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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Cage-pond integration of African catfish (*Clarias gariepinus*) and Nile tilapia (*Oreochromis niloticus*) with carps

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Abstract: Cage-pond integration system is a new model for enhancing productivity of pond aquaculture system. A field trial was conducted using African catfish (*Clarias gariepinus*) and Nile tilapia (*Oreochromis niloticus*) in cages and carps in earthen ponds. There were four treatments replicated five times: (1) carps in ponds without cage, (2) tilapia at 30 fish m^{-3} in cage and carps in open pond, (3) catfish at 100 fish m^{-3} in cage and carps in open pond, (4) tilapia and catfish at 30 and 100 fish m^{-3}, respectively, in separate cages and carps in open pond. The carps were stocked at 1 fish m^{-2}. The cage occupied about 3% of the pond area. The caged tilapia and catfish were fed and the control ponds were fertilized. Results showed that the combined extrapolated net yield was significantly higher ($P < 0.05$) in the catfish, tilapia and carps integration system (9.4 ± 1.6 t ha^{-1} $year^{-1}$) than in the carp polyculture (3.3 ± 0.7 t ha^{-1} $year^{-1}$). The net return from the tilapia and carps (6860 US$ ha^{-1} $year^{-1}$) and catfish, tilapia and carps integration systems (6668 US$ ha^{-1} $year^{-1}$) was significantly higher than in the carp polyculture (1709 US$ ha^{-1} $year^{-1}$) ($P < 0.05$). This experiment demonstrated that the cage-pond integration of African catfish and Nile tilapia with carps is the best technology to increase production; whereas integration of tilapia and carp for profitability.

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