Status of fish broodstock management and seed production in Bangladesh

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Abstract
The study was conducted with the broad objectives to assess the existing situation of broodstock management and fish seed production in private fish seed farms in Bangladesh. The data were collected from 100 private hatcheries and 40 nurseries in seven upazilas under four districts. There was no shed in forty hatcheries and the owners faced many problems. Brood fish ponds were found suitable for rearing brood fish. About 66% of the hatchery owners collected brood fish from their own ponds and ponds of neighboring areas. Activities like pond preparation; manuring and supplementary feeding were done properly but stocking density of brood fish in 76% of the hatcheries was 3,000-7,000 kg ha⁻¹. Infection of argulosis was found in brood fish of 87% of the hatcheries. About 67% of the hatchery owners practiced inter-species crossing. Major problems faced by the hatchery owners were argulosis of brood fish, unavailability of pure brood stock, inadequate brood fish pond. The hatchery owners were found interested to find out the preventive measures of argulosis, develop pure brood stock of indigenous carp and import pure strain of exotic carp. According to the nursery operators, they cultivated hybrid fry because of high demand, rapid growth and good taste. Problems of using hatchery spawn as mentioned by the nursery operators were inbreeding, under sized and aged brood stock, stunted growth, physical deformities and high mortality of spawn due to unknown causes.

Key words: Broodstock management, Seed production, Hatchery and nursery problems

Research findings

- The majority of hatchery owners (69%) were within the age range of 31-50 years. Most of them (78%) had education from SSC to graduation level. Hatchery management was the main occupation for most of the hatchery owners.
- Two types of pump - electric and diesel were in use in the hatcheries. Number of pumps used in a hatchery varied from one to eight. Leaves of trees and other dirty things used to fall on water as there was no cover in most (94%) of the surveyed hatcheries that allowed algae to grow and water temperature to rise due to open access of sunlight.
Forty hatcheries had no shed. Total area of brood fish pond in each hatchery ranged from 0.20 to 8.25 ha and the physical conditions were suitable for rearing brood fish.

The hatchery owners applied supplementary feed such as mustard oil cake, rice bran, fish meal, wheat bran, maize bran, bone dust, broken rice and pulses. The brood fish of 87% hatcheries were found infected by argulosis.

The experienced hatchery operators had adequate knowledge about hatchery management and induced breeding compared to the new operators.

Policy implications

- Emphasis should be given to find out the preventive measures of argulosis.
- Availability of pure brood fish should be ensured. In addition, brood stock farm may be established in some selected areas of Bangladesh where private entrepreneurs should be encouraged. These multiplier entrepreneur hatcheries will produce and maintain pure broodstock and initiate spawn production from such stocks for distribution among the hatchery/nursery operators.
- The pure strain of exotic carps should be imported by the Government from China and distributed to the hatcheries from time to time.
- Posters, leaflets, booklets etc. should be published and distributed to the hatchery and nursery owners and program in television and radios indicating negative effect of inbreeding and hybridization need to telecast.
- Research program should be undertaken on the use of cryopreserved sperm for quality seed production.
- Fish certification scheme to be adopted and regulated by the Government.

Livelihood implications

Stocking of quality fish seeds in ponds and other suitable confined water bodies will increase fish production in the country and enhance family income of a large number of rural farmers. With these activities, respective sections of the society will be benefited and improve their livelihood conditions.