

FISH BREEDING TECHNIQUES

Pre-Breeding

Brood Fish Care

<u>Sr. #</u>	<u>Particulars</u>	<u>Remarks</u>
	<ul style="list-style-type: none">Stocking Brood fish should be raised and maintained with the stocking rate of 400 to 500 kg/acre. It is preferable to stock 400 kg fish/acre. Different species of fish should be kept in different ponds.	Availability of quality brood stock has a pivotal role in the successful operation of a hatchery. As such healthy stock should be selected and greater attention be focused towards maintenance of proper hydro-biological condition to ensure sustained growth.
	<ul style="list-style-type: none">Fertilization Bed manuring of the brood stock ponds be carried out with 4,000-5,000 kg per acre organic manure (cowdung) prior to water filling and such ponds be periodically fertilized to maintain productivity to desirable extent with 1000-1500 kg organic manure & 8 kg Inorganic fertilizer per acre per fortnight, subject to qualitative and quantitative fluctuations of plankton level.	Preferably when the water temperature ranges between 25-32°C. At the time of shifting of brood fish treatment with sodium chloride or KMNO ₄ (Potassium permanganate) be given.
	<ul style="list-style-type: none">Supplementary Feeding Supplementary feeding of brood stock should be done with Rice polish, Maize glutin and Mollasses in the ratio of 7:2:1 at the rate of 2-3% body weight of stocked fish per day. Note: Brood stock of grass carp be fed with green fodder (Shatala, Barseen, etc.) daily as per the requirement of fish.	

Breeding

i) Selection of Brood Fish

Brood fish selected at the time of It is to ensure breeding without fail

induced spawning should be healthy and fully ripe.

and improve efficiency in breeding results.

ii) Sex Ratio

Male : Female
1 : 1

iii) Hormone Dosage (Ovaprim)

Fish Species	Total dosage ml/kg for male	Total dosage ml/kg for female		
i) <i>Ctenopharyngodon idella</i> (Grass carp)	0.6 – 0.7	0.1 to 0.2	In case of proper maturity of brood stock preferred doze should be 0 – 6 ml/kg for male & 0.1 ml/kg for female. Fertilization is executed only through stripping after 10-12 hours of hormone injection.	
ii) <i>Aristichthys nobilis</i> (Big head)	0.6 – 0.7	0.1 to 0.2		-do-
iii) <i>Hypophthalmichthys molitrix</i> (Silver carp)	0.6 – 0.7	0.1 to 0.2		-do-
iv) <i>Catla catla</i> (Thaila)	0.5	0.1		-do-
v) <i>Labeo rohita</i> (Rohu)	0.3 – 0.4	0.1		-do-
vi) <i>Cirrhinus mrigala</i> (Mori)	0.3 – 0.4	0.1		-do-

Post Breeding

Incubation

- i) Circular tank
 - a) Quantity of eggs 8,00,000 to 10,00,000 lac eggs in a tank of 5 cft dia
 - b) Water Supply The supply of water in circular tank be arranged between 22-25 litres per minute.
- c) Screen
 - Screen at the central exit pipe should be of preferably bolton cloth or nylon cloth and the number of mesh be 4,200 or slightly above per sq. inch.
- ii) Mc Donald Jar (Glass Jar)
 - a) Water Supply Water supply to each Mc Donald Jar should be regulated with 1- 1.5 litres per minute.
 - b) Quantity of eggs 15,000 – 20,000 eggs / Jar
- Nursing of Hatchling
 - Feeding of Yolk fry be avoided.
 - Following is duration period for nursing of hatchlings till these become first feeding larvae/fry.

<u>Hours</u>	<u>Water Temperature</u>
72 – 80	27 – 28°C
80 - 96	25 – 27°C

Fry is ready for rearing when air bladder is formed and yolk sac is nearing absorption.

Preparation of Fry Ponds

- i) The pond should be sun dried before the breeding schedule is commenced.
- ii) The pond should be fertilized with organic manure (cowdung) @ 4000 - 5000 kg/acre subject to qualitative & quantitative fluctuations of plankton level.
- iii) Fill the pond with water to a depth of 1.5 to 2.00 feet and maintain it.
- iv) Observe the production of micro fauna after 48 hours of fertilization.
- v) Add insecticide, @ 0.5 – 1 ppm. In case dry pond is not available, net out the stock from the fry receiving pond as far as possible, reduce the water to minimum possible level. Assure extermination by Rotenon or any other recommended insecticide @ 1ppm. Manure/ prepare the pond as per doze referred in (ii & iii)) above. Add insecticide.

To ensure dis-infection of pond soil.

Dry manure is preferable. The fertilization should be executed the day fertilized eggs are obtained.

Addition of water should be managed just after the pond is fertilized.

At a temperature of 25 –32°C, after 48 hours of fertilization, protozoans and rotifers start appearing. After 72 hours the first food (protozoans and rotifers) are produced fairly abundant.

Only insecticide of mild toxicity, preferably of organophosphate group be used. Check toxicity of the insecticide after 48 hours of its addition prior to release of stock. Survival of fry in a sample of water collected from treated pond upto 4 hours will give satisfactory results.

Stocking of Fry

i) Rate of Stocking

- 4,00,000 fry/acre
- ii) At the time of stocking of fry, care should be taken to ensure acclimatization of fry with pond water temperature.
- iii) Start raising water level of pond by 2" to 3" per day till it reaches the depth of 3 feet after the stocking of fry.
- iv) Start feeding fry with artificial feed after 10 – 14 days of stocking of fry.
- v) Feed ingredients may be rice polish +

To avoid temperature shock to fry.

Maize gluten (30%) in fine powdered form with the ratio of protein 8:1 respectively @ 5% of total weight of fry/day.

- vi) Start fertilization of the pond with 1000 – 1500 kg cowdung & 8 kg inorganic fertilizer, subject to qualitative & quantitative fluctuation of plankton level.