

Some Economic Aspects of the Fat and Oil Industry¹

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THE carryover of supplies of food fats in prospect for the 1953-54 crop year promises to be the greatest on record (1). This is due to the large stocks of vegetable oils and butter, most of which are owned by the government (CCC) and which are unavailable for domestic use except at specified minimum prices. Actual production of most edible fats and oils is expected to decline somewhat in the current crop year.

Based upon the U.S.D.A. report of October 1, the domestic soybean crop for 1953 will amount to 259 million bushels, a decline of 32 million bushels from last year and at least 50 million bushels below estimates dated as late as last August 1. This reflects the effect of the drought and hot weather prevailing during the latter part of the summer throughout the Middle West. Soybean oil production is expected to equal 2 billion, 300 million pounds.

Cottonseed output this year is estimated at 6,376 thousand tons, an increase of 200 thousand over last year. Allowing for holdover seed the resulting oil production is estimated at 1 billion, 800 million pounds.

Crushing and exports of peanuts for crushing in 1953-54 may exceed last year's total of 50 million pounds. Also CCC may sell more peanuts for oil than last year.

Lard and rendered pork fat production are estimated at 2 billion, 350 million pounds, a decline of a little over 200 million pounds from the previous year. Lard stocks also were appreciably smaller than a year earlier.

Butter production is estimated to be 1 billion, 560 million pounds, down about 50 million pounds from last year.

Total estimated edible meat fat production will amount to 4 billion, 110 million pounds while the total estimated edible vegetable oil production will be 4 billion, 714 million pounds.

Inedible tallow and grease production should total 2 billion, 500 million pounds, down only slightly from the record high of the previous year (1).

Production of flaxseed is up about 25% for the 1953 crop year. This is equivalent to about 650 million pounds. The crop produced in 1953 is more than adequate to meet all needs.

Usage of Fats and Oils

Total domestic disappearance of fats and oils, edible and inedible, in the year ending September 30, 1953, is estimated at 65 lbs. per person, of which about 42 lbs. are edible.

Butter consumption declined to a new low of about 8.7 lbs. per capita while margarine consumption has been steadily increasing. In the 1952-53 crop year it reached an all-time high of 8.1 lbs. per capita. Only two states, Minnesota and Wisconsin, now prohibit the production and sale of colored margarine.

Total per capita consumption of lard and shorten-

ing changes little each year. With less lard and more vegetable oil available in 1953-54 compared with last year, a greater percentage of lard probably will be used in the form of shortening. Use of lard in shortening has been increasing, reflecting recent technological advances. Total disappearance of lard and shortening together was about 21.5 lbs. per person in 1952-53.

Use of fats and oils in soap continued its downward trend in 1952-53, totalling about one-half pound per person less than the year before and the lowest in years.

Synthetic detergents continue to displace soaps made with fats and oils. According to the American Soap and Glycerine Association reports, the January-June, 1953, sales of synthetic detergents surpassed those of soap for the first time of record (1). Further expansion in the consumption of detergents is almost certain to occur in 1953-54 and will reflect reduced usage of fats and oils. While some synthetic detergents contain fats, most are made from petroleum derivatives and coal tar products. About 155 million pounds of fats and oils were used in synthetic detergents in the calendar year 1951 (latest period for which data are available).

Tallows and greases are the major domestic soap fats. As production has increased, while domestic requirements have declined, large quantities have become available for export at abnormally low prices. Exports in October-July, 1953, comprised a record 40% of total disappearance.

Price Outlook

It appears likely that at least through next spring prices of edible vegetable oils will average at least as high as their present levels. Unless CCC stocks are utilized, it is likely that a tight supply situation will materialize. CCC has announced that its sale price for crude cottonseed oil will be not less than 14¢ per pound F.O.B. mills, which is slightly above current price levels. The spread between cottonseed and soybean oils in 1953-54 is likely to be smaller than last year when a substantial premium was paid for cottonseed oil. Peanuts will probably be slightly higher in price than last year, and the oil price will be at least as high as the previous year.

The 1954 crop of flaxseed will be supported at \$3.14 per bushel as compared with \$3.79 per bushel in 1953.

Compared with edible vegetable oils, lard prices seem high, and some downward adjustment is likely later in the fall (1). However with reduced supplies compared with last year, lard prices will continue well above last year's level.

The large supplies of inedible tallow and grease will tend to keep prices of these fats in their abnormally depressed position.

Price of cottonseed oil has continued at relatively high levels because of purchases by the CCC at prices above the going market. As of October 1 their reported holdings of refined cottonseed oil amounted to

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slightly less than 800 million pounds. They have also acquired, or have been tendered since that time some 1,700 tanks of crude cottonseed oil, which has presumably not been refined. The ultimate disposition of this oil has been the cause of no little concern. Thus far only token quantities have been disposed of through the School Lunch and Overseas Christmas Package Distribution programs.

Traditionally the export market has provided the outlet for surplus domestic fats. Unfortunately dollar shortages in the areas where fats are in greatest demand have made it virtually impossible to export unless American funds are made available. The Mutual Security Act of 1953 authorizes the use of not less than 100 million or more than 250 million dollars for the purchase of U. S. agricultural products by other countries. Unquestionably fats and oils will come in for a substantial share of these funds, but basically this is a give-away program financed by the American taxpayers.

In addressing this Society on this same general subject several years ago (5), I endeavored to point out that unless new uses and new products were developed from fats, the industry faced a bleak prospect indeed.

Nothing has occurred in the intervening period to modify this prediction. Except for a brief flurry of high prices brought about by the Korean war, the same general price and supply situation has prevailed for the past several years.

The need for research has been recognized by both public agencies and private organizations. Swern, Ault, and McCutcheon (2) have reported early this year on a survey, sponsored by the U.S.D.A., covering research possibilities for animal fats, in which they have made a number of timely and worthwhile recommendations which serve to emphasize further that the only long-time improvement in the industry's position can come from research and the new products and processes resulting therefrom.

The Intercompetition of the Various Oils

A certain degree of interchangeability exists between most edible fats and oils. In general, two types of demand may be said to exist. One has to do with the minimum amounts or proportions that manufacturers believe must be used to produce the standardized products they desire. To the manufacturer there is no substitute for the minimum amounts of a particular oil they use in manufacturing a specific product. The other has to do with the price and available supply. These two types of demand may be considered as non-competitive and competitive, respectively. In recent years cottonseed oil has been the most highly prized commonly available domestic oil and has, in general, sold for a substantial premium over its closest competitor, soybean oil. The continued high level of usage of cottonseed oil in the face of the higher price level indicates that manufacturers are unwilling to substitute a cheaper oil beyond a certain maximum percentage. A pertinent fact which cannot be overlooked however is that soybean oil consumption is increasing yearly. This reflects advances in technology which are increasing the relative value of soybean oil and which are tending to change the non-competitive relationships between the two oils.

Another illustration of how technological advances are affecting basic economic factors is what certain observers have chosen to call "the virtual renaissance in lard technology" (3).

Lard has long been considered unsuitable for use in high quality shortenings because of certain inherent shortcomings. It was low in stability, possessed strong odors which some consumers found highly disagreeable, was low in smoke point, and was decidedly inferior for cake baking and for certain other baking purposes.

With lard suffering from these handicaps, it is not at all difficult to understand how the vegetable oil shortenings stole the market in the mid-30's and established themselves as the standard of comparison so far as shortening products were concerned.

One by one lard has overcome each of the shortcomings listed above until today it has regained its rightful place in the competitive picture. This recovery was not accomplished in a short time but rather as the result of a series of advances which have included hydrogenation, deodorization, the addition of minor percentages of completely saturated fats, protection against rancidity by the addition of antioxidants and, finally, by molecular rearrangement.

A government economist has taken cognizance of the economic impact of this new lard technology in a recent U. S. Dept. of Agriculture publication. He states ". . . the retail value of lard has shown a declining percentage of the (combined) total retail value of lard and shortening since the early 1920's. Owing mainly to concerted action on the part of the lard industry, this trend may have been reversed in 1951" (4). This reversal has become even more marked since that time.

There are a number of fields where fats and oils are finding new outlets which have already affected the economic picture or may do so in the not too distant future. Two examples are given below:

1. The rapid growth in consumption of frozen desserts (or mellorine as it is called in some states). This product in which vegetable or meat fats are substituted for butterfat is growing rapidly in the states which permit its manufacture and use. In 1952 approximately 12 million gallons were produced, and this year this quantity may well be doubled. While this may amount to not more than 4% of the total ice cream and frozen dessert manufactured in the United States, we must remember that margarine manufacture once was insignificant compared to butter production. The dairy industry views frozen dessert progress with mixed emotions. Butter fat is being displaced, but greater quantities of serum solids are being utilized.
2. Use of inedible tallows and greases in cattle feeds. The growth of solvent extraction in the vegetable oil industry has presented a problem due to the low residual oil content of the meal. In addition to being lowered nutritionally, the solvent-extracted product is extremely dusty, presenting handling as well as feeding problems. The addition of inedible tallow and/or grease restores the fat content to its normal level, thus correcting the foregoing deficiencies and, at the same time, providing an outlet for these extremely low priced products. While authorities have not agreed on the optimum level of usage, it is quite possible that if the use becomes general, it could well be a means of disposing of most, if not all, of the exportable surplus.

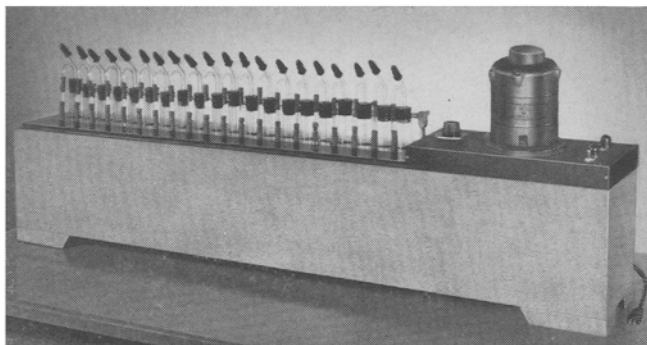
In both of the examples cited above an economic change is being brought about by a technological advance.

In conclusion, let me repeat a statement I made some time ago before this Society. The future of this industry is largely in the hands of the technologist. He has not failed in the past, and we may be sure

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that, if adequately supported, he will lead the industry to newer and greater heights in the future (5).

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