

Codex committee: Labeling for veg protein in meat

JAOCS newswriter Anna Gillis has prepared the following report on the work of the Codex Alimentarius Committee on Vegetable Proteins.

When the Codex Alimentarius Committee on Vegetable Proteins (CCVP) meets this month, the major issue it will have to settle is how to label meat products that contain vegetable proteins.

Norman Tape, chairman of CCVP and director of the Food Research Centre for Agriculture Canada, said he hopes this and several smaller issues are resolved during the meeting, Feb. 2-6, in Havana, Cuba. If this is accomplished, Tape said, the majority of the committee's work will be finished. What will remain is adoption of the vegetable protein utilization guidelines and standards by the Codex Alimentarius Commission in July 1987. Each of the 129 member-countries of Codex Alimentarius then would be requested to accept and integrate the standards into their national regulations.

The purpose of the CCVP has been to "elaborate definitions and worldwide standards for vegetable protein products derived from soyabeans, cottonseed, groundnuts, cereals, and for other vegetable sources as they come into use for human consumption, and to elaborate guidelines in the utilization of such vegetable protein products in the food supply system, on nutritional requirements and safety, on labeling, and other aspects as may seem appropriate." Tape says the committee has made good progress in carrying out the purpose of the committee since it was established in 1978.

The General Guidelines for the Utilization of Vegetable Protein Products in Foods is almost complete, except for labeling in cases where vegetable proteins have been used to partially or wholly substitute for animal protein in foods, Tape said. If that can be cleared up during the meeting, provisional guidelines (the final draft by a

committee) would go to the Codex Alimentarius Commission in July 1987.

These guidelines were designed to help provide "guidance for the safe and suitable use of vegetable protein products (VPP) in foods." One portion of the document states, "The use of vegetable protein products to partially or completely substitute for animal protein in foods should be permitted, provided that the final partially or completely substituted product is nutritionally adequate and provided that the presence of vegetable protein products is clearly indicated on the label."

"The problem is that there are two camps divided over how to label," Tape said. "There are those who are willing to use the traditional name (of a meat product) and modify it. For example, a product might be called 'hot dog extended with soy protein.'"

Tape said those who oppose the use of traditional names on products that might be extended don't oppose the use of vegetable proteins in products. Instead, they claim any animal product name that already has been established for a food in a Codex standard shall not be used for foods where some or all of the protein content has been replaced by vegetable protein.

When asked if there was precedent for using traditional Codex names for products that might be partially substituted with other ingredients, the Codex Executive Committee agreed traditional names could be used if they were appropriately modified, Tape said.

To settle the question as quickly as possible, the U.S. delegation, which leads countries willing to use a modified traditional name, and the United Kingdom's delegation, which leads those nations opposed to the use of a modified name, agreed to draft a workable proposal and present it to the vegetable protein committee in Havana, Tape said. "If those two countries can agree on a proposal, then it's

possible that other national delegations will agree to it," he added.

The two nations also will draft a labeling proposal for simulated animal products where all of the protein is vegetable protein.

The General Guidelines for the Utilization of Vegetable Protein Products in Foods is to cover all situations where vegetable proteins, other than single-cell proteins, are used in foods. Among the other topics covered by the guidelines are the functional and optional use of vegetable protein ingredients, the use of vegetable protein products to increase the content of utilizable protein and the use of vegetable proteins as the only protein source in products with new identities.

According to the guidelines, when vegetable protein products are included at low levels for functional or optional use, their use is not to serve as a replacement for the principal protein. When vegetable proteins are the only protein source in new products not meant to replace traditional products, these products can have their own identifications and nutritional composition.

In addition to the utilization guidelines, the committee has drafted guidelines for testing the safety and nutritional quality of vegetable protein products. These guidelines would be used to evaluate new vegetable protein product sources as they become available. Novel vegetable protein products could be common vegetable protein sources processed by new techniques or those produced from sources that traditionally may not have been used for foods.

At this, its fourth, session, the committee also would like to finish work on the vegetable protein standards, Tape said. The International Standard for Soy Protein Products, the International Standard for Wheat Gluten and the International General Standard for Vegetable Protein Products are at step seven in the Codex 10-step process for standards development.

For step seven, the committee will evaluate comments from different countries and organizations concerning the drafts of provisional standards and will prepare the provisional standards for consideration by the Codex Commission.

Tape said he expects the committee will finalize the standards, since there are very few points still outstanding. The committee already has established most of the definitions, methods and compositional requirements for the standards; some of the details still to be settled are maximum levels for metal contaminants and agreement on the use of food additives (for highlights of the standards, see accompanying article).

Before the committee presents its next report to the commission, it hopes to work out two methodology problems. Currently, a CCVP working group (subcommittee) led by the Dutch delegation is seeking a quantitative method to differentiate between vegetable and meat proteins in a mixture. So far, the CCVP has not found a technique readily usable by regulatory agencies to check labeling claims. Meanwhile, a working group, led by Canada, is examining methods to replace the Protein Efficiency Ratio method as a determinant of protein quality. Both working groups will present their suggestions to the committee in Havana (see accompanying article on proposed methods).

Whatever methods the committee adopts must be inexpensive and practical for in-plant use and should not require highly trained personnel, Tape said. Barry Smith, chief of food regulatory affairs in Health and Welfare Canada's Health Protection Branch and head of the Canadian Secretariat to CCVP, said, "Codex would have to remain cognizant of problems in some countries with running highly developed tests; Codex has an obligation to support the use of methodology that would help labs with limited capacity."

Once guidelines, standards and methodologies are approved by a Codex committee and the Codex Commission to become part of the Codex code, there is nothing that necessarily makes them binding,

Proposed standards

The following are the important points in the not-yet-finalized International Standard for Wheat Gluten, the International Standard for Soy Protein Products and the International General Standard for Vegetable Protein Products (VPP). Brackets indicate a number or an issue has not been resolved.

These draft standards were accepted by the Codex Alimentarius Commission in July 1985, and copies were sent to governments and international organizations for comment. The Committee on Vegetable Proteins will review comments and make changes in the documents during the Havana meeting. Those changes then will go to the commission, which will send the provisional standards to member-countries for approval as worldwide Codex standards.

International Standard for Wheat Gluten

The standard covers vital and devitalized wheat gluten intended for food use.

1. Wheat gluten is defined as a food product produced by wet extraction from wheat or wheat flour so as to have a protein content of [80%] or more ($N \times 6.25$) on a dry weight basis.
2. Compositional requirements include the following:
 - maximum moisture content of 10% m/m.
 - maximum ash content of 2.0% on a dry weight basis.
 - maximum fat content (ether extracted) of 2.0% dry weight basis.
 - crude fiber content shall not exceed 1.5% dry weight basis.
3. No food additives are permitted.
4. It is recommended that wheat gluten be prepared in accordance with the *Recommended International Code of Practice—General Principles of Food Hygiene* (CAC/RCP 1-1969, Rev. 1).
5. The product shall be free of pathogenic microorganisms, and it shall not contain any poisonous or deleterious materials or substances originating from microorganisms in amounts which may represent a health hazard.
6. Moisture, protein, ash, crude fiber, ether extractable fat and extraneous matter composition will be determined using AOAC methods. The determination of gluten denaturation will be made using American Association of Cereal Chemistry methods, and sampling will be done using ISO Method 2170-1980.
7. Labeling will be in accordance with the *General Standard for the Labeling of Prepacked Foods Codex Stan 1-1981*.

International Standard for Soy Protein Products

This standard applies to vegetable protein products prepared from soybeans that are intended for use in foods requiring further preparation and for use by the food processing industry.

1. Soy protein products described in the standard have the following protein ($N \times 6.25$) contents calculated on a dry weight basis excluding added vitamins, minerals, amino acids and food additives. Soy protein flour (SPF) has a protein content greater than 50%, but less than 70%; soy protein concentrate (SPC) must have a protein content range from 70% to less than 90%; soy protein isolates (SPI) protein content must be 90% or more.
2. Compositional requirements include the following:
 - moisture content not to exceed 9% (m/m).
 - ash yield after incineration not to exceed 8% on dry weight basis.
 - residual fat content shall be compatible with good manufacturing practices.
 - crude fiber content is not to exceed 5% for SPF, 6% for SPC and 0.5% for SPI.

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3. Soybean protein products covered by the standard are to be prepared in accordance with the *Recommended International Code of Practice—General Principles of Food Hygiene* (CAC/RCP 1-1969, Rev. 1).
4. Sampling and ash determination will be done using ISO Methods. AOAC Methods will be used to determine moisture content and crude protein content. Crude protein may also be determined using ISO's Kjeldahl Method. However, in crude protein determinations, the 6.25 conversion factor for nitrogen is required. AACC Methods will measure crude fiber content, and fat determinations will be made using Codex Alimentarius standards. Solvent residue measures will be taken using DGF Methods, IUPAC Methods or a method by Fore and Dupuy (*J. Am. Oil Chem. Soc.* 49:129, 1972). Methods to determine heavy metal contaminants, trypsin inhibitor and antinutritional factors must still be determined.
5. Mineral values for protein nutritive value for each of the soy protein products; maximum levels for metallic contaminants such as arsenic, mercury, lead and cadmium; and standards for food additives such as colors, flavors, emulsifiers and processing aids must be established.
6. Labeling will follow the *Codex General Standard for the Labeling of Prepackaged Foods* with the provision that the labels "soy protein flour," "soy protein concentrate" or "soy protein isolate" be used on products where protein content falls into the ranges described in number 1.

International General Standard for Vegetable Protein Products

This standard applies to vegetable protein products intended for use in foods and that still do not have individual standards. It could cover vegetable proteins from crops such as rapeseed and cottonseed; it does not include vegetable proteins made from single-cell protein sources.

1. Vegetable protein products covered by this standard are food products produced by the reduction or removal of non-protein material in order to achieve a protein content of 40% or more.
2. Vegetable protein products are to conform to the following compositional requirements except when modifications are necessary for specific types of vegetable protein products:
 - moisture content shall be low enough to ensure microbiological stability under the recommended conditions of storage.
 - yield of ash on incineration shall not exceed 8% on a dry weight basis.
 - residual fat content shall be compatible with good manufacturing practices.
 - products not covered by a specific product standard must not have crude fiber content in excess of 8% dry weight basis.
3. Labeling would follow the *Codex General Standard for the Labeling of Prepackaged Food Codex Stan 1-1981*. The label must include the protein content and specific source of VPP. If the VPP is subjected to a texturization process, the name of the product may include a qualifying term such as textured or structured. The name also may include terms such as bits or flakes to describe the form of the product.
4. Methods to determine moisture, ash, crude protein, fat, crude fiber and solvent residues in vegetable proteins covered by the general standard are the same as those used in the soy standard. Methods to determine heavy metal contaminants, trypsin inhibitor and other antinutritional factors have not been established yet.
5. Products covered by the standard shall be prepared in accordance with the appropriate section of the *Recommended International Code of Practice—General Principles of Food Hygiene*.

Tape said. Countries can choose whether to accept Codex standards; even on acceptance, countries can deviate from them. He noted that standards generally are accepted more easily in less-developed countries because they usually do not have extensive regulatory systems governing food.

When standards and guidelines are accepted, international trade in the commodities covered usually is facilitated, Tape said. The standards also help ensure fair trade practices and protect the health of consumers.

Tape explained that the CCVP will not draft guidelines for all food products with added vegetable proteins. Instead, its general guidelines help other commodity committees, such as Processed Meat and Poultry Products, Fish and Fish Products, and Milk and Milk Products, in drafting their product-specific guidelines.

The committee will discuss global production and trade of soy-based beverages to determine whether there is sufficient trade to warrant standards for them. It also will review an update of the "Kapsiotis Report," first presented to the Codex Commission in 1978 to help determine the need for a vegetable protein committee. The updated version is expected to cover recent developments in vegetable protein production and utilization for human use.

The report of the Fourth Session of the Codex Committee on Vegetable Proteins will be available in April from the Codex Alimentarius Secretariat, FAO, Via delle Terme di Caracalla, 00100, Rome, Italy.

Proposed methods

The Codex Committee on Vegetable Proteins (CCVP) this month will review new methods to differentiate between vegetable and animal proteins in a mixture and methods that might serve as replacements for the Protein Efficiency Ratio (PER) measurement for protein quality.

As yet, there is no single practical method to differentiate be-

tween vegetable and animal protein mixtures, and the PER method is considered costly and time-consuming. If acceptable methods are found, they will become part of the Codex standards and guidelines for vegetable proteins.

One protein quality measure gaining favor over the PER (the official method in the U.S. and Canada for evaluating the biological value of proteins) is the amino acid scoring procedure, according to Ghulam Sarwar, coordinator of the Codex Working Group on Protein Quality Measurement and researcher in Health and Welfare Canada's Bureau of Nutritional Sciences.

PER, which measures the weight gain of rats over protein consumed, has many disadvantages, Sarwar said. The method does not properly credit protein used in maintenance; it takes four weeks to run; and it is costly, lacks precision and does not reproduce well.

With the amino acid scoring procedure, the amino acid content of specific foods would be determined in advance. The content then would be compared to the human requirement for those amino acids and would be expressed as a percentage of the human requirement. The amino acid score would be dependent on whichever amino acid was present as a limiting factor, Sarwar said.

The advantages of the amino acid scoring technique are its simplicity and applicability to a wide variety of foods and it can be carried out chemically instead of in animal studies, Sarwar said. Also, once the problems of protein digestibility and amino acid bioavailability are solved, the test will be quite accurate, he added.

Sarwar said the amino acid score has not accounted for digestibility of protein and amino acids. However, initial findings from a cooperative study organized by the U.S. Department of Agriculture suggest the digestibility of proteins in food products is a reasonable approximation of digestibilities of most individual amino acids. The study is coordinated by C.E. Bodwell at USDA and includes research from Canada, Denmark and the U.S.

Sarwar said that correcting amino acid scores for protein digestibility would be sufficient to account for amino acid bioavailability. He added that additional correction for bioavailability may not be required, especially if consideration is given to the fact that mixed human diets may contain a variety of protein sources.

A suitable method to determine protein digestibility must be established before Codex can adopt the amino acid scoring procedure with correction for protein digestibility. Sarwar said while there are many in vitro methods for determining protein digestibility, there is no one method that has been accepted as a standard.

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According to Sarwar, a collaborative study on *in vitro* protein digestibility is being organized by Bodwell at USDA; researchers from Canada, Denmark, the U.S. and possibly the Netherlands will participate. He said the collaborators hope to have a suitable *in vitro* method for protein digestibility in two years.

While it would be advantageous to use the same standard internationally, Sarwar said some countries may not have the capabilities or the finances to use amino acid scoring. Sarwar said the working group may also recommend the corrected relative net protein ratio (CRNPR) as a protein quality measure to give nations a choice.

The relative net protein ratio (RNPR) is a less time-consuming rat feeding method than PER to determine protein quality. It makes allowances for protein used in both growth and maintenance, and according to research results from Sarwar and his colleagues, RNPR also gives protein values similar to amino acid scores corrected for digestibility of individual amino acids (available amino acid scores). Because rats have about a 50% higher sulfur amino acid requirement than humans and because rat feeding methods underestimate the protein value of products limiting in sulfur amino acids, a correction factor of 1.5 has been suggested. With the adjustment for a maintenance allowance and the sulfur amino acid correction factor, the corrected relative net protein ratio method is the best rat feeding study available to determine protein quality, according to Sarwar.

The Working Group on Protein Quality will present its suggestions to the committee in Havana. If the group's suggestions are accepted, the new method can be incorporated into the Codex standards and guidelines.

The second major methods problem that must be resolved is how to differentiate between animal proteins and vegetable proteins in a mixture. At the July 1985 meeting of the Codex Commission, CCVP stated there still was no analytical method available for product control purposes, even though many were under consideration.

Among the methods under study by CCVP for use in the quantitative differentiation of vegetable and animal protein are electrophoresis, identification of proteins by multivariate analysis of the amino acid composition and direct analysis of mixtures using pyrolysis mass spectrometry without prior chemical treatment of the blends. Enzyme-linked immunosorbent assays (ELISA) have been considered the techniques with the most promise to date.

The problem is that none of the methods discussed is simple, fast and relatively inexpensive, according to Len Kamm, food science chief of the Meat Hygiene Division of Agriculture Canada's Food Production and Inspection Branch. There are a number of drawbacks with several of the techniques under consideration, he explained.

For instance, immunochemical methods such as ELISA and electrophoretic techniques are liable to be too specific, Kamm said. Instead of differentiating solely between meat and non-meat proteins, the technique can be used to recognize particular protein fractions in animal, such as blood or skeletal muscle, or species, such as bovine, porcine, milk, egg or soybean. The problem, Kamm said, is that in determining the total amounts of meat proteins and non-meat proteins, assays would have to be run to cover the many possible factors that could affect protein totals.

For regulatory purposes, the ELISA method might be too specific. It would produce a jungle of proteins, requiring a large number of tests to differentiate among them, Kamm said.

What Kamm proposes is a generic method to differentiate simply between meat and vegetable protein. The method has been used by Agriculture Canada's Food Production and Inspection Branch since January 1986 to determine if meat products contain the minimum levels of meat protein required under Canadian meat inspection regulations.

In using this method, the inspector obtains samples of the finished product and of either the vegetable protein (filler) or meat protein used in the product, or both.

The final product is analyzed for protein content using the Kjeldahl method; tests for other components are done according to established techniques such as AOAC methods.

Kamm explained that the methods are indirect to the extent that they use fat and carbohydrates as markers to differentiate and quantify meat and non-meat protein. He said filler is likely to contain significant quantities of carbohydrates, which would be virtually absent in meat products, and meat contains fat, which is not commonly found in filler. By determining fat and carbohydrate fractions, protein content can be determined.

If the non-meat samples are to be analyzed for protein content, the first step is to test for the presence of carbohydrates using the dextrose equivalents test. Dextrose equivalents is the measure of the total reducing sugars present in a sample, expressed as dextrose and calculated as a percentage of total dry matter.

The ratio of protein to dextrose equivalents in the filler multiplied by the dextrose equivalents in the finished product will yield the protein content in the non-meat portion of a protein mixture.

Kamm said to find the amount of meat protein in a finished product, divide the percentage of meat protein in the meat block sample by the percentage of fat in the meat block and multiply by the percentage of fat in the finished product. The sum of the meat protein and non-meat protein should equal the total protein of the product.

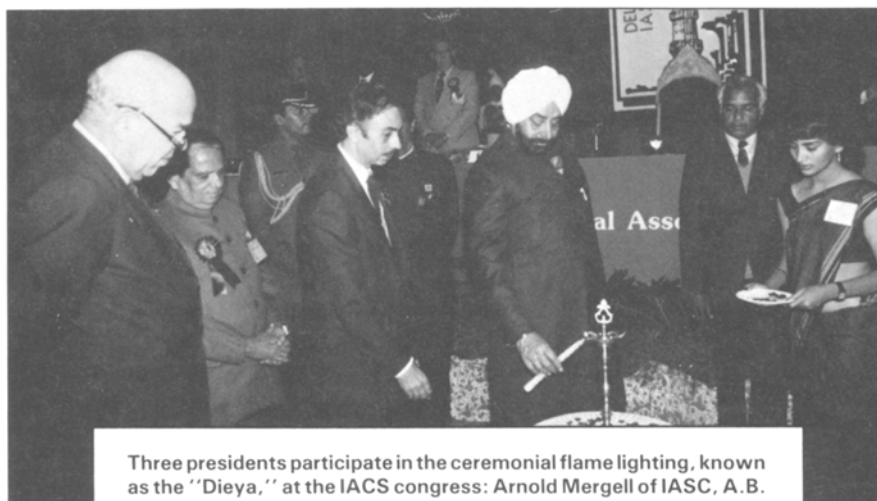
The advantage of this particular system is that the analytical methods involved have already been worked out and can be carried out either automatically or manually, Kamm said. It's cheap, efficient and quick, and those who test samples do not have to be highly trained. In addition, Kamm said, countries unable to afford some of the equipment necessary to run other types of analyses could use this method successfully.

The disadvantages with this system, Kamm said, are that samples must be collected correctly and inspectors monitoring the production of these products would

have to be well trained.

Barry Smith, chief of food regulatory affairs in the Canadian Health Protection Branch of Health and Welfare and head of the Canadian Secretariat to CCVP, said the problem with this method is its indirectness. "You can't just pull a product off the shelf and measure the protein content to see if it matches the label," Smith said. Its success depends on having samples of finished products and the components that went into the products, he added.

The Canadian delegation will present Kamm's methods to the Codex Committee in Havana.



Three presidents participate in the ceremonial flame lighting, known as the "Dieya," at the IASC congress: Arnold Mergell of IASC, A. B. Godry of the Central Organization for Oil Industry and Trade of India and Giani Zail Singh of the government of India.

IASC congress draws 800 persons

The following article was written by AOCS Publications Committee Chairman A.R. Baldwin, who attended the International Association of Seed Crushers' congress in India in November. It contains summaries of talks given by primary speakers at the meeting.

More than 800 delegates and spouses from 30 countries attended the 62nd World Congress of the International Association of Seed Crushers (IASC) held at the Taj Palace Hotel in Delhi, India, Nov. 26-28, 1986. Preceding the meeting, IASC directors met in Beijing, China, to discuss the Chinese invitation to hold the 1991 IASC meeting there. Arnold Mergell, president of IASC, announced at the end of the meeting that the directors had indeed accepted the invitation. The next IASC meeting will be in Vancouver, British Columbia, Canada, June 7-10, 1988.

A gala "Indian Mela" (outdoor picnic and entertainment) opened the conference as an informal mixer the first night. Nearly 700 guests were greeted by caparisoned elephants, dancing girls, typical Indian music and showers of flowers at the Ashok Hotel. The hotel garden was surrounded with buffet tables covered with Indian and other ethnic foods. Continuous

entertainment in various areas of the garden included more Indian music and dancing, troupes on three stages, puppet shows, a magician, a dancing bear, monkeys and their organ grinder and a brilliant display of fireworks. Many old acquaintances were renewed and new ones made.

The opening ceremony the next morning featured a welcome and speech from Giani Zail Singh, the president of India. The president, who was taking time away from a meeting with Mr. Gorbachev and the Soviet Mission, then in India, lighted the flame (Dieya), traditional for such international gatherings in India, and welcomed the guests warmly. He pointed out that oilseeds are second only to cereals in agricultural production in India. Oilseeds, with peanuts being the major crop, cover 20 million hectares, equaling 11% of the total arable land in India. Traditionally, India has imported about 1.5 million metric tons (MT) of vegetable oils per year, but Prime Minister Gandhi has appointed an Oilseed Fact Mission to promote more indigenous production of oilseeds. The longer-term objective is self-sufficiency.

Mergell then delivered his IASC president's report, which is printed as a viewpoint in this issue of

JAOCS. He described some of the problems facing the international seed crushing industry since the IASC meeting in Rome. These include (a) great overcapacity in nearly every country, especially Europe, the U.S., Brazil and Argentina; (b) many types of trade disruptions; (c) increasing self-sufficiency in countries traditionally importing oil; (d) decreased market expansion from over 8% per year to about 3% per year in developing countries; (e) greatly increased palm oil production, i.e., to 6 million metric tons (MT) in the last 12 months; (f) a huge world oil surplus—the biggest ever; (g) increased rapeseed production caused by uneconomic subsidies and promotions; (h) the entry of China as a vegetable oil exporter; (i) the vagaries of the foreign exchange situations; and (j) protectionist measures by many countries. All this has reduced profitability and brought about considerable restructuring of the industry.

Some brighter observations on the industry, according to Mergell, are on the horizon. Lower energy prices have reduced crushing costs and should improve the economics and thus the markets of many potential oil- or oilseed-importing countries. Lower interest rates and reduced inflation also are economic

stimuli. Lower meal and cereal prices have stimulated significant increases in poultry and livestock production. Even Russia has been showing signs of increased protein meal usage. Trade seems to be liberalizing, and hopefully the next round of GATT negotiations can help rationalize trade barrier problems.

The second working session was opened by Shri Ghulam Nabi Azad, minister of state for food and civil supplies. He called attention to the fact that India is the largest producer of peanuts, castor beans, niger and sesame seeds, the second largest producer of safflower and the third largest producer of rapeseed, flaxseed and coconuts. However, yields are relatively low, and there is still a gap between production and consumption of oils and oilseeds that must be filled by imports. Therefore, the government is very keen to make India self-sufficient in oilseeds, as it has done in cereal products. The program seems to be working; it is planned during the next five years to increase indigenous production by 7% per year by providing incentives of 1.7 billion rupes.

Also, the minister said, there is a new thrust to make greater use of nonconventional domestic oils such as from rice bran, cottonseed and various tree seeds. To increase oil recoveries by more use of solvent extraction, the excise duty on food-grade hexane has been abolished. The vanaspati industry also is being encouraged by reduced excise duties to use more of the potentially available minor oils. The production and export of solvent-extracted meals is being encouraged by reduced import tax on approved equipment and reduced or eliminated export taxes on oils and meals. Azad called for increased technological assistance to increase oilseed yields and to modernize oilseed processing.

Donald de Kieffer, former White House adviser on trade affairs and now partner in the Washington office of Pillsbury, Madison and Surto, got everyone's attention during his informed discussion of "Practices in International Trade Which are Disrupting the Orderly Marketing of Oilseed and Oilseed Products." He said that for 150

years, economists have postulated the theory of "comparative advantage," and many propound it as natural law. This idea suggests that it is economically advantageous for all countries to produce those things in which they are most efficient and to import those products that other countries can produce more cheaply. Today, de Kieffer said, nothing could be further from the truth. Both developed and developing countries have adopted various economic and social plans, schemes and policies to protect and/or support indigenous production of industrial as well as agricultural products. Today, there is hardly an industrial sector in the world that is not affected more by government policy than by the pristine model of "comparative advantage." The costs of protectionism and subsidization far exceed the real costs of production and distribution in a "comparatively advantageous" world.

Since World War II, countries have tried to slow the growth of government intervention in the marketplace primarily by cartelization and deregulation. The oilseed industry, de Kieffer believes, is now at a crossroads. It is neither a cartel nor an example of free trade. Choices will have to be made in the next few years, or economic anarchy will prevail in the industry.

Some of the oilseed industry's problems cited by de Kieffer included the build-up of world oversupply of oilseeds in the 1980s and numerous government interventions. Factors contributing to the surplus of oilseeds were (a) high crop yields caused by improved varieties and agronomic practices; (b) the ability to double-crop oilseeds in many parts of the world; (c) large acreage increases in Brazil, the U.S., Argentina, Malaysia and many developing countries; and (d) a leveling of demand growth for feed proteins and vegetable oils below projections.

Interventions have been made by most governments, including the EEC, Spain, Portugal, the U.S., Brazil, Argentina, Malaysia, India and Canada. "There are few virgins in this area of government control policies," he said. Of special concern, of course, are production

subsidies, differential export taxes, special loan agreements and special financing arrangements. Reviewing the policies of several countries that are the main players in this complicated set of interrelated problems, de Kieffer concluded that with increasing government interventions in both producing and consuming countries, everyone is losing. Taxpayers in developed and developing countries are spending huge sums to subsidize otherwise profitable operations. Third world farmers are receiving only a fraction of world prices for their oilseeds. Processors and crushers are faced with increasing barriers to international trade in new and traditional markets. In many countries consumers are paying more for oil products than otherwise might be the case.

Sooner or later, de Kieffer predicted, the pressures created by subsidization and protectionism will result in economic disaster for the industry. There are alternatives based on experiences in other industries, he said: two that are not very probable are to cartelize or go to a totally free market system; the better route is to agree, collectively, to a set of trading rules that recognize the development needs of the third world and the political imperatives of the consuming countries and moderate the pressures for retaliatory actions. All countries have too much to lose not to consider this option, which is still available today.

Professor L. Levy of Belgium presented an illuminating discussion on the "Disorder Existing in the Exchange Markets of the World" and how this complicates international trade. There are now 151 floating currencies that change in value from day to day. Thirty currencies are linked to the value of the U.S. dollar, 16 are linked to the French franc and 15 are linked to other currencies, but none is linked to the pound sterling. He used this last fact to illustrate how the world changes; years ago, the pound was the basis for many world currencies. The U.S. dollar is the dominant currency today, but, Levy advised, "Look out for the deutsche mark, the Swiss franc and the Japanese yen." In addition to the

multitude of variously interrelated currencies, there are also Special Drawing Rights linked to five currencies. All this makes international trade hazardous if due regard is not paid to currency problems. On top of this, he cautioned, is the possibility of varying degrees of financial crises caused by the large indebtedness of many developing countries.

The outstanding speech of the Congress was presented by N.A. Palkhivala, an eminent Indian lawyer and former ambassador to the United States. His relevant thesis revolved around answering the basic issue he posed: "India has enormous natural and human re-

sources and is fundamentally endowed with a strong sense of entrepreneurship. How come, then, we are so poor?" He illustrated at least one facet of the answer with this story: God created India and gave it all these resources. Other countries were jealous of such favoritism and complained to God about it. To compensate, God said, "I'll give to the people in that bountiful land the Indian government!" Palkhivala used many illustrations to indicate that the socialist approach of the government for the 35 years since independence has stifled the economy, limited the growth of industry and discouraged entrepreneurial developments and foreign investments.

His cogent remarks included these:

- "Nothing moves in the state of Bihar except for the Ganges."
- "We have too much government and not enough governing."
- "There are too many civil servants and not enough civil service."
- "We are a poor people in a rich country."
- "In Hindi, the same word is used for yesterday and tomorrow."
- "Individually Indians are intelligent but collectively are foolish."
- "Indians always blame someone else for their problems—if the rains don't come, it's the fault of the C.I.A."
- "The radio and TV are totally government controlled; there would be no chance that my speech today would be broadcast."
- "Politicians find something indecent in the naked truth."
- "Man will do the rational thing only after exploring all the other alternatives."
- "The problems in India are that (a) time is unimportant (tomorrow, next week, the next life time will be soon enough); (b) there is no sense of discipline; and (c) there is no sense of national identity."
- "In this biggest democracy in the world, socialism should mean social justice."
- "Socialism is to social justice as ritual is to religion."

Palkhivala said he believes the future can and will be better. Under the present prime minister, who

came to power in 1984, many things have changed for the better: competition has been freed up, taxes have been lowered, controls have been relaxed and considerable progress is being made in improving the economy. The points in India's favor, according to Palkhivala, include the following:

- The worth of a nation does not depend on its GNP, and India does not suffer from the evils of affluence.
- India is indestructible—it has survived many foreign invasions.
- It has great capacity for endurance.
- Indian people have a deep faith, with strong beliefs in higher values.
- There is a very strong family feeling.

"The long term 'future' is bright because of the recent changes in government policies and the above strengths of national character," he said. "India needs further progress and assistance in human development, such as education, nutritional understanding and family planning."

All agreed, with a standing ovation to Palkhivala, that this was an excellent, thought-provoking speech.

The final presentation in the working sessions was a short report on the Chinese oil industry by W. Ruiruan from the Ministry of Commerce in Beijing. China is the only socialist country that has asked to be a member of the IASC. Since new food and agricultural policies were established in China, there has been greatly increased oilseed production, resulting in growth toward self-sufficiency; oil milling capacities have been increased by over one million MT per year; consumer products such as cooking oils and margarine are increasing in the marketplace; and extraction capacity has increased in quality and volume. The Chinese plan to manufacture their own oil processing and oleochemical processing equipment and to make it available for export. There are now 430 oil mills, many of which

Vanaspatti Industry

The Indian vanaspatti industry will suffer if Indian government reduces edible oil imports during 1986-87 as proposed, according to the Indian Vanaspatti Producers' Association (IVPA).

B.L. Jaju, chairman of the IVPA Research Trust, in late November announced the industry already needed additional imports of 1.5-1.7 million metric tons (MT) to keep up production. If imports are further reduced, he predicted, the industry would be crippled.

The Indian government had proposed reducing imports by 900,000 to one million MT during 1986-87. Effective Nov. 1, 1986, the government reduced the use of imported oil in vanaspatti, from 80% to 55%; in December, this was further reduced to 30%, according to *Oil World*. Jaju said India's estimated oilseed production during 1986-87 is 12.3 million MT, an improvement over 1985-86, but still short of the 12.9 million MT produced during 1984-85.

are being modernized, expanded and supplemented with prepress solvent processes.

Rapeseed oil represents about half of Chinese oil production. It is the high erucic acid type, and the Chinese do not find it has harmful nutritional characteristics.

Rice bran oil is recovered from 60% of the rice bran available to government mills. In 1985, this produced 89,000 MT of oil. The plan is to increase recoveries by 1990 from over 70% of the bran. Some bran is also processed in private plants.

In the past five years, total oil production has increased by one million tons. The next five-year plan is aimed at further increases in oilseed production and increased recovery of the oils from rapeseed, sunflowerseed and groundnuts by expansion of solvent extraction processes. Trends in China are toward self-sufficiency and even becoming an exporter of oilseed products. Chinese rapeseed meal already competes in world markets.

The final working session of the congress concluded with trade reports from the Federation of Oils, Seeds and Fats Associations Ltd. (FOSFA), Grain and Feed Trade Association (GAFTA) and the National Institute of Oilseed Products (NIOP). The present officers were reelected by nomination and acclamation to be Arnold Mergell as president and vice-presidents Reed, Billing, Alas, Godrej, Howard, Costa, Diojs and Hughes.

The next meeting of IASC will be in Vancouver, British Columbia, Canada, June 7-10, 1988. Further information can be obtained by writing to IASC 63rd World Congress, 801-750 Jervis St., Vancouver, BC, Canada V6E 2A9.

In addition to the Indian Mela mixer, there were ample opportunities for delegates to get reacquainted with colleagues and make new contacts in other social programs, including a golf

tournament, city tours, a sound and light show at the Red Fort, the annual banquet/dance, the closing luncheon and five after-conference tours to various parts of India and Nepal.

The 24th India Convention of Oilseeds and Oils Trade and Industry met on Nov. 29, 1986, at the Hotel Meridien under the joint sponsorship of the Delhi Vegetable Oil Traders' Association and the Central Organization of Oil Industry and Trade, Bombay. Discussions centered on problems, concerns and opportunities for the Indian oilseed industry.

There was an ad hoc meeting on Wednesday afternoon to discuss concerns about the quality of U.S. soybeans for export. The European and Japanese seed crushers expressed agitated concern over questions of foreign material and moisture contents and strongly urged that the official grades should include moisture contents as grade factors. On the other side, the U.S. Federal Grain Inspection Service and the American Soybean Association explained their position and feeling that moisture factors should be included in the trading contracts rather than in the official grades. The American side described the efforts being made to assure the export of recognized quality beans. The seed crushers/customers seemed to agree that "some progress to improve bean quality has been made in the last 18 months" since a similar meeting during the IASC meeting in Rome. However, they urged that "more progress is needed." A neutral observer, if there is such a person, might conclude that this confrontation was a draw, but conversations on the subject should be continued to further understanding between suppliers and customers.

All in all, the more than 500 delegates who socialized, commercialized, negotiated and discussed the industry's problems, concerns and opportunities left Delhi with a good feeling about a very interesting meeting.

Fish oil down

The fish oil and meal sector in Japan was quite volatile in 1985-86 due to poor catches, greater competition from palm oil and the increased value of the yen, according to U.S. Foreign Agricultural Service (FAS) reports.

Poor weather in July and August limited the fish catch. However, even with the smaller catch, fish oil prices dropped dramatically as more low-priced palm oil entered the country after the removal of the import tariff on palm oil. Reports indicate that an estimated 5,000 metric tons (MT) of fish oil were used as fuel because the price was so low. As palm prices are expected to remain low, the trend toward lower-priced fish oil is expected to continue through 1987.

Preliminary estimates for 1985-86 indicated fish oil exports were 238,000 MT, down from 289,000 MT the year before. FAS said the increased value of the yen made Japanese fish oil less attractive to the world market.

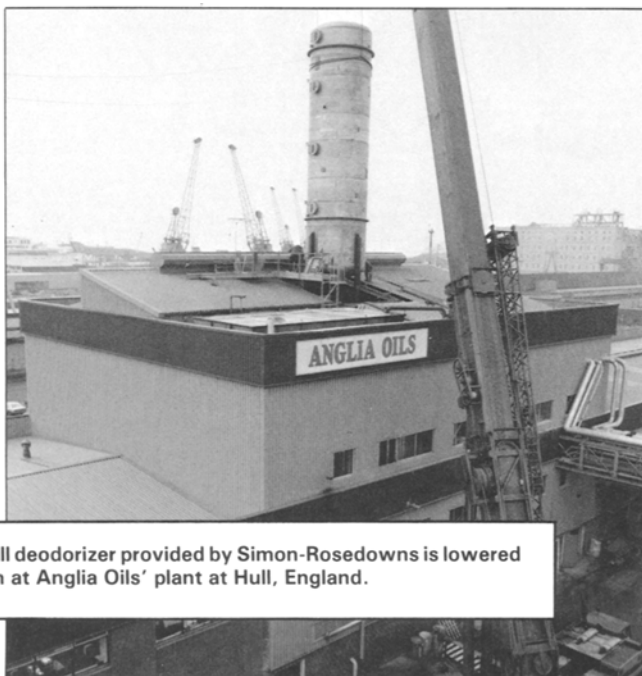


William Barger

De Smet agent

DeSmet U.S.A. Corp. has appointed W.M. Barger & Associates as its exclusive agent for the promotion and sale of all De Smet machinery, processes, technology and services related to the oilseed processing industry.

William Barger, who has more than 20 years' experience in oilseed processing, will serve the industry in the mid-western U.S. and the English-speaking provinces of Canada from his corporate headquarters in Dayton, Ohio. Barger's telephone number is 513-293-6669.



A 60-foot tall deodorizer provided by Simon-Rosedowns is lowered into position at Anglia Oils' plant at Hull, England.

Anglia expands

Anglia Oils Ltd. was expected to have additional refining capacity on-line at its Hull, England, facility by late January 1987.

Due to demand for its range of processed palm oil products, Anglia invested 2.2 million British pounds to double refinery capacity to 140,000 metric tons a year at the facility. A second Econoflow deodorizer supplied by Simon-Rosedowns was installed during November 1986.

Sunflower milk

Sumitomo Chemical Co. Ltd. of Japan has patented its process to produce milk from confectionery sunflowerseed in several countries, including the U.S.

According to Yoshi Takashima, planning and commercial development manager for Sumitomo Chemical America Inc., the company is seeking a U.S. partner to do the processing in the U.S.

Clyde Stauffer, who has served as a technical consultant to the National Sunflower Association (NSA), said, "The product tastes remarkably like cow's milk. There is none of the beany flavor usually

associated with these kinds of products." For this reason, he said, "This could be a viable product in infant formulations and milk substitutes in the U.S."

According to Julie Henderson, NSA's director of consumer affairs, eight companies have called the NSA seeking information on licensing sunflowerseed milk in the U.S. She said currently the product is available only in Japan, but probably will be launched in many areas based on the popularity of soymilk.

The process for producing sunflowerseed milk is in many ways similar to that used to make soymilk, Takashima said. One problem that the Sumitomo process has overcome is the presence of chlorogenic acid, which could give products a green color, Takashima added.

Takashima said that the company is working with a Japanese confectionery company and has produced yogurt-flavored and malt-flavored sunflowerseed milk.

Refining shift

Vegetable oil refining, traditionally dominated by urban food manufacturers, is quickly shifting into the hands of soybean and cotton-

seed crushers in the countryside, according to a study conducted by Experience Inc., an agribusiness consulting firm based in Minneapolis, Minnesota.

During the past two years, food manufacturers have shut down more than a dozen vegetable oil refineries, Experience said.

"The study shows the refinery closings have reduced the nation's overall vegetable oil refining capacity by 15%, opening the door for more oil imports," Experience chairman Ken Holt said.

Food companies closing refineries include Procter & Gamble, Beatrice/Hunt Wesson and Lever/Shedds. The study said closings have placed about 60% of refining capacity in the hands of soybean and cottonseed crushers, with five major crushers operating 35% of the capacity. These five are Archer Daniels Midland Co., Cargill Inc., Bunge Corp., Central Soya Inc. and Anderson Clayton.

The study said manufacturers have left the refining business for such reasons as low refining profit margins, stricter environmental regulations and the emergence of competitive oils. Crushers that previously sold oils to the food manufacturers now must refine a greater percentage of their oil in order to find markets for their production. The firm predicted that factors creating the shift will continue for at least two more years.

China update

China's 7th Five Year Plan (1986-1990) has set a goal to raise edible oil and grain production to 3.5 million metric tons (MT) by 1990, up 83% from 1985, according to the newspaper *Economic Information*.

Other goals include expanding edible oil refining capacity to produce in 1990 one million MT of first-grade edible oil, 500,000 MT of refined edible oil, 100,000 MT of rice bran oil, 150,000 MT of corn oil and 150,000 MT of special edible oil products such as margarine, salad oil and frying oil.

The plan also calls for increasing the allocation of steel for the manufacture of grain and edible oil

processing equipment, including rice grinding, flour making, edible oil refining and grain grinding machines.

Taiwan imports

Taiwan in late 1986 signed a new five-year grain agreement with the U.S. to expand its soybean import commitment by 19%, to a total of 209 million bushels for 1986-1991, according to the American Soybean Association.

Under the previous five-year agreement, Taiwan committed to buy 176 million bushels of soybeans over five years, but actually purchased 38% more.

Japan update

JOCS meeting

Approximately 535 persons attended the Japan Oil Chemists' Society's (JOCS) 25th annual meeting held Nov. 4-5, 1986, in Osaka, Japan.

Three lectures and 140 general speeches were featured, including 31 on organic chemistry and biochemistry topics, 37 centering on oils and fats and their chemistry, and 37 on synthesis and use of surfactants, analytical chemistry, and other topics.

Formulated feed

Japanese formulated feed production totaled 25 million metric tons (MT) in fiscal 1985, according to statistics from the Japanese Ministry of Agriculture, Forestry and Fisheries.

Average annual growth during the past five years totaled 2.4%. Vegetable oil meal accounted for 14.3% of materials used in formulated feed, with soybean meal representing 10.4%, rapeseed meal 2.1% and others 1.8%. Five years ago, soybean meal accounted for 11.2% and rapeseed meal 1.1%. Soybean meal and rapeseed meal used during fiscal 1985 totaled 2.62 MT and 0.52 MT, respectively.

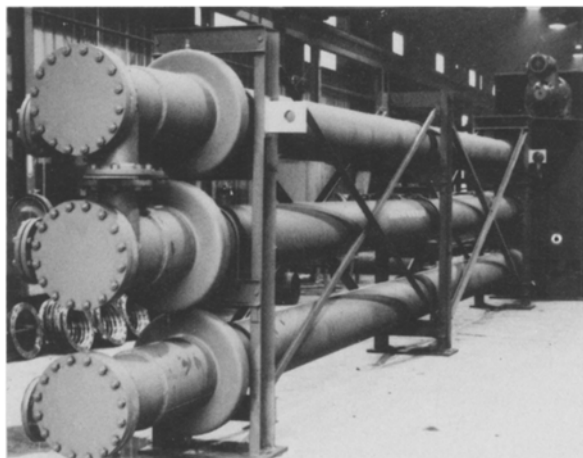
Coconut funds

The Philippine Coconut Authority and the United Coconut Planters Bank announced they will launch a bank-funded lending program totaling \$5 million U.S. to help finance agricultural and related projects for small farms in all coconut producing regions of the country.

The project is designed to alleviate the plight of small farmers whose incomes have been reduced due mainly to depressed prices for coconut products, according to the *Cocomunity Newsletter*.

More coconuts

The government of Tanzania, assisted by the World Bank and the West German government, has announced it will undertake a coconut development program to increase copra production in the Zanzibar Islands.



Continuous crystallizers for fractionation of fatty chemicals

Continuous cooling crystallizers are often used for fractionation of fatty chemicals. Typical uses include: fractionation of tallow and tall oil fatty acids, mono- and di-glycerides purification, winterization of some edible oils, palm/palm kernel oil fractionations, crystallization of salts of fatty acids, fatty alcohols fractionation, and similar processes.

Scraped surface crystallizers may also be used to cool viscous materials, such as lecithin or dimerized fatty acids.

Pilot plant crystallizers are available to rent to test new processes.

Fabrication is available at our shops in the USA, Scotland, or Singapore.

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Participants in one plenary session at the 1986 International Meeting on Applied Technology in Brazil included (from right) Gunnar Haraldsson, Robert Hastert, Percy Stratz and Ray Coleman.

According to the *Cocomunity Newsletter*, seedlings will be distributed to small landholders in the Zanzibar Islands, with seedling production expected to increase in 1987 from 40,000 to one million. Zanzibar is a leading copra producer in East Africa; however, production has been declining due to old age of trees as well as problems with pests and disease.

Tech meeting

Over 100 persons attended the 1986 International Applied Technology Meeting (RITA '86), held in Guarujá, Brazil, sponsored by the Bunge & Born Organization and its Brazilian affiliate SANBRA (Sociedade Algodoeira do Nordeste Brasileiro S.A.).

Process automation, energy conservation in preparation and extraction, safety, effluent avoidance by process modification and fats crystallization and fractionation were among topics discussed. International specialists invited to speak included Gunnar Haraldsson of Alfa-Laval, Sweden; Robert Hastert, Harshaw/Filtrol Partnership, United States; Ray Coleman, United Catalysts, United States; Werner Zschau, Süd Chemie, West Germany; Heinz Schumacher, a consulting engineer of Hamburg, West Germany; Klaus Weber of Extraktionstechnik GmbH, Hamburg, West Germany; and Niels Krog, Grindsted Products A/S, Denmark.

Plenary lectures were held each morning, with poster sessions each afternoon. Many poster presenta-

tions were by representatives of SANBRA and Bunge.

Percy Stratz, recently promoted to become Bunge's chief international processing specialist, organized the event, which attracted registrants from private companies and research institutes from several nations.

Hands-on chemistry

The California Museum of Science and Industry in Los Angeles, California, has been awarded a \$302,000 National Science Foundation grant to explain basic chemistry to laypersons and school children.

The grant will go toward a million-dollar, hands-on comprehensive chemistry exhibit. The remaining funds will be sought from private industry.

The exhibit, which is expected to open in 1988, will cover five key topics: property of elements and compounds, chemical reactions, rates of reactions, forces between atoms and molecules, and energy release. Most of the 40 exhibit modules will allow visitors to control the variables of a scientific demonstration and observe the results. Simulations will be generated by computer.

News briefs

The Chicago Board of Trade was to begin trading options on soy oil and soy meal Feb. 19, 1987. According to *Soybean Update*, soy oil strike prices will be listed in multiples of

one cent while strikes for soy meal will be in intervals of \$10.

Eastman Chemicals Division of Eastman Kodak Co. will expand production of distilled monoglycerides at its distillation products industries facility in Rochester, New York. The company is modernizing its existing facility and adding reactor/distillation equipment to increase capacity by 30%. The project is set for completion by the fourth quarter of 1987.

Canada Packers Inc. of Toronto, Hunt-Wesson Canada of Toronto and Easton Chemical Caribbean Inc. of San Juan, Puerto Rico, have become member companies of the POS Pilot Plant Corp., Canada.

Campbell Soup Co. has authorized plans to construct a new world headquarters on the Camden, New Jersey, waterfront. Thirty-five million dollars has been allocated for land acquisition, engineering, construction and related costs. Plans call for construction to begin in March 1988, with completion and occupancy slated for 1990.

AOCS member Robert D. Houseal has been promoted to senior scientist for process research in the Corporate Food Science and Technology Department, Hershey Foods Corp.

George O. Melnykovich has been selected as president and chief executive officer for the Food Processing Machinery and Supplies Association.

AOCS member Jim Ridlehuber has moved to Temple, Texas. His address is 2617 Marland Wood Circle, Temple, TX 76502; telephone 817-778-5883. Participants in the Smalley Program should send their results to Ridlehuber at PO Box 3762, Temple, TX 76501.

Unilever N.V. of England in December announced it had agreed to acquire Chesebrough-Pond's for \$3.1 billion in cash, or \$72.50 a share. Unilever said the acquisition would significantly improve its presence in the personal care and food products areas.

Obituary

JAMES L. BRAUN

AOCS has been informed of the death of James L. Braun Sept. 22, 1986. Braun, 44 years old, had been a member of AOCS since 1975. At the time of his death, he was section head in the product development

department, Food Service & Lodging Products Division, Procter & Gamble.

Braun joined Procter & Gamble in 1960 as a laboratory technician. He was promoted to product engineer in 1969 and became associate director for food product development in 1977. He earned both bachelor's and master's degrees in chemical engineering in 1969

from Ohio State University. His work centered on fats and oils, for both food and non-food products.

He is survived by four children: Kathryn, Michelle, Michael and Jennifer.

In addition to his AOCS membership, he was affiliated with the American Institute of Chemical Engineers, the American Chemical Society and Tau Beta Pi fraternity.

Meetings

Annual meeting introduces lunch topics

Nutrition, chromatography, flavor nomenclature, and hydrogenated oil and catalyst are the four topics chosen for the informal box lunch discussion sessions to be introduced at the 1987 AOCS annual meeting in New Orleans.

The meeting will be held May 17-21, 1986, at the Fairmont Hotel. The informal box lunch discussion groups will meet during the lunch hour on Monday, May 18.

Box lunches will be available at a nominal cost. Specific meeting rooms will be designated for each topic, with participants taking their lunches with them to those

rooms. The lunch will include a beverage. There is no need to reserve a box lunch in advance; the lunches may be purchased on Monday, May 18, at the start of the lunch break. Potential participants are asked to mark on the annual meeting registration form whether they plan to participate in the informal box lunch discussions; no advance payment is required.

The purpose is to provide an informal discussion of whatever aspects of the topics participants wish to discuss.

The four moderators for the discussions will be

- Nutrition—P.V. Johnston, professor of food science at the University of Illinois
- Chromatography—John Callahan, head of the analytical chemistry section at Colgate-Palmolive in Piscataway, New Jersey
- Flavor Nomenclature—J.A. Roberts, senior chemist at Best Foods Division of CPC International in Union, New Jersey
- Hydrogenated Oil and Catalyst—Robert Becker, senior researcher with Calsicat Division of Mallinckrodt.

Meeting organizers hope the innovation will provide opportunity for participants to discuss more fully topics that are raised during the meeting, or which are of general interest to researchers in those areas.

If the discussions prove successful, they may be used at future annual meetings.

Persons planning to attend the annual meeting may use the registration form in this issue of *JAOCS*. If that form has been removed, additional copies are available from the AOCS Meetings Manager, PO Box 5037, Station A, Champaign, IL 61820 USA.

Potts awardee

Edward T. Asirvatham, a doctoral graduate student at The Johns Hopkins University, Baltimore, Maryland, has been selected as the 1987 recipient of the Ralph G. Potts Memorial Fellowship.

He will present a paper on "A Short, Convergent, and Flexible Route to Polyfunctionalized Unsaturated Fatty Acids," which he co-authored with Prof. Gary H. Posner of The Johns Hopkins University, at AOCS' 1987 annual meeting in New Orleans. A native of India, Asirvatham earned a B.S. in chemistry from A.J. College, Sivakasi, India, and a M.S. in chemistry from The American College, Madurai, India.

The Potts award includes a cash stipend and a plaque as well as travel and housing funds for the annual meeting. The award is named for the late Ralph Potts, a pioneer researcher on fatty acids and nitrogen derivatives. The award fund was established by Akzo Chemie America, the successor firm to Potts' original employer, the Armour organization.

Posters sought

One of the poster sessions at the AOCS Short Course on Polyunsaturated Fatty Acids and Eicosanoids, slated for Biloxi, Mississippi, May 13-16, 1987, will feature biomedical test materials. Posters describing the composition, production and/or availability of potential test materials are welcomed.

Interested contributors to this session may obtain additional information from Jeanne D. Joseph, NOAA/NMFS Charleston Laboratory, PO Box 12607, Charleston, SC 29412, USA, telephone 803-762-1200.