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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Effects of Two Environmental Best Management Practices on Pond Water and Effluent Quality and Growth of Nile Tilapia, *Oreochromis niloticus*

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The trajectory of aquaculture growth in sub-Saharan Africa has necessitated closer attention to the use of environmental best management practices (BMPs). Two BMPs in particular, water reuse and floating feeds, are being promoted for adoption by pond fish farmers in sub-Saharan Africa. In this study, we investigated: (1) the effect of water source and feed type on water quality; (2) the effect of water source and feed type on tilapia growth; and (3) the quality of potential effluents from ponds using different water source and feed types. The study was conducted in Ghana using on-farm experiments involving monitoring of water quality and growth of Nile tilapia *Oreochromis niloticus* for 160 days. Although considered low-intensity production systems, nutrients and solids in the study ponds exceeded levels expected in intensive culture ponds by wide margins, whereas BOD₅ was within the range for semi-intensive ponds. Floating feed was associated with higher water quality, especially dissolved oxygen, and higher growth, but water source did not significantly affect growth. Water reuse appears to be a viable BMP for sustainable aquaculture in the region, but the use

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of floating feed as BMP will depend on the economic profitability of floating feed use.

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