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POND DYNAMICS/AQUACULTURE COLLABORATIVE RESEARCH SUPPORT PROGRAM



## RESEARCH REPORTS

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SUSTAINABLE AQUACULTURE FOR A SECURE FUTURE

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**Title:** Experimental and commercial culture of tilapia in Honduras

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**Abstract:** In 1983 the USAID-funded Pond Dynamics/Aquaculture Collaborative Research Support Program (PD/A CRSP) was initiated in Central America, focusing on increasing natural productivity and fish yields of static water ponds by developing new input regimes without using mechanical aeration. Forty-one semi-intensive tilapia pond management systems were developed and evaluated in Honduras. Ponds were managed semi-intensively; Nile tilapia (*Oreochromis niloticus*) stocking rates did not exceed 3/m<sup>2</sup>. Nutrient inputs used were inorganic phosphorus, various levels of organic fertilization, combinations of organic and inorganic fertilization, and combinations of fertilizers and feeds. All tilapia production systems were evaluated in terms of income above variable costs and net returns to land and management from enterprise budgets for 150-day growing cycles.

Incomes above variable costs were positive for all systems except where phosphorus was the sole input, and in one instance where chemical fertilizer was the sole input. Negative returns to land and management were demonstrated for systems based only on inorganic fertilization or on weekly chicken litter inputs less than 1000 kg/ha when fish were stocked at 1/m<sup>2</sup>. In general, profitability was higher when the stocking density was 2/m<sup>2</sup>, indicating available resources were not being used by fish at low stocking density. Positive returns to land and management in fed systems were obtained only at stocking rates of 2/m<sup>2</sup>. Fertilization was more profitable than feeding at low fish stocking rates. Greatest tilapia yields (5300 kg/ha for 150 days) were obtained with feeds, but a combination of chicken litter and nitrogen yielding 3700 kg/ha proved to be at least as profitable. Feed use was more profitable if feed requirements were reduced by substitution with chicken litter. If a large fish (> 300 gram) is required by the market, then feed will probably have to be used as a finisher. Production of 600-900 gram fish for the export market requires high quality feeds. Current practices in commercial intensive tilapia production practices in Honduras are described.

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