



FATS AND PROTEINS RESEARCH FOUNDATION, INC.

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"THE DIRECTOR'S DIGEST"

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PESTICIDE RESIDUES IN ANIMAL FAT

For more than fifteen years increasing amounts of organic pesticides have been used to control agricultural pests. Indeed much of the increase in agricultural productivity and the improved quality of agricultural products can be attributed to the use of these modern pest control agents. However these materials must be used with great care to avoid contamination of our foods and feeds with potentially toxic concentrations of these chemicals, particularly the chlorinated hydrocarbon compounds. Even when carefully used according to directions, minute amounts of these chemicals find their way into fat of all animals and humans.

Since large quantities of inedible animal fats are now used in livestock feed, FPRF has been conducting a survey to determine the level of chlorinated hydrocarbon residues in these fats. To date 79 samples of rendered inedible fat have been collected and analyzed. Analyses were performed by a highly qualified laboratory using the most sensitive modern method available (gas-liquid chromatography with electron capture detection). Only very small amounts of DDT and its metabolites (DDE and DDD) have been found (Table 1). As noted, trace amounts of dieldrin have been detected in many samples. In addition, trace amounts of endrin, lindane, aldrin, chlordane and heptachlor have been found in only a total of seven samples (data not shown).

Table 1. Chlorinated Hydrocarbon Residues in Rendered Inedible Animal Fat (79 samples).

Grade of Fat	No. of Samples	Chlorinated Hydrocarbon Residues (ppm)					
		DDT+DDE+DDD		Dieldrin		Total	
		Range	Ave.	Range	Ave.	Range	Ave.
Fancy Tallow	22	.15- .56	.30	0-.08	.03	.17- .50	.34
Prime Tallow	9	.12- .70	.34	0-.05	.03	.15- .81	.38
No. 2 Tallow	10	.11- .50	.29	0-.06	.02	.10- .89	.32
Choice White Grease	10	.08- .28	.18	0-.03	.02	.09- .31	.20
Yellow Grease	25	.06-1.00	.23	0-.06	.02	.07-1.03	.28
Brown Grease	3	.10- .16	.13	0-.01	.01	.10- .17	.13

These data clearly show that rendered animal fats do not contain harmful levels of pesticide residues and can be safely used as ingredients in livestock feeds.

The 79 samples were obtained from 17 different producers in all sections of the country at two different seasons of the year so they are clearly representative of products produced throughout the United States. There is no clear-cut indication of any differences between the different grades of fat. To confirm these results additional samples from the same producers will be obtained and analyzed this winter and next spring.

Because of the large volume of animal fat that is used by the feed industry it is essential that producers of these fats take every precaution possible to prevent contamination with pesticides. Obviously it is not possible to control the residues present in the raw stock as it comes to the plant but the plant operator can take precautions to avoid adding undesirable residues to the material. Materials used in the plant for insect control should not contain any of the chlorinated hydrocarbons such as DDT, chlordane, etc. We must continue to keep harmful amounts of pesticide residues out of our rendered animal fats.

PROTEIN FROM PETROLEUM

For the past several years a number of companies, both in the U.S. and abroad, have been studying the conversion of petroleum to protein by fermentation. A technical article on this subject "Proteins Grow on High Purity Alkanes" appeared in the January 9 issue of Chemical and Engineering News. The article describes the joint efforts of Esso and Nestle on the production of protein by yeasts and bacteria growing on highly purified straight chain hydrocarbons with thirteen to nineteen carbon atoms. One pound of single cell protein(SCP)with a protein content of 50-70% can be produced from one pound of hydrocarbon, one pound of oxygen and 0.2 pound of other nutrients, including ammonia and phosphates. The product(SCP) is a bland powder with a good amino acid profile. The estimated cost of production is 35¢ per pound which is competitive with the current price of non-fat milk solids but not with plant protein or with animal or poultry by-product protein.