



## USDA pushes research on new markets and new derivatives to alleviate animal fat and vegetable oil surpluses

**A** TWO-PRONGED ATTACK on the problem of surplus fats and oils is progressing in USDA. Although no immediate gains can be expected, the projects may improve the situation over a period of time. One approach is to seek new markets for present products. The second consists of a research program designed to develop new marketable products from these materials.

The program involves three agencies in USDA and two private organizations working in close cooperation.

### Market Studies Under Way

The former Production and Marketing Administration, long concerned with fat and oil surpluses, has been studying ways to expand market outlets for these products. One study carried out in 1950 and 1951 by contract with John W. McCutcheon, Inc., private research firm of New York, related to inedible fats and oils and their derivatives.

Marketing of nondrying industrial fats and oils as affected by processing methods was the first of three reports resulting from this study. Two others discuss the potential market for these inedible fats and oils as affected by synthetic detergents and emulsifiers.

Further efforts along this line are being made through a new one-year contract with McCutcheon. This project, started earlier this year, has as its object determination of which fields of the chemical industry use fatty acids as raw materials and how this market can best be developed for inedible fats and oils. Additional studies on existing and potential market outlets in the synthetic detergent and emulsifier fields are also involved.

One of the major drawbacks to increased use of these materials is fluctuating price. These fluctuations are more marked than for other raw materials

such as petroleum derivatives, often used for the same purposes.

### Fats and Oils in Surplus

Increased production and reduced markets have created a substantial surplus of fats and oils. Excluding butter, combined annual output of animal fats has increased 2 billion pounds over the 1937-41 average to a record of 5.4 billion pounds (1952).

Lard accounts for 2.9 billion pounds, inedible tallow and grease, 2.3 billion pounds, and edible beef fats, 0.2 billion pounds.

Inedible tallow and grease have been in oversupply for several years. The 1952 surplus was 750 million pounds. It may reach 1.1 billion pounds by 1957. Loss of much of the soap market to synthetic detergents has been a major factor. However, even if all synthetic detergents were derived from fats and oils, a substantial surplus would still exist.

A similar situation exists with respect to vegetable oils. Production has increased 2.5 billion pounds over 1937-41 average attaining a record output of 4.9 billion pounds (1952). Soybean oil accounts for 2.5 billion pounds, cottonseed oil, 1.7 billion pounds; linseed oil, 0.5 billion pounds; peanut oil, 105 million pounds, and tung oil, 22 million pounds.

With a 50% increase in output and only an 11% increase in consumption compared to prewar years, vegetable oil surpluses have increased. Prior to 1948 the U. S. was a net importer of vegetable oils. The situation is quite different today. Surplus in 1951 was nearly 1.0 billion pounds; that in 1952, nearly 0.5 billion pounds. Under price support programs, the government has acquired nearly 1 billion pounds of cottonseed oil alone.

Loss of much of the paint market for vegetable drying oils has been a major factor.

### Physical and Market Research

The Bureau of Agricultural Economics and Bureau of Agricultural and Industrial Chemistry (prior to USDA reorganization) have responsibilities in the fats and oils field. They are jointly sponsoring a one-year, \$25,000 contract with Battelle Memorial Institute.

The contract calls for a study of the drying oil market potential for vegetable oils and also calls for physical research on the possibilities of modifying these oils. Battelle will consider the market potential for such items as linoleum, asphalt tile, brake linings, and core oils which have been minor uses compared to use in paints.

Results of the study will be used to guide research in BAIC's regional laboratories.

### Future Outlets for Fats and Oils

As a result of studies already conducted, the best prospects for increasing use of inedible tallow and grease lies in the "big time" synthetic organic chemicals such as plastics and plasticizers, rubber, pesticides, lubricating oil additives, waxes, solvents and adhesives.

Regional laboratory research indicates that animal fats may be modified to yield substitutes for imported palm oil in the hot-dip tinning process and steel rolling mills.

Technical grades of animal fats can be used advantageously in dog and poultry feeds. Food coating materials, mold releasing agents, and plasticizers may be produced through reactions of natural glycerides with acetic acid.

A solvent crystallization process and other new processes for obtaining stearic and oleic acids of greater purity than formerly shows industrial promise.

One of the most promising commercial developments has been the use of epoxidized fatty materials as stabilizing plasticizers in chlorine-containing polymers such as polyvinyl chloride.

Fat and oil uses fall into two broad categories: uses peculiar to the particular oil and uses that are interchangeable between various sources. Some higher types of fats and oils enjoy specialty markets which have tended to support prices.

Best prospects for increased consumption is in the nonfood field, some USDA officials believe, even though the current trend of consumption is downward. Before this potential can be developed, however, much fundamental research on fats and oils will be required. This can lead to new uses and to products to compete with synthetic materials. Loss of vegetable drying oil markets in the paint industry is a typical example.