

ABSTRACT

THE SALTWATER CULTURE OF JAMAICAN RED HYBRID TILAPIA: THE EFFECTS OF STOCKING DENSITY ON GROWTH IN TANKS AND CAGES.

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The effects of stocking density on growth of Jamaican red hybrid tilapia in saltwater tanks and cages was investigated. The objective of this work was to further develop saltwater production systems for tilapia in Jamaica.

Tank culture experiments utilizing four densities of 25, 50, 75 and 100 fish /m³ resulted generally in improved final average weights at a density of 25 fish/m³ ($P < 0.05$) over the higher densities. Specific growth rates, average daily weight gains and feed conversion ratios were not significantly ($P > 0.05$) affected by density. Coefficients of variation did not generally vary significantly ($P > 0.05$) and acceptable survival and increased production across the densities indicate the potential for culture at higher densities.

Densities of 25, 50 and 75 fish/m³ were used for the cage trials performed at the Port Royal Marine Laboratory. Final weights at densities of 50 and 75/m³ were significantly ($P < 0.05$) higher than at the density of 25 fish/m³. Growth parameters, however were not significantly affected by density ($P > 0.05$). Production levels increased with increasing density and good survival rates were achieved. High density culture is more strongly favoured in the cage systems.

Parasitic infection by *Neobenedinea melleni* (Platyhelminthes: Monogenea) was observed in the first cage experiment performed though mortalities were few. Improved fish treatment schedules devised after two episodes of parasitosis resulted in effective control of the parasite and two asymptomatic production periods. Theft of fish from the cages during trials was also encountered at Bowden where cage trials were unsuccessfully attempted and at Port Royal.

The growth and survival during saltwater tank and cage trials compare well with those reported for Jamaican freshwater systems. Stocking density and production levels during trials are however much higher than those locally achieved.