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USE OF THREADFIN SHAD AS A FORAGE SPECIES IN CHANNEL CATFISH PRODUCTION PONDS

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As pond bank prices of channel catfish (*Ictalurus punctatus*) continue at low levels, farmers are seeking ways to increase production efficiency and reduce costs. One strategy under consideration is to reduce feed utilization as a means to lower production costs, of which feed is a major component. Threadfin shad (*Dorosoma petenense*) have been stocked in channel catfish production ponds in an effort to control phytoplankton biomass, especially the algae responsible for off-flavor. However, because of their smaller size threadfin shad also could serve as forage fish for channel catfish in production ponds, thereby allowing a reduction in either feed quantity offered to fish or in feeding frequency. The objective of the present study was to determine if channel catfish feeding frequency could be reduced to once every three days compared to daily in ponds co-stocked with threadfin shad.

Twelve 0.1-ha earthen ponds, located on the Aquaculture Research Station, University of Arkansas at Pine Bluff, were used for this study. A completely randomized design in factorial arrangement was used. Factors tested were presence/absence of threadfin shad and feeding frequency of daily or every third day. There were three replicates per treatment. Ponds were filled with well water, fertilized, and the phytoplankton bloom allowed to develop. Adult threadfin shad (mean weight 4.8 g) that had not spawned yet were stocked at 408 kg/ha into their respective ponds over a three-week period. Shad were allowed three weeks to spawn. Each pond then was stocked with stocker channel catfish (mean weight 0.35 kg) at 5,040 kg/ha and fingerling catfish (14,820/ha, average weight 27 g). Fish were fed a 32% crude protein floating extruded feed either daily or every third day. The total weight of feed offered per pond was recorded daily. Fish were fed to apparent satiation at each feeding. Stocker fish growth was monitored periodically by seine sample using a 3.8-cm mesh seine. Threadfin shad and understocked fingerlings were not captured by seine during sampling. Ponds were equipped with 0.37-kW electric paddlewheel aerator and were operated as needed to maintain 3.5 mg/L dissolved oxygen concentration. Ponds were harvested by draining and total weight of each class of fish determined. Mean individual weight of fish in each size class was determined by individually weighing 100 fish per pond. Gross yield and survival were measured for stocker and fingerling catfish. Gross yield of threadfin shad was measured. Feed conversion ratio was calculated by dividing total feed offered by the sum of the stocker and fingerling catfish yields.