

Effects of black Bengal goat manure on growth and production of Genetically Improved Farmed Tilapia (GIFT) strain, *Oreochromis niloticus*

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Abstract

In a goat-tilapia integrated farming system, the effect of Black Bengal goat manure on the growth and production of *Oreochromis niloticus* was studied at the Freshwater Sub-station, Shantahar, Bogra for 4.5 months. The stocking density used in three treatments were, 200 goats and 15,000 GIFT strain/ha (T_1); 300 goats and 15,000 GIFT strain/ha (T_2); and only 15,000 GIFT strain/ha (T_3). The initial individual total length and weight of stocked tilapia were 7.6 cm and 11.34 g, respectively. Twelve ponds each having an area of 40 m² were used for this trial. On one side of each pond goat shed was constructed and the space allocated for each goat was 0.75 m x 1.5 m. Newly weaned black Bengal goats of average weight 8.45 kg was used in the trial. Every morning the goats manure was swiped out in ponds through the fixed opening of bamboo made floor of goat shed. Water depth of the ponds was maintained at 0.75 m. The highest fish production was in treatment 1 (1,750 kg/ha) followed by treatment 2 (1,455 kg/ha) and treatment 3 (621 kg/ha). The difference in individual goat weight was not significant ($P > 0.05$) among treatments 1 and 2.

Key words: Black Bengal goat, GIFT strain, Integrated farming

Research findings

- The final individual length of tilapia in three treatments was 17.95 cm (T_1), 15.18 cm (T_2) and 11.10 cm (T_3) while the highest final individual weight was 130 g in T_1 followed by T_2 and T_3 .
- The survival rate of tilapia as obtained from the three treatments was 98% in (T_1), 97% in (T_2) and 90% in (T_3). The survival rate of goat was 95% in (T_1) and 97% in (T_2).
- The highest fish yield of 1,750 kg/ha was obtained from T_1 where 200 goats/ha was stocked while the lowest fish production of 621 kg/ha was obtained from T_3 where no goat was stocked.

Policy implications

- Bangladesh is one of the most densely populated countries in the world and land is very scarce. To ensure the maximum use of space integrated farming will be an alternative and diversified technology for wider dissemination among the stakeholders.
- As this study revealed that integration of goat and tilapia ensure more fish production than tilapia monoculture, the technology can be packaged after repeated trials involving GOs and NGOs in different parts of the country for dissemination.

Livelihood implications

Integrated farming system has a great potential in Bangladesh. Integrated tilapia and goat farming would not only supply more fish but also would be a good source of nutritious animal meat and milk in the rural poor households. The practice of this type of integrated farming would have definite impact on socioeconomic status and sustainable livelihoods in the rural households.