



Feasibility of Amur common carp at Barak Valley Zone of Assam

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ABSTRACT

On farm trial on growth performance of Amur common carp *i.e.* Hungarian strain of common carp in composite fish culture system was conducted for the first time in Barak Valley Zone of Assam. The trial was conducted in eight numbers of ponds of total 3.56 ha area for twelve months period. Water quality parameters of cultured pond were observed in monthly intervals. Water temperature was found in the range of 16 to 34°C, pH was maintained in the optimum range of 7.0 to 7.5 and dissolve oxygen was found between 5.2 to 5.8 mg/l. After twelve months of culture, mean length and weight of Amur common carp was found 30.5 cm and 1010 g compared to 27 cm and 920 g of local common carp.

Key Words: Amur Common Carp, Common Carp, Composite fish culture, Water quality.

INTRODUCTION

The Barak Valley Zone of the state Assam comprises of three numbers of districts namely; Karimganj, Cachar and Hylakandi. The zone constitutes about 8.82 per cent (6922 sq.km) of total geographical area of the state carrying over 11.2 percent of the total population. The terrain of the zone consists of flood plains, wetlands, hills and forests. With more than 90 per cent population of Barak Valley Zone are fish eaters and therefore, there is always a growing demand for fish. However, there exists a wide gap between supply and demand resulting in shortage of fresh fish. While several fish species are found in the natural water bodies of the zone, presently only about 10 to 12 numbers of food fish species are being cultured by the fish farmers of the region (Baruah, 2014).

Common carp (*Cyprinus carpio*) an exotic carp is an important fish species of the region, which is mostly grown along with Indian Major Carps used as a bottom dweller fish species in composite fish culture system. Common carp is considered to be a very important aquaculture species as it affects the aerobic decomposition of organic matter and nutrient availability in the water

column via bioturbation of benthic sediment during feeding on benthic organisms (Rahman, 2015). The local existing stock of common carp in India has several demerits as the fish attains maturity within six months and breeds naturally in the pond (Jhingran, 1991). This phenomenon retards the growth through competition for food and space. Further in common carp; the gonads form 20-30 per cent of body weight (Mohapatra and Patra, 2014). Browsing of pond embankment by common carp is also reported by several farmers which make pond water turbid and hampers overall productivity of the pond ecosystem. Since the growth performance of existing stock of common carp has been a major concern in the existing culture system, the genetically improved breed of common carp, Amur (Hungarian strain) was introduced as trial basis for the first time at Karimganj district by Krishi Vigyan Kendra, Karimganj during 2016-17 to evaluate the performance of the breed at Barak valley zone of Assam.

MATERIALS AND METHODS

A total eight numbers of farmers' pond covering a total area of 3.56 ha were selected in 4 villages

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namely, Brajendranagar, Jabainpur, Fakirabazar and Tinokhal to evaluate the growth performance of Amur common carp in comparison to local common carp variety. Selected ponds are medium to large in size ranging from 0.13 to 1.0 ha. Seeds of Amur and local common carp ranging between 10-12 cm in length and 15-20 g in weight were stocked with 20 per cent stocking rate along with Indian major carps, grass carp and silver carp. Total stocking density was 7500 numbers of fingerlings per hectare area. The seed were stocked in the framers pond in April and cultured for twelve months period. Fishes were fed in morning and evening hours with submerged pellet feed with 21 per cent protein and 5% per cent content. The water quality parameters (temperature, pH, dissolve oxygen) were monitored at monthly intervals. Pond water temperature was measured using thermometer. pH was measured by using digital pH meter. Dissolved oxygen was measured by using DO kit.

RESULTS AND DISCUSSION

Water temperature is one of the most important abiotic factor, controls various parameters in the life span of teleost fish (Das and Majhi, 2014). The water temperature was in the range of 16 to 34°C during twelve months culture period. Temperature has direct effect on growth, high water temperatures increase the metabolic rates, resulting in increased food demand (Das, 2017). In the present experiment it was found that water temperature directly correlates with the growth of zooplankton and of fish (Banerjee *et. al.*, 2014). The general pH range in Barak valley region is slightly acidic (6.0-6.5) which was lower than optimum requirement of 7.0-7.5 for fish culture. In the present experiment the pH level was maintained between 7.0-7.5 using quick lime @1.05 q/ha/year.

Dissolved oxygen (DO) refers to the level of free, non-compound oxygen present in water or other liquids. It is an important parameter in assessing water quality because of its influence on the organisms living within a body of water. The

optimum requirement of DO for survival of fish is 5.0 mg/l which was maintained in the experimental ponds by frequent water sprinkling in morning and evening hours. In twelve (12) months of culture period, Amur common carp attained average weight of 1,010 g (30.5 cm) while the local common carp attained a size of 920 g (27 cm). The Amur Common Carp demonstrated better growth than local common carp in all the demonstrated ponds.

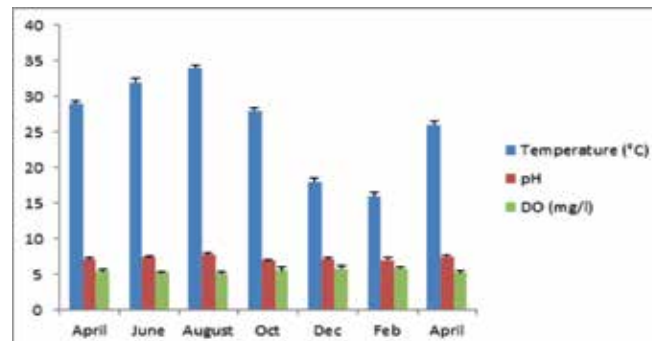


Fig1. Average temperature, pH & DO content of 8 numbers of ponds during 12 months culture period.

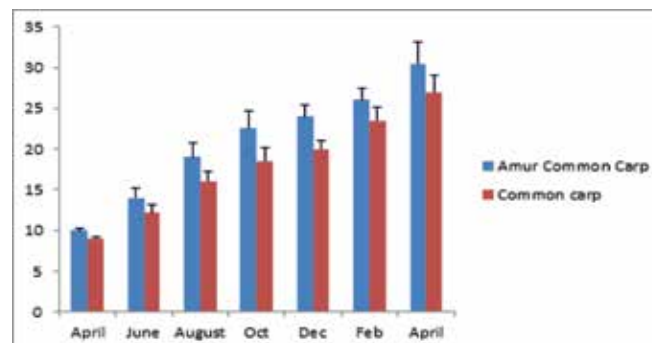


Fig 2. Comparison of length (cm) gain during 12 months culture period.

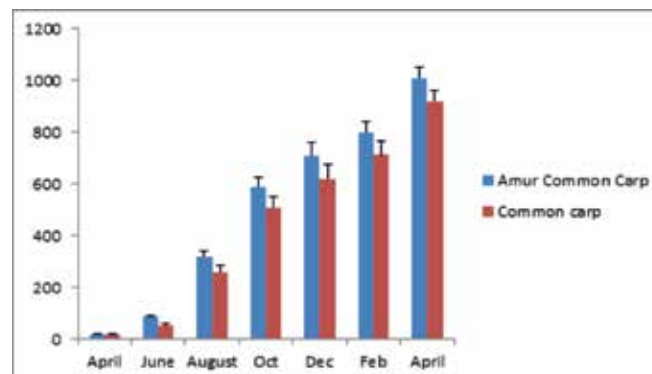


Fig 3. Comparison of weight (g) gain during 12 months culture period.

Feasibility of Amur common carp

CONCLUSION

Polyculture of Amur common carp along with IMC can increase the production and productivity of fish. Since Amur common carp is also found to mature late and grow faster resulting in higher flesh content, the fish production in rural farmers' pond will definitely increase. More effort is necessary to make the seed of Amur common carp available at farmers' level.

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