



# FATS AND PROTEINS RESEARCH FOUNDATION, INC.

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## "THE DIRECTOR'S DIGEST"

D. M. Doty  
Technical Director

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Professors A. J. Clawson and E. R. Barrick, North Carolina Agricultural Experiment Station, have recently submitted reports on two feeding trials with swine that were made with grant support from FPRF. Summaries of these reports follow.

### THE REPLACEMENT VALUE OF MEAT MEAL IN CORN SOYBEAN RATIONS FOR GROWING PIGS

Six lots of six pigs each were individually fed rations containing 14.6% protein, 0.6% calcium and 0.5% phosphorus. In three lots meat meal was added to supply 7.5, 15 and 20% of the total dietary protein. The 20% level of meat and bone meal supplied adequate amounts of calcium and phosphorus so that no additional calcium or phosphorus supplements were required. Since methionine and lysine may be limiting in swine rations these amino acids were added singly to two lots containing meat and bone meal at the highest level.

Table 1. Performance of pigs fed varying amounts of meat and bone meal to replace soybean meal in a corn-soybean meal ration. (Average for each lot)

Ration	1	2	3	4	5	6
	Corn SBM	Corn SBM MBM 7.5% of Pro.	Corn SBM MBM 15% of Pro.	Corn SBM MBM 20% of Pro.	No. 4 + 0.1% Methi- onine	No. 4 + 0.2% Lysine
Final Wt.-lbs.	206	210	208	208	208	208
Daily Feed-lbs.	5.44	5.50	5.24	5.56	5.44	5.58
Daily Gain-lbs.	1.63	1.69	1.62	1.66	1.67	1.62
Feed/gain-lbs.	3.33	3.25	3.23	3.36	3.27	3.43

The results of the test are shown in Table 1. The performance was good on all rations with no significant differences in growth rate or feed efficiency. Thus meat and bone meal was a satisfactory source of supplemental protein up to 20% of the dietary protein. At this level it also supplied adequate calcium and phosphorus to meet the dietary needs.

THE NUTRITIVE VALUE OF ENZYMATICALLY RENDERED  
HIGH PROTEIN MEAT MEAL FOR YOUNG PIGS

Enzymatically rendered meat meal produced for FPRF in the pilot plant was tested as a source of protein for young pigs. Four treatments using three pigs in each of three replications per treatment were used in comparing (1) soybean meal to supply 70% of the dietary protein, (2) soybean meal and dried skim milk each supplying approximately 35% of the dietary protein, (3) enzymatically rendered (E.R.) meat meal to supply 65% of the dietary protein, and (4) soybean meal and E.R. meat meal each supplying 33% of the dietary protein. Corn meal furnished the remainder of the protein in the 20% protein rations. All rations were fortified with vitamins and antibiotics and were equalized in phosphorus and calcium content. The weanling pigs were placed on test at 3-4 weeks of age and an average of 12.6 pounds. The pigs remained on test for four weeks.

Table 2. Performance of weanling pigs fed diets containing enzymatically rendered meat meal

Ration	Corn SBM	Corn SBM-DSM	Corn E.R. Meat Meal	Corn-SBM E.R. Meat Meal
Av. initial wt.-lbs.	12.6	12.7	12.7	12.5
Av. final wt.-lbs.	35	33	22	33
Av. daily gain-lbs.	.79	.74	.33	.74
Av. daily feed-lbs.	1.49	1.24	.53	1.26
Feed/gain-lbs.	1.88	1.69	1.59	1.71

The results (Table 2) show that the E.R. meat meal was not satisfactory as the sole protein supplement for corn in the ration for early weaned pigs but a limited amount could be used if blended with other protein sources. Daily feed intake was low for pigs that received the E.R. meal as the sole source of supplementary protein. This suggests that poor palatability as well as amino acid imbalance contributed to the poor performance on this ration. (Note: consideration is now being given to the use of enzymes in the enzymatic rendering process that will not solubilize the collagen. This should result in a product with a much better amino acid balance and higher nutritive quality).

NOTES ON OTHER FPRF PROJECTS

Professor E. Grant Moody, Arizona State University, and Wisconsin Alumni Research Foundation have just submitted preliminary reports on feeding tests with dairy cows using animal fat and fat plus sucroglyceride in the rations. Both trials were at high temperatures (Arizona State trial at ambient summer temperature and WARF test at 85°F.) The preliminary data do not indicate that tallow or tallow and sucroglyceride in the ration had any significant effect on milk production or fat content of the milk in either trial.