THE CO-CULTURE OF CLARIAS AND TILAPIA IN THAILAND

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Introduction

Growing Clarias spp. using prepared feeds is a common practice in Thailand. Usually Clarias are grown in circulating systems such as concrete tanks flushed with water from a reservoir or earthen ponds without water replacement. Because of their ability to breathe air, Clarias can tolerate low levels of oxygen in the water of these rearing systems; however, water quality does appear to influence growth and survival (Diana et al., 1988). Water quality in circulating systems can be improved by the following methods: 1) flushing, 2) lowering stocking density in tanks, or 3) lowering feeding rates. An alternative to the above mentioned methods involves the utilization of a system that combines Clarias in cages with tilapia at large, and allows primary production in the pond waters to utilize surplus nutrients. The tilapia may harvest phytoplankton as food to further improve water quality. In addition to tilapia, silver carp and/or other phytoplanktivores are also believed to reduce phytoplankton abundance. This system combines a fed, growout pond and settling pond into one system with the harvest of two crops.

Outcomes of the Co-culture of Clarias and Tilapia

Preliminary experiments with such a system have been very successful (Lin and Diana, 1995). Clarias have grown well on pelleted feed and tilapia growth in cage ponds has been higher than in fertilized ponds. Undoubtedly the increased growth in tilapia is attributed to their consumption of uneaten feed and natural food produced by assimilation of Clarias excretory products. Water quality on discharge is also significantly improved compared with normal Clarias culture.

Since 1992 this system has been adopted on a commercial scale in Northeast Thailand. The commercial system utilizes 600 m² ponds. Each pond includes 15 cages, 1 m³ in size, with 1,000 Clarias per cage. The Clarias grow from 5 to 100 g (market size) in 1.5 months, yielding about three Clarias crops in one tilapia growout. Production approaches 9,000 kg of Clarias and 1,000 kg of tilapia in a growout, which equates to 45,000 kg/ha/yr of Clarias, and 5,000 kg/ha/yr of tilapia. Pelleted feed can be used for Clarias, while fertilizer balancing (adding phosphorus or nitrogen to balance the N:P ratio) may be used to improve tilapia growth. Interestingly, the Thailand commercial system uses pig dung in bins to attract flies for maggot production. This system can produce 200 kg of maggots per day. The maggots are then fed to the Clarias, replacing expensive feed pellets with inexpensive feeds for the intensive portion of the system.

Literature Cited
