

Advanced Fingerling Production: Seasonal Ponds

It is best to stock advanced fingerlings in large ponds, tanks, and in both small and large reservoirs, since they can better escape predators and competitors. Seasonal ponds, often 0.10-0.15 ha and 1.5-1.8 m deep can be used as rearing ponds for raising advanced fingerlings. Low water levels at the end of the season will make netting and harvesting easy.

Pond preparation

Seasonal ponds must be weed-free. Weeds take nutrients out of the water. They hinder the movement of the fish. They also reduce oxygen during the night and early in the morning.

Many seasonal ponds are in low-lying areas with no proper dykes, inlets or outlets, so weed fish and predators can get in easily. These must be removed before raising fingerlings.

Mahua oilcake, which is readily available in parts of Orissa, can be added at 2,500 kg/ha. It not only kills predatory fish but also the submerged weeds and then acts as a nutrient itself. The dead weeds also make good manure in the pond. *Mahua* does not affect floating weeds like water hyacinth, *Pistia* and *Salvinia*. You need to take these out by hand.

For a healthy pond and healthy fish, make sure you get rid of:

- Weeds
- Weed fish
- Predators

If there are no weeds in the pond, you can destroy predators and competitors. First apply urea at 100 kg/ha where the water is 1 m deep.

After 24 hours apply 200 kg of fresh bleaching powder/ha. Fish start dying within one hour of adding the bleaching powder. These fish can be harvested and eaten. It takes a week for the toxic effect of bleaching powder to go.

When *mahua* oilcake is used, its toxic effect lasts three weeks. However, *mahua* oilcake is important since it is an extremely good fertilizer that helps produce zooplankton which young fish eat.

The quantities of *mahua* oilcake or bleaching powder required for pond preparation are given on an area basis (assuming about 1 m depth of water).

If *mahua* oilcake is used, you do not need to manure for the first 15 days. However, bleaching powder is not a fertilizer so you need to manure the pond a week after you have applied the bleaching powder.

To fertilize your pond, use fresh cow dung (10,000 kg/ha) or a mixture of cow dung (5,000 kg/ha) and poultry manure (2,500 kg/ha).



Stocking the fry

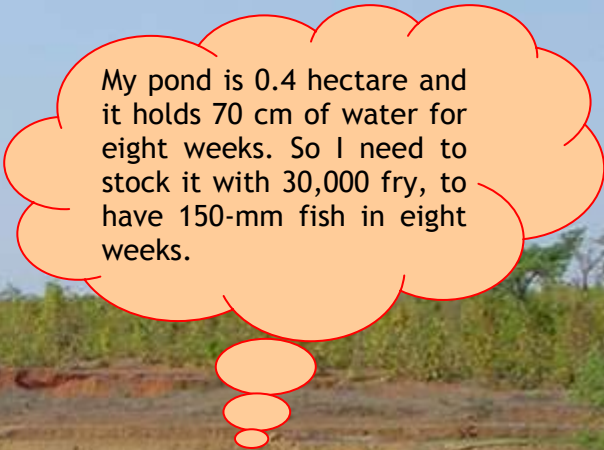
Stock your pond with fry as early in the season as possible. In this way you will benefit from the fresh rainwater that tops up the pond. This provides a healthy environment.

Also, the high temperatures in the monsoon season help the young fish grow faster.


You need to have an idea of the duration that the pond will hold about 70 cm of water. This helps you decide on the stocking density.

If the pond is stocked at 100,000 fry/ha, one can expect fingerlings (150-mm in size) in 12 weeks with a survival of around 70%.

However, if the pond is expected to dry early, the stocking density may be reduced to 75,000 fry/ha so that 150-mm fingerlings are available in eight weeks.




My pond is 0.4 hectare and it holds 70 cm of water for eight weeks. So I need to stock it with 30,000 fry, to have 150-mm fish in eight weeks.



Juveniles can also be grown in seasonal ponds, if the water lasts for 5-6 months. For this, the proportion of fry of catla, rohu and mrigal at the time of stocking should be 3:4:3.

Post-stocking management

The fry will not get enough food from the pond, so you should feed them from the day after you stock the pond.




The feed should be a mixture of groundnut oilcake and rice bran and you should feed 50% of the fry's body weight each day. This is about 10 kg/ha/day. This amount may be increased by 50% each fortnight during the first three months. The feed may be reduced from the fourth month onwards back to 10 kg/ha/day where rearing is continued further.

How do you work out how much to feed the fry?

Each fry weighs 0.2 g on average, so 100,000 fry would weigh 20 kg and 50% of this would be 10 kg.

Should I reduce the feed gradually later in the season?

Reduce the feed every week from the fourth month back down to 10 kg/ha/day. By this time the requirements of the fish are less because of lower temperature.



More about post-stocking management

What is the best way for me to look after the fingerlings?

First I have to lime my pond and then I fertilize it.

I have to be careful to use the right amount of inorganic fertilizer.

If *mahua* cake has been used for eradication of predators, at least a fortnight after stocking the pond you should add lime at 100 kg/ha.

Then, a fortnight after liming, the growth of the fingerlings is better if you fertilize the pond so that small plants that fish eat called *phytoplankton* will grow. Add 25 kg of urea and 50 kg of superphosphate per ha.

Take great care not to add too much or too little inorganic fertilizers. Large blooms of tiny plants (plankton) without enough fertilizer can die and use up the oxygen in the water, affecting the growth of fingerlings and may even cause fish deaths.

A month after stocking, a second dose of organic manure (2,500 kg cow dung and 1,250 kg poultry manure/ha) should be given. Choose a bright and sunny morning.

Feeding and manuring should **not** be done on cloudy days or if the oxygen levels fall below the minimum requirement when the fish start coming up to the surface to gulp the air.

What should the oxygen level be? What is the minimum requirement?

The minimum for the fish seed would be '3 ppm' but it should always be above '5 ppm' to keep them active and in good healthy condition.

How can you tell what the oxygen level in the pond is?

When the fish come up to the surface and start gulping air it means that the minimum level has already been reached.

If there is not enough oxygen, what can be done about it?

Here are three options if oxygen levels fall: If you have a pump, use it to pump fresh well-oxygenated water from a neighboring pond, or circulate the pond water. Otherwise, a solution of potassium permanganate can be sprayed on the water. If neither option is possible you can beat the water surface with sticks to agitate it.

Harvesting and packaging

The fingerlings should be harvested early in the morning and placed in a hapa for conditioning for at least 3-4 hours before packing for transport.

I will sell these fingerlings to people who have bigger ponds or who want to grow fish in the MIP.

Proper handling of fingerlings is important since they can easily become agitated. This can result in injuries, stress and mortality. Transporting the fingerlings is an expensive activity because only a limited number can be packed per container. Open containers or splashless tanks are the best means of transporting them.

Fingerlings rather than smaller fry are best used for stocking large water bodies that contain predators, and for stocking seasonal ponds early to achieve market size fish in a short period (4-6 months). It is possible to use the seasonal ponds to produce fingerlings for stocking MIPs and reservoirs in the vicinity.

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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