



Mussel Culture

Mariculture of bivalves is of great importance in meeting the increasing protein demands of the human population. Bivalve groups such as oyster, mussel and clam are the most important cultivable organisms all over the world. Mussels are sedentary bivalves attaching to rocky substrata by byssus threads and they are filter feeders. Among them, *Perna viridis* (Green Mussel) and *Perna perna* (Brown mussel) form the most dominant cultivable mussel species.

The brown mussel is mostly restricted up to the south of Kollam from Cape Comorin. Green mussel is widely distributed and found extensively around Kollam, Alappuzha, Kozhikode, Kannur and Kasargod in Kerala and in small beds in Chilika lake, Visakhapatnam, Kakinada, Chennai, Puducherry, Cuddalore, Mangalore, Karwar, Goa, Ratnagiri and in Gulf of Kutch.

The Central Marine Fisheries Research Institute (CMFRI) has developed eco-friendly techniques for mussel culture. Recently, CMFRI has taken up efforts to popularize mussel culture in all coastal districts of Kerala.

Optimum conditions for farming

- Open sea and estuarine areas free from strong wave action may be selected for farming.
- Clear seawater with high plankton production is ideal for mussels.
- Moderate water current will bring the required planktonic food and will carry away the waste materials.
- Silt will adversely affect mussel growth and survival.

- Site selected should be free from industrial pollution.
- Salinity range of 30 - 35 ppt is ideal for mussel farming.
- Water temperature between 21°C to 31°C and dissolved oxygen from 3.8 to 5.5 ppm is good for mussel.
- In shallow waters in the sea and estuary, rack and ren method can be adopted, but for deeper regions in the sea, the raft method will be ideal.

Types of mussel farming

Rack method

This method is suitable for estuaries and shallow bays. The racks are fabricated placing bamboo or casuarina poles vertically and horizontally tying and lashing with nylon/coir ropes. These poles are driven into the bottom and spaced at a distance of 1-2 m. These stakes are connected horizontally with poles.

Raft method

This method is ideal for open sea conditions. Square/rectangular rafts are fabricated with sturdy bamboo poles. Buoyancy for the raft is provided by tying barrels one each at the four corners and one in the middle. Rafts are positioned using 50- 100 kg of iron, granite or concrete anchors. Ideal size of the raft is 5X5 m.

Long –line method

This method is considered ideal in unprotected open sea conditions. The long-line, a synthetic seeded rope is supported by barrels tied to it and anchored in position at both ends using concrete blocks and nylon ropes.

Horizontal Culture

This method is ideal in shallow areas with a minimum level of water column. Seeded ropes are suspended by tying upward by ropes to horizontal poles, but both the ends will be stretched and tied in vertical poles erected in opposite sides in the farm structure. In the estuaries of Malabar, most of the farmers are following this method.

Bouchot culture

Bouchot (stake culture) method was done in the shallow waters of Ashtamudi Lake at Dalawapuram, Kollam with farmers' participation. Mussel seeds (20-25mm) were collected from the estuary and seeded on casuarina poles, bamboo split of one-meter length @1.5kg/pole.



Seed collection and seeding on rope

- Seeds should be collected from the submerged areas and thoroughly washed with sea water to remove the unwanted organisms.
- About 500- 750 g of seed is required for seeding on one-meter length of rope.
- Ideal size of the seed is 15-25 mm with 1-2 g weight.
- Nylon rope of 12-14 mm or 15-20 mm coir rope can be used for seeding.
- Length of the rope depends on the depth where the raft/rack is positioned.
- Old cotton net, cotton mosquito net or cheap cotton cloth are used for covering the seeds around the rope.
- The cloth will disintegrate within 2-3 days. By this time, seeds will secrete byssus thread and will get attached itself to the rope.

The seeds, which get attached to ropes, show faster growth in the suspended water column. If the seed is not uniformly attached, crowded portion always show slipping. To avoid slipping of the mussels, knots/ split bamboo pegs are made on seeded rope.

In open sea – farming, growth of mussel is very rapid. They attain 80-110 mm in 5-6 months with an average growth of 13.5 mm/month and an average weight of 35-45 g. In estuarine farming, mussels attain 75-90 mm in 5 months with an average weight of 35-40 g and an average production of 10 -12 kg/m rope.

Harvest

Harvesting of the mussel is initiated during April to June along the west coast of India. The crop should harvest before the onset of monsoon to avoid mass mortality due to salinity drop of water. As a filter feeder, it harbours microorganisms and contaminants from water. Hence, a cleaning process called depuration is necessary to avoid the bacterial load and contaminants.

Depuration

Depuration is a method used to decrease microbial contamination of filtering molluscs, to levels acceptable by legislation for human consumption, by keeping the animals in tanks with clean water for a period of 24 hours or more if required. Disinfections of circulating water can be achieved by using U V radiation, ozone treatment, irradiation etc.

Backwater mussel culture is a low investment activity which opens immense potential for resource and employment generation among coastal communities especially women and youth. It can stimulate a healthy socio-economic development in the area. Better post-harvest technologies can develop attractive value added products.

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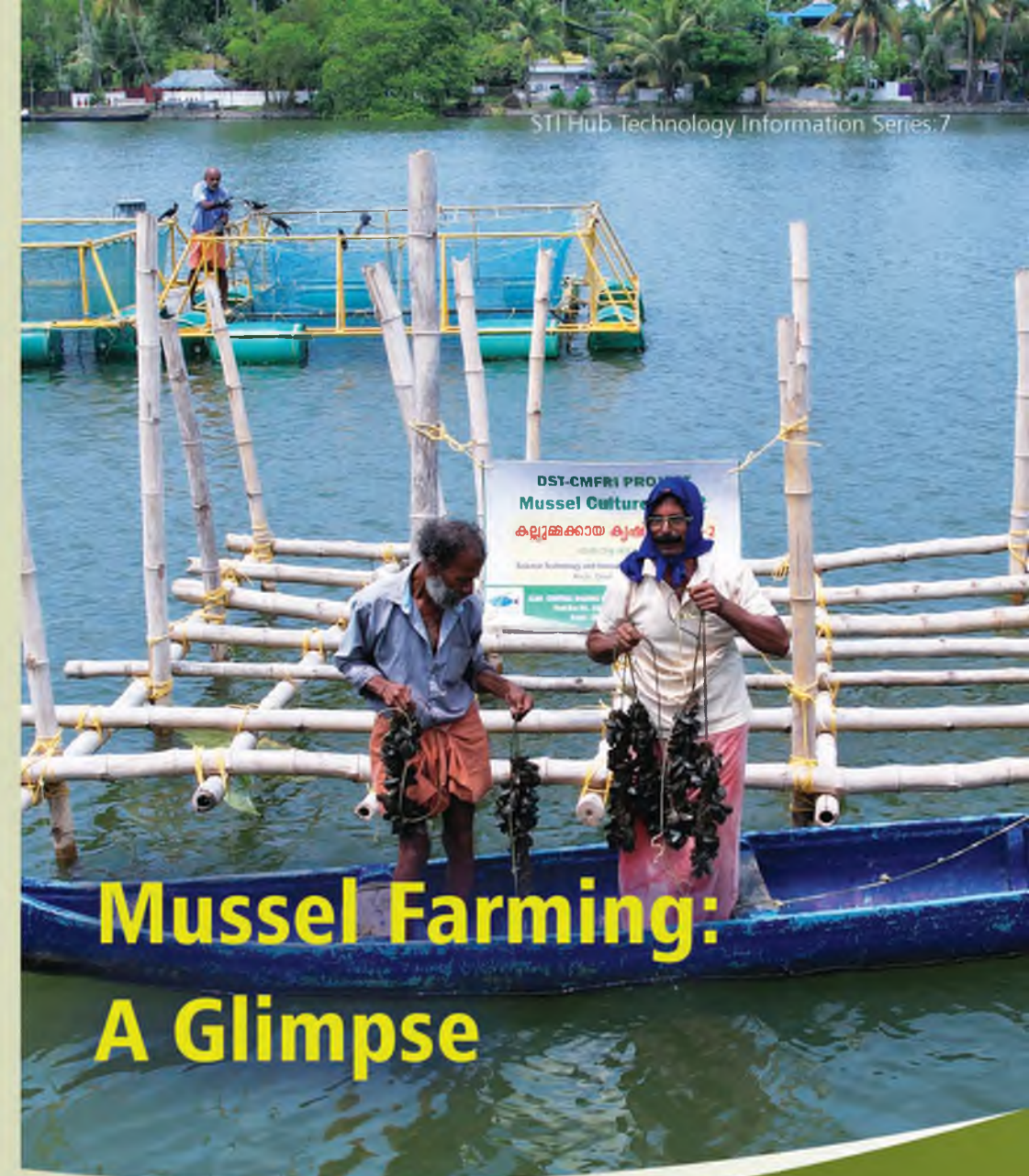
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