



## Milkfish Seed Advisory

### How to quarantine milkfish broodstock to produce healthy spawn?

- Quarantined pathogen free broodstock fishes can be used for breeding to avoid vertical transmission of disease from broodstock to spawn, larvae and fry. Pathogen screenings have to be done at all seed stages to ensure disease free seed production.
- Spawn quality can be assessed based on the size, shape, cell of development, oil globule intactness and fertilization rate.
- Milkfish spawning takes place in the open tank system, hence, the spawn collected from these tanks should be washed thoroughly with sweater and treated with iodophore solution to avoid the contamination.
- Milkfish fertilized eggs are pelagic and float on water surface. These transparent eggs should be collected carefully either by siphoning or by over flow method without contamination of unfertilized eggs.
- Unfertilized eggs are opaque and usually settle at the bottom of the spawning tank. These unfertilized eggs can be drained out for careful disposal.
- Milkfish eggs are spherical shape and size measured between 1.20 and 1.24 mm. The egg may vary from batch to batch. Normal size eggs can be preferred while collecting the spawn.
- If the spawn is to be transported for long distance (up to 20 hrs) for hatching and rearing, the fertilized eggs can be packed @ 8000 to nos. / polythene bag (5.0 litre seawater) with oxygen bubbling. Ice can be kept in the box to minimize the temperature during transportation.

### Principles of milkfish larval production

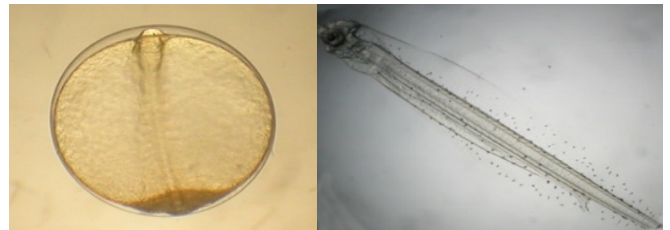
- The average size of newly hatched milkfish larvae is between 3.2 and 3.5 mm, hence, every larval batch have to be measured to

ensure that the hatchlings to be stocked are in ideal size (above 3.2 mm), without deformities, and normal swimming behavior.

- Larvae are photo tactive and need to be collected slowly by scooping using bowl or beakers.
- Unfertilized eggs in the incubation tanks should be removed either by draining out through outlet pipe or by siphoning out through hose pipe.
- Yolk present in the newly hatched larvae act as nutrient reserve till the time of first feeding with live feed. Hence, volume of yolk that larvae possess in it is an indicator to



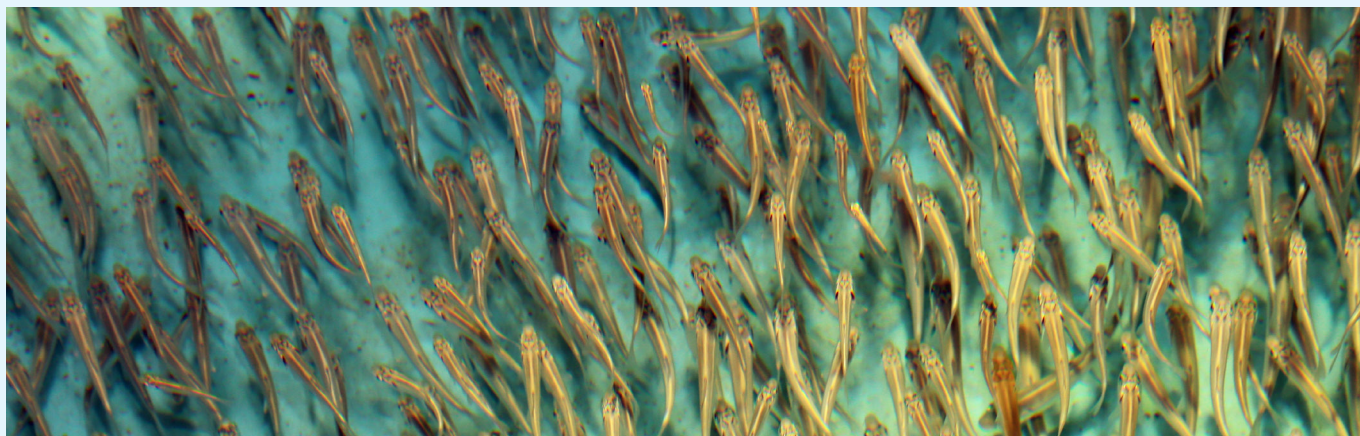
Milkfish broodstock



Transparent fertilized egg

Healthy larvae (2<sup>nd</sup> day)





undergo normal larval development and growth. Therefore, the larvae selected for rearing should have large yolk sac.

- Larval deformity (scoliosis/ opercula deformity) should be minimum in any successful rearing and if it exceeds acceptable limit then whole batch can be avoided.
- Larvae have to be handled carefully in the hatchery during water exchange, segregation, tank cleaning etc., to minimize the stress and injury and to avoid the secondary infection
- Larvae can be weaned to the artificial diet between 30-35 days post hatch to produce fry size seed (25 mm). These seed can be collected from the larval rearing tanks carefully without injury and stress and can be packed in the polythene covers with oxygen bubbling at specific density considering the transport duration for nursery rearing.

- Quarantine broodstock fish
- Select healthy larvae above 3.2 mm
- Quality fry exhibit schooling behaviour
- Stunted seed offer compensatory growth

### Best method to produce milkfish fingerlings

- The weaned fry (> 25 mm) can be stocked in the nursery ponds at specific density to produce fingerling seed. The stocking has to be done after acclimatizing the seed to the pond water condition to avoid the sudden stress.
- Nursery rearing ponds prepared with lab-lab growth would provide the natural diet to milkfish fry. Since milkfish seed is very active and jumpy in nature, it is advised to take up milkfish nursery rearing adjacent to grow out culture pond sites, so that fingerling transportation would be easy to stock in the grow out system without stress.
- After reaching the fry into fingerling size of 3-4 inch, the seed can be carefully harvested using soft drag net and transported to the grow-out culture pond. Care should be taken while netting the seed to avoid the injury.
- The milkfish fry in the size of 25mm can be packed @ 300 to 400 nos/bag for 24 hrs transportation to the farm site. and after acclimatization it can be stocked in the grow out pond



Early fry of milkfish (30 days old)



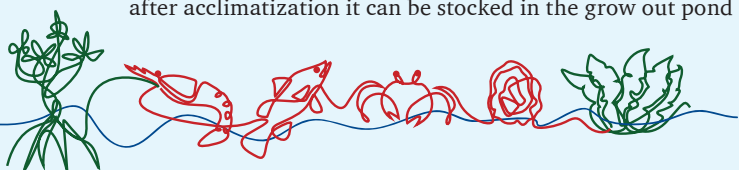
Grading of milkfish fry



Fingerlings produced in 90 days rearing duration



Harvested milkfish from hatchery produced seed



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## ICAR-Central Institute of Brackishwater Aquaculture

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