

Malaysians promote U.S. palm use

A special trade mission from Malaysia visited the United States in March to promote palm oil use. Members of the technical trade mission participated in the National Institute of Oilseed Products annual meeting in Tucson, Arizona, then traveled to Chicago to hold their first U.S. seminar on palm oil and commodities.

Invited to the Chicago seminar were commodity traders, industry representatives, food technologists and members of the media. Keynote speaker was the Honorable Datuk Paul Leong Khee Seong, Malaysia's Minister of Primary Industries. Leong, citing the recent revamping of the Kuala Lumpur Commodity Exchange, expressed optimism that trading volume at the exchange will

grow rapidly, with the exchange developing an oil palm futures complex counterpart to the soybean futures complex of the Chicago Board of Trade.

Malaysian trade delegates, seeking to strengthen their country's interests in established markets and to make inroads in new markets, openly stated their aim of increasing palm oil's share of the total U.S. cooking oil market to 30%; currently, Leong said, Malaysian palm oil represents less than 2% of fats and oil consumption in the U.S.

The trade delegates touted Malaysia's reliability as a major producer and exporter of palm and palm kernel products and cited the price competitiveness of Malaysian palm oil to other fats and oils. They also

predicted continuing palm oil production increases as well as additional efforts to produce downstream products, such as oleochemicals and specialty fats.

At the seminar, trade delegates openly sought American investors for such projects and encouraged U.S. firms to become members of the revamped Kuala Lumpur Commodity Exchange.

The exchange, originally established in 1980, closed down in 1984, then resumed operation on Oct. 29, 1985, Leong said. The Commodities Trading Act of 1985, which revised the 1980 regulations governing the exchange, continues to allow self-regulation of the exchange while giving the exchange commission additional powers to supervise operation of the market. "The main function of the government is to ensure commodity futures trading is properly regulated and conducted fairly, with the exchange operating based on the principle of self-regulation. The government welcomes international participation in the exchange and will ensure that the integrity of the market is maintained at all times," Ismail Ahmad, commissioner of commodities trading, said.

Jabbar Shahabuddin, chief executive of the Kuala Lumpur Commodity Exchange, said that under the restructuring, a new clearinghouse company, the Malaysian Futures Clearing Corp., has been incorporated. In addition, a joint clearinghouse committee, a newly established business conduct committee and an audit and compliance division have been set up.

Speakers said the Kuala Lumpur exchange plans to introduce refined palm oil, palm kernel and palm kernel oil futures contracts, to be quoted in U.S. dollars.

Recognizing that U.S. soybean oil and Malaysian palm oil compete on the world market, Leong, however, said that blending palm and soybean oils in manufacturing cooking oil can be an economic and sensible way to provide improved product quality for consumers while



At the palm products seminar held in Chicago, Malaysia's Minister of Primary Industries, the Honorable Datuk Paul Leong Khee Seong, encourages American firms to trade on the newly revamped Kuala Lumpur Commodity Exchange and to invest in palm oil products.

Geh Sim Hong of the Malaysian Industrial Development Authority outlines investment possibilities in downstream industries for palm and palm kernel oils.





AOCS member Kurt Berger, special advisor to the Palm Oil Research Institute of Malaysia, answers questions posed to the technical trade delegation.

keeping costs down for manufacturers. "There's room for everyone. I believe palm oil and soybean oil can coexist and complement each other," Leong said.

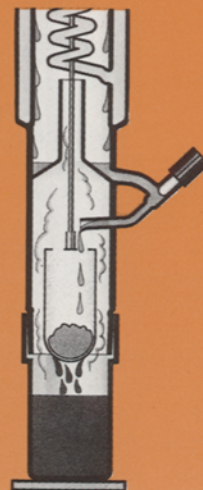
Another thrust of the seminar focused on the nutritional properties of palm oil, as well as products possible from palm oil and its derivatives. Barrie Tan, assistant professor at the University of Massachusetts, spoke on the beneficial effects of palm oil on arterial thrombosis in rats and atherosclerosis in rabbits, as well as the anticarcinogenic effects of carotenes found in palm oil. Tan pointed out that while palm oil is composed of 50% saturated fatty acids, studies have shown it does not promote atherosclerosis. Also, he said, findings show it inhibits thrombosis. Tan said his research has shown that crude palm oil contains a large quantity of carotene. In a qualitative analysis of carotenoids in palm oil fractions identified through open column chromatography, he identified 11 carotenoids, three of which show potential as anticarcinogenic agents. The three were β carotene, lycopene and phytoene. He said these pre-

liminary findings will require more research.

Kurt Berger, special advisor to the Palm Oil Research Institute of Malaysia, discussed uses of palm oil products. An economic reason to import palm oil products, Berger said, centers on palm oil being naturally a semisolid fat. This factor can give palm oil a price advantage over oils which need to be hydrogenated, he explained. He listed many uses for palm oil and its derivatives, from edible products to inedible. "The key is their versatility," he said. Also discussed were the possible blending of palm oil with other vegetable oils to provide improved product quality for various applications, at a cost savings, and the potential of using palm kernel oil in manufacturing cocoa butter substitutes as well as soaps and fatty acids.

In addition to its visit in the U.S., the Malaysian delegation made stops in Hong Kong, the Republic of Korea, Japan and the United Kingdom to promote palm oil and to strengthen trade relationships with related government importing and consuming agencies.

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Ups, downs of cottonseed

Mississippi Valley cottonseed processors heard some bad news and good news during the 35th Oilseed Processing Clinic held during March in New Orleans.

The bad news wasn't really new news, but Kenneth Lewis, executive vice-president of the National Cottonseed Products Association, presented a keynote address describing the increasing competition cottonseed products face worldwide. The text of Lewis' presentation is published in this issue of *JAOCS* (see "Viewpoint," page 622).

Lewis noted that the U.S. Department of Agriculture has predicted 1985/86 world record production for soybeans, peanuts, sunflower, rapeseed and palm oil. Lewis noted that at one time the U.S. exported about 50% of its cottonseed oil production, but for the past three years has not exported more than 38% of its oil. A USDA acreage reduction program a few years ago cut available supplies, he noted, and overseas customers turned to other products or suppliers, such as Asian palm oil, Hungarian sunflowerseed oil and Latin American cottonseed oil. Lewis added that the cottonseed industry is looking to federal researchers to help find more efficient economical methods to produce, process and market its products.

William Lalor, senior director of agricultural research for Cotton Inc., discussed cotton harvesting and storing for quality. Cotton with a moisture content of 10% or less can be stored about a month without any loss of seed quality, he said. This is lower than the 12% moisture figure previously used as a guide, he said. Foreign matter in cotton is responsible for most of the moisture content in storage, Lalor said, but harvesting early in the morning, in fog or shortly after rains can bring unneces-

sary moisture into a cotton storage module. Lalor said new module building equipment will produce longer, higher, denser and heavier modules of cotton for storage than are now common, but these changes are not anticipated to create any new problems. Excessive moisture content first causes damage to seed quality, he said, then to lint.

While Lalor talked about problems with high moisture in field-stored modules of unginning cotton, T.S. Shuler, past president of the NCPA and president of the Yazoo Valley Oil Mill Inc. firm in Greenwood, Mississippi, discussed how his plant reversed its usual low-temperature conditioning to reduce refining losses in processing the extremely wet 1984 mid-South cottonseed crop. Heavy rains fell shortly after the 1984 cotton harvest began, followed by high humidity and high temperatures for approximately three weeks. The cottonseed received at oil mills often had more than 20% moisture, Shuler said. At his mill, moisture levels of incoming cottonseed average 12.29% moisture and 3.22% free fatty acid. During the next 12 months, as seed was moved from

storage to processing, the analysis showed average moisture of 10.57% and 4.3% free fatty acid content. The FFA figure was below what had been expected, based on extrapolation of earlier charts showing how fast FFA content could rise in stored cottonseed with high moisture content, Shuler said.

The mill normally operated with low conditioning temperatures to prevent a rise in FFA, but with cottonseed containing more than 2% FFA, this led to large refining losses. After discussions with academic researchers, Shuler's mill hit the high FFA seed with a high temperature as quickly as possible in conditioning, and then went into extraction. Refining losses declined significantly, but oil quality was still below normal, he reported. He urged more research into processing of high moisture/high FFA cottonseed, noting that some seed from the 1985 crop has had FFA levels as high as 33%, although the problem is not as widespread as it was with 1984 cottonseed.

Norman Smallwood of The Core Team in Ankeny, Iowa, discussed the potential for computer process control with oilseeds. He suggested that existing mills seeking a gradual entry into computer process control consider an application with good payback potential and low risk, then expand computer control as the firm gains confidence in using a new system. Computer control would appear to be applicable to cottonseed storage, linter yield and quality, flake thickness control, flake cooking and drying, cottonseed meats pressings, solvent extraction, meal blending, and finally to monitoring total mill performance and material balance information, he said.

Retrofitting to computerize control of a single unit process could cost several thousand dollars, Smallwood said, while installing



Zigrida M. Zarins (left) of USDA's Southern Regional Research Center outlines poster paper on glandless cottonseed to Betty Alford of Texas Woman's University during the 35th Oilseed Processing Clinic in New Orleans.

total computer process control would cost more than a million. Computer control narrows a plant's performance range, providing improved product quality and increased efficiency, he said.

John Farnsworth of Texas A&M University in College Station, Texas, described how expanders increase density of oil-bearing materials, thereby increasing throughput of extractors. Farnsworth said commercial versions are adapted for adding steam as moisture in the expander. The less mechanical work in the extruder, the better results were obtained, he said. In extraction, the material sent through the expander showed less solvent hold-up, which meant less energy was required for desolventizing. There also was improved oil recovery, reduced processing time and improved operating capacity, Farnsworth said. One major disadvantage is that little published information is available on operating conditions, so a newcomer to the equipment has to operate somewhat on a trial-and-error basis.

James McKinnon of USDA's Crop Simulation Research Service at Mississippi State, Mississippi, described practical applications of systems modeling research. McKinnon described how the computerized model was developed. A few seasons ago, the system was being tested at a South Carolina farm where cotton had been planted relatively early. The system indicated the crop had reached maturity earlier than expected and that the farmer could go ahead and apply harvest aid chemicals, which speeds up opening of bolls, and harvest his crop. The grower, more accustomed to a rule-of-thumb that says apply harvest aid chemicals when 50% of the bolls have opened, decided to wait. Rains came, delaying harvest and damaging the crop, McKinnon said, and the grower later estimated he would have saved 9,000 bales of cotton by following the computer cue. The next year another farmer waited, despite a ready-for-harvest signal from the computer, and again ran into bad weather that cut yield by an estimated 900 pounds of lint an acre and also reduced quality. McKinnon said the modeling work

should be viewed as a decision-support system. Computer software is expected to be available for general release in two to three years, he estimated.

Other papers at the conference included the outlook for value of cottonseed hulls by Elmer E. Short of Sofico in Memphis, Tennessee, and effects on cottonseed quality of breeding cotton for increased resistance to environmental and biological factors by R. J. Kohel of the

USDA Cotton and Grain Crops Research Laboratory in College Station, Texas. There were also three poster presentations by staff members at USDA's Southern Regional Research Center in New Orleans: polysaccharides of glandless cottonseed flour, by Z. M. Zarins; measuring respirable dust and trash contents of cotton with cotton particulates analyzers, by L.B. DeLuca; and inhibition of aflatoxin formation by alantolactone,

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by F.W. Parrish.

The clinic is sponsored each year by the Mississippi Valley Oilseed Processors Association and the SRRC. Approximately 90 persons registered for the event. Those interested in obtaining reprints of specific talks should write to: Reprint Office, Southern Regional Research Center, P.O. Box 19687, New Orleans, LA 70179.

India reduces oil allocation

The Indian government has moved to reduce the amount of imported vegetable oils used in vanaspati by 10%. The government told manufacturers they could use up to 30% of imported edible oils obtained at a price of 9,500 rupees; the previous limit was 40%. A year ago vanaspati manufacturers were allowed to meet 95% of their oil requirements with imported oils; the allowance was reduced to 40% earlier this year. The government will still permit up to 40% imported oils, but imported oils above the 30% level will cost manufacturers 13,000 rupees per metric ton.

In a related move, the government raised the import tax on vegetable oils to 45% from 5%.

The permissible level of domestic expeller mustardseed/rapeseed oil in vanaspati was raised to 30% from 20%, and a maximum level of 10% of solvent-extracted mustardseed oil was set. The various changes are designed to promote domestic oilseed production and reduce dependency on vegetable oil imports.

Portugal quota causes concern

The American Soybean Association (ASA) is concerned that a European Economic Community (EEC) plan to impose quotas on soybean imports by Portugal and on domestic soybean oil consumption in Portugal might eventually threaten the U.S. soybean market elsewhere in Europe.

As part of an agreement to join the EEC, Portugal had to agree to limit soybean imports and domestic vegetable oil consumption effective March 1. According to "Soybean Update," ASA's weekly newsletter, Portugal had been expected to import 750,000 metric tons (MT) of soybeans this year, but the planned restrictions could lower that figure to 400,000 MT. Oil consumption would be restricted to 40,000 MT, down 25% from the 55,000 MT

currently consumed annually by the Portuguese. According to a U.S. Department of Agriculture report, a Portuguese official who works on EEC-related oilseed matters says that Portugal previously did not have any quantitative restrictions on oilseeds and products, but the commission seemed to think Portugal did.

ASA is wary that similar restrictions might be proposed for other EEC members. Soybean and soy products have entered the EEC duty-free and under no volume restrictions for several decades, but some EEC officials have proposed limitations or tariffs as a way to increase consumption of domestic fats and oils, and to raise funds to help finance other agricultural support programs. The EEC currently represents a \$3.5 billion market for U.S. soybean growers.

ADM names tech team

The Refined Oils Division of Archer Daniels Midland Co. has established a four-member technical management team for ADM's seven U.S., Canadian and European vegetable oil refineries. The members are Edward J. Campbell, technical director; Ron Sleeter, manager of research and analytical services; Jerry Mayfield, general manager of vegetable oil refineries, and Norm Heins, manager of technical and customer services. The team was organized to coordinate ADM's production, quality and research management on an international basis.

French set export record

Bumper 1984 and 1985 rapeseed crops, a corresponding rise in rapeseed oil production and strong foreign demand helped push French rapeseed oil exports to a record high for calendar year 1985. France exported 281,000 metric tons of crude rapeseed oil, a 37% increase over 1984.

Erratum

The following is a corrected version of Abstract 103, which appeared incorrectly on page 420 in the April 1986 issue of the journal.

NONIONIC ALKYL POLYGLYCOSIDES—UNIQUE SURFACTANTS. N.F. Borys, A.D. Urfer and G.M. Verboom, A.E. Staley Mfg. Co., Decatur, IL.

Alkyl polyglycosides are a unique class of nonionic surfactants. While known as laboratory curiosities for many years, they can now be economically manufactured on a commercial scale. Alkyl polyglycosides are produced by the glycosidation of primary or secondary alcohols. Feedstock flexibility of using either synthetic or natural alcohols combined with a stable carbohydrate source ensures attractive long term economics. The physico-chemical properties of alkyl polyglycosides differ from conventional nonionic surfactants. Surface and interfacial tensions are very low while acid, caustic and electrolyte stability are excellent. As a result, they can be used in areas historically inaccessible to conventional nonionics. In existing nonionic surfactant applications, alkyl polyglycosides demonstrate additional performance benefits. Physical properties of alkyl polyglycosides which have direct interest to the detergent industry such as wetting and biodegradability will be reviewed.