



FATS AND PROTEINS RESEARCH FOUNDATION, INC.

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THE DIRECTOR'S DIGEST
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FAT IN MIDWESTERN BEEF CATTLE RATIONS

Tests during the winter of 1969-70 by Professor W. M. Beeson, Purdue University, showed that fat added to corn silage-corn-urea rations reduced rate of gain and feed efficiency of beef cattle. However, preliminary results from current beef cattle feeding trials at Purdue University, supported by grant from FPRF, indicate that good gains and feed efficiency can be obtained from silage-corn-urea rations with added fat, particularly if additional calcium is also added to the ration (Table 1). It is expected that the same general trends will continue throughout the remainder of the feeding period.

Table 1. Gains and Feed Consumption for Beef Cattle After 56 Days

Fat-%:	0			3			6		
Calcium-g./day:	0	20	40	0	20	40	0	20	40
Av.gain/day-lbs.	3.02	3.18	2.86	2.96	3.05	3.02	2.87	2.88	3.17
	<u>Lbs. Feed/100 lbs. Gain</u>								
Corn Silage	654	624	690	657	646	652	670	691	630
Fat	0	0	0	8	3	8	15	16	13
Corn	373	370	364	338	328	315	314	335	281
Urea Supplement	33	35	43	34	37	41	35	39	39
Salt	1	1	1	.3	.2	.2	.2	.2	.2

CURRENT FPRF RESEARCH PROGRAM

Although several research projects supported by FPRF may continue for several years, the total research program changes yearly to give emphasis to the specific needs of our members. The 1970-71 program is summarized in the attached outline.

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RESEARCH PROGRAM
1970-71

Proteins

1. Fermentation of Collagen - Jules D. Porsche and Associates

Objective: To produce microbial protein of high nutritional quality using collagen as the primary substrate.

2. Edible Protein Concentrate from Meat and Bone Meal - North Star Research and Development Institute

Objective: To prepare a protein concentrate of high nutritive quality and good physical characteristics from meat and bone meal.

3. Blood Protein Concentrate - Texas A&M University

Objective: To prepare a bland, colorless protein concentrate containing the plasma and globin proteins from animal blood and establish the utility of the product(s) in various food products.

4. Soil Dispersants and Phosphate Replacements Derived from Collagen - IIT Research Institute

Objective: To prepare and evaluate derivatives of collagen as soil dispersants and phosphate replacements in built laundry detergents.

5. Effect of Processing Conditions on Amino Acid Availability in Hydrolyzed Feather Meal - Iowa State University

Objective: To determine the influence of processing conditions on the availability of amino acids in feather meal when used in broiler rations.

6. Amino Acid Availability in Meat and Bone Meal -
University of Arkansas

Objective: To evaluate the availability of amino acids in meat and bone meal when used in broiler rations.

7. Meat and Bone Meal in Catfish Nutrition - Kansas
State University

Objective: To establish the effectiveness of animal by-product meals as sources of protein and minerals when used at different levels in feed for catfish.

Fats

1. New Ideas for Fat Utilization - Battelle Memorial Institute

Objective: To develop new ideas for the industrial utilization of animal fat and disseminate these ideas to organizations that may be interested in their commercial development.

2. Fat-Coated Urea for Livestock Feeding - Battelle Memorial
Institute and Ohio State University

Objective: To evaluate the level of fat and techniques for applying fat coating to urea to retard the rate of ammonia formation in the rumen and to estimate the potential market for an effective fat-coated urea.

3. Fat in Midwestern Beef Cattle Rations - Purdue University

Objective: To establish the optimum level and the most effective method of feeding animal fat to beef cattle fed rations consisting primarily of high moisture corn, corn silage and urea.

4. Fat in Liquid Cattle Rations - Texas A&M University

Objective: To develop methods for incorporating fat into emulsions for feeding beef cattle and to establish the effectiveness of the emulsions for feeding beef cattle.

5. Fat Utilization by Ruminants - University of Guelph

Objective: To determine the fundamental factors influencing the utilization of fat by ruminants.

6. Formulation of TALENT - IIT Research Institute

Objective: To formulate TALENT (a fat-containing admixture for concrete and mortar products) as a stable low-viscosity emulsion that will significantly increase the strength and water-repellent properties of the concrete or mortar products.

Environmental and Operational

1. Nutritional Value of Meat and Bone Meal Treated for Salmonella Control - WARF Institute

Objective: To determine whether or not heat treatment of, acid antagonist addition to, or formaldehyde addition to meat and bone meal have any adverse effects on its nutritive value.

2. Identification and Removal of Odorous Compounds in Rendering Plant Emissions - IIT Research Institute

Objective: To identify chemically the major odorous compounds in rendering plant emissions and to establish on a laboratory scale the most effective techniques for removing or destroying these odorous compounds.

3. Removal of Polymeric Materials from Rendered Animal Fat - Michigan State University

Objective: To develop techniques for the removal of polyethylene and other polymeric materials from fat; the techniques should be economical on a commercial scale.