

Development of sustainable fish culture in two selected floodplains of Nilwala river basin Sri Lanka

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Floodplains of the world's large rivers are highly suitable areas for development of aquaculture. Some of the favourable factors for utilizing flood plain areas for aquaculture are availability of large extents of land, availability of water, suitability of soil types and easy accessibility. On the other hand, these sites may be vulnerable to floods, which need to be taken into consideration in locating aquaculture farms. This study was conducted to investigate the feasibility of undertaking productive and viable fish culture in two selected floodplains in Nilwala river basin. Fingerlings of GIFT tilapia (26- 40 g initial weight and 6.2-9.4 cm in initial length) reared in six mud ponds each 200 m² area at Nadugala (N 5.979500° E 80.550870°) and Diyagaha (N 5.974950o, E 80.562800°) areas. Fingerlings were fed with formulated fish feed (crude protein 35.2%) thrice a day at a rate of 1-2% of the biomass from 1st of August to 31st December 2018. Water quality parameters in fish rearing mud ponds were recorded every fortnight. Growth rate, specific growth rate, survival rate, feed conversion ratio and total fish production ranged between 1.88-1.89 gday⁻¹, 3.68-3.68, 80-83 %, 1.43-1.47, 6811-7069 kg hec⁻¹ respectively. There were no significant differences between growth rate, specific growth rate, survival rate, feed conversion ratio and total fish production between each replicate ($p < 0.05$). Water temperature, water pH, water transparency, dissolved oxygen, unionized ammonia, total alkalinity, soil pH ranged between 28-30 °C, 6.36-7.88, 24-35 cm, 4.8-6.5 mg/L, 0.01-0.02 mg/L, 20-165 mg/L, 6.61-6.80 respectively and these values were within acceptable ranges suitable for fish growth and survival. It was concluded that growth performance of fish is very satisfactory and the water quality parameters and soil quality were suitable for development of GIFT tilapia culture in Nadugala and Diyagaha floodplains of Nilwala river basin Sri Lanka.

Keywords: GIFT tilapia, floodplain, fish culture, Nilwala river, water quality

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