

Fingerling Production: Nursing Fry in Ponds

We can think of fish production as a three-stage system: (1) fry rearing, (2) production of fingerlings and (3) on-growing.

Whereas fry are raised in small and shallow ponds, fingerlings need larger-sized (0.08-0.20 ha) and slightly deeper (1.5-2.0 m) ponds. If the ponds are seasonal, only one crop of fingerlings will be possible, whereas at least four crops can be produced in perennial ponds.

- Fingerlings of about 100 mm are good for stocking in medium-sized ponds where predators have been eliminated.
- Advanced fingerlings of about 150 mm are best for stocking in seasonal ponds (because they grow fast and can be marketed in 6-8 months)
- Advanced fingerlings of about 150 mm are also good for large ponds and tanks and Medium Irrigation Projects (MIPs) where competitors and predators are present in good numbers (because they can better escape predation).

Pond preparation

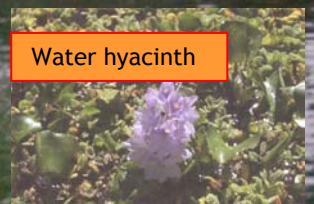
Floating weeds are removed manually

Prepare the pond three weeks ahead of the date fry is expected.

The fingerling rearing pond, like the nursery pond, should be free from weeds and predators. Submerged weeds and predators are killed by *mahua* oilcake (which is toxic for three weeks), which then acts as a good fertilizer, giving a rich crop of zooplankton which is good for catla in rearing ponds.

If there are no weeds, to kill predators and competitors quickly you can just add 100 kg of urea followed 24 hours later by 200 kg of fresh bleaching powder (which is toxic for only a week) for a 1-ha area of a 1-m deep pond. Fish killed in this way can be eaten.

A week after treatment with bleaching powder, add fresh cow dung (2,500 kg/ha) or a mixture of cow dung (2,500 kg/ha) and poultry manure (1,250 kg/ha). If *mahua* oilcake is used, no fertilizer need be added for the first 15 days.



Stocking the fry

The pond should be stocked as soon as it is ready and as early in the season as possible to get fry. This makes best use of the available water and the high temperatures.

While monoculture (growing one species) is preferred in a nursery pond, now stock the three species together for polyculture in the rearing pond.

Stocking density

The number of fish you add to a rearing pond affects the size they reach.

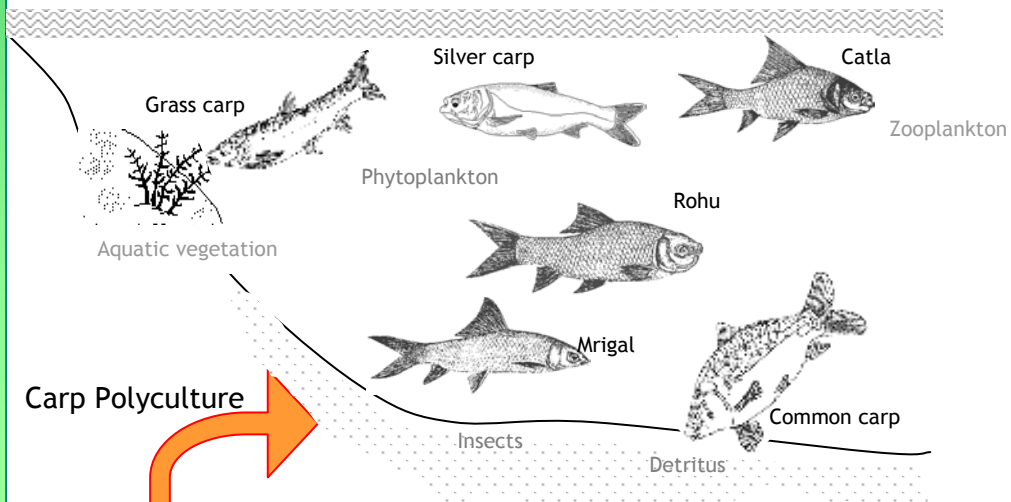
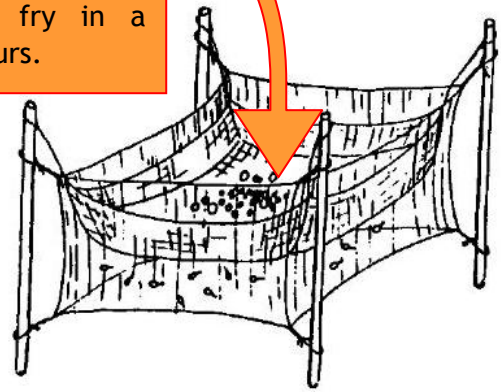
- Stocking 100,000 fry in 1 ha would give 100 mm fingerlings in eight weeks and an average survival of 75%.
- The same stocking density would yield 150 mm fingerlings in 12 weeks with an average survival of 70%.
- If 150 mm fingerlings are the target in eight weeks, the stocking density should be reduced to 75,000 fry/ha.

Most rearing ponds are 0.08-2.0 ha.

Use the table below: select your pond size, the size of fingerling you want and the time you have.

area (ha)	number	size (mm)	time (weeks)
0.05	5,000	100	8
	5,000	150	12
	3,750	150	8
0.08	8,000	100	8
	8,000	150	12
	6,000	150	8
0.10	10,000	100	8
	10,000	150	12
	7,500	150	8
0.15	15,000	100	8
	15,000	150	12
	11,250	150	8
0.20	20,000	100	8
	20,000	150	12
	15,000	150	8

The quality of water should be tested for residual toxicity before the fry are stocked by putting 10-20 fry in a hapa for 24 hours.



At this stage, the fish live in different layers of the water and eat different things. To use all the space and food available in the pond, it is advisable to stock different species together.

Fry from a hatchery will usually be packed in bags with oxygen like this.



Post-stocking management

To provide food for the fish, you will need to fertilize the pond water every few weeks and supplement with feed every day.

If *mahua* oilcake was used to kill predators:

Time	Action	Notes
2 weeks after stocking	add lime (50 kg/ha) 2.5 kg in 0.05 ha 5.0 kg in 0.1 ha 10.0 kg in 0.2 ha	Broadcast the lime evenly over the pond
4 weeks after stocking	add urea (25 kg/ha) 1.25 kg in 0.05 ha 2.5 kg in 0.1 ha 5.0 kg in 0.2 ha and add superphosphate (50 kg/ha) 2.5 kg in 0.05 ha 5.0 kg in 0.1 ha 10.0 kg in 0.2 ha	To promote the growth of phytoplankton as food Adding too much can cause fish to die

If you added organic manure:

Time	Action	Notes
4 weeks after stocking	add a second dose of (2,500 kg cow dung and 1,250 kg poultry manure /ha) 125 kg(CD)+63 kg(PM) in 0.05 ha 250 kg(CD)+125 kg(PM) in 0.1 ha 500 kg(CD)+250 kg(PM) in 0.2 ha	To promote the growth of plankton as food Adding too much can cause fish to die

Feeding:

Time	Action	Notes
From the day after stocking	feed twice daily an oilcake-rice bran mixture (10 kg/ha) 0.5 kg in 0.05 ha 1.0 kg in 0.1 ha 2.0 kg in 0.2 ha	Feed half in the morning and half in the evening
2 weeks after stocking	feed twice daily an oilcake-rice bran mixture (15 kg/ha) 0.75 kg in 0.05 ha 1.5 kg in 0.1 ha 3.0 kg in 0.2 ha	Adding feed in the same place helps fish to feed and allows you to sometimes catch fish
4 weeks after stocking	feed twice daily an oilcake-rice bran mixture (22.5 kg/ha) 1.125 kg in 0.05 ha 2.25 kg in 0.1 ha 4.5 kg in 0.2 ha	Continue to increase the ration by 50% every two weeks

Avoid adding feed and manure on cloudy days because there may not be enough oxygen for the fish.



Adding lime



Adding manure



Carp feeding

Harvesting, packaging and transport

Once the fingerlings reach the right size they can be sold. After making arrangements with customers, the fingerlings should be harvested early in the morning and properly conditioned for transport in a hapa.

Fingerlings are active. Any mishandling will easily result in heavy mortality.

Like fry, fingerlings can be transported in polythene bags 1/3 full of water and 2/3 oxygen but this is expensive and only a limited number can be packed per container.

Large numbers of fingerlings can be transported in a Fiberglass Reinforced Plastic (FRP) transportation tank, which can be moved on the back of a truck. The one pictured (right) has been developed by the Central Institute of Freshwater Aquaculture (CIFA) in Bhubaneswar.

It is good to raise fingerlings near to water bodies that can be stocked, such as in ponds next to a reservoir or tank. This avoids costs and potential losses due to transport.



A large hapa



FRP transport tank

Useful Contacts

Other Better-Practice Guidelines

There are many more Better-Practice Guidelines in this series.

You can get more copies of this and other Better-Practice Guidelines from your local One-stop Aqua Shop, STREAM India Communications Hub, from the STREAM Regional Office or from the STREAM Website.

www.streaminitiative.org

We would like your feedback about these Better-Practice Guidelines. You can let us know by phoning, emailing or writing to the Communications Hub Manager at your STREAM Country Office.

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