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Title: Techniques for Efficient and Sustainable Mass Production of Tilapia in Thailand

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Abstract: Tilapia culture in Southeast Asia is presently both spreading and intensifying. Researchers at the Asian Institute of Technology (AIT) have learned from and contributed to the sustainability of current techniques. Several hatcheries produce fry at rates exceeding two million fish per month using low-technology apparatus and methods developed at AIT. Fish survival and production rates in growout culture are enhanced by nursing fry to reasonable stocking sizes in hapa nets deployed in fertilized ponds, which may be fed relatively low quantities of inexpensive feeds, but produce reasonable yields with none at all. Inputs to growout ponds of on-farm organic materials (manures) and inorganic fertilizers can stimulate the ecosystems to be capable of supporting fish growth to more than 200 grams/fish without other feed inputs, with little disadvantage in growth rate compared to fed ponds, but with considerable economic and efficiency advantages. Beyond 200-300 grams/fish, growth is slower on plankton feeding alone because larger fish lack the capacity to acquire sufficient ration even in ponds with high plankton stocks. Feeding is begun as a supplement to plankton forage, and soon becomes the dominant nutritional source; rapid, near optimal growth is attained on a ration of approximately 50% of satiation amounts.

Economic analyses of these practices under current conditions in Thailand show reasonable viability despite some of Asia's lowest farm-gate tilapia prices and the incipient state of export enterprise in tilapia. The stability of the pond ecosystems during the growout periods without water addition to ponds indicates sustainable and efficient use of water resources in a region of seasonal drought. These practices offer hope of alleviating the predicted shortfalls in animal protein availability in rural areas of southeast Asia, and potentially workable scenarios for periurban enterprises serving, and using processing wastes and other inputs from, large urban Asian markets.

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