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SUSTAINABLE AQUACULTURE FOR A SECURE FUTURE

Title: Analyses of various inputs for pond culture of Nile tilapia (*Oreochromis niloticus*): Profitability and potential environmental impacts

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Abstract: This paper presents profitability analyses and potential environmental impacts for Nile tilapia culture in ponds with a series progressive inputs. The sequential experimental stages to increase fish production through intensification were: 1) TSP only; 2) chicken manure only; 3) chicken manure supplemented with urea or urea and TSP; 4) urea and TSP; 5) continually supplemental feeding; 6) staged supplemental feeding; 7) feed alone.

Profitability analyses showed that the choices of input regimes with increasing economic gains are: 1) fertilizing ponds with moderate loading of chicken manure; 2) fertilizing ponds with chicken manure supplemented with urea and TSP to balance nutrient loading and maintain water quality; 3) fertilizing ponds with urea and TSP at appropriate rates; 4) fertilizing ponds initially with urea and TSP, in combination with supplemental pelleted feed at 50% satiation level at later stage of grow-out cycle.

The analyses indicated that intensification of tilapia culture through staged inputs in ponds improved efficiency in land use and water consumption. The analyses also showed that the rate of nutrient loss as wastes and the nutrients required to produce 1 kg tilapia were markedly less in ponds with supplemental feed than those with high rate of fertilizer inputs.

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