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SUSTAINABLE AQUACULTURE FOR A SECURE FUTURE

Title: Nutrition and feeding of tilapia

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Abstract: According to the most recent estimates, world production of cultured tilapia (*Oreochromis* sp.) is in excess of 1 million metric tons. Tilapia are cultured in a great variety of aquatic environments and with many different management protocols.

The management of modern commercial tilapia production systems is an aquatic analog to North American feedlots used for beef production. The fish are held in cages and raceways at stocking densities that can exceed 100 fish/m³. The fish are fed to satiation several times each day using specially formulated feeds, and then promptly sacrificed and filleted, for shipment to market.

Modern manufactured fish feeds are not well assimilated by tilapia. Typically only a small fraction (< 30%) of the total content of N and P in the diet is incorporated into the fish's biomass (= growth). The remaining amounts of each macronutrient are never ingested (feed not consumed), excreted into the pond water, lost as part of fecal material, or used for maintenance.

There are several commercial farms in Central America that are successfully growing tilapia to export fresh fillets to North America. Additional farms are coming online in the region. In Honduras the demand for tilapia has increased in the past few years and several farms are focusing on local markets. No matter where they are sold, the purchase of feed for fattening these fish is the largest cost in the production budget for commercial tilapia farmers regionally.

Small-scale tilapia culture has not prospered locally. Fish culture is not a part of traditional agriculture in Central America. Local NGO run extension programs have had limited

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success in assisting rural farmers in growing tilapia. One important problem is the lack of knowledge in the proper management of costly inputs such as fish feed.

How farmers manage the feeding of their fish is often the key to success, or reason for the failure, of a particular farm. This paper discusses some of the biological aspects of tilapia in relation to its nutritional needs and practical feeding of fish in the culture environment.

This abstract was based on the original paper, which was published in D. Meyer (Editor), *6to Simposio Centroamericano de Acuacultura Proceedings: Tilapia Sessions, 22-24 August 2001*. Tegucigalpa, Honduras, pp. 61-70.

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