



FATS AND PROTEINS RESEARCH FOUNDATION, INC.

2720 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

November 18, 1971
No. 89

ANIMAL BY-PRODUCTS IN FEED FOR CATFISH

Although the basic principles for catfish nutrition are not as well established as is true for land based animals, most authorities recommend that practical formulated feeds for catfish contain fish meal and animal by-product meals to furnish a relatively high proportion of animal protein. With grant support from FPRF, Professor Deyoe, Kansas State University, is investigating the effectiveness of meat and bone meal and other animal by-product meals as sources of protein and minerals in feed for catfish. In one study a diet containing meat and bone meal and blood meal was compared to diets containing raw catfish or raw buffalo carp to supply part of the protein.

The feeds were formulated to contain approximately 35% protein and expanded pellets prepared to yield floating cage rations. The rations were fed in cages to catfish in their second growing season from June 5 to September 18, at the rate of 3% of the fish weight daily for six days each week.

The overall chemical composition of the formulated feeds varied slightly but probably not significantly (Table 1). It is perhaps significant however that the meat and bone meal ration had a slightly lower protein and energy level than the fish rations and included a much lower proportion of the protein from soybean meal.

The fish in this study gained over 300% during the fourteen week period and went from 12.5 fish per pound to approximately 3.5 fish per pound. Performance on the three feeds was quite satisfactory and there were no appreciable differences in results from the three feeds (Table 2).

Professor Deyoe concludes from this experiment that "Meat by-products either as a single source of animal protein or in combinations with fish protein can be effectively used in catfish rations."

Table 1. Composition of Catfish Feeds Used in the Study

	Meat and Bone Meal <u>Ration</u>	Raw Catfish <u>Ration</u>	Raw Carp <u>Ration</u>
Moisture, %	9.9	10.7	11.5
Fat, %*	1.7	3.1	2.3
Fiber, %*	5.0	4.8	5.1
Ash, %*	10.0	10.0	10.0
Energy, K cal./lb.**	1017	1050	1050
Protein, %*	35.6	37.0	36.8
Protein from M&B Meal, %	8.4	5.0	5.0
Protein from Blood Meal, %	2.4	-	-
Protein from Raw Fish, %	-	3.5	3.5
Protein from Soybean Meal, %	16.0	21.0	21.0
Protein from Grains, %**	8.8	7.5	7.3

*Dry Basis

**Calculated

Table 2. Performance of Catfish on Three Feeds Used in the Study

	Meat and Bone Meal <u>Ration</u>	Raw Catfish <u>Ration</u>	Raw Carp <u>Ration</u>
Total wt. gain, lbs.	240.2	226.6	251.6
Total feed used, lbs.	464.5	432.5	464.0
Feed conversion	1.93	1.91	1.84