Soybean Oil: Only a By-Product

Soybeans should be classified as a meal-seed, not an oilseed. Contrary to general public opinion, soybeans are not crushed primarily for the oil. This is not to say that their oil content is insignificant. Nor does it mean that soybean oil is not highly regarded for a myriad of uses. The epoch of soybean oil utilization is truly outstanding in the annals of modern agriculture.

But the concept that advancement in soybean oil utilization was primarily responsible for expanded production and crushing of soybeans is erroneous indeed. In most years soybeans are crushed to secure meal. The oil is a by-product.

All other seeds in the classification of oilseeds are crushed primarily for their oil content. The value of oil derived per unit crushed is greater than the value of the meal. They may be truly called oilseeds. Soybeans, however, stand in a class alone. They are an anomaly. The value of meal derived therefrom is almost always greater than the value of oil (see charts No. 1 thru 5). Thus it is demonstrated that soybeans should be placed singularly in a class known as "meal seeds."

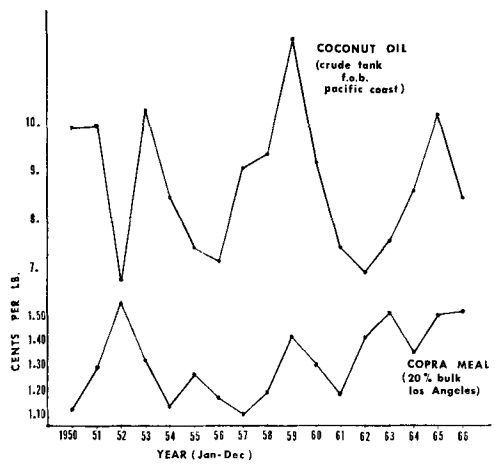

FIG. 1. Value of oil and meal per pound of copra, cents per pound.

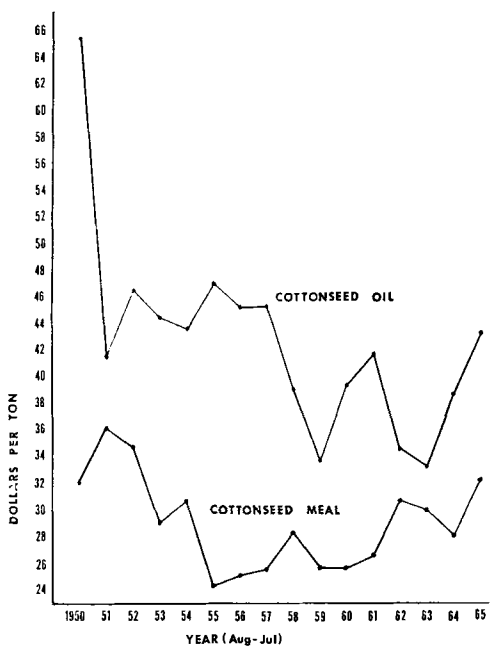

FIG. 2. Value of oil and meal per ton of cottonseed, dollars per ton.

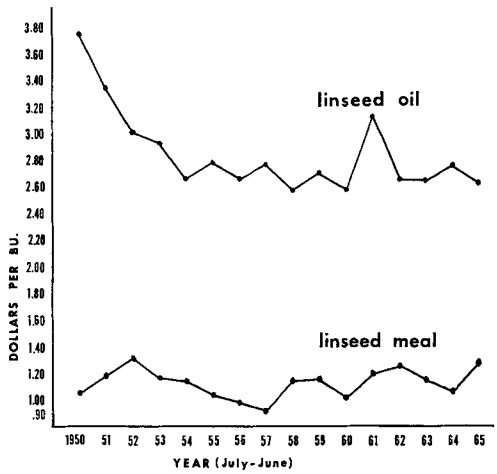

FIG. 3. Value of oil and meal per bushel of flaxseed, dollars per bushel.

Such a regrouping is not likely to occur, and agronomists and others will go right on calling soybeans an oilseed. Be that as it may, those in the business of crushing soybeans and those who would watch the market for whatever reason must never forget that the primary market for soybeans is meal. The market for beans sometimes will be influenced by the soybean oil situation, but in the broader picture soybean meal is dominant.

Concurrent developments have been responsible for the dominance of meal in the soybean complex. Since World War II improvements in wage scales and employment levels have resulted in greater demand for livestock products. At the same time feed technology has successfully achieved greater animal productivity through the use of soybean meal as a protein supplement. And production of soybeans has expanded at a rate just about equal to the increased feed needs.

Soybean oil use has also enjoyed rapid expansion, but seldom has it been on an economic base as substantial as for meal. The oil has been used because it was available. But it is easier to substitute other oils in place of soybean oil than it is to substitute other meals for soybean meal. This means soybean oil is used in greater quantities as long as the price is right, but when the price gets out of line with substitutable oils then soybean oil use is curtailed.

There are also substitutes for soybean meal, but they are not as numerous and their range of substitutability is less flexible. In the first place, not all seeds crushed for oil produce a usable meal. In the second place those protein supplements which are usable, whether vegetable or animal, have definite limits beyond which inclusion in the

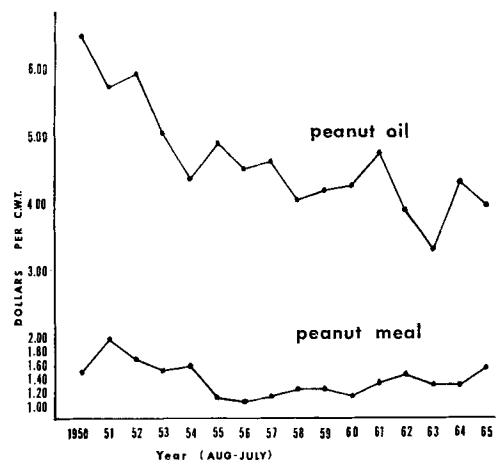

FIG. 4. Value of oil and meal per hundredweight of peanuts, dollars per cwt.

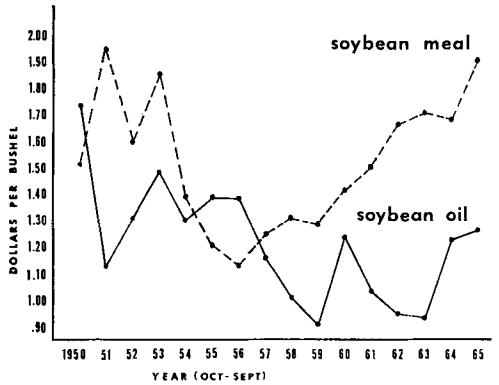

FIG. 5. Value of oil and meal per bushel of soybeans, dollars per bushel.

ration produces diminishing returns or may have adverse digestibility reactions. And thirdly, livestock feeders are reluctant to radically change a ration because of a tendency for animals to go "off-feed."

Now that it has been established that soybeans are crushed primarily for meal and that demand has experienced steady growth, let's look at market analysis implications. There should be a correlation between soybean meal produced and the price of meal, and there is. All the more so because meal can be stored for only a short time. Because of this fact, demand determines amount of crush within close tolerances, thus making a reliable correlation between price and amount of soybean meal produced (see chart No. 6).

What of future projections? More specifically, what about this year? Will price and production fall in the same pattern? So far it looks as if they will. Annual average yield of meal the past five years has been strikingly similar to the February yield. The February yield this year was 47.8 lb of meal per bushel of beans. Using an estimated crush of 548 million bu., the meal production would be 13.1 million short tons. The average cash price of 44% bulk meal Decatur unrestricted for October through April is $79.65. If the average price makes no further significant declines and if production is about as anticipated, then this year will conform to the chart pattern of the ten previous years allowing for normal deviation. A somewhat higher price, say $82 or $83, would bring closer conformity with the trend line. Or steady price and less production would accomplish the same result. It does appear that price and production will follow the same pattern again this year. Lower prices curtail production and higher prices encourage it. This economic function will apparently continue in its established pattern until changed by some radical development in the feed industry. This change may be brought about by the new higher-protein corn now being

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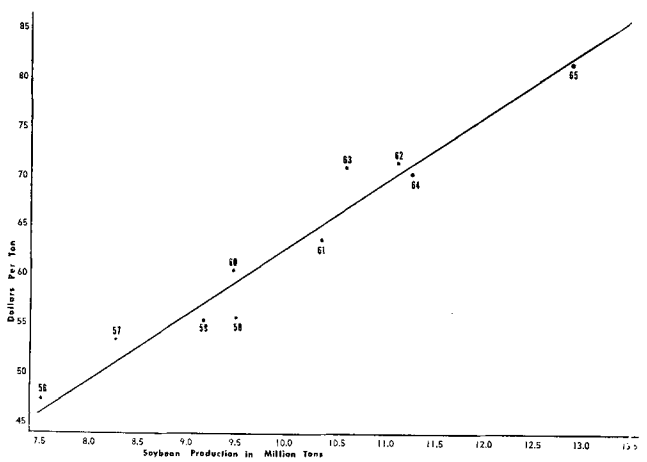
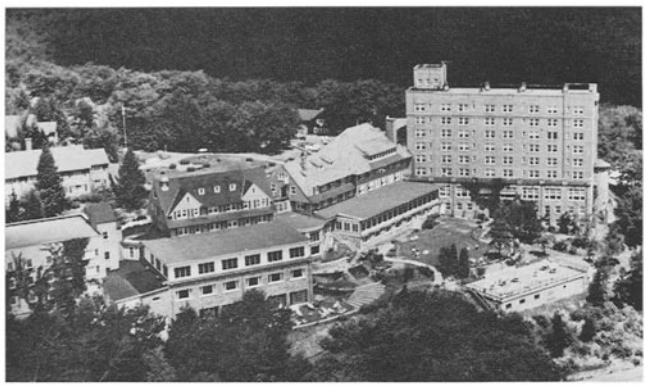


FIG. 6. Soybean meal: annual production vs. annual average price. 44% bulk unrestricted Decatur (year Oct.–Sept.).



Pocono Inn, where Detergent Short Course will be held June 25–28, 1967.

Registration Active for AOCS Detergent Short Course

Interest in the 1967 Detergents Short Course has been greatly heightened since the mailing of registration forms last month. In addition to the program published in April (JAOCS, p. 174A), it has been announced that R. F. Knott, of Shell Development Company, plans to illustrate his presentation with an excellent film. This promises to be a highlight feature on the program to come.

The Pocono Manor Inn, where the registrants will convene, is a modern, air-conditioned hotel with beautifully landscaped ground, extensive facilities, a fine golf course, and a swimming pool.

The fee of $140 is payable in advance to the AOCS offices, at 35 E. Wacker Drive, Chicago, Illinois 60601. This amount covers room (double occupancy) and board from Sunday evening through Wednesday, including luncheon and registration. Day reservations are also available at $50 per day and include one overnight stay. Registrants are asked to indicate which day they are planning to attend.

Registrations for the Short Course received in the AOCS office at printing date of this issue were:

Luis Spitz, G. Mazzoni, S. p. A.
Edmund Horner, Mac Dermid Inc., Waterbury, Conn.
Thomas Mitchell, Economics Laboratory Inc., St. Paul Minn.
Thomas Oberle, Economics Laboratory Inc., St. Paul, Minn.
G. R. H. Fern, Imperial Oil Limited, Toronto, Ontario, Canada.
Joseph May, A. E. Staley Mfg. Co., Decatur, Ill.
Allen Urfer, A. E. Staley Mfg. Co., Decatur, Ill.
E. I. Birnbaum, Hart Chemical Limited, Guelph, Ontario, Canada.
Larry McIlroy, Hart Chemical Limited, Guelph, Ontario, Canada.
Paul Bachelor, Swift & Company, Chicago, Ill.
Bertram Cohen, C. B. Dolge Co., Westport, Conn.
Robert Cooper, DeSoto Chemical Coatings, Inc., Des Plaines, Ill.
Ralph Itoku, DeSoto Chemical Coatings, Inc., Des Plaines, Ill.
Oscar Neiditch, Lever Bros. Co. Research Center, Edgewater, N.J.
John Porter, Monsanto Company, St. Louis, Mo.
Lester Schafer, Monsanto Co. (Inorganic Div.), St. Louis, Mo.
Roger Steinhauer, Armour Grocery Products Company, Chicago, Ill.
Robert Knippling, Emery Industries, Inc., Cincinnati, Ohio.
Walter Utz, Emery Industries Inc., Cincinnati, Ohio.
Martin Schick, Interchemical Corp., Clifton, N.J.
Raymond Bistline, Jr., USDA, Eastern Regional Research & Laboratory, Philadelphia, Pa.

Theone Gordon, USDA, Eastern Regional Research Laboratory, Philadelphia, Pa.
Elmer Maurer, USDA, Eastern Regional Research Laboratory, Philadelphia, Pa.
Allan Gilbert, Lever Brothers Co., Edgewater, N.J.
Richard Laskey, Procter & Gamble, Cincinnati, Ohio.
A. L. Beiser, Standard Chemical Products, Inc., Hoboken, N.J.
B. J. Becker, Standard Chemical Products, Inc., Hoboken, N.J.
Irving Schmolka, Wyandotte Chemicals Corporation, Wyandotte, Mich.
W. C. Krumrei, The Procter & Gamble Company, Cincinnati, Ohio.
Edward Geiser, UOP Company, Des Plaines, Ill.
John Georgal, Whirlpool Corporation, St. Joseph, Mich.
Hsaing Ting Lu, Brookside Div. of Safeway Stores, Inc., Oakland, Calif.
Robert Newsbaum, Cowles Chemical Co., Skaneateles Falls, N.Y.
Clayton Wetmore, Cowles Chemical Co., Skaneateles Falls, N.Y.
Joseph Myers, III, Atlantic Richfield Company, Glenolden, Pa.
Reinhold Seizinger, Wyandotte Chemicals Corp., Wyandotte, Mich.
Guy Moulton, CIBA Chemical & Dye Company, Fair-Lawn, N.J.
Thomas Kaneko, Wyandotte Chemicals Corp., Wyandotte, Mich.
Raymond Liebling, Nopco Chemical Co., Harrison, N.J.
K. R. Lange, Philadelphia Quartz Co., Primos, Pa.
Larry Garrison, Jefferson Chemical Company, Inc., Houston, Texas.
Edward Casey, Monsanto Co., Creve Coeur, Mo.
Edward Granholm, Allied Chemical Corp., Morristown, N.J.
Dieter von Hennig, Shell Chemical Company, New York, N.Y.

The final program for the Short Course is being reprinted in this issue showing times and all session chairmen. A Short Course notebook showing the program, abstracts and biographies of the speakers will be available to full registrants at the meeting.

• *Fats and Oils Report*

(Continued from page 269A)

developed, or by increased use of urea or other synthetic proteins.

Another radical development which could distort this pattern would be a change in government policy regarding soybean oil in the world market. As long as US soybean oil is priced above world prices and moves only in PL 480 programs, its use is curtailed and beans are crushed for the meal demand. Should this change, then oil prices would be lower than at present but oil demand would be the determinant and a new relationship would evolve. Until any of these developments occur the existing pattern looks stable.

DAVID M. BARTHOLOMEW,
Commodity Analyst
Merrill, Lynch, Pierce, Fenner & Smith Inc.