



Impacts of Different Feeding Rates on Water Quality Parameters in Genetically Improved Farm Tilapia (GIFT) Aquaculture

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Abstract: Freshwater aquaculture is one of the important sectors in global food production, which contributes to meeting the ever-growing demand for aquatic products. In general, the quality of water under aquaculture varies with different feeding rates, while maintaining the water quality parameters at an acceptable level is crucial to obtain the optimum growth performance of cultivated species. Therefore, the current study aimed to investigate the influence of different feeding rates for Genetically Improved Farmed Tilapia (GIFT) on water quality parameters. The experiment was designed with three treatments, each with four replicates, namely T1- 3% of feed, T2- 8% of feed, and T3- 12% of feed in nursery tanks. In total, 750 GIFT fingerlings with 22.96 ± 0.23 kg of bulk weight were cultured in three nursery tanks (250 fingerlings per tank) in the Aquaculture Development Centre (AQDC), Vaddakachchi, Iranaimadu. Fishes were fed three times per day at 3%, 8% and 12% of their body weight. Water quality parameters such as dissolved oxygen (DO), pH, ammonia, total dissolved solids (TDS), resistibility, sodium chloride, water transparency and temperature were measured before introducing the fingerlings into the tanks and continued up to 12 weeks at one-week intervals. Resistibility, sodium chloride and water temperature were not considerably changed with feeding rates, while values of DO (4.8 to 5.5 mg/L), pH (6 to 7.2), ammonia (0.002 to 0.05 mg/L.), TDS (150 to 550 ppm) and water transparency (20 to 40 cm) fluctuated noticeably with different feeding rates. Even though deterioration of water quality was expected with increasing feeding rate, the water quality parameters were kept in between preferable ranges under all three feeding rates, excluding ammonia concentration, as the water was changed at one-week intervals and due to adequate aeration. Therefore, it is recommended that the growth performance of GIFT be studied with different feeding rates parallel to water quality analysis in order to avoid unnecessary costs spent on additional feed.

Keywords: Aeration, Cost, Feeding rates, Freshwater aquaculture, Water quality.