Bangladesh J. Fish. Res., 9(1): 49-50

Demonstration of some selected aquaculture technologies under farming system research in Jessore and Santahar, Bangladesh

M.W.A. Pramanik, M.A. Razzak, M.G. Hussain* and M.A. Mazid
Bangladesh Fisheries Research Institute
Mymensingh 2201, Bangladesh
*Corresponding author
Email address: fsbfri@bdonline.com (M.G. Hussain)

Abstract
BFRI evolved some selected aquaculture technologies viz. polyculture of carps in perennial ponds, monoculture of short cycled fish species (BFRI super strain) in seasonal ponds and prawn seed production through backyard hatchery system have been demonstrated under Farming System Research (FSR) component in Jessore and Santahar regions. Both polyculture of carps and monoculture of short cycled fish species technologies were tested in farmer's ponds in Kaium Kula village near Jessore town. In polyculture trials, seven species comprising of silver carp (*Hypophthalmichthys molitrix*), catla (*Catla catla*), rohu (*Labeo rohita*), grass carp (*Ctenopharyngodon idellus*), common carp (*Cyprinus carpio*), mrigal (*Cirrhinus cirrhosus*) and silver barb (*Barbonymus gonionotus*) were stocked @ 9,500 (ratio 6:2:4:2:1:5:5); 10,750 (ratio 6:2:4:2:1:5:5) and 12,000 (ratio 6:2:4:2:1:5:4) fish/ha respectively in ponds of T_1, T_2 and T_3 having three replications of each. The mean highest fish production was 3,148 kg/ha in T_3, followed by 2,899 kg/ha in T_1 and 2,875 kg/ha in T_2. Production of T_3 was significantly different ($P<0.05$) than both T_1 and T_2, while there was no significant differences ($P>0.05$) between the production of T_1 and T_2. In case of trial of short cycled fish species, two treatments were tested: T_1 (comprising of BFRI super strain of Niletilapia, silver carp, common carp and silver barb; ratio 3:5:1:1) and T_2 (having only BFRI super strain of Nile tilapia). Stocking density in both the treatments were same (20,000 fish/ha). In this trial average production was higher in T_1 (2,743 kg/ha) than that of T_2 (2,369 kg/ha) but the production figure in these two treatments was not significantly different ($P>0.05$). Demonstration of backyard prawn hatchery technology was tested atSantahar region of Bogra district, North-west part of Bangladesh. This hatchery consisted of three main componentsi) bio-filter, ii) rearing tank unit (*chari*) and iii) air blower/air pump unit. Plastic drum of 200 – 250 l capacity and cemented *chari* of 200-250 l capacity were used as bio-filter and larval rearing containers respectively. A 0.5 hp air blower with6 aquarium air pump were used to operate the aeration system in the hatchery. Dilutedsea water (10-12 ppt) made from brine solution (200-250 ppt) collected from salt-bed was used in the backyard hatchery system of hatching of eggs and rearing of larvae. Rearing of first stagezoea-larvae was reared in three rearing tanks following the stocking densities of 40, 50 and 60/l of water respectively. Production of post-larvae were 20±0.82, 22±1.12 and 28± 1.63/liter of water in treatments I, II and III respectively in 38, 40 and 39 days rearing period.

Key words: Farming System Research, Backward prawn hatchery

Research findings

- In polyculture trials, the mean highest fish production was 3,148 kg/ha in T_3, followed by 2,899 kg/ha in T_1 and 2,875 kg/ha in T_2. Production of T_3 was significantly different ($p<0.05$) than both T_1 and T_2, while there was no significant differences ($p>0.05$) between the production of T_1 and T_2.
- In case of trial of short cycled fish species, two treatments were tested: T_1 (comprising of BFRI super strain of Nile tilapia, silver carp, common carp and silver barb; ratio 3:5:1:1) and T_2 (having only BFRI super strain of Nile tilapia). Stocking density in both the treatments were same (20,000 fish/ha). In this trial average production was higher in T_1 (2,743 kg/ha) than that of T_2 (2,369 kg/ha) but the production figure in these two treatments was not significantly different ($p>0.05$).
- Post larvae production in treatment 1 was 20±0.82 in 38 days rearing period out of 40 larvae stocking per liter
- Post larvae production in treatment II was 22±1.12 in 40 days rearing period out of 50 larvae stocking per liter
- Post larvae production in treatment III was 28±1.63 in 39 days rearing period, where stocking density were 60 larvae/liter

Policy implications

- Polyculture of carps in perennial ponds and culture of short cycled fish species in seasonal ponds are the most popular and useful technologies, which can be disseminated for wide scale adoption all over the country through GOs and NGOs.
- For introducing different cultural practices supply of desired number of prawn juvenile to the farmers in time, the backyard prawn hatchery technology should also be disseminated by DoF, NGOs and private entrepreneurs.

Livelihood implications

Adoption of carp polyculture and culture of short cycled species technologies in the suitable water bodies have, meanwhile, shown a tremendous impact on the livelihood of rural farmers. The relevant stakeholders such as, hatchery owners, technicians, farmers, processors and importers etc. will also be benefited by implementing prawn hatcheries and seed production systems in some important areas of the country for enhance exporting of prawn/shrimp products, which will create enormous opportunities for the large group of unemployed youth, women and poor people.