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Environment-friendly shrimp grow-out technology

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Based on techno-demonstration runs, investment required for a hectare of shrimp pond is from P400,000 to 800,000. For culture to be profitable, two croppings should produce about 4,700 kg per ha per crop.

Return on investment is 80% after two crops

The Philippines is one of the pioneers in farming the giant tiger shrimp *Penaeus monodon*; the first culture can be traced back to 1960. Like the industry in other countries, it underwent boom-and-bust. In 1996, shrimp production had stabilized somewhat, but then declined again due to disease outbreaks caused by self-generated pollution. This decline went on until 1999. After that, production gradually increased from 34,627 tons to 42,390 tons in 2001.

The ideal solution for the tiger shrimp industry is to reduce or even completely eliminate self-generated pollution without drastically reducing stocking density. Schemes towards this end have been tested and verified by SEAFDEC/AQD.

Environment-friendly schemes of shrimp farming have the following features: head reservoir to supply quality water, tail reservoir to serve as a treatment pond, filter box to reduce unwanted aquatic animals, long-arm paddle-wheel to aerate and circulate pond water, the use of sludge collectors and substrates like nets to enhance attachment of natural food.

Moreover, crop rotation is practised in about two croppings; salinity reduction is employed through addition of freshwater at the head reservoir; and biomanipulators like tilapia and milkfish are stocked at tail reservoir and sludge collectors to inhibit growth of luminous bacteria. It is also necessary to use high quality feeds for efficient growth rate, and probiotics to eliminate toxic gases and prevent growth of pathogenic bacteria.

Shrimp culture has an expected survival rate of 60 to 98% at stocking densities between 5 to 60 postlarvae per m². Body weight of about 30 to 40 g could be attained after 90 to 150 days of culture.

In 2000, BFAR and AQD collaborated for a nationwide extension of the improved shrimp technology, dubbed the *Joint Mission for Accelerated Nationwide Technology Transfer Program* (JMANTTP). Since then, verification runs on shrimp culture using environment-friendly protocols were conducted. Through JMANTTP, AQD can respond to the requests of the private sectors for on-farm technology demonstration.



Technology presenter and contact person

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Baliao graduated from the University of the Philippines in the Visayas, College of Fisheries with a masters degree in Fisheries major in Aquaculture in 1978. His bachelor's degree in Biological Science was also earned at the same university.

Baliao authored several aquaculture extension manuals which were the results of the TVES verification studies. These manuals include: net cage culture of tilapia in dams and small farm reservoirs, grouper culture in brackishwater ponds, pen culture of mud crab in mangroves, grouper culture in floating net cages, milkfish ponds culture, and mud crab production in brackishwater ponds. *Email:* dbaliao@aqd.seafdec.org.ph