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AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM



## RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

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**Title:** Fish Yield with Nitrogen Supplemented Organic Fertilizers

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**Abstract:** Organic fertilizers are phosphorus rich and nitrogen poor relative to the 1:7 ratio of P:N required by pond algae for growth. During experiments in Thailand, nitrogen deficiency occurred in Nile tilapia ponds where chicken manure was used at a rate of 500 kg/ha/wk. Ponds in this treatment has the same microflora / fauna production and fish yields as ponds treated at 1 / 10 the rate of chicken plus a urea supplement that provided a 1:7 ratio of P:N in the fertilizers. Rates of net primary productivity were 2.23 and 2.24 g C / m<sup>2</sup> / day in these treatments respectively. Fish yields obtained from 25 g fingerlings at two fish / m<sup>2</sup> with a four month growout were close to 4,000 kg / ha / yr in both treatments. Fertilizer cost per kg of fish yield was \$US 0.05 in both treatments. Data from our work suggest that Nile tilapia yields close to those obtained with feeds will result from increasing chicken manure to a range of 50 to 200 kg / ha / wk and adding urea to make the fertilizer P:N ratio 1:5. We are testing this approach with consideration of economics.

This abstract is excerpted from the original paper, which was in *Journal of the World Aquaculture Society*, 20:56A.

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