ICAR-CIFA

# CARP CULTURE

Candidate species – Catla, rohu, mrigal, silver carp, grass carp and common carp

**Preparation of newly excavated pond**

Pond area should be at least 0.5 acre with water depth 1.5-2 m. Initial test should be conducted for water and soil quality. The new pond should be filled with at least one-foot water. Raw cow dung is applied uniformly at approximately 1200 kg /acre throughout the pond followed by mixing by a leveler. This will enhance the water retention capacity of the soil. This is followed by addition of water up to 2.0-2.5 m level. Lime is made to powder form with sprinkling of water followed by stirring and applied at 80 kg/acre uniformly after 4-5 days of filling water. Extra lime is required if the pH of the pond soil is less than 6.0. After 3-4 days of lime application, plankton inoculation is done which can be done by collecting plankton from a nearby old pond. This is followed by manuring of the pond.

**Preparation of old pond**

The first activity undertaken in old perennial pond is the weed control. Although a wide range of manual, mechanical, chemical and biological methods available for control of these weeds, generally the manual method is commonly advocated for weed clearance because of their smaller size and no time requirement for detoxification as in herbicide use. Predatory and weed-fishes in the ponds severely affect the seed survival through devouring on the stocked seed as well as competing with them for space and oxygen. Dewatering followed by sun drying the pond is the most effective methods adopted for eradication of these fishes. Other methods used includes

a. MOC @ 1000kg/acre/1m water depth.
b. Bleaching powder (20% Chlorine) @ 200kg/acre/1m water depth.
c. Application of urea @ 40kg/ acre/1m water depth followed by bleaching powder (20% Chlorine) @70kg/acre/1m water depth and after 18 hours.

Fertilization is carried out in the pond one week prior to stocking with basal application of 3 t/ha of raw cow dung mixed with SSP@ 10 kg/t of cow dung. Application of poultry manure at 1.5-2.0 t/ha-m also ensures adequate plankton growth by the time of seed stocking. Basal application of cow dung is skipped when mahua oil cake (@2.5 t/ha) is used as piscicide. Post-stocking fertilization is carried out with alternate weekly application of manure (0.5 t cow dung/ ha-m) and inorganic fertilizers (10 kg urea and 15 kg SSP per ha-m) for continuous and sustained availability of nutrients for plankton growth. Though the above dosages are usually prescribed for regular maintenance of pond productivity, hydro-biological conditions prevalent in pond water should always be considered prior to every fertilization.

**Size of seed**

Normally fingerlings are cultured for getting table size fish. Now a days 100-300 g of fingerlings are used for harvesting table size fishes within 4-6 months

## Cropping pattern

Usually three types of cropping models are followed in carp culture based on the intensity of management i) single stocking-single harvest, ii) single stocking-multiple harvest and iii) multiple stocking-multi-harvest. The stocking density and species combination of the carps also vary according to the cropping models. While the usual stocking density followed in the single stocking and single harvest is 8000-10000 fingerlings/ha, the density may be increased to one and half times in single-stocking-multi-harvest model with an intention to harvest almost 50% of the stock after six months of culture. Whereas in case of multi-stocking-multi-harvest method (also known as continuous culture), the stocking density followed is as that of the first model (8000-10000/ha). In this model, partial harvest of bigger fish is carried out periodically after six months' culture followed by replenishment of harvested number after every harvest, so that the number of fish in the pond always maintained almost same.

## Supplementary feeding

Supplementary feed in the form of GNOC and rice bran mixture should be provided in the pond at 4-3, 3-2 and 2-1% during 1-2, 3-4, 5-6 and after 6 months respectively. Fish sampling (20-25 fish) should be carried out every month for estimation of average body weight. Biomass is calculated considering 80% survival of the stocked seed. Nowadays, sinking /floating pelleted feed are commercially available in the market which are also being fed to fish with good result. In such case, the daily ration should be provided according to the amount prescribed by the respective feed industry.

## Feeding practice

Mixture of GNOC and RB is given in feed bag. Three to four holes of 5 mm diameter are made on either side of the bag. Every bag contains 3-4 kg of feed and kept on the bamboo pole within 1 feet water. The number of required bags depends on the amount to be fed. Bags are uniformly placed across the pond. After 2-3 hour of feeding, the bags are checked for leftover feed. If feed is left, the next meal is reduced accordingly and vice versa. Lime is applied in every 15 days in the feeding area to facilitate mineralization of the feed waste and faeces in the feeding area. The place of feeding may suitably be changed periodically.

## Fish health management

Fishes should be sampled once in every 15 days to check the health and growth. The body surface should be checked for presence parasites if any. In case of any infection/disease, experts may be consulted before undertaking any treatment.

## Some points about pond management

During cloudy days, fishes come up gulping for air due to poor dissolved oxygen in water. Pond should be aerated during this period to increase the oxygen content. A water pump using water from the same pond and flushing in opposite direction may help in reducing the low oxygen stress in emergency situation. Excess feeding is not at all desirable in the pond as it leads to pollution of the water environment. Besides, cost of feed is the major expenditure in fish culture. Therefore, effort should be made to reduce feed wastage in pond. The rate of feeding rate should be reduced in cloudy days and winter months as the feed intake is less during this period. A sunny day during winter season is generally followed by floating of lab-lab on the pond surface which later are collected to one side or corner of pond due to wind action. This further decomposes and makes the area inaccessible to the fishes. Sprinkling of powdered lime on this floating lab-lab complex help faster decomposition and prevents pollution. A dose of lime (80 kg $CaCO^3$/acre) should be used in the pond prior to the onset of rain during monsoon which helps in maintaining the pH of the pond and prevent mortality of carps, especially catla.



For further details please contact
The Director
ICAR-Central Institute of Freshwater Aquaculture
Indian Council of Agricultural Research
Kausalyaganga, Bhubaneswar- 751 002, Odisha, India
Tel.: 91-674- 2465421, - 2465446, -2465402 FAX: 91-674-2465407
E mail: director.cifa@icar.gov.in, Website: www.cifa.in

Prepared by
**Dr Pratap Chandra Das**
**Dr Suhas Prakash Kamble**

Published by
**Dr. P. Jayasankar, Director, ICAR-CIFA**