USE OF FATS IN ANIMAL FEEDS

INTRODUCTION

H. R. KRAYBILL, AMERICAN MEAT INSTITUTE FOUNDATION, CHICAGO, ILLINOIS

ABOUT two and one-half billion pounds of inedible tallows and greases will be produced in this country in 1954. The efficient utilization of these fats is of importance to the entire national economy. For many years the meat packing industry has sold the beef carcass at wholesale at a price equal to or less than the cost of the live animal. This has been possible because of efficient utilization of by-products and a sustained demand for such products.

The prices paid for livestock are higher than would be warranted if there were no by-product recovery and if the price were determined solely by what the consumer is willing and able to pay for the edible products. A strong demand for by-products means better prices for the livestock producer. Higher livestock prices stimulate increased livestock production. Thus the consumer and livestock producer, as well as the meat processing industry, benefit when maximum value is realized from by-products.

In recent years the margin between the cost of the live animal and the value of the by-products has been decreasing sharply. The relative price of tallow is a typical illustration. From 1910 to 1920 the average price of tallow per pound was very close to that of the live animal. From 1920 to 1947 the price fluctuated from 47 to 90% of that of the live animal. Recently the price has been as low as from 10 to 20% of the average cost of the live animal.

In addition to the tallow and grease produced by the meat packing industry considerable quantities are available from the rendering industry. This industry performs an important service in the national economy by recovering useful products that otherwise would be wasted and would require expenditure of public funds for disposal in order to avoid public health hazards. Greases and tallows represent a substantial part of the value of the products produced by the rendering industry. Depressed prices of tallows and greases during recent years have made it very difficult for the rendering industry to operate successfully.

In 1952 there was a surplus of about 777 million pounds of these fats. Raymond Ewell of the Stanford Research Institute recently made an extensive study of the production and utilization of tallow and grease. He concluded that by 1957 an animal surplus of 1.1 billion pounds will be available and that, based on current usage, this level of surplus will be maintained for several years.

This symposium presents a number of papers on the use of stabilized fats in feeds. If, through research, we can find new uses for these surplus fats, it certainly is a much more effective and economical method of alleviating the price-depressing effect of surplus agricultural commodities than the method of purchase and storage by the federal government.

The Stabilization of Animal Fats with Antioxidants During Rendering[1, 2]

L. R. DUGAN JR., LOTTE MARX, PAUL OSTBY, and O. H. M. WILDER, American Meat Institute Foundation, The University of Chicago, Chicago, Illinois

THE requirement for stability in inedible grades of animal fats seldom has been stressed as it has for edible fats. The proteinaceous residue from rendering generally has been considered free from rancidity problems although almost all who store these products have been aware of rancidity at one time or another. The rapidly developing practice of adding animal fats to feeds has imposed a new requirement for stability in inedible grades of animal fat. This requirement stems from both the known and suspected vitamin- and other nutrient-destroying capabilities of rancid fats.

It is common practice to stabilize lard after rendering, and this involves the use of extra tanks and agitating devices. Since many rendering plants would be required to invest more capital to produce stabilized fats for use in feeds, it was decided to investigate the feasibility of stabilizing during the rendering process. If successful, this practice should produce not only a stable fat for use in feeds but also a more stable meat scrap, which also would be desirable for feed use.

A number of studies have been conducted on both pilot-plant scale and commercial dry rendering operations. These have produced variable results which will be discussed.

Pilot Plant Rendering Tests

All pilot plant renderings were performed in a standard design Albright-Nell dry melter reduced in size to contain 19.86 gallons. This readily will accommodate a charge of approximately 100 pounds of fatty animal tissues.

The data in Table I were obtained from rendering hashed and washed hog entrails in the pilot-plant dry melter. The materials were hashed to about 1-in. pieces and washed until free from fecal and food materials. Ten pounds of unstabilized lard were added to each charge of 100 pounds to provide a good fat content and fat saturation of all contents in the

[1] Presented at the 27th Fall Meeting of the American Oil Chemists' Society, Nov. 2-4, 1953, Chicago, Ill.
[2] Journal Paper No. 81, American Meat Institute Foundation.