

Growth Potentiality of Grass Carp (*Ctenopharyngodon idella*) Seeds in Non Conventional Rearing Approach at Hill Zone of Karnataka

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ABSTRACT

A study was conducted to comparison of 3 different stocking densities used to know the good growth and survival of the grass carp (*Ctenopharyngodon idella*). The 3 stocking densities of 25 m² area of six hapas were taken for this study treated as T₁, T₂, T₃ (T₁ – 30/m², T₂ – 40/m², T₃ – 50/m²) Each hapa stocked grass carp advance fry of 2.40 gms and length 5.00 cm totally 6000 No were stocked. The advance fry were fed @ the rate of 2.5% of their body weight. The growth attains maximum size of grass carp fingerling shows 9.2cm in 30/ m². The present study reveals that growth and survival of the grass carp (*Ctenopharyngodon idella*), using 3 different stocking densities out of which 30/m² shows good growth and survival.

Key words Growth Potentiality, Grass Carp, *Ctenopharyngodon idella*, Seeds, Non Conventional, Rearing Approach, Hill Zone, Karnataka

Present work reveals on utilisation of deeper ponds with hapa method is introducing in hill zone region for fish nursery is mainly depends on availability of quality fish fingerlings is prerequisite for rapid expansion and growth of aquaculture. However uncertainty in timely supply of fish seeds is one of the major constraint. So nonconventional method will help in enhance the fish production and horizontal spreading of culture practices in the farming community make available the fish seeds throughout the season.

The hill zone constitutes 13.36 per cent of the total geographical area of Karnataka. It is characterized by highest rainfall (1886 mm average), undulating topography (up to 22%) and situated at an altitude of 1700 meters above Mean Sea Level. Chikkamagalur district has blessed with rich sources of water. The district has 1800 No private owned ponds and more than 12,000 No of Krishi Hondas. Majority of the water bodies are perennial and deeper in nature. These sources are mainly used for irrigation purpose during peak summer. Remaining part of the year they are not utilized. Since the ponds are deeper and perineal in nature, they require advanced fish fingerlings. The fish seed produced in conventional methods is not in a position to fulfil the seeds requirements. In addition to that non conventional method of seed rearing will help in increase the seed production and timely available to the farming community. It will help in enhance the fish production by utilizing aquatic weed in deeper and perennial water bodies of hill zone region.

MATERIALS AND METHODS

The present work was conducted at Agricultural and Horticultural Research Station, Kademadkal, Mudigere which is situated in hill zone of Karnataka. The fry were put in 25 m² fine mesh net enclosures (hapas) fixed in nursing pond to evaluate the effect of three stocking densities for grass carp advance fry to reach fingerlings size.

Pond preparation: The perennial pond having an average depth of 12 ft and total water spread area of 800 M² has selected for conducting the study. Agricultural lime was applied @20g/m², After three days manure the pond with raw cow dung @ 300 g/M² as an initial dose, after stocking the fish seeds liming the pond @1/10th of the initial dose and manured the ponds @30 g/M² once in a month Nylon hapa having a diameter of 6mts x 4mts x 1 mt has tied to the wire which was hanged both the sides of the pond.

Seed Stocking: The study was carried out with three treatments of different stocking densities. The advance fry of grass carp (*Ctenopharyngodon idella*) were stocked in triplicate @ 30/M²(T₁), 40/M²(T₂) and 50 /M²(T₃) and each stocking density was served as a different treatment. The average initial length and weight of the advance fry were 5.00cm and 2.40 g, respectively.

Feeding: Conventional feed (mixture of Rice brane and ground nut oil cake at the ratio of 1:1) was fed @ 2.5 per cent of their body weight daily in the morning hours. In addition to the conventional feed, fresh Halawana leaves were chopped and fed @ 50 per cent of their body weight every day. The quantity of feed given was adjusted based on the growth ascertained during sampling.

Water Sampling: Once in a month water sampling was done. The collected samples were analysed the pH, free carbon dioxide, dissolved oxygen & total alkalinity by following standard procedure (APHA–1995).

Measurement and analysis: The growth performance of fish in different treatment was recorded once in a month. During every sampling day, from each treatment minimum 50 per cent of stocked population was collected and individual length and weight of seed was recorded. At the end of the experiment, all the fish seeds were collected from hapa and the individual length and weight of each fish seed was recorded, based on that, survival percentage and net production was calculated.

Data analysis;

The study was carried out for a period of 120 days. The water quality parameters recorded during the study period were in an acceptable range, the temperature of the water lies between 22.00 to 26.50 °C, pH range between 6.90 to 7.30, Sechhi disc reading falls between 22.00 to 23.00 Cm

Table 1. Water quality parameters recorded during the study period.

Days	Initial day	30 th day	60 th day	90 th day	120 th day
Parameters					
Water Temperature (°C)	21.50	22.00	24.00	26.00	26.50
pH	7.30	7.20	7.00	6.90	7.20
Dissolved oxygen(mg/l)	4.50	4.20	4.00	3.50	3.40
Sechhi disc reading(Cm)	22.00	23.00	22.00	23.00	23.00

Table 2. Growth performance in terms of average length (Cm) & average weight (g) recorded during the study period.

SI No	Stocking density	Average initial length (Cm)	Average initial Weight (g)	Final Average Length (Cm)	Final Average Weight (g)	Net gain interms of Average Weight	Survival (%)
1	30/M ²	5.00	2.40	9.20	14.80	12.40	78.50
2	40/M ²	5.00	2.40	7.50	9.20	6.80	62.00
3	50/M ²	5.00	2.40	6.40	7.35	4.95	59.00

and dissolved oxygen was 3.40 to 4.50 mg /lt.

RESULTS AND DISCUSSION

The study was carried out for a period of 120 days. After completion of study period the fish seeds were completely harvested to calculate the survival percentage and net gain. the better survival percentage of 78.50 was recorded in T₁ followed by T₂ (62.00%) and T₃(59%) respectively. the overall growth was better in T₁(30/M²)(12.40 g and 9.2cm of weight and length respectively) this may be due to low stocking density which provides sufficient dissolved oxygen throughout the period and lowest growth performance interms of average weight of 7.35 g was recorded in T₃(Stocking density of 50 /M²) this may be due to fluctuation of dissolved oxygen availability similar findings are also obtained by Atish Mahendra Mane.

Therefore the present study indicated that higher survival (78.50%) and growth performance in term of

average weight of 12.40 g obtained, based on the results of the present study farmers could be suggested to rear grass carp fish seeds in nylon hapa at lower stocking of 30 fish seeds /M².to get higher growth and survival rate in a short period of 120 days in hill zone.

LITERATURE CITED

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