Plastic-lined ponds: Backyard fish culture in limited land use

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Abstract

The purpose of this research was to investigate a method using shallow plastic-lined ponds for raising hybrid catfish. The method was introduced in an attempt to make more food available for household consumption and sale while using minimal land area and minimal water requirement. On-farm research was carried out in Nongbua Village, in a drought-prone area of Northeast Thailand among minor tributaries of the Mekong River. The ponds were 2m x 4m and 1m deep. In-depth interview was employed for data collection. The results revealed that ninety percent of households in the village adopted this method. The farmers gained knowledge and skills and were able to design a fish feed formula using locally available raw feed materials to reduce the cost. After harvesting the fish, nutrient-rich pond water was used to irrigate crops grown on the pond dykes. The hybrid catfish produced were sold at 50 baht/kg and the dried salted catfish were sold at 100 - 150 baht/kg.

On-station experimental research was undertaken to examine the effects of the main locally resourced feed material, golden apple snail, which infests rice paddies, on growth of the hybrid catfish and to compare costs of this feed and commercial feed. The experiment was conducted for five weeks with two treatments and three replications. Treatments 1 and 2 fed commercial pellet feed and the feed mixed with golden apple snail powder, respectively. T-test analysis showed the average growth rates, feed conversion ratios and survival rates of the fish were not significantly different ($P>0.05$). The feed costs were 28.86 and 21.77 baht per one kilogram fish yield for Treatment 1 and Treatment 2, respectively. The cost of using fish feed with dietary golden apple snail was significantly lower ($P< 0.01$). This method is suitable for providing food security in an area of water scarcity.

Key words: plastic-lined pond, minimal land area, minimal water requirement, catfish, Northeast Thailand