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POND DYNAMICS/ AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM

## RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

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**Title:** Effects of fertilizers and feeds as nutrient sources on *Oreochromis niloticus* production in Philippine brackishwater ponds

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**Abstract:** An experiment was conducted to test the effect of chicken manure, 16-20-0, feeds with 20% crude protein (CP) and their combinations on pond productivity and water quality and on the growth and production of Nile tilapia (*Oreochromis niloticus*) in brackishwater ponds. Results showed low average daily weight increments of Nile tilapia of 0.52 to 1.25 g/day and 0.56 to 1.04 g/day for the first and second runs, respectively. Fish from treatments that received feed (either alone or in combination with chicken manure and/or 16-20-0) were significantly bigger ( $P < 0.01$ ) than fish from treatments without feed. The combination of chicken manure and 16-20-0 did not contribute significantly to the production of tilapia. Higher temperatures were obtained in the treatments with inputs. Dissolved oxygen content was lowest in the feed-chicken manure-16-20-0 combination. Nitrate and nitrite levels were significantly higher in the treatments that received chicken manure ( $P < 0.05$ ); available phosphorus was significantly highest ( $P < 0.01$ ) in the chicken manure-feed combination. There are indications that the phosphorus content of chicken manure increased that in the soil although total phosphorus in the soil contributed only about 0.8% of that in water. The organic matter content of the pond soil was influenced by the various inputs resulting in significantly higher ( $P < 0.01$ ) organic matter content of the sediments in the treatments that received chicken manure, feeds and their combination. There were no significant differences ( $P > 0.05$ ) among the treatments in terms of primary productivity, zoo- and phytoplankton populations and algal biomass. A highly significant difference ( $P < 0.01$ ) among the treatments was observed in terms of chlorophyll a concentration.

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