

Women empowerment through green mussel (*Perna viridis*) farming : Focus on Kerala

V. Bharti¹, P. Jayaaraj², T. P. M. Azaharudheen³, R. R. Rachana⁴ and A. Baruah⁵

¹Central Marine Fisheries Research Institute (ICAR), Kochi, Kerala

²Krishi Vigyan Kendra, Payinnur, Kannur, Kerala

³National Rice Research Institute (ICAR), Cuttack, Orissa

⁴National Research Centre on Pomegranate (ICAR), Solapur, Maharashtra

⁵Central Island Agricultural Research Institute (ICAR), Port Blair, Andaman & Nicobar Islands

Corresponding author : vivekanandbharti15@gmail.com

Abstract

Mussel farming is one of the best ideas for the utilisation of natural resources as well as human resources in a sustainable manner. It is an activity with potential to empower women by giving them a chance to earn additional income for their family, thereby making them self-reliant. Thus, looking at the larger picture mussel farming could bring about an improvement in the socio-economic condition of families in the coastal States of India. Additionally, it also ensures production of healthy and protein rich food for the consumers.

Introduction

Green mussel (*Perna viridis*) farming technology in India was developed during 1970s by CMFRI and the adoption of this technology started through coastal fishers from 1997, after realising its potential in generating income (Manoj and Appukuttan, 2003). In 2002, the cultured mussel production in Kerala was around 1,250 tonnes which was produced by over 250 mussel farms in the estuaries (Kiranet *al.*, 2014).

In Kerala, fisherwomen population is significantly high. Therefore, enhancing women participation in livelihood enhancement activities will definitely play a crucial role in

the economic growth of the State. Since the establishment of Kudumbashree (SHG) in 1998, the participation of women in Kerala has dramatically increased in various vocational activities. The author had an interaction with Mrs. Saritha of Valiyaparambu village of Kannur district of Kerala. She won the second National Award for 2013 - 14 in mussel farming by Marine Export Product Development Authority, (MPEDA), which was conferred during the 'AQUA AQUARIA INDIA - 2015' at Vijayawada, Andhra Pradesh. She is also a recipient of Matsya Samridhi Award - 2014 "for best mussel farmer of Kasaragode district". During the interaction, she explained about the role of women in the mussel farming, preparation of the rack, the involvement in terms of time spent during culture and in management, harvesting and marketing of the end product. According to her, women involvement in mussel farming is one of the best ways to generate extra income for the family.

Mussel farming can be done both in shallow and deep water. For deep water farming, raft culture and long line culture techniques are commonly used while rack culture, tray culture and stake culture techniques can be practiced in the shallow waters. Among these methods, the farmers of Kannur district prefer rack culture technique.



Fig.-3. Mussel farming in rack culture technique

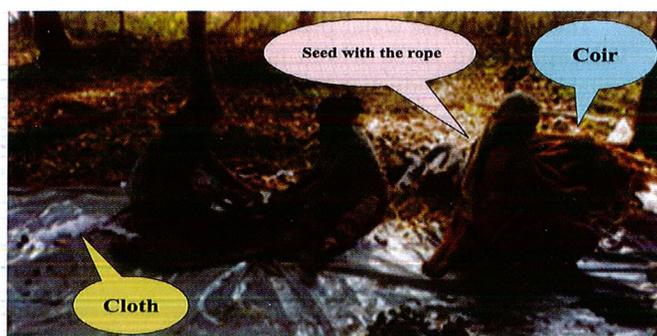


Fig.-1. Involvement of women in seeding of mussel



Fig-2. Mrs. Saritha is seen receiving the award during 'Aqua Aquaria India - 2015'

Mrs. Saritha's home is close to Valiyaparambu River, where mussel farming is being practised widely. In 2007, she started mussel farming in a small scale with help of the support of the family to meet their household requirement. But, this small start grew and she is now earning an income of Rs. 1.5 lakhs. Initially she faced hurdles such as in the management of the rack and in marketing. However, the experience has helped her last season, where she produced around 60 bags of mussel with each weighing around 80-90kg. She markets the produce mainly in Thalassery and Goa through middlemen and today this endeavour is not only adding substantially to the family income, but she has also been to support her son's higher education abroad.

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Farming method

There is surf less water present in the Valiyaparambu area which makes it suitable for the production of mussel by rack culture. Salinity varies between 20-35 ppt, and temperature is around 21-31-°C throughout the year. The pollution free water strongly favours mussel farming. Green mussel is a filter feeder species, and naturally available plankton is the main food of mussel which reduces the application of feed and other chemicals which would otherwise be a

major investment. Restricted use of pesticides and chemicals also helps to produce nutritious and healthy food at low cost which is the requirement of the current consumer base. Mussel farming also acts as fish aggregating device which helps in increasing the fish catch.

Seed procurement

Like other aquaculture activities, the success of mussel farming also depends on the availability of quality seed. Natural collection is the main source of seed and it can be procured from places like Thallessery, Kozhikode, Kasaragode, Alleppy, etc. in Kerala. Within 24 hours, the transported seed should be placed in sea water to prevent mortality. The price of seed is one of the major inputs in this system. Currently, the seed price is Rs. 3500-3600 per



Table-1. Seed price trend

Years	Cost *(Rs.)
2008-09	600
2009-10	900
2010-11	1100
2011-12	1400-1600
2012-13	2000
2013-14	2500
2014-15	3500-3600

* per 50 kg seed bag

The mussel farming in this region begins from the end of monsoon, from November - December when water salinity begins to increase. The requirements of seeds per rope (60cm) are 300-400 and the size of the seed is 23-40mm. After a culture period of 5-6 months, the survival rate is 35%.

A light cloth material is used to attach the mussel seeds to the rope. The light cloth is immersed in water containing mussel seeds and it is soaked for four days, and mussel seeds get attached to the coir rope within this period.

Structure of rack

Rack culture of mussel farming requires bamboo/ wooden poles, synthetic fibre rope, coconut coir, cloth and seeds. Bamboo/ wooden poles are erected with 3m gap between adjacent poles in surf less water body with the help of a traditional boat (Vallam). One end of the nylon rope is fixed to the bamboo poles and the other end is used for placing 60cm of coconut coir. This 60cm of coconut coir is fixed to the rope with the help of a synthetic thread (Fig-3). This coconut coir provides rough surfaces for the attachment of mussel through their byssus threads. The rope is fixed in such a way that the lower portion does not touch the bottom and it should also not be exposed to sunlight during low tide. If the method is not followed mussel production decreases. This rope structure is used for single crop only.

Management, harvesting and marketing

Mussel farming does not require strict management. It requires that the ropes and the sticks are cleaned every month which helps in keeping the mussel attached to the rope.

Harvesting of mussel is done during the months of May and July. The weight of the harvested mussel is approximately triple of that of the stocked seed. Removal of mussels does not require much skill since only a little mechanical pressure is needed for removing the mussel from the rope. The current market rate of the harvested mussel without any processing either directly in local market or through a co-operative society is Rs. 6000 per 50 kg box. Due to high market demand, the fishers do not face any problem with regard to its marketing. Mussel farmers of Valiyaparambu panchayat for example is

associated with Kudumbasree (SHG) , Agency for Development of Aquaculture, Kerala (ADAK) and Mastayafed for help in mussel farming activities through technology transfer, management, harvesting and marketing.

Scope for women entrepreneurship

Mussel farming is one of the best methods for generating women employment. Mussel farming can be setup with little or no assistance from men and without causing any hindrance to the daily house hold chores. The process of attaching mussel seed to the rope called 'seeding' is however time consuming. It requires patience (Kripa and Surendranathan, 2008). Mussel farming does not require formulated artificial feed and regular monitoring for growth of mussel and thus it minimises the work load of the fisher. Similarly, during harvesting, women labourers are involved in removing the attached mussel and in cleaning the mussels. Women are also able to sell their produce for profit with the help of co-operative societies or SHGs.

By generating employment for women, mussel farming could increase the participation of women in the development of State. Therefore, coastal governments must encourage women to come forward for mussel farming in all possible cultivable areas by giving them assistance in technology and by providing financial support. At present, there is a provision of subsidy for all licensed mussel farmers in Kerala. But, subsidy itself would not be sufficient to encourage women to take up the activity. There are various of problems associated with mussel farming which include uncertainty in seed availability, mortality of seed during transportation, reduced growth in recent years due to pollution, lack of depuration facilities, lack of storage, cold room and cold chain. These issues have to be addressed for further development of this type of farming.

Conclusion

Mussel farming helps women empowerment without affecting the household activities and thus assists poor fishers of coastal State in enhancing their social-economic status. Therefore, mussel farming area should be increased through extension activities, research in production technologies, value added products, improving marketing channel and government support through SHGs, NGOs and co-operative societies.

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