

AQUACULTURE

REDUCING FEED COST FOR HYBRID CATFISH FINGERLING PRODUCTION

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CATFISH FINGERLING FEED PRICES HAVE INCREASED TO \$600-700 PER TON IN THE PAST FEW YEARS. THERE IS INTEREST AMONG CATFISH FINGERLING PRODUCERS IN REDUCING FEED COST. FEED COST CAN BE REDUCED BY LOWERING PROTEIN LEVELS AND USING LESS EXPENSIVE ALTERNATIVE FEEDSTUFFS, BUT THIS SHOULD BE DONE WITHOUT COMPROMISING FISH PERFORMANCE.

In commercial catfish fingerling production, nursery ponds are typically fertilized with inorganic fertilizers before stocking with catfish fry to ensure adequate desirable zooplankton are available. The newly stocked fry are also fed with powdered feeds as supplemental nutrients. Once the fry reach about 1-2 inches and come up to the pond surface, they are generally fed small floating pellets containing 35% protein, part of which is supplied by fish meal. As fish grow they may be switched to slightly larger pellets containing 35% or 32% protein. Prices of commercial 35% protein fingerling feeds have increased to \$600-700 per ton in the past few years, so there has been interest among catfish fingerling producers in reducing feed cost. Feed cost can be reduced by lowering protein levels, using less expensive

alternative feed ingredients, or both, provided fish performance is adequately maintained.

A feeding trial was conducted to evaluate diets containing 35% or 32% protein with 7.5% fish meal or pork meat, bone, and blood meal (PMBB) for pond-raised hybrid catfish fingerlings. The 35% protein diet with fish meal was similar to commercial catfish fingerling feeds in diet composition and was used as the control. All diets were formulated to meet or exceed all known nutrient requirements for channel catfish.

Three weeks before stocking, the ponds were fertilized with urea according to recommended dose and schedule to ensure natural foods were available. Small hybrid catfish fingerlings with an average weight of 4.5 pounds per 1,000 (2.4 inches) were stocked into twenty



0.1-acre ponds at a density of approximately 70,000 fish per acre based on sample weight and count of 1,000 fish. Each diet had five replicated ponds. The fish were fed once a day to apparent satiation from July to October for 113 days. Ponds were managed according to typical industry practices.

At the end of the study, there were no significant differences in total amount of feed fed, gross yield, feed conversion ratio, or observed mortality in fish fed 35% or 32% protein diets containing fish meal or PMBB (Table 1). There were also no significant differences in the number of desirable zooplankton or ammonia and nitrite levels in the pond water among dietary treatments.

At the time of feed purchase (June 2015), the control diet (35% protein with fish meal) cost \$614 per ton. The 32% protein diet with fish meal, 35% protein diet with PMBB, and 32% protein diet with PMBB cost \$20, \$69, and \$89 per ton less than the control, respectively, which are equivalent to annual savings of \$120, \$414, \$534 per acre, if a total of 6 tons of feed per acre were fed in a growing season. Although feed prices often fluctuate, there will be some savings using the 32% protein diet with PMBB, because fish meal is much more expensive. An additional trial is planned for 2016 to further evaluate catfish fingerling diets including all-plant diets and lower protein diets.

Dietary protein (%)	Animal protein	Total feed fed (lb/ac)	Gross yield (lb/ac)	Final weight ¹ (lb/1,000)	Feed conversion ratio	Observed mortality (#/pond)
35	fish meal	13,532	11,202	148	1.24	14
35	PMBB	13,727	11,135	162	1.27	4
32	fish meal	12,944	10,707	152	1.24	21
32	PMBB	13,986	11,724	166	1.23	25

¹Estimated based on sample weight of 1,000 fish per pond.

Table 1. Production characteristics of hybrid catfish fingerlings fed diets containing 35% or 32% protein with 7.5% fish meal or pork meat, bone, and blood meal (PMBB) for 113 days.