Evaluating Technology Adoption by the Small-Scale Aquaculture Operations in Developing Countries for Improved Productivity and Profitability

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The Aquaculture & Fisheries Collaborative Research Support Program (Aquafish CRSP) fosters the development of technological innovations in aquaculture and fisheries to provide direct results for increased production and decreased environmental impacts in host countries. Ensuring the availability and accessibility of successful technologies through inventive dissemination techniques is a high priority for Aquafish CRSP researchers. In order to provide the greatest impact, focused efforts on increased adoption rates are key to success. Some of the technologies that Aquafish CRSP researchers have developed and disseminated to target communities include:

- Rice-fish culture
- Internet-based tilapia podcasts
- Cage-cum-pond culture

Other technologies:
- Featurled:
  - Rice-fish culture
  - Internet-based tilapia podcasts
  - Cage-cum-pond culture

With involvement from 20 countries and 21 US universities, Aquafish CRSP researchers have successfully fostered the adoption of these technologies in communities around the world and have also enabled the transfer of technology between participating host countries (i.e. from China to Mali and from Kenya to Mali). The program encourages technology transfer by identifying key factors and strategies that can contribute to the successful adoption and impact of new technologies.

One of the main themes in the CRSP is the need for extension tools and methods to improve technology adoption rates. Some of the technologies that Aquafish CRSP researchers have helped to introduce include:

- Cage culture in Mexico.
- Integrated cage-cum-pond culture
- Cage culture in Ghana.
- Cage culture in Guyana.

In the recent past, integrated cage-cum-pond culture systems have been developed and practiced using combinations of catfish-tilapia and catfish-fish. The integration of fish-culture systems, such as tilapia-tilapia, catfish-tilapia, or catfish-catfish, has been developed and practiced using combinations of catfish-tilapia and catfish-fish.

Rice-fish culture, which can be traced as far back as 2,000 years ago in China, is still practiced today throughout Asia. The rice-fish system is an integration of fish culture and paddy-based rice production, often (but not always) in irrigated areas. Each system is a modification of an existing rice field to accommodate the additional requirements of a crop of fish. Due to the potential of rice-fish culture to provide new opportunities for farmers and improve local diets, the Aquafish CRSP Mali project transferred rice-fish techniques from China to selected areas in Mali. The addition of fish to the rice fields not only provides a new source of income and nutrition for farmers and their communities, but it can also benefit rice production through the reduction of weeds, improved insect control, loosening of the soil, and direct fertilization from fish excreta.

In June 2009, the process of converting two rice fields in the Baguineda irrigation area for rice-fish culture began with the modification of the fields to provide a sump and access channels for the fish. After a six-month culture period, the farmers harvested tilapia and tilapia-tilapia. A combination of tilapia and Catfish catfish provided a total of 89 kg of fish from the two sites. Budget analysis show that the addition of fish to the field produced CFA 60,720 extra income for the farmers.

In Ghana, the Aquafish CRSP team has worked to identify constraints to the widespread adoption of cage-cum-pond culture in order to create more opportunities for rural fish farmers. What they found was that the main constraint in cage aquaculture in Ghana is the lack of capital to purchase input such as feed. In addition, it seems farmers’ knowledge is inadequate and they could use more extension services.