

Speculative Open Interest in Soybean Futures

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Open interest is one of the important indicators used in analysis of technical aspects of futures markets. To some degree it is related to fundamental conditions, i.e., large production may be expected to reflect large open interest if at the same time substantial price movement is possible. Conversely, large production may result in small open interest if price fluctuation is anticipated to be small due to government price support mechanisms, for example.

Beyond this relationship to fundamentals, however, open interest is primarily to technical factor. By definition, open interest is a measure of the size of unliquidated long and short positions in the futures market. For soybeans and grains it is expressed in number of bushels. For most other commodities, including soybean oil and soybean meal, it is expressed in number of contracts. The figures for the end of trade on a given day are released on the following market day. Sometimes this report may influence trading activity depending on the magnitude of change in open interest.

For the open interest to show an increase there must be both new long and new short positions established. Likewise for the open interest to show a decrease there must be both liquidation of longs and covering of shorts. The open interest would not change if, for example, there were new purchases made from sellers who were liquidating a long position. Likewise, open interest would not change if new short positions were sold to previous shorts who were covering their position. This explains one reason why volume of trade is usually larger than open interest change.

Volume of trade is another technical factor which is usually considered in conjunction with open interest. Volume figures are released with the open interest. Another obvious reason why volume is much larger than open interest changes at the end of the day is because of the participation of "day traders." These are speculators who initiate and liquidate positions several times during the day and seldom carry a position over night. It is the "day traders" who provide the necessary liquidity to futures markets so that commercial trade interests may always find a buyer when they are ready to sell, or a seller when they are ready to buy. (Volume is of no significance in this study, but is mentioned by way of explanation.)

Open interest changes at the end of the day are watched for a signal of change in trader confidence in the market, but one day's results must not be afforded too much significance unless the change is usually large. On the other hand, several days' change in the same direction merits considerable attention. Such a situation represents collective attitude which cannot be ignored.

Once a month the government releases a report which shows types of traders holding open positions in the market. This is analyzed by the Commodity Exchange Authority (CEA) and represents a profile of the open interest in the regulated commodity futures. It is usually released about the eleventh of the month for the close of business on the last day of the preceding month. It shows long and short positions of large speculators, large hedgers, large spreaders and small speculators and hedgers combined. By observing changes in these categories from the previous month, some judgment may be formed as to change in market sentiment by the various participants. Of course, price action must also be related to these changes. Furthermore, market action must be observed from the first of the month until the date the report is released. The market profile may have changed significantly during the intervening time.

The purpose of this study is to see if a relationship exists between the market position of large speculators and subsequent price action. Large speculators are considered to be representative of the market sentiment of speculators in general because small speculators frequently

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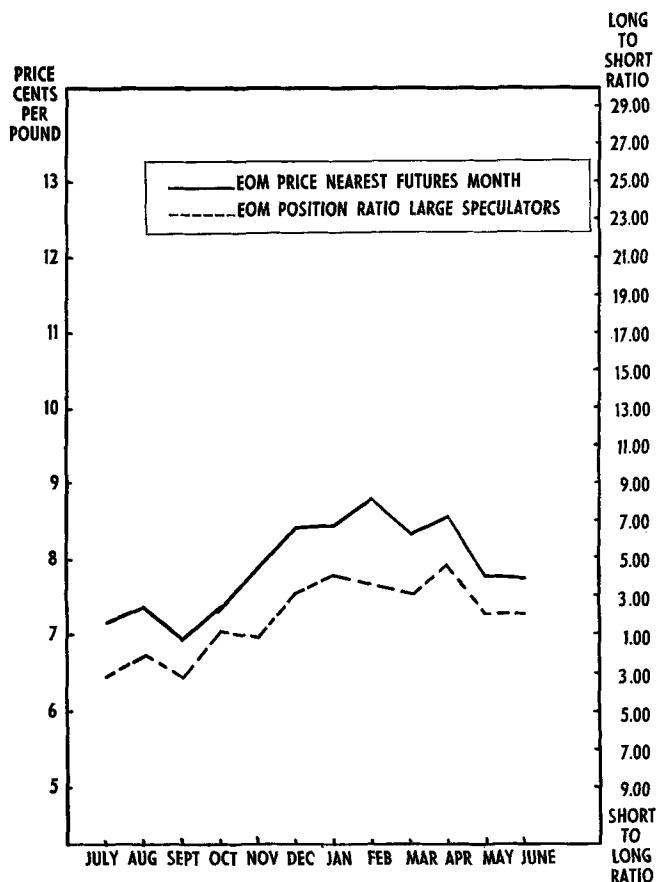


Fig. 1. 1968-69 Soybean Oil

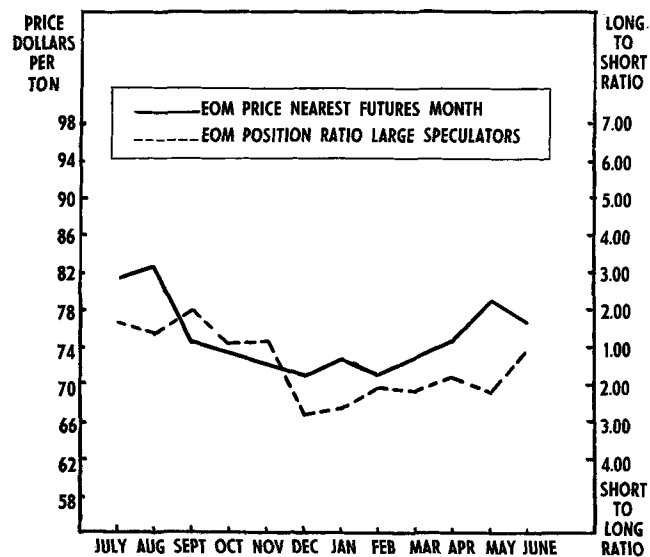


Fig. 2. 1968-69 Soybean Meal



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(Continued from page 223A)

(Groupe de Lab. du C.N.R.S., 2 à 8, Rue Henry Dunant, 94, Thiais, France). *Chem. Phys. Lipids* 3, 11-28 (1969). The cryothermograms of the six pure triglycerides derived from palmitic and stearic acids have been determined by DTA. As well as revealing itself to be an excellent method of distinguishing between the positional isomers of the mixed triglycerides, DTA also showed that cooling triglycerides at a rate of 1.2C/min yielded an α_L form (except PSP), which on subsequent heating gave the β_L form with the symmetrical triglycerides, and the β'_L form with the non-symmetrical triglycerides. In the process of cooling melted triglycerides, various forms may appear depending on the rate of cooling. The symmetrical triglycerides, with the exception of SSS, give stable forms more easily than the non-symmetrical triglycerides. Further, a sub- β'_L form can be detected in the case of PSP, PSS and SPP.

LIPIDS OF STREPTOMYCES SIOYAENSIS. V: ON THE 2-HYDROXY-13-METHYL-TETRADECANOIC ACID FROM PHOSPHATIDYLETHANOLAMINE. J. Kawanami, A. Kimura, Y. Nakagawa and H. Otsuka (Shionogi Res. Lab., Shionogi and Co., Ltd., Fukushima-ku, Osaka, Japan). *Chem. Phys. Lipids* 3, 29-38 (1969). Phosphatidylethanolamine from *St. sioyaensis* afforded a double spot on a thin-layer chromatogram, typical of most glycosphingolipids from animal tissue. They were phosphatidylethanolamines one of which had only non-hydroxylated fatty acids and the other hydroxy fatty acids in addition to non-hydroxylated fatty acids, respectively. The distribution of the fatty acids was studied by hydrolysis with snake venom phospholipase A. Hydroxy fatty acids were located in the β -position of the glycerol moiety, differing from the results for *Brucella abortus* phospholipids in which location in the α -position has been reported. The main hydroxy fatty acid was purified by preparative gas-liquid chromatography. The structure of the hydroxy fatty acid was analyzed by oxidation with lead tetraacetate, proton magnetic resonance and mass

spectrometry, etc. From these results, it was shown that the main acid was 2-hydroxy-13-methyltetradecanoic acid.

FATTY ACIDS. PART 19. CONVERSION OF ALKENOIC ACIDS TO ALKYNIC ACIDS BY BROMINATION-DEHYDROBROMINATION. F. D. Gunstone and G. M. Hornby (Dept. Chem., Univ. St. Andrews, North Haugh, St. Andrews, Scotland). *Chem. Phys. Lipids* 3, 91-7 (1969). Alkynoic acids (including octadec-10-yneoic, hendec-10-yneoic, and 12-hydroxy-octadec-9-yneoic) can be prepared from the cis alkenoic acids by bromination followed by dehydrobromination with sodium in liquid ammonia or with DBU (1,5-diazabicyclo(5.4.0)undec-5-ene). With other bases extensive migration of the unsaturated centre was observed and no satisfactory procedure for converting trans alkenoic acids to alkynoic acids without migration was discovered. Both types of alkenoic acids could be converted to ene-bromides, sometimes in high yield, with DBU and DBN (1,5-diazabicyclo(4.3.0)non-5-ene).

PHOSPHOLIPIDS OF MARINE INVERTEBRATES. V. E. Vaskovsky and E. Y. Kostetsky (Inst. Biol. Active Substances, Siberian Dept. of the Acad. of Sci. of the URRS, Vladivostok 22, USSR). *Chem. Phys. Lipids* 3, 102-5 (1969). The quantitative and qualitative phospholipid composition is reported for all the main phyla of the marine animals. No simple correlation was found between the phospholipid composition and taxonomic system of marine animals. Unusual phospholipids were shown in a great number of invertebrates.

CHARACTERIZATION OF THE STRUCTURE OF A 4-METHYL- $\Delta^{8,24}$ -CHOLESTADIEN-3 β -OL ISOLATED FROM RAT SKIN. A. Sanghvi (Dept. of Biochem., College of Med. Sci., Univ. of Minnesota, Minneapolis, Minn. 55455). *J. Lipid Res.* 11, 124-30 (1970). A new sterol has been isolated from the skin of rats treated with triparanol. Its chromatographic behavior on silicic acid-Celite columns and in gas-liquid chromatographic systems indicated it to be a 4-methyl- $\Delta^{8,24}$ -cholestadien-3 β -ol. The specific rotation, the delayed color reaction with Liebermann-Burchard reagent and the nuclear magnetic resonance (NMR) data support the $\Delta^{8(9)}$ -unsaturation. Previous workers have shown that triparanol treatment results in an accumulation of Δ^{24} -unsaturated sterols in animal tissues. Consonant with this observation, the infrared, NMR and mass spectrometric data confirm the presence of a C-24(25) unsaturated side chain in this sterol.

Short Course on Processing and Quality Control of Fats and Oils

Are you up-to-date in the principles, practices and latest innovations in the processing of edible oils? If you "do your thing" in processing (are you a dial twister?) or quality control (will that customer accept our last tank of oil?), you will be happy to hear that plans for the next AOCS Short Course on Processing and Quality Control of Fats and Oils are well underway. This very popular Short Course, last presented in 1966, will be held September 23 through 25 at Michigan State University, the week before the Joint AOCS-ISF Meeting in Chicago.

The objectives of this Short Course will be to provide each participant with:

- Review and/or new information on the chemistry and physics of edible oils which are pertinent to an understanding of their processing;
- fundamental principles and commercial practices in all of the major edible oil unit operations; and
- principles and practices in statistical quality control and involuntary operations.

These topics will be covered by recognized industrial experts representing food, consulting and equipment companies. Wherever possible, latest innovations in particular fields will be presented, with emphasis on continuous processing. An evening session devoted to the impact of federal regulations on refinery operations is also planned. This course will be of particular value to technical people who are new to the edible oil industry and will also serve as an excellent refresher for our most experienced people.

Co-chairmen for this Short Course are Leroy Dugan (arrangements), Michigan State University, and Bob Hlavacek (program), Hunt Wesson Foods. Registration, including meals and lodging will be \$140.00 for the three-day course. Early reservations may be directed to Dr. Dugan, Michigan State University, East Lansing, Michigan 48823. A semi-detailed program will be available in the July issue of the journal. Please watch for this announcement.

GEL PERMEATION CHROMATOGRAPHY OF NEUTRAL HYDROXY LIPIDS ON SEPHADEX LH-20. M. Calderon and W. J. Baumann (Univ. of Minn., The Hormel Inst., Austin, Minn. 55912). *J. Lipid Res.* 11, 167-69 (1970). Gel-permeation chromatography on Sephadex LH-20, using ethanol as eluent, permits the resolution of neutral hydroxy lipids according to molecular size. The influence of molecular shape, functional groups, chain lengths and degree of unsaturation, as well as the effect of the eluent on the elution pattern are discussed. The usefulness of the method for the separation of classes of hydroxy lipids, which cannot be resolved by other chromatographic procedures, is demonstrated. Examples include the separations of 1,2- and 1,3-diglycerides from long-chain alcohols and of alkyl ethanediol monoethers from cholesterol.

FLUORIMETRIC DETERMINATION OF SPHINGOSINE AND ITS APPLICATION TO NATURAL MIXTURES OF GLYCOSPHINGOLIPIDS. I. Coles and G. M. Gray (The Lister Inst. of Preventive Med., Chelsea Bridge Road, London, S. W. 1, Eng.). *J. Lipid Res.* 11, 164-66 (1970). A sensitive estimation of sphingosine, by measurement of the fluorescence of a complex formed with 1-naphthylamino-4-sulfonic acid, is described. The practical range is 5-35 nmoles sphingosine. The method is used to estimate, in terms of sphingosine, amounts of ceramide and glycosphingolipids. The isolation of microamounts (5-30 μ g) of individual glycosphingolipids from a mixture and their quantitative estimation is described. The percentage composition of a glycosphingolipid mixture from the kidneys of adult C57/BL male mice is given.

GAS-LIQUID CHROMATOGRAPHY-MASS SPECTROMETRY OF SYNTHETIC CERAMIDES CONTAINING 2-HYDROXY ACIDS. S. Hammarstrom, B. Samuelsson and Karin Samuelsson (Dept. Med. Chem., Royal Vet. College, Dept. Neurol., Karolinska sjukhuset, Stockholm, Sweden). *J. Lipid Res.*, 11, 150-57 (1970). Ceramides containing either sphingosine or sphinganine and one of the 2-hydroxy acids, 14h:0, 16h:0, 18h:0, 20h:0, 22h:0, 24h:0, and 26h:0 were prepared and separated by gas chromatography as the 1,3,2'-tri-O-trimethylsilyl derivatives. Mass spectrometric analyses of these derivatives showed that the

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AOCS-ISF Announces Computer Symposium for Chemists

A computer symposium designed especially for chemists includes descriptions of computer systems and applications in various chemical fields. The symposium is part of the AOCS-ISF World Congress to be held September 27-October 1, 1970, at the Conrad Hilton Hotel in Chicago, Illinois, USA.

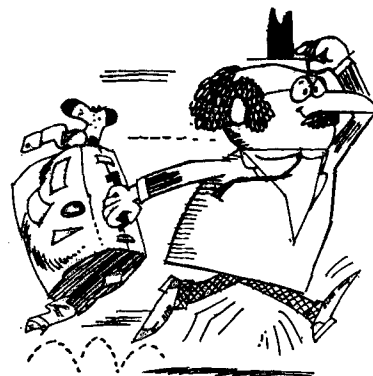
Computer systems from programmable calculators and desk top computers to time-sharing with a large computer complex and including dedicated laboratory computer systems will be described for chemists by authorities in these fields. Applications in spectroscopy, chromatography, fatty acids, foods, pesticides, lipids and other areas will be presented by individual researchers from Australia, Europe and North America. Data acquisition, instrument interfacing and laboratory automation will be discussed.

The symposium is designed for the chemist who is contemplating the use of computers or who may be using one computer system and needs organized, factual information presented in a concise manner to enable him to choose the best solutions for his individual requirements. The World Congress is sponsored jointly by the American Oil Chemists' Society and the International Society for Fat Research.

Abstracts of the symposium papers are available prior to the meeting. Those interested in attending should contact the symposium chairman, Leonard H. Ponder, Research Chemist, American Enka Corporation, Enka, North Carolina 28728, USA.

The program will include:

- Introduction to Modern Computers: Development, Terminology, Uses, James Brown, Managing Editor, Auerbach Standard EDP Reports.
- An Off-Line System for Data Acquisition and Analysis, R. C. Master, Engineering Manager, Analytical Chemistry, Nuclear Data.
- Time Sharing Today, J. G. Rude, Chairman of the Board, Call-A-Computer.
- The Desk Top Computer: I. General Capabilities; II. Applications in a Clinical Chemistry Laboratory, W. R. Dito, Director of Laboratories, Pontiac General Hospital.
- Application of a Desk Top Computer to Chemistry, A. P. Damoglou, Research Scientist, CSIRO (Australia).
- A Computer Approach Toward Automation of a Chemical Services Laboratory: I. Instrument Support, E. L. Schneider, Manager, Ralston Purina Company, and Arvid Munson.
- A Computer Approach Toward Automation of a Chemical Services Laboratory: II. Management Information, Arvid Munson, Manager, Ralston Purina Company, and E. L. Schneider.
- A Computerized Search System for Infrared Spectral Data, B. M. Vasta, Chief, Chemical Compound Information, FDA.
- Use of the Computer as a Technical Service Tool in Pesticide Formulations, B. F. Fay, Laboratory Supervisor, Atlas Chemical Industries.
- Computer Processing of Gas Chromatographic Data: Analysis of Fatty Acid Mixtures Using an Off-Line Magnetic Tape System, G. J. Nelson, Lawrence Radiation Laboratory.
- Collection, Storage and Processing Gas Chromatographic Data by Digital Integrator-Paper Tape Punch Computer System, H. E. Pattee, Research Chemist, Market Quality Research, USDA, and J. A. Singleton, Chemist.
- Digital Registration on Magnetic Tape of Data From 15 Gas Chromatographs, F. Woutman, Chemist, AKZO Research Laboratories, (The Netherlands).
- Applications of Nonlinear Programming to Detergent Formulations, E. C. Steinle, Project Scientist, Union Carbide Corporation, C. D. Hendrix, Research Scientist, and R. R. Fields, Chemist.
- Improved Software for GC Automation Via the Time Share Computer, G. D. Dupre, J. M. Gill and J. R. Hubbard, Vidar Corporation.



Meetings

AOCS National Meetings

Sept. 27-Oct. 1, 1970—Chicago, Conrad Hilton Hotel.

May 2-6, 1971—Houston, Shamrock Hotel.

Oct. 2-6, 1971—Atlantic City, Chalfonte-Haddon Hall Hotel.

AOCS Section Meetings

Northeast Section—June 2, 1970, Whyte's Restaurant, New York.

Other Organizations

June 7-12, 1970—Fourth ISA Process Analytical Instrumentation Short Course, Temple Buell College, Denver, Colorado.

June 9-12, 1970—14th International Conference on the Biochemistry of Lipids, Lund, Sweden.

June 21-26, 1970—73rd Annual Meeting of the American Society for Testing and Materials, Royal York Hotel, Toronto, Canada.

June 23-25, 1970—Fourth International Sunflower Conference, Sheraton-Peabody Hotel, Memphis, Tenn.

June 22-27, 1970—14th International Congress of Esthetics and Cosmetology, Amsterdam, The Netherlands.

July 7-9, 1970—International Association of Seed Crushers, the Royal Garden Hotel, London, England.

July 26-August 1, 1970—5th International Water Pollution Research Conference, San Francisco, California.

Aug. 9-14, 1970—Third International Congress of Food Science and Technology, Washington, D.C.

Aug. 23-25, 1970—41st Annual Meeting of the National Soybean Processors Association, Fairmont Hotel, San Francisco, Calif.

Sept. 20-23, 1970—International Conference on the Science, Technology and Marketing of Rapeseed and Rapeseed Products, Chantecler Hotel, St. Adele, Quebec.

Oct. 11-14, 1970—Ninth Annual Meeting, ASTM Committee E-19 on Chromatography, Brown Palace Hotel Denver, Colorado.

Oct. 14-17, 1970—International Symposium on Computer Applications in Engineering Sciences, Istanbul Technical University, Istanbul, Turkey.

Oct. 12-15, 1970—84th Annual Meeting of the Association of Official Analytical Chemists, Marriott Motor Hotel, Twin Bridges, Washington, D.C.

Oct. 26-29, 1970—ISA 25th Annual Conference and Exhibit on Instrumentation, Systems and Automatic Control, Civic Center, Philadelphia, Pa.

* Oct. 26-28, 1970—17th Spectroscopy Symposium and Exhibition of Instrumentation, Skyline Hotel, Ottawa, Ontario, Canada.

* Oct. 26-30, 1970—Fourth Materials Research Symposium, National Bureau of Standards, U.S. Department of Commerce, Gaithersburg, Md.

* Nov. 2-4, 1970—Technicon International Congress on Automated Analysis, New York Hilton Hotel, New York.

*Additions to previous calendar.

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ions formed on electron impact can be used to determine unequivocally the structures of the long-chain base and the fatty acid residue in the ceramide. Proposed structures of ions and the mechanisms of reaction of their formation are supported by mass spectra of homologous derivatives, by deuterium labeling experiments and by high-resolution mass spectrometry.

SPECTROPHOTOMETRIC DETERMINATION OF PROTEIN AND FAT IN MILK SIMULTANEOUSLY. S. Nakai and Anh Chi Le (Dept. of Food Sci., Univ. of British Columbia, Vancouver 8, B.C., Canada). *J. Dairy Sci.* 53, 276-78 (1970). A clear solution was obtained by adding 5 ml of 97% acetic acid to 0.05 ml of whole milk. The protein was calculated from the absorbance at 280 m μ . Turbidity depending on fat content was developed thereafter by adding 2.5 ml of a solution containing 20% urea and 0.2% imidazole. The fat was determined from absorbance at 400 m μ with a round cuvette. This method does not require prehomogenization of milk for turbidity measurement, because of a dispersing effect by the combination of reagents. Application of this method to other food products is suggested.

THE GLYCERIDE STRUCTURE OF SAPIUM SEBIFERUM SEED OIL. W. W. Christie (Hannah Dairy Res. Inst., Ayr, Great Britain). *Biochim. Biophys. Acta* 187, 1-5 (1969). *S. sebiferum* seed oil is known to contain some tetraester triglycerides. The oil was separated by preparative thin-layer chromatography into normal triglycerides (76.9%) and estolide (23.1%) components which were each subjected to stereospecific analysis procedures. In the normal triglycerides, saturated and monoenoic fatty acids were in greatest abundance in the 1-position, while linoleic and linolenic acids (18:3 ω 3) were in greatest abundance in the 2- and 3-positions, respectively. The estolide fatty acids were entirely in the 3-position of the tetraester fraction. The fatty acid compositions of the 1- and 2-positions of the two components of the oil were very similar.

THE EFFECT OF TECHNOLOGICAL PROCESSING ON THE TOCOPHEROL CONTENT OF RAPESEED OIL. A. Rutkowski and L. Mzyk (Univ. of Agr., Olsztyn, Poland). *Riv. Ital. Sostanze Grasse* 46, 614-6 (1969). The changes in α and γ tocopherol content during industrial extraction and refining of rapeseed oil have been investigated. The results show that refining causes a decrease of about 75% of the tocopherol content initially present in the crude oil, with the largest losses occurring during alkali refining and during bleaching. The ratio of α to γ tocopherol does not change significantly during the refining processes. Thus relative losses of α and γ tocopherols are the same. The concentration of tocopherols in the deodorization condensate is higher than in other waste products of the refining processes. In all these waste products the ratio of α to γ tocopherol is equal to that in the crude oil.

ISOLATION AND CHARACTERIZATION OF THE HYDROPEROXIDES OF METHYL OLEATE, II. I.R. CHARACTERIZATION. M. Piretti (Univ. of Bologna, Bologna, Italy). *Riv. Ital. Sostanze Grasse* 46, 591-601 (1969). The I.R. spectra of methyl oleate hydroperoxide, reduced methyl oleate hydroperoxide and methyl oleate have been obtained in the interval of 2 to 15 μ . Within the range of applicability of Lambert and Beer's law, the extinction coefficients of methyl oleate hydroperoxide have been calculated at $\lambda = 2.82 \mu$ (free OH) and at $\lambda = 2.91 \mu$ (bound OH) in CCl₄ and at $\lambda = 2.85 \mu$ (free OH) in CS₂. The experimental results suggest the possible existence of intramolecular hydrogen bonds in methyl oleate hydroperoxide and in its reduction product.

DEGRADATION OF LINOLEIC ACID DURING FRYING. L. Kilgore and M. Bailey (Mississippi State Univ.). *J. Am. Dietetic Assoc.* 56, 130-2 (1970). The decrease in linoleic acid content of fats used for frying has been studied on samples of safflower oil, cottonseed oil, corn oil and a commercial shortening advertised as being highly unsaturated. The percentage of

linoleic acid (based on total fatty acids) for the fresh fats was: safflower, 72%; corn, 57.2%; cottonseed, 55.5%; and shortening, 30.2%. After the fats had been used for intermittent frying periods totaling 7½ hrs., during which 10 lbs. of potatoes were fried, the percentages of linoleic were: safflower, 69.2%; corn, 51.6%; cottonseed, 49.0%; and shortening, 26.7%. The linoleic acid content of the fat extracted from the tenth pound of potatoes fried was equal to slightly lower than the content in the oil at the end of the 7½ hrs.

NEW FRACTIONATION PROCEDURES IN FATS AND OILS TECHNOLOGY. E. Bernardini and M. Bernardini (Costruzioni Meccaniche Bernardini, Pomezia, Italy). *Riv. Ital. Sostanze Grasse* 46, 607-13 (1969). A novel solvent fractionation process for fats and oils is described, consisting mainly of a solvent phase crystallization with a final filtration, yielding three fractions: one with relatively high I.V., another with relatively low I.V. and an intermediate recycle fraction. Operational data and process information are given.

FATTY ACIDS IN NEWER BRANDS OF MARGARINE. P. Miljanich and R. Ostwald (Univ. of Calif., Berkeley, Calif.). *J. Am. Dietetic Assoc.* 56, 29-30 (1970). The composition of some newer margarine products has been determined. This information is as yet unavailable on the labels of these products and should be useful to dietitians and consumers concerned with their dietary intake of polyunsaturated fatty acids.

FURTHER INVESTIGATIONS ON LEGUMINOSAE SEED OILS. V. Averna, G. Lotti and F. P. Tartaglia (Univ. of Palermo, Palermo, Italy). *Riv. Ital. Sostanze Grasse* 46, 602-6 (1969). The oils extracted from the seeds of herbaceous and arboreal Leguminosae were examined. The data reported, on a total of 15 botanical species, include chemical analysis, fatty acid composition, U.V. and I.R. absorption characteristics.

PREPARATION OF PURE FATTY ACIDS. E. Fedeli, F. Camurati and A. Lanzani (Exper. Stat. for Fats and Oils, Milan, Italy). *Riv. Ital. Sostanze Grasse* 46, 514-9 (1969). The results of experiments on the preparation of high purity fatty acids are discussed. The methods used have been mainly physical (distillation, crystallization, chromatography) to avoid the isomerization which often accompanies chemical treatment of fatty acids.

PREPARATION OF COLORED FATTY COMPOSITION. G. W. Brankamp (Procter & Gamble Co.). *U.S. 3,489,573*. Fats and oils are provided with heat-stable color by incorporating in them water-soluble dyes in combination with particular polyglycerol esters, such as decaglycerol trilinoleate and tetraglycerol monooleate.

HYDROGENATION OF UNSATURATED ALIPHATIC COMPOUNDS. L. P. van't Hof (Lever Bros. Co.). *U.S. 3,489,778*. Unsaturated aliphatic compounds, especially soybean oil, are catalytically hydrogenated by contacting with hydrogen in the presence of a solution of a platinum compound, for instance chloroplatinic acid, and a stannous halide, for instance stannous chloride, in a solvent consisting of a lower dialkyl ether, dialkyl ketone or aliphatic carboxylic acid or its ester.

FATTY EMULSIONS AND THEIR PREPARATION. D. P. J. Moran (Lever Bros. Co.). *U.S. 3,490,919*. Emulsions of edible fats are described, having a semi-solid plastic fat as a continuous phase and a stabilized dispersion of liquid oil in an aqueous medium as the disperse phase.

COOKED SWEET CORN FLAVORING COMPOSITION FOR VEGETABLE OILS. D. Melnick and H. L. Zmachinski (Corn Products Co.). *U.S. 3,490,921*. A flavoring composition which, when added to a liquid vegetable oil imparts to it the flavor of freshly cooked sweet corn, comprises a combination of 1.0 to 4.0 parts by wt. of ethyl vanillin and 1 part by wt. of ethyl n-butyrate. The flavoring composition should be added to the vegetable oil in an amount of from about 30 parts per billion to about 400 parts per billion. In addition, if it is desired to add a buttery flavor to the flavored oil, diacetyl, in an amount of at least 90 parts per billion, may be added.

GLYCERIDE OIL TREATMENT. R. A. Reiners and F. J. Birkhaug (Corn Products Co.). *U.S. 3,491,132*. A method is described for reducing the free fatty acid levels of glyceride oils so that they may be later efficiently refined, the method consisting of combining a cyclodextrin with oil and water, breaking the mixture so formed and obtaining the oil with the desirably reduced levels of free fatty acids. The cyclodextrin is recovered by decomposing the clathrate of the cyclodextrin and the fatty acid.

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HARD BUTTER COMPOSITIONS AND METHOD OF PRODUCTION. J. Harwood (SCM Corp.). *U.S. 3,492,130*. Compositions have been found which comprise mixtures of certain symmetrical and asymmetrical mono-unsaturated triglycerides and asymmetrical di-unsaturated triglycerides of domestic origin and which are temperable to a stable triple chain length beta crystalline form. The term 'symmetrical glyceride' refers to positional isomer symmetry of the unsaturated acyl groups rather than the kind or type of saturated acyl groups present. When tempered, the compositions are compatible with cocoa butter and can be used as extenders or substitutes for it. Cocoa butter itself is temperable to the stable triple chain length beta crystalline form, but naturally occurring domestic glycerides generally temper to a double chain length or beta prime crystalline form or a mixture of beta prime and beta crystalline forms and when in such forms are not compatible with cocoa butter.

PROCESS FOR VACUUM DISTILLING RANDOMLY INTERESTERIFIED TRIGLYCERIDES TO PRODUCE NOVEL TRIGLYCERIDE FRACTIONS. P. Seiden (Procter & Gamble Co.). *U.S. 3,494,944*. Hardened lauric acid oils are randomly rearranged, or randomly inter-esterified, with hardened non-lauric acid oils containing predominantly C₁₆ and higher saturated fatty acids. The hardened randomized oils are distilled to produce fractions and residues useful in hard butter and margarine oil formulations.

STABILIZATION OF OXIRANE CONTAINING FATTY DERIVATIVES. R. J. Sims (Swift & Co.). *U.S. 3,497,531*. Fatty, oxirane-containing compounds are stabilized against loss of oxirane oxygen by the presence of phenolic fat antioxidants such as propyl gallate.

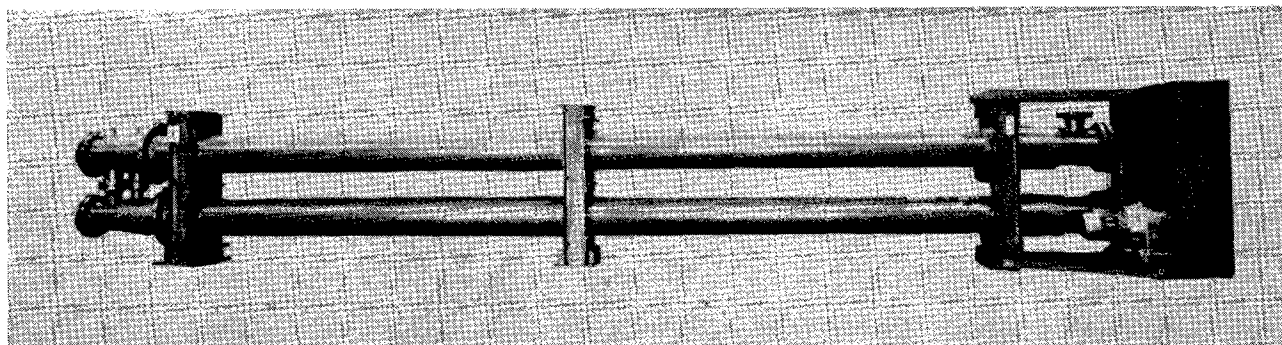
STABILIZATION OF FATS AND OILS WITH EDTA AND RELATED COMPOUNDS. W. J. Lennon (Geigy Chemical Corp.). *U.S. 3,497,535*. Fats and oils which are subject to oxidative deterioration are stabilized by means of an effective amount of an antioxidant and from about 0.05 to about 1000 parts per million by wt. of esters of EDTA as chelating agents.

• Biochemistry and Nutrition

THE BIOSYNTHESIS OF $\Delta^{9,12,15,18}$ -TETRACOSATETRAENOIC AND OF $\Delta^{6,9,12,15,18}$ -TETRACOSAPENTAENOIC ACIDS BY RAT TESTES. R. B. Bridges and J. G. Coniglio (Dept. of Biochem., Vanderbilt Univ., Nashville, Tenn. 37203). *J. Biol. Chem.* 245, 46-9 (1970). Two 24-carbon polyenes previously reported in rat testes have been isolated and characterized to be $\Delta^{9,12,15,18}$ -tetracosatetraenoic and $\Delta^{6,9,12,15,18}$ -tetracosapentaenoic acids. The compounds were separated and purified by gas-liquid chromatography, and their structures were established by use of gas-liquid chromatography before and after hydrogenation, by ultraviolet spectroscopy of the alkaline isomerized derivatives and by identification of fragments resulting from cleavage at double bonds by oxidative and reductive ozonolyses. The biosynthesis of the 24-carbon polyenes was studied after intratesticular injections of either 1^{14}C -linoleate or 1^{14}C -arachidonate. The two metabolic products, individually, were cleaved by oxidative ozonolysis, and the location of the ^{14}C in the molecule was determined by gas-liquid radiochromatography of the fragments. The distribution of the ^{14}C was consistent with the hypothesis that the 24-carbon polyenoic acids were biosynthesized by elongation and further desaturation of linoleic acid. Final proof was obtained by chemical carbon by carbon degradation and measurement of the specific activity of individual carbon atoms. After 1^{14}C -linoleate injection, $\Delta^{6,9,12,15,18}$ -tetracosapentaenoic acid from testicular tissue was labeled primarily in the 7th carbon. After 1^{14}C -arachidonate injection, testicular $\Delta^{9,12,15,18}$ -tetracosatetraenoic was labeled primarily in the 5th carbon. The suggested pathway of biosynthesis of the 24-carbon tetraenoic and pentaenoic acids is by a 2-carbon elongation of docosatetraenoic and of docosapentaenoic acids.

ENZYMATIC ALKYLENATION OF PHOSPHOLIPID FATTY ACID CHAINS BY EXTRACTS OF MYCOBACTERIUM PHLEI. Y. Akamatsu and J. H. Law (Dept. Biochem., Univ. Chicago, Chicago, Ill. 60637). *J. Biol. Chem.* 245, 701-8 (1970). The enzymatic synthesis of

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ANNOUNCEMENT

1970-71

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ABSTRACTS: BIOCHEMISTRY AND NUTRITION

tuberculostearic acid (10-methylstearic acid) was catalyzed by extracts of *Mycobacterium phlei*. This process involved two reactions of the olefinic fatty acid chain of phospholipids. The chain was first alkylated at the 10-carbon to give a methylene group, which was subsequently reduced to a methyl group. The first reaction could be measured by using S-adenosyl-methionine-methyl-¹⁴C. The enzyme was found in the supernatant fraction when extracts of cells broken down by sonic oscillation were subjected to centrifugation at 100,000 g. S-Adenosyl-L-methionine was the only effective donor of the 1-carbon unit. Phosphatidylglycerol, phosphatidylinositol and phosphatidylethanolamine were substrates for the reaction, and both 16- and 18-carbon chains were alkylated although only the Δ⁹-olefinic chains appeared to be converted.

THE ENZYMIC SYNTHESIS OF FATTY ACID METHYL ESTERS BY CARBOXYL GROUP ALKYLATION. *Ibid.*, 709-13. The reaction was studied by incubation of fatty acid with S-adenosylmethionine-methyl-¹⁴C and isolation of the labeled ester. This was characterized by thin-layer and gas-liquid chromatography and by isolation of labeled methanol from alkaline hydrolysates of the ester. Of several substrates tested only S-adenosylmethionine was an effective methyl donor ($K_m = 2.5 \times 10^{-6}M$) and oleic acid was the most effective fatty acid acceptor ($K_m = 1.3 \times 10^{-3}M$). Some methyl ester was formed when phospholipids were added to the incubation mixture, presumably because lipase action liberated fatty acids which could serve as substrates.

RAPESEED PRESSCAKE. XV. DEGRADATION OF SULFUR COMPOUNDS DURING PROCESSING OF THE PRESSCAKE. A. Rutkowski and H. Kozłowska (Dept. of Food Technol., Agricultural Univ. of Olsztyn, Olsztyn, Poland). *Oléagineux* 24, 687-90 (1969). The 5-vinyl-2-oxazolidinethione thiocyanates produced by hydrolysis of the goitrogenic thioglucosides are heat-labile. Heat treatment (100-125°C for 1 hour) of the rapeseed presscake lead to a marked drop in their concentration. This treatment did not affect the isothiocyanates, whose level can be reduced by steam stripping. The conditions used in the desolventizing-toasting process enable a presscake of satisfactory quality to be obtained.

EFFECT OF DIETARY LIPIDS ON THE RATES OF SYNTHESIS OF NUCLEIC ACIDS AND OF DEVELOPMENT OF ADIPOSE TISSUE. J. Raulin (Unité U 56 de l'INSERM, Hôpital Parrot, 78 rue de General Leclerc, 94-Bicêtre). *Rev. Franc. Corps Gras* 16, 767-70 (1969). In the rat, the size of the adipose cells increased both with the quantity of lipids fed and also with the hardness of the fat. In animals of the same age, having the same amount of adipose tissue, the number of adipocytes was greater when the diet was richer in polyunsaturated fatty acids (from sunflower oil) and less when the dietary lipids were more saturated (i.e., lard). The amount of DNA in the perigenital tissue was greater when the diet contained sunflower oil and lower when the diet contained lard. Using radioactive precursors, the author found that the specific activity of the adipose subcellular particulates (nucleus, mitochondria) depended on the nature of the dietary lipid. In general, the rate of synthesis (or breakdown) and the development of adipose tissue appeared to be closely related to the composition of dietary lipid.

INFLUENCE OF DIETHYLSTILBESTROL ON THE TURKEY WITH SPECIAL REFERENCE TO HISTOLOGICAL CHANGES IN THE AORTA. L. M. Krista, J. H. Sautter and P. E. Waibel (Depts. of Animal Sci., and Vet. Pathol., Univ. of Minnesota, St. Paul, Minn. 55101). *Poultry Sci.* 48, 1961-68 (1969). Physiological and metabolic changes were induced by DES treatment. Even though distinct morphological differences are hard to establish, the levels of DES could be related to changes in body weight, blood pressure, carcass composition, general conformation and secondary sex characteristics. The lowest level of DES did not influence body weight, blood pressure or aortic rupture, but an increase in body fat and liver size was observed. The medium level of DES resulted in a significant reduction in weight gain at 12 weeks of age, a significant decrease in blood pressure at eight weeks of age and a significant increase in aortic rupture, plaque formation and degeneration. The highest level of DES had an obvious toxic effect on the birds as indicated by a debilitated appearance and depressed weight gains by six weeks of age. Morphological changes due to

(Continued on page 232A)

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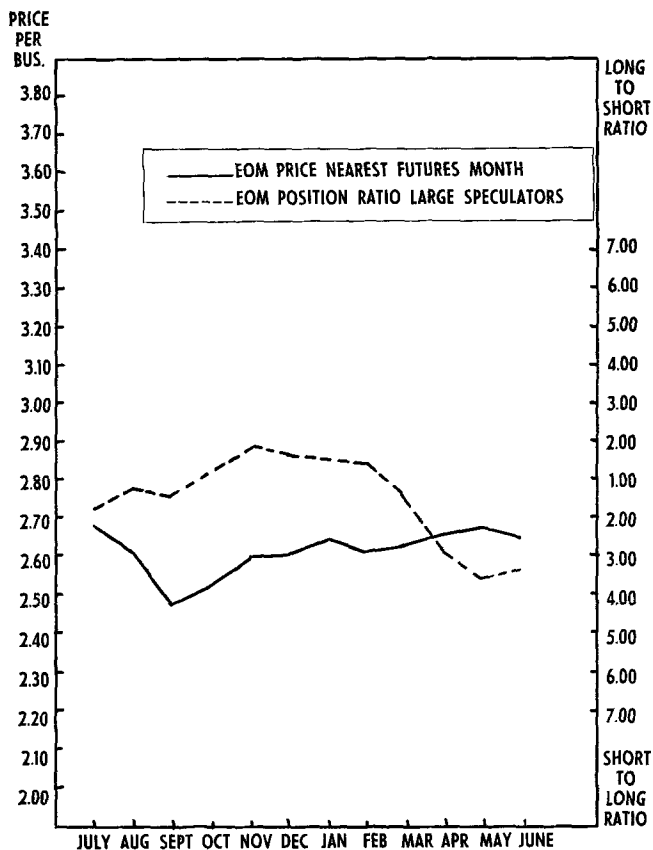


Fig. 3. 1968-69 Soybeans

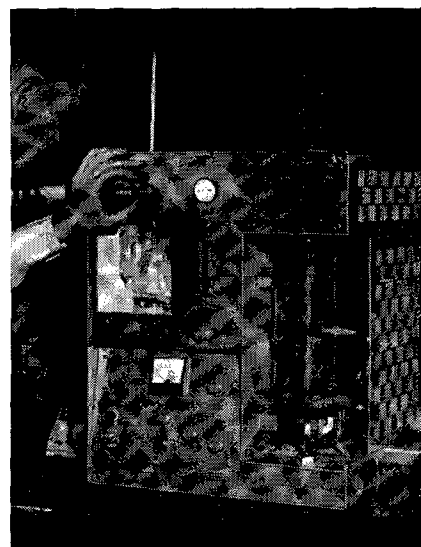
lack confidence in personal judgment and tend to duplicate the action of large speculators. This may be due to an assumption that large speculators became large because of successful market judgment more than 50% of the time. At any rate it is impossible to segregate small speculator positions since these are lumped together with small hedges in one figure.

This study deals with the soybean, soybean oil and meal markets during the period July 1965 to June 1969. It was observed that during this period large speculators' positions fluctuated from heavily long to heavily short.

No attempt was made to show price action during the month. Only prices used were the closing futures prices for the spot month on the last day of each month, which is the same date on which the CEA position report is compiled. Certainly there were price fluctuations, some very drastic ones, during the month but these are frequently related to the closing out of a futures contract in its final days of trade which may not accurately reflect reasonable market value. The charts for 1968/69 illustrate the large speculator position profile plotted against price at the end of each month. This is expressed as a ratio of long vs short or short vs long depending on which was largest.

Conclusion: The most obvious conclusion is that price goes up as large speculators move more heavily to the long side and go down as they move to the short side. This is not intended to indicate that speculator action causes price change, or that price change causes speculator action. It is valid to conclude, however, that when large speculators have greater short positions than long there will be price improvement soon. It is also demonstrated that prices will weaken when large speculators are heavily long but this reaction may be delayed when there exists a substantially bullish situation. It necessarily follows that speculative position changes occur in relation to price changes, for they seldom hang onto a losing position.

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