• *Fats and Oils Report*

Coconut Oil Achieves New Status

EVEN THOUGH EVERYONE KNOWS that coconuts are edible, the oil derived from crushing coconut meat (copra) has traditionally been used mostly as an industrial oil in the United States. Hence it was even thought of as an inedible oil. As recently as 1965 industrial use outranked food use in this country by 2 to 1, a ratio which has been common as far back as records go. Most non-food use is in manufacture of soap, glycerine, fatty acids, etc. In 1967, however, edible use gained on industrial use with some months showing an equal ratio of 1 to 1.

Europe, which relies heavily on imported oils of various sorts, has accepted coconut oil as an important component of margarine, shortening and other edible uses. The United States, on the other hand, has ample domestic production of other edible oils.

Why then is coconut oil suddenly assuming new status as an edible oil in the United States? The answer is in a new dairy product called "filled milk." This product is milk from which most of the butterfat has been removed and replaced by vegetable oil. The oil usually used is coconut oil. The result is a milk product which has better keeping qualities, costs less, and is lower in saturated fats which are usually connected with arteriosclerosis. Taste is said to be virtually identical with natural whole milk. It is the taste factor which makes coconut oil preferable to other oils. Meanwhile, research is being conducted to find ways in which soybean and other oils may be deodorized to obtain equal results. Some success has been reported in recent weeks.

Another feature which has favored use of coconut oil is geography. Philippine coconut oil enters the United States under preferential tariff, thus making that country our only source of supply. Filled milk has enjoyed its widest acceptance in Western states. These states are most remote from regions where soybeans are grown and closest to the Philippine Islands. Thus, all factors considered, it is natural that coconut oil should be used to fill this demand.

Supply and Price

But what of supply and price in face of this added demand? Supply has been tight and price has risen sharply. With closure of the Suez Canal last summer the European market stiffened because of higher freight rates. Domestic consumption has risen noticeably in the countries where coconuts are grown. Dry weather in the Philippines and elsewhere in the first half of 1967 caused reduced production. Typhoons and cyclones also took their toll. (It takes one year for a coconut to mature.) And in the last half of the year five ships laden with capra met misfortunes on the high seas en route to Europe and Canada. Collisions, fire and water damage reduced supplies by 20,000 tons.

These concurrent events have forced a higher value on the available supply. From October to February the price of crude coconut oil at the Pacific Coast of the United States has advanced 5.5 cents from 14.5 to 20 cents. A situation as volatile as this quite naturally is cause for concern to copra crushers, importers and consumers. It has prompted some to search for ways to protect themselves against loss when dealing in a commodity which has experienced such rapid inflation, for it requires 45 to 60 days' time lapse from date of purchase of copra or coconut oil in the Philippines until the date of sale of coconut oil in California. During this time there may be a price drop against which some type of hedge would be most desirable. Even in times of less volatility the risk of loss during ownership is a very real concern.

Soybean Oil Futures

There are ways in which protection can be secured by offsetting transactions in soybean oil futures transactions. But there are also times when, by improper use of futures, there would be no protection and, in fact, greater losses would be encountered than when no futures positions were undertaken. These diverse situations appear to be readily discernible, based on the past five years' experience (see Fig. 1).

Most usable of several approaches for processors would be to sell distant months of soybean oil futures in October in an amount about equal to the amount of coconut oil to be merchandised during the season. (The soybean oil season is October to September.) Then, as the season progresses SBO futures would be bought back as coconut oil is sold.

Caution: This method works only when distant futures are priced higher than nearby months. It does not work when distant months are priced lower than nearby months, such as 1965–66. In the latter situation it is advisable to buy futures before acquiring copra or coconut oil and then, as the cash article is obtained, sell that futures contract and buy another in a more distant month. This process would be repeated as long as the distant months are lower-priced than nearby months in the same season.

Another technique involves cash transactions between buyer and seller at a specified premium or discount to the SBO futures. This is called "basis" trading. For example: A processor has acquired copra at a price which, with costs added, will yield coconut oil at 12.00 cents a pound while, July SBO futures are trading at 10.00 cents a pound. He sells futures at that price and he has established a basis of 2.00 cents or 200 points over July. He then finds a buyer for coconut oil who is willing to pay 250 points over July at a date to be fixed later. If futures decline 50 points in the meantime the buyer and seller both benefit because the buyer gets his oil at 12.00 cents instead of 12.50 and the seller buys back his futures at 50 points less than he paid. If futures increase 50 points it is still possible for the buyer to pay only 12.50 by making proper arrangements for the seller's futures to be bought back at the previously agreed upon price. This technique can also be used by a buyer of coconut oil who has bought futures in anticipation of needs. And if both buyer and seller have futures positions in the same month, there is provision for the two to exchange futures at the same price in an "ex-pit" transaction, thus being assured that both futures positions are liquidated at the same price.

These "basis" pricing techniques may reduce the opportunity for larger profit than if no futures transactions were involved, but they do also reduce risk of adverse price action over the time involved.

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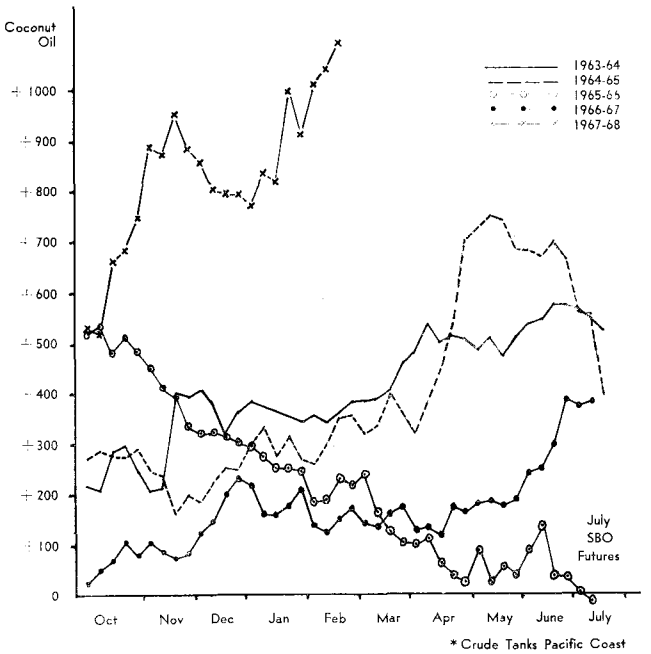

FIG. 1. Coconut oil price (crude tanks, Pacific Coast) vs. July SBO futures.

squirrel monkeys (*Saimiri sciureus*). Brachial plexus myelin contained a larger amount of sphingomyelin and smaller amounts of cholesterol, lipid galactose, ethanolamine phosphoglyceride, choline phosphoglyceride, and alk-1-enyl ether than spinal cord myelin when compared as ratios to total lipid phosphorus. The peripheral nervous system myelin had a higher proportion of protein. All of these differences were statistically significant. Thus peripheral nervous system myelin and central nervous system myelin differ in protein content and lipid composition in this subhuman primate.

SPIN-LABELLED LIPID-PROTEIN COMPLEXES. M. D. Barratt, D. K. Green and D. Chapman (Unilever Res. Lab., The Frythe, Welwyn, Herts, Great Britain). *Biochim. Biophys. Acta* 152, 20–7 (1968). A study of the isooctane-soluble complexes formed between mixtures of phospholipids and some basic proteins has been made using the technique of spin-labelling. The ESR spectra of the spin-labelled proteins (cytochrome c, lysozyme, histone, protamine and poly-L-lysine) were observed for aqueous solutions of the proteins, aqueous dispersions of the lipid-protein complexes and isooctane solutions of the same complexes. An ionic combination of phospholipids and basic proteins was directly confirmed by the results. The freedom of motion of the spin-label molecules with respect to the protein depends on the hydrophobic property of the phospholipid chains, which, because they are not directly involved in the complex formation, take up a conformation dependent upon the solvent. Calculation of the reorientation correlation times of the labelled complexes in isooctane suggests the predominant existence of a complex formed between an individual protein molecule and several phospholipids.

ENZYMATIC HYDROLYSIS OF SPHINGOLIPIDS. VII. HYDROLYSIS OF GANGLIOSIDES BY A NEURAMINIDASE FROM CALF BRAIN. Z. Leibovitz and Shimon Gatt (Dept. of Biochem., The Hebrew Univ.-Hadassah Med. School, Jerusalem (Israel)). *Biochim. Biophys. Acta* 152, 136–43 (1968). A neuraminidase has been partially purified by extracting calf brain acetone powder with Triton X-100. It has an optimal pH at 4.4 and hydrolyzed tri- and disialogangliosides as well as "hematoside." It did not hydrolyze monosialoganglioside, sialyllactose nor a sialic acid-containing glycoprotein. The sialic acid residue of "Tay-Sachs' ganglioside" could be split off only after previous treatment with β-N-acetylhexosaminidase. A pathway for the total degradation of brain gangliosides by the neuraminidase and four other brain enzymes is presented.

• Drying Oils and Paints

HYDROGENATED CASTOR OIL-ORGANIC DIISOCYANATE RHEOLOGICAL AGENT. F. M. Frank. *U.S. 3,360,389*. A composition is claimed, comprising: (a) a hydrogenated castor oil-organic diisocyanate reaction product, the diisocyanate being selected from the group consisting of arylene, polyalkylene, alkylene, alkylidine and cycloalkylene diisocyanates and constituting 2 to 12% by wt. of the reaction product, and (b) an emulsifiable polyethylene wax having molecular wt. 1500 to 6000, acid number from 0 to 50, saponification number from 9 to 25, a penetration hardness from 1 to 6 and a melting point from 208 to 221F, the polyethylene wax being present in an amount up to about 80% by wt. on the total weight of the composition.

PROCESS OF PRODUCING SOLUTIONS OF METAL SOAPS OF EPOXIDIZED FATTY ACIDS IN AN ALKYL PHENOL. A. Szczepanek and G. Koenen (Chem. Fabrik Hoesch K. G.). *U.S. 3,365,403*. A process for producing solutions of metal soaps of epoxidized fatty acids in an alkyl phenol is claimed, comprising the steps of: (a) mixing an epoxy compound obtained by epoxidizing a fatty acid such as oleic, palmitoleic, ricinoleic or linoleic acid, or a lower alcohol ester of any of these acids, or a glycerol ester of the same fatty acids, castor oil or linseed oil; (b) with a soap-forming metal compound selected from the group consisting of oxides, hydroxides, carbonates or salts of an organic acid of alkali metal, alkaline earth metal, cadmium, zinc, lead, nickel, cobalt, manganese, copper, beryllium, tin, cerium and bismuth. The reaction is carried out at a temperature below 100C in an alkyl phenol medium until the metal soap formation is complete, at which point volatile reaction products are distilled off under vacuum.

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• *New Literature*

DREW CHEMICAL CORPORATION is marketing Co-Freez, a pre-emulsified vegetable fat for filled dairy products. Co-Freez has many of the same properties as milk fat and can be used equally well with milk solids non-fat from fluid, condensed skim milk, non-fat dry milk or any combination of these, thus simplifying imitation dairy product formulating. (Dairy Division, Drew Chemical Corporation, 416 Division St., Boonton, N.J. 07005.)

New literature on the Series RD5 Multipoint Recorder is available from BARBER-COLMAN. This potentiometer-type instrument is only 8⅞ in. wide and 10½ in. high. Yet, it makes use of a full 6½ in. chart and handles up to 12 measurement points. Solid state circuitry is used. The measuring circuits are fully shielded and guarded. Common mode and series mode rejection is high. Three different printout configurations are incorporated. A simple screw driver adjustment makes it easy to change from one type of printout to another. (Bulletin 1221.5 DB 3-3. Barber-Colman Company, Industrial Instruments Division, Rockford, Ill. 61101.)

"Microorganisms: Concepts in Qualitation and Quantitation," by Seymour Kirschner, of the GELMAN INSTRUMENT COMPANY, Ann Arbor, Michigan, is a survey and review of the various methodologies in microbiology. Reprints of the paper, originally presented before the 53rd annual meeting of the Chemical Specialties Manufacturers Association, are now available upon request. (Information Department, Gelman Instrument Company, P.O. Box 1448, Ann Arbor, Mich. 48106.)

A new, 6-page technical bulletin on a series of rotameters that operate at pressures up to 5000 psi has been announced by BROOKS ISTRUMENT DIVISION OF EMERSON ELECTRIC CO. Designated the Series 1400 High Pressure Indicating Rotameters, these instruments are intended for services where the advantages of a glass tube rotameter would normally be ruled out because of pressures above the safe operating level for glass. Brooks Series 1400 Rotameters feature an equalizing system that balances the pressure on the tube wall and permits operation in a previously prohibitive pressure range. (Hatfield, Pa.)

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Conclusion

There are ways in which soybean oil futures can be used by the coconut oil industry for protection and perhaps additional profit. But it should be remembered that this is only a simulated hedge and not a true hedge because: 1) Coconut oil is not deliverable on SBO futures contracts. 2) The two oils are subject to diverse dynamic influences. 3) Coconut oil prices are for California or other points and SBO futures are based on Decatur, Illinois, making this an out-of-position situation. 4) Prices of SBO are largely controlled by governmental actions and the relationship of soybeans and soybean meal prices.

Thus use of SBO futures in this situation must be thought of in terms of one speculative position offsetting another, rather than as true hedges. But, as we have demonstrated, there is a reasonable degree of predictability which can offer reduced risk.

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