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AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM



RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Tilapia-Shrimp Polyculture in Thailand

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Date: 27 July 2007

Publication Number: CRSP Research Report 04-A18

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Abstract: A survey on tilapia-shrimp polyculture was conducted in Thailand from March until June 2002, to assess the current status of Thai farmers' practices of tilapia-shrimp polyculture. Sixty-one farmers who culture fish in their shrimp farms in 12 provinces of Thailand were selected and interviewed using a structured checklist and open-ended type of questionnaires.

Results showed that three versions of tilapia-shrimp polyculture, namely: a) simultaneous, b) sequential, and c) crop rotation systems, are practiced by Thai shrimp farmers. Among the farmers, 42.6% use a simultaneous polyculture system, while percentages of farmers using sequential and crop rotation systems are 34.4 and 6.6%, respectively. The remaining 16.4% of farmers stock fish in reservoir ponds and use a monoculture system for shrimp. Among the farmers who adopt the simultaneous tilapia- shrimp polyculture system, 76.9% released tilapias directly into shrimp ponds, and 23.1% stocked tilapias in cages suspended in shrimp ponds. Tilapia-shrimp polyculture is practiced in a wide range of salinity levels from 0 to 30 ‰. Tilapias used in the polyculture include red tilapia (*Oreochromis spp.*), Nile tilapia (*O. niloticus*), and Mossambique tilapia (*O. mossambicus*).

The survey revealed that shrimp production and economic returns from the two simultaneous polyculture systems and in sequential polyculture systems were higher than

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those in their respective shrimp monoculture systems practiced previously. Also shrimp production and economic returns from these polyculture systems were higher than those in the crop rotation polyculture system and in the currently practiced monoculture system. For many farmers, tilapia-shrimp polyculture could improve water quality in shrimp ponds, reduce diseases, and reduce the use of chemicals. In the direct style of tilapia-shrimp polyculture, about 40% farmers believed that tilapias compete for feed with shrimp, while the remaining 60% were not aware of such feed competition.

It can be concluded from the survey that polyculture of shrimp with tilapias may provide an alternative approach for shrimp farming, which could ultimately lead to a more sustainable shrimp industry. However, further research is needed on the merits for converting from shrimp monoculture to polyculture with tilapia.

This abstract is excerpted from the original paper, which was a proceeding of the Sixth International Symposium on Tilapia in Aquaculture.

CRSP RESEARCH REPORTS are published as occasional papers by the Program Management Office, Aquaculture Collaborative Research Support Program, Oregon State University, 418 Snell Hall, Corvallis, Oregon 97331-1643 USA. The Aquaculture CRSP is supported by the US Agency for International Development under CRSP Grant No.: LAG-G-00-96-90015-00. See the website at <pdacrsp.orest.edu>.