitein.

Isoflavones were separated and isolated from soybeans and soybean meal. The quantitative determination of these isoflavones was performed using gas liquid chromatography. The authors developed a method to quantitate the trimethylsilyl derivatives of genistein and daidzein by using gas chromatography. Isoflavone glycosides were extracted on a preparative scale from an aqueous syrup (Chayot Industries, Ashdod, Israel). The syrup [soy molasses], which contains about 50% dry matter, was obtained as a residue after extraction with 60% ethanol of commercially defatted soybean flakes and subsequent evaporation of the ethanol. Ten kg of soybean flakes yielded approximately 3 kg of syrup. Details of the rest of the isolation process are given.

Free soybean isoflavones mixed into the growth medium of various fungi seems to depress fungal growth. The activity of the glycosides is in most cases negligible. Antifungal activity was shown against Trichoderma lignorum, Rhizoctonia solani, Fusarium oxysporum, Pythium species, Rhizopus species, and Sclerotium rolfsii.

Note: This is the earliest document seen (May 2001) that gives quantitative data on the concentration of isoflavones in soybeans. Address: Dep. of Agricultural Biochemistry, Faculty of Agriculture, Hebrew Univ., Rehovot, Israel.


• 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.


• Summary: In this letter to the editor, the author of the article of this title published in the July 13 edition of Lancet (p. 93) responds to accusations of burying, debunking, overstating, oversimplifying, and giving only one side of the problem. He has lived with the problem for almost 25 years on three
continents. The giants in the field, like Rex Dean and Cecily Williams, are leaving or have left the field. “A change in emphasis is urgently needed. The nutritional havoc wreaked by the urban avalanche is proceeding almost unheeded and unstudied. Finally there is increasing confusion over nomenclature—PCM, PEM, EPM, etc. Marasmus and kwashiorkor are recognisable syndromes, but a term is needed to include also the mild and moderate degrees.” Address: Nutrition Research Lab., School of Medicine, American Univ. of Beirut, Beirut, Lebanon.


- **Summary**: Soybeans and soybean mosaic virus (Maphiflexus sojae) are discussed on pages 39-46, and p. 114-18. “Sixteen samples [of soybeans] from four countries, seven each from India and Korea, and one each from Lebanon and Lesotho, were tested during 1969 to 1971. Dry examination revealed morphological abnormalities in some samples, especially the one from Lebanon... The soybean sample from Lebanon had several discolored seeds.” Five of the 7 seeds from India, 4 of the 7 from Korea, and the 1 from Lebanon were found to be infected with a virus. Also discusses Myzus persicae (an insect; Homoptera: Aphididae).

Note: It is not clear whether or not the soybeans from Lebanon had been cultivated in Lebanon. Address: Danish Government Inst. of Seed Pathology for Developing Countries, Ryvangs allé 78, 2900 Hellerup, Copenhagen, Denmark; Present address: Div. of Mycology and Plant Pathology, Indian Agricultural Research Inst., New Delhi-12, India.


- **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.


Address: Dep. of Food Science, Ain Shams Univ. Cairo, Egypt.


Address: College of Agriculture, Pahlavi Univ., Shiraz, Iran.


- **Summary**: Discusses Spodoptera exigua. “Investigations were carried out on the duration of the different development stages of the Noctuid Laphygma exigua Huebn., the period of adult emergence in the field, and the evolution of the pest on different crops.” At Rasht, in Iran, the soybean was one of the crops on which peak insect densities developed.


Address: Tehran, Iran.

The main program sponsors and distributing agencies, listed alphabetically, are AJJDC (American-Jewish Joint Distribution Committee), CARE, CRS (Catholic Relief Service), CWS (Church World Service), LWR (Lutheran World Relief), SAWS (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), and WRC (World Relief Commission). All of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. The following foods containing soy protein were distributed: CSM (corn soya mix), WSB (wheat soya blend), and small amounts of soya flour. The vegetable oil which was shipped to many countries was soybean oil; it is not recorded here. The foods containing soy protein were sent in the following amounts (in thousands of pounds) to the following continents and countries: Africa (24,340 CSM and 6,885 WSB): Algeria (1 WSB), Botswana (1,398 CSM), Burundi (464 CSM), Cameroon (47 CSM), Central African Republic (67 CSM), Chad (1 CSM and 1 WSB), Congo (115 WSB), Dahomey (124 CSM), Ethiopia (395 CSM), Gabon (46 WSB), Gambia (211 CSM), Ghana (843 CSM and 1,272 WSB), Ivory Coast (546 WSB), Kenya (409 CSM and 400 WSB), Lesotho (299 WSB), Liberia (1,247 CSM and 487 WSB), Malagasy (365 CSM and 2 WSB), Malawi (210 CSM), Mali (230 CSM), Mauritania (235 CSM), Morocco (908 CSM and 890 WSB), Niger (289 CSM), Nigeria (1,197 CSM), Rwanda (82 CSM and 570 WSB), Senegal (643 CSM), Sierra Leone (2,309 CSM), Sudan (3,826 CSM), Swaziland (57 CSM), Tanzania (3,991 CSM and 5 WSB), Togo (1,083 CSM and 1,562 WSB), Tunisia (2,368 CSM and 485 WSB), Upper Volta (878 CSM and 14 WSB), Zaire (419 WSB and 190 WSB), Zambia (44 CSM).

Europe (27 CSM): Malta (27 CSM).

Near East-South Asia (269,188 CSM and 94,141 WSB): Afghanistan (1 CSM), Bangladesh (99794 CSM and 54,631 CSM), Egypt (3,593 CSM and 2 WSB), Gaza [occupied by Israel since 1967] (1,509 CSM and 3,564 WSB), India (156,216 CSM and 15,768 WSB and 775 soya flour), Iraq (997 CSM), Jordan (2,319 CSM and 536 WSB), Jordan-West Bank [occupied by Israel since 1967] (549 CSM and 1,186 WSB), Lebanon (227 CSM and 411 WSB), Nepal (1,000 CSM and 55 WSB), Pakistan (9,933 WSB), Sri Lanka (1,000 WSB and 50 soya flour), Syria (470 CSM and 473 WSB), Turkey (6,582 WSB), Yemen (People’s Democratic Republic of Yemen, or South Yemen) (151 CSM), Yemen (Yemen Arab Republic) (2,513 CSM).

East Asia (41,450 CSM and 20,694 WSB): Fiji (2 CSM and 2 WSB), Indonesia (268 CSM and 12,981 WSB), Korea (1,997 CSM), Laos (2,378 CSM and 750 WSB), Macao (29 CSM), Malaysia (1,124 CSM and 65 WSB), Philippines (22,416 CSM), Singapore (10 WSB), Vietnam (13,236 CSM and 6,886 WSB).

Latin America (94,598 CSM and 42,404 WSB): Bolivia (1,534 CSM), Brazil (33,197 CSM and 5,676 WSB), British Honduras [Belize] (333 CSM and 110 WSB), Chile (548 CSM and 6,038 WSB), Colombia (13,043 CSM and 5,202 WSB), Costa Rica (2,792 CSM), Dominica (78 CSM), Dominican Republic (11,584 CSM and 3,486 WSB), Ecuador (2,253 CSM and 5,446 WSB), El Salvador (1,343 CSM and 2,466 WSB), Grenada (41 CSM), Guatemala (4,007 CSM and 1,090 WSB), Guyana (631 CSM), Haiti (1,581 CSM and 3,395 WSB), Honduras (1,297 CSM and 1,523 WSB), Jamaica (1,150 CSM and 657 WSB), Nicaragua (6,850 CSM and 4,126 WSB), Panama (853 CSM and 699 WSB), Paraguay (3,385 CSM), Peru (7,522 CSM and 1,993 WSB), St. Lucia (81 CSM), St. Vincent (51 CSM), Trinidad and Tobago (2 CSM and 1 WSB), Uruguay (442 CSM and 96 WB).

Grand total: 429,603,000 lb of CSM and 164,124,000 lb of WSB. Agencies distributing the most CSM and WSB (in million lb): CARE 204, UNICEF 163, CRS 151.

Note: This is the earliest document seen (April 2004) concerning soybean products (soy flour, CSM, or WSB) in Chad, Mauritania, and Niger. This document contains the earliest date seen for soybean products (cereal-soy blends) in Chad, Mauritania, and Niger (1973); soybeans as such had not yet been reported by that date. Address: Washington, DC. Phone: 703-875-4901 (1991).


Discusses: The importance of inoculation of soybeans with *Rhizobium japonicum* where the crop has not been previously grown. A method for calculating the nitrogen, phosphorus, and potassium requirements of soybeans. Increasing the nitrogen fertilizer rate generally decreases nodulation. Address: Chairman, Dep. of Crop Production and Protection, American Univ. of Beirut, Lebanon.


**Summary:** “Soya bean is a new crop in Iran, having been introduced only about 36 years ago [i.e., in about 1939]. About 6 years ago, interest in soya bean cultivation started to increase sharply. “Soya is regarded in Iran as a source of edible vegetable oil. Reports show that in 1973 the national oil consumption was about 250,000 tons, of which some 190,000 tons were...
vegetable oils and the rest animal oils. The national vegetable oil production in Iran in 1973 was 70,000 tons and the balance—120,000 tons, 80 percent from soya bean—was imported. The principal sources of vegetable oil in Iran are cotton seed, which supplies 35,000 to 40,000 tons of oil; sunflower, supplying 25,000 to 30,000 tons; and safflower, sesame, and soya bean, supplying the rest...

“The total area under soya bean cultivation and soya bean production in Iran have been reported as follows:

“In 1972, 7,000 ha produced 9,700 tons with a yield of 1,380 tons/ha. In 1973, 6,360 ha produced 9,540 tons with a yield of 1,500 tons/ha. In 1974, 21,794 ha produced 31,000 tons with a yield of 1,422 tons/ha.

“Three fourths of the soya bean crop is cultivated in the northern littoral plain of Iran—that is, the Caspian Sea area, Mazandaran and Gorgan—and only one-fourth in the central plateau and the west...

“It is estimated that by next year the total soya bean area will be increased to 60,000 hectares, of which 50,000 hectares will be in the Caspian. It is estimated that in the next 5 years the total area for soya bean will be raised to 100,000 to 120,000 hectares...

“The spectacular increase in area under soybean is being promoted... (1) By informing the farmers of the benefits of soya bean farming through extension agents. (2) Due to the high cost of cotton production the farmers are switching to other crops like soya bean. (3) The soya bean price has been raised by the Oil Seed Company. (4) Subsidies and loans in the form of seed, fertilizers, and even money are paid to interested farmers by the Oil Seed Company and the government.” Address: Vice Dean, Faculty of Agriculture, Teheran [Tehran] Univ., Karadj, Iran.


• Summary: “Since 1971, along with the development of soybean cultivation in Iran, efforts have been made by the Department of Plant Protection, College of Agriculture, University of Tehran, to identify the important diseases of this crop. Three important diseases have been so far reported: Soybean Downy Mildew, Soybean Mosaic Virus, Soybean Wilt.” Address: Assoc. Prof., Faculty of Agriculture, Univ. of Teheran [Tehran], Karadj, Iran.


• Summary: “In the past, soya bean was unknown to Iraqi farmers and its cultivation was not practiced on the state farms and it was not used by the technicians. It was known only theoretically in colleges and agricultural institutes. Within the last four years, however, soya bean cultivation has been started in Iraq in the form of tests by Iraqi agricultural technicians. Broad research studies and scientific tests have been initiated to find out the best ways of soya bean cultivation in Iraq and many training stations have been opened (in Mosul, Alhawijah, Suweira, Allatifiyah, Abu Guraib). The varieties that have been cultivated are Lee and Bragg.

“The General State Company for Plant Production planted 2,000 donum (1 donum = 0.25 ha) of soya bean in Suweira during the planting season of 1974, to find out the best methods for cultivation, including the best system and time for planting, and the machinery needed.”

A table of the results from the “wettable system” in 1974 shows that the soybeans were first planted on June 5.

Another table (p. 213) of a 1973 test on Allatifiyah farm, where Bragg and Lee varieties were planted, shows that Bragg was first planted on 12 April 1973.

“Summary: Based on the planting at Suweira in 1974, the following conclusions have been reached: 1. The wettable system [using a cotton seed drill] is the best way of planting soybean. The furrowing system using the grain seed drill is also successful... 4. The best time for planting soya bean is June.”

Note: This is the earliest document seen (Dec. 2007) concerning soybeans in Iraq, or the cultivation of soybeans in Iraq. This document contains the earliest date seen for soybeans in Iraq, or the cultivation of soybeans in Iraq (12 April 1973). The source of these soybeans was probably INTSOY in Illinois, USA. Address: Agricultural Engineer, General State Co. for Plant Production, Baghdad, Iraq.


• Summary: “Soybean is not presently grown in Saudi Arabia. In 1973 the Ministry of Agriculture and Water started field trials and observations to study the possibilities of growing this crop in some parts of the Kingdom.

“The 1973 variety trials were conducted at four locations using six varieties from Taiwan...

“Four varieties were planted at Uneizah on 6 October 1973 and were harvested on 14 January 1974. Yields in kg/ha were: Kaohsiung No. 3, 340; Wakashina, 115; Tainung No. 4, 174; and Shih-shih, 193. All four varieties were affected by rust diseases.”

Note: This is the earliest document seen (Dec. 2007) concerning soybeans in Saudi Arabia, or the cultivation of soybeans in Saudi Arabia. This document contains the earliest


328. Sepasgozarian, H. 1975. Bekaempfungsversuche gegen Spinnmilben bei Zuckerrueben, Soja und Bastarsafran mit verschiedenem akarizidwirksamen Substanzen im Iran [Control tests for spider mites on sugar beet, soybean and safflower with different compounds with acaricidal action in Iran]. Gesunde Pflanzen 27(4):63-66, 68. April. [7 ref. Ger; eng]

• Summary: To control spider mites (Tetranychidae) various acaricides were used, listed her in descending order of effectiveness in these tests: Morocide (binapacryl), Kelthane (dicofol), Akar (chlorobenzilat), and Rogor (dimethoate). Address: Universitaet Teheran [Tehran], Karadj-Teheran, Iran, P.O.B. 2650 Teheran.


• Summary: Methionine, when added to soy protein isolate then heated in boiling water, is destroyed under aerobic conditions. A portion of the added methionine was degraded to form methional (β-methylmercaptopyrropropanional), which has an undesirable flavor. Address: Dep. of Food Science, The Burnsides Research Lab., Univ. of Illinois, Urbana, IL 61801.


• Summary: Summarizes the regional conference on soybeans at Addis Ababa in October 1974. The following developing countries are trying to stimulate soybean production:

“Tanzania: Soybean production was first tried in 1907. About 1,800 acres sown to soybeans are in various trials as an intercrop for small farmers and another 2,000 acres have been sown in a peanut area. Japanese are seeking rights to grow soybeans for export to Japan.

Ethiopia: About 60 metric tons of soybeans were grown in 1973 and about 80 tons in 1974 for the Food Nutrition Institute for use in human (baby care) nutrition. About 700 tons of soy flour were imported from the United States in 1974...

India: Area sown to soybeans may reach about 750,000 acres by 1980, compared with about 210,000 acres in 1974. Twelve processing plants, of which five are solvent extraction plants, average 50 tons of beans per day. These plants have a total capacity of 83,000 tons annually, but are now processing only about 40,000 tons. Nigeria: Government has plans to plant 100,000 acres by 1980 for export crops...

Sierra Leone: Some trials have been carried out since 1966, but no commercial production has been tried or contemplated...

Ghana: Soybean production was first tried in 1906, with poor results. In 1972, the Government decided to try again in hope of reducing large imports of soymeal and oil. Trials are still being conducted. About 1,300 acres are to be sown to soybeans in 1975...

Rwanda: Soybeans were grown on about 4,000 acres in 1974, and plans are to increase this area to 10,000 acres over the next few years. All current production is for domestic food... A French aid group is encouraging production. Sri Lanka: Soybean crops were first tried in 1947. Varietal testing is now being conducted, and about 5,000 acres were planted in 1974 on rice land as a rotational crop. Iraq: About 13,000 acres were assigned to a seed multiplication scheme in 1974... Sudan Arabia: Varietal testing is planned.”

Note 1. This document contains the earliest date seen for soybeans in Ghana, or the cultivation of soybeans in Ghana (1906). However there is good reason to distrust this very early date, since no source is given and since many earlier reports give the date of introduction as 1909.

Note 2. This document contains the earliest date seen (June 2007) for soybeans in Iraq, or the cultivation of soybeans in Iraq (1974; one of two documents). The source of these soybeans is unknown. Address: U.S. Agricultural Attaché, Nairobi, Kenya.

**Summary:** Soya bean meal was used effectively to supplement a diet of chopped straw. Address: Agricultural Research Inst., Nicosia, Cyprus.


**Summary:** “During February 21–March 20, 1975, the authors visited the Mideast, North Africa, and South Asia to assess the market potential there for U.S. oilseeds—particularly soybeans—and their products. This is the first of two articles on their findings.

“With their spending power now vastly increased, the oil-rich nations of the Mideast and North Africa are making that almost inevitable turn toward better diets [i.e. more meat and fats], launching a number of programs that bode well for U.S. sales of oilseeds and their products. “Within this group of potentially larger markets are Iran, Lebanon, Iraq, Syria, and Saudi Arabia. Countries here are aiming for large increases in meat production, particularly poultry meat, which of course enhances demand for feed ingredients like soybean meal. They are looking for soy proteins as a means of enriching school lunches and other feeding programs. And they are in need of more vegetable oil.”

Iran’s growing oil revenues will be used to import soy oil. Vegetable oil consumption rose 45% last year to 20 lb per capita, pushing Iran to the forefront of U.S. soy oil markets with the feeling that soy oil imports could double again in 1975 to 300,000 tons. Iran imported about 55,000 tons of soybean meal in 1974. “Also interested in soy protein for direct human consumption, Iran hopes to use it in a nationwide school lunch program beginning in September. Each if the 5-6 million children in the program will receive about 2 grams of protein in a biscuit or wafer...

“Meanwhile, the University of Kareem in Iran is working to find varieties of soybeans suited to conditions in Iran. About 350 tons of seed soybeans have already been imported from the United States and are currently being planted on a wide number of sample plots.

“The managing director of Iran’s Oilseed Research and Development Company sees these and commercial production efforts leading to a 120,000-ton soybean crop in 1975, compared with 45,000 in 1974 and 20,000 in 1973. Some of this big expansion will come from a shift of nearly 200,000 acres of Iranian cotton land to soybeans. A high support price, equal to about $9.80 per bushel, makes such changes financially attractive...

“In other countries of the Mideast—primarily Jordan, Syria, Iraq and Saudi Arabia—there is also a growing interest in soybeans and soybean meal for poultry production. One firm estimates the area’s so-called ‘poultry appetite’ currently totals 700,000 tons of mixed feed and will rise to 1.5 million by 1980. Soybean meal could be expected to account for about 22% of the total...

“One of the biggest spenders of the Arab oil nations is Iraq, which is aiming at rapidly improving the living conditions of its people... Iraq is embarked on a program to become self-sufficient in egg production. A British trade publication estimates current Iraqi egg consumption at 60 million eggs a year, with 55 million imported from Eastern Europe...

“In Syria, the Ministry of Agriculture has contracted with at least 5 firms for the construction of 10 large state poultry farms designed to produce 195 million eggs annually and 22 million broilers...” Address: 1. Foreign Commodity Analysis, Fats and Oils, Foreign Agricultural Service; 2. American Soybean Assoc.


**Summary:** “Although Iran produced only 36,000 tons of soybeans in 1974, government forecasts are that the 1975 crop will reach 100,000 to 120,000 tons, USDA said.” In order to triple soybean production, the government of Iran is attempting to shift almost 200,000 acres of cotton land to soybeans. “According to USDA, the Iranian Government is prepared to pay growers approximately $9.63/bu for their beans, after providing 132 lbs. of seed at a 50% discount, 275 lbs. of fertilizer at a 20% discount and a production loan of $59 at 4% interest for every 2.5 acres of soybeans planted.”


**Summary:** Although Iran produced only 36,000 tons of soybeans in 1974, the government forecasts a 1975 crop of 100,000 to 120,000 tons, according to USDA. To accomplish this tripling of soybean production, the government will try to shift 200,000 acres of cotton land to soybeans. As an incentive, according to USDA, the Iranian government “is prepared to pay growers approximately $9.63/bu for their beans, after providing 132 lbs. of seed at a 50% discount, 275 lbs. of fertilizer at a 20% discount and a production loan of $59 at 4% interest for every 2.5 acres of soybeans planted.”


**Summary:** This is the summary of two articles from Foreign Agriculture (June 30 and July 23, 1975) by Goldsborough and Akers. “ASA [American Soybean Assoc.] Animal Nutritionist
Keith Smith who did a market study of five Middle East countries in June and July supported the observations of Akers and Goldsborough.”

• Summary: The market is growing for textured soy protein products that can “stand in” for more expensive meat, poultry and seafood in frozen usage. The trend is toward analogues that extend animal protein to the point of replacing it as the main component in new products entering the field. After industry consultation this magazine estimates that by 1980 these extenders and analogues combined will range from a low of $60 million to a high of $200 million in frozen food use.

Products discussed include: Central Soya Co.’s Response (textured soy protein concentrate). Ardex 700, one of the “TVP” [sic, soy protein concentrate] products from ADM. Nabisco’s VMR line with its beef, chicken, and seafood extenders. General Mills’ Bontrae “no-meat meats” (beef, chicken and ham products spun from soy protein isolate) and no-tuna tuna. Most Bontrae products are sold frozen to food service people for better flavor. Mott’s Soyloin entrée line available from the Foodservice Division of Duffy-Mott Company, Inc., New York, NY. “These frozen, pre-cooked products include soy-analogues resembling traditional Sloppy Joe, Chili Con Carne, Chili Hot Dog Sauce with Meat, Sliced Meat Loaf in Tomato Sauce, Salisbury Steak in Gravy or in Sweet ‘N’ Sour Sauce, Meat Balls with or without Spaghetti Sauce.”

“In the retail field, complete lines of vegetable protein analogues of animal foods are exemplified by the products of Worthington Foods, Worthington, Ohio... and the Joshua Foods Division of Food Producers, Inc., Minneapolis, Minnesota, among others... Twenty-eight of the [Worthington] items are frozen, with sales amounting to almost half of the company’s total. The frozen products are predominantly spun from high-protein isolates. Their primary advantage is their well-wrought texture, and they also have shipping and storing advantages.

“The Joshua Foods products include meatless ‘sausage’ pizza, meatless ‘meat’ casseroles with noodles and macaroni, meatless lasagna, stew and barbecue cubes. All are shipped frozen. The Joshua Foods Division is in partnership with the Israeli developer of the special structuration process the company utilizes. The firm first produced its basic Joshua Filet, simulating beef, in 1973, and offered it to hospitals and other institutions. Retail product development followed success in the institutional market in the same year—initially with ground beef extender.”

“General Mills is producing retail frozen soy products under the ‘Betty Crocker’ label in addition to ‘Bontrae.’ First introduced were Betty Crocker Country Cuts—textured soy protein with a flavor like ham, and Country Cuts with a flavor like chicken. The precut chunks may be thawed and served in salads or added directly from the freezer and heated with various hot dishes.

“Two new Betty Crocker products, in three varieties each, are currently undergoing testing in the Fort Wayne and Tucson marketing areas—a croquette entree in ham, chicken and seafood flavors (with the seafood variety containing some real cod) and ham, chicken and barbecue beef meat sticks that blend real animal protein with vegetable protein in a potato crust. Each 11½-ounce box of Meat Sticks contains 12 sticks.”

• Summary: This book, a milestone in and “bible” of the animal rights movement worldwide, first popularized the concepts of animal rights and speciesism (pronounced SPEE-shees-iz-um, a term first used in 1973) as logical extensions of human rights and racism. It helped to make 1975 a year that saw explosive growth in the animal rights and vegetarian movements.

The author, an Australian philosopher, argues for an end to oppression and exploitation of non-human animals, discusses animal experimentation and factory farming, and presents vegetarianism as an opportunity to take a political, economic, and moral stance in our daily lives.

Contents: Preface (It begins: “This book is about the tyranny of human over nonhuman animals. This tyranny has caused and today is still causing an amount of pain and suffering that can only be compared with that which resulted from the centuries of tyranny by white humans over black humans. The struggle against this tyranny is a struggle as important as any of the moral and social issues that have been fought over in recent years”). Acknowledgments. 1. All animals are equal... or why supporters of liberation for blacks and women should support animal liberation too. 2. Tools for research... or what the public doesn’t know it is paying for. 3. Down on the factory farm... or what happened to your dinner when it was still an animal. 4. Becoming a vegetarian... or how to reduce animal suffering and human starvation at the same time. 5. Man’s dominion... a short history of speciesism. 6. Speciesism today... defenses, rationalizations, and objections to animal liberation. Appendices: Cooking for liberated people (incl. Seventh-day Adventists, bread, peanut butter, tahini, miso, hummus, and Tartex, Chinese recipes, mung bean sprouts and tofu, Indian recipes, Middle Eastern recipes, flat Arabian bread, chickpeas and falafel, Italian recipes, macrobiotic recipes {incl. soy sauce, soybeans}, meat substitutes {incl. TVP, Granburger, Protoveg, Itona, Vitpro, Loma Linda meatless frankfurters, imitation bacon bits}, and milk substitutes—often made from soybeans), further reading, organizations.
Singer’s book was not just a philosophical treatise. It was a call to action. Invoking the concept of speciesism, Singer deplored the historic attitude of humans toward non-humans as a “form of prejudice no less objectionable than racism or sexism,” and urged that the liberation of animals become the next great cause after civil rights and the women’s movement. Singer’s popular book produced two important effects. First, it reintroduced to the anti-vivisectionist cause an intellectual basis, a philosophical orientation, and a moral focus. Second, it attracted to the animal rights cause a host of new activists who started many new organizations. The most active and visible of these has been PETA (People for the Ethical Treatment of Animals, in Washington, DC), which by 1988 was thought to have 200,000 dues paying members in the USA. Address: Australia.


• Summary: Contents: Foreword. Introduction. Materials and methods. Results and discussion. Summary. References. Information and summary tables. Agronomic data from 1973 and 1974 trials is given for the following countries and sites: Africa: Egypt (Bahteem), Ethiopia (Awassa), Ghana (Legon), Lesotho (Ralinku), Sierra Leone (Njala), Somalia (Afgoi), Tanzania (Ilona, Njombe).

Asia: Afghanistan (Kabul), India (Jabalpur, Pantnagar), Indonesia (Bogor, Citayam, Jogjakarta), Malaysia (Serdany), Pakistan (Mansehra, Swat), Philippines (La Granja, Los Baños), Sri Lanka (Alutharama, Angunukulapalessa, Bandarawela, Gannoruwa, Maha Illuppallama, Paranthan, Ratmalagara), Taiwan (Ping Tung, AVRDC–Shanhua), Thailand (Chiangmai University, Khon Kaen, Lop Buri, Maejo Experiment Station, Suwan Farm), Vietnam (Darlac Province).

Mesoamerica: Belize (Central Farm), Costa Rica (Hacienda Tempisque, Taboga), Mexico (Chiapas, Tampico), Nicaragua (Leon), Puerto Rico (Isabela, Lajas, Mayaguez).

Middle East: Jordan (Deir Alla), Syria (Douma).

South America: Colombia (Palmira), Ecuador (Boliche, Pichilingue, Portoviejo), Peru (La Molina).

Note: This is the earliest document seen (June 2007) that clearly refers to the cultivation of soybeans in Afghanistan. This document contains the earliest date seen for soybeans in Afghanistan (23 May 1973). Eight varieties were tested at Kabul by cooperators S.A. Rahman Mohmand. Cutler 71 gave the highest yield, 2,952 kg/ha.

In Belize, twenty varieties were tested at Central Farm by cooperators D. Cole and J. Cal, being planted on 5 Nov. 1973. Improved Pelican gave the highest yield, 1,680 kg/ha.

This is the 2nd earliest document seen (Jan. 2001) that clearly refers to the cultivation of soybeans in Nicaragua (25 Jan. 1974). On 25 Jan. 1974, under the direction of Fermin Balerdi, twenty varieties of soybeans were planted at Proyecto Adelante, Leon, Nicaragua. Improved Pelican gave the highest yield, 2,511 kg/ha.

This is the earliest document seen (Dec. 2007) that clearly refers to the cultivation of soybeans in Pakistan after the country became Pakistan. On 16 May 1973 nineteen varieties were planted at Swat. Lee 68 gave the highest yield, 4,826 kg/ha. On 24 May 1973 sixteen varieties were planted at Mansehra. Jupiter gave the highest yield, 4,911 kg/ha. The cooperator at both locations was S. Badshah.

Note: This is the 2nd earliest document seen (Dec. 2007) concerning soybeans in Jordan, or the cultivation of soybeans in Jordan. This document contains the earliest date seen for soybeans in Jordan, or the cultivation of soybeans in Jordan (9 April 1974). Sixteen varieties were tested at Deir Alla by cooperators Nabil Katrhuda and A. Hammoudeh. Semmes gave the highest yield, 3,688 kg/ha.

This document also contains the second earliest date seen for soybeans in Lesotho, or the cultivation of soybeans in Lesotho (21 Dec. 1973). It describes the first systematic soybean trials in Lesotho. Seventeen varieties were tested at Ralinku, Quthing District. Bragg gave the highest yield, 673 kg/ha.

Note: This is the 2nd earliest document seen (Jan. 2001) concerning soybeans in Somalia, or the cultivation of soybeans in Somalia. This document contains the 2nd earliest date seen for soybeans in Somalia, or the cultivation of soybeans in Somalia (1974; no month is given). The earliest document was by Vivenza (1928). Twenty varieties were tested at Afgoi. Bonus gave the highest yield, 1,171 kg/ha.

Note: This is the earliest document seen (Dec. 2007) concerning soybeans in Syria, or the cultivation of soybeans in Syria. This document contains the earliest date seen for soybeans in Syria, or the cultivation of soybeans in Syria (25 April 1974). Sixteen varieties were tested at Douma by Syria’s Ministry of Agriculture and Agrarian Reform—the cooperator. CUTLER 71 gave the highest yield, 1,223 kg/ha.

The source of all these soybeans was INTSOY (at the University of Illinois in the USA) for ISVEX trials.


• Summary: In 1974, Turkey produced about 13,000 tons of soybeans.


• Summary: “This study deals with changes of viscosity in commercial soybean lecithins caused by differences in either the phosphatides concentration or in the oil / oleic acid ratio in the acetone solubles.” Most commercial lecithin is the phosphatides precipitated from crude soybean oil by hydration.
Address: Dep. of Food Engineering and Biotechnology, Technion–Israel Inst. of Technology, Haifa, Israel.


**Summary**: A vegetarian cookbook. Whereas Paul Bragg used to advocate moderate amounts of meat and fish in the diet, he now advocates a meatless / vegetarian diet. These recipes are free of salt and sugar. On the cover the word “Meatless” appears in large bold letters.

Contents: Total health for the total person. Food for thought (sayings). Introduction, by Patricia Bragg (p. 1-9. Strongly advocates a vegetarian diet. Your health food store can substitute for your meat market. Cured meats may cause cancer. Animal fats can be harmful. Vegetarian gourmet cookery). Abundant protein without meat: An arduous journey without meat (Guatemala), health and vitality in Africa’s Atlas Mountains [Berbers in Morocco, Algeria, and Tunisia], Arab vegetarians in the Sahara desert, India produces many strong people on a vegetarian diet (incl. Gandhi, yogis. Paul was Gandhi’s friend, and they hiked together over miles of hot, dusty roads in India), 175 years of vegetarianism in England (George Bernard Shaw, Bragg’s personal friend, lived into his 90s), great vegetarians of the past, fruitarians—a type of vegetarianism, vegans—another type of vegetarian, lacto-vegetarians—the most popular type, vegetarians excel as athletes, degenerative diseases in an affluent society, animal proteins and fats connected with cancer, our malnourished youth, young people are awakening to the importance of good nutrition, a meatless diet must avoid protein deficiency, human individuality, 300,000 retardants born each year in the U.S., how to solve your nutritional problems, how much protein does the body need, protein-hungry hair, sprouts a tremendous source of vegetable protein (incl. soybean sprouts), you must have all the amino acids, vegetarian foods that are rich in amino acids (incl. peanuts, soy beans), B-12 supplement essential in vegetarian diet (soy beans have traces), raw fresh wheat germ also essential in a vegetarian diet, how I discovered the nutritional value of raw wheat germ, combine good nutrition with exercise, brewer’s yeast as a vegetable protein–plus, buckwheat leads all grains in protein, buckwheat also rich in minerals and vitamins, here’s how to serve buckwheat, use no salt!—its harmful, herbs and garlic add nutrition plus beautiful flavors, the Chinese Restaurant Syndrome, no nutritional value in MSG, Bragg Liquid Aminos (ad, p. 44; many of the recipes in this book call for Bragg Aminos).


The Bragg travel diet (he takes his own meatless food). Sickness is expensive (between 1950 and 1979, medical costs in the USA increased 1,568%). Very little money spent on preventive medicine. “Getting old”—True or false? (False, no part of the human body is more than 7 years old, and our blood is replaced every 90 days). When you are healthy—you are happy! Individuals can extend their lives by natural living (examples of Vilcabamba in Ecuador, the Hunza in West Pakistan, and people in the highlands of the Soviet Caucasus; all eat very little meat). Natural diet ad exercise the secret of agelessness. Exercise improves circulation to all parts of the body. Why should man die? Man is not originally carnivorous (physiology and anatomy of the human body). The meatless way of eating is simple. What is a balanced diet? Easy method to balance your nutrition. Modern nutrition confines even so-called experts (but is basically simple. Paul was “born and reared on a large farm in Virginia.” They grew practically all their own foods and had their own gristmill). Health is easiest and safest way. Your body is your closest companion (Be careful about what you eat. The greatest thing in life is energy). Our personal message to you. Protein research data. Protein and calorie counter (a table showing calories, protein, and usable protein for many basic foods). Life’s greatest treasure is radiant health. Your health food store: The specialist that is different (list incl. 3 Bragg products). Let your health food store be your meatless butcher shop. Food for thought (p. 182-84; quotations, most have the author given). From the authors (“This book was written for You... We Professional Nutritionists join hands in one common objective... Scientific Nutrition points the way–Nature’s Way—the only lasting way to build a body free of degenerative diseases and premature aging...”). My favorite recipes (mostly blank page). Advertisements: (1) Send for important free health bulletins. (2) Bragg live longer, live stronger self-improvement library (list of 25 books by Bragg, with prices). From the authors. Brief biography of Patricia Bragg, Ph.D., Nutritionist, beauty and health consultant. Advisor to world leaders, glamorous Hollywood stars, singers, dancers, athletes. Lecturer and author (She says she is the daughter of Paul C. Bragg. An accomplished musician, dancer, tennis player, swimmer, and mountain climber. The youngest woman to ever have been granted a U.S. patent. Graduate of the University of California. Lists her famous clients).

The section on “Chinese yogurt or tofu” (p. 61-65) notes that many years ago, while Bragg was an associate editor of Bernarr MacFadden’s famous *Physical Culture* Magazine, he “made one of the greatest nutritional discoveries” of his life.
Macfadden asked Bragg to travel to Manchuria, a long and arduous trip, to study these people well known for their tremendous vitality, energy and health. He was well rewarded, for there he “discovered the magic of the soybean, the most potent of vegetable high-protein foods.” He found that Manchurians eat low on the food chain, make soy milk and tofu. Tofu is sold in food stores throughout Hawaii, where he lives. Tofu is related to spun soy protein. He gives recipes for: Chop suey with tofu. Vegetable casseroles using tofu. Tofu casserole supreme. Tofu & scrambled eggs.


Photos show: (1) Jack LaLanne, Patricia Bragg, Elaine LaLanne, Paul Bragg, standing together. (2) Paul Bragg in Hawaii, standing and smiling in front of tropical plants. (3) “Paul C. Bragg and daughter Patricia” (p. 1). (4) Paul Bragg with the members of the “Longer Life, Health and Happiness Club” at Fort DeRussy on Waikiki Beach, Honolulu, Hawaii (p. 89). (5) “Paul Bragg and daughter Patricia” standing by the railing of a ship. They travel the world gathering health recipes (p. 156). (6) Paul Bragg and his daughter, Patricia, dressed in workout suits, running in place. and looking very healthy, happy, and energetic. They “carry out a vigorous morning exercise program every day and keep in peak physical condition” (p. 160). (7) Paul C. Bragg and Duncan McLean, age 83, England’s oldest champion sprinter, running together in London’s Regent’ Park (p. 162). (8) Paul Bragg standing on Waikiki Beach with six female members of the Longer Life, Health and Happiness Club; all have both hands raised high (p. 171). Address: Health Science, Box 477, Desert Hot Springs, California 92240.


- **Summary:** Table 17 is titled “Title II, Public Law 480–total commodities shipped by program sponsor, fiscal year 1974.” The main program sponsors and distributing agencies, listed alphabetically, are AJJDC (American-Jewish Joint Distribution Committee), CARE, CRS (Catholic Relief Service), CWS (Church World Service), LWR (Lutheran World Relief), SAW (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), and WRC (World Relief Commission). All of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. The following foods containing soy protein were distributed: CSM (corn soya mix), CSB (corn soya blend), WSB (wheat soya blend), and small amounts of soya flour. The vegetable oil which was shipped to many countries was soybean oil; it is not recorded here.

  Foods containing soy protein were distributed to the following countries or areas:

  - Near East–South Asia: Bangladesh, British Solomon Islands, Egypt, Gaza, India (incl. soy flour), Gaza, Jordan–East, Jordan–West Bank, Nepal, Pakistan, Sri Lanka, Turkey, Yemen, Palestine Refugee Program.
  - East Asia: Cambodia, Indonesia, Korea, Laos, Malaysia, Philippines, Singapore, Vietnam.
  - Latin America: Antigua, Bolivia, Brazil, British Honduras, Chile, Colombia, Costa Rica, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaraguan, Panama, Paraguay, Peru, St. Kitts, St. Lucia, St. Vincent, Uruguay. Address: Washington, DC. Phone: 703-875-4901 (1991).


- **Summary:** In early 1935 Jasper saw a news story in the newspaper in Springfield, Illinois, stating that a man from Madison, Wisconsin, named Isaac Sinaiko had purchased an old flour mill and warehouse located near The Springfield Stock Yards. It said that Mr. Sinaiko, together with certain associates, intended to install machinery and equipment and remodel the building to accommodate a soybean processing business.

  The U.S. was still in the throes of the terrible 1929 to 1937 Depression. Jasper, who had only part-time work, was looking for a better job. At the time he was doing stenographic work, light bookkeeping, and other secretarial work. Through Mr. Rankin, superintendent of the Springfield Stock Yards, he got in touch with Ike Sinaiko—who called him to say that he would soon need a stenographer-clerk-bookkeeper. They met at Jasper’s office in Springfield and Jasper began to send out letters to potential customers advising them of the new business; each contained samples of soybean meal and soybean cake.

  The new company, named Illinois Soy Products Co., was incorporated under the laws of Delaware. Associated with Ike
specializing in corporate law.

The president and managing of the company was I.D. Sinaiko. His father, Alex, still lived in Madison, Wisconsin, but come to Springfield often and spent time at the plant during construction and installation. Joe Sinaiko was Ike’s elder brother. He also had a younger brother, Arlie, who was an eye, ear, nose, and throat doctor. Joe Sinaiko lived in Cedar Rapids, Iowa, where he ran the Iowa Milling Co., a soybean processing plant which he owned. “Joe Sinaiko was one of the first soybean processors in the State of Iowa and one of the earliest in the United States.” In Madison, Wisconsin, the home of the Sinaiko family, the Sinaikos had operated a feed store and feed jobbing business. But, in the early days, Joe Sinaiko was the only family member who had experience with soybeans and soybean processing. In the early days Joe had also manufactured feeds, and at times soap. “In Iowa Joe had a large recognition and enjoyed a big following. He was lovingly referred to in certain circles as ‘Iowa Joe.’”

While the plant was being remodeled and the machinery installed, Alex and Joe Sinaiko spent a great deal of time in Springfield. They guided the activity and worked closely with Ike. Since Ike had little real experience with soya processing, and Jasper had absolutely none, Joe spent much time patiently teaching them. They began to order booklets, circulars, and other information on soybeans from the University of Illinois Agricultural Experiment Station, the U.S. Department of Agriculture in Washington, DC, the National Soybean Processors Association, etc.

As the plant opening approached, Ike hired a traveling salesman, Matt Carrigan, to call on the trade and also to solicit soybean meal and cake business. The machinery being installed for soybean processing was made largely by the V.D. Anderson Co. of Cleveland, Ohio. Anderson’s representative in the Illinois area, John Lundberg, contributed his experience and knowledge. The original machinery included three “Duo Expellers,” which each crushed or pressed 350 bushels of soybeans per day, for a total of 1,050 bushels/day.

In 1935 the soybean industry in the USA was in its infancy. Most of the soybeans were yellow, but some black or brown soybeans were grown for hay. The latter were considered inferior for processing since they contained 1-2% less oil and because the dark skins discolored the yellowish soybean meal. “Some buyers seeing the dark specks got the idea that the meal had been adulterated.”

The Sinaiko’s hired James Schlesinger to be plant superintendent. His son-in-law, Gordon Cruikshank, who worked for the C&IM Railway Co., gave Ike and Jasper much valuable help concerning rates and the use of "Milling in Transit" billing of soybean meal. Much money was involved in proper application of “transit billing” and rates.

“In the fall of 1935 processing started at the Illinois Soy Products Company. Prices for soybeans were between 50¢ and 60¢ per bushel. I believe our starting base wage rate for laborors was 25¢ per hour and for skilled men up to 45¢ per hour. ‘Skilled’ men would be maintenance men, millwright, and expeller operators.

“I soon learned that Ike Sinaiko was a man of high character, soft-spoken, keen of mind and with a friendly disposition. He was a charitable and also religious man. He quickly made friends in business circles and also in personal activities. He became active in his church. Also, Ike’s wife Ruth was very well liked and made friends readily... He was well liked by his ‘peers’ in the Soybean Industry.

“Inasmuch as the soybean industry was very young at the time, a good deal of effort was needed to induce farmers to plant more soybeans. We had also to disseminate information to buyers of Soybean Meal as to how to feed successfully the soybean meal to cattle, hogs, chickens, turkeys etc.” (p. 5)

Ike started a plan of trading soybean meal for soybeans on a pound for pound basis. This appealed to soybean growers and helped the company, which was profitable for two or three years. However when oil prices began to increase relative to meal prices the practice was discontinued.

“I learned a lot from Ike because of the gentle way he responded to angry shippers who were disturbed by grade discounts. Ike had a pleasing manner with customers and potential customers. He was always generous, but not overly so.”

“Ike had a wonderful way with children. He was very democratic with employees and soon earned their friendship and respect.” A long story follows of how he helped Albert Cresswell and his family (p. 6).

Both Ike and Joe were very wise and skillful in capitalizing on the movement of markets. They had a knack of buying and selling at the right time. Ike illustrated this many times to the profit of Illinois Soy Products Co.—which was a success right from the first year. Another factor was the expanding livestock and poultry industries; demand for soybean meal in feeds was greater than the supply.

The soybean meal made by the company was sold under the brand name of “Illini,” a good choice for a processor located in Illinois. “Although the Illinois Soy Products Company was the only soya processing plant in Springfield there were 3 large competitors in Decatur, Illinois: A.E. Staley Mfg. Company, Archer Daniels Midland Company, and the Shellabarger Soybean Processing Company. Allied Mills was located at Taylorville, Illinois just 26 miles away. Funk Brothers Seed Company had a soybean plant at Bloomington, Illinois.Ralston Purina Company operated at St. Louis, Missouri; Glidden in Chicago. There was also a plant in Quincy, Illinois, but I have forgotten the owners of that plant. Ike soon became on good terms with the operators of those plants and they sometimes loaned us machinery parts and gave us information regarding what to do about problems. Of course, Joe Sinaiko was daily
SOY IN THE MIDDLE EAST (c) Soyinfo Center 2008

in touch with Ike and was extremely helpful with machinery, loan of personnel, and when needed loans of money. Ike had great respect for Joe and also Love."

The company soon began to expand, adding several larger Anderson expellers. Ike and Ruth built a new, beautiful and spacious house in southwest Springfield, adjacent to Washington Park. Ike began to travel more, both on business and for pleasure. He took his family to Israel, Europe, and Havana, Cuba—leaving Jasper in charge. Ike suffered from asthma, and all the dust around the soybean plant made it difficult for him to breathe properly. He cleared his throat frequently, and occasionally hinted that he would like to get away from the Illinois humidity. Continued.

• Summary: Inhibition of growth induced by soybean products is thought to result from a deficiency of the sulfur-containing amino acids caused by dramatic increases in fecal levels of endogenous protease enzymes, particularly trypsin and chymotrypsin, two enzymes that are rich in these amino acids.
Address: Dep. of Biochemistry, College of Biological Sciences, Univ. of Minnesota, St. Paul, MN 55108. Nitsan permanent address: Div. of Animal Nutrition, Agricultural Research Organization, The Volcani Center, Rehovot, Israel.

• Summary: The product is made as follows: Leach soybean meal by an aqueous solution and separate the solid residue. Adjust the pH of the soybean extract to a value between 6.5 and 7.0 to give a soybean milk. Sterilize the soybean milk, then ferment it using a lactic culture. Separate the soybean curd and transform it into edible products. Address: Haifa, Israel.

• Summary: Since the 1973 boost in petroleum prices lifted their spending power, Iraq and Syria have embarked on vast programs to improve their levels of diet and living. In Iraq, the Government is the sole purchaser of all commodity imports. The Government’s ambitious livestock development programs have moved from the drawing boards to construction projects. Plans call for production in 1977 of 1,400 million eggs, and 800 million broilers, and an output by 1980 of 1 million tons of feed. The Government also is focusing on developing a feed industry. Production of scientifically formulated feeds has risen from 70,000 tons in 1974, the first year of production, to 80,000 in 1975.

Until recently, Syria had never imported soybeans or soybean oil. Its first purchase of soybean meal from abroad—13,000 tons from the U.S.—occurred in 1974. Syria’s two key edible oil crops are olive oil and cottonseed oil. Though presently soybean production is of no consequence, the Government is reportedly test planting varieties that may be suited to Syria’s climate and soil. All of the 13,000 tons of soybean meal imported by the Government in 1974 went to poultry producers at low, subsidized prices. Address: Foreign Market Development, Oilseeds and Products, Foreign Agricultural Service.

• Summary: Homogenization of soymilk helps improve the texture of the fermented product. “A non-dairy yogurt is prepared by leaching soybean meal with an aqueous solution having a pH of 4 to 5 to remove sugars without removing protein, leaching a resultant residual sugar-free cake with an aqueous solution having a pH above 7 to dissolve protein material, adjusting the pH of a resulting protein-containing filtrate to 6.5 to 7.0, adding sugar to the filtrate and homogenizing to produce a soymilk, sterilizing the soymilk at about 116ºC, and fermenting the sterile soymilk with a lactic culture to produce yogurt.” Address: Haifa, Israel.


• Summary: Page 2 states: “Before joining the Department of Agriculture in 1970, Mr. Pogeler acted as team leader to a group of seven Cooperative Experts in conducting a series of Cooperative Workshops held in Turkey, Iran, and East and West Pakistan.

“Mr. Pogeler’s career has includes 32 years of Cooperative management in the Grain and Soybean Processing business. During this time he has served as:

“Director—National Soybean Processors Assoc. and served one term as Chairman of the Board of Directors, Chicago,


“Director–North Iowa Fair Assoc., Mason City, Iowa. Chairman–Board of Directors, Vegetable Oil Export Corp., Washington, DC.

“Chairman–Agricultural Committee, Mason City Chamber of Commerce, Mason City, Iowa. Member–Mason City Airport Commission, Mason City, Iowa.


• Summary: Discusses the following countries with 1975 population and 1974 GNP (Gross National Product) per capita, ranked in descending order of population: Egypt (36.5 million, $280), Iran (35.5 million, $1,060), Iraq (11.0 million, $970), Syria (7.4 million, $490), Saudi Arabia (6.2 million, $2,080), Lebanon (3.5 million, $1,080), Jordan (2.7 million, $400), Kuwait (0.9 million, $11,640).

Population is growing at about 3% a year, and GNP at about 18%. The economic outlook is favorable. Each country is developing a poultry industry and requires imports of soybean meal. “Since the area does not have a temperate climate, all of the countries except Iran show no record of growing soybeans except for test plantings. Iran planted 175,000 acres of soybeans and harvested 90,000 metric tonnes in 1975, about three times the 1974 production of 36,000 tonnes. In addition, most of the countries did not actively trade in soybeans until recently...

“In the 1968-70 period, the only soybean imports were 62 tonnes to Saudi Arabia. In the case of soy oil trade, the countries of Egypt, Iran, Iraq, Jordan, Kuwait, Lebanon, Saudi Arabia and Syria imported 61,000 tonnes in the 1968-70 period, but increased their total imports to 228,000 tonnes in 1972-74. When countries are in a low income bracket, the demand for fats and oils grows faster than the demand for livestock and poultry products. This may be what has happened in this area until recent years.

“The fact that most of these countries did not import either soybeans or soy bean meal until 1970 indicates that they may not have needed soybean meal due to the unpopularity of feed grain-consuming animals until 1973...

“In 1975, it was estimated that about 80-100,000 tonnes of soybean meal was used for poultry rations in Egypt, Syria, Iraq, Saudi Arabia, Lebanon and Jordan...

“Two main obstacles stand in the way of growth of soybean consumption. One is the low recognition of soybeans as a valuable ingredient in commercial feeds, and the other is the lack of oilseed crushing and storage facilities in these countries.”

Note: This document also contains the earliest date for seen (June 2007) for soybeans in Saudi Arabia (1968-70). Address: American Soybean Assoc.


“At present soybeans are not grown commercially in the Kingdom of Saudi Arabia. Needless to say, successful local production of this crop would be of great benefit for human nutrition in this country, where the standard of living and the production of animal products are rapidly improving. Consequently, in 1973 the Crop Production Division, Agricultural Research and Development Department, Ministry of Agriculture and Water in Saudi Arabia felt it necessary to start serious field experimentation on soybeans in various locations in the Kingdom. Efforts were made to obtain soybean seeds from different sources, including Egypt, Taiwan, and the United States. This report summarizes the results of field plot observations, variety trials, and agronomic experiments conducted between 1973 and the present in order to explore the possibility of successfully growing this crop in Saudi Arabia.

“Observation plots and field trials were planted at Uneizah, Qatif, Hofuf, and Hakma (Gizan) in 1973-74. Low yields, averaging well below 1,000 kg per hectare, were obtained at all sites... In 1974-75 our research program was expanded. Seeds were obtained from INTSOY (trials 032, 085, and 086) and also from Taiwan, the United States Department of Agriculture, and Lebanon. In the first INTSOY trial planted at Hakma on 30 November 1974, Jupiter, Calland, and Clark 63 gave yields above 1,000 kg per hectare...

“The highest soybean yields yet obtained in Saudi Arabia were from INTSOY trial 086, planted in February 1975 at Uneizah. Jupiter and Calland gave yields of over 2,100 kg per hectare, while Bragg, Forrest, Hill and Clark 63 all yielded over 1,000 kg per hectare.”

Note: This document contains the earliest date seen for the cultivation of soybeans in Saudi Arabia (1973; one of two documents). Address: Div. of Crop Production, Agricultural R&D Dep., Ministry of Agriculture and Water, Ryedh, Saudi Arabia.
SOY IN THE MIDDLE EAST (c) Soyinfo Center 2008


• Summary: “Soybean production in Iran has increased from 500 hectares in 1967 to 54,000 hectares in 1975, when production reached 64,800 metric tons. This represents an average yield of 1,304 kilograms per hectare... Soybeans are grown primarily as an oil crop, although soybean cake, the by-product of oil extraction, is widely used as a rich source of protein for animal feed.

“Over 75 percent of the soybean crop is cultivated in the northern littoral plains of Iran in the Caspian Sea area, particularly in Mazandaran and Gorgan Provinces. The remaining 25 percent is grown in the central plateau and western parts of the country. Irrigation is commonly used on the fertile, well-prepared soils. Yields of 3.0 to 3.5 tons per hectare are not unusual. The cultivars most frequently used are Hill in the Caspian Sea area and Clark 63 in the other regions.

“The Ministry of Agriculture and the agricultural colleges have focused their attention on soybean research... The Seed and Plant Institute (SPI) and the agricultural colleges conduct experiments to determine planting dates, seeding rates, and water and fertilizer needs of the different varieties for various regions of the country.

“The College of Agriculture, University of Tehran, is currently cooperating with INTSOY in carrying out soybean evaluation experiments.” Address: Faculty of Agriculture, Univ. of Tehran, Karaj, Iran.


• Summary: Content: Introduction. Opening addresses. General sessions: Production, protection, utilization and economics.


Country reports: Current status of soybean production and research in--Australia, Bangladesh, India, Indonesia, Iran, Japan, Korea, Malaysia, Philippines, Kingdom of Saudi Arabia, Sri Lanka, Thailand.

Closing address, by R.W. Howell. List of contributed papers. Abbreviations and units of measure. Address: Dep. of Plant Pathology and INTSOY, Univ. of Illinois, Urbana, IL.


Ten patrons of the conference are also listed.


• Summary: This is a report for the ED [Engineering and Development Laboratory] files. Contents: Personnel contacted: Mark Sterner, Hank Sterner, and Gideon Zeidler. Student participants in training program (name and country of 7 students from India, Costa Rica, Chile, Malaysia, Nigeria, Korea, Turkey). Preparation of instantized corn meal. Preparation of mixed weaning food. Taste panel. Texturized soy protein research. Equipment development.

Bookwalter concludes: “My general impression of both the MFM and student participants was extremely high. MFM has a highly productive research program with a small staff. The student participants were all intelligent and well educated. I’ve never seen so much friendliness, enthusiasm, discussion, and dedication, both within MFM personnel and the student participants. I left with the feeling that a great deal of good would come from this.” Address: USDA ARS Northern Regional Research Center, Peoria, Illinois 61604.


• Summary: One hundred and ten samples oil were taken from seven operating oil factories in Iran. These included raw oil and oil from the various stages of processing, i.e., neutralized, hydrogenated, decolorized, deodorized, and shortening. “The results show the presence of DDT and its metabolites as well as lindane, dieldrin, and endrin in raw and processed oil, and their relative loss due to chemical and heat treatment.

Table 1 shows “Chlorinated pesticide residues in crude vegetable oils after various stages of processing.” The six stages are described above. The seven columns showing pesticide residues are for lindane, heptachlor, DDE, TDE, DDT, dieldrin, and endrin. In each case, the pesticides residues are highest in the crude oil and lowest in the shortenings (most refined). Address: Lab. of Toxicology, Dep. of Food Hygiene, Tehran Univ., P.O. Box 3262, Tehran, Iran.

• Summary: Soybean isoflavones, in addition to their estrogenic activity, inhibit lipoxigenase activity (thus enabling them to behave as antioxidants) and exert an antimethylolytic effect on erythrocytes subjected to peroxidation. Specifically, they prevent peroxidative hemolysis of sheep erythrocytes in vitro. The extent depends on the structures of the isoflavones. “Very high antimethylolytic activity of some isoflavones such as daidzein was exerted toward sheep erythrocytes, very little and only by genistein was exerted toward rat erythrocytes, and no antimethylolytic effect was noted at all on rabbit erythrocytes.” The physiological significance of these phenomena in the human diet is not clear.

Table 1 shows inhibition of lipoxigenase by isoflavones from soybeans. The inhibitors tested were: Quercetin (reference), genistein, genistin, daidzein, daidzin, glycitein, glycitin 7-O-β-glucoside, dimethoxy-daidzein. Address: Dep. of Agricultural Biochemistry, Hebrew Univ. of Jerusalem, Rehovot, Israel.


• Summary: Contents: Foreword. Introduction. Materials and methods. Results and discussion. Summary. Information and summary tables. Agronomic data from 1974 trials is given for the following countries and sites: Africa: Angola (Nova Lisboa), Cameroon (Wum), Egypt (Bakteem, Seds), Ethiopia (Awassa, Bako, Debre Zeit, Jimma), Ghana (Kwadaso, Legon), Ivory Coast (Abidjan, Dekokaka, N’Dakro), Nigeria (Kadawa), Rhodesia (Salisbury), Sierra Leone (Njala), Swaziland (Malkerns), Zambia (Kitwe).

Asia: Afghanistan (Baghlan), India (Pantnagar), Indonesia (Muneng), Malaysia (Serdany), Nepal (Khumaltar), Pakistan (Parachinar, Sarai Naurang, Swat, Tandojam, Tarnab), Philippines (La Carlota, Los Baños), Sri Lanka (Athurama, Angunukulaplessa, Bandirippuwa, Gannoruwa, Kilochni, Maha Illuppallama, Maskeliya, Puttalal, Ratmalagama, Thirunvelvel), Taiwan (Shantou, S. Shanmugasundaram [AVRDC]), Thailand (Chiang Mai, Khon Kaen, Maejo).

Europe: Spain (Madrid).

Mesoamerica: Costa Rica (Las Juntas, Taboga), Dominican Republic (Santiago), El Salvador (Santa Cruz Porrrillo), Mexico (Apatzinging, Úxmal), Panama (Tocumen), Puerto Rico (Isabela, Lajas, Mayaguez), Trinidad and Tobago (Port of Spain).

Middle East: Iran (Karaj), Israel (Bet Dagan), Jordan (Wadi Dhuleil), Lebanon (Beqa’a), Saudi Arabia (Riyadh, Wadi Jizan).

South America: Bolivia (Abapo-Izozog, Palometillas, Santa Cruz, Villa Montes), Colombia (Ibagué, Motiliona), Ecuador (Boliche, Pichilingue, Portoviejo), Guyana (Ebini, Mon Repos), Venezuela (Maracay).

Note: This is the second earliest document seen (Dec. 2007) that clearly refers to the cultivation of soybeans in Lebanon, and the first that refers to variety trials. This document contains the earliest clear date seen for the cultivation of soybeans in Lebanon (26 April 1974). Seven varieties were tested at Beqa’a by cooperator S. Abu-Shakra. Bonus gave the highest yield, 771 kg/ha.

This document contains an early date for cultural trials of soybeans in Panama (5 Sept. 1974). On 5 Sept. 1974, under the direction of Juan Jose Franco P., fifteen varieties of soybeans were planted at Tocumen. Bonus gave the highest yield, 3,678 kg/ha.

This document also contains the second earliest date seen for soybeans in Swaziland, or the cultivation of soybeans in Swaziland (25 Nov. 1974). Fifteen varieties were tested at Malkerns. Bragg gave the highest yield, 3,126 kg/ha.

The source of all these soybeans was INTSOY (at the University of Illinois, USA) for ISVEX trials. Address: College of Agriculture, Univ. of Illinois, Urbana-Champaign.


• Summary: The cotton bollworm is one of the major pests of cotton in Iran. In recent years cotton growers in northern Iran have become much more concerned about the damage caused by the bollworm, especially following the introduction of other crops, such as soybeans and corn / maize, as the major crops in these areas. Because of these new crops, cotton farms have suffered increasing attacks. This has raised many questions about the bollworm, such as its host preference and basic pest management.

The larvae of the cotton bollworm, *Heliothis armigera*, were reared on soybean plants for 8 generations under laboratory conditions of 60±5% relative humidity and 27±2ºC. To test host preference, the adults of both sexes were released into wooden cages where they were able to freely select their host. The females laid more eggs on soybean (before and at blooming) than on cotton (before and after blooming) and corn (before and after stem extension).

Thus the soybean is an attractive host plant for the bollworm and can serve as a major source of the insect for the agricultural complex in northern Iran. The bollworm is very sensitive to Supracide and Thiodan insecticides. Address: 1.
Legumes are a major source of food and feed resources worldwide. They are among the earliest crops to be cultivated by humans, with evidence of their use dating back over 8,000 years. The term "legume" derives from Latin, meaning pottage, and the word is still used in many languages today. Legumes, including soybeans, are rich in protein, carbohydrates, and essential nutrients, making them a staple food in many diets around the world.

Agricultural College, Karaj, Iran; 2. College of Agriculture and Animal Husbandry, Rezaeieh, Iran.


• Summary: The author received his BSc degree at Pahlavi University Shiraz, Iran, in 1971. Contents: Introduction. Literature review: The world food problem, soybeans, the dehydration process, spray drying. Materials and methods: Preparation of soybean beverage base, preparation of soybean beverage, addition of cow’s milk, spray drier, spray drying of soy beverage, packing, storage time and temperature, analytical methods, organoleptic evaluation of reconstituted spray. Results and discussion: Factors affecting PDI (Protein Dispersibility Index) of spray dried soy beverage, stability of spray dried soy beverage, organoleptic characteristics of spray dried soy beverage. Summary and conclusion. References. Address: Dep. of Food Science, Univ. of Illinois.


• Summary: “The Chinese did not, nor do not, grind up soybeans to mix with cereals to form a meal or boil them whole like other legumes such as peas or lentils. Prepared in the latter manner they have an unattractive flavour and are not too digestible. In the earliest Chinese writings, there is no mention of the use of soya as a source of oil. Some evidence exists that methods of extracting oil were evolved around the 4th century A.D... To sum it up, soybeans require special treatment to make them an acceptable human food.

“Legumes assume greater importance in countries where starchy roots and fruits (cassava, yam, taro, sweet potatoes and bananas) replace cereals to a large extent as staple foods. The starchy roots and fruits are so poor in protein that they do not meet the protein requirements of even adults when consumed in quantities sufficient to cover the calorie requirements and still less when considering children and mothers.”

Concerning the history of legumes: “Legumes are plants belonging to the Leguminosae family, which is the second largest family of seed plants. Altogether there are about 600 genera with 13,000 species. The word legume is derived from the Latin legumen which means any leguminous plant. An alternative name for edible seed of leguminous plants is pulse derived from the Latin puls, meaning pottage... The English term legume dates back to about the 17th century.

“Legumes are among the earliest crops to be cultivated by man, going back to Neolithic times when man was changing from hunting and food gathering culture to a food producing society. Often in the old world this is termed ‘The Food Producing Revolution,’ which probably took place between the 9th and 5th millennia B.C. This revolution was centered in what was called the ‘Fertile Crescent’ in the Near East...

“Remains of peas and lentils have been found at Halicar (Turkey) in about 5,500 B.C. (dated by carbon)... Findings at Jarno [sic, Jarmo, which is located in today’s Iraq, in Iraqi Kurdistan in the foothills of the Zagros Mountains east of Kirkuk city] in Turkistan may antedate the Halicar find by perhaps a millennium, so it can be safely said that legumes have been eaten by man for some 8,000 years. Legumes also appear early in the development of agriculture in the new world. Remains of... kidney beans have been found in the caves near O’Campo (Mexico) which date back to around 4,000 B.C. or perhaps earlier... Remains of cultivated peas have been found in the Neolithic lake village in Switzerland dating back to approximately 4,500 B.C... Remains of lentils have been found in the Egyptian tombs of the 12th dynasty (2,400-2,200 B.C.). Preparation of a lentil soup was depicted in a fresco at the time of Rameses III (1,200 B.C.)... Lentils are the first legume to be mentioned in the Bible in the 25th Chapter of Genesis.”

Note: Turkistan or Turkestan is an historical region of Central Asia, usually thought to comprise Turkmenistan, Uzbekistan, Kyrgyzstan, Tajikistan, southern Kazakhstan, western China, and northeast Afghanistan. Address: C.P.C. International (Asia) Ltd., Hongkong.


• Summary: An excellent review. “The two prevalent trypsin inhibitors in soybeans are the Kunitz soybean inhibitor (SBTI) and the Bowman-Birk inhibitor (inhibitor AA). They differ markedly from each other in size, amino acid composition, structure, and properties.” Address: Dep. of Agricultural Biochemistry, Faculty of Agriculture, The Hebrew Univ. of Jerusalem, Rehovot, Israel.


History: 1956–The decision was made and the capital borrowed to increase the capacity of the plant machinery to allow processing of 80 tons of soybeans daily. This cut unit costs so that good returns were earned for the soybean patrons. 1959–A new solvent extractor and other equipment were...
installed which increased the daily throughput to 200 tons. This new equipment was designed in Dawson and developed with the cooperation of Crown Iron Works Co. in Minneapolis. 1964—The 1959 extraction system was replaced with new equipment that would process 600 tons of soybeans/day into oil and meal. 1971—Another extractor and related equipment were added which brought processing capacity to 1,300 tons of soybeans daily. 1972—Late that year Dawson Mills began to manufacture edible soy grits; since that time many thousands of tons have been made. “Most of these grits have been distributed by ‘Food for Peace’ programs and have been used to improve diets of needy people all over the world.” 1973—“Prices of grain, meat, and other food items skyrocketed to unprecedented heights. There was much publicity about worldwide food shortages and the importance of vegetable protein to improve the diets of all people. Because of the optimistic future painted, the decision was made to go further into the manufacture of soy foods... a Soy Specialties plant was built to manufacture defatted soy flakes, soy flour and textured soy flour.”

The page titled “Dawsoy” states: Our “brochure describing Dawsoy products was translated into four foreign languages and has been distributed widely in Latin America, the Far East, the Middle East, and Europe, as well as in the U.S.A. Our representative in Europe has made numerous contacts which have been fruitful and the sale of Dawsoy products in Europe is gaining momentum.

“In October, a member of the Research Department was involved in presenting a seminar in Moscow, Russia and one in Warsaw, Poland. Another member of the staff has just returned from two weeks of promotion work in Europe.

“Soy grits, which was Dawson Mills’ entry into the food market, continued to be the large volume sales product. To date most of our soy grits have been used in the ‘Food for Peace’ program; however, there has been a shift to more domestic use of this product.” Soy flour has made steady sales growth. “The textured soy products [textured soy flour], which were large sales items by other companies in 1972-1973, have been less in demand with the advent of lower meat prices. Dawson Mills has just begun to penetrate this market.” The people associated with “Soy Specialties” are “dedicated to domestic use of this product.” Soy flour has made steady sales growth. “The textured soy products [textured soy flour], which were large sales items by other companies in 1972-1973, have been less in demand with the advent of lower meat prices. Dawson Mills has just begun to penetrate this market.” The people associated with “Soy Specialties” are “dedicated to provide high quality soy products to the food industry and additional net savings for the member/owners of Dawson Mills.” As of 1976 Dawson Mills: Has 169 full time employees. Has 158 member elevators. Processed 14,645,123 bushels of soybeans during the year, or (on average) 42,450 bushels/day. Had total sales of $81,875,698 (62% from soybean meal and 38% from crude soybean oil) and net savings of $2,503,435. Paid patronage refunds of 16.5 cents/bushel. Has total assets of $22,777,000. Address: Dawson, Minnesota. Phone: 612/769-4386.


• Summary: Trials with seven early maturing soybean varieties were conducted at Karadj, Iran, a semi-arid area of cultivation. Calland was found to be the best variety for yield and quality. The best planting date was May 3. But inoculation with bacteria and nitrogen fertilizers should be used.

Address: Pl. Lab., National Research Center, Moshtohor, Egypt.


• Summary: This artistic cookbook is loaded with full-page color plates plus a good glossary. Soy-related recipes include: Bean curd omelettes (Tahu telur, from Indonesia, p. 188). Fried bean curd with peanuts (Tahu goreng kacang, from Indonesia, p. 204). Fried bean curd with soy sauce (Tahu goreng kecap, from Indonesia, p. 204). Fried fish with salted soya beans [miso] (Ikan goreng tauceo, from Malaysia, p. 224). Bean curd in salted soya bean paste [tofu in miso] (Taukwa tauceo, from Malaysia, p. 233). Bean curd and bean sprouts [probably mung bean sprouts] (Taukwa dan tauceh, from Malaysia, p. 233). Stuffed soy bean cake [with fried tofu] (Tauhu sod sai, from Thailand, p. 316). Glutinous rice and soybean sauce (Nuoc leo, from Vietnam, p. 341). Soup with bean curd (Canh dau hu, from Vietnam, p. 342). Misu tomato sauce (with red miso = red miso, from the Philippines, p. 351). Bean curd in barbecue sauce (Chu hau jeung mun dau fu, from China, p. 414). Bean curd with crab sauce (Hai yook par dau fu, from China, p. 414). Ginger soy sauce (See yau ghung jeung), Chilli...
soy sauce (See yau laht jiu jeung), Black bean sherry sauce (Dau see sheung jing jeung, with canned salted black beans = soy nuggets), Black bean garlic sauce (Suen tau dau see, with soy nuggets) (from China, p. 431). Soup of soybean sprouts (Kong namul kum, from Korea, p. 453). Rice with fried bean curd (Kitsune domburi, from Japan, p. 460). Steamed egg custard with tofu (Kuya mushi, from Japan, p. 471). Bean paste soup (Miso shiru, from Japan, p. 477). Sushi in fried bean curd (Inari-Zushi, from Japan, p. 480).

Soy-related glossary entries (p. 485-502) include: Aburage. Akamiso. Black beans, salted (Chinese: dow see = salted black beans). Bean curd (Chinese: dow foo; incl. yellow bean curd, dried bean curd, red bean curd). Chinese bean sauce (ground = mor sze jeung or chunky = min sze jeung similar to Malaysian taucheo or tauceo). Dow foo pok (Chinese-style fried bean curd). Miso. Mushroom soy (Soy sauce flavored with mushrooms during the last stage of processing). Soy sauce (light or dark, shoyu, kecap manis). Yellow beans, salted (=salted yellow beans). Yellow bean paste.

Interesting glossary entries (p. 485-502): Aburage, bean curd (fresh, yellow, dried, red), black beans, salted (Chinese: dow see; made from soy beans, heavily salted and sold in cans and jars), Chinese bean sauce (ground or chunky, like Malaysian taucheo or tauceo), fish sauce (Vietnamese: nuoc mam. Burmese: ngan-pya-ye. Thai: nam pla. Tagalog: patis). Miso. Mushroom soy (Soy sauce with mushrooms during the last stage of processing). Red miso (See miso). sesame seed (Hindi: till. Sinhalesse: thala. Malay: bijan. Chinese: chih mah. Japanese: goma. Indonesiern: wijen). Sesame oil (“The sesame oil used in Chinese cooking is extracted from toasted sesame seeds...”). Sesame paste (“Sesame seeds, when ground, yield a thick paste similar to peanut butter. Stores specialising in Middle Eastern foods sell a sesame paste known as tahini, but this is made from raw sesame seeds, is white and slightly bitter, and cannot be substituted for the Chinese version—which is made from toasted sesame seeds, and is brown and nutty”). Wakame. Wasabi or wasab. Yellow beans, salted (Very similar to canned salted black beans, but lighter in color). Yellow bean paste (It is not really yellow, but brown. Sold in cans).

Note 2. This is the earliest English-language document seen (Feb. 2004) that uses the word “dau fu” (or “dau-fu”) to refer to Chinese-style tofu.


Address: Takarmanytermesztesi Kutato Intezet, Iregszemcse, Hungary.


• Summary: Table 17 is titled “Title II, Public Law 480–total commodities shipped by program sponsor, fiscal year 1975.” The main program sponsors and distributing agencies, listed alphabetically, are AJJDCC (American-Jewish Joint Distribution Committee), CARE, CRS (Catholic Relief Service), CWS (Church World Service), LWR (Lutheran World Relief), SAWF (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), and WRC (World Food Program Commission). All of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. The following foods containing soy protein were distributed: Soy fortified sorghum grits (SFSG), CSM (Corn soya mix), WSF (wheat soya blend), and small amounts of soya flour. The vegetable oil which was shipped to many countries was soybean oil; it is not recorded here.

Foods containing soy protein were distributed to the following countries or areas: British Solomon Islands, India, Indonesia, Khmer Republic [Cambodia], Korea, Laos, Nepal, Philippines, Singapore, Sri Lanka, Vietnam.

Afghanistan, Egypt, Gaza, Jordan–East Bank, Jordan–West Bank, Morocco, Tunisia, Yemen.


Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Peru.


• 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 chang (soybean milk; preparation, ways of serving), tou fu (soybean curd; yen-lu is the Chinese name for nigeri), tou fu niao (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 miso], natto, production and consumption of soybeans.

Indonesia: Tahu or taho (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.


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).


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.

Amounts of cereal-soy blends distributed under Title II, Public year) are: China (PRC) 6.7. Japan 5.1. Korea(s) 5.0. Singapore
The countries leading in per capita consumption (kg/person/
soybeans by soybean-consuming countries, 1964-66 (based
from 31,300 in 1964 to 252,400 in 1974. (12) Utilization of
production (in metric tons) rose
Area rose from 213,000 rais (6.25 rais = 1 ha) in 1964
soybeans and total soybean production in Thailand, 1964-1974
rose from 506 in 1968 to 39,000 in 1972. (11) Area planted to
Tahu decreased from 18,570 in 1978 to 17,000 in 1972. Tempe
67). Kecap rose from 914,695 in 1968 to 1,524,000 in 1972.
Agriculture, Karaj, Iran. Both: Biologischen Bundesanstalt
 fuer Land- und Forstwirtschaft, Braunschweig, West Germany.

Components of developing soybean seeds: Oil, protein, sugars,
• Summary: Soybean seeds from Harosoy 63 grown in the
field and Steele grown in the greenhouse were analyzed for
these components as they grew, from 10 days after flowering,
at 10-day intervals, until maturity. “These components
accounted for 75% of the dry weight of the seed. The remaining
dry weight of the seed is cellulose, crude fiber, and ash.”

Sugars detected in the soybean seed were glucose, fructose,
galactose, sucrose, raffinose, and stachyose. But raffinose and
stachyose [oligosaccharides that cause flatulence] were not
detected until 40-50 days after flowering. Starch reached a
maximum at 30-40 days after flowering, then declined sharply.
Address: 1. Former research assoc.; 2. Plant physiologist, ARS-
USDA; 3. Prof. of Biometry, Dep. of Agronomy, Univ. of
Illinois, Illinois Agric. Exp. Station, Urbana, IL 61801. Present
address of Yazdi-Samadi: Dep. of Agronomy, College of
Agric., Univ. of Tehran, Karaj, Iran.

von Diazinon in Sojabohnenpflanzen in Abhangigkeit vom
Diazinongehalt des Bodens [Residues of diazinon in soybean
plants depending on the diazinon content of the soil].
Nachrichtenblatt des Deutschen Pflanzenschutzdienstes
(Germany) 29(8):115-19. Aug. [16 ref. Ger; eng]
• Summary: Diazinon is a pesticide. Emergence of the sprayed
soybeans was delayed up to 5 days due to its application, but
the whole development was only temporarily delayed. Uptake
of Diazinon by the plants was high. Three months after the
last application, 5.5 mg/kg were still measured in the plant.
Yet less than 0.02 residues were found in the seeds. Address:
1. Univ. of Tehran, Faculty of Agriculture, Karaj, Iran; 2.

Untersuchungen uber die Leistungsfaeligkeit der Sojabohne
also Gruenfutterpflanze in Mitteleuropa [Investigations into the
performance of soybeans as a green fodder plant in central
• Summary: The adaptation of 10 soybean varieties from
different parts of the world was studied in 1972 and 1973 at
different planting times in two locations: Gross-Gerau und
Rauisch-Holzhausen.

Soybean gives its best yields as a fodder crop when the
seeding date is relatively early, until the middle of May.
Significant differences among the varieties was observed.
Fodder quality is dependent on a high proportion of leaves
and pods; in the stems, the crude protein content is much lower
(10%) and the crude fiber content much lower. Address: 1.
Institut fuer Pflanzenbau und Pflanzenzuechtung,
Ludwigstrasse 23, D-6300 Giessen, West Germany; 2. Teheran [Tehran]-Tajrich, Iran.


**Summary**: “For many years it has been known that feed protein is digested by proteolytic enzymes in the intestine to amino acids which pass through the intestinal wall into the circulatory system.” Some researchers have concluded that di- and tripeptides are adsorbed by the intestinal wall and hydrolyzed in situ to amino acids, which then pass into the circulatory system.

A graph of the net absorption in the duodenum of the individual amino acids of the raw soybean meal (RS) fed to chicks versus the amino acids of heated soybean meal (HS) approximates a straight line. In humans, the small intestine is divided into the duodenum, jejunum, and ileum. Address: Inst. of Animal Sciences, Agricultural Research Organization, The Volcani Center, Bet Dagan, Israel.


**Summary**: In 1942 (during World War II) when Clifford Clinton need help in developing a nutritious food from non-rationed materials to feed non-paying “customers” in his cafeteria on Olive Street in downtown Los Angeles, he contacted Dr. Henry Borsook, a biochemist at Cal-Tech. Mr. Clinton offered Dr. Borsook a monetary grant if he would undertake the project; Dr. Borsook accepted. Borsook used partially defatted soy grits or soy flour plus essential vitamins and minerals as the basic formula, then added salt, spices, and hydrolyzed vegetable protein. “The resulting product when mixed with water and heated in an oven formed a high protein, nutritious and tasty mush. This product was served from the steam table of the Clifton Cafeteria to those who had no money but were hungry and deserving of care. The product was well received by the destitute vagrants who looked to Mr. Clinton for a “hand out”; the developmental work of Dr. Borsook had met the need of the emergency created by the war.

“Mr. Clinton was able to contract with Gentry, Inc. of Oxnard, California, to manufacture the product; Gentry was selected because they had available the spices needed for the product, as well as the blending facilities.”

In 1946 when World War II came to an end the Meals for Millions (MFM) Foundation was born and the Borsook formula, renamed MPF, became the key component of a program to fight hunger throughout the world. Among the many fine people associated with the Foundation were Dr. Borsook, Clifford Clinton, Edmond Clinton, Florence Rose, Ernest Chamberlain, Hazel Hopkins, Bea Azedo, Reg Helfferich, Elsie Russell, Lloyd Bellisime, Gerlad Miller, Col. “Sandy” Saunders, Larry Lyvman, Neal O’Donnell, Mark Sterner, Don Ebright and Peter Davies to name a few.

In 1958 General Mills relieved Gentry as the manufacturer of MPF. Eventually partially defatted soy grits were replaced by fully defatted soy grits, giving the product a higher protein content. And the following essential vitamins were added to the formula: Vitamin C, vitamin E, vitamin B-6, and vitamin 12.

Dr. Albert Schweitzer [who died in 1965] used MPF extensively at his hospital in Lambarene, Gabon. Dr. Tom Dooley used MPF in his MEDICO hospital in Laos. 80,000 lb of MPF were used in the Biafran war in Nigeria. During the prisoner exchange with Cuba’s Castro in the mid-1960s, over 800,000 lb of MPF were shipped to Cuba and converted into MPF sausage. After earthquakes in Morocco, Turkey, and Central and South America, MPF was donated in time to relieve severe cases of protein shortage. In 1960 it was flown to needy orphanages in Morocco.


**Summary**: To find the optimum plant densities of either corn or soybeans under different planting systems, experiments were conducted in Iraq at Nineveh and Hamam Al-Alil during the 1975 and 1976 seasons, using the soybean cultivar Lee. The optimum corn population in all trials was found to be 40,000 plants / ha. The best intercropping pattern in northern Iraq was found to be 2 rows of corn alternating with 2 rows of soybeans; it gave higher total income that solid corn planting.

Address: 1. Agronomy Dep., Faculty of Agriculture, Cairo Univ., Giza, Egypt; 2-3. Field Crops Dept., College of Agriculture and Forestry, Mosul Univ., Hamman Al-Alil, Iraq.

382. **Product Name**: Soybean oil, and meal.

**Manufacturer’s Name**: Pars Vegetable Oil Co.

**Manufacturer’s Address**: Farahabad Hafez, Tehran, Iran.

**Offices**: 483 Ave. Hafez, P.O. Box 1982, Tehran, Iran. Phone: 312203-9.

**Date of Introduction**: 1977.

**Ingredients**: Soybeans.


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.

Chapter 4, titled “Technology: Now who pays to do what to whom?” shows that no new technology, not even a new variety, is kindly declared necessary for the multinationals. No doubt the Brazilian soybean industry will be profitable for multinational agribusiness, but what will be the consequences for ordinary Brazilians. From 1970 to 1972, the price of corn, a traditional staple food and feed, has risen 60%, while the price of chicken has gone up 33%. Soybeans have drastically decreased the amount of land previously used for growing the feijao or black bean—another staple crop and key human protein source; during this period its price jumped by 275%. Rice production also suffered from the soybean competition. All of these developments hurt average Brazilians, and especially the poor.

In addition, real estate prices in areas best suited to soybean production have risen dramatically; one hectare in Rio Grande do Sul, which sold for 1,500 cruzeiros in 1972, sold for less than 10,000 cruzeiros less than a year later. Thus, smaller farmers with less mechanization are losing out to those who can afford to buy more than and agricultural equipment. Soybean production in Brazil directly counteracts the efforts of the Brazilian government to limit inflation (p. 67-69).

Chapter 6, titled “Planned scarcity,” notes that in the USA, one acre in 6.5 is now planted to soybeans. Europe is only 2% self-sufficient in plant protein production. After World War II, Europe introduce American hybrid corn to replace local varieties; though the yield was higher, the protein content was lower. Thus a new protein source had to be found for feeding livestock, and U.S. soybean meal seemed to be the most rational and inexpensive solution. Export of soybean meal from the U.S. to Europe jumped from only 47,000 tons in 1949 to nearly 5 million tons in 1972-73. Major U.S. processors set up crushing mills in Europe. In short, the entire post-war European livestock industry has been developed on the basis of extensive use of low-price soybean meal. The U.S. established a “near-monopoly position for supply not only of Europe but of Japan and other nations.”

Discusses the 1973 U.S. soybean export embargo, which began in June and sent prices soaring to $12 a bushel, from $2. The embargo was removed 3 months later and at year’s end it became clear that the scare over shortages was unwarranted. The Food for Peace program introduced soya oil into countries like Spain and Tunisia that had never before tasted anything but their own olive oil. Even the butter-rich Netherlands now consumes more imported soy margarine than...
following foods containing soy protein were distributed: Soy Organizations (PVO/PVOs), registered with USAID. The (United Nations Relief and Works Agency), and WRC (World (Seventh-day Adventist World Service), UNICEF, UNRWA (Church World Service), LWR (Lutheran World Relief), SAWS (Committee), CARE, CRS (Catholic Relief Service), CWS (Church World Service), LWR (Lutheran World Relief), SAWS (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), and WRC (World Relief Commission). All of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. The following foods containing soy protein were distributed: Soy

butter. “Far be it from me to suggest collusion I can’t prove, but it is at least evident who profits from higher prices and who suffers. A futures market in soya meal was opened in London in April 1975 as a measure that might check price fluctuations.” Yet the key fact is that European countries do not produce soybeans, nor any alternative protein crop. Discusses the new effort to extend the use of soya from animals by promoting TVP, and the international conference held at Munich in Nov. 1973. Earl Butz (U.S. Secretary of Agriculture) led the American delegation; Hubert Humphrey stated: “Food is a new form of power. Food is wealth. Food is an extra dimension in our [U.S.] diplomacy.” “Americans presented 24 out of the 38 papers (including 13 by agribusiness representatives and 10 by USDA people). Only one was by a nutritionist. “One sees absolutely no alternative to continued US MNC (multinational corporation) control of the world plant-protein production and prices.” “The only rational way to offset price and foodstock manipulation by the giant traders would be to have grain stocks held in government hands, to be released or held back as the market situation demanded.” The grain traders are “frantically opposed to any reserve system...” (p. 122-25).

Chapter 8, titled “Food aid?... Or weapon,” discusses: Importance of feedgrains exports, Soybean Council of America, American Soybean Association, PL 480, promotion of soybean exports to Spain, Iran, and Korea,Ralston Purina and Cargill, Food for Peace counterpart funds used to finance research in recipient countries, “common defense” military expenditures (p. 172, 176).

Chapter 11, titled “What can they do?” discusses alternative food sources, single-cell protein (SCP), America’s energy-devouring food-production system which could exhaust U.S. fossil fuel reserves within 25 years, research by DuPont showing that when soybeans are experimentally flooded by carbon dioxide, they quadruple yields and fix more nitrogen (p. 239-40). Address: A Smith College graduate now studying at the Sorbonne. Fellow of the Transnational Inst.


• Summary: Table 18 is titled “Title II, Public Law 480—total commodities shipped by program sponsor, fiscal year 1976.” The main program sponsors and distributing agencies, listed alphabetically, are AJJDC (American-Jewish Joint Distribution Committee), CARE, CRS (Catholic Relief Service), CWS (Church World Service), LWR (Lutheran World Relief), SAWS (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), and WRC (World Relief Commission). All of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. The following foods containing soy protein were distributed: Soy

fortified sorghum grits (SFSG), CSB (corn soya blend), CSM (corn soya mix), WSB (wheat soya blend), and small amounts of soya flour. The vegetable oil which was shipped to many countries was soybean oil; it is not recorded here.

Foods containing soy protein were distributed to the following countries or areas: Near East: Bhutan, Egypt, Gaza, Jordan, Jordan West Bank, Morocco, Tunisia, Yemen.

Latin America: Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Nicaragua, Panama, Paraguay, Peru.


• Summary: “Exports of U.S. soybeans and products to the Middle East and North Africa topped $100 million for the first time last year.” “Petroleum money is fueling the rapid takeoff in poultry and livestock industries.” Competition in the market from domestic soybeans has been limited largely to Iran, where 86,000 tons were produced in 1977. Egypt produced 26,000 tons that year also and plans to increase production. However, Egypt’s limited arable land area, plus its need for basic staples, such as bread, and export earners, such as cotton, probably will limit soybean production mainly to second cropping.

Tables show: (1) U.S. exports of soybeans and products to the Middle East and North Africa in calendar years 1975, 1976, and 1977. In 1977 they were (in thousands of U.S. dollars): Iran, $44,328; Egypt, $25,428; Morocco, $12,587; Libya, $4,996; Lebanon, $4,734; Saudi Arabia, $2,613; Iraq, $2,391, Algeria $1,382, Tunisia $1,358, Kuwait $356, Jordan $152, Bahrain $98, Yemen $72, Sudan $52, United Arab Emirates $14, Oman $1, Syria $0 (down from $2,995 in 1976), South Yemen $0 (down from $6 in 1975).

(2) U.S. exports of soybean oil to the Middle East and North Africa in 1975, 1976, and 1977 (in both quantity, metric tons, and value, 1,000 dollars). In 1977 they were: Iran, 49,784; Egypt, 25,428; Morocco, 12,587; Libya, 4,996; Lebanon, 4,734; Saudi Arabia, 2,613; Iraq, 2,391, Algeria 1,382, Tunisia 1,358, Kuwait 356, Jordan 152, Bahrain 98, Yemen 72, Sudan 52, United Arab Emirates 14, Oman 1, Syria 0 (down from 2,995 in 1976), South Yemen 0 (down from 6 in 1975).

(3) U.S. exports of soybeans to the Middle East and North Africa in 1975, 1976 and 1977 (in metric tons). In 1977 they were: Egypt, 42,032; Morocco, 38,509; Libya, 22,001;
Lebanon, 16,506; Iran 52; Syria 0 (down from 248 tonnes in 1976); Sudan 0 (down from 18 tonnes in 1976); Kuwait 0 (down from 8,960 tonnes worth $2,006,000 in 1975). Total 119,100 tonnes.

(4) U.S. exports of soybean cake and meal to the Middle East and North Africa in 1975, 1976, and 1977 (in both quantity, metric tons, and value, 1,000 dollars). In 1977 they were: Iran, 56,082; Egypt, 25,122; Iraq, 10,000; Saudi Arabia 8,548; Algeria 4,627; Jordan 2,135; Lebanon 1,999; Kuwait 1,356; Bahrain 350; Syria 0 (down from 248 tonnes in 1975). Total 110,219 tonnes.

“Soy protein and soy flour still have limited acceptance in the region. Yet they enjoy a strong potential as ingredients in food products.”

Note 1. This is the earliest document seen (Dec. 2007) concerning soybeans in Kuwait. This document contains the earliest date seen for soybeans in Kuwait (1975).

Note 2. This is the earliest document seen (Dec. 2007) concerning soybean products (soy oil) in Bahrain, or the United Arab Emirates; soybeans as such have not yet been reported. This document contains the earliest date seen for soybean products in Bahrain, or the United Arab Emirates (1975). In 1975 Bahrain imported 53 metric tons of soybean oil worth $56,000 from the USA. In 1977 Bahrain imported 350 metric tons of soybean meal worth $90,000 from the USA.

In 1975 Oman imported 13 tons of soybean oil worth $19,000 from the USA. In 1975 the United Arab Emirates imported 68 tons of soy oil worth $83,000 from the USA. Address: U.S. Agricultural Attaché, Rabat, Morocco.


• Summary: “Three countries—Iran, Egypt, and Morocco—took more than 80% of the record $100.6 million worth of U.S. soybean and product exports to the Middle East and North Africa last year. But rapidly growing incomes and populations, alongside burgeoning poultry and livestock industries, suggest that there is a reservoir of untapped buying power in many of the 16 other nations of the region.

“Indicative of the potential was the opening for the first time last year of a sizable soybean meal market in Libya; the first sales in several years of soybean meal to Jordan, and partial recovery in shipments to Lebanon following reductions incurred as a result of that country’s civil war.

“Iran: U.S. Exports of soybeans and products to this largest market in this region, totaled $44.3 million in 1977.” Soybean oil was the most important export, followed by soybean meal ($12.3 million), then soybeans ($11,000). The country still must import 75-80% of its vegetable oil needs. The country has 10 large vegetable oil refining plants. “Vegetable oil consumption in the form of hardened vanaspati ghee is expanding by about 10% a year...

“Egypt: With a large and growing population—about 38 million—Egypt has one of the brightest long-term market potentials in the region. Foreign currency shortages and vast development needs make it a prime candidate for food aid, including soybeans and products. Last year, U.S. soybeans moved to Egypt for the first time since the 1950’s reflecting the coming on stream in early summer of the first new crushing plant in the free trade zone of Alexandria. U.S. soybean oil exports to Egypt were 4,690 tons in 1977, rather small in proportion to those from Brazil. All told, Egypt needs about 320,000 tons of vegetable oil a year and must import around 75% of this.

“Morocco: A steadily growing U.S. market, Morocco in 1977 took 38,509 tons of U.S. soybeans to rank as second largest soybean market in the region. The re-opening of the large Government SIGO oil mill at Kenitra in 1976, with a 120,000-ton annual capacity, cleared the way for more imports. Morocco also was the second largest U.S. soybean oil market in the region in 1977, with purchases of 5,355 tons. About two-thirds of the estimated 175,000 tons of oil imported in 1977 was in the form of soybean oil. Much of this comes from Spain, which exports oil crushed from imported soybeans (in great part from the United States)... Olive oil is by far the most important domestic oil in Morocco.

“Jordan: In 1977 the United States shipped Jordan 2,135 tons of soybean meal, the first such sale in several years, and 217 tons of soybean oil. Prospects for further increases are brightest for soybean meal, reflecting rapid expansion in private-sector poultry production...

“Syria: No U.S. soybeans and products moved to Syria last year, although 5,000 tons of U.S. soybean oil under Public Law 480 Title I, and a small amount of soybeans were shipped in 1976...

“Iraq: The United States sold 10,000 tons of soybean meal to Iraq in 1977, making this the third largest soybean customer in the region. Further growth is likely as a result of heavy Government investment in poultry production and oilseed crushing plants...

“Lebanon: Before its civil war in 1975, Lebanon was the third largest outlet in the region for U.S. soybeans and products, taking about 22,000 tons of U.S. soybeans and 11,000 of U.S. soybean meal that year.

“Tunisia: So far, the United States has shipped to Tunisia only soybean oil, sales of which plummeted from 10,366 tons in 1975 to 179 in 1976 as a result of a ban on all vegetable oil imports in early 1976. This ban—intended to reduce large domestic supplies of olive oil—was relaxed in 1977, with exports recovering to 2,523 tons... Tunisia has no major crushing facilities for oilseeds...

“Libya: This market took 4,996 tons of U.S. soybean meal in 1977, its first such import from the United States. There is considerable potential for future exports of soybean meal, given Libya’s concentration on expanding poultry output and...
its shift from exclusive reliance on imports of complete poultry rations...

"Algeria: U.S. sales to Algeria in 1977 totaled 4,627 tons of soybean meal and 510 of soybean oil...

"Saudi Arabia: U.S. exports of soybean meal to Saudi Arabia have increased steadily, reaching 8,548 tons in 1977. Further growth will be determined by the pace of expansion in production of Saudi poultry and livestock (especially sheep). Efforts are being made to boost production of eggs and poultry—the latter from the current level of about 2 million birds... Currently, about 110,000 tons of meat are consumed domestically each year, with imports accounting for about half the total. Moreover, meat consumption is expected to increase by 5-6 percent annually from the present 16 kilograms per capitol.

"Sudan: Total U.S. exports of soybeans and products to Sudan came to only $52,000 in 1977. However, the future holds considerable promise, since Sudan has the greatest agricultural potential of any country in the Middle East and North Africa. Even now, Sudan is the largest oilseed producer in the region—producing cottonseed, peanuts, and sesame...

"Others: Among the seven remaining countries are the OPEC members, Kuwait, Oman, Qatar, United Arab Emirates, and Bahrain. All of these have per capita incomes well over the $1,018 mean average in the Middle East and North Africa, but also have fewer than 1 million inhabitants. Their high living standards make them potential markets for consumer-ready soybean oil and soy protein foods. Kuwait, the largest and most wealthy of these, has been a past customer for U.S. soybean meal, and is planning further development of its poultry industry. Yemen has a relatively strong agriculture but like its neighbor, South Yemen, has low per capita income and at present limited market potential."

A map shows U.S. exports of soybeans and products in 1977 (estimates) to each of the above nations in the Middle East and North Africa. Address: U.S. Agricultural Attaché, Rabat, Morocco.


• Summary: Many sleepy little towns in southern Brazil have been transformed by soybean agriculture into modern rural centers. “The word spectacular is inadequate to describe the growth of soybean culture in Brazil during the past two decades. Average annual soybean production from 1961 through 1965 was 353,000 metric tons, and most of it was grown in the southernmost state of Rio Grande do Sul, where soybeans were planted for the first time in 1947. The take-off began in 1968, with an 85% increase in production over the 1961-65 average. Every year afterward, through 1977, soybean output climbed at an annual average rate of 40%, finally reaching 12.2 million metric tons from 17.3 million planted acres last year... (Soybean planting in Brazil is done in September through December, during the Southern Hemisphere’s spring and early summer, and harvest is in March and April–late summer and early fall.)

Two factors enhanced Brazil’s position in soybean trade:

- The United States exports only about half of its crop. The rest is consumed domestically... Brazil exports two thirds of its total output of soybeans and soy products.

- Brazil converts a relatively higher proportion of its soybeans into oil and meal than does the United States. In an average year, the United States stays far ahead in exporting the raw beans, but Brazil sells abroad more meal than the United States (5.5 million metric tons, compared with 4.5 million) and nearly as much oil (500,000 metric tons compared with 720,000)... 

Rio Grande do Sul continues to be the most productive soybean state, but Parana, once Brazil’s chief coffee region, is closing in fast...

Curiously, a government-backed drive to make the nation self-sufficient in wheat launched the soybean boom. Helped by official subsidies, farmers began to plant more wheat. But wheat is grown in the winter here, and wheat land used to lie fallow in summer, when rains made raising wheat impractical. Soybeans were soon being planted to take up the summer slack, and not long afterward, the tail began to wag the dog. Wheat today is a secondary crop...

The soy boom was helped by another official project begun in 1968: a campaign to root out about 1.5 billion low-producing old trees on southern Brazil’s coffee plantations. This freed millions of acres for field crops in Parana alone, and showed farmers the advantages of modern, mechanized agriculture. Soybeans are harvested with the same combines used for wheat, while coffee beans, everywhere in the world, still must be gathered by hand...

Soybeans now rival coffee as Brazil’s main source of export income. In 1974 and 1975, soybeans even exceeded coffee in export value. Coffee, once responsible for 80% of all Brazil’s export income, nowadays accounts for only about 20%.

The main source of oil and fats for human consumption in Brazil used to be lard. Today it’s soy oil...
“Soybean cultivation’s most important social impact has been a tremendous growth of rural cooperatives. Small farms were traditional in Brazil, but the soybean boom introduced a whole new agricultural system, tied to mechanization. With it came expansion of the cooperative movement. Today an estimated three quarters of Brazil’s nearly 400,000 soy farmers are members of cooperatives...

“Brazil’s main overseas markets for its soybeans and soy products are the European economic community, Spain, Iran, India, Eastern Europe—including the Soviet Union—and China.”

A map of Brazil shows that the major soybean producing states are all located in the southern part of the country.


• Summary: In the ISVEX trials, soybeans were tested in the following regions and countries: Africa: Algeria, Burundi, Cameroon, Congo, Dahomey, Egypt, Ethiopia, Gambia, Ghana, Ivory Coast, Lesotho, Mali, Mauritius, Niger, Reunion, Rhodesia (Salisbury), Rwanda, Senegal, Sierra Leone, Swaziland, Tanzania, Togo, Upper Volta, Zambia.

Asia: Afghanistan, Bangladesh, India, Indonesia, Korea, Nepal, Pakistan, Philippines, Sri Lanka, Taiwan, Thailand.

Europe: Hungary, Italy, Spain, Yugoslavia.

Mesoamerica: Bahamas, Belize, Costa Rica, Honduras, Jamaica, Martinique, Nicaragua, Panama, Trinidad & Tobago.

Middle East: Iran, Israel, Jordan, Lebanon, Saudi Arabia.

North America: United States.

Oceania: Fiji, Tahiti.

South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Guyana, Peru, Venezuela.

Note 1. This is the earliest document seen (April 2004) concerning soybeans in Niger, or the cultivation of soybeans in Niger. On 3 July 1975 fifteen soybean varieties were planted at Maradi, Niger; two days later the same 15 varieties were planted at Gaya, Niger. The research was conducted under the auspices of the Director, Institut de Recherches Agronomiques Tropicales (IRAT), Station de Tarna, B.P. 6, Maradi, Niger. At Maradi, Forrest gave the highest yield, 3,501 kg/ha and nine varieties gave yields of over 3,000 kg/ha. At Gaya, Jupiter gave the highest yield, 1,925 kg/ha.


Note 3. This is the 2nd earliest document seen (April 2005) concerning soybeans in French Polynesia (or Tahiti), or the cultivation of soybeans in French Polynesia. This document contains the 2nd earliest date seen for soybeans on French Polynesia, or the cultivation of soybeans on French Polynesia (3 Dec. 1975). Thirteen varieties were tested at Papeete (capital of French Polynesia on the island of Tahiti), under the direction of Mr. Jean-Louis Reboul and Mr. Robert Yau-Akui, Service de l’Economie Rurale, B.P. 100, Papeete, Tahiti, French Polynesia. Davis gave the highest yield, 4,902 kg/ha.

This is the earliest document seen (Jan. 2005) concerning soybeans in Niger, or the cultivation of soybeans in Niger. This document contains the earliest date seen for soybeans in Niger, or the cultivation of soybeans in Niger (3 July 1975). Fifteen varieties were tested at Maradi under the direction of IRAT, Station de Tarna, B.P. 6, Maradi, Niger. Forrest gave the highest yield, 3,501 kg/ha. On 5 July 1975, fifteen varieties were tested at Gaya; Jupiter gave the highest yield, 1,925 kg/ha.

This document also contains an early clear date seen for soybeans in Senegal, and the cultivation of soybeans in Senegal (9 July 1975; one of two documents). Fifteen varieties were tested at Sefa under the direction of Mr. Jean Durovray, C.N.R.A., Sefa, Senegal. Jupiter gave the highest yield, 2,025 kg/ha.

This is the earliest document seen (Jan. 2005) concerning soybeans in Martinique, or the cultivation of soybeans in Martinique. This document contains the earliest date seen for soybeans on Martinique, or the cultivation of soybeans on Martinique (10 April 1975). Fifteen varieties were tested at Fort de France, under the direction of Mr. Daly, IRAT, Le Lamentin, B.P. 427, Fort de France, Martinique. Improved Pelican gave the highest yield, 2,154 kg/ha.

This is the earliest reliable document seen (March 2006) concerning soybeans in Togo, or the cultivation of soybeans in Togo. This document contains the earliest solid date seen for soybeans in Togo or the cultivation of soybeans in Togo (2 May 1975). On May 2 fifteen varieties of soybeans were planted at Davié in southern Togo under the direction of Mr. J. Marquette, Le Chef de la Mission, IRAT au Togo, B.P. 1163, Lome, Togo. Davis gave the best yield, 3,563 kg/ha. On May 7 fifteen varieties were grown at Amoutchou; Jupiter gave the best yield, 3,667 kg/ha. On July 8 eleven varieties were grown at Kitangbao; Jupiter gave the best yield, 3,292 kg/ha. The source of the soybeans in each country was INTSOY for ISVEX trials. Address: College of Agriculture, Univ. of Illinois, Urbana-Champaign.


• Summary: Brazil’s rapid surge soybean meal and oil exports in the past few years is largely the result of Government incentives that favor exports of processed products and of Brazil’s spectacular expansion in soybean crushing capacity. Brazil’s export earnings from soybeans and products were over $2,100 million in 1977, more than double the amount earned in either 1973 or 1974. Most of this growth has been the result
of increased shipments of soybean meal and oil. Brazil’s exports of unprocessed soybeans reached their peak in the 1975/76 marketing year (April-March) when 3.5 million tons were exported. In the meantime, meal exports have increased from 1.4 million tons in 1973/74 to over 5 million tons in 1977/78, and oil exports increased from 80,000 tons to 560,000 tons. The Brazilian value-added tax (ICM) on exported soybeans is 13%, compared with 9.6% for soybean meal (rising to 11.1% on Nov. 1) and zero for soybean oil.

Until November 1977, the value-added tax on soybean meal was only 5%. Total annual soybean crushing capacity has increased from about 2 million tons in 1971 to around 12 million tons during the current season. About one-half of total soybean crushing capacity consists of plants with 1,000 tons/day or more of capacity. A little over half of Brazil’s total soybean crushing capacity is owned by private Brazilian firms. Another one-third of capacity is controlled by multinational firms and the remainder is owned by Brazilian cooperatives. The growth in domestic demand for soybean products in Brazil has been even more spectacular than the growth in exports. In recent years, domestic requirements have absorbed about 65% of Brazil’s soybean oil availabilities and 20% of meal supplies.

The Brazilian Government controls the export flow of soybeans and products through a system of quotas designed to assure adequate supplies for the rapidly growing domestic market. The Government often imposes price ceilings on meal and oil sold on this market. Over the past 2-3 years, the Government-controlled trading companies, Interbras and COBEC, have been handling a growing share of soybean, meal, and oil exports. Most of Brazil’s soybean export trade, however, is done on straight commercial terms and is expected to remain that way. Western Europe is by far the largest market area for Brazilian soybean and soybean meal exports.

The most important single-country markets for Brazilian soybeans are Spain, the USSR, and the Netherlands. The largest individual country markets for soybean meal are the Netherlands and West Germany. The greatest market for Brazilian soybean oil exports are India and Iran. In 1977, 63% of all soybeans and 55% of all meal and pellets arriving at ports were truck transported. Rail transport accounted for 26% of soybean shipments and 37% of meal and pellets arriving at Brazilian ports. The ports of Rio Grande and Porto Alegre are the only ones able to receive barge traffic.

Note: This is the earliest document seen (Aug. 2006) concerning soybeans in Botswana, or the cultivation of soybeans in Botswana. This document contains the earliest date seen for soybeans in Botswana, or the cultivation of soybeans in Botswana (3 Nov. 1976). On 3 Nov. 1976, under the direction of Ms. Lynn A. Miller (Mahalapye Rural Training Center, Box 300, Mahalapye, Botswana), twelve varieties of soybeans were planted at Mahalapye. Ransom gave the best yield, 3,244 kg/ha. On 25 Nov. 1976 sixteen varieties were planted at Gaborone. Davis gave the best yield, 1,668 kg/ha.

Note 2. This is the second earliest document seen (April 2004) concerning soybeans in Gabon, or the cultivation of soybeans in Gabon–but the first that gives details. This document contains the earliest date seen for soybeans in Gabon, or the cultivation of soybeans in Gabon (30 Sept. 1976). Eight varieties of soybeans were grown at Ntoum, under the direction of Mr. J. van Amerongen and Mr. G. Van de Plas (Project CIAM, B.P. 5, Ntoum, Gabon). Jupiter gave the best yield, 1,159 kg/ha.

Note 2. This is the earliest document seen (July 2007) concerning soybeans in New Hebrides [later renamed Vanuatu], or the cultivation of soybeans in New Hebrides. This document contains the earliest date seen for soybeans in New Hebrides, or the cultivation of soybeans in New Hebrides (25 June 1976). Sixteen varieties of soybeans were grown at Port Vila, under the direction of Mr. B.L. Weightman (Dep. of Agriculture, Tagabe Agricultural Station, Port Vila, New Hebrides). Calland gave the best yield, 2,581 kg/ha. Port-Vila, on the island of Efate (Éfaté), is the capital of Vanuatu.
In spite of many years of research on soybeans in Iraq, this crop has not yet been grown successfully on a large scale so far.” The “Iraqi Government imported 35 tons of soybean variety Lee for planting, but most unfortunately, the yields were discouragingly low (Grewal, 1977).” Address: 1. Asst. Prof. of Agronomy; 2-3.
of the disease in Iran was identified to be soybean mosaic virus by symptomatology, mechanical, insect and seed transmissibility, and electron microscopy.” Address: College of Agriculture, Univ. of Tehran, Karaj, Iran.


• Summary: Table 18 is titled “Title II, Public Law 480–total commodities shipped by program sponsor, fiscal year 1977.” The main program sponsors and distributing agencies, listed alphabetically, are AJJDC (American-Jewish Joint Distribution Committee), CARE, CRS (Catholic Relief Service), CWS (Church World Service), LWR (Lutheran World Relief), SAWS (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), and WRC (World Relief Commission). All of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. The following foods containing soy protein were distributed: Soy fortified corn meal (SFCM), soy fortified sorghum grits (SFSG), CSM (corn soya mix), WSB (wheat soya blend), and small amounts of soya flour. The vegetable oil which was shipped to many countries was soybean oil; it is not recorded here.

Foods containing soy protein were distributed to the following countries or areas: Near East: Bhutan, Egypt, Gaza, Jordan, Jordan West Bank, Lebanon, Morocco, Tunisia, Yemen.

Latin America: Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Panama, Peru.


Summary: Watermelon mosaic virus (WMV) is a member of the potyvirus group with great biological variability. It is an important pathogen worldwide in cucurbit crops. Webb and Scott (1965) divided WMV isolates from the USA into two groups. Those isolates that infected plants outside the Cucurbitaceae (incl. certain species of Leguminosae) were designated “WMV-2.” In this study, WMV isolates were obtained from various areas, including one each from California, New York, Texas, Australia, Jordan, and Greece. This study showed that there are at least two and possibly three serologically different types of WMV. Soybean mosaic virus and blackeye cowpea mosaic virus are both closely related to but distinct from WMV-2.

Note: There is no evidence in this report that soybeans were grown in Jordan, or any other country from which the WMV isolates were obtained. Address: Dep. of Plant Pathology, Univ. of Florida, Gainesville, FL 32611.

Summary: Four children, ages 5-13 months, from a religious vegan commune, the Black Hebrews in Israel, were studied. They began to arrive in Israel from the USA in 1967. Their number is estimated today as 1,000 and their social structure is that of a commune. Their diet is totally vegetarian. They showed severe protein/calorie and vitamin B-12 deficiencies. Deficiencies resulted from diets that were extremely low in both calories and protein. After starting to wean their children, starting at age 3 months, they fed them a variety of “totally vegetarian” foods including “almond milk” and “soya milk” which they prepared themselves. Address: Sokora Univ. Hospital, and Faculty of Health Sciences, Ben-Gurion Univ. of the Negev, Beer-Sheba, Israel.

Summary: See also p. 380-81. A photo shows Hesseltine. Address: NRRC, Peoria, Illinois.

Summary: See also p. 380-81. A photo shows Hesseltine. Address: NRRC, Peoria, Illinois.
of the Science of Food and Agriculture (London) 30(7):664-68. July. [12 ref]

• **Summary:** The nutritional quality can be upgraded by supplementation with sulphur-containing amino acids, tryptophan and threonine. The first limiting amino acid in most soy proteins is methionine. Address: 1-3. Dep. of Food Engineering and Biotechnology, Technion–Israel Inst. of Technology, Haifa, Israel.


• **Summary:** Contents: Introduction. The INTSOY program. Introducing soybeans as a crop and increasing farmer production. Problems encountered in soybean production and utilization. Resource base for soybean varieties. Successful soybean production: Egypt, Costa Rica, Colombia, Ecuador, Peru, Nigeria, Ivory Coast, Iran, Pakistan, India, Sri Lanka, El Salvador, Guatemala, Sudan, other countries with active soybean programs. Conclusion. Address: Dep. of Agronomy, Univ. of Illinois, Urbana.


   “Short-term projects have been completed in Guyana, Uruguay, Peru, Bangladesh, Panama, Thailand, Iraq, Saudi Arabia, Ivory Coast, and Venezuela. Possibly the two most prominent assignments for INTSOY are the Soybean Development Project in Sri Lanka, initiated in 1975, and the Soybean and Maize Development Project in Peru, begun in 1977.” Address: Colrain, Massachusetts.


• **Summary:** “The Bowman-Birk soya-bean trypsin inhibitor (BBTI) begins to cause pancreatic enlargement and increased enzymatic activity in the pancreas of chicks after a minimum of 7 days of feeding.

   “The active inhibitory site of BBTI against trypsin is the factor involved in the pancreatic enlargement and increase of pancreatic activity in chicks.” Address: Faculty of Agriculture, Hebrew Univ. of Jerusalem, Rehovot, Israel.


• **Summary:** “During the last few years, Israel’s consumption of soybeans has been steadily increasing. At present all soybeans consumed in Israel are imported from the USA and early experiments carried out in 1935-44 and 1950-51 (S. Horowitz and A. Goldin, unpublished) indicated that soybean production was not economically feasible in Israel either for cooking oil production or as a forage crop.”

   A positive yield response to soybean inoculation was reported in Israel. Address: Faculty of Agriculture, Hebrew Univ. of Jerusalem, Rehovot, P.O. Box 12, Israel.

417. **Soybean Update.** 1979. Soy in human food holds potential in Middle East. Aug. 27.

• **Summary:** “Poultry and dairy feeding, currently and for some time to come, will provide the biggest market for U.S. soybeans in the Middle East, but the potential for expanding markets in soy oil and soy protein in human foods is growing rapidly. This assessment comes from Dr. Raja Tannous, professor of food technology and nutrition in the Agricultural College of the American University, Beirut, Lebanon.”

   Tannous told *Update* that “the greatest near-term potential for incorporating soy protein into human diets is in traditional foods, especially those served by institutions: the army, school feeding programs and camps for foreign construction crews, etc. However, he said the new affluence of the growing middle class in this area has also made it ‘quite ready to accept new foods.’ He says that Lebanon, Jordan, Syria, Kuwait and Saudi Arabia are currently the best potential markets for soy protein. However he said the use of soy in traditional and new foods would not occur immediately.” He and others in the region are “starting research into the economies, benefits and techniques of incorporating soy into traditional breads, soups, dips, sausages and as a ground meat extender.”

   “Identified soy oil has already been ‘well accepted’ in major markets there, he said. Although the darker and stronger-flavored olive oil is the traditional and preferred cooking oil, its scarcity and high cost have turned many consumers to lighter soy...”


• **Summary:** In the ISVEX trials, soybeans were tested in the following regions and countries: Africa: Algeria, Cameroon, Egypt, Ethiopia, Ghana, Liberia, Mauritius, Morocco, Niger, Rhodesia (Salisbury; in today’s Zimbabwe), Rwanda, Senegal, Somalia, Sudan, Swaziland, Tanzania, Togo, Upper Volta, Zaire, Zambia.
Asia: Bangladesh, Indonesia, Malaysia, Nepal, Pakistan, Philippines, Sri Lanka, Thailand.
Europe: Czechoslovakia, Italy, Portugal.
Mesoamerica: Honduras.
Middle East: Israel, Saudi Arabia.
North America: United States.
Oceania: Fiji, Tahiti.
South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Paraguay, Peru, Surinam, Uruguay.

Note: This is the second earliest document seen (Feb. 2006) concerning soybeans in Liberia, or the cultivation of soybeans in Liberia. This document contains the second earliest date seen for soybeans in Liberia, or the cultivation of soybeans in Liberia (21 Sept. 1977). Sixteen varieties were tested at Monrovia. Improved Pelican gave the highest yield, 1,603 kg/ha. On 14 Dec. 1977, sixteen varieties were tested at Suakoko. Calland gave the highest yield, 1,841 kg/ha. The source of these soybeans was INTSOY for ISVEX trials. Address: Univ. of Illinois, Urbana.


• Summary: The language of this paper has deliberately been made difficult to understand. For example: To “select the most suitable nitrification inhibitor, the relative toxicity of nitrapyrin..., sulftathiozole, dicyandiamide, and sodium diethyldithiocarbamate to soybean seedlings were studied in a greenhouse experiment.”

Note: Research on the web shows, for example, that nitrapyrin is a pesticide. The PAN Pesticides database shows: (1) Signs and symptoms of poisoning, first aid, and links to treatment information for this chemical. (2) Toxicity to humans, including carcinogenicity, reproductive and developmental toxicity, neurotoxicity, and acute toxicity. (3) Water quality standards and physical properties affecting water contamination potential. (4) Ecotoxicity: Toxicity to aquatic organisms. (5) List of chemicals in the same family, including breakdown products, salts, esters, isomers, and other derivatives.

Many of the chemicals in this Iran study restricted root growth and suppressed fresh and dry weights of the seedlings. 


• Summary: A cytogenetic analysis based on F-1 hybrids shows that G. clandestina and G. canescens are closely related, and that either of these diploid species could have provided one genome for the tetraploid form of G. tomentella. It appears that G. falcata and G. tabacina are distinctive species that are not closely related to the three species mentioned above.

The authors reported the meiosis of the interspecies crosses G. canescens (2n = 40) x G. clandestina (2n = 40); G. tomentella (2n = 80) x G. tabacina (2n = 80); G. tomentella (2n = 80) x G. canescens; G. falcata (2n = 40) x G. clandestina. Two further combinations, G. latrobeana (2n = 40) x G. tabacina (2n = 40) and G. falcata x G. canescens, failed to establish so that cytological analysis was precluded. Address: 1. Div. of Medicinal and Spice Crops, Agricultural Research Organization, Newe Ya’ar Experiment Station, Israel; 2. Div. of Plant Industry, CSIRO, P.O. Box 1600, Canberra City, ACT 2601, Australia.

421. Product Name: Mamalak (Infant Formula), Manna (Food Supplement), and Complete (Complete Meal).
Manufacturer’s Name: Nutrition Dynamics International (NDI).
Manufacturer’s Address: Damghan (Also spelled Damkan or Damgham), Iran.
Date of Introduction: 1979.
How Stored: Shelf stable.
Note: This is the earliest known commercial soyfood product made in Iran.

422. Product Name: Miso.
Manufacturer’s Name: Pillar of Dawn (Amud Ha Shachar).
Manufacturer’s Address: Moshav Me’or Modi’im, Doar Na Hamercaz, Israel.
Date of Introduction: 1979.
New Product–Documentation: Talk with Avraham Sand. 1981. This was Israel’s first tofu shop; they also made soymilk, tempeh, and miso, but only the tofu and miso were sold commercially, off the moshav, in Jerusalem. Ben Zion Solomon pioneered the miso development.


Common beans or haricot beans (Vicia faba), chick-peas (Cicer arietinum), lentils (Lens esculentus), peas (Pisum sativum), common beans or haricot beans (Phaseolus vulgaris), and lupins (Lupinus spp.) (p. 29). Cowpeas and green gram are important in India. The soybean is mentioned as a minor crop in India (p. 94), and in a table titled “Estimates of nitrogen fixation by some food legumes: (p. 167). The soybean is not an important crop in this dry region.

At the end is a 14½-page bibliography and a 3-page directory of conference participants. Address: 1. Plant Breeder–Food Legume Improvement; 2. Assoc. Editor. Both: ICARDA, Aleppo, Syria.


Summary: The cultivation of soybeans in Iran began 6 years ago with the establishment of the “Oilseed Research and Development Company.” Today, the cultivated area has reached 7,000 ha, and it is expected to grow significantly in the coming years. Experiments for the control of spider mites (Tetranychus urticae) were conducted on soybean, safflower, and sugar beets. The acaricide Morocide (binapacryl) was found to be especially effective.

The papers in this volume (752 p.) were presented at the 4th International Congress of Acarology held at Saalfelden (Austria–Salzburg) in Aug. 1974. They were edited by Dr. Eduard Piffi (Univ. of Austria, Vienna), and published by Akademiai Kiado, Budapest, Hungary. Address: Pest Control Dep., Teheran [Tehran] Univ., P.O. Box 2650, Teheran, Iran.


Summary: Table 18 is titled “Title II, Public Law 480–total commodities shipped by program sponsor, fiscal year 1978.” The main program sponsors and distributing agencies, listed alphabetically, are AJJDC (American-Jewish Joint Distribution Committee), CARE, CRS (Catholic Relief Service), CWS (Church World Service), LWR (Lutheran World Relief), SAWS (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), and WRC (World Relief Commission). All of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. The following foods containing soy protein were distributed: Soy fortified corn meal (SFCM), soy fortified sorghum grits (SFSG), CSM (corn soya mix), WSB (wheat soya blend), and small amounts of soya flour. The vegetable oil which was shipped to many countries was soybean oil; it is not recorded here.

Foods containing soy protein were distributed to the following countries or areas: Near East: Bhutan, Egypt, Gaza, Jordan, Jordan West Bank, Morocco, Tunisia, Yemen.

Latin America: Bolivia, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Panama, Paraguay, Peru.


Asia: Bangladesh, India, Indonesia, Nepal, Philippine Islands, Sri Lanka.

Note: This is the earliest document seen (April 2004) concerning soybean products (soy flour) in Djibouti, or Guinea Bissau. This document contains the earliest date seen for soybean products in Djibouti, or Guinea Bissau (1978); soybeans as such had not yet been reported by that date. Address: Washington, DC. Phone: 703-875-4901 (1991).

During the past year, Bolivian soybean production has
exchange on wheat imports, and stimulate Bolivian agriculture.
program should add protein to the Bolivian diet, save foreign
with wheat flour and fortified with defatted soy flour. The
mixture of Bolivian rice and/or quinoa flour will be blended
a program for fortification of wheat products with soy. A
(AID) recently selected Bolivia as a target country to conduct
[5 ref]
study.

427. Mustakas, G.C.; Milligan, E.D.; Taborga A., J.; Fellers,
D.A. 1980. Conversion of soybean extraction plant in Bolivia
to production of flours for human consumption: Feasibility
[5 ref]

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
[9 ref. Ger; eng]

429. Reid, Lloyd M. 1980. The potential for the production,
processing and utilization of soybeans and soybean products
in Turkey. Istanbul: Industrial Development Bank of Turkey.
78 p. April. [30+ ref]

Summary: Contents: General remarks on product.
Technology of production and processing in the USA.
Evaluation of conditions in Turkey for soybean production.
Determination of soybean price level. Soybean processing in
Turkey. Contribution of soybean to the economy. Summary
and points of strategy to achieve production and processing
targets. Appendices. Reference list. Address: Volunteer
Executive, International Executive Service Corps., Turkey.

430. Shurtleff, William. 1980. Tofu shops and soy dairies in
the West. Soyfoods Center, P.O. Box 234, Lafayette, CA 94549.
• **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.


• **Summary:** Includes a discussion of soybeans, variety Altona.


• **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 soybean 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.


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).

433. **Product Name:** Lecithin.

**Manufacturer’s Name:** Hayes Ashdod Ltd. Renamed Solbar Hatzor Ltd. in April 1987.

**Manufacturer’s Address:** Habosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel.

**Date of Introduction:** 1980.


• **Summary:** “High temperatures (35ºC) at soybean planting time (May 15 to June 15) in central Iraq are one of the outstanding features which limit the viability and effectiveness of *Rhizobium japonicum* strains applied to soils as inoculum.

“To evaluate and minimize the adverse soil temperature effect on soybean nodulation, N-fixation and yield, five different kinds of inocula were used under field conditions:”

For all inocula, the largest number of nodules were found when they were placed at 10 cm depth. At this depth, the largest number of nodules (on variety Lee) was obtained with liquid inoculum. Address: Dep. of Soil Science, Baghdad Univ., Baghdad, Iraq.

• **Summary:** “The saponins are glycosides that occur in a wide variety of plants. They are generally characterized by their bitter taste, foaming in aqueous solutions, and their ability to hemolyze [break down] red blood cells. The saponins are highly toxic to cold-blooded animals, their toxicity being related to their activity in lowering surface tension. They are commonly isolated by extraction of the plant material with hot water or ethanol. Upon complete hydrolysis they yield sapogenins, which are either steroids (C_{27}) or triterpenoids (C_{30}), and sugars (hexoses, pentoses, and saccharic acids). The saponins in foods and feeds have been studied very little and different properties that were attributed to them have not always been verified.”

Significant amounts of saponins are found in alfalfa seeds and plants, French beans (*Phaseolus vulgaris*), and soybeans. There are various soyasapogenols, such as A, B, C, D, and E. Address: Dep. of Agricultural Biochemistry, Faculty of Agriculture, The Hebrew Univ. of Jerusalem, Rehovot, Israel.


• **Summary:** Soya is discussed under: Non-urea adduct-forming compounds (p. 383). Autoxidation: Primary products (p. 388). Thermal oxidation and polymerization (p. 401, 403). Alkali treatment (the uncommon amino acid lysinoalanine, LAL, p. 409). Solvent extraction with trichloroethylene (p. 414-15). “The toxic factor was not the solvent residues in the meal. Rather, it was associated with the protein component of the meal (McKenney et al. 1957; Seto et al. 1958), and later it was identified as a derivative of cystine residues in the polypeptide” (p. 415). Address: Dep. of Food Engineering and Biotechnology, Technion—Israel Inst. of Technology, Haifa, Israel.


• **Summary:** The experimental pelleted diet, fed to fish in Kuwait, contained 6.8% soybean meal.

Note: This is the earliest document seen (Nov. 2002) concerning the use of soybeans in aquaculture. Address: Mariculture and Fisheries Dep., Kuwait Inst. Scientific Research, P.O. Box 1638, Salmiya, Kuwait.


• **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 Grossschweinbarth 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 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.

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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. Wolfs address is Wallriss Strasse 45/3/6, A-1180 Wien, Austria.

441. **Product Name:** Tofu, Silken Tofu, Tofu Dressings.  
**Manufacturer’s Name:** Little Prince (The).  
**Manufacturer’s Address:** Rehov Mac-Donald 16, Ramat Gan, Israel.  
**Date of Introduction:** 1981. June.  
**New Product—Documentation:** Soyfoods Center Computerized Mailing List. 1982. Sept. 17. Owner: Joseph Fresco. They started in June 1981 and now use 24 kg/day of soybeans.


**Summary:** The nutritional value of soybean meal processed in Kuwait was compared with that processed in America and with isolated soy protein. The meal processed in Kuwait was found to be low in L-lysine and DL-methionine, probably due to over heating during processing plus adverse storage conditions; the result was reduced availability of these two most limiting amino acids. Address: Kuwait Inst. for Scientific Research.

**Summary:** Feeding experiments with carp were conducted in cages and experimental ponds, using diets with 25% total crude protein. When most or all of the fishmeal was replaced by soybean meal, supplements of 10% oil, 0.4% methionine, and 0.4-0.5% lysine were necessary to achieve gains and protein and energy retentions equal to those of the 100% fishmeal control ration. It was concluded that, for carp, regular soybean meal contains 10-15% less metabolizable energy and 10-15% less available lysine than the generally accepted values. Address: 1. Israeli Feedmills Assoc., Beitah Aharon, Israel.

**Summary:** Contents: Preface. Brief history of development: Up to 1945, 1946-1960, 1961-1980, 1981. Economic aspects: Vista, antibiotics, amino acids (esp. glutamate), nucleotides, enzymes, miscellaneous (citrate, gluconic acid). Epilog. The modern fermentation industry, characterized by mechanization and quality control, was motivated and triggered by the appearance of antibiotics. Before 1945, besides the brewing of alcoholic beverages, the Amylo-process and acetone-butanol were the most representative of large-scale fermentations in pre-war and during the war days. In the former, starchy materials were saccharified aerobically by the use of *Aspergillus oryzae*. The period from 1946 to 1960 was characterized by two major developments: the emergence of the penicillin industry and the production of amino acid (glutamic acid) by fermentation. Bioengineering became sophisticated. During the period 1961-1980 biochemical engineering and computers came to be widely used.

The fermentation industry in Japan is large. In 1974 it produced $8,404,000,000 worth of products. The largest segments were liquor $6,300,000,000 (75.0% of the total), antibiotics $1,183,000,000 (14%), fermented foods $550,000,000 (6.5%), amino acids $250,000,000 (3.0%), and other (nucleotides, yeast, ethanol, enzymes, organic acids) $121,000,000 (1.5%).

The main amino acid is glutamic acid, of which the Ajinomoto Co. has almost 50% of the market. Production peaked at 100,000 tons/year in 1971 and had fallen to 73,000 tons by 1975. The main nucleotides are inosinic acid and guanylic acid. The main enzymes are alpha-amylase (12,000 tons/year), protease (1,500 tons/year), and glucose isomerase (300 tons/year). Miscellaneous includes citrate, lactic acid, and gluconic acid (each organic acids). Genetic manipulation of microorganisms is expected to revolutionize the fermentation industry.

Note: This periodical about microbiology is published twice a year by the Center for Culture Collections of Microorganisms (KUKENS) in Istanbul, Turkey. Address: Prof. Dr. Dep. of Fermentation Technology, Faculty of Engineering, Osaka Univ., Yamada-kami, Suita-shi, Osaka, Japan.

• Summary: In the ISVEX trials, soybeans were tested in the following regions and countries: Africa: Algeria, Botswana, Cameroon, Egypt, Ethiopia, Gabon, Ghana, Malawi, Morocco, Rwanda, Senegal, Somalia, Sudan, Tanzania, Upper Volta, Zaire, Zambia, Zimbabwe.

Asia: Bangladesh, Taiwan, India, Indonesia, Korea, Malaysia, Nepal, Pakistan, Sri Lanka, Thailand.

Europe: Italy, Poland, Portugal.

Mesoamerica: Costa Rica, Dominican Republic, Guatemala, Honduras.

Middle East: Iran, Iraq, Saudi Arabia, Turkey.

North America: United States.

Oceania: Fiji, Tahiti.

South America: Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, French Guiana, Paraguay, Peru, Venezuela.


• Summary: Dr. de Selliers is working at the highest levels to try to raise interest in and funds for establishing a network of soymilk factories in developing countries. Contents: Letter to Sheikh Ahmed Zaki Yamani, Minister of Petroleum and Mineral Resources, Riyadh, Saudi Arabia (Nov. 12, 2 p.). Letter to Dr. A.W. Clausen, President, The World Bank, 1818 H Street N.W., Washington, DC 20433 USA (Nov. 10, 3 p.). Reply from Clausen (Dec. 8, 1 p.). Letter from Dr. Vernon R. Young, Ph.D., Prof. of Nutritional Biochemistry, Massachusetts Institute of Technology, Laboratory of Human Nutrition, 18 Vasser St., Cambridge, Massachusetts 02139 (Dec. 4, 1 p.). Reply to Young (Dec. 18, 4 p.). Letter to His Excellency Mr. W.E. Mwangale, Minister of Tourism, Nairobi, Kenya (Dec. 14, 1 p.).

Activity Report of Dr. de Selliers’ international travels (Dec. 18, 2 p.). Address: Chairman, IDC (International Investment & Development Corp.) Belgium, Belgium S.A., Rond-Point de l’Etoile 3, Boite 8, B-1050 Brussels, Belgium. Phone: (02) 640-68 00.

448. Product Name: Soy Flour.

Manufacturer’s Name: Etz Hazaith Ltd.

Manufacturer’s Address: Rehov Shenkar 1, P.O. Box 193, Petah Tikva 49101, Israel.

Date of Introduction: 1981.


449. Product Name: Lecithin.

Manufacturer’s Name: Etz Hazaith Ltd.

Manufacturer’s Address: P.O. Box 193, Petah-Tikva, Israel.

Plant at Kiryat Aryeh, Petah-Tikva.

Date of Introduction: 1981.


450. Product Name: Sumerbank Soy Flour.

Manufacturer’s Name: Ordu Soya Sanayii Muessesesi. Affilite of Sumerbank.

Manufacturer’s Address: P.K. 4, PTT Kod. No. 52001, Ordu, Turkey.

Date of Introduction: 1981.

New Product–Documentation: Soya Bluebook. 1981. p. 64; Soya Bluebook. 1986. p. 87. Company is now named Sumerbank Soya Sanayii Muessesesi and product is Sumerbank Soy Flour. Note: This is the earliest known commercial soyfood product made in Turkey.


• Summary: Feeding experiments with carp were conducted in cages and experimental ponds, using diets with 25% total crude protein. When most or all of the fishmeal was replaced by soybean meal, supplements of 10% oil, 0.4% methionine, and 0.4-0.5% lysine were necessary to achieve gains and protein and energy retentions equal to those of the 100% fishmeal control ration. Address: Miloubar Central Feedmills, D.N. Asherat, Israel.


Address: College of Agriculture and Forestry, Monsul Univ., Mosul, Iraq.


• Summary: This book focuses on selected basic nutritional concepts. In 1873 Atwater embarked on a comprehensive research program on the chemical composition of American foods. He was the first in the U.S. to perform extensive studies on the chemical composition of foods. In 1875 he established
the first agricultural experiment station in the United States. Muscular work failed to increase protein catabolism [destructive metabolism, involving the release of energy and resulting in the breakdown of complex materials within the organism; opposite of anabolism].

The discovery of the four elemental substances of living matter (carbon, hydrogen, oxygen, and nitrogen) in the mid-1700s initiated a revolution in chemical thinking. Lavoisier, who did his main work at this time, found that respiration was a form of combustion.

The main contribution of William Prout (1785-1850) to nutrition was the classification of foodstuffs into four kinds of compounds, saccharine, oleaginous, and albuminous, corresponding to our current classes of carbohydrates, fats, and proteins. An English chemist and physician, he was the first to distinguish between nutrients in foods.

Liebig made calculations rather than experiments. By the 1840s animal experiments were recognized as a suitable means for studying specific questions in nutrition and metabolism.

By 1906 much evidence had accumulated pointing to the existence of dietary components other than protein, carbohydrates, fats, and mineral salts. By 1912 F.G. Hopkins and others had clearly that natural foods contain minute amounts of organic substances essential for animal growth. In 1912 Casimir Funk (1884-1967; born in Warsaw, Poland) propounded the theory of the need for certain organic nutrients which he called “vital amines” or “vitamines” which were essential for the preservation of health and the prevention of certain diseases [such as scurvy]. He was the first to isolate and characterize these substances.

In 1605 Lancaster had been the first to deliberately use lemon juice to prevent scurvy. In 1753 James Lind wrote his treatise on scurvy; yet his work was forgotten and his views ignored, while thousands of sailors died from scurvy. Doctors and nutritionists dragged their feet.

The Native American diet was based on corn, beans, and squash.

In 1918 Robert McCarrison started the famous Nutrition Research Labs. at Coonoor, southern India; in 1927 they became part of the Pasteur Institute.

Von Noorden was famous for his studies of diabetes in Germany.

Presently iron-deficiency anemia is the most common nutritional deficiency worldwide. Iron kitchen utensils are a major source of iron. There are two types of anemia; pernicious and iron-deficiency (or chlorosis).

In 1948 vitamin B-12 was identified, later called cobalamin. Address: Emeritus Prof. of Nutrition, Hebrew Univ.–Hadassah medical School, Jerusalem, Israel.


• Summary: “The main source of vegetable oil in most of the countries of the Near East and North Africa is cotton seed, but other oilseed crops are gaining in importance because of the big shortage of edible oils. One such crop is soybeans. During 1961-1965, the only sizable areas of soybeans were grown in Cyprus and Turkey.

Note 1. This is the earliest reliable document seen (June 2007) concerning soybeans in Cyprus, or the cultivation of soybeans in Cyprus. This document contains the earliest date seen for soybeans in Cyprus, or the cultivation of soybeans in Cyprus (1961). The source of these soybeans is unknown.

Soybeans were introduced in other countries during the early 1970’s, notably Iran and Egypt; also, to some extent, in Pakistan, Iraq, Syria, and the Maghreb. In Iran, the area covered during 1977-78 was more than 70,000 hectares; in Egypt, 40,000 ha in the 1979 crop season. The average yields vary from 1 to 2.5 tons per hectare. Experiment yields have even exceeded 4 tons in some countries.

“Starting in 1975, the Regional Project on field Food Crops has been providing some help to interested countries in introducing soybeans and expanding the crop area. That help consisted of providing variety trials, large quantities of seed, and short-term production training.”

“Large quantities of seeds of identified soybean varieties were provided to Pakistan, Egypt, Syria, Afghanistan, Iraq, Iran, and Sudan for extensive testing, seed multiplication, and release to farmers.”

Note 2. The Maghrab (more commonly spelled “Maghrib” or “Maghreb”) is the Arabic name for northwest Africa and, during the Moorish occupation, Spain. The term is now used to include Morocco, Algeria, Tunisia, and, sometimes, Libya. Yet in this article, none of these four countries are specifically mentioned by name. Address: FAO Regional Office.


• Summary: Turkey cultivates oilseed crops such as sunflower, poppy, soybean, safflower, cotton, sesame, and rape. “Since 1940, soybeans have been grown under rain-fed conditions in a limited area [in Turkey] along the east side of the Black Sea coast. However, there are currently plans to introduce soybeans as a second crop following wheat in southern coastal areas where irrigation facilities are available.

Nation-wide, about 8,000 tonnes (metric tons) of soybeans are produced each year on 6,000 acres of land. The average yield is about 1.3 tonnes / ha.

The Ministry of Agriculture and CARE have worked “to develop soybean production in the southern coastal areas. Through these efforts, 500 ha of irrigated soybeans were
planted by contracted farmers in 1978 and 2,000 ha in 1979.” The area in 1980 was expected to be 3,000 ha. In 1978, the yield averaged about 2 tonnes / ha. Amsoy 31 seed was provided by CARE for this program. In 1978 the Second Crop Research Program was initiated under the Ministry of Agriculture.


General information (p. 418-36); lots on soyfoods, see: bean curd [regular, fried, fermented, pressed, pressed seasonaled], kochu chang [jang], miso, soy-, tempeh, yuba). Sources (of ingredients; p. 437-40). Address: New York City, NY.


Note 1. Most of these papers are cited separately. Note 2. This conference was sponsored by the Egyptian Ministry of Agriculture, Menoufeia University, and the International Soybean Program (INTSOY), in collaboration with the Food and Agriculture Organization of the United Nations (FAO) and the U.S. Agency for International Development. Address: Univ. of Illinois, Urbana.


• 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, 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 2007) 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 Eustatus, 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, Saudia 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 21,600 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.


• Summary: Contents: Introduction. Production technology. Organization.

“Soybean production started in the 1940s... The Soybean Development Project is conducted by the Ministry of Agriculture and Forests... Research on soybean improvement is conducted by four Agricultural Research Institutes.”

Address: Agronomist, Aegean Regional Agricultural Research Inst., Menemen-Izmir, Turkey.


• Summary: This conference was sponsored by: The Sri Lanka Ministry of Agricultural Development and Research, The Seed Technology Laboratory, Mississippi State University, and the International Soybean Program (INTSOY); In collaboration with: The Food and Agricultural Organization of the United Nations (FAO), the United States Agency for International Development (USAID).


In the Foreword, W.N. Thompson, Director of INTSOY, notes: “Part of the rationale for the conference came from the experience in the INTSOY variety trials program, particularly in the International Soybean Variety Experiment (ISVEX), which indicated that high quality soybean seeds can be produced in tropical and subtropical environments...

“It is especially relevant to present production problems in countries where high ambient temperatures and humidity prevail at harvest and during storage, and where high soil temperature and moisture prevail at planting time. The objectives of this conference relate directly to the overall INTSOY goals of gathering, distilling, and disseminating the best current knowledge of problems facing small farmers.” Address: Univ. of Illinois, Urbana.


• Summary: Contents: Summary and highlights: Sales programs, food for development, use of foreign currencies, foreign donations, world food program. Title I sales program: Agreements signed in fiscal year 1980, accounting for Title I costs, self-help provisions, food for development, use and administration of Title I foreign currencies. Title II foreign donations: Program highlights, world food program, the food aid convention of the international wheat agreement. Appendix–statistical tables.

Table 18 is titled “Title II, Public Law 480, total commodities shipped by program sponsor, fiscal year 1980.” The main program sponsors and distributing agencies, listed alphabetically, are AJJDC (American-Jewish Joint Distribution Committee), CARE, CRS (Catholic Relief Service), CWS (Church World Service), LWR (Lutheran World Relief), SAWS (Seventh-day Adventist World Service), UNICEF, UNRWA (United Nations Relief and Works Agency), and WRC (World Relief Commission). All of these are Private Voluntary Organizations (PVO/PVOs), registered with USAID. The following foods containing soy protein were distributed: CSM (corn soya mix), WSB (wheat soya blend), and small amounts of soya flour. The vegetable oil which was shipped to many countries was soybean oil; it is not recorded here.

Foods containing soy protein were distributed to the following countries or areas: Near East: Egypt, Gaza, Jordan, Morocco, Tunisia. Latin America: Bolivia, Chile, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Nicaragua, Panama, Paraguay, Peru, St. Lucia.

Africa: Angola, Benin, Botswana, Cape Verde Islands, Comoro Islands, Ethiopia, Gambia, Ghana, Guinea-Bissau,
Ivory Coast, Kenya, Lesotho, Liberia, Malawi, Mauritania, Mauritius, Mozambique, Senegal, Sierra Leone, Somalia Republic, Swaziland, Tanzania, Togo, Upper Volta, Zambia.


• Summary: Observations on the deleterious effects of a totally vegetarian diet in infancy are reported, and the difficulties encountered in the prevention of nutritional deficiencies in a vegan religious community are discussed. Twenty-five infants of this community seen at a hospital showed evidence of protein-calorie malnutrition, iron- and vitamin B-12-deficient anemia, rickets, zinc deficiency, and multiple recurrent infections. Evidence of growth retardation also was found in 47 infants seen at a local mother-child health (well-baby) clinic. The main constituent of the infants’ diet after the age of 3 months (a prepared “soya milk”) was extremely dilute, with a very low caloric value (13.7 kcal/100ml). Persistent attempts to find dietary modifications that would satisfy both the vegan philosophy and also the recommended dietary allowances failed. Address: Ben-Gurion Univ. of the Negev, Beer-Sheba, Israel.


Concerning Israel: It is not clear when soybeans were first grown in Palestine or Israel, but their development and popularization after the 1930s or 1940s was pioneered almost single-handedly by a remarkable man named Eliahu Navot. Born in the Ukraine in 1894, Navot immigrated to Palestine in 1912 and became a cattle farmer. In his search for fodder crops of high food value during the 1930s, Navot discovered the soybean, and during World War II he began developing high yielding varieties on his farm at Herzlia. During the war, Prof. Chaim Weizmann, the eminent scientist and first president of Israel, told workers of the prestigious Agricultural Research Station at Rehovot that the successful cultivation of soybeans had priority over the production of cannons, because whereas cannons are no use as a source of soybeans, soybeans can be turned into cannons. Yet the major use of the soybean is an extremely nutritious food. After the war, Navot and Weizmann met and discussed their mutual interest, as Weizmann was actively advocating the introduction of the soybean to Israel. In 1950 Bergmann, Weizmann, and Willstater at Rehovot confirmed the importance of soy in the fight against world hunger and reported on a soy powder they had developed.

In 1949, Navot left on a 1-year world tour to study soybeans and soyfoods. He returned to Israel with scores of new seeds and new ideas, then for the next 9 years devoted himself wholeheartedly to the search for the strain of soybean most suited to Israel. By 1959 the Ogden, renamed the Herzlia, was giving excellent yields. During this time Navot also did extensive and creative work with soyfoods. His home at Herzlia became a center of extension work in popular nutrition, home economics, and recipe development. Day after day he prepared a variety of soyfoods delicacies, which drew the praises of his many visitors and friends, and eventually of epicures and of the President of Israel. His soy falafel was the number one favorite.

During this period Navot also traveled up and down the country to introduce soybeans and soyfoods. At scores of settlements, colleges, schools and other institutions he gave lectures, distributed pamphlets and seeds, and prepared soyfoods meals... all free of charge at his own expense. His enthusiasm and selfless effort were contagious. He catered wedding feasts and Passover gatherings with Israel soyfoods recipes. He supplied free soybean seeds to over 30 settlements and eventually saw the soybean acclimatized in almost all parts of Israel. He used soyfoods as a basic part of his own daily diet and everywhere he went people were impressed to see what excellent health and vitality, and what boundless energy he had for a man 65 years old. But above all people admired his spirit of selfless service. Navot wrote a number of pamphlets on soy, which he printed and distributed at his own expense. He gave recipes and wrote about soyfoods such as soy sprouts and soy coffee. He concluded “I appeal to all, and in particular to our experts on nutrition and economics, to disseminate this precious and nutritious food for the good and peace of Israel.”

Over the years the farm press had given good coverage to Navot’s experiments. Then on 4 November 1959 Ha’aretz, the most influential and widely read paper in Israel, wrote a major story about his work, which led to a subsequent spate of articles from other publications. His work with soy became known to people throughout the country. Illustrierte Velt (18 Nov. 1959) wrote: “With the Navot family you can eat fish and meat, bread and soup, cakes and even borscht. And having finished and blessed God and your host, from whose table you have eaten, he will tell you his big secret, that all of this food was made from the wonderplant, the soybean.” In 1960, when the Soybean Council of America began to operate in Israel and to open a soyfoods test kitchen, Navot was one of the first to offer his services. The Council eventually published a moving tribute to his work, a 36-page book entitled The Story of Eliahu Navot: The Soybean Pioneer of Israel (on which we have drawn heavily). Navot had done in Israel much the same type of work that William Morse had done in America, and he soon came to be known as the “Father of Soybeans in
Israel;” his friends amiably referred to him as “the soybean monomaniac” or, in his older age as Hamelech Soya, the “Soybean King.” He passed away in about 1980 at age 86. Address: Lafayette, California. Phone: 415-283-2991.

466. **Product Name:** Hayes So-Bit (Pronounced So Be It; Made of Soy Fiber and Hulls).  
**Manufacturer’s Name:** Scan Reform. Aquaculture Nutrition Products Co.  
**Manufacturer’s Address:** Austria.  
**Date of Introduction:** 1982. December.  
**Wt/Vol., Packaging, Price:** Canisters.  
**How Stored:** Shelf stable.  
**New Product–Documentation:** Food Report (Lehmann). 1982. Dec. “This natural slimming agent, suitable for diabetics, was developed in Israel [by Hayes, Ltd. in Ashdod] from soya bean extract and works by speeding up the digestion cycle and lowering the absorption of carbohydrates taken with food. The product is in powder form and is essentially protein soya fibre which should be taken in addition to a normal diet in treatment periods of three weeks. It is claimed that a weight reduction of 5-6 kg can be achieved in the first 4-5 weeks and of 40-50 kg in 7-12 months. This powder is packed in canisters.

Reginald Fitz. 1983. National Enquirer. July 19. “Good news for diabetics.” “After four years of testing the supplement So-bit—set for marketing in the U.S. this fall—Dr. Yoram Kanter, head of the research team at Haifa’s prestigious Rambam Hospital and medical center, said: ‘If all diabetics on medication took this supplement, they could cut down their daily (insulin) requirement by 25 percent, and about one-third would be able to stop medication’”


Aquaculture Nutrition Products Co. (A-n-p) now offers So-Bit, dietary fiber from hull and first leaf sprouts (cotyledon) of soybean plant. High in protein, 40 to 60%, and low in sodium, 0.01%. Fiber provided is essential for proper gastrointestinal function and serves as antacid buffer, adds bulk to provide feeling of satiety.

Letter from Yitzchak Kedem of Solbar Hatzor Ltd. “So-Bit is made of [soy] fiber and hulls.”

**Summary:** A comprehensive history of the subject. Contents: Introduction: Third World countries in which soy is “new.” History and potential in “new” Third World countries: When introduced to each region, active history started in 1960 (protein gap) and 1970’s: International Soybean Program (INTSOY), American Soybean Association (ASA), high prices, international conferences, call for further research, the potential: population and hunger. Basic approaches to introducing soybeans and soyfoods: Can’t introduce like rice or wheat, need utilization training, how to get it, whole dry soybeans in Brazil and India, the traditional trickle-down approach (Japan–all village centered, Korea, Indonesia), the national integrated approach (examples of it–Sri Lanka, basic components: Cooperative funding, training center, well educated and inspired teachers, a publication, farm extension workers and farmers, soyfoods extension workers and resident students, soyfoods users–food industry and institutional, the people/villagers), the single enterprise integrated approach (examples of it, Soya Production and Research Association, Uganda, CARE in Costa Rica, teach farmers, guarantee crop, make food, advertise it), the commune village integrated approach (examples–the Farm, teach farmers, establish communal business, all use the food), the free market-government aid/extension/research approach (examples–Egypt, Brazil, oil mills and exports), the soyfoods missionary/mass movement approach or village uplift (examples–Blanca Dominguez, soyfoods movement in America, show others, they teach others, encourage starting of small businesses, broad-based, teach all over via books, programs, later start schools). Soyfoods applications: Oil, flour, textured soy flour (TSF), as is, traditional vs. new countries. Production and marketing approaches: Soybean crushing plant (oil and defatted meal, meal to fortify or TSF), middle level low-cost extrusion or soy dairy, small decentralized village and cottage industries, all traditional countries took this approach. Address: Lafayette, California. Phone: 415-283-2991.

468. **Product Name:** Lecithin.  
**Manufacturer’s Name:** Olivex Ltd.  
**Manufacturer’s Address:** 25 Rothschild Blvd., P.O. Box 1498, 61014 Tel-Aviv, Israel. Plant at Petah Tiqua.  
**Date of Introduction:** 1982.  

469. **Product Name:** Lecithin.  
**Manufacturer’s Name:** Shemen Industries Ltd.  
**Manufacturer’s Address:** P.O. Box 136, Haifa 31000, Israel.  
**Date of Introduction:** 1982.  

**Summary:** High-protein pellets (30%) were compared to standard (25%) pellets, with 8% oil or without it, in a feeding trial with carp in cages. Fishmeal was the only source of supplemental protein. In preliminary trials with tilapia, oil was added to standard pellets containing soybean meal; the oil did not improve growth in cages or in ponds. Address: Israeli Feedmills Assoc., Beytan Aharon, Milobar, Israel.
SOY IN THE MIDDLE EAST (c) Soyinfo Center 2008


• Summary: Feeding experiments with carp (Cyprinus) were conducted in plastic tanks, cages, and experimental ponds, using pelleted diets with 25% total crude protein. Fishmeal was the only source of supplemental protein in the control diet, besides the basal ground grains. Partial replacement (40% of the fishmeal) by soybean meal in pond trials required only supplements of methionine and 5% oil in order to attain the same growth, protein, and energy utilization as with the control ration. When most or all of the fishmeal was replaced by soybean meal, supplements of 10% oil, methionine, and 0.4-0.5% lysine were necessary to achieve gains, protein efficiency ratio (PER), net protein utilization (NPU), protein retentions and energy retentions equal to those of the 100% fishmeal control ration. It was concluded that, for carp, regular soybean meal contains 10-15% less available energy and 10-15% less available lysine than the generally accepted values. Address: Miloubar Central Feedmills, D.N. Asherat, Israel.


Tables: (1) Soybean area, production, yield, imports and exports for selected Asian countries: Taiwan (ROC; 19,000 ha; 1,644 kg/ha), India, Indonesia (755,000 ha; 795 kg/ha), Iran (70,000 ha; 150,000 metric tons; 2,143 kg/ha), Japan (100,000 ha; 2,000 kg/ha), Korea (Rep. of = South; 260,000; 1,350 kg/ha), Nepal (19,000; 650 kg/ha), Philippines, Sri Lanka, Thailand (160,000 ha; 783 kg/ha), China (PRC; 14,430,000 ha; 925 kg/ha) [1979 & 1980]. (2) Yield response of post-rice soybean crop to irrigation and tillage. (3) Effects of different soybean sowing methods on plant stand and yield. (4) Soybean responses to Rhizobium japonicum inoculum. (5) Effect of fungicide seed treatment on soybean plant stand when grown in rice stubble culture with excessive soil moisture after sowing. (6) Soybean germplasm collections available in Asian countries. (7) Soybean varieties and their characteristics identified as moderately resistant to soybean rust. (8) Soybean varieties immune to soybean mosaic virus. (9) Soybean varieties susceptible to soybean mosaic virus but are symptomless. (10) Wild soybean, (G. soya Sieb and Zucc.) accessions least affected by beanflies, (Melanagromyza sojae and Ophiomyia centroccematis) at AVRDC. (11) Soybean varieties less affected by pod borer, Etieila zinekenella at AVRDC. (12) Major soybean varieties grown by farmers in different countries until 1972. (13) Major soybean varieties developed after 1972 and grown by farmers until 1980. (14) Performance of AVRDC selection compared to local cultivars in Indonesia. (15) Yield of six soybean cultivars in four locations during summer in a district trial experiment. Address: AVRDC, Shanhua, Taiwan.


• Summary: Haifa—A study by researchers at the Technion’s Faculty of Medicine has shown that a soybean fiber product—Sobit—can reduce the amount of medication needed by diabetics by lower their blood sugar content, and can also help obese persons with weight control. Senior Lecturer and head researcher Dr. Yoram Kanter said: “We don’t claim that soy fiber replaced insulin but, taken in small quantities, it reduces the ‘after meals’ glucose response that diabetic patients develop if they eat well, which would otherwise lead to a rise in sugar content. The addition of the soya to the diet leads to sugar content rising much less.”

Sobit, manufactured in the port city of Ashdod, is a fiber-rich product containing soybean polysaccharides from soybean hulls. It is composed of about 40% soy fiber and 40% soy protein.

Earlier research has suggested that diabetes is a disorder that might be related to the lack of fiber in the modern diet. Researchers have found, for example, that diabetes is rare in African communities that consume high-fiber diets. Address: New York City, NY. Phone: 212-889-2050.

475. Product Name: Firm Tofu.
Manufacturer’s Name: Golden Jerusalem Tofu.
Manufacturer’s Address: P.O. Box 6212 (Zichron Tuvia 19), Jerusalem 91061, Israel. Phone: 022-495-69.

Date of Introduction: 1983. February.


Letter from David Silverstein from Setagaya-ku, Tokyo, Japan. 1987. Sept. 6. I have fond memories of Zvi Weisberg “with whom I studied tai chi for 4 years at 6:00 A.M. on a Jerusalem mountain top. I remember when Zvi was the only tofu maker in town and his lugging around always by foot his heavy water protected loving tofu. I’d love to get his address as I lost track of him when he finally left Israel after 10 or so years and headed back to the USA.”

Talk with Avraham Sand. 1990. Sept. 9. This shop opened shortly after his Pillar of Dawn closed. It was a very funky, primitive operation located off Rehov Bezalel (Betzalel). He thinks that Simcha Susan Ergas bought this company, then scaled up to more sophisticated equipment imported from Japan.


• Summary: EEC import taxes on soy oil are as follows: 10% on crude edible, 15% on refined edible, 5% on crude technical/industrial, 8% on refined technical. Special consideration is given to developing nations where the tax on crude technical is reduced to 2.5%.

The main importers of crude Spanish soy oil in 1981 were (in tonnes = metric tonnes): Turkey 104,000, Tunisia 71,443, Morocco 70,749, Yugoslavia 41,000, Pakistan 12,600. The main importers of refined Spanish soy oil in 1981 were: Egypt 20,175, Turkey 19,101, France 6,698.

Soy oil imports to Western Europe dropped sharply starting in 1960 because of the development of a soybean crushing industry there.

The main food use of soya in Spain is as a meat extender. Legislation is pending for other uses. There is a reluctance to accept vegetable protein. Spain and Portugal will join the EEC after Jan. 1985. Address: American Soybean Assoc., Regional Director, Iberia, Africa & Middle East, Piquer #7, Madrid-33, Spain. Phone: 202 9142.


• Summary: “Soyabean is a new crop in Turkey.” In 1978, attention was first given to it as a second crop. “Research on soyabean is one of the major parts of the Double Cropping Development Programme.” Its performance compared to other crops has been investigated. “Soyabean is grown as a second crop after wheat under irrigated conditions during the summer months from June to October (115 to 130 days).

The program is studying three areas of soybean production: (1) Varietal improvement, focusing on short maturity cultivars. After evaluating 200 improved cultivars, it has 8 as promising; Hodgson, Shawnee-II, Washington-V, Woodworth, Calland, Amsoy-71, Mitchell, and Williams. (2) Cultivation and production technology (plant spacing, tillage systems, fertilizer types and levels, weed control, depth of planting). (3) Plant protection (insects, diseases).

A map shows the Second Crop Research Project and its components within the entire country. Turkey is on about the same latitude as southern Indiana in the USA. Izmir, on the western Mediterranean coast is at 38° 35’N. Antalya, on the southern Mediterranean coast, is at 36° 52’N. Address: Regional Research Inst., P.O. Box 39, Antalya, Turkey.


• Summary: Six of the top ten countries that import soybean oil from the U.S. are in Latin America. The six are (with soy oil imports in 1,000 metric tons): Mexico 83.3, Colombia 77.0, Peru 50.0, Venezuela 46.7, Dominican Republic 41.5, and Ecuador 40.9. Two other large soy oil importers are Panama (20.2) and Haiti (12.8). Latin America accounts for 44.5% of all U.S. soybean oil exports. “Debt problems in Latin America are a serious obstacle to future economic and import growth.”

“East Europe: Hard currency shortages and political tensions have reduced U.S. soybean and bean product exports to East Europe.” “One bright spot is that Yugoslavia has emerged as the number one U.S. soybean oil customer so far this year with purchases of 142,500 tonnes as of mid-May. Though it was dominating the East European market for soybean products, the U.S. is now a residual supplier. Brazil and Argentina are now the main suppliers.

“Mid East, North Africa:... Israel is the largest U.S. bean importer of the group, with 81/82 purchases of 496,000 tonnes, while Saudi Arabia is the main buyer of meal at 55,500 tonnes. The brightest prospects for near-term growth in U.S. bean product usage are Algeria, Egypt, Morocco, Nigeria and Tunisia.”

“Asian Subcontinent: In the 1981/82 marketing year, Pakistan was by far the largest customer of U.S. bean oil with purchases of 286,100 tonnes, while Bangladesh ranked sixth with 41,500 tonnes. India was tenth with 30,900 tonnes... The Indian bean oil market is traditionally the biggest in the world. However, subsidized bean oil sales from Brazil have taken away the majority of the market, with the U.S. once again assuming the role of residual supplier.” “Market growth for soybean oil in Pakistan remains good due to favorable credit and continued support of PL480 credit. However, Bangladesh is becoming more dependent on palm oil products,...” Exports of soybean meal to Pakistan might increase due to the recent elimination of Pakistan’s 30% import duty on soybean meal.

• Summary: About: Spectrum Foods, Global Foods, Royal American Co., and Carl Hastings. “When floods hit Houston [Texas] and New Orleans [Louisiana] this spring, Global Foods [of Decatur] came to the rescue. Through the American Red Cross, the company supplied tasty, low-cost meals to the flood victims, including chili, beef stroganoff, Mexican dinners and a sweet-and-sour Oriental dish... Soybeans are the basic ingredient in all the company’s instant entrees.

“Global is one of three companies run by local entrepreneur Carl Hastings under the corporate umbrella Spectrum Foods. Each division aims at a different market: Global is targeting charitable organizations; Royal American Co. sells directly to consumers, and the brand-new Continental Food Assn. plans to cultivate the institutional (nursing homes and penal institutions) and export markets, particularly Saudi Arabia and Greece.

“The dynamic Mr. Hastings—who earned a doctorate in food science from the University of Illinois—has built Spectrum into a profitable, $11-million retail sales empire since leaving A.E. Staley Manufacturing Co. in February 1982. He started Spectrum with $1 million in capital provided by 25 investors. The company, which has 125 employees, uses a direct selling method similar to that of Amway Corp. Distributors—25,000 in the 50 states, Puerto Rico and Guam—invite prospects into their homes for tasting parties. A.E. Staley supplies the company with raw soy-protein concentrate, and Spectrum handles production of the meals...

“Though ADM isn’t involved in direct sales of soy-food products, it does sell soy-protein concentrate to an East Coast retailer, General Nutrition Corp. Mr. Hastings hopes to double revenues during the second year of operation... Sales to vegetarians and health-conscious consumers look promising. But real growth is expected from the institutional market and the new international division.”
in Guinea (1979, probably in May). Sixteen varieties were tested at Foulaya. CH-3 gave the highest yield, 2,690 kg/ha. The source of these soybeans was INTSOY (at the University of Illinois, USA) for ISVEX trials. Address: College of Agriculture, Univ. of Illinois at Urbana-Champaign.


“...In 1973, the International Soybean Variety Experiment (ISVEX) was initiated by INTSOY as the first element in the genetic improvement program.”

“The International Inoculant Shipping Evaluation (IIE) trial was conducted in order to evaluate the quality of granular inoculant after it was exposed to shipping and storage conditions during international transport. Stress factors such as high temperature, loss of moisture, time, and exposure to sunlight decrease the quality of inoculants by reducing the number of viable rhizobia bacteria” (p. 1).

“A total of 160 IIE units were set to cooperators in tropical and subtropical countries.” 76 of these were returned by cooperators, as requested, to the INTSOY laboratory in Puerto Rico. The quality of the inoculant, which initially contained $1.0 \times 10^9$ [=1 billion] *R. japonicum* cells per gram, decreased during shipment. “The rhizobia population in 88 percent of the samples decreased to a level between $1.0 \times 10^7$ [=10 million] and $9.9 \times 10^6$ [=90.9 million] cells per gram. However it was estimated that a granular soil inoculant with a population of $1.0 \times 10^7$ cells per gram would deliver more rhizobia than would a seed-applied powder inoculant with a population of $1.0 \times 10^6$ [=100 million] cells per gram. This suggests that most of the returned samples, when used as granular soil inoculants, would provide sufficient rhizobia to nodulate soybeans under favorable growing conditions even after being stressed by time, temperature, and desiccation” (p. 12-13).

Cooperators listed in the directory include those in the following countries: Africa: Algeria, Botswana, Ethiopia, Gambia, Ghana, Malawi, Morocco, Somalia, Sudan, Tanzania, Zambia, Zimbabwe. Meso-America: Belize, Cuba, Guatemala, Mexico, Puerto Rico. Middle East: Iraq, Syria, Turkey. Address: College of Agriculture, Univ. of Illinois, Urbana-Champaign.


- **Summary**: “This study demonstrated the potential benefit of soybean dietary fiber [Soy-bit, made from pulverized soybean hulls] over rice fiber in diabetes treatment with additional advantages resulting from its ease in usage either in a mixture of water or milk products and cooking. As well, being devoid of a disagreeable taste so characteristic of other fibers, patients acceptance is more forthcoming.” Containing 50% protein and 30 to 40% dietary fiber, it was donated by Hayes Ltd. (Ashdod, Israel), which also partially supported the research. Address: Dep. of Biochemistry, Hebrew Univ. of Jerusalem, Rehovot 76100, Israel.


- **Summary**: The studies took place on soybeans that were grown as a second crop after cereal in 1981, and as a first and second crop in 1982. There were 9 species of Heteroptera, 8 of Lepidoptera, 4 of Coleoptera, 3 each of Homoptera and Hymenoptera, and 1 each of Acrana, Thysanoptera, and Neuroptera found on soybean plants. Analysis of the most harmful species is given. Address: Bolge Zirai Mucadele Arastirma Enstitusu Endustri ve Sus Bitkileri Zararllari Laboratuvari–Adana.


- **Summary**: “1.5% SPI + 10.5% DSM was the optimum level of supplementation in terms of nutritive benefit.” Address: All: Regional Agriculture and Water Research Center, Ministry of Agriculture and Water, P.O. Box 17285, Riyadh, Saudi Arabia.


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.

Address: Turkey.

490. **Product Name:** Fully Refined and Hydrogenated Soy Oil, Soy Meal, Dalal Shortening and Cooking Oil.
**Manufacturer’s Name:** Kuwait Flour Mills Co. S.A.K.
**Manufacturer’s Address:** Jamal Abdulnasser St., P.O. Box 681, Safat, Kuwait.
**Date of Introduction:** 1983.
**Ingredients:** Soybeans.
**New Product–Documentation:** Soya Bluebook. 1983. p. 47. Solvent capacity: 50 tonnes (metric tons) per day. Storage capacity: 12,000 tonnes. Served by truck and ship.

• **Summary:** In his Introduction, Peter Singer calls this “the most useful single volume I know covering all the arguments about vegetarianism.” The author’s three main approaches are nutritional, ecological, and ethical. The ethical approach discusses the suffering of animals, deaths of food animals, Hinduism, Buddhism, Jainism, Judaism, Christianity, Plato, Pythagoras, Empedocles, Plutarch, Porphyry, Descartes, Kant, and Peter Singer. This book was heavily influenced by Robin Hur’s *Food Reform: Our Desperate Need* (1975).


“Keith Akers graduated from Vanderbilt University with a B.A. magna cum laude in 1971. He has worked as a programmer/analyst and most recently as Director of Research for the Vegetarian Information Service. He lives in Arlington, Virginia.” A photo shows Akers. Address: Arlington, Virginia.

492. **Product Name:** Fully refined and hydrogenated soy oil, cooking / salad oil.
**Manufacturer’s Name:** Areej Vegetable Oils & Derivatives LLC.
**Manufacturer’s Address:** P.B. 6063, Ruwi, Oman. Phone: 703422.
**Date of Introduction:** 1983. January.
**Ingredients:** Soybeans.
**How Stored:** Shelf stable.
**New Product–Documentation:** Soya Bluebook. 1983. p. 50. This company refines and hydrogenates soy oil. Note: This is the earliest known commercial soy product made in Oman.

Address: Nicosia, Cyprus.


“Osborne was the first to characterize seed proteins according to their solubility potential. Later, amino acid analysis, ultracentrifugation, immunology and electrophoretic techniques were employed for a more precise determination of the various fractions of seed proteins.”

Address: Faculty of Agriculture, The Hebrew Univ., Rehovot, Israel.

495. **Product Name:** Crude degummed soy oil, Aseel shortening, Mumtaz cooking / salad oil.
**Manufacturer’s Name:** United Foods Limited.
**Manufacturer’s Address:** Al-Owais Bldg., 104 Flat, Naser Square, P.O. Box 5503, Deira, Dubai, United Arab Emirates. Phone: 971 6 357966.
**Date of Introduction:** 1983. January.
**Ingredients:** Soybeans.
How Stored: Shelf stable.
New Product–Documentation: Soya Bluebook. 1983. p. 54. This company refines and hydrogenates soy oil. Note: This is the earliest known commercial soy product made in the United Arab Emirates.

• Summary: An acceptable soy based kishk was prepared by mixing soy yogurt with bulgur at a ratio of 2:1. The resulting product contained 17.2% protein (compared with 14.9% protein for traditional kishk) and 9.1% moisture.

Kishk is a popular Middle-Eastern fermented food typically made by mixing bulgur wheat with fermented milk (1:2) and sun drying to an 8-12% moisture level. Address: Dep. of Human Ecology, Univ. of Maryland Eastern Shore, Princess Anne, MD 21853.

• Summary: In the ISVEX trials, soybeans were tested in the following regions and countries: (For the years 1980/1981): Algeria, Argentina, Azores, Bangladesh, Bhutan, Bolivia, Brazil, Brunei, Burundi, Cameroon, Chile, China [actually AVRDC, Shanhua, Taiwan], Colombia, Costa Rica, Czechoslovakia, Ecuador, Egypt, Ethiopia, Fiji Islands, French Guiana, Gabon, Ghana, Guatemala, Guinea-Bissau, India, Indonesia, Iraq, Korea, Lesotho, Liberia, Libya, Madagascar, Malaysia, Malí, Mauritius, Mexico, Morocco, Mozambique, Nepal, New Caledonia, Pakistan, Panama, Paraguay, Peru, Philippines, Portugal, Puerto Rico, Rwanda, Saudi Arabia, Somalia, Sri Lanka, Sudan, Surinam, Tanzania, Thailand, Turkey, United States, Upper Volta, Uruguay, Vietnam, Zaire, Zambia, Zimbabwe.

(For the year 1979): Belize, Pakistan, Turkey, Vietnam.

Note 1. This is the earliest document seen (Feb. 2006) concerning soybeans in Guinea-Bissau, or the cultivation of soybeans in Guinea-Bissau.

This document contains the earliest date seen for soybeans in Guinea-Bissau, or the cultivation of soybeans in Guinea-Bissau (21 May 1981). Sixteen varieties were tested at Granja Prabís, Bissau. ICA Tuniá gave the highest yield, 1,225 kg/ha.

Note 2: This document contains the second earliest date seen (Feb. 2006) for the cultivation of soybeans in Brunei (19 May 1981). Sixteen varieties were tested at Biray Research Station by cooperator W.T.H. Peregrine. UFV-1 gave the highest yield, 2,577 kg/ha.

Note 3: This is the earliest document seen (Feb. 2006) that describes soybean variety trials in Bhutan. On 30 April 1980 sixteen varieties were planted under the supervision of Mr. Heinz Burgin at the Rural Development Project Demonstration Farm, Bumthang, Bhutan. DeSoto gave the highest yield, 729 kg/ha. The source of all these soybeans was INTSOY for ISVEX trials.

• Summary: This fiber-and-protein soy supplement, which is beneficial in diabetic diets, is made by the Hayes Company in Israel.

• Summary: The writer is asking for the address of the Hayes Company (in Israel), which makes that fiber-and-protein soy supplement that is beneficial in diabetic diets. The *Medical Tribune* responds that the product is marketed in the United States as (1) “Fiberlean” by Light Force, a division of Microalgae International (13140 Pine St., Box N, Boulder Creek, California 95006. Phone: 408-338-6456), and as (2) “Sobit” by A-N-P (Aquaculture Nutrition Products, Box 867, Boulder Creek, CA 95006. Phone: 408-338-4827).

Note: These two companies were owned and run by Dr. Christopher Hills; he sells spirulina and has organized the University of the Trees. Address: Nellsville Clinic, Nellsville, Wisconsin.


501. Wilson, John C. 1984. The manufacture of soymilk which is not contaminated with undesirable “beany flavor,” resulting

• **Summary:** Introduction: “This paper anticipates a series of questions and tries to inform the reason for things pertaining to our topic according to the perspective from which we see things in 1984.” Who are the real giants? Shall we not give tribute?” 1. What is the interest in the world regions for a soymilk without the traditional ‘beany flavour’? What need creates an interest, creates a demand of such proportions? China, South East Asia, North East Asia, North America, hippies, vegetarians, tofu, The Book of Tofu, by Shurtleff and Aoyagi.

2. What is the long delayed but sudden phenomenal development of this product? Dr. Harry W. Miller in Shanghai (1936), K.S. Lo in Hong Kong [1941], in-bottle sterilizing by K.S. Lo, development of UHT processing and aseptic packaging by Yeo Hiap Seng in Kuala Lumpur, Malaysia (1967), the advent of the brick shaped aseptic carton. The traditional soymilk process: “Filtering off the fibrous material,... one is left with the basic soymilk extract or soybase to which some sugar is added” (p. 8). Improvements in soymilk flavor: Cornell hot-grind process. University of Illinois hot water blanch method “is the basis of most modern soymilk processing.” Developments in Japan since the mid-1970s, which have grown “out of the Illinois process but overcoming the ‘chalkiness’ by a filtration step using a decanter or some form of continuous filtration.” The quality is excellent but the yield of protein is unfortunately only about half compared to the almost 100% achieved by the original Illinois method.”

3. What are the developments in the market areas? Soyfoods industry and market statistics published annually by Shurtleff. Trends in: Japan, South East Asia, Indian Subcontinent, Mid East [Middle East], Europe (Flavor is not as good as in Japan. “There is also a political impediment. It would be suicidal to set up a soymilk industry as a ‘substitute cow’s milk...’ considering today’s ailing European dairy industry and the militant stand of the European dairy farmer. But as surely as margarine has come and been accepted, a prime quality soymilk will come to Europe. It is a matter of time”). Africa (financing troubles, the good work of IITA in Ibadan, Nigeria). South America (“A market spoilt! Take Brazil—the world’s 2nd largest producer and exporter [of soybeans]. People have had inferior quality product almost forced down their mouth”). North America.

4. What is the state of the art in the manufacturing technique for a “bean free” tasting soymilk? (Contains a flow chart with 13 steps, of which No. 10 states: “Blend ingredients: Blend into the soybase the ingredients necessary to a particular formulation, e.g., sugar, vegetable fat, emulsifier–stabilizer, flavouring–aromas,” p. 16)

This paper deals with the phenomenal growth of the soymilk industry in northeast Asia, and the likeliness that its influence will spread worldwide in the near future.

Note: This is the earliest English-language document seen (May 2006) that uses the word “soybase” to refer to a concentrated form of soymilk. However, no definition of the degree of concentration or total solids content is given.

Address: Soy Process Product Manager, Alfa-Laval, Box 1008, S-221 03, Lund, Sweden.


• **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.


• **Summary:** “It has been known for more than 65 years that acute diarrhea is associated with a disturbance in the absorption of carbohydrates. This phenomenon is mainly the result of a temporary deficiency of lactase in the mucosa of the small intestine.”

The use of soy-based formula (compared with cow’s milk) enabled hospitalized infants to recover significantly more quickly from diarrhea. There are two possible explanations: (1) The known transient deficiency in intestinal lactase during diarrhea; or (2) Differences in components other than carbohydrates (e.g., protein). Address: Div. of Pediatrics, Soroka Medical Center and Faculty of Health Services, Ben-Gurion Univ. of the Negev, Beer-Sheva, Israel.


• **Summary:** Turkey’s poultry industry is growing rapidly. “Within 5 years it is estimated that Turkish broil numbers will increase from the present 60 million to about 150 to 200 million per year.” There are now large, modern poultry farms. Turkey’s poultry industry currently feeds 40,000 metric tons (mt) of soybean meal annually... but needs at least an additional 55,000 mt just to meet demand.

Dennis Blankenship “points out that the average fed conversion ratio in the Turkish poultry industry is about 3 to 1. That compares with 2 to 1 and better in the U.S.

Turkey’s great ambition is to increase livestock production. “The groundwork has already started on the first link in a trade bridge between the U.S. and Turkey. (1) The U.S. has granted Turkey $85.5 million in GSM-5 direct credits for purchases
of U.S. agricultural commodities, including $16.5 million for U.S. soybeans and/or meal.” (2) The Turkish government has lifted a law that prohibited importing soybeans and soybean meal into the country, and reduced the grossly large $400 a ton import surcharge on soybean meal down to $10. The surcharge on whole soybeans was reduced to $4 per ton. However a Turkish law still prohibits Turkish crushers from exporting soybean meal (SBM).

Ozdemir Ali Yarar’s company in Istanbul is known throughout Turkey for its powdered soft drink mix, Lezzo. Now he’s test marketing soy-enriched yogurt, 100% soymilk, and soy-fortified Bulgur.

In 1982 Turkey produced about 40,000 tons of soybeans, about half of which grew in the fertile Cukarova Valley in southern Turkey as a double crop. Nine color photos show scenes in Turkey related to soy.


• Summary: In the ISVES trials, soybeans were tested in the following countries: (For the year 1982) Afghanistan, Azores, Bangladesh, Burma, Cameroon, Chile, China (Taiwan, ROC), Colombia, Cyprus, Dominican Republic, Ecuador, Egypt, French Guiana, Gabon, Ghana, Guatemala, Indonesia, Ivory Coast, Korea, Madagascar, Mauritius, Mexico, Morocco, Mozambique, Nepal, New Caledonia, New Hebrides, Nicaragua, Pakistan, Paraguay, Portugal, Puerto Rico, Reunion, Rwanda, Saudi Arabia, Senegal, Somalia, Sudan, Swaziland, Thailand, Turkey, United States, Uruguay, Vietnam, Yugoslavia, Zaire, Zambia, Zimbabwe.

(For the year 1981) Australia, Rwanda.

506. Product Name: Eternity (Soy Ice Cream).
Manufacturer’s Name: Betwo Ltd.
Manufacturer’s Address: 60 Rehov Kikar Malkey, Tel Aviv, Israel. Phone: 03-363674.
Date of Introduction: 1984.
Ingredients: Incl. soymilk, seasonal fruits, tahini, brown sugar. Whole wheat ice cream cones.
How Stored: Frozen.

Letter from Yeskah Yisrael. 1989. Sept. 15. They have 3 outlets in Tel Aviv, and one in Ra’anana. They make the products at their own ultra-modern factory in Yehud, Israel.

“John Irving is no longer with the company but we are still very much in business. The headquarters are now at the factory. The eternity phenomenon began in 1984 with the opening of an Eternity ice cream parlor in Tel Aviv by John Irving. Because of popular demand, the menu increased from Soya Ice Cream and all natural desserts to an extended all-vegetarian lunch and dinner menu. In 1985 the food operation moved out of the restaurant kitchen to an ice cream and food factory to supply health food stores and supermarkets and was incorporated in the company Betwo, Ltd (from BETter WOrld—because we make products for a better world).”

Talk with Yoyam Getzler from Jerusalem Tofu. 1989. June 29. The only other tofu manufacturer he knows of in Israel is Eternity, which is run by Black Hebrews, who originally came from Detroit or Chicago and settled in Israel. They claim to be the original Hebrews. They use their tofu in their ice cream.

507. Product Name: [Tivall Meat Analogs (Hamburger, Frankfurters, Schnitzel)].
Manufacturer’s Name: Pedco Protein and Enzymes Development Ltd.
Manufacturer’s Address: Kibbutz Lochamei Hagetaot, Mobile Post, Ashrat (Oshrat), 25220 Israel. Phone: 04-926-831.
Date of Introduction: 1984.
How Stored: Frozen.
New Product—Documentation: Talk with Michael Geringer. 1988. Jan. 15. The company started in about 1981. This meatless product line was originally developed for the industrial market but did not succeed. In 1984 Pedco was purchased by this kibbutz, which invested $6 million in a food factory and converted the line to consumer products. In their first full year of business (1985) they did $6 million in sales. The product is high quality, fairly high priced (it sells for about $4/lb), and very successful.

Talk with Susan Ergas of Jerusalem Tofu. 1989. May 1. This company’s meatlike products have been phenomenally successfully. They really simulate meat, being made from soya and other grains plus egg albumen. They are very expensive, professionally packaged and marketed (almost slick), and the company, located on a kibbutz, is quite large, and has made a fortune on the line. They made several million dollars in the first year after the products were introduced. They are exporting to many European countries and now to America. People in Israel are really looking for soy products. The companies and institutions want ready-made products, not things like tofu that require additional preparation/handling. Israeli Jews, even if they are not kosher, have a lot of resistance even to consuming non-dairy soy products with meat. To market through the supermarkets in Israel requires that you give them 90 day credit. During the inflationary period, many small food business went bankrupt because of this; by the time they were paid, it didn’t even cover their expenses. But things are looking up for soyfoods now. Tivall once considered making their own tofu and decided not to.

Talk with Yoyam Getzler from Jerusalem Tofu. 1989. June 29. He thinks Tivall uses whole soybeans, not tofu, in their products. They are a very successful Kibbutz industry. A poll
shows that one-third of the households in Israel use soyfoods. Tivall is THE name in soyfoods in Israel.

The company’s letterhead in 1990 states: “Vegetarian food products grown with nature’s goodness.”


Address: Zoology Dep., College of Science, King Saud Univ., Riyadh, Saudi Arabia.


**• Summary:** Note: Chinese characters are given for all italicized Chinese words or terms. Although legumes were among the earliest plants to be domesticated in West Asia and the Americas*, there is no solid evidence that legumes were cultivated in China in prehistoric times, even though several species were native to China, and even though legumes played a very important role in Chinese agriculture from the late Chou [ca. 722 B.C.] onwards.

* Footnote: In the Near East and Europe carbonised peas and lentils, assumed to be domesticated, have been identified at farming sites dating as far back as 7000 B.C. Various species of *Phaseolus* beans seem to have been domesticated in Peru and Mexico by the 6th millennium B.C. And groundnuts are believed to have been domesticated in the upper Amazon regions, in South Bolivia and North Argentina well before 3000 B.C.

“Though remains of leguminous species have been found in one or two Chinese neolithic sites, they have been identified as broad beans (*Vicia faba*) and groundnuts (*Arachis hypogaea*); since the former is believed to have been introduced to China from Western Asia in Han times [220 B.C.–220 A.D.] and the latter is a native American species, the authenticity of these identifications is doubtful, to say the least” (Footnote: K.C. Chang. 1977. *The Archaeology of Ancient China*, 3rd revised ed.).

“There are apparently no references to legumes in the Shang oracle records, and the earliest uncontested evidence for the cultivation of leguminous plants in China is found in Chou bronze inscriptions and in the *Shih Ching*. Both these sources refer to a crop called *shu* (Chinese characters given), and the early form of the character clearly depicts the nodules on the roots of the plants (Fig. 237). The term *shu*, though also used to refer to legumes in general, is primarily associated with the soybean, *Glycine max* (L.) Merrill, and its presence in these writings is usually taken to signify the domestication of this crop” (Footnote: Hu Tao-Ching [1963] in fact postulates a much earlier domestication [it must have been domesticated and well known long before it appeared in inscriptions on bronze vessels in 1024 B.C.]; Ping-To Ho [1975, p. 70] believes that domestication occurred about 1000 B.C.)

“In later lexicographical texts the term *shu* is usually qualified when soybeans are referred to: *jung shu*, *jen shu*, and *ta shu* are mentioned (Footnote: In the *Erh Ya* and its commentary for example), and this does suggest that even in pre-Han times *shu* was used as a generic term for legumes rather than a specific term for soybeans. The modern term for soybean is *ta tou*, ‘greater bean,’ a term which first appears in the 1-st century *Fan Sheng-Chih Shu*. In classical times the term *tou* was applied only to a type of ‘wooden vessel or dish containing flesh sauces at sacrifices or feasts’ (Bretscheider 1882, vol. II, p. 162), but by Han times it seems that it was also used as a general term for pulse crops, as it still is today.

“Whether or not the unqualified term *shu* in early texts and inscriptions should be understood to refer to soybeans or to legumes in general, there is no doubt that the soybean was domesticated in China some time around the beginning of the Chou, for texts describing 7-th-century events refer to soybeans (*jung shu*) as novel introductions to the Central States, whereas by the time of Mencius [Meng tzu, c. 371-c. 289 B.C.] they had already become a staple food of the common people (Footnote: P.T. Ho 1975, p. 79).

“The presumed wild ancestor of the soybean, *Glycine ussuriensis* Regel & Maack or *G. soja* L. is native to northeast China and the adjacent areas of Manchuria, Korea, and Japan (Footnote: Hymowitz 1970, 1976), and it may be significant that the cultivated soybean was called *jung shu* for Jung was the name commonly given to the Tungusic tribes of Northeast China in Chou times. The *Kuan Tzu* states that in the 7-th century Duke Huan of Ch’i (Footnote: Ch’i covered most of modern Shantung) led an expedition to the territory of the Mountain Jung and brought back ‘winter onions and soybeans (*jung shu*) for dissemination throughout the various states’ (P.T. Ho 1975, p. 78)."

An alternative interpretation of *jung* and of its (then) homophone *jen* is that it simply meant large and luxuriant (Bretscheider 1882, vol. 2, p. 164), for the soybean is a large, bushy plant which grows up to 6 feet tall. Its modern name of *ta tou* can be attributed to its growth habit, and not to the size of its beans which are only about as big as a lentil. Fig. 238 (*Shou Shih T’ung K’ao*, 1742) shows an illustration of a soybean plant.

“The soybean’s rapid conquest of Chou China is a tribute to its superior qualities, qualities so outstanding that they frequently provoke outbursts of surprising lyricism in modern writers: ‘that miracle, that noblest of crops, that wondrous plant, the soybean’ (Anderson & Anderson 1977, p. 346)."

The ancient Chinese were more moderate in their praise, perhaps because they were unaware of the benefits of modern nutritional analysis. The chief virtues of the soybean for the ancient Chinese “were that it produced good crops even on poor land, that it did not deplete the soil, and that it guaranteed...
yields even in poor years, so that it made a useful famine crop.” It gives 3-4 times the yield of millet. The *Fan Sheng-Chih Shu* says that in former times (presumably the late Chou) it was customary for peasants to plant 5 *mu* per capita of soybeans to guard against famine. Soybeans were widely grown in China from Chou times on, “but they were not held in high esteem for their gastronomic qualities.” The Chinese appreciated soybeans most when they were fermented to make sauces (jiang) or relishes (shi), or transformed into beancurd (doufu). These foods were generally made from yellow soybeans, although the *Qimin Yaooshu* (+544) recommends black soybeans. The various fermentation processes were discovered in early times; they improved the soybean’s palatability and its nutritional properties. Address: Research Fellow, East Asian History of Science Library, Cambridge, England.


• **Summary:** Note: Chinese characters are given for all italicized Chinese words or terms. Crop systems in China emphasize cereal grains far more heavily than any farming system in the West. Productive livestock play a very small role in China’s farm economy, and the proportion of arable land devoted to pastures is very small. Grain has always been the essential ingredient in Chinese diets, with millets and wheat in the north, and rice in the south, providing almost all the carbohydrates and a significant part of the protein. Legumes, especially soybeans and their products, provided supplementary proteins and also restored the soil’s nitrogen content. The Chinese have been among the best-fed people in the world, especially during periods of economic prosperity like the Sung dynasty.

Important crops like rice, millet, and hemp have been cultivated in China since neolithic times; soybeans, which emerged later, were probably first domesticated in north China during Chou times (after 1045 B.C.); from there it spread to Japan and Southeast Asia, then eventually to the Americas and Europe.

Crop rotations (p. 429): By Western standards, the size of Chinese land holdings were very small, even as early as Han times. During the Sung, a large holding was considered to be 100 *mu* (about 15 acres or 6 ha). During the 1930s, the average holding was 5½ acres in North China and 3 acres in the south—but these small farms were very productive. The fertility of the soil came not from the manure of grazing livestock on fallow land but from the application of fertilizers (such as human excrement, river mud, or oil-cake) and the wise use of crop rotations including legumes, green manures, and other soil-enriching crops. Continuous cropping seems to have been widely established in China by Han times. The *Ch’i Min Yao Shu* (544 A.D.) recommended various crop rotations. For example, foxtail millet (*Setaria italica; ku*) should be preceded by adzuki bean, hemp, sesame, or soybean. Broomcorn millet (*Panicum miliaceum; shu*) should be preceded by soybean or foxtail millet. Adzuki beans should be preceded by wheat or barley, or foxtail millet. Note: In 1978 the adzuki bean was reclassified from *Phaseolus angularis* (Willd.) to *Vigna angularis* (Willd.). The Chinese term for grain, *ku*, has been applied not only to the main cereal grains but also to such field crops as hemp and beans, also cultivated for their grains. Thus *wu ku*, the “five grains,” a term often found in Classical Chinese texts, was understood to comprise setaria millet (*chi*), panicum millet (*shu*), rice (*tao*), wheat and barley (*mai*), and legumes (*shu*)—though some commentators substituted hemp (*ma*) for rice. Other classifications referred to the “six grains” (*liu ku*) or “nine grains” (*chiu ku*).

Table 10 (p. 433) shows some common Chinese crop rotations. In the winter wheat area 3-year rotation (20th century): Winter wheat, soybeans (summer), fallow, kaoliang (summer), winter wheat, soybeans or black soybeans (summer). The Kiangsu high land 3-year rotation started with wheat or barley (winter), then soybeans and sesame (summer). Millets, sorghum (incl. kaoliang) and maize (p. 434-59). Discusses many species, glumes, spikes, panicles, awns, illustrations (p. 438-39, 444), table of terminology of Chinese millets (p. 440, incl. glutinous varieties), distribution, food uses. The name *kaoliang* (“tall millet”) first appears in the *Wang Chen Nung Shu* (+1313). The plant, cultivated primarily in northeastern China, is characterized by tall stems ten feet high, huge panicles, and comparatively large black seeds. A map (p. 437) shows the distribution of four species of millet plus Job’s tears.

Wheat and barley (p. 459-77). Both are of Near Eastern origin. They may have been grown in some parts of China as early as neolithic times, and were certainly cultivated during the Shang (1600 to 1045 B.C.) and Chou (after 1045 B.C.) in areas such as Shantung and Anhwei. “The most important feature distinguishing wheat and barley from the native Chinese cereals is that they are winter crops, that is to say they are sown in the autumn or winter and harvested in the late spring.” Their great attraction was that they were supplements to, not substitutes for, the more traditional crops, and were harvested in the lean summer season when supplies of millet and rice were running low. “Since they did not compete for field-space with autumn-ripening crops, wheat and barley permitted the development of highly productive crop rotations.” In northern China they were often rotated with millet or kaoliang, and even replaced them entirely in some areas. Northern rotations often included soybeans or other legumes. Illustrations from *Pên Ts’ao Kang Mu* (+1596) (p. 468-69). Only during the T’ang dynasty did wheat and barley really become economically important in China. The *Pu Nung Shu*, by Chang Lü-Hsiang (+1620) mentions the use of bean-cake (*tou ping*) as a fertilizer on wheat fields. For wheat and barley, the yield to seed ratio (number of grains harvested for
every grain planted) was about 3 or 4 to 1 whereas rice in China was 50 or 100 to 1. Today wheat is clearly the most important crop in North China.

Rice (p. 477-510). Rice (Oryza sativa [Oryzae sativa]) has been a key crop in the Chinese economy since the T’ang dynasty (+618-906). Two sub-species are commonly distinguished: indica is short and round-grained whereas japonica is long-grained. Most Asians reserve glutinous rice for ceremonial purposes. Address: Research Fellow, East Asian History of Science Library, Cambridge, England.

Address: Nicosia, Cyprus.

Address: Nicosia, Cyprus.

Address: Nicosia, Cyprus.


• Summary: “The official cookbook of the International Jewish Vegetarian Society.” This is a lacto-ovo-vegetarian cookbook. Unlike most American Jewish vegetarian cookbooks which use tofu so extensively in pareve meals, this one makes very scant use of soyfoods, perhaps because it was published in 1984 before the soyfoods movement in England reached take-off. Only one recipe has any sort of soyfood in the name (Soya Bean Goulash, p. 71, which uses ½ lb of cooked soya beans), Tvp (minced) is used in recipes such as Klops III (p. 48), Tomates Reyanos (p. 66), Lahne Be Sahem (p. 67), and Bobotie (p. 70). Soy flour is used in Klops II (p. 47). The index is poorly done, with no reference to major ingredients-only recipe names.


• Summary: The meiotic configurations of 12 new hybrid combinations among 8 perennial Glycine species were analysed. These and other data showed close genomic relationships among the diploid species G. canescens, G. clandestina, and G. latrobeana and the euploid tetraploid G. tomentella. This information is used to suggest the major evolutionary groupings within the subgenus Glycine. Address: 1-3. Div. of Plant Industry, CSIRO, G.P.O. Box 1600, Canberra, ACT 2601 Australia; 4. Div. of Medicinal and Spice Crops, Agricultural and Research Organization, Newe Ya’ar Exp. Station, Israel.


• Summary: Reviews the history of 40 years of studies on the isolation, characterization, properties, structure, function and possible uses of the Bowman-Birk trypsin- and chymotrypsin-inhibitor from soybeans. These inhibitors are biologically active proteins and peptides. The pioneering paper in this field, published in 1944 by Donald E. Bowman, was titled “Fractions derived from soybeans and navy beans which retard tryptic digestion of casein.”

Contents: Introduction. Early classification of soybean trypsin inhibitors. The acetone-insoluble factor–inhibitor AA (known also as Ai, SBTIAA and later as the Bowman-Birk Inhibitor): Purification and partial characterization, nutritional significance, does inhibitor AA have a physiological function in the soybean?, dual dependent activity against trypsin and α-chymotrypsin–relevance to the reactive site model. The Bowman-Birk inhibitor (BBI): Purification and further characterization, the amino acid sequence and the covalent structure, isoinhibitors and evolutionary aspects, conformation studies, synthesis, physiological effects and structure-function studies. Conclusions. Acknowledgments. Fig. 3 shows the complete covalent structure of the Bowman-Birk inhibitor. Residues at the two reactive sites are shown as solid black circles. Fig. 4 shows the sites of peptide bond cleavage and the structure of active fragments of the Bowman-Birk inhibitor.

The microenvironment of soy flour appears to promote heat inactivation of the Bowman-Birk inhibitor to a greater extent than it effects Kunitz trypsin inhibitor. This finding contrasts with the results of work showing that BBI is relatively heat stable in the pure form. Address: Dep. of Agricultural Biochemistry, Faculty of Agriculture, The Hebrew Univ. of Jerusalem, Rehovot 76110, Israel.


• Summary: The highest yield was obtained from the check cultivar Davis. Days to maturity: 130. Weight of 100 seeds: 14 gm. Yield (tonnes/ha): 4.5. Yield/ha/day (kg): 35. Four cultivars yielded more than 4 tonnes/ha. Address: Ministry of
Agriculture and Water, P.O. Box 220, Unayzah, Gassim, Saudi Arabia.


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: Penguin’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).


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.

• Summary: This wide-ranging overview of the soybean, from earliest times to the present, is well written though a little patchy and scattered. Among the topics it discusses: Soybeans as a relief food. Ted Hymowitz, Benjamin Franklin, and tofu. The Shah of Iran switching to soybean oil. The attempt by the Hunt Brothers of Texas to corner the soybean market. The Nixon soybean shock. Soybeans in Brazil and Manchuria. The origin of the soybean in China and Japan. Soymilk and Dr. Harry Miller. The dissemination of the soybean to Europe and America. How the soybean became popular in America; William Morse and the USDA. Henry Ford’s work with soybeans and William Atkinson. Dwayne Andreas and ADM. “There is no question in my mind but that the soybean is the fundamental future of the planet,” Dwayne Andreas says.

Also discusses amaranth, the winged bean, IBPGR, loss of genetic diversity, and water shortages. The article closes with a quotation from Monkombu Sambasivan Swaminathan, the director general of the International Rice Research Institute in the Philippines: “We live in this world as guests of green plants.”

520. Product Name: Tofu [Regular, or Firm].
Manufacturer’s Name: Jerusalem Tofu.
Manufacturer’s Address: Moshav Orah, Jerusalem 90880, Israel. Phone: 02-413-809.
New Product–Documentation: Talk with Simcha Susan Ergas. 1986. Feb. She says they are the only tofu company in Israel. They have a contract with the Israeli army. Talk with Mike Geringer. 1988. Jan. 2. The company is still in existence. He is starting a new company to make a tofu-based meat analog.
Talk with Susan Ergas. 1989. May 1. She purchased this company from the couple that started it as Golden Jerusalem, then they left the country and are now living in the USA. She does not know when they started the company. She started
making regular and firm tofu in about June 1985. The business is now growing, and making 3,000 to 4,000 kg/month of tofu.

Talk with Yoyam Getzler. 1989. June 29. He is a partner in this company with Simcha Susan Ergas. The company was started in 1983 by Susan Ergas and Karen Friedland. Getzler came in in 1989. They are small and undercapitalized. They now make 350 kg/week of tofu, and are developing a new product, a Tofulafel (tofu felafel) in the shape of a ball. Also hope to do a tofu burger. Their phone is now 02-434-830.

Talk with Avraham Sand. 1990. Sept. 9. Simcha (that is her Hebrew name) used to have a tofu shop at Mt. Shasta, California. She now owns the main commercial tofu shop in Israel, Jerusalem Tofu. He saw her briefly about 3 weeks ago in Jerusalem. He got the feeling that things were not going as well as she had hoped they would. Its still a small shop. Her tofu is not sold in supermarkets.


**Summary:** The green and red letterhead reads: “Tivall: Vegetarian foods products grown with nature’s goodness.” Dr. Shemer writes that “Tivall” is a new company specialized in the manufacturing of Vegetarian Foods products based on Soy.” He requests prices for various publications.

Note: This is the earliest document seen (Sept. 2007) that mentions Tivall in connection with soy or soy protein. A maker of meat alternatives, Tivall is headquartered on a kibbutz in Israel; they export and market their products throughout the Western world. Address: PhD, Director of R&D, Kibbutz Lochamei Hagetaot, Mobile Post, Oshrat 25220, Israel. Phone: 04-926831, 927803.


**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, Dominican, 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 cooperater, 16 varieties of soybeans were planted at the Royal Botanical Gardens, Roseau. Jupiter gave the highest yield, 676.8 kg/ha.


**Summary:** “World Premiere! Israel introduces Eternity. The world’s first all-vegetable ice cream parlors. A futuristic concept in healthful eating. What is all-vegetable ice cream? Eternity is a rich, creamy, delicious ice cream made fresh daily from calcium-rich soybean milk that has: No cholesterol. No salt. No dairy products. No preservatives. It’s Pareve!! We use only the sweetest seasonal fruits, richest tehina [sesame tahini], quality brown sugar, and all natural flavorings. We even have our own Eternity whole wheat ice cream cones! In addition to our calcium-rich soybean ice cream, we also serve tantalizing soybean tofu cuisine–created from soybean milk and prepared in a variety of ways. We offer flavorful rich tofu cream pies; pungent tofu cheeses; smooth, sweet tofu puddings; tasty tofu yogurt; and mellow tofu cottage cheese. Enjoy Eternity all-vegetable ice cream and tofu entrees. We know once you have tried them you will be a friend for Eternity!”

Address: Tel Aviv, Israel. Phone: 03-363674.

524. **Product Name:** Paksoy Crude and Fully Refined Soy Oil, Soybean Meal, Soy Flour.

**Manufacturer’s Name:** Paksoy Tickaret ve Sanayi A.S.

**Manufacturer’s Address:** Karatas yolu 150, P.O. Box 144, Adana, Turkey.

**Date of Introduction:** 1985.

**New Product–Documentation:** Soya Bluebook. 1985. p. 74, 90. Solvent crush capacity: 300 tonnes (metric tons) per day. Storage capacity: 10,000 tonnes. Refining capacity 100 tonnes/day.


**Summary:** In Jordan, a feasibility study is being undertaken on the effect of using recycled wastewater for irrigating crops. The yields of soybeans, corn, squash, and tomatoes at the airport site using effluent from its sewage plant were considerably higher than the yields from irrigated tapwater plots. A test program has been established to monitor the effects of residues, trace elements and uptake by plants, ground pollution, runoff pollution, etc. The treated effluent is now used for irrigation of trees and shrubs at the airport.


Address: Dep. of Agronomy, College of Agriculture, Baghdad Univ., Abu-Ghraib, Iraq.

Following are the locations of Soybean germplasm collections (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, 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 Coordinate 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.


perhaps as many as 750 genera (Table 1). In economic importance the family is second only to the Gramineae and in number it is exceeded only by the Orchidaceae and the Compositae.

“Taxonomists conventionally have divided the Leguminosae into three subfamilies, the Mimosoideae, the Caesalpinioideae, and the Papilionoideae... Several members of the Papilionoideae are economically important as edible and nutritious crops for humans and animals... Indeed, nearly all established grain legume (pulse) crops are classified taxonomically within just 4 tribes of the Papilionoideae and in 13 different genera.”

Table 1 states that (according to Allen and Allen 1981) the family Leguminosae consists of 19,700 species in 748 genera. Of these, some 14,000 species and 505 genera are classified in the subfamily Papilionoideae (in which the soybean is also classified).

Table 2 lists grain legume species of significant economic importance in world agriculture. For each is given the Latin and common English name(s), tribe, and principal regions of evolutionary diversity. Arachis hypogaea (groundnut or peanut), Cajanus cajan (pigeon pea), Cicer arietinum (chickpea), Glycine max (soybean), Lens culinaris (lentil), Lupinus spp. (lupin), Phaseolus lunatus (lima bean), Phaseolus vulgaris (common bean), Pisum sativum/arvense (garden/field pea), Psophocarpus tetragonolobus (winged bean), Vicia faba (fava bean), Vigna mungo / V. radiata (mung bean), Vigna unguiculata (cow pea).

“It is also important to realize that the research and breeding efforts devoted to leguminous crops pales in comparison to those devoted to cereals. For example, while it is probably true that soybeans have been the subject of more research than all other grain legumes combined (excluding, perhaps, field and garden peas), there were in 1976 no more than 25 soybean breeders in the U.S. (the major producing country) compared with more than 400 maize breeders.

Halevy, the editor of this 6-volume monograph, is a professor in the Dep. of Ornamental Horticulture, The Hebrew University of Jerusalem, Rehovot, Israel. Address: 1. Plant Environment Lab., Dep. of Agriculture and Horticulture, Univ. of Reading, Shinfield Grange, Reading, Berkshire, England; 2. Dep. of Agriculture and Horticulture, Univ. of Reading, Earley Gate, Reading, Berkshire, England.

533. Trabulsi, I.Y. 1985. [Effect of fertilization with phosphorus on nodule formation in soybean cultivars “Williams” and “Davis”]. J. of the College of Agriculture, King Saud University 7(1):8. [8 ref. Ara; eng]*
Address: King Saud Univ., Riyadh, Saudi Arabia.


• Summary: “Diet is the cornerstone of therapy in patients with hyperlipidemia, and its aim is to achieve normal plasma cholesterol, triglyceride, and lipoprotein levels in order to prevent, or to promote regression of, atherosclerosis.”

“The optimal lipoprotein-lowering effect was achieved with a daily dose of 12 gm soya lecithin per day. Both low-density lipoprotein and very-low-density lipoprotein levels were reduced, and HDL-cholesterol and apolipoprotein levels were reduced, and HDL-cholesterol and apolipoprotein A-1 concentrations were increased. Platelet aggregation in response to collagen and ADP was significantly reduced, parallel with the reduction in triglyceride level.

“Soya lecithin supplementing the diet may be useful in the management of the hypertriglyceridemic patient.” Address: Lipid Research Lab. & Unit of Clinical Epidemiology, Rambam Medical Center and Faculty of Medicine, Technion–Israel Inst. of technology, Haifa, Israel.


• Summary: Soybean meal was one of the concentrates fed to sheep in Kuwait. Live weight gain rate was highest in sheep receiving a diet with 20% roughage and 80% concentrate. Feed efficiency (feed/gain) improved with the increasing proportion of concentrate in the diet. Fiber and bulk are important in animal diets. If roughage becomes limited in the diet because grains or finely chopped forages are included, metabolic disorders such as fat cow syndrome, abomasal ulcers, acidosis, and rumen parakeratosis often occur, even though the diet may be adequate in all known nutrients. In Kuwait and other neighboring countries, livestock producers are obliged to feed their ruminants diets containing a minimum of roughage. This is for both physiological and economic reasons—the latter because the cost of roughage is twice that of concentrate since government subsidizes concentrate but not roughage. Address: 1-4. Kuwait Inst. for Scientific Research, P.O. Box 24885, Safat, Kuwait; 5. Kuwait Livestock Transport and Trading Co., P.O. Box 42, Kuwait.


• Summary: This year the American Soybean Assoc. has identified 59 unfunded market expansion projects, including: soybean oil promotion in India, building Taiwan’s dairy industry, boosting Dominican Republic’s swine industry, adding a regional office in Turkey.


• Summary: “ASA [American Soybean Assoc.] programs in Turkey concentrate on increasing use of soybean meal in
poultry feed. Poultry consumes about 50% of Turkey’s feed. More than 170 feed mills are in operation in Turkey and close to 60 mills are being built..."

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.


- **Summary:** After three previous meetings in Europe, this colloquium will be held in Chicago, Illinois, on 15-17 Sept. 1986. The first colloquium of this series took place in Rome, Italy in 1980–its theme was soybean lecithin, nutritional and clinical aspects. The second one took place in Brighton, England in 1982 and was mainly dedicated to the dietic applications of soybean lecithin. The third meeting was held in Vienna, Austria, in 1984–it primarily summarized the possible uses of lecithin as an active ingredient itself and as a carrier of other ingredients in dietic and pharmaceutical preparations.

This colloquium will be divided into the following sections: 1. Technology. 2. Biology. 3. Therapeutic considerations. 4. Panel discussions. The following papers on therapeutic considerations will be presented: Phospholipids as natural precursors of choline in the brain, by S.H. Zeisel of Boston, USA. Overview on lecithin treatment in neuropsychiatry, by J.H. Growdon, Boston, USA. Therapeutic value of phosphatidylserine and other phospholipids, by G. Toffano, Anano Term, Italy. Effects of lecithin on memory and learning, by H. Sorgatz, Darmstadt, West Germany. Preventive effect of phospholipids on tissue aging, by M. Shinitzky, Rehovet, Israel. Recent therapeutic applications and potential future directions (bile, gallstones and cystic fibrosis), by T. Watkins, New York, USA.

Note: This is the earliest English-language document seen (Oct. 2003) that contains the word “phosphatidylserine” in connection with soy. Address: Secretary, Lucas Meyer GmbH, Ausschlaeger Elbdeich 62-72, P.O. Box 280 246, D-2000 Hamburg 28, West Germany.

540. **Product Name:** Tempeh. **Manufacturer’s Name:** POLBAR (POL-BAR) Food Products. **Manufacturer’s Address:** P.O. Box 23234, 91231 Jerusalem, Israel. Phone: 972-2-862566. **Date of Introduction:** 1986. July. **Ingredients:** Soybeans, apple cider vinegar, Rhizopus starter. **Wt/Vol., Packaging, Price:** 250 gm. **How Stored:** Frozen. **New Product—Documentation:** Letter from Roxana Dann. 1986. June 22. They are starting small scale production of tempeh and hope to soon reach production of 200 lb/week. “As there is no one else in Israel currently producing tempeh, we hope to be able to greatly increase production as we reach more of the population.” Address: Ramot 20/25, 97725 Jerusalem.

Letter from Roxana Dann. 1988. May 25. “We have been producing tempeh for almost 2 years... We have now reached the stage where we are hoping to scale up the business into a viable enterprise.”


- **Summary:** “This is the final report of the International Soybean Variety Evaluation Experiments (ISVEX)… ISVEX has been the major component of INTSOY’s genetic development program since 1973.” Joseph A. Jacobs provided leadership to the ISVEX trial program. Pages viii–xvi contain a complete listing of about 65 cooperating centers and researchers worldwide.
During 1984, soybeans were grown at 96 sites (the name of each site is given) in the following countries: Antigua, Argentina, Bangladesh, Burma, Cameroon, China, Colombia, Costa Rica, Cyprus, Dominican Republic, Ecuador, Egypt, El Salvador, Ethiopia, French Guiana, Ghana, Honduras, Indonesia, Iran, Ivory Coast, Korea, Laos, Liberia, Madagascar, Malaysia, Mexico, Nepal, New Caledonia, Pakistan, Paraguay, Philippines, Portugal, Rwanda, Saint Vincent, Samoa, South Africa, Sri Lanka, Sudan, Swaziland, Tanzania, Turkey, United States, Venezuela, Vietnam, Yugoslavia, Zambia, Zimbabwe.

In 1982, soybeans were grown in Morocco. In 1983 soybeans were grown in Brazil and Rwanda.

In 1985, soybeans were grown at 43 sites in China, Ecuador, Ethiopia, Gabon, Ghana, Guatemala, Iran, Jamaica, Korea, Mexico, Nepal, Pakistan, Paraguay, Philippines, Portugal, Sri Lanka, Thailand, Turkey, United States, Venezuela, Yugoslavia, Zambia, Zimbabwe.

• Summary: Osteoporosis is largely a disease of affluent, western cultures. The author showed a cross-cultural association between total dietary protein intake and hip fracture, and suggested it might be due to protein-induced damage of renal calcitriol regulation. The real issue, he argues, is “whether or not calcium intake is related to the development of osteoporosis.” “It seems quite clear that we do not understand the etiology of osteoporosis.”

Graphs show: (1) Incidence of hip fractures per 100,000 vs. per capita calcium consumption (mg/day). The three countries with the highest hip fracture rate are the USA, New Zealand, and Sweden. The four countries with the highest calcium consumption are Finland, Sweden, New Zealand, and the USA. The three countries with the lowest hip fracture rate are Singapore, Hong Kong, and Yugoslavia. The three countries with the lowest calcium consumption are Hong Kong, Singapore, and Yugoslavia.

(2) Incidence of hip fractures per 100,000 vs. per capita protein consumption (mg/day). The three countries with the highest hip fracture rate are the USA, New Zealand, and Sweden. The four countries with the highest protein consumption are New Zealand, USA, Jerusalem (Israel) and Yugoslavia. The three countries with the lowest hip fracture rate are Singapore, Hong Kong, and Yugoslavia. The three countries with the lowest protein consumption are Hong Kong, Singapore, and Sweden. Address: Dep. of Nutritional Sciences, Univ. of Wisconsin, Madison, WI 53706.


• Summary: The best overview to date of INTSOY’s pioneering work during the past 13 years. Contents: 1. Preface. 2. Soybeans: Food for a hungry world. The INTSOY solution. 3. INTSOY: Building a cooperative network. The beginning of INTSOY. The ISVEX Testing program. The soybean’s genetic potential. A program of mutual benefits. ISVEX Results for selected countries: India, Sri Lanka, Peru, Mexico and Costa Rica, Ethiopia, Indonesia, Egypt and Turkey. 4. Fulfilling the soybean’s promise. The INTSOY research effort. New products and techniques. The need for continued cooperation. Appendix: Performance of soybean cultivars included 2 or more years in ISVEX trials.

This report marks the end of INTSOY’s work with soybean variety development for Third World countries and the beginning of its focus on soybean utilization. Address: Urbana, Illinois. Phone: 217-333-6422.

• Summary: Of the 30 animal studies reviewed, 27 showed significantly higher plasma total cholesterol levels in animals fed animal protein diets than on diets containing soy protein. Two studies did not demonstrate any significant difference and one was equivocal.

“Animal studies have shown that animal proteins, most notably casein, increase plasma total cholesterol concentrations compared with vegetable proteins, such as soy. Soy protein has been shown to be hypocholesterolemic in rats, swine, primates, and rabbits. Epidemiologic studies have disclosed that vegetarians have lower mean plasma cholesterol concentrations than populations consuming diets of mixed proteins... In human clinical experiments, substituting soy protein for mixed protein reduced plasma total cholesterol concentration in hypercholesterolemic subjects, but it causes only a small nonsignificant change in persons with normal plasma cholesterol concentrations. The mechanism responsible for the effects of different proteins on plasma cholesterol concentrations has not been established.” Address: 1&3. Dep. of Nutrition, Univ. of North Carolina, Chapel Hill, NC 27514; 2. Rehov Otsar Hatzamim 6/5, Herzlia, Israel.

545. Product Name: Soy Protein Isolates.
Manufacturer’s Name: Hayes Ashdod Ltd. Subsidiary of Koor Foods Ltd. Renamed Solbar Hatzor Ltd. in April 1987.
Manufacturer’s Address: Habosem Street, Industrial Zone, P.O. Box 2230, Ashdod, Israel.
Date of Introduction: 1986.
New Product–Documentation: Soya Bluebook. 1986. p. 86, 90. Soy protein isolates were made on a pilot plant scale and were never manufactured or sold by Hayes Ashdod Ltd. in any significant quantities.
546. **Product Name:** [Tofu Burger, Tofu Felafel, and Tofu Schnitzel].

**Manufacturer’s Name:** Jerusalem Tofu.

**Manufacturer’s Address:** Moshav Orah, Jerusalem 90880, Israel. Phone: 02-413-809.

**Date of Introduction:** 1986.

**New Product–Documentation:** Talk with Susan Ergas. 1989. May 1. The products were introduced in the order shown above. The Tofu Schnitzel was made from frozen tofu, but it was discontinued because she couldn’t get kosher soy sauce that satisfied the rabbi.

547. **Product Name:** Soy Sauce.

**Manufacturer’s Name:** Mata Food Industries Ltd. Subsidiary of Koor Foods Ltd.

**Manufacturer’s Address:** P.O. Box 160, Hadera, Israel.

**Date of Introduction:** 1986.


548. **Product Name:** Simulated Meat Products.

**Manufacturer’s Name:** Middle East Analog Technology.

**Manufacturer’s Address:** P.O. Box 4553, Jedah 21412, Saudi Arabia.

**Date of Introduction:** 1986.

**New Product–Documentation:** Soya Bluebook. 1986. p. 94.

Note: This is the earliest known commercial soy product made in Saudi Arabia.

549. **Product Name:** [Tofu].

**Foreign Name:** Tofu.

**Manufacturer’s Name:** Nature’s Gate Ltd.

**Manufacturer’s Address:** Mivne Taaseya Haradash 76, P.O. Box 029, Dimona 86000, Israel. Phone: 972-7-655-7774. Fax: 972-7-655-7769.

**Date of Introduction:** 1986.

**How Stored:** Refrigerated.

**New Product–Documentation:** Letter from Cocavatiyah Baht Israel, manager, Taste of Life Vegetarian Restaurant, Tel Aviv, Israel. 1999. Dec. 12. With follow-up letter of Jan. 10. This group owns a tofu manufacturing company that makes the tofu sold as tofu and second generation tofu products at the two vegetarian restaurant. The tofu is also sold at about 30 other outlets. Nature’s Gate Ltd. started making and selling tofu in 1986.

550. **Product Name:** Soy Flour, Soy Protein Concentrate, Soy Protein Isolate.

**Manufacturer’s Name:** Shefa Protein Industry Ltd. Affiliate of Israel Edible Food Ltd.

**Manufacturer’s Address:** 12 Htaasya St., P.O. Box 39, Arad 80700, Israel. Phone: 57/957860 or 958049.

**Date of Introduction:** 1986.


551. **Product Name:** Whole Soybean Snacks (Soynuts).

**Manufacturer’s Name:** Shefa Protein Industry Ltd. Affiliate of Israel Edible Food Ltd.

**Manufacturer’s Address:** 12 Htaasya St., P.O. Box 39, Arad 80700, Israel.

**Date of Introduction:** 1986.


552. **Product Name:** Jahan Leceithin (For Biscuit Manufacturing).

**Manufacturer’s Name:** Sherkate Sahami Rowghan Nabati Jahan.

**Manufacturer’s Address:** 15 Malekoshoara Bahar Ave., Tehran, Iran.

**Date of Introduction:** 1986.

**New Product–Documentation:** Soya Bluebook. 1986. p. 82.

553. **Product Name:** Sumerbank Leceithin.

**Manufacturer’s Name:** Sumerbank Soya Sanayii Muesesesesi.

**Manufacturer’s Address:** P.K. 4, PTT Kod. No. 52001, Ordu, Turkey.

**Date of Introduction:** 1986.

**New Product–Documentation:** Soya Bluebook. 1986. p. 84.


- **Summary:** “Proteinlike proteinase inhibitors are widely distributed in the plant kingdom. The current knowledge of their distribution among plants and within the plant reveals hundreds of inhibitors dispersed among different botanical families.” They are most widely found in seeds. Address: 1-2. Faculty of Agriculture, The Hebrew Univ. of Jerusalem, Rehovot, Israel; 3. Dep. of Biochemistry and Biophysics, Univ. of California, San Francisco, CA 94143.


- **Address:** Agricultural Research Inst., Ministry of Agriculture & Natural Resources, Nicosia, Cyprus.


- **Summary:** A very artistic, attractive, and authentic book with superb (imaginative and lyrical) illustrations. The section titled “Staple foods you will need” (p. 17-20) discusses soy sauce,
konbu and nori seaweeds, sesame seed paste (atari-goma; “Most Americans may be more familiar with the Middle Eastern version called tahini paste... Used in making salad dressings and dips”), miso, and sesame seeds. Soy-related recipes include: Grilled tofu with miso (Dengaku; p. 37). Sesame tofu (p. 38; no soy). Tuna sashimi and green onions with miso (p. 40). Daikon radish with lemon miso (p. 42). Cauliflower florets with miso (p. 42). Basic miso soup (p. 51). Clam miso soup (p. 51). Daikon radish miso soup (p. 52). Vegetable and chicken miso soup (p. 52). Tofu and wakame seaweed suimono (p. 53). Fried rice with tofu and vegetables (p. 89).


The glossary (p. 272-82) includes: Agar-agar, azuki beans, konbu seaweed, kuzu, miso paste, nori seaweed, rice cakes (mochi), sesame seed oil, sesame seeds, soybeans–fermented (natto), soy sauce, tofu, tonkatsu sauce (with dark soy sauce), wakame seaweed. Address: Los Angeles, California.


• Summary: Commercial soybean production in Egypt began in the early 1970s. “Local soybean production meets only 30-40% of the country’s requirements for oil and poultry feed. Government planners are promoting soybean production, and are calling for a 40% increase in the area under production by 1987.”

A table indicating “Soybean production in Egypt, 1972-1982” shows total production in 1972 at 1,356; total production in 1982 at 169,800.

Note: The Gaza Strip, which contains the seaport of Gaza, has been occupied by Israel since 1967. Address: 1. Food Legume Research Station, Field Crops Inst., Agricultural Research Center, Gaza, Egypt.


• Summary: “In long-term studies the incidence of pancreatic nodules was correlated to the level of TI in the diet. Feeding RSD (raw soybean products) potentiated the carcinogenic effect of axaserine and meal feeding enhanced the incidence and size of the pancreatic nodules in rats fed RSD.” Address: Agricultural Research Organization, The Volcani Center, Bet Dagan; and The Hebrew Univ. of Jerusalem, Faculty of Agriculture, Rehovot, Israel.


• Summary: For 1986 on a per capita basis, Iraq produced 110 eggs, Egypt 101, and Algeria 70 eggs... leaving substantial room for poultry industry growth and increased soymeal usage. American Soybean Assoc. is sponsoring seminars and feeding trials, and distributing technical information, to increase the level of expertise of the poultry industry.


• Summary: Poultry nutrition textbooks at the University of Ankara have been rewritten to recommend inclusion of soymeal at levels of 27-38% One year ago soymeal wasn’t mentioned. In Istanbul, the Mudurnu Poultry Co. is opening a restaurant specializing in fried chicken as the first in a
nationwide chain. American Soybean Assoc. estimates that soymeal consumption in Turkey will double in 1987.


• Summary: “The average yield of soybean in Asia in 1985, according to FAO statistics, ranged from 600 kg/ha for the Philippines to 1812 kg/ha for Turkey and 978 kg/ha for Indonesia.”

“The first strategy to fill the yield gap is to set the yield goal. For a researcher it is both the attainable yield and maximum yield; for an extension worker and progressive farmer it is the best farm yield; for the average farmer it is the maximum economic yield; and for the region or country it is to improve the average yield. For example, the maximum yield goal for Indonesia should be 4 tonnes/ha; best farm yield should be 3.5 tonnes/ha; maximum economic yield should be between 2.5 and 3.0 tonnes/ha; national average yield should be to achieve at least 1.5 tonnes/ha.

“The second strategy concerns constraints on high yield. Constraints can be varietal, edaphic, environmental, biological, socio-economic or a combination of the above.”

In conclusion: “Researchers must first understand the farmers’ problems before developing a technology for them.”

Address: Plant Breeder and Director, Production Systems Programme, AVRDC, Taiwan.


• Summary: Soy oil is being used for the first time to suppress grain dust in a major grain handling facility in Istanbul. Turkey already imports about 120,000 tonnes of soybean oil each year. That’s the oil from 25 million bu of soybeans, equal to about 17% of Turkey’s domestic oil usage.


• Summary: “Sponsored by Consultative Group on International Agricultural Research” (CGIAR), Arab Fund for Economic and Social Development (AFSED).”

Address: Damascus, Syria.


• Summary: Indian exports compete with U.S. exports to Asia, Middle East and Eastern Europe. Largely because of India’s poultry industry, domestic consumption of soybean meal increased from 50,000 tonnes in 1983 to 250,000 in 1986.


• Summary: “1942 March 31–Institute of Inter-American Affairs formally established–first technical assistance by United States.

“1943 Nov. 9–Agreement signed to furnish aid to war-ravaged countries through U.N. Relief and Rehabilitation Administration.

“1945 Dec. 27–International Monetary Fund and International Bank for Reconstruction and Development (World Bank) formed.

“1947 May 15–Congress approves economic and military aid to Greece and Turkey.

“1947 June 5–Secretary of State Marshall’s speech voices U.S. interest in rebuilding European economies.

“1948 April 2–Economic Cooperation Act (Marshall Plan) creates Economic Cooperation Administration.

“1949 Jan. 20–President Truman’s Point IV inauguration speech.

“1950 June 1–Act for International Development (Point IV) creates authority for Technical Cooperation Administration.


“1961 March 1–Peace Corps created.

“1961 March 13–President Kennedy calls on people of hemisphere to join in an ‘Alliance for Progress.’


“1961 Nov. 4–Agency for International Development created.”

A more detailed chronology continues inside with the major events from 1961 to 1986.


• Summary: “Seitan is cooked and flavored gluten that has been extracted from [high-gluten] wheat flour. It is very rich in protein, while being extremely low in fat and calories... The traditional Japanese way of seasoning seitan is to cook it in a broth using kombu sea vegetable, natural soy sauce, and fresh ginger root. This... is the one taken for granted as the ‘standard seitan flavor’ by commercial seitan makers and most people who are familiar with seitan. Many other mixtures of...”
seasonings can be added to the basic seitan broth. Several earlier books on wheat gluten have been written, generally by Mormons.

This book offers you the history, nutritional information, a variety of preparation techniques, and hundreds of recipes that will allow you to convert wheat into a delicious and nutritious food. Especially suited for vegetarians who are interested in high-protein substitutes for animal foods.


When Michio and Aveline Kushi started the Seventh Inn Restaurant in Boston in 1971, they introduced seitan, a food that George Ohsawa had popularized in Japan, especially among macrobiotic people. Yumie Kono taught the chefs, one of whom was Lenny Jacobs, how to make seitan (p. 5).

The Introduction (p. 17-18) states: “Seitan is a food with a long history. Although not widely known in the West, it was traditionally eaten in China, Korea, Japan, Russia, the Middle East, and probably many other countries that grew wheat. In America, the Mormons and the Seventh Day Adventists made gluten and used it on a regular basis... The name seitan comes to us from the Japanese, who have prepared cooked wheat gluten for hundreds of years... Some natural foods industry insiders think seitan will become the ‘tofu of the ’80s.’

“Seitan was introduced to the U.S. natural foods industry about sixteen years ago [1970] when a Japanese variety, shrink-wrapped and quite dry and salty, was first imported. There had been several other varieties available from vegetarian groups, primarily the Seventh Day Adventists and the Mormons. Chinese restaurants have also been preparing wheat gluten for many years. The Chinese call it mien ching, or yu mien ching. Chinese restaurants often refer to it as ‘Buddha Food,’ claiming that it was developed by Buddhist monks as a meat substitute. There is also a dried wheat gluten available in Oriental food markets called fu by the Japanese and k’ao fu or kofu by the Chinese.”

In the USA, about 130,000 pounds of seitan are made each year. The market is growing rapidly. Current U.S. seitan manufacturers are: 1. Upcountry Seitan in Lenox, Massachusetts, the largest known producer in America, which makes about 600 lb/week and distributes it in 6 states. The company, started about 3½ years ago (counting from Jan. 1987, i.e. founded in about mid-1983) by Win Donovan, is now owned and operated by Wendy Rowe and Sandy Chianfoni. They get a yield of 1.33 (i.e. 90 pounds of flour result in 120 pounds of seitan). 2. Rising Tide Natural Market in Long Island, New York. Michael Vitti has been making seitan for 6 years. About 1/3 of his production is bought by another company for use in making sandwiches. 3. Grain Dance in San Francisco, California. Ron Harris has been making seitan for 8 years and is currently selling 250 lb/week in 8 oz. packages. 4. Creative Kitchens in Miami, Florida. Yaron Yemini has been making seitan for 3 years. and has seen a 5-fold increase during this time. He now makes 120 lb/week. His yield is 0.7. 5. The Bridge in Middletown, Massachusetts. The company was founded in March 1981 by Roberto Marroccesi and Bill Spear. They were making seitan by Oct. 1982. Steve Lepenta now makes 400 lb of cooked seitan each week and claims that sales have doubled in the past two years. 6. Maritime Foods in Portland, Maine. Rosemary Whittaker makes 50 lb/week of seitan. 7. Real Foods of Towson, Maryland. Sharon Warren has been making seitan for 6 years and now makes 150 lb/week.


• 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,

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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).


- **Summary:** With the extruders the Foundation can generate 25,000 tonnes/year (918,500 bu/year) of extruded full-fat soybeans. The Foundation raises more than 30 million birds yearly. For 4 years the American Soybean Association has encouraged the Turkish poultry industry to use more soybeans.


- **Summary:** “Among next year's goals, ASA [American Soybean Association] plans to establish a Latin American animal nutrition continuing education center in Costa Rica; step up programs to increase soymeal consumption in China, India, Pakistan, Turkey, Colombia, and Venezuela; accelerate promotion of full-fat soymeal for animal feeds; and increase consumption of identified soyoil in the EC through the USDA's Foreign Agricultural Service Targeted Export Assistance (TEA) program.”


- **Summary:** Suddenly she has been hearing a lot about tofu—serendipity. In *Women of China* she read about a book their staff had compiled titled 200 Recipes for the Tofu Devotee. She wrote these women and they sent her a copy.

When she returned home from Japan and Korea last July, she read a long article about soybean foods titled “The Prodigious Soybean” in *National Geographic*.

When she returned from Israel, where the Kosher Chinese restaurants use tofu extensively, in her mail was a set of tofu recipes from Azumaya, Inc. She presents one of these—“Tofu with vegetables and sauce.”

574. **Product Name:** Crude, Once Refined, and Fully Refined Soy Oil, Soybean Meal, Industrial Soy Flour.

- **Manufacturer’s Name:** Bag Yagkari Sanayi ve Ticaret T.A.S.
- **Manufacturer’s Address:** 1520 Sokak No. 36, P.O. Box 15, Izmir, Turkey.
- **Date of Introduction:** 1987.

- **Ingredients:** Soybeans.

- **New Product—Documentation:** Soyabeans. 1987. p. 65. Solvent crush capacity: 500 tonnes (metric tons) per day. Storage capacity: 15,000 tonnes. Refinery storage capacity: 5,000 tonnes/day.

575. **Product Name:** Crude, Crude Degummed, Fully Refined, and Hydrogenated Soy Oil, Soy Meal.

- **Manufacturer’s Name:** Marsa Margarin Sanayi A.S. Affiliate of Haci Omer Sabanci Holding A.S.
- **Manufacturer’s Address:** Doseme Mahallesi No. 4, P.O. Box 137, Adana 01130, Turkey.
- **Date of Introduction:** 1987.

- **Ingredients:** Soybeans.


576. **Product Name:** Chelmonit Lecithin [Fluid and Plastic NSPA Grades; Bakers Additive].

- **Manufacturer’s Name:** Olivex Ltd.
- **Manufacturer’s Address:** 25 Rothschild Blvd., P.O. Box 1498, Tel-Aviv 61014, Israel. Plant at Petah Tiqua.
- **Date of Introduction:** 1987.


- **Summary:** “The innovative process and resulting products developed are economically and nutritionally superior, require less time, energy, and labor, and pose no pollution problems. The process requires a short cooking time, or the product can even be prepared without cooking. It obviates the need for soaking and dehulling. The yield is 2.37.” Address: Dep. of Biochemistry and Human Nutrition, Faculty of Agriculture, The Hebrew Univ. of Jerusalem. Phone: 02-699033.

578. **Product Name:** Simulated Meat Products (Textured Soy Protein).

- **Manufacturer’s Name:** Shefa Protein Industry Ltd. Affiliate of Israel Edible Food Ltd.
- **Manufacturer’s Address:** 12 Htaasya St., P.O. Box 39, Arad 80700, Israel. Phone: 57/957860 or 958049.

- **Date of Introduction:** 1987.

- **New Product—Documentation:** Soya Bluebook. 1987. p. 73.

579. **Product Name:** Lecithin.

- **Manufacturer’s Name:** Tavlin Ltd.
- **Manufacturer’s Address:** Old Industrial Zone, P.O. Box 36, Rishon Le-Zion, Israel.

- **Date of Introduction:** 1987.


580. **Product Name:** Lecithin (Semi-fluid and Unbleached).

- **Manufacturer’s Name:** Teth Beth Ltd.
- **Manufacturer’s Address:** 3 Galed St., P.O. Box 147, Petah Tikva 49101, Israel.
Date of Introduction: 1987.

Address: Dep. of Plant Production, Agriculture and Water Resources Research, Plant Production


Note: This book is very well written, but some or all of the information in some of the entries (such as the blender, peanut butter and Worcestershire sauce) comes from secondary sources and is incorrect. The book would be much better (but much longer) if the sources for each statement or entry were cited.

Address: Dep. of Plant Production, Agriculture and Water Sources Research Center, Scientific Research Council, P.O. Box 2416, Baghdad, Iraq.

• 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. Soybean Coordinator, Mt. Makulu Central Research Station, Chilanga, Zambia.

• Summary: ... purchasing a tremendous $15.7 million of soybean seed, which is about 32,828 tons, according to the USDA publication Foreign Agriculture. The overall EC market imported $17,200 million of U.S. soybean seed, which was an increase of 110% over last year. Turkey and Mexico were also big soybean seed purchasers, with shipments valued at $3.3 million, respectively.

• Summary: Investments in new technology in the processing and loading area have led to permanent layoffs. “Quincy Soybean processes soybeans into oil and meal. About 90% of its products are exported to southern Europe, the Middle East, and Asia.”

“In an interview earlier this year, Richard Galloway, Quincy Soybean’s vice president of marketing, predicted that this country’s position in the [world] soybean market would continue to decline, though world demand for oilseeds is increasing. The reasons, he said, were federal farm programs, heavily subsidized grain production in Europe and increased [soybean] production in South America.”
large banks in order to generate even more income from

the solution seemed simple: stockpile the fortune in the world's

immediate challenge: What to do with all that cash. The

Arab nations, furious at U.S. support for Israel, shut down

our oil supply. As the selling price of oil skyrocketed, these

nations that had borrowed heavily from U.S. bankers were

debts. They threatened not to pay anything if the IMF

(International Monetary Fund) and World Bank did not

restructure their debts. Restructuring was finally agreed to,

but only with strict conditions, including national austerity

programs and a major effort by each country to expand exports
to earn hard currency. One of the easiest commodities for many
tropical nations to export was trees, and thus began an era of
large-scale, rapid deforestation which continues unabated.

Suddenly, the world economy lay in disarray. Nations near
bankruptcy hinted about defaulting on their thousands of
millions of dollars of loans. You can see what this would mean.
If those dollars were lost, some of America’s largest banks
would face a disaster from which they might not recover. What
if the world’s poorer nations get together and repudiate their
debts all at once?

Note: Update–1994. By the late 1980s many Third World
nations that had borrowed heavily from U.S. bankers were
unable to pay their huge debts—or even the interest on these
debts. They threatened not to pay anything if the IMF
(Im International Monetary Fund) and World Bank did not
restructure their debts. Restructuring was finally agreed to,
but only with strict conditions, including national austerity
programs and a major effort by each country to expand exports
to earn hard currency. One of the easiest commodities for many
tropical nations to export was trees, and thus began an era of
large-scale, rapid deforestation which continues unabated.

At least our banks seemed to be blessed. They had OPEC’s
cash on deposit. But not really. They had their hands full
struggling to manage OPEC’s money; they had to pay interest
on those immense deposits! They needed to find a large number
of financially fit borrowers to whom they could lend OPEC’s
money so that they could earn the interest to pay the interest.
Perhaps foreign governments could use a loan or two—nations
like Argentina, Poland, Brazil, and Mexico. A loan to a national
government would be a safe risk—wouldn’t it? Then calamity
came. World recession struck again in the late 1970s, and
foreign countries, already swimming in red ink over their
heads, could not meet even their interest payments.

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heads, could not meet even their interest payments.

SOY IN THE MIDDLE EAST (c) Soyinfo Center 2008

588. Soybean Update. 1988. Turkish poultry industry is
growing. May 16.

• Summary: Since ASA (American Soybean Association)
started working in Turkey in 1984, import tariffs for soy
products have been reduced and the country has imported a
total of 80,000 tonnes of soybeans. Turkey is short of every
raw material for feeds, especially proteins. Feed producers
there are now looking at full-fat soy as a solution. When they
decided to proceed last year, they purchased 10 extruders. ASA
produced a 20-minute training video for village boiler growers
in 1986. In June of 1987, Turkey received its first shipment of
soybean meal from the U.S.

Total Italian usage of full-fat soy is currently running at
15,000 to 18,000 tonnes a month, equalling 180,000 to 216,000
tonnes a year. Italy’s usage has increased 400% in 2 years. When
ASA started promoting full-fat soy 4 years ago, it was virtually unknown.
the restaurant kitchen to an ice cream and food factory to supply health food stores and supermarkets and was incorporated in the company Betwo, Ltd (from BETter WOrld--because we make products for a better world).” Address: Eternity, 15 Hamlakah St., Industrial Area, Yehud 56208, Israel. Phone: 03-363674.


• Summary: Turkey’s soybean imports are expected to jump to 3.7 million bushels in 1988. The Turkish poultry industry is growing at a rate of 10% annually. Since the American Soybean Association started working in Turkey in 1984, Turkey has reduced import tariffs for soy products and has imported a total of 3 million bushels of soybeans and 40,000 tonnes of soymeal.


• Summary: “Edible oil has played an important role in Indian economy. From a net surplus situation in edible oil till 1976-77, it has come to a stage when every year edible oil worth more than Rs. 10,000 million has to be imported. Although the efforts to combat this deficit have resulted in an increase in domestic production from 3,136,000 tonnes in 1977-78 to 4,284,000 tonnes of edible oil in 1984-85, the demand has outgrown the production. Consequently, India had been importing around 1,000,000 to 1,200,000 tonnes of edible oil per annum up to 1982-83 and 1,100,000 to 1,300,000 tonnes per annum till 1985-86 when import was restricted. With the increasing trend in per capita and total consumption of edible oil in the country, the gap in supply and demand has still widened. The per capita consumption of edible oil in the country remained below 5 kg per annum for a long time. It rose to 6.6 kg per annum by 1984-85. The national average consumption is below the world average of 11 kg per annum and developed countries’ average of 22 kg per annum... Therefore, the Planning Commission has set a target of 18 million tonnes of oilseeds production by 1989-90. This would give about 5.6 million tonnes of edible oil. By 2000 A.D. the requirement of oilseeds in India is estimated to be about 25 million tonnes... “Due to rigidity in conventional food habits and some other reasons, the Indian populace has not benefitted with the food quality of soyabean... The defatted soyaflour obtained after oil extraction, is largely exported as cattle feed to foreign countries. This instead, could be used to alleviate malnutrition in India especially in case of children and expectant mothers. At present, soymeal is mostly exported to Czechoslovakia, Poland, Saudi Arabia and about 30 other countries where most of it is used as animal feed.”

A table shows the growth in soybean crushing in Indian from 1982-83 (April-March) to 1987-88. The peak year was 1986-87, since in 1987-88 there were weather-induced low yields. The following figures will compare 1982-83 with 1986-87. The amount of soybean crushed in India grew from 167,848 tonnes to 813,690 tonnes. The amount of oil produced grew from 28,535 tonnes to 141,088 tonnes. The amount of soymeal produced rose from 134,280 tonnes to 683,510 tonnes. In 1982-83, 99.3% of this meal was exported, earning India 271.6 million rupees. In 1986-87, 84.6% of this meal was exported, earning India 1,310.0 million rupees. The authors state that “It is a fallacy that the soymeal from malnutrition-ridden India is being exported to earn foreign exchange. It would be desirable to diversify the food uses of soymeal and defatted soyaflour and bring it within the easy reach of a common India.”

Small portrait photos show P.S. Bhatnagar and S.P. Tiwari. Address: National Research Centre for Soybean, Indian Council of Agricultural Research, Indore 452 001, India.


• Summary: The Export Enhancement Program (EEP) has been an extremely effective way for U.S. commodities to gain footholds in new markets and to regain markets lost when world prices fell and U.S. subsidized prices didn’t.

Under the vegetable oil EEP, soybean oil exports have risen considerably. Under the EEP since 1986, there have been 376,000 tonnes of soyoil exported.

India, Morocco, Tunisia, Turkey and Algeria are the only nations eligible to buy under the vegetable oil EEP.

596. Product Name: Garden Gourmet Meatless Entrees [Vege-Puffs in Pastry, Vege-Links in Pastry, Vege-Patties, or Vege-Cutlets].

Manufacturer’s Name: Tivall.

Manufacturer’s Address: 24 Spielman Rd., Fairfield, NJ 07006. Phone: 201-277-7060.


How Stored: Frozen.


Address: Agricultural Research Inst., Nicosia, Cyprus.
Address: American Univ., Beirut, Lebanon.

Address: Plant Protection Research Centre, Abu-Chraib, Baghdad, Iraq.

• Summary: Madeline Umekawa, born in Beirut, Lebanon, 30 years ago, married a Japanese man in 1982 and now lives in Osaka, Japan. She has discovered that shoyu works nicely as a seasoning in Lebanese cuisine. A bento is a Japanese boxed lunch. Kikkoman’s Recipe Contest for Foreigners is an annual event in Tokyo that was begun in 1982 to encourage new innovative, and creative ways of incorporating soy sauce in the cuisines of other nations. The contest will be held in September. Address: Editor, Taste newsletter, Kikkoman Corp., International Operations Div., 1-25 Kanda Nishiki-cho, Chiyoda-ku, Tokyo 101, Japan.

• Summary: Saudi Arabia is not an oilseed producer. It depends totally on imports for oilseeds and crude vegetable oils. The Kingdom’s 1985 import statistics indicated a value of more than SR 90 million of imported soybeans and soybean products, and the value is expected to increase in the future. Many soybean-growing experiments have therefore been conducted in different areas of the country.

The 1976 Annual Report of the Chinese Agricultural Technical Mission at Hofuf Agricultural Research Center, published by the Ministry of Agriculture and Water (p. 20) contained early information on soybean growing experiments in Saudi Arabia, as did the corresponding reports in 1977 (p. 20) and 1984 (p. 165). Address: Dep. of Food Science, King Saud Univ., P.O. Box 2460, Riyadh 11451, Saudi Arabia.

603. Product Name: [Tofu Cream Pies {Tofu Cheesecakes}].
Manufacturer’s Name: Jerusalem Tofu.
Manufacturer’s Address: Moshav Orah, Jerusalem 90880, Israel. Phone: 02-413-809.

• Summary: Calland variety of soybean has yielded up to 3.77 tonnes/ha as a main crop in Cukurova, a region located in the southern part of Turkey. It covers Adana, Hatay, and Icel provinces. Cotton and wheat are the main crops in this region. Soybeans can be grow as either a main crop or a second crop. Optimal planting time for double crop is June 1-20. Address: Univ. Cukurova, Faculty of Agriculture, Adana 01330, Turkey.

• Summary: “Total double-cropped soybean production area reached 70,000 hectares in 1987 in Turkey...
“The soybean planting area reached 95,000 hectares in 1987, while it was 122 hectares in 1980.” Address: Univ. of Cukurova, Faculty of Agriculture, Adana 01330, Turkey.

• Summary: “About twenty years ago a few soybean varieties were introduced and tested in Mazandaran which is situated in the north of Iran. Research results showed that soybean has the potential of becoming a major crop in the northern parts of Iran. At the present time, the total land under soybean cultivation in Iran is about 70,000 hectares, 60% of which is in Mazandaran. The main varieties which are cultivated in this region are Hill, Dare, Williams and S.R.F. 450.” Address: Seed & Plant Improvement Inst., Oil Seed Research Dep., Karadj, Iran.

• Summary: Of the 16 cultivars tested during 1986-88, Hack (4,166 kg/ha) and Harcor (3,772 kg/ha) gave significantly higher yields than the test, Williams. Address: Seed & Plant Improvement Inst., Oil Seed Research Dep., Karadj, Iran.

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.


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.


Summary: Nawab Ali spent last week at the Univ. of Illinois studying new ways to turn soybeans into flour, oil, and other foods. Indians do not eat beef or pork. Most of India’s soybean meal is sold to the Middle East at cut-rate prices. “In India we have two problems,” Ali said. “We don’t have enough oil or enough protein in the diet. Soybeans can solve both problems because they’re 40% protein and 20% oil. The government is promoting their use.” Ali, soybean project director at Bhopal’s Central Institute of Agricultural Engineering, believes small-scale processing is the answer.

“When he’s mastered the technology, Ali intends to set up processing demonstration sites at strategic locations to teach people how to turn beans into a soy flour that can be mixed with wheat flour, a coarser product to grind with wheat and a tofu-like curd.

“Nine scientists and 30 technicians are working on the project at the Bhopal laboratory. Ali hopes to set up at least three demonstration plants, each capable of processing 100 to 150 kg of beans an hour...

“The U.S. Agency for International Development is contributing 65% of the $2 million project cost and the Indian government is underwriting the rest.”


Summary: The microbiological quality and the acceptance of tempeh are influenced by the initial lactic fermentation of the substrate (rice, soybeans) and by the addition of certain lactic bacteria to the fermentation. Address: Dep. of Food Science, Agricultural Univ., Wageningen, Netherlands.
Tünzel is presently at: Faculty of Engineering, Ege Univ., Izmir, Turkey.


• **Summary.** “Theodore Hymowitz was born 16 Feb. 1934 in New York City. His parents Ethel and Bernard emigrated to the USA in their youth from Poland. Theodore graduated from the Crown Heights Yeshivah and Boys High School, Brooklyn, New York, in 1948 and 1951, respectively. As a young boy he often visited nearby Prospect Park, the botanical gardens, zoo and museum and developed a lifelong interest in plants and animals.

“He received the B.S. degree in agriculture from Cornell Univ. in 1955 and M.S. degree in agricultural chemistry and soils from the Univ. of Arizona in 1957. Thereafter he was drafted into the U.S. Army for 2 years. Following basic training at Fort Benning, Georgia, he was stationed at the Quartermaster Research and Engineering Center, Natick, Massachusetts, where he worked as a chemist in a microbiology laboratory.”

“Upon discharge from the Army in 1959, he enrolled at Oklahoma State Univ. where he received his Ph.D. in genetics and plant breeding in 1963. At Oklahoma State he was greatly influenced by the potential of plant introductions by his advisor, Dr. Ralph S. Matlock, and by Dr. Jack R. Harlan, a Frank N. Meyer Medalist. As a graduate student he was a Loeb Foundation Scholar and a Fulbright Scholar in India. At the Indian Agricultural Research Institute, New Delhi, in the laboratory of Dr. M.S. Swaminathan, he conducted cytological research on the genus *Cyamopsis* [which includes guar] and under the tutelage of Prof. H.B. Singh, the father of plant introductions in India, he collected guar germplasm. The entire guar collection was sent to the USA and placed in the PI [Plant Introduction] system. The guar research conducted at Oklahoma State Univ. and in India was incorporated into a book coauthored with Dr. R.L. Whistler, published by Purdue Univ. Press in 1979.

“The development of the transdomestication concept was the main feature of Dr. Hymowitz’s research on guar. The transdomestication concept is defined as the movement by humans of a wild species from its indigenous area to another region where it subsequently is domesticated. Guar and the tomato are examples of possible transdomesticates.

“From 1964 through 1966, Dr. Hymowitz was employed as an agronomist by the IRI Research Institute, Campinas, Brazil. In Brazil he spent 2 years collecting, identifying and maintaining legumes having potential forage value and sent a collection of about 750 accessions to the USA to be placed in the PI system. Dr. Hymowitz was also a technical advisor to the Brazilian National Soybean Commission.

“Upon joining the faculty at the Univ. of Illinois in early 1967, he was immediately sent to India for 6 months to initiate soybean production experiments at the Uttar Pradesh Agricultural Univ., Pantnagar and J. Nehru Agricultural Univ., Jabalpur. His final report and published research papers become the model for the establishment of the International Soybean Program (INTSOY) at the Univ. of Illinois. In addition he collected soybean in the Kumaon Hills of Uttar Pradesh, a physically demanding expedition since the soybean were collected from fields on mountain terraces from 1100 to 2500 meters above sea level. The soybean collected were incorporated into the PI system.

“Upon his return to the Univ. of Illinois, Dr. Hymowitz initiated a project to investigate the variation in and genetics of antinutritional and biologically active components of soybean seed. Under his direction, his graduate students and colleagues were able to elucidate the mode of inheritance of soybean seed lacking or having very low amounts of the Kunitz trypsin inhibitor, lectin, β-amylase, lipoxygenase-1 and urease...

“In 1974, Dr. Hymowitz and colleagues were the first to report the use of a near-infrared light reflectance instrument to estimate simultaneously the oil and protein concentration in corn, soybean, and oat seed...

“From 1972 through 1976, Dr. Hymowitz visited major herbaria in Asia, Africa and Europe in order to examine their *Glycine* specimens. During these years he also worked in the Univ. of Illinois library, examining floras, monographs, maps, historical documents, floral check lists, and plate tectonic and island biogeographical literature in order to determine the most promising exploration sites and time of year to collect wild botanical relatives of the soybean. From January to March, 1977 he made his first of three exploration trips to Australia. Since then, he or his colleagues have made *Glycine* exploration trips to Fiji, Tonga, Vanuatu, New Caledonia, Papua New Guinea, Philippines, Taiwan and the nearby Pescadores Islands, Marianas and Ryukyu Islands, and Japan. Thus far, the genomic relationships of 11 out of 14 currently recognized species in the genus *Glycine* have been elucidated by utilizing cytogenetic, morphological, isozyme and RFLP (Restriction Fragment Length Polymorphisms; see definition below) approaches...

“In 1982, Dr. Hymowitz reported the first successful interspecific hybrid between the soybean and a wild perennial species from Australia, *G. tomentella*... Dr. Hymowitz is the curator of the USDA wild perennial *Glycine* collection at the Univ. of Illinois... Dr. Hymowitz has also taken a keen interest in the history of the soybean and this has led to the discovery of the first introduction of the soybean into North America by Samuel Bowen in 1765. In further historical research he documented that the soybean was first planted in Illinois by John H. Lea in 1851. Subsequently these seeds were disseminated throughout the Corn Belt.

“Dr. Hymowitz has advised 11 students for the M.S. degree and eight students for the Ph.D...

“In 1974-1975 he was a visiting professor at the Hebrew Univ. of Jerusalem, Rehovot, Israel. In 1981 he received the outstanding research award from the Land of Lincoln Soybean
612. **Product Name:** Garden Gourmet Vege-Patties.
**Manufacturer's Name:** Tivall.
**Manufacturer's Address:** Kibbutz Lochamei Hagetaot, Mobile Post, Ashrat (Oshrat), 25220 Israel.
**Date of Introduction:** 1989. April.
**Ingredients:** Rehydrated soy protein concentrate and wheat gluten, vegetable oil (soybean, cottonseed), egg whites, spices, salt, onion, garlic, tamari sauce, hydrolyzed vegetable protein, caramel color, guar gum (natural vegetable gum), natural flavoring, lecithin, vitamin A, thiamine (vitamin B-1), riboflavin (vitamin B-2), pyridoxine hydrochloride (vitamin B-6), vitamin B-12, nicotinamide, vitamin C, calcium pantothenate.
**Wt/Vol., Packaging, Price:** Retail: 10.6 oz package. Foodservice: 2.65 oz.
**How Stored:** Frozen.
**Nutrition:** Per 1 patty (75 gm): Calories 170, protein 12 gm, fat 11 gm, carbohydrate 6 gm, cholesterol 0 mg, sodium 353 mg.

**New Product–Documentation:** Leaflet (6 by 8.25 inches, color photos). 1989. April. Obtained at Natural Foods Expo, Anaheim. “Congratulations. You have just completed the first exercise to a healthier you. Food this good for you never tasted this good.” Shows 4 packages and 4 entrees served on plates. Soy is not mentioned. “We’d like you to try Garden Gourmet entrees, the tasty and healthy alternative to red meat. Each delicious dish is made from a unique blending of farm-fresh legumes, whole grains and a dash of natural herbs and spices.” Note: Vege-Cutlets, Vege-Links in Pastry, and Vege-Puffs are presently based on wheat flour and contain no soy.

Garden Gourmet brochure sent by Tivall, Israel. 1990. Sept. 4. Glossy insert. “Garden Gourmet Vege-Patties is an entrée that combines a rich, savory taste with the versatility of a hamburger. Marvelous alone or topped with sauce and/or cheese for international flavor.”

613. **Product Name:** Garden Gourmet Vege-Schnitzel.
**Manufacturer's Name:** Tivall.
**Manufacturer's Address:** 24 Spielman Road, Fairfield, NJ 07006. Phone: 201-227-7060.
**Date of Introduction:** 1989. April.
**Ingredients:** Rehydrated soy protein concentrate, wheat gluten, soybean oil, egg whites, carrots, peas, corn, potato starch, spices, salt, onion, garlic, hydrolyzed vegetable protein, lecithin, vitamins. Breading: Wheat flour, corn starch, dried vegetables (parsley, celery, red pepper), soybean oil.
**Wt/Vol., Packaging, Price:** 7 oz package. Retail for $2.49 (7/90).
In the catch-all basket category “Edible Preparations.” Statistics are lumped in with hundreds of other minor products such as soy sauce, thin = soy sauce) there is a listing of countries, such as China) with “Most Favored Nation” status, when get the General rate because it has been shown to be a domestic product of that country there may be the codes GSP (the amount of product imported under the lower General System of Preferences rate, of the United States), and OGN (the amount of product imported under the lower General System of Preferences 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.


level of reaction to food ‘scare’, level of environmental concern. 9. Conclusions.

In the section on “Alternative protein sources” the subsection on “Meat imitations” states that Realeat Vegeburgers, Cauldron Foods Tofu Burgers, Granose Soya Franks and Spicy Links, Protoveg Smokey Snaps, Marks & Spencer Vegetable Cutlets are all on the market (p. 72), Realeat was the pioneer in introducing vegetable burgers (Vegeburgers) and frozen burgers to the health-food trade; they were introduced to supermarkets in about 1986/87. The Vegeburger brand, now owned by Haldane Foods, includes Cheese Vegeburger, Vegeburgers, and ready meals. Companies that have introduced vegetable burgers in the last four years include Direct Foods, Vegetarian Feasts, Granose Foods, Tivall, Cauldron Foods, Booker Health Foods, Brewhurst, The Dietsburger Company, Realeat, Birds Eye Walls, and supermarket brands. In 1987 Cauldron Foods launched a range of three varieties of tofu burger in vacuum packs; cheeseburgers were launched by both Realeat and The Dietsburger Company. In April 1988 Birds Eye Walls launched its Steakhouse vegetable burger and Granose Foods launched four varieties of frozen burgers, incl. Soya & Mushroom, and Nut & Sesame varieties. Tesco introduced a vegetarian burger under its own brand; it was made by Tivall from soya and wheat. In 1989 Realeat (Haldane Foods) introduced a microwaveable Quarter Pounder Burger. In 1985 Granose Foods launched Soya Franks, a meatless sausage. Realeat launched Vegeburger, which includes soya. In 1986 Direct Foods launched a soya-based Sausage Slice and Tivall introduced vegetable protein sausages. In 1987 The Dietsburger Company launched an all-vegetable frozen dietburger and Granose Foods launched Vegetarian Spicy Links. In 1988 Goodlife Whole Foods launched Herb Bean Bangers and Spicy Bean Bangers; Buss Foods introduced a vegetarian sausage, Realeat introduced a frozen Vegeburger, and Granose Foods added a vegetable sausage to its Wholefoods Kitchen range (p. 76). Address: Leatherhead, Surrey, England.

• Summary: “Seven herbicides and three of their combinations at different rates were applied as preplanting and preemergence herbicides in 1974-75 on corn to test their weed control efficacy, crop phototoxicity, grain yield and the residual activity in the soil. For determination of the residual activity” various crops including soybean were used. This experiment was conducted at AREC (Agricultural Research and Education Center) of the American University of Beirut, Lebanon, in 1974-1975. Two plots were planted to soybean and corn in April 1975. Soybean did not show any crop injury. The yield of fresh soybean forage on any plot treated with herbicides was not less than the unweeded control.

618. Product Name: Solcon, Solcaf 70 (both soy protein concentrates), Solpro (functional soy protein), Soybar (defatted non-toasted soy flour), and Sobit (refined soybean fiber).  
Manufacturer’s Name: Solbar Hatzor Ltd.  
Manufacturer’s Address: P.O. Box 2230, Ashdod 77121, Israel. Phone: 08-561414.  
New Product–Documentation: Spot in Soya Newsletter. 1989. Sept/Dec. p. 13. “Solbar Hatzor now offering products under its own name.” “Solbar Hatzor Ltd. [formerly Hayes Ashdod Ltd.], Ashdod, Israel, manufacturers of soy protein products, previously under contract to a major factory in the soy protein industry, has fulfilled its contractual obligations and now enters the market directly. Under its own name and identification, they are offering” the products shown above. “Textured soy protein and textured soy protein concentrates are also available.” Note: This is the earliest document seen (Dec. 2007) that mentions Solbar Hatzor Ltd.


Address: Agricultural and Water Resources Center, Jadiriyah, Baghdad, Iraq.

• Summary: “Protein Grain Products International is the national trade association of leading American manufacturers and processors of regular, blended and fortified corn, wheat and sorghum products. The organization was formed in 1974 by the union of the Corn Millers’ Export Institute and Protein Cereal Products International... The Washington, DC, office is headed by president Betsy Faga who has been with PGPI for 16 years.” “PGPI goals and policies aim directly at an ever enlarging world market generated fundamentally in the demand of
hungry millions for better, more nourishing diets... PGPI works in the following areas of activity: 1. Marketing. PGPI directs and supervises targeted foreign market development programs designed to increase exports and utilization through (1) the Title II food donation program, (2) the concessional sales provisions of Title I (including Title III and the blended food amendment), and (3) commercial sales to foreign buyers. In the case of P.L. 480’s Title II and Title I, PGPI works closely with the U.S. Department of Agriculture, the Office of Food for Peace in A.I.D., the United Nations FAO and World Food Program, and the private voluntary agencies... While the large percentage of PGPI products move overseas under the Title II food donation program, PGPI is endeavoring to build commercial markets in a number of countries in Asia, South America, Africa, and the Middle East. 2. Technical Services... 3. Information and Education... 4. Legislation.”

“Membership in Protein Grain Products International is open to any person, partnership, firm or corporation in the United States engaged in the preparation and processing of bulgur, soy fortified bulgur, corn meal, soy fortified corn meal, corn grits, soy fortified sorghum grits, wheat soy blend, corn soy blend, corn soy milk and variations thereof... Dues paid to the Association are derived from an assessment on all export sales, government and commercial” of $0.0175 per 100 lb. Minimum and maximum annual dues are $1,000 and $35,000, respectively. Associate membership is $1,000 per year. Address: McLean, Virginia. Phone: 703-821-3717.

Address: ICARDA, Aleppo, Syria.

* Summary: Dr. Nielsen, a member of the USDA Agricultural Research Service, is more a molecular biologist than a soybean breeder. He did post-doctoral research and taught in the biochemistry department at the University of California at Davis. The Tofu Center, established in about Feb. 1989, is a corner of the pilot plant in the Food Science Department at Purdue. They have accumulated the equipment they need to make tofu, and they have had people from Taishi Foods (Taishi Shokuhin Kogyo K.K.) a large tofu manufacturer in Aomori prefecture, Japan come to help them make tofu that meets Japanese quality standards. Funding for the Tofu Center and his closely related Soybean Protein Improvement Project comes from Central Soya, Taishi Foods, Mitsubishi, and state grants to support value added research (about $15,000)—plus his USDA/ARS funds. Total funding is still small.

The purpose of the Center is to ask 2 kinds of questions: (1) What is the effect of the way soybeans are stored while being shipped to Japan on the quality for the final tofu? (2) What kind of very small scale tofu preparation techniques can be used in conjunction with soybean breeding programs designed to incorporate into American soybeans traits that will make them more suited for food uses in the USA and abroad. Nothing has been published by the Tofu Center about its goals and activities except for 1-2 news releases from the Purdue Information Office, plus a little video on that was shown at halftime during a recent Purdue basketball game. Suzanne Nielsen (no relation), a food chemist, is also active in the program. The lipoxygenase program is only a very small part of his lab. The major thrust of the whole program is to try to convert the soybean into an edible food, and to make it more acceptable. This will open a whole new market in the West. Most of the effort is aimed at changing the quality characteristics of soy protein by genetic engineering. The major problems they are looking at now are flavor, protein quality, sedimentation value ratios, and flatulence. Concerning flavor, they have made major advances by removing lipoxygenase. Nielsen believes that this is their most important advance to date and that it may have a major effect in improving the acceptability of soybeans for food use. They used backcrossing into Century soybeans (a good-yielding, maturity group 2, field type soybean) to get near isogenic lines. Soybeans missing the L-2 and L-3 lipoxygenase isozymes make a very bland tofu and soymilk, which is much more acceptable to American taste panels. The absence of L-2 alone gives somewhat less bland products. L-1, which has a high pH optimum, plays little role in generating off flavors. Last year about 4,500 acres of soybeans missing the L-2 isozyme were grown in Indiana. The lines lacking lipoxygenase yield the same as Century, but Century no longer yields nearly as well as the best-yielding varieties today. A lot of private and public soybean breeders are now using this germplasm. Concerning protein quality, they have learned how to change the sulfur amino acid content (to increase methionine) and now they are working to get it into a soybean variety.

Being able to change the ratio of 7S to 11S protein sedimentation values (the S stands for Svedberg, who was an early Swedish researcher on the subject) will be important in adjusting the hardness or softness of tofu. But Japanese tofu makers have no clear idea of what ratio they want. Concerning elimination of flatulence factors, that work is just starting.

The Japanese have learned to like soyfoods made from large-seeded vegetable-type (LSVT) soybeans, but American’s have not yet learned that. Tofu makers are most concerned about taste and tofu yield, and they prefer LSVT soybeans for their flavor. But they prefer American soybeans for their swelling characteristics during soaking, and this gives a more uniform product. Many Japanese tofu makers plan to have LSVT soybeans grown in America under special contract, but they cannot do that economically due to (1) their poor yield...
due to problems of shattering during mechanical harvesting, and (2) their thin seedcoat, which leads to more damage during mechanical harvesting. The way the Japanese have traditionally harvested their soybeans, cutting the plants early by hand and hanging them upside down on racks, shattering is an advantage, allowing the beans to be manually threshed from the pods with a minimum of effort. The thin seedcoat, which does not effect shattering, does aid uniform swelling during soaking. Yet he has heard that new-crop LSVT soybeans do not swell as well as year-old ones. Nielsen feels it may not be necessary to start with a vegetable-type soybean to produce the characteristics that they want.

Nielsen believes that the program on food uses of soybeans at Purdue will expand in the coming years. Soybean breeders will be working much more closely than ever before with food scientists. Other key people are Phil Nelson (the department head in the food science department) and Marv Phillips (the department head in agronomy). There have already been 9-10 PhD theses in his soybean protein improvement program. A few of his graduates now doing important work in the area are Nilgen Tumer (from Turkey) at Monsanto (working with cross protection by putting the proteins of a virus into a plant to immunize it against infection) and Paul Stawiski at Univ. of Nebraska (working with vegetative storage proteins).

Keith Smith of the American Soybean Assoc. has been very supportive of Nielsen’s work. The early work on preparing the low-lipoxygenase lines and modifying the nutritional quality of the soy protein was all funded by ASA. In Dec. 1989, at a meeting at ASA in St. Louis, he first heard expressed concern with the quantity of protein in soybeans, for the crushing industry. This seems like a major change of attitude. They are not yet very concerned with the various components of the seed and how those effect quality. At the ASA board meeting, he pointed out that in the coming years, especially because of the development of biotechnology, we will be seeing the developing of niche markets. That will fragment the soybean industry as a commodity crop. A value-added market will emerge, and this will be a major change in the market. So ASA needs to establish better quality standards. He is already working with Central Soya toward component pricing. Indiana has a value-added program with grants to specific projects; it does not have a Center as exists in Iowa and Illinois.

Nielsen’s father was a plant breeder at the Univ. of Wisconsin. He was personally more interested in biochemistry and chemistry. So it was very apparent to him due to the environment in which he was raised that there was not enough of a connection between the basic sciences and the applied sciences. The problem was to learn how to establish those bridges. He, who does cutting and splicing of DNA, now has developed close ties with the food science department. The real question will turn out to be whether or not we can find new places to put the improved soy proteins, for example as extenders. Central Soya thinks that these new soybeans will increase the use of isolates and concentrates in foods. Gary Felger (Phone: 219-425-5403) is Nielsen’s contact at Central Soya. David Swanson, the CEO, is also very interested in this work. Address: Purdue Univ., West Lafayette, Indiana 47907. Phone: 317-494-8057.


• Summary: The largest tofu manufacturer in Europe and the Netherlands is Heuschen-Schrouff (pronounced HEW-shun Shroof; “HEW” is pronounced like “who” and “Schrouff” rhymes with “roof”). They make an estimated 35,000 to 40,000 kg/week (75-90,000 lb/week) of tofu.

De Morgenstond is Holland’s second largest tofu producer. They are a “new-age” type company that started making tofu in about 1980 or 1981. They make vacuum pack tofu and various tofu products such as Saté. They make about 2,250 kg/week of tofu. Sjon helped them move into their now plant in March 1989. The original owner was Wout (rhymes with “laut”) Gerritsma. The present owners are partners Frits Steunenberg and Mauk Den Bok.

Lin Tahoe (Soy Lin) is a traditional Indonesian tofu company that makes an estimated 1,000 kg/week of calcium chloride tofu.

Manna is now a brand of Akwarius Almere, which buys about 1,000 to 1,400 kg/week of tofu (formerly probably from Yakso, now perhaps De Morgenstond). There are probably 3-4 other similar regional Indonesian tofu companies that supply the Toko (supermarket or grocery store) with tofu, and are about the same size as Lin.

There are two companies that make large amounts of second-generation tofu products using tofu that they buy from original manufacturers. The larger of these two in volume is Witte Wonder (pronounced Vitte Vander; “Vander” rhymes with “Ponder”), which made tofu until recently but now focuses on making tofu dressings, etc. They buy their tofu from Heuschen-Schrouff. Note: Solnuts is now selling the company to the management, Wim Bakker. Originally, Witte Wonder was a foundation (Stichting); they had one company making tofu, another making seitan, plus a natural foods store and a restaurant. The tofu company started to expand so fast that they made it into a separate corporation named Witte Wonder, owned by Cees (pronounced “case”) Van Rest and his father. As the company grew even more and needed a new plant, Solnuts came in as an investor. When even more money was needed, Cees sold the majority ownership to Solnuts. Solnuts put in a manager that Cees couldn’t work with, so Cees left and Wim Bakker, the current president, took over.

The other company, Yakso, has a more diverse product line. Yakso is owned by a big Dutch cheese company named Frans Andriga (the same as the name of the man who owns it); the company is a cheese importer-exporter. Yakso’s managing director is Cees Mideelweert, who took over from
Yakso Farm. Yakso occupies the same building as De Morgenstond (De Oppers 58, 8471 ZW Wolvega). When they moved into this building, they stopped making the basic tofu (which they now buy from De Morgenstond) and focused on second-generation tofu products.

Companies that no longer produce tofu are Hwergelmir Foundation, Michel Horemaus (he used to be the tofu maker at Mamma), Stichting Oost-West Centrum (they used to make tofu for their restaurant next door), Tempeh Productions Inc. (they used to sell tofu made by Heuschen-Schrouff), Terra Natural Foods (started by Rob Jansen) is now owned by Centaur, which also owns Macrobio (a distributor, importer-exporter); it is said that Centaur is largely owned or supported by Saudi Arabians. Terra now imports and exports soybeans. Sjon thinks they never made tofu.

Sjon estimates the total amount of tofu produced in Holland be about 45,000 kg/week of tofu, the growth rate of production to be about 8% per year, and the total consumption to be about 34,000 kg/week. Remember that Heuschen-Schrouff exports quite a lot of this tofu, so total Dutch tofu consumption will be less than production. The tofu is sold at the country’s 800 natural food stores, all Indonesian food stores, and many mainstream Dutch supermarkets. Address: Craft International Consultants, 21 Wetherbee St., Acton, Massachusetts 01720. Phone: 508-264-9511.


**Summary:** The key man on the history of Tivall in Israel is Moshe Ribosh, the company’s export manager (Phone: 011-972-4-858-700; Fax: 04-858-798). The company uses a new technology to make these meatless entrees. They refer to their products as “Second Generation Products” because of the advanced level of technology used in processing; Worthington or Loma Linda entrees were “Second Generation.” The “green folder” (8.5 by 11 inches, with a green field of wheat on the cover) is now outdated. He will send a current one and a corporate brochure. To taste samples of his products, contact California distributors: Freestone Sales in Benicia (707-747-0233) or Howell Mountain Distributors in Angwin (related to Seventh-day Adventists).

Tivall started importing its products to the USA in late 1987 (test market) and early 1988. They entered the U.S. market using Intermilo (in Hackensack, New Jersey) as an importer and sales center. Later they set up Tivall, USA, Inc. to do all the importing; Intermilo is no longer relevant. The company now has 6 items (described in the new brochure) that contain soy as a major ingredient—more to come.

The company sells about equal volumes to the retail and foodservice markets. All products are kosher (Circle U) and Bethedas (Hasidic certification, with a symbol resembling a fleur de lis). The packaging is the same for each product in various segments. The retail market consists of kosher, health foods, and supermarket (small) segments. The foodservice market consists of the college and university segment, the business and industrial caterers, some kosher foodservice, and a little health care.

Concerning Israel, Tivall started as a very small company on Kibbutz Lochamei Hagetaot, at M.P. (Mobil Post, like rural free delivery) Ashrat (formerly transcribed Oshrat), Israel. The focus has always been producing kosher meatless entrees. They avoid use of the term “vegetarian” which connotes “Berkeley dropouts and twig eaters.” The term meatless now attracts widespread interest. The growth of the products in Israel is phenomenal, with average annual nationwide sales of about $4 to $5 per capita. Note: With a 1989 Israeli population of 4.5 million, this would represent $18-$22.5 million sales a year. The company is doing very well financially. It is wholly owned by the members of the kibbutz. It is roughly resembles a U.S. limited partnership. It is not the only major business on the kibbutz; he thinks it started as an industrial kibbutz and they still do industrial products plus other food products.

Tivall sells a lot of product to Europe but since it is much closer they prefer to go through agencies rather than having a sales office there. The line is sold in France under the Gourmet Vert label, in England under Tesco Tivall, and in Germany Gourmet Garten. So the major export markets are these 3 European countries plus the USA. Address: President, Tivall, USA, Inc., 9633 E. Bexhill Dr., Kensington, Maryland 20895. Phone: 301-946-8855.

626. **Product Name:** Garden Gourmet Vege-Nuggets.

**Manufacturer’s Name:** Tivall.

**Manufacturer’s Address:** Imported by Tivall, USA, Inc., 24 Spielman Road, Fairfield, NJ 07006. Phone: 201-227-7060.

**Date of Introduction:** 1990. June.

**Ingredients:** Rehydrated soy protein concentrate, wheat gluten, soybean oil, egg whites, spices, salt, onion, garlic, hydrolyzed vegetable protein, natural flavoring, lecithin, vitamins. Breading: Wheat flour, sesame seeds, corn starch, soybean oil.

**Wt/Vol., Packaging, Price:** 10.5 oz package. Retails for $2.49 (7/90).


**Summary:** Nora and Jack are Ron’s parents. When asked “What percentage of Jews do NOT generally take part in religious rituals?” Nora estimated 90% in Israel and 30% in...
the USA. Jack estimated 70% in Israel and 40% in the USA. Roughly 90% of all Jews in both Israel and the USA attend synagogue at least twice a year, at Rosh Hashanah (the Jewish New Year in late September) and at Yom Kippur (the day of atonement, 10 days after Rosh Hashanah).

When asked “What percentage of Jews do NOT observe kosher dietary laws?” (except for the law forbidding consumption of pig/pork), Nora estimated 90% in Israel and 85% in the USA. Jack estimated 80% in Israel and 80% in the USA.

Ron adds that in Israel soy products are very popular as meat substitutes but not so popular as dairy substitutes. Since most Israeli Jews are not very religious, they are also not very interested in a kosher diet. There are three levels of Judaism: Reform, conservative, and orthodox (the strictest in observing the laws). Address: San Ramon, California.

628. **Product Name:** [Soglowekteva Vegetarian Schnitzel].
**Foreign Name:** Zoglovaktseva Schnitzel min Hatzomeach.
**Manufacturer’s Name:** Soglowekteva.
**Manufacturer’s Address:** Nahariyya, Israel.
**Date of Introduction:** 1990. July.
**Ingredients:** Water, rehydrated soy protein concentrate and wheat gluten, vegetable oil, egg whites, natural spices, onion, salt (less than 1%) vegetable ?, yeast, lecithin, vitamin A, vitamin C, vitamins B (B-1, B-2, B-6, B-12, niacin, pantothenic acid). Breading: Bread crumbs, starch, sugars, spices.
**Wt/Vol., Packaging, Price:** 600 gm paperboard box.
**How Stored:** Frozen.
**Nutrition:** Per 100 gm.: Calories 270, protein 16 gm, carbohydrate 18 gm, fat 14 gm, cholesterol 0 mg, sodium 100 mg.
**New Product–Documentation:** Label obtained by Nora Perry in Tel Aviv, Israel. 1990. July 5.

629. **Product Name:** [Tivall Vegetarian Sausage Roll].
**Foreign Name:** M’afeh Naknikiah min Hatzomeach.
**Manufacturer’s Name:** Tivall.
**Manufacturer’s Address:** Kibbutz Lochamei Hagetaot, Israel.
**Date of Introduction:** 1990. July.
**Ingredients:** Sausage: Water, rehydrated soy protein concentrate and wheat gluten, soybean oil, egg albumen, natural spices, onion, salt (less than 1%), garlic, hydrolyzed vegetable protein, paprika, lecithin, vitamin A, vitamin C, B vitamins (B-1, B-2, B-6, B-12, niacin, pantothenic acid). Dough: Wheat flour, vegetable oil, water, and salt.
**How Stored:** Frozen.
**Nutrition:** Per 100 gm.: Calories 337, protein 10.5 gm, carbohydrate 22 gm, fat 23 gm, cholesterol 0 mg, sodium 100 mg.
**New Product–Documentation:** Label obtained by Nora Perry in Tel Aviv, Israel. 1990. July 5.

630. **Product Name:** [French Style Vegetarian Schnitzel with Wine and Mushrooms].
**Foreign Name:** Schnitzel Tzarfati min Hatzome’ach im Ya’in ve Pitriot.
**Manufacturer’s Name:** Tivall.
**Manufacturer’s Address:** Kibbutz Lochamei Hageta’ot, Oshrat, Israel.
**Date of Introduction:** 1990. July.
**Ingredients:** Water, wheat protein, soya protein, vegetable oil (soybean and cottonseed), mushrooms, onions, egg albumen, salt, natural spices, white wine, lecithin, vitamin A, C, B (B-1, B-2, B-6, B-12, niacin, pantothenic acid). Breading: Wheat flour, corn starch, soybean oil, spices.
**Wt/Vol., Packaging, Price:** 400 gm paperboard box.
**How Stored:** Frozen.
**Nutrition:** Per 100 gm.: Calories 240, protein 13 gm, carbohydrate 18 gm, fat 13 gm, cholesterol 0 mg, sodium 100 mg, potassium 210 mg, iron 5 mg.
**New Product–Documentation:** Label obtained by friend of Nora Perry at Tel Aviv, Israel, supermarket. 1990. July 4. 6.5 by 8.25 by 1.75 inches. Paperboard box. Red, yellow and blue on a design of beige crisscrossed fibers which covers the entire box. Picture of 2 schnitzels on top of each other alongside asparagus and an elegantly cut mushroom and tomato, all on a china plate. Glass of wine beside china plate with a satin tablecloth beneath both plate and glass. “No food coloring, no preservatives, no cholesterol. Contains all the basic nutritional groups: Protein, carbohydrates, polyunsaturated fats, and minerals and vitamins.” Back panel: “How to prepare.”

631. **Product Name:** [Vegetarian Burger (Grilled Hamburger Style)].
**Foreign Name:** Hamburger min Hatzome’ach (Hamburger Grill).
**Manufacturer’s Name:** Tivall.
**Manufacturer’s Address:** Kibbutz Lochamei Hageta’ot, Oshrat, Israel.
**Date of Introduction:** 1990. July.
**Ingredients:** Water, wheat protein, soya protein, vegetable oil (soybean and cottonseed), egg albumen, salt, natural spices, hydrolyzed vegetable protein, lecithin, vitamin A, C, B (B-1, B-2, B-6, B-12, niacin, pantothenic acid).
**Wt/Vol., Packaging, Price:** 300 gm paperboard box.
**How Stored:** Frozen.
**Nutrition:** Per 100 gm.: Calories 235, protein 16 gm, carbohydrate 11 gm, fat 14 gm, cholesterol 0 mg, sodium 100 mg, potassium 110 mg, iron 5 mg.
**New Product–Documentation:** Label obtained by friend of Nora Perry at Tel Aviv, Israel, supermarket. 1990. July 4. 8.5 by 4.75 by 1.5 inches. Paperboard box. Green, red, and white on yellow. Picture of 3 hamburgers on a plate alongside some corn and lettuce. Plate is sitting on a light wooden table besides a variety of grains and vegetables. “New! Hamburger Grill.
No food coloring, no preservatives, no cholesterol. Contains all the basic nutritional groups: Protein, carbohydrates, polyunsaturated fats, and minerals and vitamins.” Back panel: “How to prepare.”

632. Product Name: [Vegetarian Schnitzel].
Foreign Name: Schnitzel min Hatzome’ach.
Manufacturer’s Name: Tivall.
Manufacturer’s Address: Kibbutz Lochamei Hageta’ot, Oshrat, Israel.
Ingredients: Water, wheat protein, soya protein, vegetable oil (soybean and cottonseed), egg albumen, natural spices, onion, salt (less than 1%), garlic, hydrolyzed vegetable protein, yeast, lecithin, vitamin A, C, B (B-1, B-2, B-6, B-12, niacin, pantothenic acid). Breading: Wheat flour, corn starch, soybean oil, spices.
Wt/Vol., Packaging, Price: 1 kg plastic wrapped package.
How Stored: Frozen.
Nutrition: Per 100 gm.: Calories 290, protein 13 gm, carbohydrate 18 gm, fat 18 gm, cholesterol 0 mg, sodium 100 mg, iron 8 mg.

633. Product Name: [Vegetarian Burger].
Foreign Name: Hamburger min Hatzome’ach.
Manufacturer’s Name: Tivall.
Manufacturer’s Address: Kibbutz Lochamei Hageta’ot, Oshrat, Israel.
Ingredients: Water, wheat protein, soya protein, vegetable oil (soybean and cottonseed), natural spices, onion, salt, (less than 1%), garlic, hydrolyzed vegetable protein, paprika, powdered beets, natural flavors, lecithin, vitamin A, C, B (B-1, B-2, B-6, B-12, niacin, pantothenic acid). Spices.
Wt/Vol., Packaging, Price: 600 gm plastic wrapped package.
How Stored: Frozen.
Nutrition: Per 100 gm.: Calories 221, protein 16 gm, carbohydrate 7.5 gm, fat 14.2 gm, cholesterol 0 mg, sodium 100 mg, iron 5 mg.

634. Tivall. 1990. Aizeh mi’shloshet ha’hamburgerim hu ha’hamburger Tivall [Which of these 3 hamburgers is a Tivall hamburger? (Ad)]. In: Playbill for “Of Mice and Men” by John Steinbeck. Presented at Habimah National Theatre, Tel Aviv, Israel. 30 p. See p. 28. [Heb]
• Summary: Half page color photo shows a boy with 3 hamburgers in front of him pouring catsup on one of them. The text below the picture reads: “Which of the 3 hamburgers is a Tivall hamburger? All three! Surprise? Maybe. But while you sit there surprised, your son has already finished eating his hamburger. Let him be healthy! Now, when you or your child feel like having a juicy hamburger, you’ll know: Tivall offers 3 kinds of vegetarian hamburgers:
  • “Hamburger Tivall: The classic hamburger. (Don’t forget to let your child pour the catsup on himself!) The grilled hamburger: Try it with barbecue sauce, pickles, and onions. The American hamburger from the ‘World of Tivall series.’ Prepare a double portion with lettuce, tomato, and thousand island sauce. It’s nickname is the ‘big burger.’ Bon Appetit.”
Address: Israel.

• Summary: Tivall was established in 1984 and started to produce meat analogs in 1985. Today, Tivall is the world’s largest producer of meat analogs.
  Note 1. Below the word “Tivall” on the letterhead is written: “Vegetarian food products grown with nature’s goodness.” Note 2. Many industry analysts believe that Worthington Foods is the world’s largest manufacturer of meat analogs. Address: PhD, Director of R&D, Kibbutz Lochamei Hagetaot, Mobile Post, Oshrat 25220, Israel. Phone: 04-858700.

636. Product Name: Garden Gourmet Vege-Dogs in Pastry.
Manufacturer’s Name: Tivall.
Manufacturer’s Address: Imported by Tivall, USA, Inc., 9633 E. Bexhill Dr., Kensington, MD 20895. Phone: 301-946-8855.
Date of Introduction: 1990. August.
Ingredients: Rehydrated soy protein concentrate and wheat gluten, soybean oil, egg whites, spices, salt, onion, garlic, tamari sauce, hydrolyzed vegetable protein, paprika, natural flavoring, gum (natural vegetable gum), lecithin, vitamin A, thiamine (Vitamin B-1), riboflavin (vitamin B-2), pyridoxine hydrochloride (vitamin B-6), vitamin B-12, niacinamide, vitamin C, calcium pantothenate. Pastry: Wheat flour, soybean oil, partially hydrogenated soybean oil, water, sesame seeds, salt, mono and diglycerides.
Wt/Vol., Packaging, Price: 12 oz package.
How Stored: Frozen.

637. Product Name: Garden Gourmet Vege-Puffs.
Manufacturer’s Name: Tivall.
Manufacturer’s Address: Imported by Tivall, USA, Inc., 9633 E. Bexhill Dr., Kensington, MD 20895. Phone: 301-946-8855.

Date of Introduction: 1990. August.
Ingredients: Rehydrated soy protein concentrate and wheat gluten, soybean oil, egg whites, spices, salt, onion, garlic, tamari sauce, hydrolyzed vegetable protein, natural flavoring, caramel color, lecithin, vitamin A, thiamine (vitamin B-1), riboflavin (vitamin B-2), pyridoxine hydrochloride (vitamin B-6), vitamin B-12, nicotinamide, vitamin C, calcium pantothenate. Pastry: Wheat flour, soybean oil, partially hydrogenated soybean oil, water, salt, mono and diglycerides.
Wt/Vol., Packaging, Price: 7 oz package.
How Stored: Frozen.

New Product—Documentation: Garden Gourmet brochure sent by Tivall, Israel. 1990. Sept. 4. Glossy insert. “This is a delightful entrée with fresh, wholesome ingredients and delicate seasoning in a superb puff pastry. Its a great solution to those center-of-the-plate menu-planning blahs!”

638. Product Name: Garden Gourmet Vege-Cutlets.
Manufacturer’s Name: Tivall.
Manufacturer’s Address: Imported by Tivall, USA, Inc., 9633 E. Bexhill Dr., Kensington, MD 20895. Phone: 301-946-8855.

Date of Introduction: 1990. August.
Ingredients: Rehydrated soy protein concentrate and wheat gluten, soybean oil, egg whites, spices, salt, onion, garlic, hydrolyzed vegetable protein, natural flavoring, lecithin, vitamin A, thiamine (vitamin B-1), riboflavin (vitamin B-2), pyridoxine hydrochloride (vitamin B-6), vitamin B-12, nicotinamide, vitamin C, calcium pantothenate. Breading: Wheat flour, corn starch, partially hydrogenated soybean oil. 
Wt/Vol., Packaging, Price: Retail: 7 oz package.
How Stored: Frozen.

New Product—Documentation: Garden Gourmet brochure sent by Tivall, Israel. 1990. Sept. 4. Glossy insert. “… as delicious as it is nutritious. Main-meal satisfying with its delicately seasoned flavor and crisp crumb coating, our Vege-Cutlet has instant taste appeal. Excellent baked to a golden brown.”

639. Tivall. 1990. Garden Gourmet: Food this healthy has never tasted this good before (Portfolio). Kibbutz Lochamei Hagetaot, Mobile Post, Oshrat 25220, Israel. 4 p. plus 6 inserts. 29 cm. [Eng]


The six glossy inserts, each with a color photo of a Tivall meatless product with aside dishes on a black dish on a black background, describe the following products: Vege-Cutlets, Vege-Patties, Veggie Puffs, Vege-Dogs in Pastry, Vege-Nuggets, and Garden Vege-Schnitzel.

The top of the inside front cover of the portfolio states in large, bold letters: “The next generation of nutritious food is here. It’s a revolutionary line of tasty, satisfying entrees created to meet the ambitious food marketing challenge of the 20th century. The challenge? Soaring consumer demand for food that’s good to eat, nutritionally good for them, cholesterol-free, no MSG and free of additives and preservatives—the perfect food for today’s fast-paced lifestyle. Clearly, today’s trend is tomorrow’s way of life.” Address: Oshrat, Israel. Phone: 04-858700.

640. Tivall. 1990. Tivall vegetarian food products: Growth with nature’s goodness (Portfolio). Kibbutz Lochamei Hagetaot, Mobile Post, Oshrat 25220, Israel. 6 p., incl. 4 inserts. 29 cm. [Eng]

• Summary: The cover of this full-color brochure shows an empty white plate flanked by a fork and spoon. The four inserts describe the company’s four main product lines: Tivall in Israel, Garden Gourmet in the USA, Tivall/Tesco in Great Britain, Gourmet Vert in France, and Tivall Gourmet-Garten in Germany. Each line has completely different package designs and product names. Each 2-sided color insert contains a photo of the package and details on each product for each line. For example, Tivall/Tesco retail products in the UK are: Vegetarian sausage, Vegetarian burger, Vegetarian cocktail sausage, Vegetarian sausage roll, Vegetarian strudel, Vegetarian schnitzel, Vegetable patty, Vegetarian whole wheat schnitzel, Vegetarian slicing sausage, Vegetarian nuggets. This line also includes the following products available in catering packages of 2.27 kg, 3, 5, or 10 kg: Vegetarian lasagna, Vegetarian burger for “Tesco,” and Vegetarian Grills for “Tesco.”

The French Gourmet Vert line includes: Freeburg (vegetarian burger), Crocknack (sausage), Vege-Pane (cutlets), Takit (nuggets), Crockroll (sausages in pastry), Vege-feuillette (savory filling in pastry), Gale vert (patty with vegetables and grain).

The German Tivall Gourmet-Garten line includes: Gemuse Patties (spinach, or carrots, corn & peas), Veglettes (Schnitzel), and Sesamies (nuggets).

Four color photos show: An aerial view of the Tivall food factory, sausages coming down a stainless steel chute off the
production line, patties being packaged on a conveyor, chefs in tall white hats cutting the products in a kitchen. “Tivall. A patented process and unique seasoning system guarantee the winning combination that shoppers are looking for.”

The Tivall international network includes the head office in Israel, plus distributors John A. Taylor Ltd. in London, Yarden France in Paris, Schoenmakers Import & Export in Ooltgensplaat, Holland, F. Nowak GmbH in Essen, West Germany, and Tivall USA Inc. in Kensington, Maryland. Address: Oshrat, Israel. Phone: 04-858700.

641. Tivall. 1990. Tivall frozen foods (Portfolio). Kibbutz Lochamei Hagetaot, Mobile Post, Oshrat 25220, Israel. Four inserts. 31 cm. [Eng]

• **Summary:** The cover of this full-color brochure shows a silver, green, and black oval that reads “Tivall Frozen Foods” against a bright yellow rectangle, set in a black background. The four pages of inserts describe individual products. The two inside pages bear the V-shaped logo of the Vegetarian Society of the UK, but in black on a white background. The brochure is target at the British market. “The demand to maintain a healthy diet is underway and no longer is it considered a fad but a way of life. Today over 30 million British adults claimed to be concerned about nutrition and over half of them say that they are trying to cut down on their fat intake. In the last 5 years, cholesterol has become something to avoid. It is against this backdrop that Tivall has developed a wide range of tasty products which are based on Soya and Wheat Protein but match the nutritional values, taste, and texture of meat. Tivall products are natural and wholesome, do not contain additives, preservatives, artificial colouring or meat.

“Tivall products give today’s caterer an extra option—something new and tasty which appeals to the health conscious customer. A range of products which are suitable for vegetarians and taste good too. The Tivall products offer the caterer portion control and more menu alternatives. Because the products are frozen they are simple to prepare and serve without waste.

“Tivall products originate from an ultra-modern frozen foods factory in Israel. The name Tivall itself means ‘quality from nature.’ The production process is truly revolutionary and at last there’s a vegetarian alternative to meat that matches the nutritional value and texture of meat but without cholesterol, without artificial colourings, additives, and preservatives. Tivall Frozen Foods, Jatko House, 798 High Road, London N17, England. Tel: 01-801-6421.

The inserts give details on, and large color photos show: Vegetarian garden vegetable pattie, Vegetarian savoury strudel, Vegetarian burger, and Vegetarian whole-wheat schnitzel. Address: Oshrat, Israel. Phone: 04-858700.


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**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 Hameretz, in the Judean Hills between Jerusalem and 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 Sachnuit 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 Sachnuit 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/Herzlyiya, 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.


• 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.

644. Product Name: Contex (Textured Soy Protein Concentrate), and Soytex (Textured Soy Flour).
Manufacturer’s Name: Solbar Hatzor Ltd.
Manufacturer’s Address: P.O. Box 2230, Ashdod 77121, Israel. Phone: 08-561414.
Date of Introduction: 1990. October.
Ingredients: Soybeans.
Wt/Vol., Packaging, Price: 15 kg polyethylene bags.
How Stored: Shelf stable.

Manufacturer’s Name: Tivall.
Manufacturer’s Address: Kibbutz Lochamei Hagetaot, Mobile Post, Oshrat 25220, Israel. Phone: 00972-4-858700.
Date of Introduction: 1990. October.
New Product–Documentation: Spot in SoyaFoods. 1991. Spring. p. 4. “Lite foods from Tivall.” “A new range of frozen ‘lite’ products called Garden Delight have been launched in the UK by Tivall. Manufactured from soya and wheat protein,
Garden Delight cutlets (400 gm), nuggets (300 gm), burgers (300 gm), and spicy burgers (227 gm) are reduced in calories and low in fat. Similar products have been very successful in Israel and are also due to be launched in the Netherlands."

646. **Product Name:** [Tofu, and Tempeh].  
**Manufacturer’s Name:** Amirim Vegetarian Village.  
**Manufacturer’s Address:** Amirim 20015, Israel.  
**Date of Introduction:** 1990.  
**New Product–Documentation:** Letter from Arik Tal of Amirim. 1990. June 1. “We are living in Amirim, the only vegetarian village in Israel. We are running a small shop preparing tofu and tempeh. We have your 1979 book Book of tofu and Book of Tempeh.”

**Summary:** An analysis of various vegetable oils, including soybean oil, was conducted in Qatar using gas-liquid chromatography (GLC). “Pure oils of corn, soybean, sunflower, cottonseed, groundnut, coconut, palm and palm kernel were donated by Unilever Research Laboratories. Pure crude olive and sesame oils were collected from the commercial brands available at the local Doha market. Refined rapeseed oil was obtained from J. Bibby Edible Oils Ltd., Liverpool, UK.”

The composition of the unsaponifiable matter (UM) in vegetable oils can be used for identification purposes, e.g. for detecting the adulteration of expensive oils such as corn oil with cheaper oils. The applicability of the method was confirmed using UM extracted from soybean oil. “The new method was applied to the determination of squalene, α-tocopherol, gamma-tocopherol, sesamene and sesamolene (together), obtusifoliol, gramisterol, citrostadienol, β-amyrin, cycloartenol, 24-methylene cycloartenol, cholesterol, brassicasterol, campesterol, stigmastanol, β-sitosterol, and delta-7-stigmasterol in different vegetable oils.” Address: The Regional Centre for Food Contamination Monitoring, Doha, Qatar.

**Address:** Shanhua, Taiwan.

**Address:** P.O. Box 11525, Sana’a, Yemen Arab Republic.


Linda and Paul (of Beatles fame) McCartney have been married since March 12, 1969, are vegetarians and very active in the field of animal welfare. Linda, born in Scarsdale, New York, USA, has been a committed vegetarian for twenty years, during which time she has lived in England. She is also a world-famous photographer. Her color photo appears on the cover. TVP is more popular among consumers in the UK than in the USA. Pages 18-19 show a color photo of many meatlike products and their packages—including Protoveg Sizzles, Protoveg 5 Grain Burgamix, Tivall Vegetarian Schnitzel, Sausage, and Burger, Fritini Vegetable Pattie Mix, Realeat Vegetarian Sausage, and Burger, Fritini Vegetable Pattie Mix, Dietade Low-Salt Vegetarian Gravy Mix, Granoose Vegetarian Spicy Links, Sausalatas, Vegelinks, and Sausfry, Friggs Vegetable Gravy Powder, and Worthington Wham, Bolono, GranBurger, Vegetarian Fillets [fish alternatives], Stakelets, and Stripples. Page 43 gives a brief description of soya beans and soyfoods. Address: England.

**Summary:** Chapter 8, “The Jewish Household,” contains a clear explanation of “The Dietary Rules.” It notes that “Reform Judaism allows the abrogation of these rules, although a number of Reform Jews choose to keep some of them. The other branches of Judaism emphasize the importance of the dietary laws, although truly Orthodox Jews, of course, observe them with greater rigor and attention to detail... The dietary restrictions are contained in the rules of *kashrut* (“fitness”), specifying which animals are *kosher*, or fit for Jewish consumption. Only animals that have a split hoof and chew a cud are acceptable.” The pig, which does not chew a cud, is forbidden. “Another rule of *kashrut* is that a kosher animal must be slaughtered properly, in accordance with ancient ritual practice, in order for Jews to eat its meat.” Shellfish are not
kashrut. “The laws of kashrut prohibit the mixing of any milk product with any meat product at the same meal. This derives from biblical law, ‘You shall not cook the young in its mother’s milk.’” Separate utensils, dishes, and pots must be kept for milk foods and meat foods. “After eating meat, one must wait three to six hours before eating a milk food, to insure that digestion is complete.” Address: Rabbi, Temple of Universal Judaism, New York City, NY.


* 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.


* Summary: Shefa Protein Industries Ltd. was founded in 1967 in Arad, Israel by Mr. Sid Katzin [Katzen] and his brother Dr. Sol Katzin [Katzen]. Arad is a town in southeastern Israel near the Dead Sea. The Hebrew adjective “Shefa” means plentiful or bountiful. The company was Israel’s first manufacturer of soy products. Their first product was SVP, a structured vegetable protein made from extruded defatted soy flour, similar to TVP, but not under license from any other company. In the early days, most of the product was sold to Iran, then headed by the Shah. Only small quantities were sold in Israel, both to food manufacturers and (usually in plain small plastic bags) via retail food stores. Other early products were a Schnitzel and a Soya Hamburger.

In 1976 the company was purchased by Israel Edible Products, Ltd. (IEP), a major Israeli food manufacturer and conglomerate, whose main offices are located near Haifa. Shefa became a subsidiary of the parent company and its products started to be sold under the Telma brand. Telma is a subsidiary of IEP that produced mayonnaise, margarine, various powdered soups, etc. At this time Shefa began to make new extruded products (such as snack foods, breakfast cereals, crisp breads, pet foods, etc.) from various other commodities in addition to soya. Moreover, new textured soy products were introduced, including textured soy concentrates and new flavors of textured soy flour. Shefa became the extrusion division of Israel Edible Products.

In 1978 Mrs. Sklar, a food technologist, began to work for Shefa. (She has not heard of Eliahu Navot and does not think he was involved in starting Shefa.) Shortly thereafter, in 1978 the conflict began with Iran, which led in Jan. 1979 to the Shah fleeing the country and the Ayatollah Khomeini coming to power. This crisis led to the end of Shefa’s sales of their soy protein products to Iran. Until 1988, Shefa was the only manufacturer of soy products in Israel.

Today Shefa makes about 6 different extruded soy products, from defatted flour, soy protein concentrates, and cereal-soy blends, in various sizes and flavors. All are still sold under the Telma brand. Soy products are now a very small part of Shefa’s total business; most of these textured soy products are sold to food manufacturers in Israel, including Tivall. Tivall is a customer, not a competitor. Tivall, Israel’s largest seller of vegetarian protein foods, makes excellent quality products. Shefa’s products are used as both meat extenders and in meatless vegetarian products. The factory has expanded, but it is still at the same location in Arad. One lady, Jenny Kozocaro, has been with the company since it started. Shefa is the main producer of breakfast cereals in Israel. IEP has 5-6 subsidiaries, including Telma and Shefa. Address: Plant Manager, Shefa Protein Industries Ltd., P.O. Box 39, Arad 80700, Israel. Phone: 57-957860, 953555, 955286, 955416. Fax: 57-958049.


* Summary: “German soya processors, Soya Mainz GmbH and Co. have bought a 25% equity in Solbar Hatzor Ltd. (formerly Hayes Ashdod Ltd.), soya protein manufacturers of Ashdod, Israel. The company has also contracted with Hayes General Technology Co. Ltd. of Israel to set up a soya protein concentrate production facility in Germany.

“Hayes General Technology is well known for its expertise in developing cost effective and new technologies for vegetable proteins and novel soya foods and this will be the 5th soya protein concentrate plant worldwide and the third in Europe to be developed by the company. Other European firms who have used Hayes Technology for soya protein concentrate
manufacturing are Sogip SA (SF Bunge) in France and Aarhus Oliefabrik of Denmark.”


• Summary: The Kurds are a non-Arabic, Muslim, tribal people with a population of 20-21 million people, living in northern Iraq (around Mosul and Kirkuk), northeastern Syria, eastern Turkey, northwestern Iran, and the USSR. They are the world’s largest stateless ethnic minority. They are discriminated against and often persecuted in most of the countries in which they live. They have their own language and history. They are mainly Sunni Muslims, and thus orthodox.

At the end of World War I, the Kurds, formerly within the Ottoman Empire, demanded independence from Turkish rule. Under the Treaty of Sèvres (signed in Aug. 1920), which attempted to dissolve Turkey’s Ottoman Empire, Kurdistan was granted an autonomous government, but they were denied this in 1921 (see Treaty of Lausanne).

As an example of persecution against the Kurds, in about April 1988 the residents of the town of Halabjah, who had supported Iran in the Iran-Iraq war, were gassed with poison gas by the government of Iraq. 5,000 people were killed.


• Summary: Organizers: Jilin Academy of Agricultural Sciences (JAAS), China–host; Chinese Academy of Agricultural Sciences (CAAS), China–co-host; International Soybean Program (INTSOY) at the University of Illinois; Ministry of Agriculture, Forestry, and Fisheries (MAFF), Japan; International Institute of Tropical Agriculture (IITA), Nigeria; Scientific Research Institute of Foods and Fermentation Industries (SRIFFI), China

Participants: 100 foreign participants from 25 different countries and 150 participants from throughout China. 58 people from developing countries and 40 people from developed countries. Regional distribution of foreign participants: Southeast Asia–25 people from 4 countries. East Asia–23 from 3 countries. North America–17 from 1 country. Africa–13 from 5 countries. South Asia–12 from 5 countries. Europe–5 from 3 countries. Central America–2 from 1 country. Middle East–1 from 1 country.


• Summary: Soybean production in Turkey, particularly in the Black Sea Region, has been carried out since 1950. Production has increased from 12,000 tonnes (yield: 1,090 kg/ha) in 1970 to 230,000 tonnes (yield: 2,300 kg/ha) in 1987. The soybean is Turkey’s third largest oilseed crop, following sunflower seeds and cotton seeds. About 90% of Turkey’s soybeans are grown in the Çukurova region, because of its advantageous climate. Within this region, 75% of the soybeans are grown in the province of Adana, located on the Mediterranean Sea. Address: Çukurova Agricultural Research Inst., Adana, Turkey.


• Summary: Mrs. Nhuch has been interested in tofu as a food for 5 years, and has tested it in numerous recipes. In doing bibliographic research on tofu she learned about Tofutti. “I already knew the soy ice cream which has been produced in Israel for twenty years and was developed in the Technion (Institute of Technology of Israel) where I studied between 1970 and 1971. This product was developed to be served to religious men who don’t mix milk with meat...” Mrs. Nhuch would like to introduce Tofutti to Brazil. It would be excellent for the country’s 5 million diabetics. 11% of the population of Porto Alegre has diabetes.

Born in 1947 in Porto Alegre, Brazil, she has a MSc in chemistry degree and completed a post-graduate course in food technology in the Technion. She is presently associate professor in the Universidade Luterana do Brasil, Canoas, Rio Grande do Sul. Address: 480 Sao Manoel St., 1st floor, 90620 Santana, Porto Alegre, RS, Brazil.


• Summary: Discusses Nurulat soy flour, made by Edelsoja GmbH, and a dairy-free chocolate spread developed from it. Contents: Introduction. Soy protein (cost relative to whole milk, efficiency of land use for protein production). Analytical

The author’s R&D team at the Osem company in Israel was given the assignment to develop chocolate spreads without any milk solids. This was done for religious reasons since orthodox Jews are not allowed to mix meat and dairy products. “Kosher products can be Kosher-Meat (to be eaten without any milk or other dairy products), Kosher-Milk (to be eaten without any meat products) or Kosher parve (to be eaten with dairy or meat products). Ideally the food processor wants to develop, as much as possible, foods which fall in the third category so that the consumer can consume the food at any meal, be it meat or dairy based meals.” Address: Osem, Tel-Aviv, Israel.


• Summary: Hea-Ran Lee is Korean. After 2 years studying groundnut flour in India at CTTRI on an FAO scholarship, she came to the USA in 1976. At Iowa State Univ., working under Dr. Harry Snyder, she wrote her PhD degree thesis on the flavor of soymilk.

While in Zambia, she worked with home economics extension people, teaching them how to fortify Nshima (pronounced “SHEE-muh; a popular thick non-fermented cornmeal mush that is often eaten with the fingers) with either roasted soy flour, or with okara from soymilk. She and Ellen Jayawardene from Sri Lanka also taught the local people to make and use soymilk. They did not teach about tofu, since no coagulant was readily available. The Lee Yeast Co., a bread company or bakery owned by Mr. Limbada, uses soy flour in their breads. Several other companies were in the process of buying Wenger- or low-cost extrusion cookers for processing soybeans. People from the University of Illinois were helping them to set up this equipment.

The key man working with soyfoods in Zambia is Fred Javaheri. He has worked in Zambia for about 20 years, initially with the USDA. An Iranian by birth, he and his family have permanent Canadian residence (but not citizenship) status but they live in Zambia. Because his religion is Baha’i, he fled from Iran after the Iranian revolution, when many of his non-Moslem faith were persecuted or killed. The Baha’i faith originated in Iran (Persia) in the 19th century and emphasized the spiritual unity of all human beings.

In 1979 she went to the Univ. of Illinois at Carbondale, where she now does mainly teaching; there is not much time for research. Many of her students have do research on tofu. Address: Asst. Prof., Animal Science, Food & Nutrition, Southern Illinois Univ., Carbondale.


• Summary: In addition to his FNF (Father Nature’s Farmacy) database (See article by R. LeViton, East West, Oct. 1991), Dr. Duke also has a bibliographic database, produced with K.K. Wain, named “Medicinal Plants of the World,” which has folk medicinal uses of plants in non-Western literature; it became inactive in Sept. 1981, and another named BAP (Biologically Active Phytochemicals), which has more than 3,000 entries for biologically active compounds in various plants. The BAP database will be published by CRC Press in Boca Raton, Florida. One important source of information for BAP is Martindale’s Extra Pharmacopoeia (28th ed., Pharmaceutical Press, London, 2,205 p., 1982). Dr. Duke has found 400 such phytochemical compounds. BAP would show, for example, that the most concentrated source of tryptophan (recently outlawed by the FDA) are the seeds of the evening primrose. And dandelion flowers have the highest lecithin content, higher than soybeans. He hopes to make the latter database interactive with FNF; now you have to look things up manually on the two databases. The interaction is full of surprises. Dr. Duke has compiled all three of these databases himself, with his own fingers. Born in Alabama, he speaks with a gentlemanly southern accent.

Another excellent database for finding the biologically active substances, ethnomedical, or chemopreventives in plants is the University of Chicago’s NAPRALERT, which takes its data only from original publications, mostly from hundreds of scientific journals. Every bit of data is tied to the primary source, never to the secondary compiler (as in many entries in FNF). Massive amounts of scientist years have gone into its preparation.

Biologically active compounds found in 776 gm soybeans include the following (amounts are given where known): “295 mg acetyl-soyasaponin-A-4, 113 mg 5’-O-acetyl daidzin, 113 mg 6-O-acetyl genistein, 390 mg adenine, allantoin, beta-amyrin, 662 mg ascorbic acid, biochanin, 585 mg biotin, 12 mg boron, 388 mg BBI (Bowler-Birk Inhibitor), caffeic acid, campesterol, 8 mg beta-carotene, chlorogenic-acid, chlorophyll, 1942 mg choline, 1 mg coumestrol, 256 mg daidzin, 6318 mg daidzin, ferulic-acid, 49 g fiber, 0.3 mg folacin, formononetin, 30 mg genistein, 10 g genistin, glucuronic-acid, 10.8 g inositol-hexaphosphate [phytic acid], 7.8 g isoflavones, 388 mg KTI (Kunitz Trypsin Inhibitor), 19 g lecithin, 11 g alpha-linoleic-acid, 9 mg pantethenic acid, pectin, phytic-acid, 777 mg protease inhibitors, 6 mg pyridoxine, 777 mg rotenoids, 39 g saponins, 1 mg selenium, 699 mg beta-sitosterol, 935 mg soyasapogenin, stigmastrol, 109 mg gamma-tocopherol, 56 mg trigonelline, etc. It should be noted that the numbers above are calculated maxima.”

A search of his “Medicinal Plants of the World” database (Sept. 1981) shows that soybeans are or have been used medicinally in China to treat the following symptoms/diseases or for the following medicinal properties (listed alphabetically;
Most information from: Li Shih-Chen. 1973. Chinese Medicinal Herbs. San Francisco: Georgetown Press: “Abortion, ague, alcoholism, anodyne, antidote for aconite or centipede or croton, antinious, anus, apertif, ascites, ataxia, blindness, bone, bugbite, burn, carminative, chestcold, chill, circulation, cold, complexen, deconstenent, diaphoretic, diuretic, dogbite, dysentery, dyspnea, eczema, edema, enuresis, feet, fever, halitosis, headache, hematuria, impotence, intoxication, kidney, labor, larvacean, leprosy, malaria, marasmus, marrow, melancholy, metorrhagia, nausea, nerve, ophthalmia, pile, pregnancy, preventive (abortion) puerperium, refrigerant, resolving, rheumatism, scald, sedative, skin, smallpox, snakebite, sore, splenitis, splinter, stomach, tinea, venereal, vertigo, vision.” Uses in other parts of the world include: Cancer, and cyanogenic, shampoo (USA), diabetes (Turkey), soap (Asia), stomach problems (India). Address: USDA Germplasm Services Lab., ARS Building 001, Room 133, BARC-West, 10300 Baltimore Ave., Beltsville, Maryland 20705-2350. Phone: 301-344-4419.


• Summary: The following nations are listed for the first time as soybeans producers in the FAO Production Yearbook. F = FAO estimate. Nepal: Harvested 21,000 ha in 1989, 1990F, and 1991F.

Saudi Arabia: Achieved yields of 1,250 kg/ha in 1991.
Germany FR [Federal Republic = West Germany]: Harvested 2,000 ha in 1989 and 1990, and 1,000 ha in 1991.

• Summary: The following Iranian researchers have a strong interest in soyfoods: Dr. F. Farrahi, Dean, and Dr. K. Naji, Dept. of Food Science, School of Pharmacy, University of Tehran, Tehran, Iran.

• Summary: Anthracnose caused by Colletotrichum lindenmuthianum is a serious disease of soybean in the Kingdom Saudi Arabia. The anthracnose disease often results in necrosis and hypoplasia of soybean pods. In this experiment the microorganism, isolated from soybean in Saudi Arabia and maintained on a potato/dextrose agar medium, produced the following enzymes in vitro: polygalacturonase, pectin methylesterase, pectin trans-eliminase, and carboxymethylcellulase. Address: Dep. of Botany and Microbiology, College of Science, King Saud Univ., P.O. Box 2455, Riyadh 11451, Saudi Arabia.

• Summary: The 63-member United Soybean Board (USB), made up of soybean farmers, approved $17.85 million in projects during its annual meeting in December. They voted to spend $5.8 million on international efforts including a “new soybean promotion office in Moscow, a new office in Cyprus to target markets in North Africa and the Middle East, and expanded projects in about 80 other countries.” Other allocations: $5 million for soybean research, $2.75 million for soybean promotion and consumer information, $2.3 million (13%) to keep soybean farmers informed about their checkoff investment, and $2 million in industry information projects—such as a soybean marketing education program.

Note: David Thomas served as the first CEO of USB, from 1 Jan. 1992 until 31 March 1994.

• Summary: These republics, located in the far south of the former USSR and far away from Moscow, border on Iran, Afghanistan, and China. The mountains of Central Asia are remote and exotic lands, stretching from the Caspian Sea to the Gobi Desert. Alexander the Great and Genghis Kahn conquered these hills. Marco Polo crossed them on his way to China. Its ancient cities were major stops on the silk route. Long ago, Samarkand was a world capital. Many believe that Central Asian civilization peaked in the 9th and 10th centuries, during a great Iranian dynasty. Toward the end of the 10th century, this dynasty and the people were increasingly overrun by nomads speaking Turkish from the East. After the Turks came the Mongols under Genghis Khan. The Central Asians learned many new technologies from these contacts: silk culture, and the making of glass, paper, and carpets. Central Asia assimilated all its invaders but one—the Russians. The Russian invasion had the most long-lasting effect. The Russian empire pushed southward in the 19th century. Between 1859 and 1865 Russians conquered an area that they called Russian Turkistan or Turkestan. The chief cities were Tashkent, Samarkand, and Bukhara—all 3 in today’s Uzbekistan. By 1886 the Russians had conquered the entire region. Once the Soviet regime came in, it tried to make deep changes in Central Asian culture. Lenin practiced respect and justice to these ethnic minorities, these non-Russian republics, but Stalin did not. These native people and tribes had loyalties to Islam and to the idea of a Turkik people, Turkistan or Turkestan. Then between 1920 and 1925 Stalin divided Turkistan into 5 different republics, somewhat artificially. They were the
Turkmen, Uzbek, Tadzhik, Kirgiz, and South Kazakh S.S.R.s. The eastern part of Kazakh (Chinese Turkestan, Kashgaria, or Eastern Turkestan) is now part of the Chinese province of Sinkiang Uighur (Xinjiang Uygur). Today, after independence, these republics are called Turkmenistan, Uzbekistan (the largest population, 29 million), Tadzikistan, and Kirghizia, and Kazakhstan (the largest area with 16.5 million population). In 1924, all of these border lines and ethnic divisions were new on the map, and between 1924 and 1936 each of the new areas became a constituent republic of the USSR, i.e. a Soviet Socialist Republic. The Soviets undermined local arts and traditions, closed all local mosques and schools (which were all religious). The arabic alphabet, the sacred language of the Koran, was replaced by the Russian Cyrillic alphabet. Native languages were officially discouraged. Stalin built labor camps and prisons for political prisoners in northern Kazakhstan, and later the Kazakh desert was made into the USSR’s nuclear weapons testing ground. The once huge Aral sea has been reduced in size by 2/3 (an ecological disaster, shrinking from the world’s 6th largest lake to the 9th in only 2 years), as water has been diverted to irrigate nearby cotton crops. The Soviets turned Uzbekistan into one huge cotton plantation, boosting cotton production 10-fold with the massive use of fertilizers, pesticides, and herbicides—which poisoned the drinking water and food supply, even breast milk. Central Asia has an infant mortality rate 4 times that of the former USSR—the highest in the developing world. Yet some conditions, especially in the cities, improved under the Communists; they banished the veil, sent women to school and put them to work. Literacy rates, down around 1% in 1917, are now reportedly near 100%. Bloody ethnic disputes over land and water have erupted throughout the region since mid-1989. In 1989 Central Asians went to the polls in the Soviet Union’s first open election, and each Central Asian Republic ousted Russian as the official state language, replacing it with the native language. Strictures against the practice of religion (Islam) were lifted, so that the state language, replacing it with the native language. Strictures against the practice of religion (Islam) were lifted, so that the state

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.

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.


• Summary: Last year soyfoods were introduced to mass-market consumers by two of America’s corporate giants. (1) Archer Daniels Midland Co. (ADM of Decatur, Illinois) introduced the vegeburger to show that a delicious food product could be made from soy. ADM marketing specialist Lee Lensch says the soy burger is doing very well in test markets in Indiana, Illinois, and Minnesota. Versions of the product are being advertised nationally in corporate TV spots and on local TV in test markets. Buyers who gave the products shelf space at chains such as Kroger, SuperValue and Cub Foods now report brisk sales. (2) Protein Technologies International in St. Louis, Missouri, a subsidiary of Ralston Purina, is test marketing a soy-based beverage named First Alternative in Phoenix, Arizona.

Peter Golbitz, president of Soyatech Inc., a consulting company in Bar Harbor, Maine, notes that since the 1980s, Japanese companies (such as Nichii Co.) have invested at least $50 million in soyfoods manufacturing plants in the U.S.

“Retail sales of soyfoods are growing in America by about 5 to 7 percent a year, increasing to about $657 million in 1990, Golbitz says. The most rapid expansion is for soy milk, which is growing at a rate of about 20% a year, and second-generation soy foods which are growing at a rate of about 15%... Soy milk consumption in Australia, where it is sold in grocery stores like milk, is about 10 times what it is in this country.”

Worldwide, consumption of soyfoods now averages about 1.7 kg/person/year, and is expected to rise to 2 kg or more by the year 2000. Taiwan is the world leader with 15.5 kg/capita/ year of soy, followed by Japan at 11.1 kg. A world map and table (largely compiled from FAO Food Balance Sheets) shows “Soyfood consumption: Yearly average per capita (Amount of change from 1979 to 1988).” The following countries are listed in descending order of consumption in kg/capita: Korea 17.1 kg (2.4%). Taiwan 13.0 (37.0%). Japan 10.8 (6.7%). Indonesia 6.3 (57.4%). Hong Kong 3.8 (-22.0%). Saudi Arabia 3.6 (342.9%). China 3.4 (-5.6%). Paraguay 2.8 (50.0%). Malaysia 2.3 (102.2%). Thailand 1.6 (162.5%). Zimbabwe 1.6 (22.2%). United States 1.4 (33.3%).


• Summary: The author has isolated mutants defective in dicarboxylate transport in a slow-growing species of rhizobium, Bradyrhizobium japonicum. Address: Dep. of Biology, College of Science, Univ. of Bahrain, Isa Town, Bahrain, P.O. Box 32038, State of Bahrain.


• Summary: Daniel read with interest the article on titled “Soy protein’s history, prospects in food, feed,” by Johnson, Myers and Burden, published in INFORM 3(4):429 (1992). Since the article focused mainly on the production of soy protein concentrates, Chajuss would like to add some information.

In 1963 Chajuss established and owned the first soy protein concentrate factory (Hayes Ashdod Ltd., Ashdod, Israel) which was using a counter current aqueous alcohol extraction system. A system of aqueous alcohol immersion extraction was already
in use commercially by Central Soya Company (and is still used by Central Soya in the USA).

In 1966 Hayes Ashdod Ltd. introduced texturized soya protein concentrates under the brand names Hayprotex and Contex.

In 1968 Hayes started producing a special soy protein concentrate, free of trypsin inhibition and free of antigenicity, for use in calf milk replacers as a substitute of milk proteins.

In 1969 Hayes started to produce more functional and soluble soy protein concentrates, by further treatment of the aqueous alcohol extracted soy protein concentrate, for use as substitutes for soy protein isolates and for sodium caseinates in various food systems, especially in the meat processing industries.

In 1973 Chajuss sold know-how and complete engineering designs to Aarhus Oliefabrik A/S, Aarhus, Denmark, to make powdered and textured soy protein concentrates for human consumption, pet foods and calves milk replacers.

All the soy protein concentrate facilities worldwide, which were established since 1973 and which are still in operation today (including ADM {USA}, Bunge-SOGIP {France}, etc., with the exception of Central Soya’s USA plants) employ Chajuss’ technology and engineering designs, and are mainly based on the know-how and technology developed by Chajuss.

About 90% of the total world production of soy protein concentrates today is made by aqueous alcohol extraction. Most of the protein concentrates are used in the form of powder or grits, some are further texturized, and some are further treated to provide various “functionalities.”

“A few years ago we sold Hayes Ashdod Ltd., which was renamed ‘Solbar Hatzor Ltd.,’ being a joint venture of the German Soya Mainz Company and Kibutz Hatzor of Israel.”—Best Regards, Daniel Chajuss. Address: Managing Director, Hayes General Technology Company Ltd., Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel. Phone: (972) 8 592925.


• 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, Avery, Bell, Bryan, Burlison, Chapman, Colquitt, Conrad, Cordell, Crockett, Delsoy 4500, Delsoy 4900, Delsoy 5000, Delsoy 4120, Delsoy 4310, Delsoy 4710, Delsoy 4900, Dunbar, Edison, Elgin 87, Erie, Flyer, Glenwood, GR8836, GR8936, Hagoed, 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, IA2100 (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, Pennyrite, 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.”


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.


(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.

673. Product Name: Refined soybean oil.
Manufacturer's Name: Emirates Refining Co. Affiliate of Emirates Industrial & Trading Co.
Manufacturer's Address: P.O. Box 4115, Sharjah, United Arab Emirates. Phone: 971 6 357966.
Date of Introduction: 1992 September.
Ingredients: Soybeans.
How Stored: Shelf stable.
New Product–Documentation: '92 Soya Bluebook. p. 84.

674. Product Name: Full Fat Soy Flour (for Poultry Nutrition).
Manufacturer's Name: Mudurnu Tavukculuk A.S.
Manufacturer's Address: Bolu Cad. #167, Mudurnu 14800, Bolu, Turkey. Phone: 90 4617 1570.
Ingredients: Soybeans.
How Stored: Shelf stable.
New Product–Documentation: '92 Soya Bluebook. p. 84.

• Summary: “INTSOY and Egyptian officials have launched a $1.9 million project to boost soybean utilization in North Africa and the Middle East. The objective of this two year program is to introduce Egyptian entrepreneurs to new soybean processing techniques.

“This effort, designated as the Soybean Utilization Technical Assistance Program, concentrates on the development of private sector enterprises by strengthening the new food processing technologies in the country. INTSOY’s chief collaborator in the project is the Egyptian Ministry of Agriculture through the Food Technology Research Institute (FTRI) of the Agriculture Research Center, Giza, Egypt. Funding is provided by the National Agriculture Research Project through the U.S. Agency for International Development (USAID) in Cairo.

“Ahmed M. Khorshed and Nabih Ibrahim, who serve as director and deputy director respectively of FTRI, are the lead project directors in Egypt. Karl Weingartner serves as project leader...

“The project will result in the establishment of two model commercial pilot plants, one for the production of soymilk and another for high-protein, low-fat soy meal. FTRI will also establish a test kitchen, taste panel rooms and a classroom for instruction... As part of the project, at least 45 Egyptians will receive training at the University of Illinois...

“Egypt currently produces about 100,000 MT [metric tons] soybeans. Soybeans are grown in the area along the Nile River valley. The land devoted to growing soybeans is unlikely to increase because of the competition from cotton, which is essential to the country’s export market. Egypt imports soybeans, soy oil, and soy meal from the United States.”

• Summary: This publication supersedes an earlier edition published by AVRDC in 1987. It includes an additional 160 citations covering the period 1985 to May 1991.

Compiled by P.L. Hwang, F.C. Chen, and C.C. Wei, this bibliography contains abstracts of documents about soybean rust which are available in the AVRDC Library. Contents: Explanatory note, general information, pathogen morphology and taxonomy, physiology and biochemistry, epidemiology, pathogenic specialization, etiology, yield loss, and disease management (incl. general, chemical control, biological control, host resistance, cultural control).

Countries or continents mentioned in the index at geographical distribution of soybean rust: Africa, Asia, Australia, Brazil, Cambodia, China, Columbia, Costa Rica, Cuba, Guatemala, India, Indonesia, Israel, Japan, Korea, Latin America, Malaysia, Nepal, Papua New Guinea, Philippines, Puerto Rico, Soviet Union, Sri Lanka, St. Thomas, Suriname, Taiwan, Thailand, Togo, United States, West Indies, Venezuela, Vietnam, Zambia. Address: P.O. Box 42, Shanhua, Tainan 74199, Taiwan.

• Summary: Contents: Foreword. 1. The soybean: Background, production, marketing, agricultural characteristics, physical characteristics and morphology of the soybean, chemical composition (moisture, proteins, lipids, carbohydrates, minerals). 2. Utilization of soybeans: Utilization options for soybeans, whole bean utilization, the oil mill route (utilization of the oil fraction, utilization of the meal fraction). 3. Oil-mill operations: The expeller (operation principles, advantages and disadvantages of the expeller process, equipment), the solvent extraction process (operation principles, receiving and storage of soybeans, preparation for extraction, solvent extraction, post-extraction operations). 4. Edible soybean flours and grits: Introduction, definitions, composition and quality parameters (definition and classification of edible soy flours and grits,


• 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 5,000* ha in 1990, 1,000* ha in 1991, and 1,000* ha in 1992.

• Summary: * Former Soviet Republics–Azerbaijan: Harvested 1,000* ha in 1979-81, 100,000 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.


• Summary: “Hayes General Technology Company Ltd. is an agro-industrial engineering company incorporated in 1985 by Daniel Chajuss, the founder and owner in 1963 of Hayes Ashdod Ltd., the first facility of its kind, world wide, to manufacture soya protein concentrates by a unique aqueous alcohol extraction process developed and patented by Daniel Chajuss.” Address: Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel.


• Summary: A fascinating book of vast scope. The author’s principal interest is in the medieval and Renaissance culture of Europe, in particular the domestic economy, food, and clothing. Thus the focus of the book is on Europe (especially France) and the Middle East. It also emphasizes the symbolism of foods.

Chapter 2, “The history of gathering,” contains a section titled “Soya: the most widely eaten plant in the world” (p. 51-56), which is long on myth and symbol, and short on historical accuracy. It briefly discusses the following: Soya milk, soya flour, miso, jiang, soya sauce, soya oil and meal, bean-sprouts, tofu, dried soya beans.

Interesting chapters include: The history of meat (p. 93+). The history of cereals (p. 125+). The history of oil (p. 205+). The history of bread and cakes (p. 223+). An essential food: The history of salt (p. 457+). Spice at any price (p. 480+, including The great trading companies). The lure of sugar (p. 552). The potato revolution (p. 711+). The assurance of dietetics (p. 755, including an excellent “Chronology of dietary progress” from 2 million B.C. to the present, with detailed information on food developments during the paleolithic,
observant than the Ashkenazim). Address: Historian, journalist, writer, France.


• Summary: According to Webster’s Dictionary, Jews are typically divided into two large branches. Ashkenazi Jews (the Ashkenazim) are those whose ancestry is traceable to Germany and Eastern Europe and who speak Yiddish. The Hebrew word Ashkenazi is a medieval rabbinical name for Germany. Sephardic Jews (the Sephardim) are those members (or their descendants) of the western or occidental branch of European Jews settling in Spain and Portugal, and later (after their expulsion in 1492) in Greece, the Levant [the countries bordering on the eastern Mediterranean], England, the Netherlands, and the Americas. The word Sephardi comes from the name of a region where the Jews were once exiled (see Obad 1:20 “... while the Jerusalemite exile community of Sepharad shall possess the towns of the Negeb”). These two groups pronounce the same words differently. The Israeli pronunciation of Hebrew is the Sephardic.

According to a book titled Society, published by the Israel Information Center, Israel’s population is 82% Jews, 16% Arabs, and 2% Drews Moslems. Of the Jews, 22.4% were born in Israel, 39.7% were born in Europe or America (Ashkenazi), and 17.9% were born in Asia and 20% in Africa (total 37.9% Sephardi; they tend to be more religious, more observant than the Ashkenazim).

There are no statistics on how many Jews keep Kosher (follow a Kosher diet). However concerning religion, 20% say they keep all the laws including the dietary laws (Orthodox), 60% say they keep some combination of the laws, and 20% are totally non-observant (secular). Each family has the choice of educating its children in a religious or in a secular school. 20% of parents send their children to a religious (Hebrew) school, and these families probably keep Kosher.

Thus Noa Broshi of the Israeli Consulate in San Francisco, California, guesses that 50% of Israeli Jews keep Kosher. It is much more common to keep Kosher than to go to the synagogue. All the meat in Israel is Kosher and none of the cheese contains rennet.

Noa also notes: In terms of class structure and attitudes, Ashkenazi Jews in Israel are more powerful politically and economically than Sephardic Jews, and also tend to be more secular. The Ashkenazim started the Zionist movement, played the key role in establishing the State of Israel, and they still rule Israel. The Sephardim tend to fall more into the lower classes, in part because they came to Israel from poorer regions; they often look different and they came to Israel later than the Ashkenazim.

Why aren’t non-dairy products as popular in Israel as they are in the USA among people who keep Kosher? In Israel, the typical family who keeps Kosher does not necessarily think of or want to have dairy products with a meal that contains meat; they might, for example, have fruit for dessert instead of a non-dairy ice cream. They don’t try to find a shтик (gimmick) that allows them to get around the law. But in America, many Jews—because they are a minority—want to avoid being seen as Jewish or different from other Americans, so they have grown accustomed to following American dietary patterns. Since this can conflict with a desire to keep Kosher, they have come up with solutions—such as developing and using non-dairy products like soy ice creams.

It is now quite fashionable among young people in Israel to be vegetarian—quite aside from their attitudes toward keeping Kosher.

682. Product Name: Bustan (Full-Fat Soya Micro Powder) [NSI 80, 55, or 25].
Manufacturer’s Name: Gulf Import and Export Co.
Manufacturer’s Address: P.O. Box 5326, Dubai, United Arab Emirates. Phone: 971 4 215875.
Ingredients: Soybeans.
How Stored: Shelf stable.
New Product—Documentation: Spot in SoyaFoods. 1993. Winter. p. 2. This company, the largest transshipment facility between Algeria and Singapore, owns the largest and most modern completely computerized silo in the Jebel Ali Free Zone (UAE). The company produces 3 types of this soya powder: NSI (Nitrogen Solubility Index) 80, 55, and 25. The product is suitable for application in the dairy, meat processing, confectionery, and other food industries.


• Summary: Dr. Katzen was born in the United States, in Pennsylvania, in 1925. He went to Arkansas State Teacher’s College for about 2 years, then he earned a BSc degree in agriculture from the University of Missouri in 1950. Then did work related to agriculture (but not to food processing) at various places around the world—including Israel. He first went to Israel in 1948. He returned in 1961 as a consultant to the Central Feedmills Corporation (which was owned by the kibbutzim and moshavim to create centralized feedmills). He helped to established the mills and a central laboratory to do the feed formulation and research, working until about 1966. During this time Israel was importing a lot of soybean meal for use in animal feeds and soy oil for food use. Sol first met Daniel Chajuss of Hayes Ashdod Ltd. in about 1964 or 1965 when Daniel had a by-product of his soy protein concentrate,
a molasses. Sol worked to incorporate that molasses into his feed formulas.

From 1966-67 Sol was at the University of Arizona (in Tucson), where he earned an MSc degree in animal nutrition. He continued on at the Univ. of Arizona to earn a PhD degree in 1970. Working in the fields of biochemistry and microbiology, he wrote his thesis on the interrelationship of mycoplasma (parasitic microorganisms) and the herpes simplex virus. He continued working for the feedmills during this period.

Sol had an elder brother named Sid, who had been a partner in a trucking business in Springdale, Arkansas. He left the business due to health problems and moved with his family to Tucson, where Sol’s family lived. Sid started a mineral business and was doing quite well. While Sol was working for his PhD degree, he became increasingly interested in soybeans and their nutritional benefits. He suggested to Sid that they both start a company in Tucson making foods from soy protein—with the idea that if the company was successful they would later establish it in Israel. Their main interest was in moving to Israel and having a business that would support them there. So together (and with several other investors) they opened a little fast food restaurant in Tucson named Shefa Fry. They hired a professional short-order cook, and served both takeout and sit-down customers. The centerpiece of the menu (which contained no meat products) was an innovative variety of structured meat-like soy protein foods, in different shapes and flavors, prepared like deep-fried breaded cutlets in entrees, sandwiches, etc. They got quite a bit of coverage in Tucson newspapers (Arizona Daily Star and/or Arizona Citizen). The basic idea of the restaurant was to test the acceptability, versatility, and marketability of this soy protein product to a broad public. They hoped that it would expand into a successful nationwide franchise—though it never did. The restaurant was quite a thriving business for a time, though it was not in a very good location and it lacked professional management (Sol and Sid tried to stop in daily).

Sol and Sid developed and manufactured the structured soy protein foods for this restaurant from defatted soy flour at the Wenger R&D extrusion facility in Kansas. They did further experimentation with the products they made at Wenger. Note: In a follow-up letter dated 2 May 1993 Sol said: “I don’t think there was an official company in Arizona, but if there were, it probably started in 1967.”

In 1968 they purchased two Wenger extruders (a small but versatile X-25 and a larger X-200); Sid took them to Israel. Continued. Address: PhD, 62 Hanassi St., Herzliya Pituach, Israel; 1507 E. Prospect Lane, Tucson, Arizona 85719. Phone: 52-586369.


• Summary: In 1968 Sid and Sol Katzen incorporated a company named Shefa Protein Industries Ltd. in Arad, Israel. They had equal ownership. They chose to locate in Arad (located 30 km southeast of Beersheba, near the top of a mountain overlooking the Dead Sea) because they liked the climate (which resembled that of Arizona), it was a nice town with a congenial atmosphere, and it was in a “development area,” where the government would give support to new industries through tax breaks and low-cost loans. They started in building of approximately 6,000 square feet. Sid ran the company for the first 2 years, then Sol joined him in 1970 after earning his PhD degree. Sid was in charge of the business and finances, and Sol was in charge of the plant and food processing.

Shefa’s first product was SVP (Structured Vegetable Protein, plain chunks of extruded defatted soy flour), which went on the market in early 1969. Later in 1969 the company introduced a dry, soy-based Vegetarian Schnitzel. When Shefa started, Sol would take his products (with oil, eggs, etc.) to their friends houses and offer to prepare foods fresh in the kitchens. Soon friends were buying the dry Schnitzel in boxes of 10 kg each for home use. Next, in 1970, came a line of breakfast cereals called “Krunch” (Crunch) in English or Hebrew. At this point, Shefa moved into a much larger building (at least 4 times as large as their original building) in Arad. At some point this location was given the address 12 Htaasya St., P.O. Box 39, Arad 80700, Israel. The company’s next two products (and their first frozen product, and first in the new building) were a frozen Vegetarian Hamburger and frozen Vegetarian Schnitzel, launched in about 1971. They set up a food-processing line in their plant. They bought fresh yeast, which they hydrolyzed. They then used this yeast hydrolyzate in these two frozen soy products. The yeast not only gave the products a meatlike flavor, but (more important) the enzymes in the yeast reduced or eliminated the flatulence-causing sugars in soy—probably by breaking them down into carbon dioxide and water. This was a discovery of great economic and culinary importance. Sol’s wife, Avigail (nickname “Gaya”) who was born in Israel, and her sister were indispensable to the company’s work in developing tasty formulas and recipes.

The company marketed its innovative products as both meatless products and meat extenders; consumers could use them as they liked. However the company never used any meat in its products meant for human consumption. In Sweden, the SVP was used mostly by vegetarians, while in Iran it was used mostly to extend meat; Shefa sent a technician to Iran from Israel to show several meat-packing operations how to make hamburger patties extended with 30% of their rehydrated SVP, leading to a significant reduction in cost.

Another early dry product, launched in about 1972, was named Eggstra, an egg extender based on whole (full-fat) soy flour.

The company’s best-selling product was the SVP, followed by the dry Schnitzel. Large amounts of both of these products...
were exported, and exports were an important part of Shefa's total business.

As far as Sol knows, Shefa was the first company in Israel to make retail soyfood products, although he is sure there were others experimenting with soy at that time. Note: Hayes Ashdod Ltd. introduced Haypro (a soy protein concentrate) in 1963, and 2 types of textured soy protein concentrates in 1966, but these were not sold to retail consumers. Sol and Daniel Chajuss (the founder and owner of Hayes) were friends and not competitors, but they did not have much social contact. Sol is not aware of any other retail soyfoods products that were made in Israel during the period 1969-1975. Shefa’s (and a few imported products) were the only consumer products on the market in Israel during that time.

At the time Shefa started, “soy had a very negative image in Israel. If we had known how negative, I think we would have left the word “soy” out of the name of our products.” Sol still does not know the cause or source of this negative image. “The Israeli market is very strange in the sense that many people will have a negative image of a food they have never tasted and don’t know anything about.” Just before Sol sold the company in 1976 he developed a dog food product. They made the basic part of the expanded dog pellet in their regular extruder, then they moved it downstairs into a line where they sprayed a meat-and-fat broth on it. The chunks would soak up this broth, which gave quite a meaty taste to the exterior part of each chunk. It was formulated to satisfy the nutritional requirements of most dogs. The product (later named Dogli by Telma) first went on the market shortly after Sol sold the company.

In Feb. 1975 Sid Katzen died. Since Sol did not want to try to take over his role running the business end of Shefa, he sold the company to Telma Blue Band (Israel Edible Products Co.–IEC; Israel’s leading manufacturer of margarine), which was acquired several years later by Koor Industries (the industrial branch of the Histadrut—the Israeli Labor Federation). Koor (at one time and maybe still today) controlled about 25% of all industry in Israel. The labor party for many years controlled the Israeli government, the labor union, and was a major player in Israeli industry, so it was very difficult for anyone who was not in some way affiliated to get the same advantages as those who were.

After the sale, Sol returned to the USA to teach at the University of Arizona. Telma/IEP made many of Shefa’s products taste better by adding things to them (such as more sweetener) and removing things from them (such as bran) that Sol would not have added or removed because he was very oriented toward providing foods with optimal nutritional value. Telma has greatly expanded the plant in Arad, but has not moved it.

Sol has heard of Eliahu Navot (who also lived in Herzliya, and is considered by many to be the “father of the soybean in Israel”) but he never met him. Address: PhD, 62 Hanassi St., Herzliya Pituach, Israel; 1507 E. Prospect Lane, Tucson, Arizona 85719. Phone: 52-586369.


• Summary: “The Gulf Export and Import Co. of Dubai, United Arab Emirates [UAE] is the largest transhipment facility between Algeria and Singapore. The company owns and controls the largest and most modern fully computerised silo in Jebel Ali Free Zone (UAE) with a capacity of 120,000 MT [metric tons] at any time expandable to 200,000 MT. This facility can discharge and load 2000 MT of grain per hour. The company produces high quality full fat soya micro powder, using this state of the art technology which is prepared from whole soya bean using prime quality beans.” The company makes 3 types of products under the brand name Bustan.

Note: It seems reasonable to assume from the above that this company imports soya beans to the UAE. Therefore: This is the earliest document seen (Dec. 2007) concerning soybeans in United Arab Emirates. This document contains the earliest date seen for soybeans in United Arab Emirates (Feb. 1993).

686. 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.


• Summary: Three early soybean crushers in Israel were Shemini, Teth-Beth, and Etz-Haitzith. One of them may have produced soy flour at an early date. Look in early issues of the Soya Bluebook to see. Address: 1701 N. Sayre Ave., Chicago, Illinois 60635. Phone: 312-637-0936.

**Summary**: Talk with Lon Stromnes of White Wave. 1993. Feb. 9. Steve Demos has visited the Triballat plant in France where Sojasun is made, he knows all about it, and he knows that Sojasun is opening a plant in China.

A Chinese-American businessman, who wishes to remain unnamed, states that Triballat has sold a lot of their soymilk and yogurt technology to China. They have sold 6 plants to China, one to Saudi Arabia, and one to some country in South America. He is certain that this information is correct.

This was confirmed again in Nov. 1993 by a German who knows Triballat well.


**Summary**: An Israeli soy marketer (who prefers to remain anonymous) feels that the history of the soybean in Israel is a very narrow subject, which is not particularly interesting. To understand why soyfoods have not been more readily accepted in Israel, one must divide the population into its various segments. The soybean has not been well accepted in traditional or primitive societies [as in Africa or western Asia] outside of its homeland in East Asia—in large part because those people (unless they are pretty well advanced technologically) do not accept dietary changes. A large percentage of the population in Israel consists of people who come from such rather backward societies. For example, he does not think that Jews who immigrated to Israel from Morocco or Iraq would be more inclined to take to dietary changes when they are in Israel than when they were in Morocco or Iraq.

Among the more affluent and better educated residents of Israel, meat is or was a status symbol which they didn’t want to give up. Moreover, the level of awareness concerning diet and health is much lower in Israel than it is in the USA.

He would estimate that at least half the people in Israel don’t really care about eating a kosher diet; they don’t care about eating dairy products at the same meal as meat. Moreover, the population of Israel [not including the occupied territories] is small; it was only about 2.5 million in 1970, and about 5.2 million (of which nearly 800,000 are Arabs) in 1992.

Nevertheless a number of companies making soyfoods in Israel have done very well. These include Tivall (Tivol) and Zoglabeck (located in the Haifa area); both companies make a very nice line of soy-based vegetarian foods, which appeal to a small portion of the population.

Most supermarkets in Israel have a large selection of meatless products made by Tivoll (Tivall), so many homemakers are using them—but the products are expensive. Zoglabeck is a large a meat processing company that processes and sells sausages, wiener, bologna, hamburgers, turkey breasts (cured, roasted, smoked), etc. In the last few years they have gotten into the vegetarian food business with soy-based products. One incentive for this move was probably the observation that Tivoll was dominating a rapidly growing new market. Zoglabeck’s meatless products are now sold in most supermarkets in Israel and they are starting to compete with those made by Tivoll. Not all the meat in Israel is kosher.

There is a kibbutz in Israel named Misrah, which owns a company of the same name, that processes pork products. Many citizens of Israel eat pork, even though it is not kosher. It is only sold in special stores, since no regular supermarket or food store would sell pork. If they carried it, they would loose their Kashruth certificate.

690. **Product Name**: [Tofu].

**Manufacturer’s Name**: Soy Yildiz.

**Manufacturer’s Address**: Bornova, Izmir, Turkey.

**Date of Introduction**: 1993. May.

**New Product–Documentation**: Talk with Murat Bukey, son of the owner of Key Gilda, Inc., Turkey’s second tofu manufacturer. 1994. Nov. 17. As far as Murat knows, the first person to make tofu in Turkey was Mehmet Adnan, who probably learned how to make tofu in East Asia. Mehmet founded Soy Yildiz, and started making and selling tofu in about May 1993. He was a good entrepreneur, but he had limited financial resources, so he made tofu under very primitive conditions—like the Middle Ages. He was not able to survive, so he taught Murat’s father, Ataman Bukey, how to make tofu. Ataman became Turkey’s second tofu manufacturer, starting in Sept. 1994.


**Summary**: Field trials were conducted during the 1988 and 1989 summer growing seasons at the University of Jordan Research Station in the central Jordan Valley, about 250 meters below sea level on sandy clay loam calcareous soil. They studied the potential and response of 3 summer crops to intercropping and poultry manure application.

“...Inorganic fertilizers have long been used for irrigated field crops in the Jordan Valley without any environmental safeguard especially for the expected leaching as well as accumulation of fertilizers that might affect the soil as well as ground water in the long run. However, this problem could be reduced by shifting to more organic fertilizers along with applying an intercropping system.” Intercropping often gives more total yield than sole cropping and makes more efficient use of resources. Legume crops have been found to have particular significance in intercropping because they often leave nitrogen in the soil for subsequent non-legume crops.

The soybean variety Merit was first planted in early March 1988 and cultivated as a sole crop and as an intercrop in 3 paired combinations, with 3 levels of poultry manure. The highest yields for the two cropping systems were obtained...
with the highest level of poultry manure (40 tonnes/ha). Soybeans gave the highest yield when grown with maize, and vice versa, leading to increases of 35% and 34% over soybean grown as a sole crop at the same poultry manure level in 1988 and 1989, respectively.

The land equivalent ratios values for all intercrop treatments were greater than 1.0, indicating the superiority of intercropping over sole cropping, especially were 40 tonnes/ha of poultry manure were added. Address: 1. PhD, Assoc. Prof., Plant Production Dep.; 2. Assoc. Prof., Soils and Irrigation Dep. Both: Univ. of Jordan, Faculty of Agriculture, Amman, Jordan.

692. **Product Name:** Tesco 10 Vegetarian Sausages.  
**Manufacturer’s Name:** Tesco Stores Ltd. (Marketer-Distributor). Made in Israel [probably by Tivall].  
**Manufacturer’s Address:** Cheshunt EN8 9SL, England.  
**Date of Introduction:** 1993.  
**Ingredients:** Textured soya protein, wheat protein, sunflower oil, egg albumen, spices, flavourings, starch, salt, stabilisers (guar gum, carrageenan), vitamin C, niacin, pantothenic acid, vitamin B-1, vitamin B-6, vitamin B-2, vitamin A, vitamin B-12.  
**Wt/Vol., Packaging, Price:** 300 gm paperboard box.  
**How Stored:** Frozen.  

693. **Product Name:** Tivall Vegetarian Banger.  
**Manufacturer’s Name:** Kibbutz Lochamei Hagetaot, Oshrat 25220, Israel.  
**Manufacturer’s Address:** Cheshunt EN8 9SL, England.  
**Date of Introduction:** 1993.  
**Ingredients:** Rehydrated soy and wheat proteins, sunflower oil, egg white, natural spices, natural flavouring, sea salt, onion, garlic, vitamin A, vitamin C, B-group vitamins (B-1, B-2, B-6, B-12, niacin, pantothenic acid).  
**Wt/Vol., Packaging, Price:** 300 gm paperboard box. Retails for £2.53 (10/94, UK).  
**How Stored:** Frozen.  
**New Product–Documentation:** Label sent by David Greenslade. 1994. Oct. 8.75 by 5 by 1.25 inches. Dark green, light green and red on tan. Color photo of 4 bangers (like American hot dogs) on a white octagonal dish next to lettuce and one cherry tomato, all set on a wood table with red salt and pepper shakers nearby. “No preservatives. No artificial coloring. Vegetarian food products grown with nature’s goodness. Lightly smoked, shaped and textured vegetable protein.”

694. **Product Name:** Tofu.

695. **Product Name:** Tofu Delites (Non-Dairy Frozen Dessert) [Chocolate].  
**Manufacturer’s Name:** Trade Group Africa (Israel) Ltd. (Marketer). Made by Rio Ice Cream and Sweets Ltd.  
**Manufacturer’s Address:** TGA: P.O. Box 5318, Afridar, Ashkelon, Israel. Rio ICS: P.O. Box 13281, Netanya, Israel.  
**Phone:** TGA: 09972-7-713390.  
**Date of Introduction:** 1994. March.  
**Ingredients:** Water, sugar, vegetable fat, glucose, cocoa powder, emulsifiers, stabilisers, vegetable protein, salt, flavours.  
**Wt/Vol., Packaging, Price:** 1000 ml (500 gm) tub.  
**How Stored:** Frozen.  
**Nutrition:** Per 100 ml.: Energy (calories) 103, protein 1.5 gm, carbohydrates 11.5 gm, fats 5.75 gm, sodium 40 mg, saturated fatty acids 4.5 gm, cholesterol 0 mg.  
**New Product–Documentation:** Letter (fax) from Zvi Sundy of Agrica Trade Group (Israel) Ltd. 1995. June 23. “Trade Group Africa produce soya based frozen desserts and soya milk powder in Israel.” The letterhead describes the company as “International Procurement Consultants... A member of the SATT Worldwide Group of Companies.” Phone: (07) 71-3990. Fax: (07) 73-6058. The letterhead states that the company has “Co-ordinating offices in: Australia, Canada, Chile, England, Hong Kong, Korea, South Africa, Taiwan.”

**List of new tofu manufacturers**

- **Oshrat 25220, Israel.** 1994. September 19 and 1989, respectively. The company began to make soyofoods, starting with tofu, in March 1994. They now make 2,400 lb/month of tofu.

696. **Product Name:** Tradsoy (Soya Milk).  
**Manufacturer’s Name:** Trade Group Africa (Israel) Ltd. (Marketer).
Karen Freedland is no longer with Jerusalem Tofu; she is back at a chicken laying factory. The phone number is now 434-830.

The tofu company is now in a large building that was formerly Aminadav from Moshav Orah (which is nearby in Jerusalem), and work as production manager so Susan can take a vacation.

Matthew to play the lead role in expanding the company. He plans to go back to America. The business is flourishing and Susan wants Matthew to lead the role in expanding the company. He has been working there, making tofu, recently. He would estimate they make over 600 kg/week. He plans to go back and work as production manager so Susan can take a vacation and maybe retire. The company recently moved to Moshav Aminadav from Moshav Orah (which is nearby in Jerusalem).

The tofu company is now in a large building that was formerly a chicken laying factory. The phone number is now 434-830. Karen Freedland is no longer with Jerusalem Tofu; she is back in the USA.

The other big tofu company in Israel is Mikor Hateva located just outside Tel Aviv, about 45 minutes drive from Jerusalem. It is run by “Black Jews,” black Americans who moved to Israel. This company is Jerusalem Tofu’s biggest competitor, though they are smaller. They also make tofu ice cream. They have been around for a long time, but they recently changed their name to Mikor Hateva. and recently started making tofu. They have now an Israeli partner. The Macrobiotic Center in Tel Aviv also makes some tofu, but mostly for people at the center.

There is now a commercial tempeh shop in Israel, in Beersheba [Be’er Sheva] (Israel’s 4th largest city), run by Roxanne, an America woman from Colorado. Tivoli [Tivall] is also doing a lot with soy in meatlike products; they are the big boys on the block. Address: Binghamton, New York.

Matthew, age 26, is the son of Susan Ergas who owns and runs Jerusalem Tofu, Israel’s largest tofu manufacturer. He is looking for sources of organic soybeans in America. The business is flourishing and Susan wants Matthew to play the lead role in expanding the company. He has been working there, making tofu, recently. He would estimate they make over 600 kg/week. He plans to go back and work as production manager so Susan can take a vacation and maybe retire. The company recently moved to Moshav Aminadav from Moshav Orah (which is nearby in Jerusalem). The tofu company is now in a large building that was formerly a chicken laying factory. The phone number is now 434-830. Karen Freedland is no longer with Jerusalem Tofu; she is back in the USA.

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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.

• Summary: Solbar Hatzor Ltd. of Israel has recently been awarded the International Quality Management Standard, ISO 9002–SI 2002, by the Standards Institution of Israel.

• Summary: Ted has piles and piles of documents related to soybeans in Eastern Europe and Russia that he hasn’t even looked at. “And this is only one of many boxes.” They were sent by Bogdan Belic (a real scholar) and other colleagues in Eastern Europe. One Russian-language book (44 pages) titled Soya, by A.E. Vochino, was published in 1901. Also a 1910 Russian-language booklet (16 pages) titled Soja cultivation and application by Timofeoff.

One book (written using the Cyrillic alphabet) on the History of Novi Sad (Historia Novi Sad) was published in 1975 in Novi Sad. Its German original is kept at the manuscripts department at Matissa Sopa in Novi Sad. It was translated by Tomislav Belchik with comments by Dr. Slavo Garalovich. Novi Sad (German: Neusatz) is a city and chief town of the Vojvodina autonomous region in Serbia, northern Yugoslavia, on the Danube River. It was part of Hungary until the formation of Yugoslavia in 1918. This history book contains a chapter on the “History of the Sajkaska Battalion. Part I,” by General Avram Gushik. It talks about the early history of “Persian soybeans,” with 36 references. It discusses the history of the Sajkaska region. “In 1817 two lots of ‘Persian soybeans’ were planted for tests. The yield was 5+ pounds and 25 lots of grain. Two years later ‘Persian soybeans’ were planted again on a much larger area. This time the yield was 27 pounds and 12 lots of seed, brought the yield up to 358 pounds and 8 lots. In 1820 the entire last year’s crop was planted, but the yield was only 8 pounds because of severe drought. It was decided to abandon the intensive planting of ‘Persian soybeans’ and leave it up to the borders to plant them at will. It was found that the Persian soybean yielded less meal than the domestic soybean.”
Note: Persian soybeans could be chick peas. But the last line seems to indicate that soybeans were well known in the area by 1820.

Ted has a 1910 (March 12) Russian-language letter concerning Soy Coffee in Tiflis, Georgia. We have the letter in English from Frank N. Meyer. Address: Prof. of Plant Genetics, Urbana, Illinois.


• Summary: Soybean meal (SBM) was one of the protein sources evaluated as a replacement for more expensive fish meal (FM). Results showed that the tiny silver sea bream...
(Rhabdosargus sarba) utilized spirulina (Spirulina maxima) meal (SM) more efficiently than SBM or chicken offal meal (COM). SBM, SM, and COM can replace 25, 50, and 25% of FM protein, respectively, in silver seabream diets without adverse effects on their growth and feed utilization efficiency. Also discusses the use of “poultry by-products (PB)” in fish diets. Note: The meaning of “chicken offal meal” and “poultry by-products” are not explained. Address: Dep. of Marine Sciences, Faculty of Science, Univ. of Qatar, P.O. Box 2713, Doha, Qatar.

Address: Ecole Superieure d’Agriculture d’Angers, Angers, France.


- **Summary:** Eli is the son of one of the owners of this family-owned business, which started processing meat in Israel 55 years ago (i.e. in 1940) and is today the country’s largest meat processor, making sausages, pizza, dough, pasta, etc. The family came to Israel from Germany. Soglowek (also spelled Zoglabeck or Zoglovek or Zoglowek) is located at 8 Ha Gaton Blvd., P.O. Box 70, Naharya, Israel–10 minute’s drive from Tivall. Soglowek started making meat alternatives after Tivall and today they are Tivall’s main competitor in Israel. The CEO of Tivall today is Gazi Kaplen, and the man who developed Tivall’s products is Michael Shemer, who studied in the USA, wrote his PhD thesis in 1973 on soy protein at the University of Illinois, learned about meatlike products there, then later worked for General Mills.

Tivall started making meatlike products in 1985 and Soglowek started 1-2 years later, making their products under the brand Zoglo’s mainly from textured soy protein concentrates and wheat gluten. Their main products are Veggie Burgers and Veggie Cutlets (a kind of schnitzel). They buy their textured concentrates from both ADM and Central Soya, and their wheat gluten probably in Israel. Soglowek sells some of its meatlike products in Israel, but also exports large quantities to Europe and the United States. Address: 300 East 90th St., Apt. 4B, New York, NY 10128.


- **Summary:** The three major manufacturers of meat alternatives in Israel are Tivall (Tivol), Soglowek (also spelled Zoglabeck or Zoglovek or Zoglowek), and Shamir Food Industries Ltd. Daniel estimates that Tivall has about 50% of the Israeli (non-export) market, followed by Soglowek (35%), and Shamir (15%). Shamir’s products are being sold under the label of Dreizin Food Industries Ltd. About 500 tons/month of products made by these three companies are being sold now in Israel—a huge amount. Most (but not all) of these products contain soy. Tivall has been making these products the longest and Shamir is the most recent entrant into the market. Why do Israeli consumers buy these products? Many buyers do not follow a kosher diet. They like these as convenience products, as natural foods (which they aren’t really), and as vegetarian products. Daniel would guess that about 5% of Israelis are vegetarians. There are some villages of American Seventh-day Adventists in Israel near the Sea of Galilee that are completely vegetarian. Vegetarians automatically keep kosher.

Daniel believes that Tivall can trace its origins to the work of two men: Dr. Michael (Micha) Shemer, who earned his PhD at the University of Illinois at Urbana-Champaign in 1973, and Saul Katzen, who was the first person to make meat alternatives from extruded soy flour in patty form. Saul’s main problem was that his products were made from soy flour, which led to problems of taste (the main problem), antigenicity, and some intestinal gas. Saul bought his soy flour (the fines from non-toasted white flakes sifted out prior to alcoholic extraction) from Daniel’s company, Hayes Ashdod Ltd. Saul had extrusion equipment (Wenger X-25 and X-200), so Daniel urged Saul to buy soy protein concentrates (made by Daniel’s company) instead of soy flour, and run the concentrates through his own extruder. But Saul felt that soy flour was less wasteful and less expensive. Daniel believes that the use of soy flour led Saul’s company into bankruptcy. Daniel was very sad about this bankruptcy, and for a long time before it happened, Daniel gave Saul a lot of soy flour free of charge. After Michael Shemer left the University of Illinois, he went to work for Miles Laboratories, which had purchased Worthington Foods. Then he returned to Israel and worked for Miles on a citric acid project. When Michael was fired by Miles in the late 1970s, he joined an Israeli company name Pedco, which made many kinds of food products. Michael taught Pedco how to make meat analogs. Tivall, a company which is located on a kibbutz in northern Israel, bought Pedco in 1984; Tivall was established and incorporated for the sole purpose of purchasing Pedco and its activities; Tivall was not engaged in any activity and did not operate prior to its purchase of Pedco. Tivall had plenty of start-up capital and the now has a lot of money, most of which they have earned making meat alternatives. A daughter company of theirs used to make tsurumi-like products, but now they are separated.

Dr. Shemer was granted several Israeli and international patents on his process which uses reducing agents (or ss-cleaving agents) to soften gluten. Daniel believes that Tivall is no longer using the Shemer patents; rather they are using a 1956 Hartman/Worthington patent—which is now in the public domain. Thus Shamir can now also use that patent.
To make meat alternatives, Tivall now starts with wheat gluten and adds a reducing agent (such as sodium sulfite) to make the gluten soft. Or ascorbic acid can be used; its low pH softens the gluten. A 1956 patent issued to Warren Hartman and assigned to Worthington Foods describes how to soften gluten by adding soy flour or soy protein. Shamir wants to add soy protein concentrate (SPC) to wheat gluten to soften it. Tivall maintains that SPC is a reducing agent—but Daniel is certain that soy flour is a reducing agent, but regular SPC is not; its NSI is 3-6. Dr. Shemer has testified that Tivall is the world’s largest manufacturer of meat alternatives and that it was the world’s first company to make meat alternatives using wheat gluten and soy protein, but it is well known that Worthington Foods made such products long before Tivall. To help resolve its dispute with Tivall, Shamir hired Dr. Noam, who is a chemist and a patent lawyer. Daniel assisted Dr. Noam—which did not please the people at Tivall.

Shamir is located in the Barkan Industrial Zone (P.O. Box 5), M.P. Ephraim 44820, Israel (Phone: +972-3-936-4159. Fax: +972-3-936-4160); this is in central Israel, far from Tivall. Shamir’s basic business is making prepared foods, especially salads, for both consumers and catering (foodservice). They are a relatively small company and they have had a line of meat alternative products on the market for about 3 years—on a very small scale. They make meatless hamburger-like patties (with or without breading; with breading is called “vegetarian schnitzel”), sausages (frankfurters), and some non-soy main dishes based on vegetables—such as peas and corn. These products are similar to those made by Worthington.

Soglowek, a rich and powerful company, is located at 8 Ha Gaton Blvd., P.O. Box 70, Naharya, Israel—10 minute’s drive from Tivall. When Soglowek began to compete with Tivall in the meat alternatives market, Tivall’s prices dropped significantly. Address: Managing Director, Hayes General Technology Company Ltd., Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel. Phone: (972) 8 592925.

710. Chajuss, Daniel. 1995. New and improved process for making soy protein concentrates (Interview). SoyaScan Notes. July 2. Conducted by William Shurtleff of Soyfoods Center. • Summary: Daniel has developed and patented a new and improved process for making functional soy protein concentrates using ammonia. He has been issued patents in several countries. The U.S. Patent No. is 5,210,184. He was issued the patent in 1991 but was using the process for many years before that. You can strip ammonia, obviating the need to neutralize the base. The resulting concentrate is really excellent; no salts are formed and the taste is good. Ammonia is used extensively in the food industry to make vital wheat gluten.

There was an excellent Staley patent that was bought by Central Soya to make functional concentrates, but it used sodium hydroxide or potassium hydroxide. Address: Managing Director, Hayes General Technology Company Ltd., Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel. Phone: (972) 8 592925.

711. Chajuss, Daniel. 1995. Concern about phytosterols in soy molasses and other soy products (Interview). SoyaScan Notes. July 2. Conducted by William Shurtleff of Soyinfo Center. • Summary: The rations for all milk cows in Israel are calculated by computers. Researchers in Israel have found that cows which give lots of milk have fertility problems, and find it more difficult to get pregnant. It was found that this was because they received more soybean meal in their rations. It is now recommended that additional protein (above a certain level) come from non-soy sources.

In 1963 Daniels’ company, Hayes Ashdod Ltd., introduced a product named “soy molasses,” which is a concentrated extract of soy solubles obtained during the production of soy protein concentrate using aqueous alcohol extraction. This product was used in animal feeds and as a source of oligosaccharids [oligosaccharides] for elderly people to maintain proper digestive-tract flora and regularity (mainly in Japan). It was later found that soy molasses has a high content of phytosterogens. If it is fed to animals, the dose must be measured carefully, lest it have harmful effects. In cattle, it increases infertility, making it more difficult for the cattle to get pregnant. In rats it delays the positioning of the fertilized egg in the ovary. It is thought (but not yet 100% clear) that the harm is caused by the phytosterogens at certain levels. Researchers are now studying the problem. Address: Managing Director, Hayes General Technology Company Ltd., Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel. Phone: (972) 8 592925.


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.


The Preface states: “Prior to the food revolution of over 50 years ago, most food was grown or processed by the person or family who would be eating it... What you saw is what you got. Today, this has changed greatly with technology. It is perfectly feasible for a strictly kosher consumer to eat a ‘cheeseburger with milkshake’ without doing anything wrong. The milk could be from soybeans (pareve) the cheese could be from soybeans (pareve), the ice cream for the milkshake could be from soybeans (pareve), and as a matter of fact, even the bread could be made from soybean.”

Page 9 states: “As a matter of fact, it has been estimated that approximately one third of all shelf products in our supermarkets are certified kosher. This makes the kosher industry in the U.S. a 30 billion dollars a year business. Although only a relatively small amount of this is dedicated strictly toward the kosher consumer (about $2 billion), the interest in kosher food is rapidly growing. Some adhere to kosher laws from conviction, such as Seventh-day Adventists, Muslims, and vegetarians.”

“In the U.S. alone, there appear to be at least 5 million people who buy products based on their being kosher.” 9.”

Soybeans appear in the index only once (p. 155); this states that soybeans themselves do not require kosher certification. Soy is not permitted during Passover. Address: Rabbi, North Hollywood, California.


Address: Dep. of Animal Production, Faculty of Agriculture, An-Najah National Univ., Nablux Box 7, Palestine.


**Summary:** Before the six-day war (which started on 5 June 1967) Israel ran a large factory in Beersheba making a hard breakfast cereal under contract for the Iranian army. Ted tasted it, and found it so hard that he called it “bones.” If you put milk on it, it became softer.

Note: The company may have been Shefa Protein Industries Ltd. in Arad, Israel, located 30 km southeast of Beersheba. Address: Prof. of Plant Genetics, Univ. of Illinois, Urbana, Illinois.


**Summary:** No, it is not. Ted is teaching a course on Crops and Society, and clearly the crops of the Middle East, such as lentils, peas, wheat, and barley, are the oldest cultivated crops. In China the oldest crops are probably the millets (*Setaria, Panicu*). He keeps track of the archaeology going on in China by computer scanning of the literature and there is still no evidence of the soybean in China before the 11th century B.C., which is a time frame for a process, not a date for an event. Address: Prof. of Plant Genetics, Univ. of Illinois, Urbana, Illinois.

717. **Product Name:** Tofu.

**Manufacturer’s Name:** Inoshi.

**Manufacturer’s Address:** Facing Hotel Dieu Hospital main entrance, M.L. Center Building, 1st floor, Hotel Dieu Region, Achrafieh, Beirut, Lebanon. Phone: 03/667678.

**Date of Introduction:** 1996. December.

**Ingredients:** Soybeans, nigari.

**Wt/Vol., Packaging, Price:** 350 gm in glass jar. Retails for $5.00.

**How Stored:** Refrigerated.

**New Product–Documentation:** Letter from Helen Marale Emmian. 1997. Aug. 27. “I have an enterprise in Lebanon dealing in mainly preparing tofu and macrobiotic ready healthy food. I am residing for two months in the USA and would like to receive your full product range, price indication, and possibilities of cooperation.” Helen’s present temporary
Talk with Helen, who is visiting Altadena, by phone. 1997. Aug. 31. Helen, who is Lebanese-Armenian, is the first person to make tofu commercially in Lebanon. She has a holistic macrobiotic center named Inoshi in East Beirut (on the Christian side), Lebanon. She started the Center in August 1996. Inoshi (sic, inochi) means “life” in Japanese. About 6-7 months ago she began to make tofu and sell it at a macrobiotic food store in the same building as her center. This M.L. Center Building faces the main entrance of the well-known Hotel Dieu Hospital. She obtained organically grown soybeans from a friend of hers, named Odette Aghajanian, who is Lebanese and who imported them, along with other foods (including tempeh) from France, to sell at her shop named Macrodette, one floor up in the same building as Helen’s center. There is a refrigerator at Macrodette and Helen started to sell her tofu there. Helen first learned how to make tofu from Odette—who herself learned how at a macrobiotic center in France where she used to live. Then Helen bought The Book of Tofu, by Shurtleff and Aoyagi, and began to improve her tofomaking skills. Then she began to sell her tofu at Coin De Regime, a “diet shop” which sells organic, macrobiotic, low-fat and diet health foods. Shortly before she came to California, she started to put her tofu in a two supermarkets: Abella’s Superstore in East Beirut (a new business, it imports many macrobiotic and Japanese foods) and Smith’s Supermarket in West Beirut. She uses nigari as the coagulant and sells the tofu in 350 gm cakes in glass jars. She makes about 4 kg (8.8 lb) of tofu a week. The handmade label is in English. She puts the tofu in the jar, adds boiling water, seals the jar, then immerses the jar in boiling water to get a 2-week shelf life. She has never seen a commercial tofu shop. Presently, the only soy product Helen makes is tofu. Her tofu yield is low and she would like to learn how to improve it. She would also like to learn how to make tempeh and natto. Both Helen’s parents and her husband are Armenian; her father was born in Armenia and her mother in Cyprus. She speaks Armenian at home with her husband and child, but was educated in English. She also speaks Arabic and French—the two official languages of Lebanon. Note: This is the earliest known commercial soy product made in Lebanon.


**Summary:** Table 1 gives the fatty acid composition of five seed lipids. Concerning linolenic omega-3 18:3—Matthiola oil contains 65.0%, canola oil contains 11.0%, and soybean oil contains 7.0%. Address: 1. Dep. of Field Crops and Natural Resources, Inst. of Field and Garden Crops, ARO The Volcani Center, Bet-Dagan 50250, Israel.

719. **Product Name:** SoySoft Deep Treatment Penetrating Cream, or SoySoft Daily Moisturizing Body Lotion.

**Manufacturer’s Name:** SoySoft, Inc.

**Manufacturer’s Address:** 6300 Westwood Ct., Edina, MN 55436. Phone: 1-800-668-2262.

**Date of Introduction:** 1997. March.

**Ingredients:** Deep Treatment Penetrating Cream: Water, soybean oil [expeller pressed], dimethicone, ceteryl glucoside, glycerin, cetareth-20, aloe vera gel, chamomile extract, comfrey extract, polyacrylamide, titanium dioxide, laureth-7, C13-14 isoparaffin, diazolidinyl urea, methylparaben, propylparaben, fragrance. Daily Moisturizing Body Lotion: Water, PPG-2 myristil ether propionate, glycerin, soybean oil, stearic acid, corn starch modified, triethanolamine, comfrey extract, chamomile extract, aloe vera gel, cetaryl alcohol, cetyl palmitate, dimethicone, cetareth-20, fragrance, acrylates / C10-30 alkyl acrylate crosspolymer, tetrasodium EDTA, diazolidinyl urea, methylparaben, propylparaben.

**Wt/Vol., Packaging, Price:** White plastic bottles. **How Stored:** Shelf stable.

**New Product—Documentation:** Morrison, E.M. 1999. “Soybeans soothe the skin.” Ag Innovation News (AURI—Agricultural Utilization Research Inst., Waseca, Minnesota) 8(2):1, 4-5. April. SoySoft Deep Treatment Penetrating Cream (contains 20% soy oil) and SoySoft Daily Moisturizing Body Lotion (2.5% soy oil) are now being marketed across the region. They work because soy oil is rich in vitamin E and essential fatty acids that are beneficial to the skin. Most skin lotions are made from “mineral oil” or other petroleum derivatives.

Talk with Lucy Larson of SoySoft. 1998. April 21. These products were first sold in March 1997. Note: This is the first commercial skin cream or lotion seen (April 1999) worldwide, based on soy oil, or on expeller pressed soy oil. Both products and video titled “SoySoft Lotion & Creme: ‘Natural vitamins for your skin’” sent by Lucy Larson. 1998. Video: Length 20 minutes and 45 seconds. The products are in white plastic bottles. A full-page sheet explains the ingredients in each. Purchased one sample (product with Label) of each in April 1998. Update: 2000 May 7. Soyfoods Center time test. Smells terrible (rancid) after 2 years on the shelf.


**Summary:** Pareve, Parve (both pronounced “parv”), and Parevone (pronounced par-VAIN) are interchangeable words. All mean “Not meat or dairy,” and when they appear on a product label, all must be used with a reliable, nationally
recognized kosher symbol from a kosher certifier. A rabbi must make quarterly visits in order for a company to maintain the symbol on the label. On a non-dairy chocolate bar (made with tofu rather than milk), it would make good sense to print Kosher Pareve on the label. That means a person keeping kosher can eat the product with a meal which contains meat. If a kosher symbol has the letter “D” next to it, that means it contains dairy products. If someone printed “Pareve” on a label but had no certification, the company would soon be black-balled via product alerts, etc.

Kashrus (pronounced KASH-root and meaning “dietary laws”) is Hebrew for kosher. But people typically say: “I keep kosher,” meaning “I abide by the dietary laws.” People also refer to “the laws of Kashruth” or “the laws of kosher.” Patricia prefers to write “Kof-K” rather than “Chof-K” for the widely recognized symbol. Address: 858 Moraga Drive #3, Los Angeles, California 90049. Phone: (310) 472-8687.


**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 pattice is. Address: Vice President Research & Technology, Worthington Foods, 900 Proprietors Rd., Worthington, Ohio 43085-3194. Phone: 614-885-9511.

722. Scott, Mary. 1997. Going kosher takes chutzpah: But more manufacturers and retailers recognize the benefits of providing
certified-kosher foods. _Natural Foods Merchandiser_. April. p. 39, 42.

**Summary:** Kosher products generate $1.75 billion in annual sales from more than 20,000 kosher-certified products. Passover sales alone generate $700 million a year. More than 6.5 million consumers regularly buy kosher products, and the majority of these are not Jewish.

The biggest kosher market by far is the New York metropolitan area (2.9 million people), followed by California (700,000), south Florida (596,000), Philadelphia [Pennsylvania] / Delaware Valley (345,000), Boston Metro (Massachusetts, 276,000), and Chicago Metro (Illinois, 257,000).

There are more than 200 kosher symbols / emblems being used in the USA today. The four main national certifiers are: Orthodox Union [the “O/U”] (New York, NY; more than 80% of the kosher-certified products in the USA carry this symbol), Star-K (Baltimore, Maryland), Kof-K [or “Chof-K”] (Teaneck, New Jersey), and OK [or “O/K”]–Organized Kashruth Laboratories (Brooklyn, New York).


**Summary:** It is basically impossible to make good-quality soy protein concentrates using a water wash. He has been working in this field for 30 years. Address: Managing Director, Hayes General Technology Company Ltd., Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel. Phone: (972) 8 592925.


**Summary:** The following statistics were compiled, with permission, from one or more very reliable sources, which have asked to remain anonymous. Soy protein concentrates are produced by three different processes. The main one is the aqueous-alcohol wash process are: ADM in the USA–60,000 tonnes/year. ADM in the Netherlands 60,000 tonnes. Central Soya in the USA–60,000 tonnes. Central Soya at Aarhus, Denmark–27,000 tonnes. Sojip in France–12,000 tonnes. Solbar Hatzor Ltd. (formerly Hayes Ashdod) in Israel 10,000 tonnes. Subtotal: 229,000 tonnes/year.

The second process is the acid wash. The main manufacturers using this process are: Lucas Ingredients in the United Kingdom–3,000 tonnes/year. ADM in the USA–3,000 tonnes. Sanbra in Brazil–5,000 tonnes. Subtotal: 11,000 tonnes/year.

The third process is the acid leach: The only manufacturer is Sopropêche (Sopropêche) in France (Boulogne Sur Mer; the company also extracts protein from fish)–6,000 tonnes/year.

Total of all three processes: 246,000 tonnes/year.

This market is expected to double in 4 to 5 years. It is the fastest growing of all the modern soy protein markets; by comparison, the market for soy protein isolates is almost stagnant. Central Soya, whose Promine brand of soy protein isolates used to be the market leader, no longer makes isolates, and now makes only soy protein concentrates.


**Summary:** Contains details on ASA’s 13 overseas offices in Japan, Taiwan, Korea, Singapore, Austria, Belgium, Venezuela, China, Mexico, Russia, Cyprus, Germany, and India. For each entry: Name of director, address, phone and fax numbers, e-mail address. Address: Missouri. Phone: -. 726. Hymowitz, Ted. 1997. Update on recent writings related to wild perennial _Glycine_ and cultivated soybeans. The differing approaches of DuPont and Monsanto. Personal use of tofu. Proceedings of the last World Soybean Research Conference V are now available (Interview). _SoyaScan Notes_. Dec. 31. Conducted by William Shurtleff of Soyfoods Center.

**Summary:** Ted Hymowitz’s soybean genetics lab. now has a home page on the World Wide Web. The address is www.cropsci.uiuc.edu/~hymowitz/. It contains a complete bibliography (about 400 references worldwide) of the wild perennial _Glycine_. You will also see soybean dancing, lab research staff, research projects, references to published papers from the lab (about 240), former graduate students, post docs, visiting scholars, academic professionals, wild perennial references, links to cytogenetics, etc. There are no full-text papers (or photos of Ted) on the site.

DuPont and Monsanto are taking completely different approaches to soybean biotechnology. Monsanto is interested in selling Roundup herbicides. DuPont is interested in the value of the crop, and in adding new value. So DuPont (like other companies) is very interested in Ted’s research on the wild perennial _Glycine_.

Ted enjoys tofu as a regular part of his diet; he uses it only in hearty soups—Eastern European-type soups (such as lentil soup, black bean soup, cream of potato soup) that he makes himself and that are a whole meal. He dices the tofu and adds it to the pot; it picks up the flavor of the soup and adds protein. He has always followed the kosher laws so he buys only kosher tofu. Muslims also buy kosher, because kosher products must not contain pork. Muslims and Jews have the same religious basis as far as foods are concerned. All Arabs claim descent from Esau and Jacob, and they say Ibrahim (Abraham) is the father of their culture. Jews and Muslims follow very similar dietary rules. Indonesia is a Muslim country, but not an Arabic country. Muslims don’t drink alcohol.
Ted’s book on Samuel Bowen is more than half finished. All the research is done. The entire bibliography is in a computerized database. After the dissolution of his marriage, he hopes to sit down and finish writing it.

The proceedings of the World Soybean Research Conference V (held in Feb. 1994 Thailand) are now published; Ted has seen a copy—one large volume. Address: Prof. of Plant Genetics, Univ. of Illinois, Urbana, Illinois.


• Summary: This book is divided into two parts: Commentary (which includes many quotations about vegetarianism) and cookbook. Contents: Part A–The vegetarian revolution. 1. Join the revolution. 2. The future is vegetarian. 3. Animals deserve to be alive. 4. More evidence. 5. Proteins and vitamins. 6. Vegetarians live longer: Longevity, prana, fasting. 7. Vegetarianism and world religions: Vegetarian Jews, vegetarianism and early Christianity, Jesus was vegetarian, the new Catholic catechism, the oldest teachings, the law of vegetarianism and early Christianity. Buddhism, Prana, fasting. 7. Vegetarianism and world religions: Vegetarian Jews, vegetarianism and early Christianity, Jesus was vegetarian, the new Catholic catechism, the oldest teachings, the law of karma, Buddha was vegetarian, Herat Mohammed vegetarian, Sikhs, Jains, speculism: The last barrier, thought-provoking facts about vegetarianism. 8. Open letter to McDonald's.


Giorgio Cerquetti, PhD, author and yoga practitioner, was born in Italy in 1946 and has been a vegetarian since age 16. In 1991 started to spend more time in the USA and, with Alistair Taylor, he founded Vegetarians International. Address: Italy and the USA.


• Summary: RAPA stands for “Regional Office for Asia and the Pacific.”

Table 2 (p. 438) shows the area of soybeans harvested (in 1,000 ha) in 27 developing and 3 developed Asian countries, in the following years: 1982, 1989, 1990, 1991, and 1993. The last column shows the average annual growth rate in soybean area from 1982 to 1992. The countries, their 1992 area, and their growth rates are (NL = no values listed; F = FAO estimate):

Developing countries (Bangladesh NL, Bhutan 2.0F, -5.4%, Cambodia, 8.8, 20.1%. China 7, 203.5, -0.8%. Cook Islands NL, North Korea 310.07, 0.5%. Fiji NL, India 2,500.0, 12.8%. Indonesia 1,667, 9.4%. Iran 60.0F, 1.5%. Laos 6.1, 1.5%. Malaysia NL, Maldives NL, Mongolia NL, Myanmar 34.8, 2.7%. Nepal 22.0F, 9.4%. Pakistan 1.4F, -11.4%. Papua New Guinea NL, Philippines 10.0F, -1.7%. Rep. of Korea 120.0, 3.9%. Samoa, Western NL, Solomon Islands NL, Sri Lanka 1.4, 20.8%. Thailand 380.0, 14.4%. Tonga NL, Vanuatu NL, Vietnam 113.0F, 1.5%. Sub-total 12,440.0, 2.2%.

Developed countries (Australia 30.0, -2.2%. Japan 141.0, 0.3%. New Zealand NL, Sub-total 171.0, -0.2%).

Asia-Pacific Total 12,611.0, 2.2%.

Rest of world 41,979.7, 0.6%.

World 54,590.7, 0.9%. Address: FAO Regional Agricultural Engineering and Agro-Industries Officer, FAO, RAPA, Bangkok, Thailand.


• Summary: In 1966 soybean production started in Iran—along with research on other oilseed crops such as sunflower, rapeseed, and safflower to meet the growing demand for vegetable oil. The government encouraged farmers by loaning inputs (fertilizers, seeds), and technical and financial assistance. In 1968 Iran produced 2,055 [metric] tons of soybeans, with an average yield of 536 kg/ha. By 1978 production had increased to 113,000 tons with an average yield of 2.024 kg/ha.

Note: On 1 Feb. 1979 Ayatollah Ruhollah Khomeini arrived in Tehran, Iran, from Paris, France. This marked the beginning of Iran’s Islamic Revolution.

The Islamic Revolution and, above all, the Persian Gulf war for eight years [Sept. 1980 to 1988 between Iraq and Iran] adversely affected soybean production in Iran. By 1986, Iran’s total soybean production had fallen to 26,624 tons, with an average yield of 685 kg/ha.

In recent years the annual consumption of vegetable oil and soybean meal in Iran has reached 800,000 tons and 750,000 tons respectively. Soybean varieties in maturity groups III, IV, V, and VI are planted in many parts of the country on both irrigated and non-irrigated lands, using both single- and double-cropping systems. In 1991-92 some 121,485 tons of soybeans were harvested from 66,175 ha. In 1991-92 the amount of land under soybean production had increased to 104,000 ha, due to high prices and good weather conditions. In 1994 production is projected to be about 190,000 tons.

Address: Oilseed Research and Development Co., No. 146 Ghaem Magam Farahani Avenue, Tehran, Iran.


• Summary: Erwin was born on 9 Sept. 1926 in Savannah, Georgia. He grew up in Savannah and in 1943 he graduated from Benedictine Military Academy, Savannah. In 1949 he
graduated from the University of Georgia, Athens, with a Bachelor of Science degree in Agriculture. He did postgraduate work in nutrition at the University of California, and the University of Alabama, Dothan. He served in the U.S. Army Air Corps and the U.S. Army Reserve, retiring in 1975 with the rank of major after serving with U.S. Special forces.

Prior to 1969 he was involved in many successful business ventures. He developed, owned, and operated a poultry farm, a construction company building residential units, including a 250-unit project that is still operating a chain of thirteen 120-bed nursing homes, and day-care centers located across the United States.

In 1969 he established Nutrition Dynamics International to develop and operate factories to produce infant formula, baby food, and fish protein supplement. In 1979 two successful infant formula and baby food factories started operating in Damkan (also spelled Damghan) and Semnon, Iran, producing 10,000 tons of product per year. These assets were confiscated by the Iranian government.

In 1980 he was arrested by the Iranian government chiefly due to knowledge that he had a long-standing friendship with President Jimmy Carter. Although tried for allegedly conducting business contrary to the laws of Islam and for being a spy for the U.S. Central Intelligence Agency (CIA), he was declared innocent of all charges and released in 1990 with apologies.

In 1990 he returned to Georgia and reorganized Ehrlich Farms, Inc. The 2,300-acre farm in Emanuel County, Georgia, is a successful cattle, goat, and pecan operation. Erwin is now the owner/operator and president.

A Portfolio, sent to Soyfoods Center in June 1998 contains the following seven documents: (1) Savannah Morning News. 1990. Sept. “A nine-year waste—Opinion” David Rabhan, now 64, was a political prisoner for nine years in Iran where he was running a successful business as a poultry farmer that used fish protein to make fortified baby foods. He was finally cleared of wrongdoing.

(2) Photo in Philadelphia Enquirer 1990. Sept. 15. “From Iran, a warm welcome home.” It shows former president Jimmy Carter as he embraces an old friend, American businessman E. David Rabhan, back in Atlanta after 11 years in prison [sic] in Iran. Rabhan made a quiet arrival yesterday. (2) Letter from Lindsay Thomas, House of Representatives, Georgia, to Mr. Fred M. Zeder, Overseas Private Investment Corp. 1992. Sept. 1. David Rabhan of Swainsboro, Georgia is a highly innovative entrepreneur who has a proven record in building international companies. He built up a successful baby formula and infant food company in Tehran, where he was imprisoned for nine years.

(3) Article by Bill Shipp. 1992. Georgia Trend Sept. 28. p. 29-31. “Georgia’s forgotten hostage.” When David Rabhan left Iran, he left behind $15 million in assets and 11 years of his life. Jimmy Carter finally succeeded in gaining his release. Now, age 65, he is trying to borrow $6 million to set up a plant in Georgia that grinds up menhaden, a trash fish, and uses other protein products to make a high quality infant formula. The baby food would save millions of lives in Third World countries and create thousands of jobs in the USA. Rabhan wants to get back into business in Iran. He is forming a partnership with a Muslim fundamentalist group, The Brotherhood of Martyrs, to restart his closed baby-food and sewing plants in Iran. A talented artist, Rabhan draws and paints almost daily. He earned a pilot’s license at age 16 and enlisted in the Air Force as soon as he graduated from high school. At the end of World War II, he enrolled in the University of Georgia. In 1971, when Rabhan was a volunteer pilot in Jimmy Carter’s successful campaign for governor, Rabhan had his head shaved, wore a black satin jump suit, and looked like Yul Brynner [lived 1915-1985, movie actor who had a shaved head]. At 5-foot-10, 170 pounds, he still looks like the late Yul Brynner. Since he was released from prison in Iran, he has visited Turkey, Israel, Pakistan and Nigeria, trying to interest governments in those countries in his baby-formula operations. In 1975 he went to Iran, learned to speak Farsi and Arabic, and built his baby-formula factories. By all accounts, he became a millionaire overnight.


(5) Article by Douglas Brinkley. 1996. The New Yorker. Oct. 21. p. 78 “What it takes.” In 1970 Georgia Gubernatorial candidate Jimmy Carter had enlisted David Rabhan, a rich Jewish businessman from Savannah, with impeccable civil rights credentials, for use of his airplane and to help him win black votes. Carter was running a populist campaign as a conservative peanut farmer on the long but racist coattails of Lester Maddux, the incumbent. Rabhan, an entrepreneur, had a shaved head and wore a tattered blue jumpsuit—so he looked like Yul Brynner. And he had more black friends than white. Rabhan never asked Carter for anything. One day Carter asked him: “If I become governor, what can I do for you?” Rabhan replied: “I want you to say in your inaugural address that the time to end racial segregation in the South is upon us.” Carter easily won the election and on 12 Jan. 1971 he delivered a 12-minute inaugural address that became known as “the Speech” for its bold declaration: “I say to you frankly that the time for racial discrimination is over.” The Speech brought Carter national attention and a place on the cover of Time magazine (May 31). David Rockefeller placed the Cater, age 48, on the prestigious Trilateral Commission. From it was on to the presidency.

(6) Letter from C. Mack Griffin of the First National Bank and Trust Company (Swainsboro, Georgia). 1998. Sept. 1. Erwin David Rabhan is a good and valued customer. He is one of the largest cattle producers in the area and also raises...
catfish. One of his many companies is Nutrition Dynamics International (NDI). (7) Resume: This one is longer and, in some points, different from the one cited above. For example, it states that Nutrition Dynamics International, Inc. was established in 1975 (not 1969) in Iran. “1993–Parent company Nutrition Dynamics International, Inc. established overseas joint venture companies to manufacture infant formula, baby food and snack foods in Swaziland, South Africa, Ethiopia, Nigeria, Romania, and Egypt.” Address: 135 Ehrlich Farm Road, Swainsboro, Georgia 30401. Phone: 912-237-6313.

• Summary: Murri is a sauce that used to be made by Arabs from lumps of raw barley dough wrapped in fig leaves and allowed to rot / fermented with naturally occurring Aspergillus mold for 40 days. Properly made, it smelled distinctly like soy sauce. But it hasn’t been made for 400 or 500 years. Why did it die out? Address: Staff Writer, Food Section, Los Angeles Times, California. Phone: 213-237-7806.

• Summary: Ralston Purina Co. has decided to create a new company, Agribands, 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 food and snack foods business. The company, Agribrands, by spinning off its international animal feeds and agricultural products operations. The company, Agribrands, by spinning off its international animal feeds and agricultural products operations. 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.”

Agribands’ 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.

• Summary: The three main commercial soy products are (1) Full fat and defatted soya flours and textured soya flour—current world production and sales about 80,000 tonnes (metric tons). (2) Soya protein isolates—current world production and sales about 130,000 tonnes. (3) Soya protein concentrates—current world production and sales about 284,000 tonnes, and growing at about 15% a year. More than 75% of all concentrates are now used for human consumption, the rest being used in pet and animal feeds. In human foods, concentrates are used mainly in meat alternatives or extenders. In animal feed they are used in formulations for calves and piglets as a milk replacer, in pet foods and in special feedstuffs such as ‘fish-flavour-free’ bland fish seeds, and for mink and other animal feeds. Concentrates are devoid of the antigenic protein components present in most other soya products.

Production of soy protein concentrates worldwide is presently concentrated in the hands of two companies: ADM and Eridania Béghin-Say (Central Soya). About 95% of all soy protein concentrates worldwide are now made by the counter-current aqueous alcohol was system, originally developed in the late 1950s by the Hayes Company of Israel. A table shows estimates of world production (in metric tonnes) by company and country in 1998:

ADM, Netherlands 70,000 AAW (Aqueous alcohol wash).
ADM, USA 60,000 AAW.
Central Soya, USA (several factories) 60,000 AAW.
Central Soya, Aarhus, Denmark 50,000 AAW.
Sogip (Central Soya group), France 15,000 AAW.
Solbar Hatzor (formerly named Hayes Ashdod) (with Soya
Mainz, an ADM subsidiary), Israel 15,000 AAW.
Sopropech, France 6,000 AWL (Acid/water leach).
Sanbra (Bunge), Brazil 5,000 Acid wash.
ADM, USA 3,000 Acid wash.
Lucas Ingredients, UK 2,000 (unconfirmed, Acid wash).
Total worldwide 284,000 metric tons.

The margins on soy protein concentrates are much more
attractive than those from crushing soybeans into oil and meal–
which in recent years have been either small or negative. The
cost of making a tonne of concentrates ranges from US$459
to $600. For food applications, the sales price obtained by
manufacturers for powder and small grits forms ranges from
$1,200 to $1,600 per tonne, but for textured or functional forms
this increases to $1,500 to $3,000 per tonne. The sales price
for the pet food, milk replacer, and special feed industries
ranges from $1,000 to $1,200.

Another high-value product, a potential source of
additional income, is soya molasses, a by-product of making
soy protein concentrates. It is a rich source of soya
phytochemicals and soya oligosaccharides.

A second table shows estimates of world production (in
metric tonnes) of soy protein isolates, with estimates for 1997
and forecasts for 1998.

Protein Technologies International (PTI, USA) 60,000 in
1997, 70,000 in 1998.
ADM, USA 15,000, 25,000.
PTI Belgium 15,000, 15,000.
Fuji-PTI Japan 10,000, 10,000.
Sanbra (Bunge) Brazil 5,000, 10,000.
Others worldwide 6,000, 8,000. Total worldwide 110,000,
138,000. Address: Managing Director, Hayes General
Technology Co. Ltd., Misgav Dov 19, Mobile Post, Emek
Sorek, 76867 Israel. Phone: +972-8-8592925.

• Summary: The Arabs used to take eroded barley and made it
into a relative of soy sauce called murrī. After the mold had
grown on the barley, instead of mixing it with water and salt
to make a soy sauce, they mixed it with milk. There were poems
in praise of this particular condiment—called kamakh ahmar.
Once the milk had changed color, you could add other things
such as onions, herbs, spices, etc. Charles tried making it and
it worked well. The enzymes in the molds turned the milk into
instant blue cheese (having veins of greenish blue mold). It
had a delicious, high flavor. Address: Staff Writer, Food
Section, Los Angeles Times, California. Phone: 213-237-7806.

735. 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 Soylatech 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.

736. Abourezk, Sanaa. 1998. Oh boy! I can’t believe it’s not
soy: Over 100 gourmet recipes that help prevent cancer, heart
disease and alleviate menopause. Sioux Falls, South Dakota:
Palmyra Publishing Co. xii + 123 p. Illust. Index. 23 cm.

• Summary: This is an attractive and unique spiral-bound
cookbook, loaded with gorgeous full-page color photos. Most
of the recipes are based on eastern Mediterranean or Middle
East cuisine. The author, a woman, was born in Syria, is a
nutritionist, and learned to cook in Italy and France. Contents:
Though it does not use red meat or poultry as an ingredient, it does contain at least 12 dishes made with salmon. Most of the recipes call for either boiled soy beans, “lite tofu,” or “soy vegetable protein crumbles.” A few use “nonfat soy milk.”

Talk with Sanan Abourezk. 1999. Feb. 1. This book was self-published in Oct. 1998. Her husband, James Abourezk, who was a Republican senator from South Dakota, has been a vegetarian for 27 years. This is all the more amazing since South Dakota is a cattle state. After they were married, she started developing recipes for him. When his meat-and-potatoes lawyer friends would come for dinner, they would say how much they loved her eastern Mediterranean cooking. She would reply: “There is no meat is these recipes; they are made with soy products.” The guests could not believe it. They have quite a few elderly neighbors, with whom Sanan shares any extra food; they soon started asking her for recipes. Her husband suggested she write a recipe book. Address: P.O. Box 88038, Sioux Falls, South Dakota 57109-1001. Phone: 1-888-351-3663.

737. **Product Name:** Tofu, and Soymilk.  
**Manufacturer’s Name:** Tiltan HaArgaman  
**Manufacturer’s Address:** P.O. Box 76. Hofit 40295, Israel. Phone: +972 53-607435.  
**Date of Introduction:** 1998. October.  

Talk with (call from) Roy Grant from Israel. 1999. Feb. 26. His company, located in Kfar-Saba, Israel, started making tofu in late 1998. His company was named Tishrei.

- **Summary:** “Tivall produces a school resource pack on vegetarianism proving useful tips on how to achieve a balanced diet as a vegetarian.

“The pack includes information about the company and its products; some useful facts about vegetarianism; posters, factsheets and worksheets.

“For more information about the pack contact Tivall Europe BV, 106 London St., Reading, Berks RG1 2SJ, UK. Phone: +44 (0) 118 958 3040, fax: +44 (0) 118 939 1226, e-mail: chptiv-UK.demon.co.uk.”

- **Summary:** Tivall, which produces branded and private label products for the UK and continental Europe, has redesigned its packaging. The company has a 17% market share of the frozen vegetarian soya market. The Vegetarian Pieces are both new products for Tivall, based on wheat and pea protein, is the form of textured protein fibers (FVP–Fibrous Vegetable Protein). A photo shows the front panel of seven Tivall brand products: Vegetarian Pieces [Beef Style, or Chicken Style], Vegetarian Nuggets, Vegetarian 4 Burgers, Vegetarian 4 Schnitzels, Vegetarian 8 Frankfurters, and Vegetarian 20 Cocktail Sausages. Contact: Tivall Europe BV, 106 London St., Reading, Berks RG1 2SJ, UK. Note: Tivall is based in Israel.

- **Summary:** Various species respond very differently to the presence of trypsin inhibitors in the diet; their relevance to humans to be elucidated. During the last decade reports showed the BBI (the Bowman-Birk trypsin- and chymotrypsin inhibitor) to be involved in the prevention of tumor formation (tumorigenesis) in vitro and the ability of BBI to suppress or prevent carcinogenesis in mice in vivo. These triggered a series of experiments. One showed that BBI comprises a safe insect-control agent during seed storage. “In conclusion, evaluation of the alleged antinutritional properties of BBI and of other legume seed protease inhibitors for human nutrition should be placed in perspective in relation to the amount of inhibitors in the diet as well as weighed with respect to their therapeutic and cancer-prevention potential.” Address: The Hebrew Univ. of Jerusalem, Inst. of Biochemistry, Food Science and Nutrition, Rehovot, Israel.

- **Summary:** The Energy Policy Act of 1992 (EPACT) was passed, while graphic images of the burning oil fields of Kuwait were still fresh in everyone’s mind, to try to reduce U.S. reliance on foreign oil. Jeff Horvath, CEO of the National Biodiesel Board (NBB) “leads a coalition of researchers, farmers and legislators who believe that tomorrow’s energy solutions will not come from the Middle East, but from the Midwest”–from Biodiesel or “B20” as the mix is now called. Address: Jefferson City, Missouri.


• **Summary:** The Stiskins arrived in Tokyo, Japan in June, 1969. Beverly, who was five months pregnant with her first child, Reuben, almost had a miscarriage from the airplane flight. They stayed for about a month in Tokyo and met Gary Peacock (who was a musician), and David and Cecile Levin—both of whom were interested in macrobiotics. Through David Levin, Nahum made a connection with the Takeda family in Kyoto. The Takedas allowed the Stiskins to live in their three-building compound, the **Higashiyama Sanso**, in eastern Kyoto, behind **Kiyomizu-dera**. They moved in in July, and Reuben was born in August. In September 1969 they both began to attend the **Nihongo Gakko** (Japanese language school) and Nahum began to study Shinto; he began to study with an esoteric Shinto sect that had preserved many old and beautiful rituals— and they were connected to Judaism. He also got involved with Japan-Israel Society whose aim was to teach Hebrew to Japanese.

After a year they moved to a small Japanese house in Uzumasa (near **Kitano-jinja**—Kitano Shrine), west of Kyoto. Ty Smith lived with the Stiskins for a while. Wally Gorell also lived in that part of Kyoto, but further west near Arashiyama. Note: William Shurtleff arrived in Japan on 16 Jan. 1971, went straight to Kyoto and enrolled in the Japanese language school, the same one the Stiskins were already attending. Beverly recalls that she and Nahum first met William Shurtleff at the **Nihongo Gakko**. Nahum and Beverly lived in Kyoto for 2 years. One night the Stiskins hosted an evening get-together and talk by Helen and Scott Nearing at their home near **Kitano-jinja**. Shurtleff was there, his first visit to their home. Beverly tells Shurtleff: “I remember you distinctly in Kyoto, and this will verify that that was where we met. First, we were macrobiotic and strictly vegetarian, so we were interested in tofu. You told us that you were very interested in tofu and you had just started or were about to start doing research on tofu—finding all the different ways that it is prepared, etc.

“You told us this because we had already started Autumn Press in Kyoto. Our first book was Nahum’s book, *The Looking-Glass God: Shinto, Ying-Yang, and a Cosmology for Today*. We published it ourselves because nobody else would publish. We borrowed money from our families, did an initial printing in Japan of about 500 copies in 1971, and warehoused the books in our home west of Kyoto. Then we discovered that this book did not have copyright protection in the USA so in 1972 we published a much nicer hardcover edition with Weatherhill (New York and Tokyo). By 1972 we knew the importance connection had already been established 6-9 months earlier in Kyoto.”

“**But the main point is this:** Nahum and I had a publishing company and we were both interested in tofu—and potentially in a book about tofu. You knew this clearly when we were all in Kyoto in 1971, and we knew you were thinking about doing research and writing something about tofu. You might have first put pen a year or so later after you had moved to Tokyo, but the idea was already brewing while you were in Kyoto.”

The Stiskins then left Kyoto and moved to Tokyo, where Nahum worked with a marketing company, turning their Japlish marketing studies into good English. Shurtleff left Kyoto on 4 Dec. 1971 to continue his Japanese language studies at International Christian University (ICU) on the outskirts of Tokyo. At ICU he stayed with Jeffrey and Gretchen Broadbent. Jeffrey and Bill took the same intensive Japanese language course. Gretchen was very interested in tofu, and by April 1972 was even studying tofu-making with a local tofu maker.

Beverly has no recollection of ever meeting Jeffrey or Gretchen Broadbent. “The Broadbents may have given you our new phone number in Hayama, south of Tokyo, but the important connection had already been established 6-9 months earlier in Kyoto.”

“I remember the day you called Nahum, and I remember him getting off the phone and saying ‘Guess who I just talked to.’ We both remembered you from Kyoto, and I remember the call because we both liked the idea of a book on tofu very much. That was a turning point for us and Autumn Press.”

Shurtleff then recalls that first meeting on 13 Jan. 1973 at the Stiskins’ attractive home by the ocean in Hayama (2113 Isshiki, Hayama-shi, Kanagawa-ken, Japan 240-01). “I explained to Nahum that I thought a book about tofu would be interest to many people in America. He liked the idea immediately. I was astonished that anyone else shared my idea. He quickly looked over the table of contents and a few pages I had written by hand on the subject, then pulled a publishing contract out of his desk drawer and said ‘please sign here.’ I didn’t even read the contract. There was no discussion of terms or of an advance—I didn’t even know what an advance was. I signed, he signed it, we each took a copy and that was it. Before we left, Nahum showed me comments he had received from a professional cookbook editor who he had hired to edit the macrobiotic cookbook he was writing with Lima Ohsawa. I was very impressed that he would take such a professional approach. I remember him emphasizing that in a good cookbook, in the list of ingredients, the words ‘teaspoon’ and ‘tablespoon’ are always written out, never abbreviated as ‘t.’
and ‘T.’ I found it remarkable that we had a meeting of the minds and signed a book contract in 1 or 2 hours.”


Beverly continues: One of these books, Cry of the People, would later have a profound effect on both Autumn Press and The Book of Tofu. Bob Bernstein at Random House was well acquainted with Kim Chi-ha, his protest poetry and the fact the he was now in jail. Bob wanted to try to help him. When he heard that Kim’s poems had been published, Bob said “I want to meet the publisher.” When Nahum showed him Autumn Press’ various books, Bob decided to include Autumn Press in Random House’s small publishers distribution program. That quickly led to Ballantine Books (a Random House subsidiary) buying the mass market paperback rights to The Book of Tofu in 1978.

“Nahum was perfectionist–and so were you. This led to some problems and difficult compromises along the way, but in the end it led to a quality book... I remember one of the first times we met at Hayama, you showed up with Akiko and this box full of papers—which was supposed to be ‘the manuscript.’ It was very disorganized, with recipes and text all mixed up together. Nahum and I both remember that clearly and still laugh about it.” Address: Boston, Massachusetts. Phone: 617-776-8749.

• Summary: ASA has formally opened its 14th international marketing office in Istanbul (formerly known as Constantinople), Turkey.

“ASA’s activities to expand international markets for U.S. soybeans are made possible by producer checkoff dollars invested by the United Soybean Board and various State Soybean Councils, as well as by cost-share funding provided by the U.S. Department of Agriculture.”

745. Product Name: Tofu.
Manufacturer’s Name: Tasty Tofu.
Manufacturer’s Address: Kannhai Hagalil 25, Jerusalem 93272, Israel.
Date of Introduction: 1999. March.

How Stored: Refrigerated.
New Product–Documentation: Talk with Eli Mor (he calls) calls from Israel. 1999 Nov. 22. Now he and his wife, Iris, are making tofu in their home, but they have reached capacity. They started selling tofu commercially 8-9 months ago–Say March 1999. Then got The Book of Tofu 3 months ago and that helped a lot. Their customers in Jerusalem say that theirs is the best quality tofu in the city.

Letter from Katherine Shelter, 2823 Quarry Heights Way, Baltimore, Maryland 21209-1058. 2000. Jan. 6. She orders the book Tofu & Soymilk Production to take to her friends Eli and Iris Mor in Israel.

• Summary: Consumer acceptance of Novasoy has been very positive. The product is doing very well, and has definitely met ADM’s expectations. Steve is glad that ADM makes a completely natural soy product in pills that contain 50 mg of soy isoflavones. One initial problem was the price: ADM’s customers pushed for a lower price, arguing that consumers were generally not willing to pay more than $10/month for any one supplement, so in about May or June 1998 cut its wholesale price to half of what it had been.

Two big changes have taken place in the market during the past 12-18 months. First, two other companies now extract and sell pure soy isoflavones, one from the Netherlands and the other from Israel. Steve has heard that Central Soya–through Henkel Corp. (LaGrange, Illinois)–is also planning to start extracting and selling soy isoflavones. Second, consumers are now faced with many more supplement choices than before.

Steve receives many calls from satisfied consumers who simply what to tell him how the product has changed their lives. Most of these calls are from women who have gotten relief from menopausal symptoms. Shurtleff suggests that ADM start collecting specific information from women who call concerning menopause, such as: Age of caller. Educational level. Daily dosage and its effects on symptoms. Are you also consuming other soy products? If yes, how much of each per day on average. Have you used Novasoy to replace ERT (estrogen replacement therapy)? or Premarin? Address: Marketing Manager, Soy Protein Applications, Archer Daniels Midland Co., P.O. Box 1470, Decatur, Illinois 62525. Phone: 1-800-637-5824 X-5394.

• Summary: The subtitle reads: “This story is part of a yearlong series that looks at the impact that Iowans and Iowa institutions made on the world during the 20th century.” Discusses and compares Joe Sinaiko and Dwayne Andreas, with a small portrait photo of each. Sinaiko was one of America’s first soy
Style recipes. Dakini produces two tonnes per year (tpy) of soybeans. They can be textured like any meat, enabling it to be used as a meat substitute in a wide range of Indian, western, and oriental-style recipes. Dakini produces two tonnes per year (tpy) of tempeh, 5 tpy of peanut butter, and 6 tpy of tahini.

Shapira is an Israeli who was being groomed to be an admiral, “escaped” and got into catering, especially vegetarian foods, in Germany, before coming to India. There he tried his hand at making New Age jewelry, but got bored after a few years, and the “business got too serious.” In 1995 he decided to turn his mill into a soybean processing plant.

To have enough soybeans to mill and sell, Joe traveled the back roads of Iowa, persuading farmers to grow the crop. After extracting the oil from the soybeans, he’d go back to the same farmers and sell them the protein-rich meal for livestock feed. After the oil shortage of the early 1970s, Andreas spent $20 million to build a plant that would convert corn into ethanol. But it proved too expensive as a gasoline additive until 1979, when the Iranian oil crisis hit and the federal government exempted ethanol—called gasohol at the time—from excise taxes. Address: Gazette Assoc. financial editor.

• Summary: Dakini Health Foods, run by Seemo (H. Shapira) and Kairava (J. Spaelstra), has a gleaming new plant on the outskirts of Pune [Puna], where they make vegan products—peanut butter, brown and white tahini, and the soy foods tempeh and tofu. All are high protein, natural and healthy. They also use none of the “Permitted Class II preservatives.” Shapira notes that the unusual versatility of tempeh, which can be textured like any meat, enables it to be used as a meat substitute in a wide range of Indian, western, and oriental-style recipes. Dakini produces two tonnes per year (tpy) of tempeh, 5 tpy of peanut butter, and 6 tpy of tahini.

Shapira is an Israeli who was being groomed to be an admiral, “escaped” and got into catering, especially vegetarian foods, in Germany, before coming to India. There he tried his hand at making New Age jewelry, but got bored after a few years, and the “business got too serious.” In 1995 he decided to turn his mill into a soybean processing plant. He sells mainly to the import substitution market, like “Osho-ites” [disciples of Rajneesh] and other transient foreigners who want vegetarian food but can’t get the quality they are used to. Moreover, a network of hotels all over India contacts him for non-perishables. His perishable foods, like tempeh and tofu, he sells locally.

A photo shows Shapira and Spoelstra (his female partner) seated at a table behind samples of their many innovative products. The caption: “Health is a major commitment for Shapira (and Spoelstra).”

Note: Dakini does not yet have a recipe book.

• Summary: In 1998, ADM purchased Soya Mainz GmbH & Co. Kommanditgesellschaft, which is located in Mainz, Germany (see 1998 ADM Annual Report). Soya Mainz crushes soybeans (processing capacity 2,500 tonnes/day) and makes refined soy oil, edible soy lecithin, and industrial soybean fatty acids. In 1991 Soya Mainz purchased a 25% equity in Solbar Hatzor. Solbar Hatzor Ltd. (formerly Hayes Ashdod) in Ashdod, Israel, is also a soybean crusher with a processing capacity of 700 tonnes/day. Note: Solbar has a capacity to make about 10,000 tonnes/year of soy protein concentrates. They also make textured soy flour and soy fiber. Address: Basic Foods Co., P.O. Box 240070, Los Angeles, California 90024. Phone: 310-473-0719.


Note: Roy’s company, Kanero, imports soymilk from Europe. They distribute the Distriborg line. Address: Kanero Group Ltd., 18, Hamelacha St., Solel-Bone Bldg., Suite 208, Raanana L.Z. 43661, Israel. Phone: 972-9-740-9398.

• 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 206
58,465, Spain 34,759, Hong Kong 23,210, Belgium 20,687, and Malaysia 20,539.


• Summary: On June 29, Abourezk wrote Douglas for additional information about the work of David Rabhan with soy in Iran. The questions and answers are given together below: 1. How many plants in Iran did you own that manufactured soy infant formula? Ans: One. 2. Where was it located? Ans: Damgham, Iran. 3. When did it begin operation? Ans: 1976. 4. What were the type of soy related products manufactured and what were the names of these products? Ans: Mamalak (infant formula), Manna (food supplement), Complete (complete meal). 5. What was the capacity of the plant? Ans: 10,000 tons, 8,000 tons, 5,000 tons. 6. For each year at the plant what was the approximate annual sales in U.S. dollars and the amounts of profit made? Ans: $69,000,000 ($16,000,000 profit), $32,000,000 ($8,000,000 profit), $30,000,000 ($6,000,000 profit). 7. What was done with the plant once it was confiscated by the Iranian government, if you know. Ans: Some of the machinery of the infant formula plant is still there, and we are negotiating at this time with Mr. Ali Radmard at: 011-98-261-443327, to help them reconstruct their new infant formula plant using spray-dried milk as the basis. This plant will include a spray-drying operation and will produce only powdered infant formula. Milk-based product will be 90% and soy-based product 10%. Soy isolate will be imported from the United States.

The other soy-related plants were dismantled and parts sold individually in the height of the revolution. There is a court order (of which I have a copy) ordering all confiscated properties to be returned to me.

The infant formula plant closed within a few months of my arrest; each of the other plants ran for approximately two (2) years, then closed due to raw material shortage, foreign exchange difficulty, replacement parts. 8. What were the names of the Iranian officials you dealt with concerning the soy plant before your captivity? Ans: Bankers—a. Agriculture Development Bank, Hussein Habbie, b. Bank of Holland and Iran, Hassan Mahammidle, c. bank of Sapah, Mohammed Sabrie, d. Health Ministry, Mahmood Tehranie. 9. Do you have any financial records or other business documentation remaining from the Iran operation, if so, can you provide those to us? Ans: After twenty (20) years, no. 10. What are other soy related businesses that you have been involved in? Ans: None. 11. Are you currently operating a soy infant formula plant? Ans: If so, where? Ans: No. Address: P.O. Box 1164, Sioux Falls, South Dakota 57101-1164. Phone: (605) 334-9404.


• Summary: Their company started business in April 1996 making white tahini. Sometime later they introduced peanut butter.

The third partner in their business is Bodhi Yahaa; they call him Yahaan, and he has been with the company for nearly two years. Like Seemo, he is from Israel where his name was Mr. Natan-Ran Diamant; now he lives in Pune. He does not work in the factory, but he does get the computer to work. He brought in the much-needed finance and also organizes loans when the banks fail. “He owns 50% of the company’s shares and a very good friendship is growing.”

“Mr. Donnelly (our Indian partner) resigned near the end of 1996, and since last year we got all government permissions to run the company without any Indian partner.”

In Goa, “a friends couple of ours, Lisa Camps and her French friend Richard, are making tofu and tempeh on a small but interesting scale. This year they are growing and opening their own retail outlet with a delicatessen counter and a salad bar. We managed to convince them to invest in a good grinder, a small screw press, and a simple dehulling device for their tempeh. Also, I am building them an incubation cabinet so they will no longer mysteriously lose so many cakes of tempeh. Also, since last year, we are supplying their tempeh starter, and, from this year, their soybeans. Their address: Lisa Camps, H.S. No. 1684 Ouneachem Baht, Anjuna Bardez, Goa, India.”

Address: Dakini Health Foods Pvt. Ltd., S.N. 33, Bhoiwasti, Keshavnagar, Mundhwa, Pune/Puna 411 036, India. Phone: +91 20-613985.


• Summary: In 1979 David started a company named Nutrition Dynamics International (NDI) which developed and introduced four commercial soy products to Iran: Mamalak (Powdered Infant Formula), Manna (Food Supplement), Complete (Complete Meal), and Snacks. The Mamalak was made with isolated soy protein imported to Iran via a broker. Manna was a dry breakfast cereal, made from an extruded mixture of corn and soy (or defatted soy flour), and sold in a box. It was served like a gruel or mush by simply adding hot water, and eaten mostly by children. The Manna was made with soybean grown in Iran; but when the supply was inadequate, Rabhan imported soybeans. Complete was a canned food (500 gm) that had the consistency of a sausage,
fortified with soy. A consumer would cut both ends off the can, push it out, then slice it crosswise and either eat it as is, fry it, or crumble it and add it a stew called a horseh or to other dishes, use it as a spread, etc. It was very inexpensive, and supplied a sold meal for two men. It was used mainly by adults, not children. These first three food products were all sold through retail stores, not to government programs. After the revolution started, his company had to give 20% of revenues to the government. The only products he sold to the government were the snacks.

His company made extruded snacks for 2.3 million school children, using soy and corn. The government gave these snacks away as part of their 10:00 a.m. school snack program. The name of the snacks in Farsi was Sin-Nun-Kay, which is pronounced snacks. They had seven different snack products—kind of like Fritos or cheese curls—but fortified with soy. The snacks were made in a different plant from the other products. These products were made in four different plants, and the cans for Complete were made in a fifth plant. The plants were located in Damghan (Mamalak and Manna, in separate plants), Semnon (Complete and the can factory), Abayak (the snacks), and Bandar Abbas (snacks; a seaport in southern Iran on the Strait of Hormuz). Each product was made by a different company, but all the companies were owned by NDI. The company’s assets were valued at about $14.5 million at the time they were confiscated by the government. Another plant made corn The princess got interested in soy and she built a plant (Rabhan does not know if it ever opened) where she wanted to make soy cookies and compete with Rabhan. Other companies in Iran also had extruders, just before he went to jail. The plants are still operating in Iran. Address: Swainsboro, Georgia.

756. Packaged Facts. Subsidiary of FIND/SVP. 1999. The U.S. market for kosher foods. New York, NY: FIND/SVP. 130+ p. Aug. 28 cm. * Summary: This market study, No. LA502, retails for $2,500. In 1998 there were more than 41,000 kosher-certified products in the U.S. retail food market. Jewish consumers account for only 29% of those seeking our kosher products; Muslims, Seventh-day Adventists, vegetarians, the lactose-intolerant, and other consumers also buy these products. Ninety percent of all sales in the $4 billion overall retail kosher foods market are not marketed to specifically kosher-observant customers. A graph shows that U.S. retail sales in the core Kosher foods market rose from $2.3 billion in 1994 to $3 billion in 1996, and 4 billion in 1998. Address: 625 Ave. of the Americas, New York, NY 10011. Phone: 1-800-265-9836.

757. Tapuria, Nidhi. 1999. Nourishing, nutritious & natural. Citadel Pune (India). Aug. p. 76-78. * Summary: The subtitle reads: “They are adding a new flavour to the Indian taste buds. Dedicated to manufacture quality natural foods, they propagate the healthy way of living that has taken the world by storm. ‘Citadel’ has a slice of the action at Dakini Health Foods.”

Besides tahini, sesame butter, and peanut butter, Dakini manufactures a product range that includes soya foods like tempeh and tofu. Contains a brief description of tempeh.

Seemo tried his hand at everything before getting bitten by the vegetarian bug. He used to have the best-selling felafel shop in Israel, but he gave it up and moved to Germany where he finally got into catering vegetarian food. When he came to India he learned patience. The response from his customers has been very encouraging, especially from the Oshoites at Koregaon Park, who keep thanking him for making foods that are not available in India, and asking him to make more. In Pune, a restaurant named Zen has at least 20 items on their menu made from tempeh. Seemo wants to expand his tofu capacity to 100 tons per year; that will make big news. He believes that Indian food lacks the proteins which tofu can supply—in a vegetarian form. Five photos show Seemo, Kairava, and their new food factory.

758. Product Name: Enhance Soy Cereal, Soy Protein Powder, Soy Nuts, Soy Pasta, Soy Trail Mix, Soy Biscotti, Soy Protein Bar. Manufacturer’s Name: Enhance Naturally, LLP (Marketer-Distributor). Manufacturer’s Address: P.O. Box 8775, Newport Beach, California 92778. Phone: 949-364-2623. Date of Introduction: 1999. September. Ingredients: - How Stored: Shelf stable. New Product—Documentation: Leaflet (color, very attractive) from the Third International Symposium on the Role of Soy in Preventing and Treating Chronic Disease (Washington, DC). 1999. Nov. 1. “Enhance Naturally: Nutritional support for healthy living.” Describes each of these seven new products, with nutritional facts, ingredients, and a color photo of each. “Enhance products are designed to provide a premium line of delicious soy foods to give the necessary health benefits of 25-30 grams of soy protein per day, containing a minimum of 60 milligrams of isoflavones.” “Developed by a team of M.D.s / Ph.D.s / Nutritionists at the Soy Research Clinics of America.” “To order call 800-700-8986 or visit our website at www.Dr.Soy.com.”

Talk with company representative. 1999. Nov. 11. All of these products were introduced on 23 Sept. 1999 at the meeting of the North American Menopause Society in New York. The key man in the company is Dr. Ari Babaknia, M.D. Born in Persia and a graduate of Johns Hopkins Univ., he was practicing OB/GYN for many years, but increasingly his patients refused to take conventional estrogen replacement therapy, so he stopped his practice to develop natural alternatives.
He also lived in a tepee in northern Maine. New Brunswick, Canada, gardening and using wild plants. that, in 1971-72, he lived alone in a cabin in the woods in New Brunswick, Canada, gardening and using wild plants. He also lived in a tepee in northern Maine.

In 1973 he went to Boston to study macrobiotics. He lived for a while with Jack Garvey and Jack’s first wife. He left to go to Mexico, where he lived for a while with indigenous people (Indians), then in 1974 returned to Boston, where he lived in Jamaica Plain. About 40% of the macrobiotic students in the Boston area at the time were Jewish. He met Hannah Bond through a mutual interest (shared also with Ken Burns) in wild plants. Hannah was older, and came from a Quaker background. She made pickles for Erewhon and was considered to be the best pickle-maker in Boston. He found her to be “the most intellectual woman I had ever met—wonderful.” She had formerly been married to a professor of Greek. They went to his cabin in New Brunswick, Canada, she proposed to him, and they were married in 1982—the ceremony took place at the Elwell’s land in Conway, Massachusetts. Christian and Gaella had both previously worked at East West Journal, she as an editor and he as an artist, who also illustrated several of Michio Kushi’s earlier books. They had also both worked with Alan Chadwick, the legendary teacher of French intensive, biodynamic gardening at the University of California at Santa Cruz.

Anpetu was at the South River Miso Co. in about Oct. 1982 when Thom Leonard came for a month (on contract) to teach the Elwell’s how to make miso and use the equipment. Christian and Gaella were married, had a daughter, and owned 64 acres of beautiful land on both sides of the South River. Christian was able to fund the company’s start-up with his inheritance; he came from an affluent family and his father had died. He and his brother, Will, initially planned to start the company together, but later Will left. At one point the Elwell’s approached Michio Kushi to see if he wanted to buy the company. Anpetu and Hannah lived in nearby Conway for 2 years, then on the Elwell’s land in a trailer across the river. Another couple, Don and Martha Wheeler, lived upstairs in the miso shop after it was completed. Don and Martha loaned $10,000 to Christian for the miso company. Anpetu also loaned $10,000 to the miso company (though no papers were signed), and worked there making miso for 6-9 months; Hannah was not involved with making miso. During that time they published a flyer on miso (dated spring 1983) which Anpetu still has; he designed the logo showing 3 waves in a circle. The waves symbolized South River and the three stood for the three families who were joining together to create the miso company. He also took quite a few color photos, which he still has. Don and Martha decided to leave first. Then Anpetu’s enthusiasm waned and he and Hannah decided to leave.

Anpetu recalls that many big problems took place after this decision. Christian wanted Anpetu and Hannah to leave promptly, and when they would not set a deadline for leaving, Christian took them to court to try to get them evicted. The case went before a local judge in Greenfield; he suggested they work the matter out among themselves, but said that Christian had the basic rights as a landowner. Anpetu and Hannah left one month later, in the fall of 1983. Christian paid him back the $10,000 without interest over the next ten years. Anpetu and Hannah separated after being married for 7 years.

Today Anpetu lives a very simple life in Hotchkiss/ Cedaredge, Colorado, where he runs an heirloom seed company named Sourcepoint Organic Seeds and practices Vipassana meditation. His teacher is Goenka, of Burma.

Note: Anpetu contacted Soyfoods Center today to request a review copy of The Book of Miso as announced in the latest edition of River Currents: News from South River Miso Company (Conway, Massachusetts). Address: Founder and owner, Sourcepoint Organic Seeds, 1349 2900 Road, Hotchkiss, Colorado 81419. Phone: 970-872-4971.

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government’s health and nutrition board (which sets the RDAs) recognized (contained in lecithin) as an essential human nutrient, assigning it daily reference intake status—one step down from RDA. This was a major development, and contributed to a resurgence in sales.


• Summary: This group used to be known as “Eternity,” an all vegetable ice cream parlor. Now they serve their vegetarian ice cream plus a menu “consisting of many various dishes (vegetable) that include tofu and the vegetable protein product seitan. We are vegan–no animal by-products, no artificial food coloring, no cholesterol. Kosher.” They now have a second restaurant at Hakishon St. (across from Magen David), Tiberias, Israel. Phone: 06 671 2133. They also have a factory that produces the ice cream, tofu, and most of the take-out products and carob candies. The main dishes (entrees) and some vegetarian products are made in the restaurant daily. They make tofu at: Nature’s Gate Ltd., Mivne Taaseya Haradash 76, Box 029, Dimona, Israel 86000. Phone: 972-7-655-7774. Fax: 972-7-655-7769. In 1986 they started to make and sell tofu as tofu. They sell their tofu at about 30 different places outside their two restaurants. Nature’s Gate Ltd. own the factory and L’Haieim owns the restaurants.

They also make their own soymilk at Nature’s Gate Ltd. Presently they produce the soymilk only for their own use, but in the future they hope to expand.

Enclosed is a one page recipe in Hebrew and English. The 12 food categories are: Desserts (incl. 9 flavors of non-dairy ice cream), candies, beverages (incl. soya milk), dressings, salads, breads, breakfast (incl. tofu links, scrambled tofu), sandwiches (incl. tofu cheese, marinated tofu, okara sticks, tofu falafel, tofu burger, tofu vege burger, stir-fry with tofu, stir-fry with seitan), steamed vegetables, take away (take-out), main entrees (incl. tofu teriyaki, tofu with gravy, tofu medley), a la carte (incl. tofu medley). Address: 60 Ben Yehuda St., Tel Aviv, Israel. Phone: 03 620 3151.


• Summary: 1946 Dec. 29–Christian is born at Martha’s Vineyard, Massachusetts. His father is a vegetable farmer. When Christian is in grade school, he moves with his family to the Boston area and instead of vegetable farming his father opens a florist and nursery business.

1949 Aug. 3–Gaella (pronounced GAY-luh) is born Margaret B. Jett in Richmond, Virginia. Her family lives in Reedville, Virginia, on the Chesapeake Bay–where she grew up. Her father died when Gaella was 3 years old. Her mother, a school teacher in home economics, remarried to Jennings Butler, a professional fisherman with the menhaden fishing fleet of Reedville.


1969 July–Christian enters Peace Corps training in Morrison, Colorado. His group arrives in Teheran (Tehran), Iran, in Sept. 1969. He serves as a park designer for the municipal office of the Province of Esfahan, the 17th century capital of Persia. During this time, Christian’s father dies of pancreatic cancer at age 51. This event, coupled with his immersion in the traditional aesthetic and religious culture of Iran, precipitated a shift in the main stream of his life. He had graduated from Cornell with ambitions of becoming a landscape architect; he was accepted to enroll at the Harvard graduate school of design upon his return from Iran. But he finished his two years of Peace Corps service in Iran “with an altogether new orientation, burning with questions about the meaning and purpose of life.”

1973 spring–Christian returns to the United States for a year. He travels (to the French island of Saint-Barthelemy in the Caribbean for several months, then to California in a Volkswagen bus), studies with a portrait artist in Boston for several months, then studies the teachings of Sri Aurobindo at a center in the Catskill Mountains.

1974 spring–Christian travels to India, where he lives in Pondicherry in association with the Sri Aurobindo ashram and Auroville. After becoming ill with hepatitis, he begins to study alternative health care and healing. After a year in Auroville, he then travels west to Scotland.

1974 May-Sept.–While at the Findhorn community in northern Scotland, Christian meets former students of Michio Kushi (teacher of macrobiotics in Boston), reads the book Healing Ourselves by Noboru Muramoto (teacher of macrobiotics in California) and puts its teachings to use–successfully.

1974 Dec. 29–Christian (on his 28th birthday) first attends a lecture by Michio Kushi in Boston. The subject: Right Life. He settles into the macrobiotic community in nearby Brookline and starts to work with the East West Foundation (doing everything from chaufleuring Michio around to helping with their magazine layout and design), while starting Whole Life Arts, a company to distribute French flour mills in the USA.

1976 fall–Gaella arrives in Brookline to study macrobiotics. Works at East West Journal as secretary to editor Sherman Goldman.

1976 Nov. to 1977 April–Christian and Gaella first meet at a massage class given by Shizuko Yamamoto. They first talk about making miso for a livelihood at an Irish pub in Brookline Village. While living in Ken and Anne Burns’ macrobiotic study house (at the same time as John Belleme; they were good friends) in Brookline, they attend a miso-making workshop by Bill Shurtleff and Akiko Aoyagi. Christian wanted to farm and it seemed that making miso in
the traditional way (as he had read about it in *The Book of Miso* by Shurtleff & Aoyagi) would fit into the New England farm cycle as a source of work and income during the cold months. In early 1977 they moved from the Burns' study house to the home of Michio and Aveline Kushi across the street.

1977 late summer—Christian and Gaella go to Covelo, California and work with Alan Chadwick, the legendary teacher of French intensive, biodynamic gardening. He had already left the University of Santa Cruz and set up what he called “The Garden Project” in Covelo. Christian becomes an "apprentice gardener" (later poultry manager) and Gaella is the head cook. They stay for about 6 months, until late 1977. Chadwick “blew up one day—just lost it completely.” After that the Project fell apart.

1978 Jan.—Christian and Gaella leave Chadwick’s garden and go to study with Noboru Muramoto at the Asunaro Institute in Glen Ellen, California. He is offering a one week “Fermented Foods Workshop” with an emphasis on miso-making. They ended up staying until April, making miso with him. That spring they make 1,000 lb of miso and write an article about it titled “Making miso in America,” published in *East West Journal* in Sept. 1978. There they first met Thom Leonard, who comes to visit. Thom had already made some miso and tofu in Arkansas. Though they were together for only 2-3 days, they greatly enjoyed talking about their many mutual interests.

“It was a really good connection.”


1978 April or May—Christian and Gaella return to western Massachusetts, and with Christian’s brother, Will, look for land in the Pioneer Valley region—within the larger Connecticut Valley.

1978 July—Review (by Christian) of five books by Rudolf Steiner published in *East West Journal*.

1978 Aug.—With financial help from their mother, Christian and Will purchase 64 acres of undeveloped land in Conway, Massachusetts, for $50,000 cash. They name the place South River Farm; South River (20-40 feet wide) runs through the property. They buy the land with the intention of homesteading, as self-sufficient as possible. While living in a small apartment in the village of Conway, they first build a barn and several cabins, and get a pair of draft horses.

1978 Sept. 9—Christian and Gaella are married at the Old Brick Church in Old Deerfield, Mass. They learn that one of Christian’s direct maternal ancestors, John Williams, was the first minister of that church in the early 1700s.

1979 March 15—Thom Leonard and Dick Kluding ladle the first batch of miso into their one-ton wooden vats at the Ohio Miso Co. in Monroeville, Ohio. They had begun construction of the shop the previous October.

1979 May 15—The Elwell’s first child, Anna Deerfield Elwell (“Anni,” a girl), is born. They are still living in their apartment in Conway.

1979 fall—The Elwells move onto the land from their apartment. They live in a 24-foot-long pink and white trailer. Will is already living on the land in a cabin they built next to the barn. Continued. Address: Founder and Owner, South River Miso Co., South River Farm, Conway, Massachusetts 01341. Phone: (413) 369-4057.

763. **Product Name:** Solgen and Nutragen (Soybean Extracts Rich in Isoflavones)

**Manufacturer’s Name:** Solbar Plant Extracts.

**Manufacturer’s Address:** P.O. Box 2600, Ashdod 77121, Israel.

**Phone:** +972 (0)8-856-1520.

**Date of Introduction:** 1999.

**Ingredients:** Soybean extracts.

**How Stored:** Shelf stable.

**New Product—Documentation:** Leaflet from Natural Products Expo at Anaheim. 2000. March. “Soy isoflavones” A natural solution to age-old problems. These isoflavones are GMO-free and are available in concentrations of: (1) 3%-5%-10%-20%-30%-or 40% soy isoflavone. (2) 50% or 80% genistein form. (3) 20% or 40% saponins."

Note: This is the earliest document seen (Dec. 2007) that mentions Solbar Plant Extracts.


Middle East: United Arab Emirates *(Arabu)* 9,895. Israel 4,887. Kuwait 1,256.


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 2007) 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.

765. Product Name: Eco Soy Pudding (Organic) [Vanilla, Chocolate, or Chocolate-Orange].
Manufacturer’s Name: EcoFoods, Inc. (Product Developer-Distributor).
Manufacturer’s Address: Palo Alto, California 94303. Phone: 650-978-9696.
How Stored: Shelf stable; refrigerate after opening.
Nutrition: Per cup (128 gm): Calories 140, calories from fat 25, total fat 3 gm (5% daily value; saturated fat 0 gm), cholesterol 0 mg, sodium 60 mg (2%), potassium 170 mg (5%), total carbohydrate 25 gm (dietary fiber 0 gm, sugars 18 gm), protein 2 gm. Vitamin A 0%, vitamin C 0%, calcium 20%, iron 0%. Percent daily values are based on a 2,000 calorie diet.
Leaﬂet (8½ x 11 inches, glossy color, front and back) brought by Bob Gerner. The front shows the three ﬂavors packaged in sleeves. “A great taste non-dairy pudding with non GMO organic soy beans.” The back gives product ingredients and specifications.
Talk with Carole Corb of EcoSoy and C.J. Corb Intl. (phone: 805-773-8801). 2000. March 14. This product was developed by Daniel Adam, who lives in Israel where he runs a natural foods import business, importing Edensoy, Garden of Eatin’ products, Galaxy soy cheeses, etc. The product, which is made in Minnesota, was first launched in Israel on 15 Jan. 2000, then in America in March 2000. Her favorite flavor is Chocolate-Orange. The recommended retail price is $2.97+.


• Summary: Two years ago the American Soybean Association opened an office in Istanbul, Turkey. U.S. soybean exports to Turkey increased from 165,000 metric tons (MT) in 1998 to 245,000 MT in 1999–up 48%. And soybean meal exports increased from 133,000 MT in 1998 to 247,000 MT in 1999–up 86%. This growth is due mainly to growth in Turkey’s poultry industry supported by ASA through regional marketing programs. ASA is working to increase demand for soybean oil and soy flour.

• Summary: This two-day conference, held in Pretoria on 20-21 June 1999, was organized by Agrimark Consultants, Pretoria, in collaboration with the American Soybean Association and the Southern African Soyfoods Association. It was well attended by delegates from all over the southern Africa region. The first conference was held in 1998.

On Day 1, a presentation of special interest described how a marketing and PR campaign by Promedia has transformed soy usage in one country, Turkey. Most of this article is about that Turkish campaign—which focused on soya flour.


“The Middle East region includes Israel, the largest buyer of U.S. soybeans in the Middle East, and Turkey, the largest
buyer of soy products [oil, meal, etc.] in the region, plus the 
countries of Egypt, Saudi Arabia, Syria, Lebanon and Jordan. 
Together these seven countries last year purchased more than 
1.6 million metric tons of U.S. soybean products, the equivalent 
of 68 million bushels of soybeans.”

“ASA’s [American Soybean Association’s] activities to 
expand U.S. soybean exports are funded by producer checkoff 
dollars and cost share funding from USDA’s Foreign 
Agricultural Service.” The hot topic this year was acceptance 
of biotech [genetically engineered or GE] crops. Closely 
related was tolerance levels and the high cost of zero tolerance.

Dr. Michael Shemer, Senior Vice President of Tivall Foods,
gave a presentation titled “Value added soy-food products and 
effects of bio-tech crops.” He said: “The situation that we 
face is very, very difficult.” Tivall, based in Israel, is the largest 
producer of value-added soy based meat alternatives for 
Europe. 60-70% of Tivall’s business is for export. Shemer said 
that European customers are telling Tivall that 1% tolerance 
of genetically engineered ingredients is not acceptable, and if 
Tivall wants to do business, their products must contain less 
than 0.1% GE ingredients. “Just last week we lost a huge 
[piece of] business in Germany because they found one percent 
GMO [GE] in our product that is already there,’ Shemer said.

“Israel may soon implement a labeling policy modeled after 
that in the European Union (EU)” (that food products 
containing GE ingredients must be labeled).

“While food products are the primary area of concern, the 
feed industry is also coming under fire. Some customers in 
Europe are asking their poultry suppliers to certify that only 
non-biotech [GE] ingredients were fed.” The Deputy General 
Manager of Olivex, Ltd., a soybean crusher in Tel Aviv, says 
that he receives such requests “day after day.”

771. SoyaScan Notes.2001. Early sources of funding for the 
American Soybean Association (ASA) (Overview). March 11. 
Compiled by William Shurtleff of Soyfoods Center.

• Summary: 1920-1925. From Sept. 1920, when the forerunner of 
the ASA (named the National Soybean Growers’ 
Association) was founded on the Fouts Brothers’ farm in 
Indiana, until Sept. 1925 when the Association was reorganized 
and renamed, the ASA has no source of income. Its only 
activities were to organize an annual summer field meeting 
and a winter business meeting. At the fifth annual business 
meeting in Chicago, Illinois: “The matter of a membership 
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1925 Dec.–The first constitution and by-laws are drafted 
and approved at the sixth annual business meeting in Chicago. 
The provision for dues states that membership is $1.00 a year. 
This remains ASA’s main source of income for more that 15 years–during the Great Depression.

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Soybean Association (published in 1930 for the years 1928 
and 1929) the first advertisements appear. The 10 pages of 
ads (from soybean crushers, and sellers of soybean seed, 
inoculant, farm equipment, bags, etc.) help pay the cost of 
publishing and mailing the 110-page proceedings.

1940 Nov.–George Strayer begins publishing Soybean 
Digest, an excellent monthly magazine, in his hometown of 
Hudson, Iowa. “The coupon on the rear cover and your check 
for $1.50 will entitle you to a membership in the American 
Soybean association and to a year’s subscription to ‘The 
Soybean Digest’ if mailed immediately.” So dues are up by 
50% but with them comes a major new benefit of membership. 
Advertisements in Soybean Digest help to pay for the costs of 
editing, publishing, printing, and mailing the magazine.

1941 Jan.–The “Seed Directory” section in Soybean Digest 
enables ASA members, for $1.00, to list up to three soybean 
varieties that they sell.

1956 April–The ASA signs an agreement with USDA’s 
Foreign Agricultural Service for a market development project 
for soybeans in Japan. Up to $75,000 in Japanese yen may be 
used for the project. For ASA, this is a huge amount of money.

1956 May–The Soybean Council of America, Inc. is 
organized by the American Soybean Association and the 
National Soybean Processors Association. Its basic purpose 
is to expand the market for soybeans in the USA and abroad. 
“The program will be financed by voluntary contributions of 
10¢ per 100 bushels ($1.50 per carlot) at the point of sale. 
Collections start Sept. 1 on all 1956-crop soybeans sold on or 
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after July 15.”
1966 Sept. 9–The landmark date in the history of ASA funding! North Carolina soybean producers vote to pay a half cent per bushel checkoff on all soybeans sold, starting with the 1966 crop. This is the first statewide checkoff ever put into effect on soybeans. About 75% of the 11,000 soybean producers voting favored the checkoff.

1968 Sept.–"Phase I, ASA’s plan of contribution by growers and agribusiness to launch a program of worldwide market development, begins.

1969 Nov. Phase II, ASA’s voluntary ½ cent per bushel checkoff on soybeans at the first point of sale, begins in several states. Funds collected from this program will go for market development in Japan, Germany, and Iran.


The table of major world processors of soy protein concentrates shows: ADM (Netherlands) AAW (aqueous alcohol washed). Solae LLC–Central Soya Aarhus (Demark)* AAW. Solae LLC–Central Soya Sogip (France)* AAW. Solbar Hatvor (Israel) AAW. Shemen / Soy Protec Industries (Israel) AAW. ADM (USA) AAW. ADM (USA) Acid washed. Solae LLC–Central Soya (USA)* AAW. Solae LLC–Ceval Alimentos / Bunge (Brazil)* Acid washed. ADM China AAW.

Note: Letter (e-mail) from Daniel Chajuss. 2006. July 8. Asterisks mean that these plants that had once belonged to several firms now (2006) all belong to Solae. The main reason for the two plants using the acid wash process is that these manufacturers had soy isolate plants before they got soy concentrate plants, and this already had the equipment needed (such as a spray drier, decanter, centrifuges, etc.) to produce acid wash soy protein concentrate. The acid washing system is much less widely used today; it was a prior technology.

There is now concern among infant nutrition experts about the high levels of phytoestrogens, and their estrogenic activity, in infant formulas and foods fed to young growing people. “Thus an advantage of the aqueous alcohol wash SPC process, for certain and very special foods, is that it retains less and not more of the soy phytoestrogens in the final concentrate.”

Nutritional advantages of aqueous alcohol washed SPC:
(1) Devoid of antigenic protein components (2S, 7S, 11S proteins, glycinin and beta conglycinin). (2) Devoid of soy “antinutrients” (hemagglutinins, phytates, non-digestible sugars, saponins, etc). (3) Low in antiproteolytic enzyme activity (trypsin and chymotrypsin activity–Kunitz and Bowman Birk trypsin inhibitors). (4) Low estrogenic activity (low in isoflavones / phytoestrogens). (5) Balanced amino acid ratio. (6) Help to reduce the risk of coronary heart disease (CHD). All these make traditional SPC better suited for making calf milk replacers, piglets starters and fish feeds, and a more nutritive product than other industrial soy protein products, especially for the above noted purposes as well as for young human infants.

It is true today that essentially all soy-based infant formulas are made from soy protein isolates. However, in the past, they have also been made from traditional SPC. So why don’t isolate makers use the aqueous alcohol wash process to make isolates (with low estrogenic activity) specifically for use in infant formulas and feeding? Because it is technically difficult and costly—although it would be an ideal product for infant feeding. “Personally I believe that ‘refolded-functional’ soluble alcohol washed SPC would be better nutritionally, safer, and a more economical product for infants.”

SPC producers do not compete (and never have competed) on the high levels of isoflavones / phytoestrogens in their concentrates, as all alcohol washed SPC has low levels of these substances. Address: Managing Director, Hayes General Technology Company Ltd., Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel. Phone: (972) 8 592925.


• Summary: The biggest success in using soy flour in breads to date has been in Turkey. The American Soybean Association is expanding its efforts into Egypt, South Africa, Haiti, and India.
Ted has just returned from two weeks in Russia working as a volunteer consultant to Soya-Ch, 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, 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 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 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, 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, sautéed, 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.
Robert started business at Sunrise Brand Marketing Specialists on 1 Jan. 2000. He started the company while still holding a job at Annie’s Naturals. Technically the company was incorporated in Dec. 1999. His company started with three clients, including Harvest Direct and Good Health Natural Foods. Robert managed the sales and marketing for Harvest Direct for a little less than 18 months. He worked closely with Monty and Mary Ellen Kilburn as well as Roger; they are all great folks. Between Feb. 2000 and April 2001 Robert tripled the sales of Harvest Direct. He repackaged the products and got them into supermarket chains such as Vaughn’s, Ralph’s, Wegman’s etc. with 6-10 SKUs (out of 17 sold by the company) in a typical chain. All the products were dry mixes. Harvest Direct’s lead items into supers were soy-based puddling mixes. Roger also bought several products, including the Seitan Mix from Arrowhead Mills and the Solait brand in cans he bought from Devansoy (both very good seller). The Taco, Bar-B-Q, and TVP Chicken Strips (the latter brand in cans he bought from Devansoy (both very good seller). The Taco, Bar-B-Q, and TVP Chicken Strips (the latter

His 90-day contract was broken on 1 April 2001. No-one from Dixie Diner has ever called him or returned his calls. On 12 June 2001 Roger Kilburn announced the sale of his company (effective June 18) to Dixie Diner, who proceeded to manage it very poorly. Some of his brokers have dropped the line and a number of distributors have discontinued it. Harvest Direct is still alive but declining. Address: Founder, Sunrise Brand Marketing Specialists, L.L.C., 22 Wenonah Ave., Rockaway, New Jersey 07866. Phone: 973-983-7452.

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for the second extraction. After straining, if it is too salty, or to make it sweeter, some people add jujubes, or date molasses and honey. At the end, add saffron, cinnamon, and other good spices to make an excellent sauce.

Pages 400-01 describe how to make al-Murri al-Naqi lil-Maghariba—the infused sauce of the North Africans (as in Egypt) that resembles soy sauce. The ingredients used in the first part of the two-part fermentation are barley and water. In part two, add to the above: Equal weights of table salt, dry thyme, milled dry coriander, caraway, nigella, fenugreek, anise, and fennel. Put on the rooftop in a wide-mouthed vessel and add water “until its consistency becomes like flowing date molasses.” Then toss in one each of broken-up carob, fennel stalks, citrus leaves, and the pith of bitter orange branches. Add 2-3 pine cones whose seeds have been removed. Stir with a stick of fig wood with branches. After 40 days in the sun, filter and store in a clay pot, “shielded with oil” (i.e. with a layer of oil on top of the sauce to serve as a seal). Then add chunks of partially baked bread, leave it in the sun for 10 more days, then strain again and put in glass vessels sealed with oil. This first extraction is the best. Save the dregs for use in other dishes.

A related product Bunn is described on pages 403-04. Murri (translated as “soy sauce”) also appears in recipes (for example) on pages 308, 310, 317-18, 328, and in five vegetarian recipes (p. 446-48).

Talk with Charles Perry. 2001. May 23. The earliest document he has seen that mentions murri is a book that was compiled in the 10th century composed mostly of 9th century recipe collections of the caliphs—the spiritual heads of Islam— and kings. So we know that murri was being made in the 9th century. Before that, we have no information. It seems to have developed independently in the Arab world. The word murri is Greek but the word for the rotted barley and the word for the mash from which the sauce was pressed are both Persian. So it might have developed in the Fertile Crescent (from the southeast Mediterranean to the Persian Gulf) when that area was under both Persian and Greek cultural influence—before the Moslem conquest in the 7th century. In the 15th century the Turks were conquering the area where murri had existed. That brought the end of the old Arab aristocracy and their culture. In 1453, Mehmed / Mehmet II (Mehmed the Conqueror) captured Constantinople from the Christians. Now all the wealth was flying to that city, where a new Ottoman culture was being developed. Mehmed made Constantinople one-half Turkish and one-half every other nationality he had conquered or expected to conquer. He was also a great patron of all the arts and of cookery.

In Arabic and Persian, the verb “to rot” refers to food molding processes, whereas “to ferment” refers only to the action of yeasts, as in breads or beers. Charles has made murri several times himself, following an ancient recipe, and using fig leaves as the source of the molds. The flavor and appearance of the finished product reminded him very much of soy sauce.
In “The Description of Familiar Foods,” an Arabic cookbook manuscript (1373) translated (very well and colorfully) and introduced by Charles Perry (p. 273-465), almonds (in various forms) appear in many of the recipes, as peeled sweet almonds (e.g., p. 305, 312, 315, 325), blanched sweet almonds (p. 328), sweet almonds pounded to a paste (p. 306-07, 309, 311-14, 337, 339), sweet almonds pounded and milked with water (i.e., almond milk, p. 319, 322, 336), and sweet almond oil (p. 308, 332). See also marzipan in the index. Milk is also made from safflower seeds (p. 316, 319, 336), sweet almond oil (p. 308, 332). See also marzipan in the index.

The ingredients, which sound both exotic and delicious, include apricots (p. 343), camphor (p. 308), Ceylon cinnamon (p. 319) and Chinese cinnamon (p. 311), a race of ginger (p. 326), jujubes (p. 306), kishk or dried yoghurt (p. 322-24), mastic (p. 327), mint (p. 316), noodles (p. 333-34), Persian yoghurt or laban farsi (p. 314), pistachios (p. 316), pomegranate seeds (p. 316). quince (p. 320, 344), rose water (p. 308, 316), rue (p. 314), saffron (p. 315), sesame oil (206, 308-13), sesame seeds (p. 317), spikenard (p. 320), tahineh (tahini, p. 312), tiger nut, chufa or earth almond (Cyperus esculentus, a sedge with nut-flavored tubers, p. 310), verjuice (lit. “green juice,” as the sour juice of crab apples or unripe fruit, p. 306).

Talk with Charles Perry. 2001. May 23. Recipe ingredients do not generally appear in the index. Most of the nut and seed milks will be found on pages 305-42 (stews), and 443-50 (vegetarian recipes—some of which were medicinal and some Christian) of the 14th century book. This is surprising because these milks are not used in recipes in the 13th century book, on which the 14th century book is based. There is reason to suspect that the 14th century book was compiled in Cairo, Egypt, whereas the better-known medieval Arabic cookbooks are from either Baghdad [presently capital of Iraq] or Damascus [presently capital of Syria]. To determine whether a recipe in The Description of Familiar Foods was being used as early as 1373, see the concordance of recipes (p. 289).

As late as the 18th century, quite a few European cookbooks have a separate section of recipes for fast days (maîrge in French). Almond milk was fairly widely used in Europe in the Middle Ages, but the English tradition was rather simple and single minded, using it mostly in Blanmanger. But in France, for example, it was used in many different dishes, such as stews (meat stewed with almond milk and cherries). Address: 1. French linguist, historian, and sociologist; 2. British arabist and linguist; 3. Los Angeles, California.

• Summary: Solbar Industries Ltd. increased sales by 44% during 2001, ranking it among Israel’s top ten companies in sales growth.

• Summary: This book is “the World Bank’s contribution to the international dialogue on sustainable development. Now in its 25th edition, this year’s World Development Report stresses the importance of sustainable development being shared locally, nationally, and internationally.

“Currently 2.8 billion people live on less than $2 a day—almost all in developing countries. Over the next 50 years, 3 billion people will be added to the world’s population; ensuring that these people have access to productive work and a better quality of life is the core development challenge of the first half of this century. Growth could itself be jeopardized over the longer term, unless a transformation of society and the management of the environment are addressed integrally with economic growth.

“In the past forty years, both the gap between the rich and the poor countries and the number of people living on fragile lands have doubled; World Development Report 2003 cautions that without improved policies and institutions, social and environmental strains may undermine development progress, causing higher levels of poverty and a decline in the quality of life globally. The Report recommends the implementation of development policies that are more sharply focused on natural and social assets.

“By 2025, nearly half the world’s population—mostly in Africa, the Middle East, and South Asia—will face severe water shortages; the magnitude and urgency of these problems require the implementation of timely and effective policies worldwide. World Development Report 2003 provides insights and answers to address these complex issues.”

“World Development Report 2003 shows how to make this possible: (1) Developing countries need to promote participation and substantive democracy along with inclusiveness and transparency. (2) Rich countries need to increase aid, reduce poor country debts, open their markets to developing country exporters, and help transfer technologies needed to increase energy efficiency, improve agricultural productivity, and prevent disease. (3) Civil society needs to act as a voice for diverse interests and provide verification of public, private, and nongovernmental performance. (4) Private firms need to commit to sustainability in their daily operations.”

Note 1. This report carefully avoids the issue of reducing population growth, since much of the World Bank’s funding comes from the USA where this is a taboo subject among current political leaders in the Republican Bush administration. But can Planet Earth really sustain 3 billion more people? That means a 50% increase in world population! We know that most will live in poor countries where water, food, and land are already scarce.
Note 2. James D. Wolfensohn is president of The World Bank Group. Note 3. The text of all past editions of this report, 1978-2003, are available on CD-ROM. The 2003 version is included in both text and PDF versions.

• **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.


784. **Product Name:** SoyaSun soymilk.
**Manufacturer’s Name:** SoyaSun Co.
**Manufacturer’s Address:** No. 1, Sohrevardi St., Tehran, Iran.
Phone: +98 21 752-7965 or 7979.
**Date of Introduction:** 2002.
**New Product–Documentation:** Letter (fax) from Alireza. 2002. Nov. 4. SoyaSun Co. is a newly established company producing soymilk in Iran.


• **Summary:** ASA has an office in Istanbul, Turkey. “ASA / Middle East Country Director Chris Andrew reports that according to recent statistics from the Turkish Vegetable Oil Industries Association the consumption of non-blended soy oil jumped from only 2,000 metric tons (MT) in 1997 to 79,000 MT in 2001.

There are presently five new firms refining and selling soy oil brands in the market compared to only one in 1997. “Turkey consumes 240,000 MT of blended soy oil (79,000 MT refined soy oil, 110,000 MT as margarine and the rest mainly in blended oils and feed for poultry), up from 167,000 MT in 1997.”

787. Hymowitz, Ted. 2003. Soybeans have never been found in Neolithic sites. At least 35 crops were domesticated before the soybean (Interview). *SoyaScan Notes.* Aug. 25. Conducted by William Shurtleff of Soyfoods Center.
• **Summary:** Agriculture originated during the Neolithic, the last period of the Stone Age characterized by polished stone implements. Many crops (rice, wheat, barley, millets, etc.) have been found by archaeologists in Neolithic sites. Ted regularly searches the Web for soybeans in Chinese history or archaeology. Rice has been found in Neolithic sites about 5,000 to 6,000 BC—roughly 4,000 years before the soybean. In the Near East, some crops (barley, lentils, chickpeas) go back 7,000 to 8,000 years. Thus, the soybean is definitely not “one of the world’s oldest crops.” Ted has found about 35 crops that were domesticated before the soybean.

One interesting question is how scientists determine roughly when any given plant, found in Neolithic sites, was first domesticated. Using radiocarbon dating, they will have a certain number and range of dates. Do they take the earliest date? The average? There is no simple answer. This is probably one reason Ted has ever seen a table that lists all the plants first domesticated by humans in descending order of the date they were first domesticated. He has seen a few such tables for certain regions (such as the Near East) but never for the entire world.

With the soybean, however, multiple lines of evidence all point to approximately the same date and place of domestication (See Hymowitz 1970, “On the domestication of the soybean”). Moreover, we are dealing here with history and with written sources, artifacts, etc.—not with prehistory. Moreover, we are not saying that domestication is an event, but rather a process—which implies a “plus or minus” factor of at least several hundred years. So the soybean emerged as a domesticated plant around the 11th century BC. But nowhere near 5,000 BC! Address: Prof. of Plant Genetics, Dep. of Crop Sciences, Univ. of Illinois, Urbana, Illinois.

• **Summary:** Why do intelligent soybean farmers in northern U.S. states grow genetically engineered soybeans? Answer: (1) The information is extremely confusing. There are so many variables and choices for farmers. (2) For GE soybeans, the yields are now generally higher and the total production costs are generally lower than for non-GE soybeans. Breeding is a numbers game and the big seed companies can afford to have huge numbers of plots. (2) They want to simplify the number of variables and unknowns, such as price of fuel (3) Fewer and fewer non-GE varieties are available from seed companies to farmers. Today Monsanto and Pioneer Hi-Bred still offer a few non-GE lines. And a few seed companies cater to organic
farmers and non-GE farmers who sell their soybeans, for example, to tofu companies in Japan. But for most farmers, it takes too much effort to try to evaluate many varieties.

The future of GE soybeans is partly a political issue. It started in the Clinton administration when Monsanto put tremendous on the government to push GE soybeans. The U.S. government should be in the business of helping to market U.S. crops, but it should try to provide foreign markets with whatever they want, rather than trying to push certain commodities or crops on them. For example, Russians like the dark meat from chickens and turkeys, whereas Americans like the white meat. So the U.S. sells Russia large amounts of dark meat—which is almost a waste product in the USA. “It is a match made in heaven.” Shapiro lost his job at Monsanto and severely hurt the company with his pushy attitude.

Ted believes that if GE crops had been allowed to evolve naturally, they would have won out in the long run. For example, GE cotton is working extremely well in China. People don’t eat cotton and the herbicide saves Chinese farmers the back-breaking labor of hoeing. Moreover, glyphosate is one of the least toxic herbicides to animals; it breaks down quickly into carbon dioxide and water.

Monsanto’s patent on glyphosate has expired. But they have many factories and much know-how in place to keep producing it. So Dow and Dupont each negotiate with Monsanto for the best price they can get for glyphosate, which is now a commodity. China and Israel are now making low-cost glyphosate, which costs about $0.35/gallon. The free market is working nicely.

The position of non-believers on GE crops is that they need to be tested more, and that we have to be careful not to let the genie out of the bottle, for it can never be put back in. Ted disagrees; he sees no troubling health or environmental risks. First, soybeans will not cross-pollinate with wild species in the USA and most other major soybean producing areas; the only countries where there is concern are China and Australia. Even if GE corn crosses with its wild ancestors, there is no guarantee that the hybrid will have a selective advantage. If it has none, the trait will fade away in time. As soybeans yield rise, the extra land could be set aside for useful or natural purposes. There will be changes in weed populations, but that has happened throughout history as new agricultural technologies (such as the moldboard plow and the herbicide 2,4-D) have been introduced. Moreover, Roundup is not 100% effective on all weeds; so the other weeds will gain an advantage and require herbicide blends—which are already available. There are so many checks and balances, that if a problem arises, it will probably be caught at an early stage and eliminated. Address: Prof. of Plant Genetics, Dep. of Crop Sciences, Univ. of Illinois, Urbana, Illinois.


- **Summary:** Many of the early travelers to China and other parts of East Asia (where soybeans are grown) were Arabs. The tales of their travels were written in Arabic, and only a small proportion of these have been translated into English or other Western languages. They must have encountered soybeans and soyfoods. Therefore this early Arabic literature is a potential gold mine on the early history of the soybean. But to find these gems would require a special type of person who would have to: (1) Be very familiar with soybeans and soyfoods. (2) Speak fluent Arabic and at least good English. (3) Have the time, interest, and money to spend many years reading the writings (in Arabic) of the early Arabic travelers to East Asia.

Where could we find such a person? Address: Prof. of Plant Genetics, Dep. of Crop Sciences, Univ. of Illinois, Urbana, Illinois.


- **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.”


- **Summary:** Many sick babies, some near death, began to arrive at Israeli hospitals in early November with nearly identical symptoms: persistent vomiting, eyes that could not focus, spasms, and listlessness. Researchers quickly found the connecting thread. All the children had been fed Remedia Super Soya 1, a soy-based, kosher, nondairy infant formula made by the German company Humana Milchunion, and distributed by an Israeli company. Some 5,000 babies in Israel drank the formula. At least two children have died. It was soon found that the formula lacked vitamin B1.

A brief note by Victor Homola in the next day’s issue of the New York Times (p. A13) states that the Humana Milchunion in Germany dismissed four senior executives in its development, chemical laboratory, and quality control departments.
• 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 Exchange, 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. Hiroaki Iwamoto, Tendre Corp., Japan (frozen tofu). Phil Fass, ADM. Dr. Michael Shemer, Tivall Corp., Israel. Motohiko Hirotosuka, 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.


Day 1–General session at end of day: John A. Schillinger, PhD, Heartland Fields, LLC. Peter Hannam, First Line Seeds.


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 new people and promote their ideas and (informally) their products.


• Summary: Dawn in working each day to translate The Book of Tofu, by Shurtleff and Aoyagi, into Spanish; she has not yet found a publisher. She has found three Spanish-language cookbooks dedicated to tofu, which she cites and will send to Soyfoods Center. She then updates information about 5 tofu makers in Spain and adds new listings for 3 tofu makers in Israel. She and a friend visited Zuaizto Proteinas Vegetales (legal name: Ekosal-Luz, S.L.) in Vitoria. The founder, Javier Arocena Arumburu, is now a major “stock holder.” The director is José Ignacio Orlando. Address: Calle Uruguay 59, pta 13, 46007 Valencia, Spain. Phone: +34 96 380 2129.


• Summary: Alireza is busy installing new equipment for soymilk production. He is interested in trading information about soya, but he does not have much. The following is short history of soy in Iran:

In 1938, for the first time, food grade soybean seeds were imported to Gilan province [in northwest Iran, bordering the southwest Caspian Sea], and a small amount to the town of Karaj for cattle feed, but its planting was unsuccessful.

Later in 1962 the Behshar industrial group imported some soybean seeds from Japan and started to contract with farmers in order to grow soybeans in Gorgan province in order to expand the acreage. Gradually, by 1975, there were about 20 acres of soybeans in Iran, increasing to 60 acres in 1977–when the production was 100,000 metric tons.

Regarding soymilk production in Iran, Alireza has heard that a very small workshop started to produce soymilk powder in Firooz Kooh province near Tehran using Chinese equipment, but the product had a flavor that was too beany and the company was unsuccessful.

SoyaSun is the first company in the Middle East (excluding Israel) to produce soymilk without a beany flavor from whole soybeans. The plants capacity is 8,000 liters/hour.
In Iran, soybeans are used mainly for oil extraction, but recently the government is switching to planting rapeseed (canola) for oil extraction, and plans to gradually introduce soy as a protein source in the Iranian diet.

For its second phase, SoyaSun is looking to produce TSP [textured soy protein] out of mechanically extracted soy residue [soybean meal]. Address: Iran.


• Summary: This interview was conducted during Bernd’s visit to Soyfoods Center. The biggest development for soyfoods in Europe during the past 5-7 years is that soymilk has entered the mainstream market in several countries, driven mainly by Alpro (whose brand was changed to AlproSoya from Alpro 2-3 years ago), the main soymilk maker in Europe. AlproSoya is spending lots of money promoting soymilk and educating consumers about the health benefits of soyfoods. And although there are no health claims in Europe (there is sort of one in the UK) and no FDA, there is a great deal of information available about the health benefits of soy. Women, especially those in their 40s and 50s near the age of menopause, are the target of much advertising and educational material. AlproSoya uses brochures, Internet and TV advertising to educate these people. However Bernd feels that Alpro’s style is a little old-fashioned.

Meat alternatives and dairy alternatives are also growing rapidly, but they are still niche products. The organic movement in Europe has long been bigger and stronger than its American counterpart, and it continues to grow at a healthy rate. In Germany, the government greatly helps the organic movement—which is also strong in France, Italy, and Spain in both mainstream and health food sectors. The organic and soyfoods movements have generally worked closely together to help one another, although not all soyfoods companies (especially those based in the Asian market) use organic ingredients. Sojaxa, the former European soyfoods association, is now named Ensa. Ensa is still based in France and it gets some money from the department of agriculture in France because some soybeans are grown in southern France. Since soybeans are not an important European crop (most are imported), they are not promoted by European governments.

The discovery of mad cow disease in about the year 2000 in many European countries outside of the UK had a very positive effect on soyfoods. It was a rising tide that lifted all ships (soyfoods companies). From that time on soyfoods gradually started to be recognized in mainstream markets.

Bernd buys all his soybeans (specific desired varieties at a specified price) under a “Fair Trade” contract from a specific organization in southern Brazil; all are certified non-GE (genetically engineered).

Many European companies now state in their brochures that the FDA has given a heart-healthy claim for soy protein in the USA. But American food has a bad reputation in Europe, being strongly linked with McDonalds, Coca-Cola, Burger King, etc. So Europeans tend to be skeptical of American claims related to food. Instead European companies prefer to cite the original research articles and summarize their findings.

Bernd is not aware of any negative information about soy on the Internet—probably because most of it is in English.

The three largest soyfoods markets in Europe (in total sales) are probably the UK, France, and Germany—in that order. But in terms of per capita consumption, the largest are probably the UK, Netherlands, Belgium, France, and Germany—in that order.

Alpro, which has a very close connection to France, has done a great deal to develop the market there. Bernard Storup’s company, Nutrition et Soja S.A., now owned by Novartis, is doing well and is also strong in France. Bernd just saw Bernard (and his business partner Jean de Preneuf) at the Nuremberg show in Germany. Bernard would like to get out of his relationship with Novartis (formerly Sandoz), because they no longer get funding and Novartis has no interest in Nutrition et Soja. Note: Sandoz AG (Basel, Switzerland) merged with Ciba-Geigy in March 1996 to become Novartis. Jean is “the Steve Demos of Europe”—very creative and very crazy. He has an old farmhouse in the south of France and he also has another business that makes sunglasses.

The creation of the EU (European Union) and the euro as a currency has helped Viana and most other soyfoods companies in Europe by greatly facilitating exports and imports across country borders. As a result of its move to a new and larger factory, the creation of the EU, and the advent of mad cow disease, Viana’s exports now 35-40% of total sales, and are growing faster than sales in Germany. Viana exports outside the EU (to Croatia, Czechoslovakia, Israel, Morocco, Bahrain, etc.) account for about 1.5% of sales. The economies of eastern Europe are developing very slowly. Bernd knows of 2-3 tofu makers in Poland (incl. Polsoja; tofu is sold in supermarkets) and at least 2 in Czechoslovakia (one employs 60-80 people). In Austria, Guenter Ebner works for Viana, sells Viana products, knows the eastern European market very well, provides much information to Bernd about this market. The founder of Sojarei Vollwertkost GmbH, Guenter had his company taken over by the major shareholder in an unfriendly way; they kicked Guenter out.

The boundaries between eastern and western Europe are slowly breaking down. The move toward a unified greater Europe will be accelerated on May 1 of this year when 10 eastern European countries are scheduled to join the EU: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.

Bernd estimates that only about 10% of Germans consume soyfoods at least once a month; this figure is much lower than in the USA. Viana’s exports have grown. Continued. Address: Founder and president, Viana Naturkost GmbH, 54578 Wiesbaum / Vulkaneifel, Germany. Phone: +49 06593-99670.
Soto Tofu, formerly run by Rolf Barthof has been sold to a different language throughout the EU (European Union)—brand name communicates will to people speaking many market under the V eggie Life brand; this English-language market. In 2001 Viana started selling its tofu to the mainstream (both Sikhs), makes tofu mostly for the Asian (Indonesian) company in Kerkrade, Netherlands, run by the brothers Singh the organic So Fine brand (www.sofine.nl). An Indian-run years ago, Heuschen-Schrouff started selling their tofu under Netherlands) and Viana are tied for second place. About 10 and Guenter Klein. Heuschen-Schrouff B.V. (Landgraaf, Netherlands) and is a very nice guy.

Several weeks ago Hain-Celestial of New York purchased two German soymilk makers, both owned by Bruno Fischer, Jr.: Natumi and Gut Honneroth. He sold both companies at a low price—probably because he had to. Bruno had gotten his soymilk into Aldi, the mother company of Trader Joe’s and the No. 1 discounter in Germany—and maybe in all of Europe, and he developed a large soymilk business with Aldi—perhaps so large he could no longer handle it himself. Bruno also made a lot of private label soymilk. With Hain, Bruno found a large German dairy to make soymilk for Aldi under a new Aldi brand. The new European CEO of Hain-Celestial is Philippe Woitrin, who was CEO of Lima Foods when Hain acquired it.

Triballat makes the best soy yogurts (Sojasun brand) in the world—in Bernd’s opinion. They have a new brand, Sojád, which are delicious creamy yogurt drinks—maybe organic. The Japanese Yakult concept of drinking live beneficial probiotic bacteria each morning has now caught on in a big way in Europe. Yakult is one of the best entries into the European food market in years. Bernd just saw White Wave’s Silk Alive, a similar product, at the Anaheim Natural Products Expo. But he liked the Wildwood smoothie even better, and the WholeSoy fermented soymilk best of all American products.

In France a small company named Sojami (pronounced so-zha-MEE), which started about 10 years ago, makes very creative, unique, and interesting soy cheeses and cultured soy yogurts. The founder has a university research background and is a very nice guy.

Tofu: Tofu consumption in Europe has expanded steadily over the past 5-7 years, but it is still a very small product. The largest maker of the tofu and tofu products sold in Germany is Life Food GmbH / Taifun Produkte, run by Wolfgang Heck and Guenter Klein. Heuschen-Schrouff B.V. (Landgraaf, Netherlands) and Viana are tied for second place. About 10 years ago, Heuschen-Schrouff started selling their tofu under the organic So Fine brand (www.sofine.nl). An Indian-run company in Kerkrade, Netherlands, run by the brothers Singh (both Sikhs), makes tofu mostly for the Asian (Indonesian) market. In 2001 Viana started selling its tofu to the mainstream market under the Veggie Life brand; this English-language brand name communicates will to people speaking many different languages throughout the EU (European Union)—though distribution is still limited to Germany and Austria. Soto Tofu, formerly run by Rolf Barthof has been sold to a very large dairy company, Algäuland. Viana’s main products are tofu and tofu products—such as meat and cheese alternatives. Viana is #1 in Germany in meat alternatives. Germans buy soyfoods for three main reasons: They are good for one’s health, they taste good, and good for the environment. Bernd is a vegan, but about 90% of Viana’s products are sold to non-vegetarians.

Early tofu companies still active in Europe include Sojafarm (founded and still run by Lothar Stassen), Albert’s Tofuhaus (Albert Hess; exports lots of his products to France). A basic problem with the smaller, early tofumakers in Germany is that they didn’t have the creativity or power to put a brand on the market. So both these companies produce a lot of tofu under private labels. Lothar bought the Svadesha brand (Svadesha was the first German tofu company) and produces tofu under the Svadesha brand. About 2-3 years ago he also purchased the Nagel’s Tofu brand from Christian Nagel, who now markets the tofu under his former brand. So Lothar makes tofu under 3 brands. Berief Feinkost (in Beckum, northern Germany), started 10-15 years ago, tries to cover the mainstream tofu market, but not very successfully. Kassel Tofu Kato (started by Gyoergy / Yuri Debrecini, who was at Soyastern). Thomas Karas is no longer involved with soyfoods; tried to enter the computer business but Bernd does not know what he is doing now. In Spain, the market leader is Natursoy near Barcelona. Nearby is Salvador Sala of Vegetalia. In Spain, there is a lot of interest in and rapid growth of soyfoods and organic foods. In Italy the Ki Group (Schenker) owns a tofu company—fairly old but not very creative.

In the United States, Pulmuone now has three U.S. factories; their first one in Southgate, southern California, a new one at Fullerton, California, and a 3rd one in New York. The Fullerton factory is the most modern Bernd has ever seen. There they make Gourmet Tofu, introduced in about Jan. 2004, which is presliced and marinated, in 4 flavors / styles: Baked, Sliced, and Marinated.

Meat alternatives: Nestle now owns Osem which owns Tivall, the Israeli maker of meat alternatives. Since all of Tivall’s products are held together by eggs or egg whites, none of them are vegan—and none are organic. Quorn, which also contains lots of egg protein, is owned by AstraZeneca [Marlow Foods]—which wants to sell the company because growth and profits have been lower than expected. DE-VAU-GE in Germany is a very big company, they make large amounts of meat alternatives (incl. burgers), and they do a lot of business with Aldi in breakfast cereals—not in soyfoods. Bernd thinks they are good, and very economical manufacturers, but they are not very creative and they have no USP (unique sales point); moreover, many of their products contain egg protein, but their quality is lower than that of Tivall. Bernd believes his meat alternatives are as good as Tivall’s, but more expensive, in part because of organic ingredients. Tivall makes its raw materials in Israel, then exports these to Europe for cutting and flavoring.
Klaus Gaiser owns Topas which sells Viti brand meat alternatives based on wheat gluten, with no soy; he owns the brand and markets the products, but he has meat companies manufacture them. However, when his typically 3-year contract with the manufacturer expires, he has to find a new manufacturer, but the previous one keeps making his products under their own brand. In the USA: At Turtle Island Foods (Hood River, Oregon), Bernd met Hans Wrobel, a German who does product development. Note: Hans and Rhonda Wrobel of The Higher Taste developed Tofurky in Portland, Oregon. Bernd makes Pizzarella, a tofu-based cheese alternative. Address: Founder and president, Viana Naturkost GmbH, 54578 Wiesbaum / Vulkaneifel, Germany. Phone: +49 06593-99670.

• Summary: “We’re not doing a full Bulletin this time, just an update about what’s happening with Plenty.” After 30 years, “I have come to recognize that what we do together might be described, very simply, as ordinary magic. Where people are connected by their love for each other, miracles are commonplace.”

“As you know from the most recent Bulletins, we are working on a new project involving four different organizations—two in Guatemala, one in Managua, Nicaragua and the Huichol Center in Mexico, which have requested Plenty’s assistance for their soyfoods and nutrition education efforts. We call it CAFSI (Centra American Food Security Initiative). Through CAFSI we will be purchasing soy processing equipment, and we will help the groups install it, and do trainings in the use and maintenance of the equipment and different ways of preparing soyfoods and making soyfood products for sale. Two of the organizations will be growing soybeans, so seed variety trials have to happen and growing and harvesting techniques learned.”

“Thanks to another grant from the Better World Fund, we were able to help the Mayan Soy Dairy operated by ADIBE in San Bartolo near Solola, Guatemala open a shop in a near-by town where they can sell their products. Remember, the ADIBE Soy Dairy is the original Mayan Soy Dairy built by Plenty and the Cakchiquel Maya of San Bartolo in 1979. That Mayan Soy Dairy is 25 years old this year, and they’re still making soymilk, tofu, soy ice cream and tempeh using mostly the same equipment we took down in ’79. Using your individual donations to Plenty, we were able to provide the funding to upgrade the dairy floor and roof. Now we’re raising money to upgrade the equipment.”

“The purpose of the Iraq Soy Food Group (ISFG) is to assist economically disenfranchised families improve their access to good planting seed and high nutrient, low cost foods. Plenty is acting as the fiscal sponsor for ISFG. Long-time Plenty soy technician, Charles Haren, is overseeing the project, and Lou Morgan, a Plenty donor for 25 years, has been providing start-up funding. ISFG is working to help families and communities in Iraq improve nutrition intake and financial income by increasing local production, processing, marketing and consumption of soybeans, other dry legumes. Beginning in March ISFG representatives Martin Edwards and Salam Onibi started working with a few farming families and agriculture scientists to re-establish soybean production capabilities (most planting seed has been lost due to the war). The Iraq Soy Foods Group is now seeking funding to establish a Soy Foods Center that will help address immediate and long-term food needs for impoverished populations in Iraq.”

Address: Executive Director, Plenty, P.O. Box 394, Summertown, Tennessee 38483. Phone: (931) 964-4864.


Introduction: “The company Tofutown.com GmbH was founded in 1988 in Cologne under the name Viana Naturkost by a group of experienced food producers, brave tofu makers and young musicians. Since then the company has practised ‘Business without Guilt’ (e.g. the use of purely vegetable organic raw materials, in part from Fair Trade). Even after 15 years the company sees itself as a dynamic “Veggie Start Up Company.” Tofutown.com has grown to become a renowned producer of entirely vegetable foods such as meat alternatives and dairy free milk and cream products within Europe. It is part of the Tofutown.com philosophy to produce using one’s one know how and not simply “bring into circulation” (i.e. have others produce), which is commonplace in such marketplace niches as organic foodstuffs.

“More than 60 vegetarian products are made in the middle of the beautiful natural countryside of the Volcanic Eifel region, in the town Wiesbaum, which has earned itself the description ‘Tofutown.’ Tofutown.com is known for its excellent, tasty ‘Viana Real Smoked Tofu,’ the vegetable drinks ‘SoActiv’ and ReisActiv, the meat alternatives ‘Velami,’ ‘Vegetarian Kebab’ or ‘½ Pound Veggie Mince,’ the dairy free cheese ‘Pizzarella,’ and the ‘Viana Soya Coffee Creamer.’ The exquisitely fine ‘Country Mild Smoked’ from the product range ‘Classic Veggie Carpaccio’ won the German Vegetarian Union’s Trend Prize 2004. The export share of turnover is about 30%. Tofutown products can be found throughout Europe and even in the Kingdom of Bahrain.

‘Brand names and marketing: The company produces some 60 items for the European organic market under the traditional label ‘Viana’ as well as a soy drink under the quality label ‘demeter’ (Tofutown.com is a licensed demeter producer).
“In 2003 Tofutown.com was able to introduce a new brand name into German foods retail (supermarkets, warehouses, Cash&Carry, discounters, etc.). This new label is called VeggieLife (slogan: ‘happy without meat’), encompasses at present some 15 products and has made its way into 500 supermarkets within just 9 months.”

As many as 15,000 users visit the company’s websites each week. “We believe in Food Democracy. The Tofutown.com philosophy is that every human should have the opportunity to get an entirely vegetarian product whenever and wherever he or she is hungry or thirsty. If it comes from Tofutown, it’s much more delicious and far healthier than something similar containing meat or dairy products. Today’s consumers know that they shape their own future with their purchases.”

Tofutown.com makes “500,000 tofu burgers and 1,000,000 real vegetarian sausages per year.” There are “500,000 faithful and enthusiastic Viana customers... and approximately 35 employees.” Address: Wiesbaum, Germany.


• Summary: A virulently antisoy website, with many links to other sites, anti-soy articles and books, etc. It was clearly initiated in New Zealand by the small group containing Richard and Valerie James and Mike Fitzpatrick. They were soon joined by Sally Fallon in the USA, and others (unknown) in the UK.


A counter near the bottom of the Home Page states that this site has had 476,892 visitors since 27 April 1999. The information on this site cannot be printed unless you select the particular text you wish to print.


• Summary: Daniel was born on 23 Sept. 1936 in Jerusalem, Palestine, the son of Elijah Mathew Chajuss (a flour miller, born on 12 April 1903 in Jerusalem) and Dvora Margaliot, born on 4 April 1908 in Tiberias, a town on the western shore of the Sea of Galilee (which today is in northeast Israel). Both parents were born before World War I when Palestine was still part of the Ottoman Empire; Turkish (written in Arabic script) was the official language, but Hebrew was the main language of the Jewish population.

The family name was pronounced “Chayes” (or “Hayes”) but was written “Chajuss.” Within the family and among close friends it was pronounced “Khatuth” or “Khayooth,” where the initial “ch” is pronounced like the non-initial German ch as in Bach. Daniel’s mother’s family had lived in Palestine for at least 9 generations and his father’s family for 5 generations. He was the second of three children, with an elder sister and a younger brother.

In 1953, at age 16, he went to the United States to study at Kansas State University (Manhattan, Kansas), focusing on the milling industry and cereal chemistry. In 1956 he began what became a lifelong interest in soy when he learned of the effects of soy flour components on wheat flour; he did some research on soy protein utilization in food systems. He finished his studies in 1956 and graduated in 1957 with a B.S. degree in milling technology. While an undergraduate in the USA, Daniel received lots of help and support from his father and family, but he worked to earn most of his living expenses. After graduation, he returned to Israel, where (in the late 1950s) he worked in the Israel Army Quartermaster Corps. doing food research and development for military purposes.

Eliahu Navot was the first real pioneer of soybean utilization and production in Israel. He devoted much of his life to this work. Daniel met him once or twice in the late 1950s, and was aware of his work. “He impressed me as a person totally devoted to soy and his aim was that the soybean should be grown and used in Israel for many good reasons.”

In 1956, the same year his son became interested in soy, Elijah M. Chajuss incorporated a company named “E.M. Chajuss, Ltd.” It was a small commercial and trading company, established mainly to trade in grains and foods. Elijah owned 80% of the shares and Daniel owned the remaining 20%. The firm was not very active and it ceased to exist in about 1988.

In 1958 Daniel returned to the United States to do graduate work at Washington State University (at Pullman). He was not yet married. In 1960 he received an MSc degree in food technology; his dissertation was titled “Post mortem tenderization of chicken muscle.”

In early 1961 Daniel went to work at the Northern Regional Research Lab. (NRRL) at Peoria, Illinois, as an employee under
A.K. Smith; other coworkers included Joseph Rackis, Walter Wolf, Clifford Hesselton, and Gus Mustakas. His research included work on soy proteins, and specifically work on making soy protein concentrates (SPC) by the aqueous alcohol wash process, which had been developed by Mustakas and coworkers in about 1960 and published in the Journal of the American Oil Chemists’ Society in 1962. Yet Daniel was most interested in the biologically active soy compounds which were found in the non-SPC solubles, a by-product of this new aqueous alcohol wash process; he would soon call these solubles “soy molasses.” Daniel has a sister in the U.S. Their father came to visit them at this time and Daniel showed him around the USDA laboratory at Peoria and explained the work he was doing there.

In 1962, after about a year at NRRL, he decided to return to Israel, where he got registered and certified Chemical Engineering certification.

In 1962 Daniel and his father, Elijah, incorporated Hayes Ashdod Ltd. (Industrial Zone P.O. Box 2230, Ashdod, Israel); all the shares were owned by their family. At the same time they established Hayes General Technology (HGT) Company Ltd., as the first company’s R&D arm or division, and an agro-industrial engineering firm; it was not a separate company and was not incorporated at this time. Daniel’s father was chairman of the company and a firm believer that proteins were in short supply and that soy proteins with good acceptability would offer an affordable solution to many. Elijah also handled commercial operations. Daniel dealt mainly with the technology, research, product development, and plant operation. Thus, Daniel spent much of his time with HGT, which was located in a separate building on the Hayes Ashdod site. HGT’s goal was to do basic research and develop new technologies and know-how in areas not necessarily related to soy protein concentrates.

Ashdod is a city about 3 miles inland from the Mediterranean Sea, 35 miles due west of Jerusalem and about 15 miles north of the northernmost part of the Gaza Strip. Important harbor facilities have been constructed on the coast near Ashdod; in 1990 its population was about 76,600.

But as with all pioneering ventures by entrepreneurs, starting a new business was risky and the future was unknown. Daniel recalls: “When we started the plant in Ashdod my uncle (father’s brother) came to me and said (in a teasing, friendly way), ‘Daniel, you are doing a criminal thing. You take your money and your father’s money and the bankers’ money and big loans to make soy protein concentrate. Who needs it?’”

In 1962 Daniel and Hayes Ashdod began an ongoing, long-term collaboration with Israel’s leading center for research on soybeans–the Hebrew University’s Faculty of Agriculture at Rehovot [pronounced rei-HO-vot], located only about 13 miles north of Hayes. Daniel worked very closely with Yehudith (“Judith”) Birk, co-discoverer of the Bowman-Birk trypsin inhibitor, who also did work on isoflavones, saponins, etc. She was a great pioneer in the field of soy research; she is still [2005] active at about age 75 and a very able and very nice person. Dr. Michael Naim was a pioneer in the field of soy molasses. Other researchers at Rehovot included Bondi, Gertler, Gestetner, Tagiri, and others.

This collaboration was based on mutual interest in the nutritional value of soybeans, unknown growth factors in soybeans, etc. No money changed hands, no contracts were entered into, Daniel did not assign the researchers any specific projects to work on, and no research was done specifically for Daniel or Hayes. Rather, Daniel and the researchers at Rehovot collaborated on research projects of mutual interest. Daniel sometimes went to Rehovot when needed and did research there, however most of his research was done in the Hayes’ laboratories in Ashdod. His work in Ashdod was mainly to fractionate soy components and evaluate the same at the request or understandings with the workers from the faculty. His visits to Rehovot were mainly to discuss the various ongoing research projects with the people involved, and to visit the large library there. Occasionally researchers from Rehovot visited Daniel and Hayes in Ashdod. Daniel spent the most hours in Rehovot during the 1980s, when for about a year he visited the faculty once a week and stayed all day. After 2004 he went there seldom. No one from Hayes did research at Rehovot on a regular basis.

In addition to his own work, Daniel contributed soy products his company had made at Ashdod, e.g., soy protein concentrates (processed in various ways), soy fibers, hulls, soy molasses and various fractions thereof, etc.

Together they worked, for example, on nutritional aspects of soy molasses components, of the soy protein concentrate in human and calves milk replacers, on antigenic components of the soy and their elimination, on the soy dietetic fibers (“Sobit”), etc.

Many research papers were published in leading scientific journals, and PhD and MSc degrees were obtained because of their mutual work. Daniel believes that grants for the research were provided by the USDA under the P.L. 480 (Food for Peace) program. All of them enjoyed the mutual work very much. This fruitful collaboration continued until a few years ago.

In 1963 Hayes Ashdod began operations. Daniel recalls the general situation with soy in Israel at that time: In 1962 there were several makers of soy food products in Israel. Soybean crushing factories made soy oil for human consumption and toasted soybean meal for animal feeds. However, some of the toasted soybean meal was milled to soy flour for use in households, in the meat processing industry, and in the baking industry. There were also some small cottage industries making various Oriental soy products, such as soy sauce, simply-made toasted and non-toasted full-fat soya flours, roasted soybean coffee, etc.; Daniel does not remember the names of these companies. Continued. Address: Managing Director, Hayes General Technology Company Ltd., Misgav...
Dov 19, Mobile Post Emek Sorek, 76867 Israel. Phone: (972) 8 592925.


• Summary: Continued: Let us now return to the early, pioneering products introduced by Hayes Ashdod during the 1960s. Hayes Ashdod was one of Israel’s first company to make foods from soybeans, and Israel’s first manufacturer of modern soy protein products.

In 1963 the company launched its first product, a soy protein concentrate named Haypro. This product was also the first commercial soy protein concentrate manufactured outside the United States.

The main applications for Haypro were as a meat extender, and in hypoallergenic formulas (especially for babies and children allergic to cow’s milk). Most of the product was sold outside Israel, mainly in Europe.

Hayes Ashdod was the world’s first commercial plant to make “traditional” soy protein concentrate (SPC) and soy molasses by a counter-current aqueous alcohol wash system; that system was developed by Daniel. The plant’s initial capacity was about 5,000 metric tons of soy protein concentrate and about 2,500 metric tons of soy protein concentrate per year (each on an as-is wet basis).

Who should get the credit for developing this important new process using alcohol? In Dec. 2007 Daniel wrote: “The credit for developing the process for SPC by aqueous alcohol wash should go to Mustakas and coworkers [at NRRL] in Peoria [1960-62].

“In the early 1960s, aqueous alcohol washed SPC was introduced on a commercial scale by the Central Soya Company’s Chemurgy Division in the USA; they developed a immersion aqueous alcohol extraction system to make SPC. At about the same time we introduced in Israel a continuous counter current aqueous alcohol wash system to make SPC. The producers of the ‘traditional’ alcohol washed SPC generally use the continuous counter current aqueous alcohol wash system today.”

Also in 1963 Hayes Ashdod introduced “Soy molasses, a concentrated soy solubles extract, obtained during the production of soy protein concentrate.” This product is used in animal feeds and as a source of oligosugars [oligosaccharides] for elderly people to maintain proper [digestive-tract] flora and regularity (mainly in Japan). Note: Daniel Chajuss wrote the above quoted words and date on 14 Jan. 1993 in a letter to William Shurtleff, in response to a question from Shurtleff. On 9 Sept. 1995 he again wrote Shurtleff: “The name ‘soy molasses’ was coined by me in 1963. It is generally manufactured today in accordance with the contents of my Israeli Patent No. 19168.” He recalled in Feb. 2005: “When we got soy molasses, it was a dark, sweet, bitter, viscous, strong-smelling product. It looked very much like molasses. I decided to sell it to the feed mills, which at that time were using beet sugar molasses. So I decided to call it ‘soy molasses.’ But from my research in Peoria, I knew it contained many very interesting compounds—such as isoflavones and those that prevent perosis in chickens. In 1963 I made an application to the Israeli government to do research on soy molasses. I believed in it very much because of the many interesting components it contained. Now, most of the patents concerning soy isoflavones are about ‘soy molasses,’ as are most of the scientific articles. So this term has become accepted, probably because it is so descriptive. Soy molasses is more like beet sugar molasses than cane sugar molasses.

In 1964 the company introduced Haysoy brand soy flours in full fat and defatted, toasted and untoasted forms, mainly for the baking and fermentation industries.

In 1966 Hayes Ashdod Ltd. introduced texturized soya protein concentrates under the brand names Hayprotex and Contex. Hayprotex was designed for use mainly as a minced meat extender, while Contex was designed mainly for vegetarian analogs.

Hayes Ashdod started making texturized [textured] soy protein concentrate in large part because they were very familiar and friendly with the Katzin family—Sol and Sid Katzin, two brothers, who came to Israel from the USA and who built the Shefa Protein Industries plant in Arat, Israel. They were idealists who made the first texturized soy flour in Israel. Sometimes they would buy (from Hayes Ashdod) the fines of the white flakes to texturize. Daniel asked Sol why he didn’t texturize soy protein concentrate. Sol replied: “We don’t sell taste, we sell nutrition.” Sol was a really nice fellow, a nutritionist at heart and in his profession. They were real pioneers, but they had such a difficult time and were often disappointed.

In the early days, after he saw Sol Katzin’s extruder, Daniel first did some trials with a Wenger single-screw extruder, with assistance from Oak Smith, Hayes bought a small Wenger extruder. Since Daniel didn’t want to compete with his friend, Sol, he decided to extrude soy protein concentrate—but the product was not very successful, and definitely not as successful as Shefa’s textured soy flour products. Daniel’s product failed largely because of its high price whereas the Katzin’s product failed because of its flavor—although its shape was excellent. Daniel is not aware of any company that made textured soy protein concentrates before he did. He knows that another similar product was Response, made by Central Soya.


“Hayes Ashdod Ltd. Research and Development Department has developed many soy analogs in various forms (‘vegetarian sausages’, ‘fish-less fish fingers’, ‘vegetarian sea
in Tel Aviv; he is now (2005) a computer scientist and engineer at Aarhus University, Rehovot, Israel. They had four sons: Ron, born on 18 Dec. 1973 in Tel Aviv; he is now (2005) a computer scientist and electrical engineer. Amir and Shi (twins) born on 17 Dec. 1976 in Rehovot; Amir is a graduate student in physics and philosophy. Shai is a graduate student in business administration and political science. Ori, born on 2 Feb. 1983 in Rehovot, is finishing his military service duties and going to study at a university.

All the soy protein concentrate facilities worldwide, which were established since 1973 and which are still in operation today (including ADM, USA, SOGIP-Bunge, France, etc., with the exception of Central Soya’s USA plants) employ Chajuss’ technology and/or engineering designs, and are mainly based on the know-how and technology developed by Chajuss. About 90% of the total world production of soy protein concentrates today is made by aqueous alcohol extraction. Most of the protein concentrates are used in the form of powder or grits, some are further texturized, and some are further treated to provide various “functionalities.”

In 1974 the Aarhus concentrate plant began regular full-scale operation. It was later bought by Central Soya.

Also in 1974 Daniel, Prof. Birk and the other researchers at the Hebrew University at Rehovot did much collaborative research on soy phytochemicals, such as soy saponins, soy isoflavones, other soy phenolics, etc., which were obtained from alcohol-extracted soy molasses. They found that soy molasses had many interesting and useful applications—even for stabilizing sandy soil and eventually enabling it to be productive for agriculture. Later they developed a technology to remove the isoflavones (very bitter and beany) and saponins from the soy molasses. They found that the isoflavones in the soy germ are not bitter.

Daniel recalls: At [the NRRL in] Peoria, Illinois, they had tried to breed soybeans that had little or no bitter, beany flavor. Essentially they were trying to breed out the isoflavones; fortunately they were not successful. Yet the isoflavone content of both soybeans and soy molasses covers a wide range; for soy molasses it is about 0.5% to 2%.

During 1974 Daniel told researchers at Central Soya and Aarhus Oliefabrik about these compounds found in soy molasses. Then Unimills started a plant and called it ‘soy volasses.’ The 2004 Soya & Oilseed Bluebook has a section titled ‘Definitions and Glossary,’ however it does not yet have an entry for ‘soy molasses’ (p. 367). But there is an entry for ‘soy solubles.

During this time Hayes General Technology also did development work on many different modern soy protein products functional soy protein concentrates, textured soy proteins, soy flours (full-fat, medium-fat, and defatted; enzyme active or toasted); also on the extraction of specialty oils and cold press systems; on specific extraction plants, as for jojoba oil, primrose oil, argan oil (from the nuts of the argan tree, *Argania spinosa*, of southwest Morocco), etc.; flash desolventizing systems for non-polar and polar solvents; unique, bland and novel “no waste” (fiber included) soymilk products; precooked “instant” cereal plants; complete low-cost...
food formulae plants; micro-milling systems; production of vegetarian meat alternatives, incl. vegetarian sausages, schnitzels, patties, and “fried fish”; non-soy based protein products; lupine seed processing incl. lupine protein, lupine oil, and lupine alkaloizide alkaloids production systems. Much work was also devoted to the development of low-cost cottage industries.

In 1980 Hayes started to sell soy lecithin commercially; it was separated from the soy oil obtained during the production of “white” flakes by hexane extraction.

Also in 1980 Daniel’s father, Elijah M. Chajuss, began to reduce his full active daily work with Hayes Ashdod Ltd. At this time, the two men began thinking about selling that part of their company. Daniel thought it would be better if he focused on research, development, and engineering work. None of his sons was interested in carrying on the family business.

Until 1981, all the shares of Hayes Ashdod Ltd. were held by the Chajuss family.

1984 Sept. 27-28—Daniel attended the First European Soyfoods Workshop held in Amsterdam, Netherlands, as a delegate of E.M. Chajuss Ltd., which was interested in establishing a simple soy cottage industry; at about that time they had developed some simple appropriate processing technologies for soyfoods and soymilk and were thinking about making those in a company other than Hayes Ashdod Ltd.

1984–The Chajuss family began to sell some of the shares in Hayes Ashdod Ltd. (fully owned by the Chajuss family) to Koor Foods Ltd. (headquartered in Tel Aviv), which was a holding company that owned shares and ownership in various food firms and was a part of Koor Industries Ltd., which had been established by labor unions. Hayes Ashdod Ltd. sold crude soybean oil to firms owned by Koor Foods Ltd. Koor has approached the Chajuss family, asking if all or part of Hayes Ashdod might be for sale.

In Dec. 1984 the majority of the shares in Hayes Ashdod Ltd. were sold by the Chajuss family to Koor Foods Ltd. Address: Managing Director, Hayes General Technology Company Ltd., Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel. Phone: (972) 8 592925.


• Summary: 1985–4th of 4 recs. Hayes General Technology (HGT) Co. Ltd. is incorporated as a separate and independent company, still owned by the Chajuss family, especially to develop engineering, process know how and new technologies, mainly in the field of soy proteins.

1986–The Chajuss family sold the remainder of the shares in Hayes Ashdod Ltd. to Koor Foods Ltd. One of Koor’s directors was Mrs. Shefi of Kibbutz Hatzor. She was the link connecting her kibbutz with Koor Foods and Hayes Ashdod Ltd.

1987 Feb. 18–Elijah Mathew Chajuss, Daniel’s father and co-founder of Hayes Ashdod Ltd., passed away in Rehovot at age 84.

In March 1987 all the shares of Hayes Ashdod Ltd. were purchased from Koor Foods by Kibutz Hatzor. A few months later, in about Sept. 1987, the company name was changed from “Hayes Ashdod Ltd.” to “Soya Hatzor Ltd.”

In 1988 Soya Mainz (of Mainz, Germany) bought from Hayes General Technology engineering designs to set up a soy protein concentrate plant in Germany. The plant was not built and instead in early 1991, Soya Mainz bought 25% of Solbar’s shares.

In 1989 (a year later) Soya Mainz bought an additional 24% of the shares in Solbar, so that they now owned a total of 49% equity in Solbar Hatzor; Kibbutz Hatzor owned the remaining 51% equity of this joint venture between Israeli and German companies.

Note: The proprietary rights of Hayes Ashdod Ltd. know-how and technology remained, however, Chajuss’ proprietary possession. Koor Foods ceased operations in about 1987.

Today HGT does mainly research engineering and designs systems, but it also manufactures special, nonstandardized equipment, and installs complete systems. HGT engineers, including Daniel when warranted, also work as field engineers and consultants on site when the systems they have designed are installed in other countries. They have done that since 1973-74 when their first system was installed outside in Aarhus, Denmark. Systems for manufacturing soy protein concentrates and soy molasses, designed and developed by HGT, have been installed in Israel, Denmark, The Netherlands, France, USA, China, and Brazil. All these plants include texturizing facilities, which although recommended by HGT are designed and made by firms such as Wenger, Extrutech, and Clextral. Today HGT is known and often referred to as ‘Hayes Ltd.’ Hayes General Technology Company Ltd. is thus thinking about making ‘Hayes Ltd.’ its official company name. Also today (2005) this company is owned and managed by Daniel Chajuss.

Note: Hayes Ashdod Ltd., although it was sometimes referred to as “Hayes Ltd.” was never officially named “Hayes Ltd.”

In early 1991 the German soy processor, Soya Mainz GmbH and Co. bought a 25% equity interest in Solbar Hatzor Ltd. (formerly Hayes Ashdod Ltd.), soya protein manufacturers of Ashdod, Israel. The company has also contracted with Hayes General Technology Co. Ltd. of Israel to set up a soya protein concentrate production facility in Germany.

By 1999 Solbar had started a sister company or division named Solbar Plant Extracts to market its nutraceutical products (such as isoflavones) extracted from soy molasses.

Today (Feb. 2005) the makers of traditional type concentrate generally use the systems developed by Daniel Chajuss. These systems are purchased from Hayes General
Technology and are presently used by all the leading makers of traditional and functional soy protein concentrates. Today over 95% of the soy protein concentrates manufactured worldwide are made using systems developed by Hayes. Included among Hayes General Technology clients for traditional or functional soy protein concentrates (SPC) have been: (1) Hayes Ashdod Ltd., Ashdod, Israel (later renamed Solbar Hatzor Ltd.), 1962 to 2005 (complete engineering designs and services). (2) Aarhus Oliefabrik A/S, Aarhus, Denmark (alter renamed Central and presently Solae), 1972 to 1974 and later periodically upon request. (3) Bunge Sogip, Bordeaux, France, 1988 to 1996 (later renamed Central Soya Aarhus and presently Solae). (4) Soya Mainz, Mainz, Germany, 1988 (now part of ADM group). (5) ADM, Decatur, Illinois, 1989-1999. Intended to be used for SPC in the Decatur plant. The knowledge was later also utilized by ADM in plants in the Netherlands (Europort) and China. (6) Finnsoypro Oy, Uusikaupunki, Finland, 1995. Textured soy protein concentrate plant. (7) Cargill, Minneapolis, Minnesota, 2000 to 2003. SPC technology licensing and transfer of know-how and engineering designs. Also consultations. (8) Shemen Industry–Soyprotec Advanced Protein Technology, Haifa, Israel, 1999 to present. SPC technological transfer and licensing agreement and consultation services. (9) China–In China HGT is involved directly and or through Wuhan Crown Friendship and provide Hayes know-how, licensing, engineering designs and services to manufacture SPC to firms such as Shandong Sanwei Oil Enterprise (Group) Co. Ltd., Linyin City, to Crown Proteins, to Gushen in Shandong province and to YiQing Group in Tianjin. (10) Brazil–The transfer of know-how and engineering designs is and was made to such firms as IMCOPA (2006) and others through Crown Iron Works. Cargill, Shemen Industries (Soyprotec), Shandong San Wei, etc.

Daniel has retired largely from the commercial side of his business. But he still (2005) has a small company that makes isoflavone products; he likes very much to do research is this company’s laboratories. “Business can be god or bad, profitable or not profitable, but when you do research, you may get good or bad results, but it’s always interesting. That’s what I like to do.” From time to time Daniel goes to the Hebrew University of Jerusalem at Rehovot to do research; he still works occasionally with Dr. Yehudith Birk.

Daniel has become interested in a remarkable plant and its seed, pearl lupin (Lupinus mutabilis), a species of lupin that is grown in the Andes of South America for its edible bean. Vernacular names include tarwi, tarhui, chocho, altramuz, Andean lupin, South American lupin, or pearl lupin. The bone-white seed–each looks like a pearl–averages 46% protein (more than soybeans) and 20% fat and has been used as a food by Andean people (Peru, Chile) since ancient times, especially in soups, stews, salads and by itself mixed with fried maize. Like other legumes, its protein is rich in the essential amino acid lysine. It has a soft seed coat that makes for easy cooking. At least three things have limited the wider use of pearl lupin: (1) The seed has an awful, bitter flavor, caused by toxic alkaloids. (2) It grows at very high altitudes. (3) The growth habit of the plant makes it hard to harvest mechanically. However the active, bitter substances in the seed (alkaloids, especially alkaloizidon) are extremely important. Since these are water soluble, they can be easily removed by soaking the seeds in water. The Indians in Chile put the whole seeds in a jute bag, which they immerse in running water for about two weeks. More important, they can serve as a natural medicine, as a natural repellant for insects and birds if a little is sprayed on fields, and as a growth promoter of the plants on which it is sprayed. Daniel has done research on this bitter compound in this underutilized bean; he believes this seed has a very bright future, including as a human food. Address: Managing Director, Hayes General Technology Company Ltd., Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel.


- 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 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.


Summary: ADM made acid-wash soy protein concentrate, which cannot be texturized. Daniel thinks they did this after they bought Central Soya’s isolate plant in Chicago, and brought it to Decatur, Illinois. This inability to texturize was one of the reasons ADM asked for Daniel’s assistance in establishing a plant to make aqueous alcohol wash soy protein concentrate.

Central Soya made very good soy products—such as Response [textured soy protein concentrate, launched in July 1975]. Daniel has always had very good personal and business relations with Central Soya.

Hayes Ashdod was sold in 1987 and is now named Solbar. It is still in the same location as before, with much of the equipment. After the sale, Daniel; used to work there almost every day, but he no longer works with that company.

Daniel helped Finnsopro Oy (Finnsow) in Finland to start a plant by giving them know-how; however they bought equipment from a company that is the daughter company of Wenger. Finnsopro is a small factory that makes about 300 kg/hour of textured soy protein concentrate. The owner (who is very smart) is a neighbor and friend of Daniel is Israel.

Daniel really loves his work at Hayes General Technology (HGT), which he still owns; he is the managing director. He works to install new plants around the world based on the unique technology that the and HGT have developed. He sold Hayes Ashdod Ltd. in part so that he could focus more on his work at HGT. He is now working on a plant in Haifa for a company named Soyprotec; it belongs to Shemen Industries, which is also making soy protein concentrate.

Daniel drinks Alpro soymilk. “Now is Israel tofu and soymilk and other soy products are very, very popular.” Israel’s largest producer of dairy milk, Tnuva, now makes soymilk. They generate a lot of okara, which is transformed into a health food product by another company. It contains about 30% protein, 60% fiber, plus some oil, minerals, etc. Address: Managing Director, Hayes General Technology Company Ltd., Misgav Dov 19, Mobile Post Emek Sorek, 76867 Israel. Phone: (972) 8 592925.
President Lyndon Johnson was taken while he was working at department of agriculture. John had had just signed some agricultural bill into law. Glenn was invited to be present at the signing in the Oval Office. It was kind of ironic, because Glenn was a life-long Republican; it chafed that the only photo he had of himself with a president was with a Democrat. However, he was proud enough of that that he always kept it on his desk, even after he retired to California.

He did some traveling in the USA when he was with the cooperative in Mason City, and he at about the same time he and his wife took several vacation trips to Europe in the 1950s. With the Soybean Council he was often given VIP treatment when he arrived in countries such as Iran or Egypt; they would whisk him around customs and into a limousine, where an official would stamp his visa on the way to the hotel. In Iran, he was shown the Crown Jewels, which were kept in a bank vault. He had no built-in biases, antagonisms, or racism while growing up, so he was intrigued by great diversity of people he met and did business with in his travels.

On Ardis’ side of the family, several close relatives are deeply involved with genealogy and family history. Ardis’ mother was 100% Norwegian.

When they moved to the East Coast they lived in Falls Church, Virginia, about 10 miles due west of Washington, DC. They lived in the same city and house (6420 Crosswoods Drive), the entire time they were on the East Coast. His office was in Arlington, Virginia—always outside his home. He had 3 different jobs in that area. First was the Soybean Council, which was in Arlington (starting 1 Dec. 1964 at 1401 Wilson Blvd.). For the first year or so Allen, who had just graduated from MIT and was working in nearby Alexandria, Virginia, lived at his parent’s home. Then Allen got married. He and his wife moved into an apartment about a mile from his parents house, so he saw them constantly during the next 3 years, until 1969 when Allen left for Harvard to start his MBA program. Allen was very close to both his parents. After the Soybean Council was dissolved (they lost much of their government funding), he was unemployed for a while. He had contacts at the USDA where he found his next job in the oilseed division at the USDA building near the mall, in Washington, DC. He took that job sort of in desperation, and he hated–hated working for the government. Third, he was a commodities broker working for Clayton Brokerage Co. at their office in Tyson’s Corner, Virginia—which is on the Washington Beltway about 5 miles northwest of Falls Church. In 1984 they were planning to retire to Rancho Bernardo, California, a northern suburb of San Diego.

Near the end of his life, Glenn had a very bad stroke. He lost his ability to speak, and most ability to move. The nursing home in which he stayed for the rest of his life, was next to the hospital in Poway, California, where he was first taken. His wife spent most of each day with him. It was a time of great sadness and suffering for everyone. When there was no hope left, the family decided to remove life support, and Glenn died on 22 Feb. 1995 in Poway, San Diego Co., California.

Allen recalls: “People liked my dad. He knew how to work in an organization, to get along with people, and to accomplish a lot. He was a hard worker, a very energetic man—really a ball of fire. He was always reasonable and flexible. He could analyze a situation and decide what was the best course of action, but he would listen to reason, and you could debate things with him, and perhaps persuade him.” Address: Encinitas, California. Phone: 760-753-2743.

• Summary: Are Americans getting too much of a good thing—soy? Some FDA administrators are asking this question as they consider a “petition to give soy products a new boost: a qualified health claim for possible prevention of breast, color and prostate cancer. This type of claim, unlike full-fledged health claims, is based on emerging research that points to, but does not prove, health benefits. In recent years, qualified claims have been given to nuts, olive oil, and omega-3 fatty acids. Soy protein received its first full-fledged FDA health claim in 1999. Since then, consumption of soy protein has more than doubled in the USA, so it is now 2.2 gm per person per day from all sources. This is about one-fourth the amount consumed daily in Japan.

Soy is a rich source of high-quality protein, with many other good nutrients. “But its the isoflavones in soy that may be of greatest benefit and concern.” They have some of the same properties as the female hormone estrogen.

Most of the safety issues pertain to infants and children. In July 2005, the Israeli Ministry of Health announced plans to recommend that young children limit soy products to one a day and advised that infants avoid them altogether. The French government recently advised that soy products not be given to children younger than age 3. Address: Special to The Times.

• Summary: An excellent PowerPoint presentation with 19 slides containing color photos and graphics. (2) In 2004 in Western nations, the retail market for soyfood products is worth $4.0 billion. (4) The world’s soybean crop is currently valued at $65-$70 billion before processing, and over $100 billion as processed soybean oil and meal. The USA is still the world’s largest soybean producer. (5) During the past 5 years, world soybean production has increased at an average rate of 6.8% per year. Over the past 40 years, it has increased 500% and is forecast to top 229 million tonnes (metric tons) in 2004/05. A bar graph shows world production from 1965 to 2004.
SOY IN THE MIDDLE EAST (c) Soyinfo Center 2008

(6) A table shows world soybean production by leading world producers from 2000 to 2005. In descending order of annual production in 2004 they are: USA (3.3%), Brazil (12.4%), Argentina (8.8%), China (4.0%), India (5.5%), Paraguay (9.3%), other (5.4%), and total (6.8%). A total for each year is given. The compound average growth rate over the past 5 years is shown in the final column (and in parentheses after each country, above). Note that Brazil’s production is growing the fastest and the USA’s the slowest. (7) A pie chart shows utilization of soybeans worldwide: Crushed for soybean oil and meal 83.2%. For seed and use on farms 7.5%. Used directly as human food 6.2%. Change in stocks (leftover) 3.1%.

(8) The specialty soybean market (6.2% of the total) of 13.4 million tonnes is worth an estimated $3.0 to $3.5 billion. The U.S. is thought to have about 50% of this market. A table shows “Estimated world use of soybeans for direct food by region in 2005.” Asia 95.7% of total. Africa 1.8%. Europe 1.2%, USA 0.8%. South America 0.3%. Central America and Caribbean 0.1%. (9) Six factors influencing today’s market and the U.S. ability to compete. (10) The issue of genetically engineered soybeans: The U.S. is not sensitive to our customers’ needs and concerns. A bar graph shows the percentage of the U.S. soybean crop that has been genetically engineered: Rising from 40% in 1998 to about 85% in 2005.

(11) A graph shows that since 1996 the U.S. share of world soybean exports has decreased from 65% to 45%, while Brazil’s share has increased from 22% to 35% and Argentina’s from 2% to 14%. (12) U.S. exports have fallen from 26.9 million tonnes in 2000 to 24.9 million tonnes in 2004, a decrease of 1.9%. Over these past 5 years, 16 of the top 25 nations buying U.S. soybeans have reduced their imports of U.S. soybeans. A table shows details for each nation each year, with a final column for average percentage change per year. The biggest average annual percentage decreases for the past 5 years have been: Netherlands -44.4%. United Kingdom -24.9%. France -24.1%. Greece -20.6%. Israel -20.0%. Thus, “Dropping exports show that we haven’t been paying attention to our best customers’ needs.” (13-14) Eight things the U.S. can do to improve this situation. Address: Bar Harbor, Maine.


• Summary: Walter has worked with soybeans in 4 Central Asian nations: Kazakhstan, Uzbekistan, Turkmenistan, and Tajikistan. Kazakhstan and Georgia have the most history with commercial soybean production, because Soviet planners made it happen there. They designated other Central Asian countries for cotton production, in part because cotton needs less water. Latitude is part of the reason. The climate is also very dry, so that all soybeans (and almost all crops) in these countries must be irrigated, but with river water carried by gravity. Of all the Central Asian countries, Kazakhstan has been the most successful at understanding a market economy and making it work.

Walter has many contacts in these countries. He is willing to help Shurtleff try to get a better history of soybeans in each of these countries. First, Shurtleff will send Walter an e-mail containing a table showing the dates he has for the earliest document seen showing soybeans in each in each country, and soybean cultivation in each country. Then the earliest date seen for soybean cultivation in each country. Walter will forward this e-mail to an intermediary (Winrock International or Mercy Corps), who will then mail or phone or hand deliver the message to the network of indigenous researchers Walter has developed over the years. The message will encourage them to contact other researchers who might be interested; then Walter will wait for replies.

Walter believes that Korean communities in at least four of these countries (Turkmenistan, Uzbekistan, southern Kazakhstan, and Tajikistan) were growing soybeans for their own use at an early date—probably since the early 1900s and using them almost entirely for food—such as tofu, soy sprouts, Korean-style miso and soy sauce, green vegetable soybeans, etc. The Koreans raise chickens, for example, but they forage for food and are not fed soybeans. Walter has no idea when, or why, or how these many Korean communities came to be established in Central Asia. He has no idea where the varieties they grow came from. These Korean communities are all found within a horizontal oval that cuts across national boundaries, and includes the cities of Almaty [Alma-Ata] (in southwest Kazakhstan), Toshkent [Tashkent] (capital of Kyrgyzstan), Dushanbe (capital of Tajikistan), and Ashgabat (capital of Turkmenistan). In this area are numerous Korean restaurants where Walter has eaten; but he has no idea how many Koreans live in this area. Most individual Korean communities grew only one variety, but each Korean community had its own variety. By contrast, there are not many Chinese communities in these areas.

Walter expects his next trip to Central Asia to be in the spring of 2006—probably Uzbekistan and possibly Turkmenistan or Tajikistan. He is given drivers and interpreters by the NGO sponsoring his trip. One of the ongoing problems he faces is the limited abilities of interpreters; communication is often difficult, and it is hard to pursue agricultural or academic questions with farmers. It is less difficult with educated researchers or academicians (best is Tajikistan, followed by Turkmenistan—who might help find others). The researchers in these countries don’t talk much with each other, either within a country or among countries. They have few opportunities to travel, and little access to the Internet or e-mail. This is because of government restrictions, difficulty of getting visas or money, etc. Researchers are lucky if they have a working computer, but most have a telephone and some have a cell-phone.

Of all Central Asian countries, Kazakhstan is the one in which the soybean is the most important as a commercial crop—
by far. They probably have at least several thousand hectares planted to soybeans. The soybeans in Kazakhstan are run through an extruder (extrusion cooker) to make soybean oil and meal. These same extruders are also used to process cottonseed. Soybeans are grown in Central Asia largely because of the demand for meal by the local poultry industry for use in chicken feeds. Poultry is the driving force, and Central Asia is a "protein-poor" region. Walter’s main reason for being there is because of poultry and (to a lesser extent) livestock; it is to help educate them about the soybean, its value for producing soybean meal and oil, and about the importance of protein. He helps farmers to grow soybeans and to develop markets for their beans. Actually, there is a ready-made market from poultry growers–who now have to pay a lot of freight to import their soybeans from Kazakhstan, Iran, Turkey, or India. The key is for Walter to serve as the bridge–to help bring the poultry growers and the potential soybean Turkey, or India. The key is for Walter to serve as the bridge–to help bring the poultry growers and the potential soybean farmers together, to discover that they have a common interest, and then to work out agreements.

NGOs do lots of impact studies; they want their volunteers to work on projects that will have economic impact. They believe that increasing poultry production will have a positive impact on the economy and the people. The oil is also appreciated, and refined using modern technology within each country for use as a high-quality edible oil, sold in bottles at retail stores. Kazakhstan is about one-half the size of the United States, and is quite a progressive country with a market economy, fairly advanced education and technology. Soybeans are grown mostly in the very south. They were major crop during Soviet times (Russia was a major market for the oil and meal), but after Kazakhstan became independent in 1990, soybean production fell off to near zero. The economies off Central Asian countries plunged at about the same time (1989-91). They are now slowing getting back to where they once were.

The second most important country for soybeans (a very distant second, with maybe 300-500 hectares planted to soybeans) is the Republic of Georgia, where the western half is quite moist and the eastern half is very dry. They have a long history of growing soybeans. Walter knows of one company there that is processing soybeans using an extrusion cooker (similar to that made by Insta-Pro).

In third place might be Uzbekistan, followed by Turkmenistan, and Tajikistan–but all with only about several hundred hectares in soybeans.

Walter believes that soybeans could become a valuable double crop in Central Asia, planted after the wheat harvest in June. That would earn farmers more income, improve the soil, and break various insect and disease cycles. They need a legume in the rotation. The government does not help. They seem interested only in short term profit, keeping the status quo, and staying in power, not in innovation or long-term thinking.

In Tajikistan, he met a village farmer, Mr. Mahmadullo, who had the ability to build machines. He already had a small business making wheat flour using two motor-powered millstones. He worked with Walter to build a revolving soybean drum roaster; the outside was heated by natural-gas flames. After roasting a batch of about 20-25 kg of soybeans, he ground them into flour.

In Turkmenistan, Dr. Ashraf spent quite a bit of time working with a Korean community in the town of Dashoguz in making tofu. She also worked a lot with Peace Corps Volunteers (PCVs) in that same town; one of the PCVs was a Korean-American. Walter has not heard of any TVP being made in Central Asia; if its is made, it must be in very small quantity. In Uzbekistan, technologically the most developed, soybeans are being grown–often spread by volunteers.

Address: 2804 Trent Drive, Fort Wayne, Indiana 46815. Phone: 260-484-7493.


• Summary: Jan.–EarthSave News stops being printed on paper and migrates to the Internet.


March 14–Steve Demos, founder of White Wave, Inc., is terminated without cause (forced out) by Dean Foods.

July 7–Galaxy Nutritional Foods announces it will sell its manufacturing assets to Schreiber Foods, Inc. of Green Bay, Wisconsin, a major manufacturer of cheese products. Galaxy has recently suffered large financial losses.

July–Israeli Ministry of Health announces plans to recommend that young children limit soy products to one a day and advised that infants avoid them altogether. The French government recently advised that soy products not be given to children younger than age 3.

Oct. 17–Gardenburger Inc., the company credited with taking veggie burgers into the mainstream, files for Chapter 11 bankruptcy. The company will stay in business but become privately held; the name of the new owner is not yet known. The value of all Gardenburger shares is now zero.

Nov.–Yamasa Corporation purchases San Jurushi Corp. and San-J International (Kuwana, Japan; and Richmond, Virginia). San-J plans to build a new tamari plant next to their original plant (which has reached full capacity) in Richmond, Virginia.

During 2004-05 world production of palm oil reached 33.88 million metric tons to pass soybean oil (32.31) for the first time in history and to become the world’s leading vegetable oil. Projections show this lead continuing to grow during the next two years (Source: 2007 Soya & Oilseed Bluebook, p. 348).

**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.


**Summary:** There has been concern recently about the safety of soy infant formula. This may seem surprising since “more than 20 million infants have used soy formula since the 1960s. Nevertheless, recent advisories from the United Kingdom, France and Israel have suggested either limiting or avoiding soy intake during the first three years of life.

“The bases for these concerns are: (1) hormone-related changes observed in some studies in experimental animals exposed to isoflavones; and (2) on a body weight basis, the high isoflavone intake of infants consuming soy formula.” One study that caused concern was presented by Richard Sharpe, from the Centre for Reproductive Biology in the United Kingdom. Address: Nutrition Matters, Inc., Port Townsend, Washington 98368.


**Summary:** Throughout the 16th century (1500s), Portugal became fabulously wealthy from its monopoly of the spice trade in the East Indies. Like many commercial advantages of the time, this was achieved by control of sea routes, especially domination of the route to the East Indies via the Cape of Good Hope (at the southern tip of Africa).

A well-organized Protestant church movement developed in the Netherlands, and the dissatisfaction with Catholic Spain coincided with the Protestant revolt against the Roman Catholic Church.

1566–Anti-Catholic riots spread across the Spanish Netherlands. Philip II of Spain sends his troops whose harsh actions result in open revolt.

1568–The 80-year war of independence by the Dutch against Spain begins (ended 1648).

1579–Signing of the Union / Treaty of Utrecht with Spain marks the foundation of the United Provinces. These are the 7 northern Protestant provinces of Holland, Zeeland, Utrecht, Gelderland, Groningen, Friesland, and Overijssel. The 7 provinces that joined the union would eventually become the Netherlands; the 10 southern Catholic provinces that did not would become Belgium.

1581–The Union of Utrecht (United Provinces) declare independence from Spain.

1596–Dutch merchants begin trading with Jayakarta (today’s Jakarta).

1600–The Dutch ship Liefde is stranded in Usuki Bay, Japan; the first Dutch contact with Japan.

1600–The Honourable East India Company is established in London, Europe’s first such international trading company. The Tokugawa shogunate begins in Japan.

1602 March 20–The Dutch East India Company (Vereenigde Oostindische Compagnie, VOC—literally “United East Indies Company”) is established by Dutch merchants, when the Estates-General of the Netherlands granted it a monopoly to conduct trade, business and colonial activities in Asia. It was the world’s first company to issue stocks and the first multinational corporation. The VOC eventually became the world’s largest company, in existence for over 200 years. It built over 1,600 ships called East Indiamen.

The VOC consisted of 6 Chambers (Kamers) in Amsterdam (with 8 delegates), Middelburg (for Zeeland; 4 delegates), plus Enkhuizen, Delft, Hoorn, and Rotterdam (1 delegate each). Delegates of these chambers convened as the Heeren XVII (the Lords Seventeen). Because of its majority 8 delegates, the Amsterdam bloc basically decided policy. The start-up capital was 6.4 million Gulden, raised by the 8 chambers, of which 27% came from Amsterdam. This capital was raised by selling VOC stock to 1,143 subscribers.

1603 Dec. 18–The first VOC fleet of 12 ships sails under the command of Steven vander Hagen.

1605–VOC first lands in Asia. Armed Dutch merchantmen capture the Portuguese fort at Ambon (Ambonya / Amboina, a town and island in the Moluccas, in today’s eastern Indonesia) and take control of the island which was the most important of the Moluccas (Spice Islands) at this time. The Portuguese had settled here in 1521; it was the source of their clove monopoly. This fort is developed in the VOC’s first secure fort.

1609–VOC factory (comptoir, trading post) established on site of Jacatra / Jakarta (today’s Jakarta) by Dutch merchant Jan Pieterszoon Coen. Located at the far western end of the island of Java, it becomes the headquarters of the Dutch East
During the 17th century, the VOC was the most important European company in the Asia trade, and Amsterdam became the financial center of the continent. The VOC, with a monopoly over the trade of spices, was one of the reasons why the Dutch Republic became a major power in Europe. It was able to control the trade routes to Asia and establish trading posts in the Moluccas, the Spice Islands, and the East Indies. The VOC was also involved in the trade of spices, such as nutmeg and mace, which were highly prized in Europe.

As early as the 1610s, VOC leaders recognized the importance of direct trade with China. However, attempts to establish a settlement on the Chinese coast in the early 1600s were not successful. The VOC was not able to break the VOC monopoly on trade routes to the Indies by sailing westward through dangerous and uncharted waters around Cape Horn, the southernmost tip of South America and into the Pacific Ocean, avoiding the VOC-controlled Straits of Magellan. The ship arrived in Jakarta in Oct. 1616, to the amazement of Governor-General Jan Coen.

Beginning of the definitive campaign (completed in 1663) to drive the Portuguese out of the Malabar Coast and to control their production of pepper.

During the 1600s (17th century), British and Dutch traders became bitter rivals in international commerce.

1641–The VOC trading post on Hirado (closed in 1640 by the shogun) is moved to the tiny artificial island of Deshima in Nagasak Bay, where the men are kept as virtual prisoners (with more severe restrictions than before Shimabara Revolt and the seclusion [sakoku] of Japan in 1641) and allowed only one trading ship a year. The Dutch are the only Europeans allowed to trade with Japan for the next 200 years–until 1853.

1648–Treaty of Muenster ends the 80-years’ war; Spain recognizes the sovereignty of the Dutch Republic, which is now the foremost commercial and maritime power in Europe, and Amsterdam is the financial center of the continent.

1651–Repeat of the war with Portugal in the Indies–in Ceylon and on the Malabar Coast of southwest India. 1652–Jan van Riebeeck establishes a supply station at Table Bay, the first European settlement near the Cape of Good Hope (on the southern tip of today’s South Africa). This post later became a full-fledged Dutch colony, the Cape Colony.

1652–First English-Dutch sea war.


1662–First English-Dutch sea war.

1667–VOC takes trading post at Achem (Aceh), the native kingdom of Sumatra.

1669–The VOC is now the richest private company the world has ever seen, with over 150 merchant ships, 40 warships, 50,000 employees, a private army of 10,000 soldiers, and a dividend payment of 40%. By now, the company is in almost constant conflict with the English. Moreover, the VOC has now grown to become a state within a state.

1668–Dutch seize Bantam in West Java. VOC outposts were also established in Persia (today’s Iran), Bengal (now Bangladesh), Siam (now Thailand), and mainland China (Canton).

Dutch policy encourages monoculture of the fine spices they controlled: Amboyna for cloves, Timor for sandalwood, the Banda Islands for mace and nutmeg, and Ceylon for cinnamon.

During the 17th century, the VOC was the most important European company in the Asia trade, and Amsterdam became the financial center of the continent.
Europe’s most important market. It took a Dutch ship 3 to 6 months to travel from Holland to Batavia. The trip was risky, in part because of the inherent dangers of bad weather and uncertain navigation, but also because no reliable method of determining longitude was discovered until the 1770s (by John Harrison in England) and measures to prevent scurvy (carrying fresh fruit, vegetables, and sauerkraut) were not put in place until the period 1772-1795.

The 17th century has been called the Dutch Golden Age, in which Dutch trade, science, and art were among the most acclaimed in the world. This Golden Age was caused by wealth, tolerance, and a new national consciousness.

1731–The Swedish East India Company founded.

1780-1784–Fourth war between the United Provinces and England; England wins, capturing many VOC ships and imposing peace terms that enabled it to trade without hindrance from the VOC and to take over key VOC settlements in Asia. After this war, the VOC is in deep financial trouble.

1799 Dec. 31–The bankrupt Dutch East India Company is nationalized, dissolved and liquidated; its huge debt of 219 million Dutch guilders and all of its property are taken over by the Dutch government.


• Summary: Tehran, May 30. A man who distributes equipment for making soyfoods stressed their health benefits and the role they can play in the prevention of cancer and in reducing the risk of heart disease.

At the 13th International Food, Drink and Packaging Technology Trade Fair in Tehran, Firouz Zanjani, managing director of Assoy (Middle East Div.) said that in Iran, soybeans are classified as vegetables. From them, using his equipment, soyfoods such as soymilk, tofu, soyyogurt, and soycheeese can be made. All have important health benefits. Soymilk, from which the other soy products are made, contains no lactose, cholesterol, or side effects, and therefore can be consumed by people of all ages.

Soybeans have been cultivated in Iran for the past three years. They are grown only in the north, in Gorgan, Golestan province. The climate in other parts of Iran is not suited for soybean cultivation. In 2007, according to Zanjani, 240,000 tons of soybeans will be produced in Iran, “while 130,000 hectares will be brought under soybean cultivation in the next two years.”

Zanjani said there is only one large factory in Iran that processes soybeans. It was established 9 years ago, however its products began to be marketed only 18 months ago. Yet the high price of these products is the main reason for their low per-capita consumption in Iran. Zanjani further blamed poor dissemination of information about the health benefits of soy products. Despite the publicity campaign, using advertisements in newspapers and on billboards, only 5-10% of Iranians know what soymilk is. He added that two other soyfoods factories equipped with the state-of-the-art technology will be launched in 2007 in Tehran and Mashhad.

A color photo shows Firouz Zanjani.


• Summary: This conference will be held on 18-20 Sept. 2006 in St. Louis, Missouri, at the Chase Park Plaza Hotel. Sponsored by The Solae Company. There will be two parallel tracks. The soyfoods track speakers will include representatives from: The Solae Co., Monsanto, ADM, USDA, Kerry Foods, ProSoya, Tivall Corp., Natural Products Consulting, Soyatech, SunRich, and WISHH.

The energy track speakers will include representatives from: National Biodiesel Board, Toyota, Dupont, The ProExpor Network, Delta-T, New Energy Finance, Sigma Capital, Energy Management Institute, Rocky Mountain Biodiesel Consulting.

A third day of workshops on Sept. 20 will include: Taste of Soy: Beyond ingredients–Bring on the food! Address: Bar Harbor, Maine. Phone: 1-800-882-8684.


• 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.


(29) 1968–Clarksdale, Mississippi (600 tons). (30) 1970–Ashdod, Israel (75-100 tons; especially for soy protein
Islam ended in about the 6th or 7th century, before the origin of two phases in the history of the Silk Road. The first phase was the 12th or 13th century. The Arab conquest blocked the overland route from about the 7th century until 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.


• Summary: Because the Arabs blocked most European travel over the Silk Road / Route from about the 7th century until the 12th or 13th century. The Arab conquest blocked the overland route, in part to control the trade. There were actually two phases in the history of the Silk Road. The first phase ended in about the 6th or 7th century, before the origin of Islam.

Note: Both of these “Silk Roads” was actually a series of interconnected routes than ran from about Xian (Chang’an) in eastern China, along the northern part of China, branching into today’s Central Asia, south of the Caspian Sea, through today’s Turkmenistan, Iran (formerly Persia), and Iraq, to Damascus (today’s Syria) and Antioch (today’s Turkey). The first famous and documented Chinese traveler, Zhang Qian (W.-G. Chang Ch’ien) led two expeditions to the Western Regions in the 2nd century BC, during the Former / Western Han dynasty.

As early as the 1st century AD, there were already some oceanic routes that were part of the “Silk Road.” They hugged the coast from central China, around India, into the Persian Gulf and the Red Sea, then on to Italy!

This Arab blockade was one of the reasons for the search for a water route to China. The blockade began to fail as sea routes were developed. For example, in May 1498 May, Vasco da Gama was the first European to discover a sea route to India.

Another reason it took so long for information about the soybean to reach Europe from China was that the soybean is unlike rice, wheat, and maize / corn, where the product of the crop is associated very closely with what is growing in the field; everyone knows what rice, wheat and corn look like because they are so widely consumed as food. The main products of the soybean, especially those in commerce (such as soy sauce), bear no resemblance to the seed or plant from which they are made. It took a long time before Europeans realized that soy sauce (for example), which was known in Europe by the late 1600s, was made from the soybean—which did not arrive in Europe until the late 1700s. Even in Asia, the various names of the soybean were very different from the names of its major products. For example in China: Soybean is dadou or huangdou, soy sauce is jiangyou, tofu is doufu, and soymilk is dounai or doujiang. In Japan: Soybean is daizu, soy sauce is shoyu, tofu is tōfu, soymilk is tonyu, miso is miso, natto is natto, and green vegetable soybeans are edamamé. In Indonesia, tempé is tempeh. Even in the Western World today, many of these traditional foods and condiments do not have “soy” as part of their name. Moreover, the foods look totally different from the seed / bean from which they are made.

The first European to understand the connection between the soybean and its products was Engelbert Kaempfer; he made this clear in his book Amoenitatum exoticarum... vol. 5. Yet most Westerners did not understand this connection until more than a century later, and quite a few even today don’t realize that tofu (for example) is made from soybeans.

Ted is convinced that Marco Polo and the various early Western missionaries who traveled to China probably tasted soyfoods over and over again—but they didn’t realize they were made from soybeans. A good example is milk. The early Western travelers in China often mentioned that Chinese drank milk; in some cases they were probably drinking soymilk.

Address: Prof. of Plant Genetics (retired), Dep. of Crop Sciences, Univ. of Illinois, Urbana, Illinois.

820. 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.


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.


**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.

822. SoyaScan Notes. 2007. The languages and writing systems of East Asia, including Korea, China, and Japan (Overview). Compiled by William Shurtleff of Soyfoods Center.

**Summary:** According to East Asia: The Great Tradition, by Reischauer and Fairbank (1960, p. 15-18), the two main language groups of East Asia are the Sinitic (or Sino-Tibetan, the largest group) and the Altaic. Within the Sinitic group, Chinese is by far the largest and historically the most important subdivision. The main Sinitic languages inside China are Mandarin, Wu (near Shanghai), Kan, Min (near Fukien / Fujian), Hsiang, Cantonese, Miao-Yao (southwest China), and Tibetan. Note that these are different enough from Mandarin, Wu (near Shanghai), to be considered virtually independent languages rather than dialects. Sinitic languages outside China include Burmese, Thai, Vietnamese.

The three major Altaic languages (named after the Altai Mountains in Mongolia) are Mongolian, Turkish (in the west), and Tungusic (in the far northeast). Peoples speaking Altaic languages, unlike the agriculturist Chinese, were nomads. “Korean and Japanese show close structural resemblances to the definitely Altaic languages, and the Koreans and Japanese may, therefore, be two eastern extensions of Altaic-speaking people into predominantly agricultural areas.”

Concerning the Korean writing system, in the late 600s (7th century), a system called idu, using Chinese characters for phonetic purposes was developed as an aid to rendering
Chinese texts into Korean. Though never extensively used, it was the beginning of Korea’s native writing system. In the mid-1400s an excellent phonetic system for writing the Korean language was developed by the ruler named Sejong. Originally known as omnun (“vernacular writing”) but known today as han’gul (“Korean letters”) it was officially adopted by royal decree in 1446. “Han’gul is perhaps the most scientific system of writing in any country... Finally, the advantages of an alphabetic script and a syllabary (in which each symbol represents a whole syllable) are combined by bunching the individual letters into syllabic groups” (p. 435-36). [Note: the bunching makes use of a word processor more difficult than the linear alphabetic Indo-European languages]. Although han’gul was simple, it was little used during the next 5 centuries; scholars emphasized the Chinese written language.

“It was not until after the liberation of Korea from Japanese rule in 1945 that han’gul came into its own as the primary method of writing in Korea.”

In Japan, the development of purely phonetic scripts (called the Kana Syllabaries, hiragana and katakana) arrived in the early 800s and were attributed to Kôbô Daishi (Kûkai), Japan’s most beloved and best known Buddhist saint, who founded the Shingon sect in Japan in about 806 and built his monastic headquarters atop Mt. Koya in 816. “The development of the kana was no doubt influenced by the Sanskrit studies of Buddhist monks and their knowledge of the alphabets of India. The kana, however, did not constitute alphabets but were syllabaries, in which the symbols represented whole Japanese syllables., which at that time invariably consisted of one of the five vowels (a, i, u, e, o) usually preceded but never followed by a consonant. Thus they required a minimum of 47 different symbols, instead of the 14 that would have sufficed to write 10th century Japanese with an alphabet... Thus hiragana and katakana constituted a less simple and flexible system than an alphabet would have provided.”


• Summary: Historically there has been a strong interest in soyfoods (especially soy ice creams, yogurts, cheeses, soymilk, and tofu) from Jews who follow the laws of kosher. Webster’s Dictionary defines kosher (a Yiddish word derived from the Hebrew kasher meaning fit or proper, and first used in 1851) as “1: sanctioned by Jewish law; esp. ritually fit for use (kosher meat). b: selling or serving food ritually fit according to Jewish law (a kosher restaurant). The verb “to kosher” (first used in 1871) means “to make kosher.”

“The kosher laws are derived from the ‘Book of Leviticus’ in the Torah, and are expounded upon in the volume of the Talmud (Oral Law) titled Chulin. Yet the teaching of kosher is touched upon in all 60 volumes of the Talmud.

“Kashruth, the Hebrew term meaning ‘fitness,’ itself derives from the term ‘kosher.’ Kashruth refers to the Jewish dietary laws; most Orthodox Jews observe kashruth.

“The kosher dietary laws divide all foods into three types: from the flesh (fleshig), from milk (milchig), and neither flesh/meat nor milk (parev). From this latter Yiddish term ‘parev’ derive the terms pareve and parve, both pronounced ‘parv,’ and used interchangeably. They are Jewish cookery or dietary terms meaning (1) ‘neutral’ or (2) made without milk or meat or their derivatives. Eggs and seafood are both pareve. A pareve food can be eaten with either milk or meat. Many soy ice creams are labeled ‘kosher and pareve’ or ‘kosher parve.’

“The laws of kosher state, among other things, that one cannot consume meat and milk products at the same meal. Hence, orthodox Jews do not consume ice cream after a meal that contains meat.” Perhaps the most widely observed kosher law is not to eat pig/pork. After eating meat, according to Jewish dietary laws, one should wait for 6 hours before consuming dairy (milchig) products. But one can consume dairy products and then have meat products after 30 minutes. The difference is based on the fact that meat takes longer to digest. For this reason, at least in Israel, more emphasis is placed on developing meatlike products than on dairylike, to bypass the 6-hour restriction. Meat substitutes are much more popular in Israel than dairylike products. The government has encouraged development of meatlike products. Yet there seem to be many opportunities for production of dairylike products on kibbutzim or moshavim.


Several important Hebrew or Yiddish words related to kosher: A “heksher” (pronounced HEK-shur) is the kosher mark. “OU is the most highly respected kosher heksher.” A “mashghiach” (pronounced mush-JEE-ak) is the person who inspects a food facility before giving approval.

824. SoyaScan Notes. 2007. A brief history of the Ottoman Empire, also called the Turkish Empire, and the Byzantine Empire (Overview). Compiled by William Shurtleff of Soyfoods Center.

• Summary: After the fall of Rome in the 5th century, Constantinople (earlier Byzantium) was the capital of the Byzantine Empire (also called the Eastern Roman Empire) for 1,000 years. The Byzantine Empire reached its greatest extent under its emperor Justinian I (ruled A.D. 527-565), who conquered a large part of the Western Empire and erected the Church of Saint Sophia. In about 1000 A.D. the Byzantine Empire comprised the southern Balkans, Greece, Asia Minor,
and parts of southern Italy. Constantinople was sacked by the Fourth Crusade in 1204, and the Empire split up into 4 parts; it was partly restored by the capture of Constantinople by Michael VIII in 1261. It gradually lost territory to the Turks until there remained only Constantinople, Morea, and Salonika. The capture of Constantinople by the Turks in 1453 marked the formal end of the Byzantine Empire.

The Ottoman Empire was established in the 13th century by Turks from Central Asia who entered Anatolia (the part of Turkey in Asia equivalent to the Peninsula of Asia Minor, comprising about 3/5 of Turkey's provinces, and already under Seljuks or Seljuk Turks) and established a small state, traditionally ruled by Osman I (1288-1326). Beginning with Orkhan I (1326-62) an empire was organized on both sides of the Straits (the link between the Mediterranean and Black Sea, including the Dardanelles, Sea of Marmara, and Bosphorus). In 1453 Constantinople fell to the Ottoman Turks, who ruled their vast Ottoman Empire from its capital in Constantinople for just over 400 years.

By the end of the 1400s, the Ottoman Empire included the Balkan region (Rumelia, Macedonia, Thessaly, Morea [Peloponnessus], Serbia, Walachia, Bosnia, Bulgaria, and Albania), most of the Aegean Islands, the rest of Anatolia, and Crimea. The Empire overthrew the Mamelukes (the politically powerful Egyptian military class occupying the sultanate from 1250 to 1517; Mamluk) and secured Syria and Egypt. The Empire was at its height under Suleiman the Magnificent (1520-1566) who took Armenia, Azerbaijan, Mesopotamia and Baghdad, the North African Coast, and, in Europe, territory from the eastern frontier of the Holy Roman Empire to the shores of the Black Sea. Although Crete, Cyprus, the Arabian coasts, and the Caucasus territory were later added to Ottoman holdings, the power of the empire began to decline in the late 1500s. By a series of exhausting wars with Poland, Austria, and Russia in the 1600s and 1700s, Turks were expelled from Hungary and the northern shores of the Black Sea. During the 1800s, because of internal corruption, the steady southward advance of Russia, and the successful revolts of the Balkans, the weakened Ottoman ruler came to be known as the "Sick Man of Europe."

Serbia, led by Milos Obrenovic, gained autonomy from the Empire in 1829; in 1830 he was recognized as hereditary prince, in 1867 he secured the withdrawal of Turkish garrisons in 1867, and in 1878 Serbia became completely independent of Turkey—but without control of Bosnia and Herzegovina.

The problem of preventing too rapid a dissolution of the empire in the face of Russian advance became the "Eastern Question" of European diplomacy, and caused the Crimean War (1854-56).

After much negotiation from 1888-1899 and opposition from other countries, on 25 Nov. 1899 the Empire granted concessions to Germany for the Berlin-Baghdad Railroad. The Empire lost its African holdings of Egypt, Tunis, and Tripoli. Macedonia, its last important European territory, was lost in the First Balkan War of 1912-13. In this war, Serbia, Bulgaria, Greece, and Montenegro founded the Balkan League and defeated Turkey. Montenegro declared war on Turkey. Bulgaria and Serbia mobilized their armies, then Turkey asked the Great Powers for intervention. An armistice was signed between Bulgaria, Serbia, Montenegro, and Turkey. New boundaries were drawn in the Treaty of London (or London Peace Treaty, 1913), presided over by Britain, but all parties were dissatisfied with these boundaries.

During the second Balkan War (1913) Bulgaria attacked Greece and Serbia. Russia declared war on Bulgaria. Turkey recaptured Adrianople from Bulgaria. An armistice was signed at Bucharest. Serbia invaded Albania; a peace treaty was signed between Greece and Turkey. Serbia received territory in Macedonia.

Just before World War I, the Ottoman Empire (out of whose core Turkey later emerged) ruled what is now Syria, Lebanon, Iraq, Jordan, Israel, Saudi Arabia, Yemen, and some islands in the Aegean Sea.

The Ottoman Empire joined Germany and Austria in World War I as one of the Central Powers and its defeat resulted in the loss of much territory and the fall of the sultanate. During the war, the Empire was an important area of conflict, as in the Gallipoli Peninsula, Mesopotamia, etc. The sultan accepted the Treaty of Sèvres (Sevres, 1920) by which the Empire gave up Cyprus, Dodecanese, Smyrna, Mesopotamia, Palestine and Syria, Arabia, Armenia, and control of the Straits.

Meanwhile, beginning with the Young Turk movement, which led a revolt in 1908, a nationalist group sought to reform the Ottoman Empire. The nationalists, under Mustafa Kemal Pasha, later known as Kemal Atatürk (Ataturk; the Father of the Turks) called a congress and set up a government in 1919 at Ankara. They repudiated the Treaty of Sèvres, defeated Greece in 1920-22, adopted a constitution in 1921 (later amended), and finally proclaimed the Republic of Turkey on 29 Oct. 1923. Atatürk sought to transform a conservative Islamic society into a secular, westernized state. The party he founded held power until 1950. In 1924 the nationalists abolished the Caliphate (spiritual leadership of Islam) and in 1928 they abolished Islam as the state religion.

Note: Asia Minor forms the western and greater part of today's Turkey This peninsula forms the western extremity of Asia, bordered by the Black Sea on the north, the Aegean Sea on the west, and the Mediterranean Sea on the south.

825. SoyScan Notes. 2007. Historical research on early Arabic travelers to East Asia, especially China: Wish list (Overview). Compiled by William Shurtleff of Soyfoods Center.

• **Summary:** Many of the early travelers to China and other parts of East Asia (where soybeans are grown) were Arabs. The tales of their travels were written in Arabic, and only a small proportion of these have been translated into English or other Western languages. They must have encountered soybeans and soyfoods. Therefore this early Arabic literature
is a potential gold mine on the early history of the soybean. But to find these gems would require a special type of person who would have to: (1) Be very familiar with soybeans and soyfoods. (2) Speak fluent Arabic and at least good English. (3) Have the time, interest, and money to spend many years reading the writings (in Arabic) of the early Arabic travelers to East Asia.

Where could we find such a person?

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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SOY IN THE MIDDLE EAST (c) Soyinfo Center 2008

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