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RESEARCH REPORTS

Sustainable Aquaculture for a Secure Future

Title: Implementing the large-scale production of young males of *Tilapia nilotica* using hormonal sex inversion in Honduras

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Abstract: The demand for young male fish of *Tilapia nilotica* for seeding in reproduction ponds has significantly increased in the last five years. New production technologies are necessary in order to have adequate supply for existent and future demands of the young fish. One of those is the hormonal sexual inversion of the young fish of *Tilapia nilotica* via the oral ingestion of a synthetic male hormone (17 a-methyl-testosterone) during a period of 28 days which starts shortly after hatching and before differentiation of genital tissue. The objective of this work which was conducted during the months of January through November, 1988 was to determine the feasibility of implementing the massive production of young males of *Tilapia* nilotica using the hormonal sexual inversion process at the experimental station "Acuicola El Carao" in Comayagua, Honduras. The process requires obtaining young fish less than 13 mm long from reproduction ponds (0.05-0.1 ha) that have been seeded with *Tilapia nilotica* (2 females: 1 male). The ponds are then drained within 18 to 20 days after having been seeded, the reproducers are transferred to concrete separating tanks and the young fish are harvested by hand using a net 1.6mm long. The complete cycle for young fish production lasts approximately 23 days. The average number of harvested fish varies between 66,500 to 99,500. The fish are seeded at a population of 4,400/m^2 in "japas" (wire nets of 1.6 mm, with dimensions 2 m x 2.5 m x 1 m x 1 m x 2 m x 1 m, with an average water depth of 60 cm) after having been passed through a 3.2mm separator net.

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The hormone is incorporated into the ground feed (23% protein) at a rate of 60 mg kg^{1}. The ground feed is applied four times per day, seven days a week. The duration of the treatment described is 28 days. The average life span of the hormonal treatment was 87.6%. Treated fish were seeded in prefattening ponds (0.2 ha) for additional growth (102,500 ha^{-1}). A total of 1.935,000 fish were harvested from the reproduction ponds of which 350,000 were discarded due to excess size. Of the 1.585,000 fish, 1.313,500 were treated with the hormone. Of that 1.189,600 fish were found to complete the treatment cycle. Of the seeded pre-fattening ponds with a total of 661,700 fish an average survival rate of 81.6% was obtained. Up till November, 1988, 399,000 18 g fish were produced, 97% being males. The cost of production of treating the fish (0.15 g each) was L 9.12/1000. This technology has resulted in being feasible not only for the experiment station in Comyagua but should also be feasible for qualified fisheries.

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