



FATS AND PROTEINS RESEARCH FOUNDATION, INC.

3150 DES PLAINES AVENUE • DES PLAINES, ILLINOIS 60018
(5 MINUTES FROM CHICAGO'S O'HARE AIRPORT)

TELEPHONE AREA CODE 312 827-0139

"THE DIRECTOR'S DIGEST"

D. M. Doty
Technical Director

June 20, 1967
No. 36

Composition of Animal By-Product Meals

Since most of the animal by-product high protein meals are used in animal feeds it is essential to know the composition of these meals for most effective utilization. Although considerable data on this subject are available the influence of season, location of the processor and type of rendering system has not been clearly established. To obtain this information 293 samples from 54 plants were submitted to a well-qualified laboratory for analysis. The samples were submitted from all sections of the country throughout a one year period.

Although the data have not been completely evaluated and summarized several pertinent facts are apparent. The composition of all the products studied was quite variable (Table I). However, this variability was not related to season or to the location of the plant. There is no indication from the data that the type of rendering system influences the uniformity of composition except that some plants using the solvent extraction process produced materials uniformly low in fat.

The variability in composition within plant was much less than the overall variability observed for the various products (Table II). As indicated by the data some plants do an excellent job of producing uniform products. This, of course, is influenced to a considerable degree by the type and uniformity of raw stock used.

The results of this study emphasize the need for all renderers to exercise the greatest possible control on the composition of the protein meal produced. Feed manufacturers are anxious to obtain materials that are uniform in composition, and only by producing a uniform product can a renderer obtain the maximum price for his protein meal.

Table I. The Composition of Animal By-Product Meals from Different Plants (range in values)

	<u>Protein</u> %	<u>Moisture</u> %	<u>Fat</u> %	<u>Ash</u> %	<u>Calcium</u> %	<u>Phosphorus</u> %
<u>45% Meat & Bone Meal</u>						
East (6) *	42.9-52.9	3.0-11.4	7.3-14.8	29.8-38.9	9.3-12.5	4.0-6.1
Midwest (4)	39.9-50.8	3.0-8.1	2.3-15.3	27.4-43.1	6.9-14.4	4.4-6.3
<u>50% Meat & Bone Meal</u>						
East (6)	49.6-59.0	4.1-6.5	8.4-13.9	23.4-31.7	5.6-10.7	2.7-5.3
Midwest (18)	46.0-56.3	2.4-9.8	3.2-15.5	21.8-37.0	6.0-11.6	3.0-5.6
West (6)	48.9-55.2	3.3-8.1	3.5-14.8	23.3-34.6	7.0-11.4	3.6-5.2
Packers (9)	46.6-59.4	3.5-7.8	8.8-13.9	22.4-35.8	6.6-10.8	3.4-5.0
<u>53-55% Meat & Bone Meal</u>						
East (2)	47.2-57.8	3.0-5.7	4.3-11.4	25.6-37.8	7.2-12.6	3.2-6.1
Midwest (7)	49.2-58.5	4.5-11.3	3.0-13.6	19.8-34.2	5.4-10.7	2.6-5.3
West (4)	51.5-58.2	2.2-6.3	4.5-13.4	22.1-36.6	6.5-12.3	3.0-6.1
Packers (2)	53.2-60.4	3.6-6.8	10.6-14.8	23.9-27.2	7.4-9.0	3.0-4.4
<u>60% Tankage</u>						
Midwest (5)	54.1-62.6	2.4-11.7	3.8-9.1	12.2-29.7	2.4-11.1	1.4-4.6
Packers (8)	58.7-66.5	3.3-10.9	3.0-11.3	9.4-24.5	2.3-7.8	1.5-4.0
<u>Feather Meal</u>						
East (4)	83.9-88.6	1.9-10.9	2.0-8.4	2.0-5.2	0.3-1.4	0.2-1.0
Midwest (5)	83.7-89.9	2.9-10.6	0.9-7.3	1.5-3.5	0.2-1.0	< 0.1-0.7
West (2)	84.1-89.8	4.3-8.8	3.3-5.0	1.3-5.8	0.2-0.6	< 0.1-0.3
<u>Poultry By-Product Meal</u>						
East (2)	55.6-62.0	3.4-4.9	12.3-18.5	8.6-22.7	2.8-6.6	1.8-3.6
Midwest (2)	56.3-67.0	3.4-10.5	12.7-18.2	11.7-17.8	3.3-5.6	1.9-2.8

*Figures in parentheses indicate number of plants

Table 2. Within Plant Variability of Composition of Animal By-Product Meals

	<u>Protein</u> %	<u>Moisture</u> %	<u>Fat</u> %	<u>Ash</u> %	<u>Calcium</u> %	<u>Phosphorus</u> %
45% M&B Meal	0.4-7.7	0.5-6.2	1.0-5.9	0.9-7.1	0.2-7.5	0.3-1.8
50% M&B Meal	0.9-8.9	0.6-4.4	0.5-4.8	2.1-7.6	0.6-3.4	0.3-1.5
53-55% M&B Meal	1.6-6.4	1.4-6.3	1.2-7.3	2.2-8.7	1.1-4.0	0.7-2.1
60% Tankage	1.0-6.3	2.5-6.4	1.3-8.3	4.2-9.1	1.9-6.3	0.7-1.9
Feather Meal	1.0-5.7	2.0-4.9	1.3-3.2	0.3-4.5	0.2-0.6	0.2-0.4
Poultry By-Product Meal	1.3-3.9	0.7-7.3	1.7-4.9	3.2-6.6	0.8-2.0	0.3-0.9