ATLANTA TECHNICAL PROGRAM

Technical Session A

Monday, April 22—11:00 a.m.

W. T. Coleman, Presiding

PILOT PLANT PREPARATION OF DEFATTED PEANUTS
J. Pominski, E. L. Patton, and J. J. Spadaro, Southern Regional Research Laboratory, New Orleans, La.

SOLIDIFICATION OF COCOA BUTTER
N. V. Lovegren and R. O. Feuge, Southern Regional Research Laboratory, New Orleans, La.

ISOMERIZATION DURING HYDROGENATION. V. METHYL CIS 6-, CIS 9-, CIS 12-OCTADECENOATE
R. R. Allen, Anderson, Clayton & Co., Sherman, Texas

SEARCH FOR NEW INDUSTRIAL OILS: A PROGRESS REPORT
R. W. Miller and F. R. Earle, Northern Research Laboratory, Peoria, Ill.

Technical Session B

Monday, April 22—11:00 a.m.

R. W. Bates, Presiding

SOME MINOR FATTY ACIDS IN TALL OIL
H. Albrecht and J. J. McBride, Jr., Development Laboratory, Arizona Chemical Co., Panama City, Fla.

STUDIES OF THE ROSIN ACID FRACTION IN UNMODIFIED AND MALEIC MODIFIED TALL OIL FATTY ACIDS
R. L. Stephens and R. V. Lawrence

THE REACTION OF ACETYL NITRATE WITH ALCOHOL DERIVATIVE OF FATTY ACIDS
D. C. Malins, J. C. Wekell, and C. R. Houle, Bureau of Commercial Fisheries, Technological Laboratory, Seattle, Wash.

A PRELIMINARY STUDY OF THE LENTICULAR LIPIDS OF THE HUMAN EYE
G. L. Feldman, Division of Ophthalmology, Baylor University, Houston, Texas

HOMOGENEOUS CATALYTIC HYDROGENATION OF UNSATURATED FATS: METAL CARBONYLS
E. N. Frankel, Helen Ven Horst, E. P. Jones, and H. J. Dutton, Northern Regional Research Laboratory, Peoria, Ill.

HIGH TEMPERATURE LUBRICANTS DERIVED FROM TALLOW
F. J. Brashear, William Rosenblatt, L. I. Osipow, and F. D. Snell, Foster D. Snell, Inc., New York, N. Y.

MUSTARD SEED PROCESSING: ESSENTIAL OIL COMPOSITION
L. D. Kirk, L. T. Black, and G. C. Mustakas, Northern Regional Research Laboratory, Peoria, Ill.

Technical Session C

Monday, April 22—2:00 p.m.

R. O. Feuge, Presiding

EFFICIENT PRODUCTION OF BIOSYNTHETICALLY LABELED FATTY ACIDS
H. J. Dutton and T. L. Mounts, Northern Regional Research Laboratory, Peoria, Ill.

PREPARATION AND PROPERTIES OF C_{18} MONOCARBOXYLIC ACIDS CONTAINING AN AROMATIC RING
J. P. Friedrich, E. W. Bell, and L. E. Gast, Northern Regional Research Laboratory, Peoria, Ill.

HYDROGENATION OF LINOLENATE. X. COMPARISON OF PRODUCTS FORMED WITH PLATINUM AND NICKEL CATALYSTS
C. R. Scholfield, R. O. Butterfield, V. L. Davison, and E. P. Jones, Northern Regional Research Laboratory, Peoria, Ill.

A CONVENIENT LABORATORY METHOD FOR PREPARING TRANS,TRANS-9,11-OCTADECADIENOIC ACID
Wilma J. Schneider and L. E. Gast, Northern Regional Research Laboratory, Peoria, Ill.

Technical Session D

Monday, April 22—2:00 p.m.

R. T. O'Connor, Presiding

(Continued on page 18)

Schedule of Room Assignments

	TIME	ROOM NO.
SUNDAY, APRIL 21		
Headquarters	All Day	2
Governing Board	2:00 p.m.– 6:00 p.m.	1015
Examination Board	10:00 a.m.–12:30 p.m.	1008
Color Sub-Comm.	2:00 p.m.– 4:00 p.m.	1008
Registration	1:00 p.m.	Crystal Lounge
Mixer (Early Bird Reception)	7:00 p.m.	Ballroom or Crystal Lounge
MONDAY, APRIL 22		
Technical Session (Opening)	10:00 a.m.–11:00 a.m.	Ballroom
Technical Session A	11:00 a.m.–12:30 p.m.	Ballroom
Technical Session B	11:00 a.m.–12:30 p.m.	Pompeian Room
Technical Session C	2:00 p.m.– 4:30 p.m.	Ballroom
Technical Session D	2:00 p.m.– 4:30 p.m.	Pompeian Room
Registration	9:00 a.m.– 4:30 p.m.	Crystal Lounge
Golf Trophies	All Day	2
Ladies	8:30 a.m.–10:00 a.m.	Mezzanine
Smalley Comm.	4:30 p.m.– 6:30 p.m.	1011
Commercial Fats & Oil Analysis Comm.	4:30 p.m.– 6:30 p.m.	1007
Cellulose Yield Sub-Comm.	4:30 p.m.– 6:30 p.m.	1012
Fatty Nitrogen Derivatives Sub-Comm.	8:00 a.m.–10:00 a.m.	1012
Poly. Fatty Acids Sub-Comm.	4:30 p.m.– 6:30 p.m.	Ivory Room
Epoxidized Oil Sub-Comm.	8:00 a.m.–10:00 a.m.	1014 Breakfast
Drying Oils Sub-Comm.	12:00noon– 2:00 p.m.	1014 Luncheon
Gas Chromatography Sub-Comm.	4:30 p.m.– 6:30 p.m.	1014
TUESDAY, APRIL 23		
Technical Session E	10:00 a.m.–12:30 p.m.	Ballroom
Technical Session F	10:00 a.m.–12:30 p.m.	Pompeian Room
Ladies Meeting	8:30 a.m.–10:00 a.m.	Ivory Room
Golf Trophies	All Day	2
Registration	9:00 a.m.	Crystal Lounge
Program & Planning Comm.	4:30 p.m.– 6:30 p.m.	1011
Uniform Methods Comm.	4:30 p.m.– 6:30 p.m.	Ivory Room
Education Comm.	4:30 p.m.– 6:30 p.m.	1012
Education Sub-Comm.	8:00 a.m.–10:00 a.m.	1012
Ind. Oils & Derivatives Comm.	9:00 a.m.–10:00 a.m.	1011
Advertising & Journal Comm.	8:00 a.m.–10:00 a.m.	1014 Breakfast
Convention Policy Comm.	8:00 a.m.–10:00 a.m.	3
Annual Dinner (Dance)	7:30 p.m.	Exhibition Hall
Spectroscopy Methyl Esters Sub-Comm.	4:30 p.m.– 6:30 p.m.	1014
Com'l Fatty Acid Sub-Comm.	8:00 a.m.– 9:00 a.m.	1011
Tech. Safety & Eng. Comm.	8:00 a.m.–10:00 a.m.	Mezzanine
WEDNESDAY, APRIL 24		
Technical Session G	10:00 a.m.–12:30 p.m.	Ballroom
Golf Trophies	All Day	2
Ladies	8:30 a.m.– 9:30 a.m.	Mezzanine
Award Luncheon	12:30 p.m.– 3:00 p.m.	Empire Room
Registration	Morning Only	Crystal Lounge
Standards Comm.	8:00 a.m.–10:00 a.m.	1011
Inst. Tech. Comm.	8:00 a.m.–10:00 a.m.	1012
Governing Board	2:00 p.m.– 4:30 p.m.	1012

New Emulsion Stabilizer

(It's Pfizer's SEQOL® 140)

IN TEST TWO YEARS. Seqol® 140 (stearyl monoglyceridyl citrate, Pfizer) has been put through rigorous evaluations by the food industry for the past two years. Now accepted by the F.D.A. as a food additive, it offers a product-improvement opportunity to both the baking industry and to shortening manufacturers.

SEQOL 140 ENHANCES... INTENSIFIES. Seqol's main function is that of an emulsion stabilizer. It enhances and intensifies the activity of accepted food-grade emulsifiers. It is compatible with food-grade emulsifiers and is miscible with vegetable fats and oils.

SIGNIFICANT BENEFITS FOR BAKING MIXES. The addition of as little as 1% Seqol 140 to shortenings markedly enhances performance of your baking mixes. Specifically, it improves batter mixing and baking tolerances such as over- and under-beat and mix, extended floor tolerances and greater oven temperature tolerances. It improves grain and cell structure, cake volumes and cake crumb. It does not affect the finished flavors. And it makes possible reduced levels of emulsifiers.

LIQUID SHORTENINGS POSSIBLE. Seqol 140 makes possible a superior liquid shortening. Suggested formulas are available.

SUITED TO OTHER APPLICATIONS. Seqol 140 shows promise as an emulsion stabilizer in areas such as margarine, ice cream, mayonnaise, salad dressings, vegetable specialty oils, hard butter, frozen custards and desserts, chocolate and other coatings, synthetic cream whips, toppings and icings, beverages, and peanut butter.

IMMEDIATELY AVAILABLE. Seqol 140 is now available in 425-pound and 100-pound lever-pack, sanitary, lacquer-lined steel drums and 35-pound fiber drums. Write for technical data and free sample. Mail coupon today.

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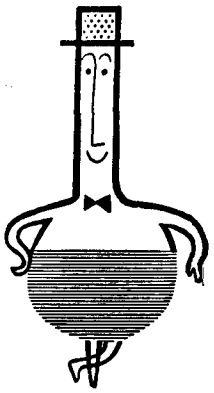


Meetings

A.O.C.S. National Meetings

1963—Atlanta, Atlanta Biltmore Hotel, April 22–24
Minneapolis, Radisson Hotel, September 30–October 2
1964—New Orleans, Roosevelt Hotel, April 19–22
Chicago, Pick-Congress Hotel, October 11–14
1965—Houston, Shamrock-Hilton Hotel, April 25–28
Cincinnati, October 11–13
1966—Los Angeles, Statler Hilton Hotel, April 24–27
Philadelphia, Bellevue-Stratford Hotel, October 4–6
1967—New Orleans, Roosevelt Hotel, May 7–10
Chicago
1968—New York

A.O.C.S. Section Meetings

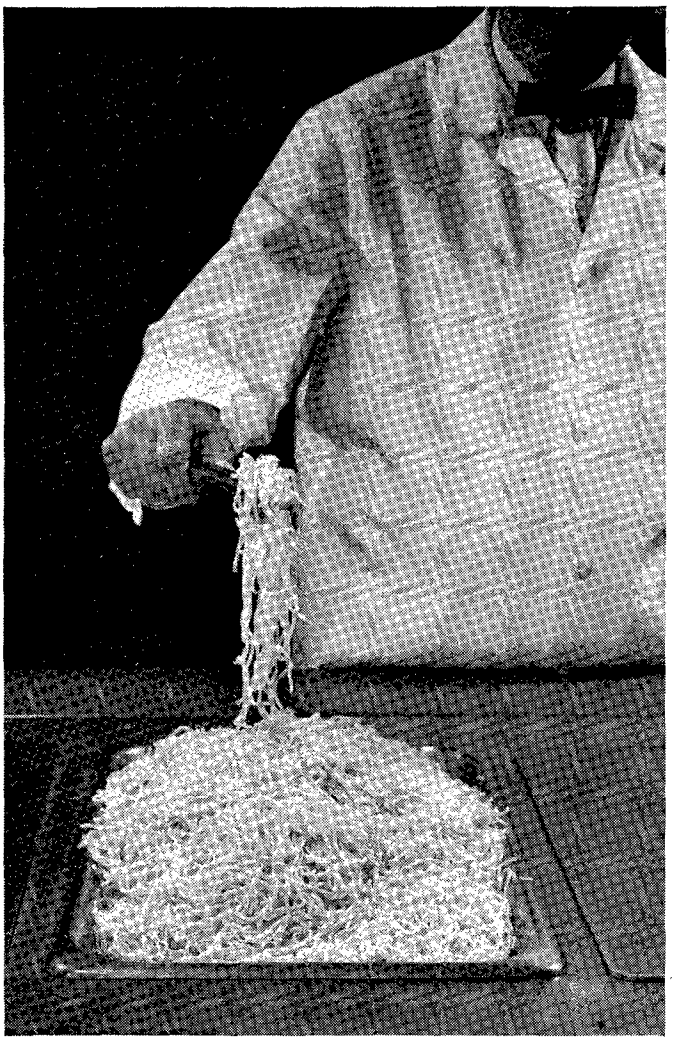
North Central—May 1, 1963, at the Builders' Club, 228 N. LaSalle, Chicago, Ill.
Northeast—June 4, 1963, at Whyte's Restaurant, 141 Fulton St., New York
Southwest—May 9, 1963, at Rodger Young Auditorium, Los Angeles, Calif., 6:30 p.m.

A.O.C.S. Short Course, 1963

June 23–26—Advances in Soaps and Detergents, Princeton Inn, Princeton, N. J.

Other Organizations

May 8, 1963—Semi Annual Meeting and Special Award Presentation, Society of Cosmetic Chemists, Hotel Biltmore, New York, N. Y.
May 26–29, 1963—23rd Annual Meeting and Industrial Exhibit, Institute of Food Technologists, Cobo Hall, Detroit, Mich.
June 3–6, 1963—5th Annual Symposium, Coatings Technology Dept., College of Chemical Technology, North Dakota State University, Fargo, N. D.
June 5–6, 1963—Symposium and 46th Meeting of the European Federation of Chemical Engineering, Frankfurt am Main.
June 6–8, 1963—46th Annual Conference and Exhibition of The Chemical Institute of Canada, Royal York Hotel, Toronto, Ont., Canada.
June 16–18, 1963—Symposium by the Burnsides Research Laboratory, University of Illinois, Urbana, Ill.
June 23–28, 1963—Chalfonte-Haddon Hall, Atlantic City, N. J. American Society for Testing and Materials Annual Meeting.
Sept. 24–25, 1963—10th Annual Seminar of the Society of Cosmetic Chemists, Hotel Somerset, Boston, Mass.
Oct. 30–Nov. 2, 1963—41st Annual Meeting, Federation of Societies for Paint Technology, Sheraton Hotel, Philadelphia, Pa.
Oct. 31–Nov. 2, 1963—28th Paint Industries' Show of the Federation of Societies for Paint Technology, Sheraton Hotel, Philadelphia, Pa.
Dec. 3, 1963—Annual Meeting of the Cosmetic Chemists, Biltmore Hotel, New York, N. Y.
Feb. 3–7, 1964—ASTM National Committee Meeting, at the Sheraton Hotel, Philadelphia, Pa.
June 21–26, 1964—American Society for Testing and Materials Annual Meeting, Conrad Hilton Hotel, Chicago, Ill. (Materials Testing Exhibit)



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We produce a variety of MYVEROL Distilled Monoglycerides which can be used to get different effects in foods. Get in touch with ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago. Distributors: West Coast—W. M. Gillies, Inc.; in Canada distributed by Distillation Products Industries Division of Canadian Kodak Sales Limited, Toronto.

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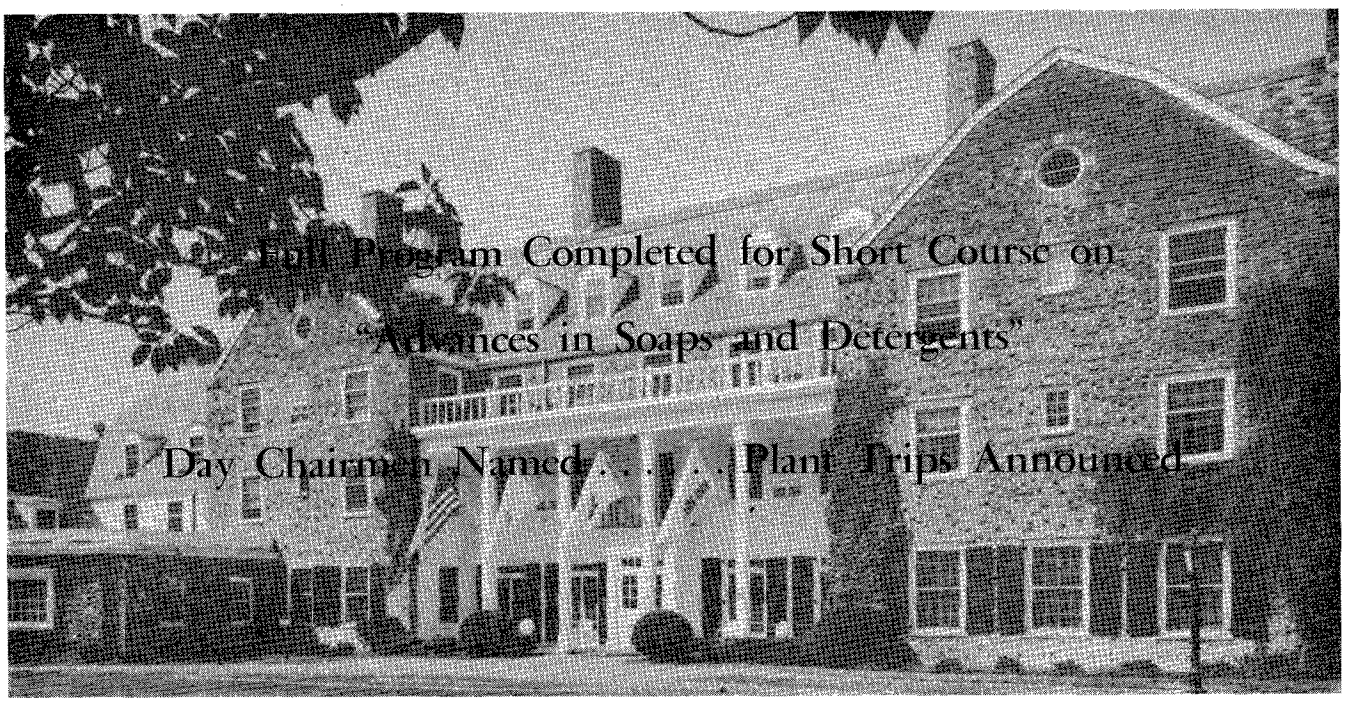


Full Program Completed for Short Course on "Advances in Soaps and Detergents"

Day Chairmen Named . . . Plant Trips Announced

Program Complete, Registrations Being Taken

Eric Jungermann, Program Chairman, announced the completion of the program for the AOCS Short Course on "Advances in Soaps and Detergents" to be held at the Princeton Inn, Princeton, New Jersey, on June 23 to June 26. By this time, members will have received their application forms in the mail, and it is hoped that registration can be completed before arrival in Princeton. The fee of $95 is payable in advance to the American Oil Chemists' Society offices at 35 E. Wacker Drive, Chicago 1, Illinois. This fee covers room, buffet dinner on Sunday evening, and all meals through lunch on Wednesday, June 26, and includes registration fees. Membership in the Society is not a prerequisite for attending the Course. Student registration covering the above has been set at $75.

Three Major Sessions Highlight Program

The technical part of the program has been divided into three major sessions. The Monday session will deal with New Products and Processes. J. H. Brant of Colgate-Palmolive Co. will be chairman of the Monday morning session, covering new processes. New Products will be emphasized in the Monday afternoon session, chairmanned by F. H. Healey of Lever Brothers.

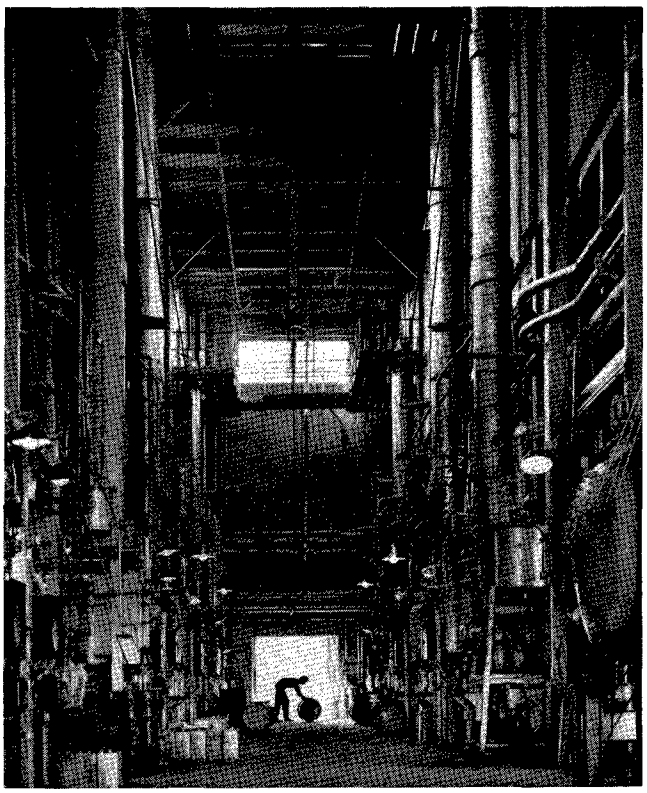
The Tuesday morning session will be devoted entirely to a symposium on the very topical subject of biodegradability of detergents. It will be chaired by E. S. Pattison of the Soap and Detergent Association, and promises to be one of the highlights of the Short Course.

Trips to Colgate Palmolive, IFF Scheduled

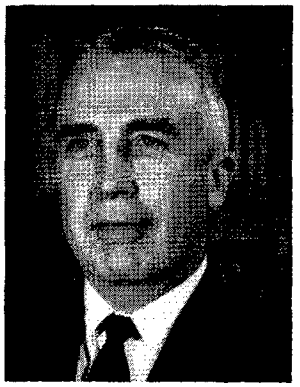
Tuesday afternoon will be left free for informal discussions, plant trips, and rest. Two tours of outstanding interest have been arranged. One will visit the New Research Facilities of the Colgate-Palmolive Co. at New Brunswick. The second will be to the Plant and Research Facilities of the International Flavors & Fragrances, Inc. Both are due to start at 1:45 p.m. at the Princeton Inn. Members of the Short Course will view the Union Beach, New Jersey installation of International Flavors & Fragrances, creators and manufacturers of Flavors, Fragrances, and Aromatic Chemicals. The Union Beach Plant is primarily engaged in the production of Aromatic Chemicals and is also the company's major Research and Development Center. The tour will inspect the Process Development and Pilot Plant Facilities, the Quality and Analytical Control Laboratories, and the Research Laboratories with special emphasis on the Instrumentation Laboratory where work is conducted involving gas chromatography, mass spectroscopy, and ultraviolet and infrared spectrophotometry.

International Flavors and Fragrances' production facilities are housed in multi-building units, and will also be available for inspection. Processes employed include Friedel-Crafts and Grignard reactions, condensations, hydrogenations, halogenations and oxidations, plus many types of distillation equipment, filters, reactors and evaporators.

The trip to the Colgate-Palmolive Co. Research Center



The plant tour of the Union Beach Plant of International Flavors and Fragrances, Inc. will include a review of the Distillation Room, pictured above. AOCS Short Course registrants will also have an opportunity to see the new Research Facilities of Colgate-Palmolive Company at New Brunswick.



A. L. Schulerud

T. H. Liddicoet

will be discussed in detail in the May issue of this Journal.

The Wednesday closing session will emphasize analyses and properties of detergents. J. C. Harris of Monsanto Chemical Co. will be chairman of the morning session. New Physical testing methods, and the physical chemistry of surfactants will be discussed. The afternoon session will be introduced by A. J. Stirton of the Eastern Regional Laboratories and talks on instrumental and noninstrumental analyses of detergents will be presented. A comprehensive survey of new developments in the field of optical brighteners will be given by H. W. Zussman of Geigy Industrial Chemical Company.

The program is arranged as follows:

A.O.C.S. Short Course Program 1963

"ADVANCES IN SOAPS AND DETERGENTS"

Princeton Inn, Princeton, N. J.

Sunday, June 23

Registration
Buffet Supper, Social Evening

Monday, June 24

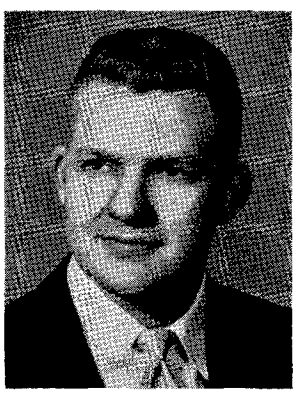
New Products and Processes

Morning Session: Chairman—J. H. Brant, Colgate-Palmolive Co.
- Welcome to Short Course, E. Jungermann, Program Chairman
- Continuous Saponification Processes, A. L. Schulerud, Colgate-Palmolive Co.
- Continuous Sulfonation Techniques, M. Ballestra, Italy
- Tableting of Detergents, J. P. Mallee, F. J. Stokes Corp.
- Phosphate Builders for Detergents, L. E. Netherton, Victor Chemical Co.

Afternoon Session: Chairman—F. H. Healey, Lever Bros. Co.
- *Alpha*-Olefins in the Surfactant Industry, T. H. Liddicoet, California Research Corp.
- Alcohol Derivatives in Detergent Formulations, T. P. Matson, Continental Oil Co.
- Recent Advances in Fatty Amine Oxides

(Continued on page 19)

D. B. Lake



T. P. Matson

Recent Utilization . . .

(Continued from page 7)

the time. Another study in Mississippi, where cottonseed meal is cheaper than in many sections of the country, showed that beef cows may be wintered on stacked hay and cottonseed meal, as well as by other methods of wintering which cost twice as much. The meal was also used in studies on wintering a breeding herd and on spring, fall, and year-round systems of calving. Research is underway in Mississippi on mixing feeds at the lowest possible cost for broilers, layers, swine, beef cattle, and dairy cattle. Tentative results indicate that extensive use of several ingredients not commonly used in mixing feeds in that state could be used and feed costs reduced. The most important of these are barley and hominy feeds. It is believed possible to reduce feed costs for the state by $2–$4 million annually by adoption of least-cost rations (7).

Feeding of livestock is the big use for cottonseed meal in Tennessee. It is being used extensively there in livestock feeding research studies of finishing rations for beef steers and of wintering and fattening performance of beef steers fed enzymes.

In the Southwest. In Texas, Oklahoma, and New Mexico, average annual production of cottonseed during the period 1959–1961 amounted to 2.2 million T, of which 1.9 million T were crushed yielding 873,000 T of meal. It is estimated that 25% of this meal went into manufactured feeds during the 1960–61 season.

Texas alone has accounted for more than one-third of U. S. crushings and production of cottonseed products (1). A trend to packaging of cottonseed meal and hull products in paper bags has prompted purchase by home gardeners of these smaller packages of cottonseed hulls and mixtures containing cottonseed hulls and cottonseed meal. Last year, the tendency of ranchers to feed cottonseed was practiced more extensively than usual. It is believed that this was a temporary situation caused by the low price of cottonseed relative to the price of meal and hulls.

In Oklahoma, there seems to be expectation of greater use of cottonseed meal in swine and poultry rations whenever the gossypol and related protein quality problems are solved. The meal (cake) still finds favor in beef cattle rations. Initial research by the Departments of Animal Husbandry and Biochemistry of Oklahoma State University showing a relationship between solubility of nitrogen and its nutritive value in the meal has been completed. This work was done with sheep fed high- and low-concentrate rations, but the results should be applicable to cattle as well. Briefly, the results indicate that nitrogen of low solubility (high heat treatment) is more efficiently used than that of high solubility in low-concentrate rations lacking readily available carbohydrates for protein synthesis. The opposite was true in high-concentrate rations. Low solubility was associated with an increased proportion of bound gossypol.

In the Far West. In California and Arizona, average annual production of cottonseed during the period 1959–1961 amounted to 1.1 million T, of which 1 million T were crushed yielding 486,000 T of meal. It is estimated that 75% of this meal went into manufactured feeds during the 1960–61 season.

According to reports from California and Arizona, regardless of the oil extraction technique employed, all cottonseed meal there qualifies to be sold as "degossypolized meal," having a free gossypol content of 0.04% or lower. This meal is not a truly degossypolized meal because the low-gossypol level is not achieved by deactivation of gossypol but rather as a result of manufacture from cottonseed having low-gossypol content. Nevertheless, because it qualifies on analysis to be sold as "degossypolized meal" (having a free-gossypol content of 0.04% or lower as prescribed by NCPA Trading Rule 263), in this paper it will be referred to as "degossypolized meal."

Nitrogen solubility of the screw press meal is low, however, and processors there, in general, are converting to some form of solvent extraction. It is estimated that more than 200,000 T of solvent cottonseed meal will be produced in California and Arizona next season. "Degossypolized meal" continues to enjoy an increasing market, and premiums as much as $4 per T are received for solvent meals. There is an ever increasing trend to produce "degossypolized meal" in the W that will have a protein analysis of 44% or higher.

There is considerable acceptance of "egg tested meal" but still some resistance to "degossypolized meal." "Egg tested cottonseed meal" having 44% protein is suitable to be fed to laying hens in amounts up to 10% of the total diet. However, egg testing is expensive since the meal must be packaged and held while the test is going on. The test requires 12 days feeding and then a couple of days of chemical analysis. The cost of sacks, tags, twine, and stacking labor runs $4–$5 extra per T, which processors have difficulty obtaining.

A strain of cotton with seed free of gossypol has been developed in California, and it may be available commercially in California by 1967–1970. The gossypol-free cotton, a strain of Acala, compares very favorably in fiber characteristics with cotton now in production in the San Joaquin Valley. Oil and meal of higher quality from the glandless seed are expected to have increased utilization and value.

In Arizona, although "degossypolized cottonseed meal" is used in the rations of growing chickens, it is still not used to any appreciable extent in the diet of laying hens. Between 120,000 and 130,000 T are used annually in manufactured feeds in Arizona, of which 45,000 T are consumed by cattle in feedlots in that state and the remainder shipped to California and Utah. Approximately 50,000 T of the meal shipped from Arizona to California and Utah are probably used in swine or poultry rations.

In United States. If feed manufacturers in the Western states used 10% of cottonseed meal in laying and broiler rations and 5% in turkey rations, more than 400,000 T would have been used in that area alone during 1961. Also, during the spring months of 1961, many feed manufacturers in the Midwest and E began using cottonseed meal rather heavily, some of which went into poultry rations. An estimate of 300,000 T of cottonseed meal used in poultry rations during the year is considered conservative.

There was a decided increase in the use of cottonseed meal in swine and poultry rations because economics were in its favor during 1960–61 in many areas due to high prices of soybean meal. During the spring and summer of 1961, cottonseed meal was selling as much as $25 per T below the cost of soybean meal. Significant price differentials favorable to cottonseed meal existed in the Memphis, Texas, and in the Northwest areas. In fact, it was even an advantage to use cottonseed meal for several months in the corn belt. For that reason a considerable amt of cottonseed meal with a gossypol content below 0.04% was used in swine supplements throughout the Midwest. This was an abnormal market because the price of soybeans was entirely unpredictable, largely because of the failure of the Chinese crop.

Cottonseed Flour Utilization

Slightly more than 3,500,000 lb of cottonseed flour have been produced annually for human consumption since 1950. This poundage has been used primarily in bakery products, and where used, comprised from 1–5% of the total formula.

ACKNOWLEDGMENTS

Drawings for this manuscript by G. I. Pittman. Assistance in obtaining information reported by Mrs. A. de B. Kleppinger and Katherine Upton. Photographs by A. F. Fayette and J. J. Bergquist.

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2. Anonymous. "Cottonseed Oil and Competing Materials, Consumption in Major End Uses, 1956–60." Natl. Cotton Council of America, Memphis (1961).
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(Continued on page 18)