

CATFISH FARMING

Less protein still makes good diet



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By Bonnie Coblenz

Researchers at Mississippi State University who are trying to formulate the best diet for catfish have found a protein mix that seems to be the most efficient.

Protein is added to catfish diets from either plant or animal sources. Catfish need protein for the same reasons every other living thing needs protein — bodies cannot make certain amino acids needed to function and must get these from food.

The animal protein added to catfish diets is usually fish meal, meat and bone/blood meal, or poultry meal. The primary plant source of protein is soybeans. Corn and wheat are mainly used for energy, but they also supply some protein.

Ed Robinson, MAFES researcher, and Meng Li, MAFES associate research professor, studied protein types and amounts in catfish diets. The studies were conducted at Mississippi State University's Delta Research and Extension Center in Stoneville.

To bring the highest profit to catfish producers, they found success in a diet of 28 percent protein with little or none of it animal protein.

"Producers typically feed a diet of 32 percent protein, but the research shows a diet of 28 percent protein is more than adequate," Robinson said. "A diet of 28 percent protein is the most economical for growth for fish from 6 inches long to harvest, which is about 2 pounds."

Robinson said feed is the single largest production cost for raising catfish, accounting for about 50 percent of the variable operating costs. Catfish feed is made primarily of soybean meal, with corn, wheat, fish meal and some-

times cottonseed meal. Vitamins, minerals and fat are added to the feed.

To test the diets, researchers stocked fingerling catfish into 60, one-tenth-acre ponds. They were placed in the ponds at either 6,000, 12,000 or 18,000 fish per acre, creating three stocking densities.

The fish were fed once a day on one of four diets for two growing seasons. The diets contained either 28 or 32 percent protein, with or without animal protein.

"Results show that there were no differences in any variable except for visceral fat and fillet fat between fish fed the 28 percent and the 32 percent protein diets," Robinson said.

Research results show producers can save \$8 to \$10 a ton by switching to a 28 percent protein diet from one that includes 32 percent. Robinson called this savings significant, saying that a farmer with 500 water acres could save as much as \$25,000 a year by reducing the costs of feed.

"That would pay someone's labor for the year," Robinson said. "If we can't save money on the feed, the research doesn't make any difference."

In addition to studying the amount of protein in diets, the research looked at whether the type of protein made a difference in catfish growth. Robinson said that while young catfish fry, or those less than 6 inches long, need animal protein, catfish being grown out for harvest perform equally well on plant and animal protein.

Plant protein is almost always cheaper than animal protein, but the reformulated diet keeps a bit of animal protein in as a safety margin.



Jim Lytle

Ed Robinson

"We were trying to reduce the amount of animal protein needed in catfish diets," Robinson said. "Even though animal protein may be a little higher quality than plant protein, you can balance the plant protein and still get the same benefit in the catfish."

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