

# SEED PRODUCTION AND CAGE CULTURE OF PEARL SPOT

(*ETROPLUS SURATENSIS*)

PACKAGE OF PRACTICES

## Cage Culture of Pearl Spot

Two metre diameter HDPE cages can be effectively used for grow out culture of pearl spot in open backwaters. The effective volume of the net bag used is 6 to 9 m<sup>3</sup>. About 1000 juvenile pearl spot *E. suratensis* can be stocked in each such cage. The mesh size of the net has to be adjusted according to the size of the fish. Low protein commercial pellet feed of different sizes dispersed in trays can be used for feeding. Regular monitoring and maintenance of the cage frame, net and anchoring system of the cage ensures successful farming.

## Pearl Spot Production in 2m Cage

Volume of the cage	- 7.85 m <sup>3</sup>
Stocking density	- 1000 Nos
Production	- 200kg
Feed requirement for 6 months	- 150 kg
Total expenditure	- Rs.10,000
Gross income	- Rs.30,000
Net income	- Rs.20,000

The advantage of cage culture of pearl spot is that it will not normally spawn in cages. This enhances the growth of fish compared to that in ponds where it spawns even at a size of 110 g. The periphyton attached to the net forms additional feed for the stock.

When etroplus were cultured in cages the 30gm sized seeds reached 110 to 175 gm with 3-4 months. It is noted that almost all the fish caught from cages were fully matured with well developed gonads. So the broodstock development of the pearl spot can also be achieved through cage culture.

CMFRI supports the farmers and small entrepreneurs with technical support for backyard hatchery set up and farming of pearl spot in cages

Prospective farmers may contact CMFRI for technical expertise in broodstock development, seed production and cage culture of pearl spot.

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The pearl spot *Etroplus suratensis* the State Fish of Kerala is an indigenous cichlid fish distributed along the east and west coasts of India.

The pearl spot wealth was about 2,000 tonnes in 2001 in Kerala. In 2011, it decreased to about 300 to 350 tonnes. In addition to its high demand in the local market it has good export market also.

Pearl spot is farmed using wild seeds in traditional ponds in Kerala. The average production is about 1000 kg/ha/year over 8-10 month grow-out period. Pond culture is not recommended for large scale production of the fish. However, culture of this species in cages has shown its potential for monoculture and polyculture with other brackishwater fishes. Cage culture is the most suitable method to enhance pearl spot production.

### Broodstock Development and Seed Production by CMFRI

Earthen ponds are used for broodstock rearing. The ponds are stocked with 1500 brood fish pairs of size ranging from 100 to 200 gm. Artificial substrates are provided along the sides of the ponds for egg laying by natural breeding. The fecundity of pearl spot ranges from 900 to 2500 eggs in mature specimens. Eggs are deposited and get attached to the substratum by short stalks. The eggs hatch within 72 hours and are guarded vigorously by the parents.

For seed production, the substratum with fertilized eggs attached to it were collected and transferred to the hatchery tanks provided with similar water quality parameters. With continuous aeration and slow and wavy movement of the eggs, 95% hatching was obtained from each batch.

After hatching the larvae lives on its yolk for the next two days. After two days it become free swimming and starts exogenous feeding. The fry are relatively large, and were fed with brine shrimp nauplii and copepods. They are very sensitive to changing water conditions and regular small water changes are the best, so as to maintain stable chemistry.

After 20 days larvae were fed with artificial diets of suitable size.

During 30 days of hatchery phase, 70-80% survival was obtained for the larvae. At this stage, it was transferred to HDPE hapas of varying dimensions fixed in earthen ponds till it reached the stockable size of 4-6 cm.



### Pearl spot production using 1000 Pairs

Area for broodstock rearing	- 0.265 ha
Egg (@4000Nos/pair/year)	- 4 million
Larvae (95% hatching)	- 3.8 million
Juveniles (@60% survival)	- 2.28 million
Area that can be stocked @10,000Nos/ha	- 228 ha
Harvest (@75% retrieval)	- 1.71 million fish
Production (@mean 200g size)	- 342 t/y
Total revenue (@ Rs. 150/ kg fish)	- Rs.51.3 million

The total brackishwater area including backwaters of Kerala is about 1,43,696 ha. In Kerala there are nine coastal districts with potential for pearl spot culture. If 30% area is to be farmed one lakh pairs of broodstock is sufficient to meet the entire seed requirement.

### Pearl spot Seed Production

During 2011-12, about 25,000 numbers of *E. suratensis* seed were produced in the CMFRI hatchery. About 12,000 were supplied for farming. The remaining seeds were stocked in the ponds at KVK premises and in cages installed at different places at Cochin

### Transfer of Technology

CMFRI has assessed pearl spot seed production technology as feasible for small scale entrepreneurs and transferred to farmers in Kerala.

