

KADALEKUM KANIVUKAL

(Bounties of the Sea)

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PRAWN FARMING

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The traditional practice of prawn filtration prevalent in the low-lying brackishwater impoundments including the 'pokkali' fields adjoining the Vembanad Lake in Kerala has spread to other areas along the northern and southern regions of the State in recent years. Filtration is the method of trapping and holding the juveniles of prawns ascending along with the high tide in brackishwater impoundments and harvesting them at periodical intervals. As per the 1991 statistics this traditional practice is prevalent in about 12,500 ha spread over the coastal areas of Kannur, Thrissur, Ernakulam, Alleppey, Kottayam and Kollam districts of Kerala state.

The yield from the traditional practice will be a mixture of different species of prawns and fishes because there is no way of controlling the species entering the fields. The average yield from a moderately productive field will be around 750 kg of prawns per ha fetching only a net income of about Rs. 6,000/-. The scientific method of prawn farming ensures manifold increase in income compared to the conventional practice. This improved technology of prawn farming involves selective stocking of only commercially important species of prawns such as *Penaeus indicus* or *P. monodon*, proportionate to the area and productivity of the fields, and growing them for definite periods to achieve good quality and maximum quantity.

Based on the quantum of input requirement, package of practices and the resultant production target, the selective farming systems are classified in different parts of the world as extensive, semi-intensive and intensive although there is no clear cut demarcation among these systems. Whereas the extensive and semi-intensive systems are very popular, intensive farming is found to be highly risky due to pathological and related problems and therefore this system is practised only on a limited scale.

Selection of site

Selection of site is the first step in the package of practices of scientific prawn farming. Low-lying brackishwater areas including the traditionally operated seasonal and perennial prawn filtration fields, canal systems in coconut groves, shallow backwater areas and reservoirs in salt pan areas which are free from pollution will be suitable for this purpose. Ponds having facility for daily exchange of tidal water are ideal. Water should not be very turbid. The ideal range of water temperature is 25-30°C. The dissolved oxygen content of the water should not be below 3.5ml/l. Prawns attain good growth in water having a salinity range of 10-30 ppt. The pH between 7.5 and 8.5 is ideal.

Bottom soil composed of sand, silt and clay with pH ranging from 7.5 to 8.5 is found to be favourable. In terms of productivity, bottom soil with percentages of organic matter <1.5, 1.6-3.5 and >3.6 can be classified respectively as low, medium and highly productive.

Pond preparation

Prior to stocking of the ponds with prawn seeds, preparations such as strengthening of the bunds, excavation of bottom channels, repairing and fixing of the sluice gate and eradication of undesirable organisms must be undertaken.

Regarding the eradication of weed fishes, draining the pond and drying the pond bottom until it cracks ensures the best result. This will also allow the escape of harmful gases present in the bottom mud. As a result of drying the bottom mud is likely to become acidic. In such cases sufficient quantity of lime may be applied to make the soil alkaline. The quantity of lime may be fixed based on the pH of the soil. If the ponds are not fully drainable, anhydrous ammonia @ 15 ppm or plant piscicides such as mahua oil cake @ 200 ppm or croton seed @ 3-4 ppm may be applied to eradicate the weed fishes. The treatment may be made after draining the pond as much as possible and closing the sluice gate thoroughly with mud. After about a week, water level may be raised to the optimum level of about 1 m followed by allowing tidal exchange for two days. The pond is now ready for stocking.

Stocking

Prawn seed can either be collected from the wild or procured from hatcheries. The seed have to be acclimatised with the pond water before stocking in order to minimise the stress due to transferring from one habitat to another. The temperature of the transport water and pond water can be equalised by allowing the container to remain inside the pond for some time. Salinity can be equalised by mixing sufficient quantity of pond water gradually to the container. If farmers do not have the facility for testing the salinity, the transport water can be mixed gradually with pond water up to four times its original volume which would bring the salinity difference within the tolerable limits.

It is always better to stock the seed in the pond preferably before early morning or late evening, when the water temperature is low, on sunny days and at any time during a rainy day when fresh tidal water is entering the field. Before releasing into the grow-out ponds the seeds can be reared in nursery pond for 2-3 weeks. In the nursery pond the seed can be fed with minced clam meat or compounded artificial feed or boiled egg.

Management

The pond should have a depth of more than 0.75 m throughout the period of culture. Allowing the maximum exchange of water is the appropriate way to maintain the quality of water. Supplementary feed must be provided to enhance the growth rate of prawns so that harvesting can be done within a shorter period than natural. The prawns must be fed at the rate of 5 to 10% of their biomass.

In the brackishwater fields of Kerala state the white prawn and the tiger prawn generally attain marketable size within 85-90 days with a survival rate of more than 80%. The white prawn may attain 120 to 125 mm length and 15 to 17 g weight and the growth of the tiger prawn is 140 to 145 mm in length and 35 to 40 g in weight during the same period which may fetch a sale price ranging from Rs. 150-175 and Rs. 225-250 per kg respectively.

Simultaneously with the development of prawn farming, various problems also have been cropping up. Environmental problems such as pollution, localised problems of socio-economic nature and disease problems cause serious constraints.

For achieving sustainable farming of prawns the following guidelines may be useful.

Practising as well as prospective prawn farmers may acquire technical knowledge through effective training programmes.

Mangrove forests should not be destroyed for development of farms.

Do not convert agricultural farmlands into prawn farms.

Watershed areas prone to pesticide run-off should not be selected for prawn farming.

Care should be taken to see that the natural circulation pattern of tidal flow is not altered while constructing impoundments for prawn farming in backwater areas.

Do not exploit groundwater resources for prawn farming.

Prawn farming of moderate scale only may be adopted.

Avoid using pesticides, antibiotics or any other chemicals in prawn farms.

Use only the piscicides of plant origin for eradicating the weed fishes from the ponds.

Practice of rotation of crops of prawns, fishes and paddy may be adopted as in the case of alternation of paddy and prawn crop in the traditional prawn filtration system.

Prawn species having local distribution may be preferred for farming.

Transportation of mother prawns or prawn seeds from disease affected areas may be avoided.

Water and soil quality monitoring and management in the farms may be made effectively and the effluents from the farms may be treated in special sedimentation ponds before discharging into open waters.

Cordial relationship may be maintained with local people and employment opportunities should not be denied to them. Common property resources enjoyed by the local people may be left undisturbed in the larger interest of the society, while developing prawn farming activities.

Above all, rules and regulations of the government may be adhered to strictly.