

Stocking of hatchery produced mola seed (*Amblypharyngodon mola*): A guideline for farmers

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Stocking 3 days old hatchlings into a nursery pond to produce 3 weeks old fry

- The pond should be dewatered and the bottom soil should be kept moist until lime application.
- Hydrated lime [$\text{Ca}(\text{OH})_2$] in powder form should be applied at a rate of 200 g/m^2 (2000 kg/ha) and left to dry the pond bottom for a week to disinfect and get rid of predators.
- Apply organic fertilizer such as cattle dung, compost etc. at the rate of 1-2 tons/ha to the pond bottom.
- Apply urea at the rate of 10 g/m^2 (100 kg/ha) and Single Super Phosphate (SSP) at the rate of 20 g/m^2 (200 kg/ha) by diluting in the pondwater when water filling start. .
- The pond should be filled with water no more than 3–4 days before stocking mola seed.
- Gradually fill the pond with water to a depth of 2 feet. Use borehole water to refill the pond. If not available, use surface water filtered through a 100 micron net to prevent predatory insects or fish fry from entering the pond.
- Fermented mustard oil cake (MOC) should be sprayed on the pond surface daily at the rate of 1.25 g/m^2 (12.5 kg/ha). The MOC will work mainly as an organic fertilizer.
- Before stocking mola hatchlings net the nursery pond several times with a mosquito net, to remove backswimmers, other predatory insects, and their larvae.
- Stock the mola hatchlings on the 3rd day after filling the pond. Stocking is done in the morning hours with special attention to gradually balancing/acclimatizing the temperature of the carrying water and the pond water. Stocking density is $200/\text{m}^2$ (20 lakh/ha).
- The hatchlings should be fed with microencapsulated duck or chicken eggs, at the rate of 3-4 eggs per one lakh of hatchlings each day. The doses can be divided into 4 times per day.
- After five days, feeding the microencapsulated eggs should be stopped but MOC will continue. Fine fish meal or formulated powdered starter feed (40% protein) can be also broadcasted on the water surface, as supplementary feed to enhance natural food, at the rate of *ad libitum*.
- A weekly application of urea at the rate of 2 g/m^2 (20 kg/ha), and SSP at 4 g/m^2 (40 kg/ha), should be made depending on phytoplankton density (Secchi disc reading 25–30 cm).
- In nursery ponds, water quality deteriorates easily if excess fertilizer is applied. It is recommended to add 5–6 cm of fresh water daily until the pond is filled to a maximum depth of 5 feet at the deepest point.
- After 3 weeks, harvest mola fry and stock into grow-out ponds at the rate of $5\text{-}10/\text{m}^2$ ($50,000\text{-}100,000 \text{ fry/ha}$).
- Harvest nursery pond no later than 3 weeks to avoid parasite and disease problems.
- Stocking density in grow-out ponds is depending on the biomass and species proportion of carps in polyculture with mola. The planned biomass of phytoplankton feeders should be around 40% of the total stock in the grow-out pond.

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2 Stocking 3 weeks old fry into a polyculture grow-out pond

- The grow-out pond should be free from any predator fish such as koi and murrel prior to stocking mola fry.
- Agri byproducts such as fermented MOC and rice bran should be applied daily.
- Urea 2 g/m² (20 kg/ha) and SSP 4 g/m² (40 kg/ha) can be applied weekly depending on phytoplankton density. Secchi disc depth should be maintained at 25-30 cm.
- Broadcasted SSP sinks into the mud so it should be kept in a bag suspended below the water's surface in the middle of the pond.
- Urea dissolves instantly so it can be mixed with the fermented organic MOC.
- After 3 months, most of the mola should be harvested.
- When harvesting, at first the pond should be netted with a 10-12 mm mesh seine net to collect fish such as IMCs and corral them in one corner of the pond.
- Then pond should be netted in opposite direction to harvest mola, using a mosquito net or net of 5 – 6 mm mesh.
- Feeding should be stopped 1 day before harvesting.
- Escaped mola that were not harvested will continue to reproduce in the pond, ensuring ongoing mola production.
- Stocking advanced size IMC fingerlings (average weight 300-400 g) at the same time along with the mola fry is recommended. These fish will grow to market size and be ready for harvest in three to four months.
- Stocking density in grow-out ponds is depending on the biomass and species proportion of carps in polyculture with mola. The planned final biomass of phytoplankton feeders should be around 40% of the total stock in the grow-out pond. Out of that, mola could represent 10%. The average weight of mola is estimated as 3 to 4 grams after 3 months of culture.

3 Stocking 3 days old hatchlings directly into a polyculture grow-out pond

- Pre-stocking management includes draining the pond, then cleaning, liming, drying, refilling gradually, applying inorganic fertilizers and organic manure, and controlling predators, as it is done in nursery ponds.
- The grow-out pond should be free from any predator fish such as koi and murrel, as well as large zooplankton like copepods and predator insects.
- The best source of food for the tiny mouths of hatchlings is paramecium and rotifers. These can be developed by spreading dried grass around all shallow areas of the pond. The decomposing grass can be removed after 10 days.
- Mola hatchlings can be stocked at the rate of 50/m² (5 lakh/ha).
- It is recommended to stock carp fingerlings 20 days after stocking mola to reduce predation.
- Feed daily with fermented MOC, rice bran etc.
- Weekly inorganic fertilization can be done with 2 g/m² (20 kg/ha) urea and 4 g/m² (40 kg/ha) SSP. Secchi disc depth should be maintained at 25-30 cm. After 3-4 months from the stocking of hatchlings, most mola should be harvested. Any escaped mola will breed and ensure that mola production continues.

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