

## **Marine Farming among in adopted Villages of Unnat Bharat Abhiyaan (UBA), Goa University**

Fisheries continue to play an important role, and in many areas, remain adequate to satisfy subsistence and may even offer a valuable source of cash income and self-employment for farmers. Aquaculture becomes an attractive and important component of rural livelihoods in situations where increasing population pressures, environmental degradation, or loss of access limit catches from wild fisheries. Aquaculture farming has various benefits in rural development, including health and nutrition, employment, income, reduction of vulnerability, and farm sustainability.

Mussel and oyster farming is one such best option particularly in coastal state of Goa. It does not require highly sophisticated techniques compared to other aquaculture technologies. Even un-skilled laborers, men, and women can be employed in the preparation of spat collectors as well as harvesting. Presently, the mussel and oyster yield has been decreased drastically at the same time the market rate has gone very high. In the present scenario, cultivation of these two bivalves in coastal and estuarine waters will be a good alternative for its market availability as well as an alternate source of income for the local people, particularly the ladies at home. Keeping in mind the entire scenario about the market availability, its demand, its cultivation feasibility and most importantly the rural development link through aquaculture, we proposed to demonstrate and cultivate the green mussels and oyster in adopted villages of Goa University.

Green mussel farming has become a success story in Madkai village. Mussel farming is going on in Madkai village for last 9 years, involving the locals, particularly the women groups of the village. Last year in 2021, we have started oyster farming in Madkai village as a part of the activities of Unnat Bharat Abhiyan program of Goa University, in collaboration with Central Marine Fisheries Research Institute (CMFRI) ICAR, Mangalore and Central Coastal Agricultural Research Institute-Goa.

This year (2022) we have deployed green mussel rafts in one more adopted village, Cakra-Santa Cruz. Seven rafts of 3\*3 mts were deployed in Santa Cruz village each having approx. 30 ropes of mussel spat. Whereas in Madkai, this year local ladies have taken up the project.

### **Raft hanging method for Green mussels and oysters farming: suitable for Madkai site**

Raft culture is predominantly practiced where the sea bottom is usually soft and muddy, and the tidal range is narrow. This method requires wooden poles, bamboo, nylon ropes, coir rope, and a muslin cloth. This is the best suited method for the cultivation of green mussels and oysters, particularly in shallow estuarine areas like the cultivation site at Madkai. The process involves setting of mussel spat on nylon or coir rope covered with a muslin cloth. These muslin bags filled with mussel spat are then hanged on the bamboos tied to the wooden poles raft. Settling of spat is timed with the spawning

season of the mussels. Spats collected are allowed to attach and grow on ropes until marketable size. At least five to six months are required to get the mussel of considerable size and should be harvested before the monsoon begins. As the freshwater mixing can lead to dilution and lowers salinity of the water, which is detrimental for the mussels. The later step is harvesting and depuration of the mussels for any accumulated suspended material.

Oyster farming involves a similar raft hanging method to mussels. Empty shells of oysters are tied on a nylon rope of 1 meter and deployed on a raft near to oyster beds for oyster spat to settle on empty shells.

### Harvesting of mussels after 6 months of growth in the year 2019



Oyster deployment in Year February 2021:





Green mussel/ oyster farming is a good option for self-employment, and as a source of income that can lead to entrepreneurship at large scale. It is most feasible for ladies as it involves less work. It's a profitable venture that can earn 3 times profit to that of the investment.

I initiated the marine farming program under Social Entrepreneurship Swachchata and Rural Engagement Cell

(SES-REC) with the enormous support from Goa University. I am the chairperson of that committee. I tried and still working towards women empowerment with an idea to make them self-sustainable to some extent, to generate self-employment and source of income, at the same time sustainable development. Towards this idea, I have started green mussel cultivation project in Madkai village, initially involving the village ladies. Madkai village, particularly the Aksan ward has a favorable condition for the green mussel cultivation due to the Zuari estuarine stretch that enters the place. Madkai village has a success story for mussel cultivation. Ladies from the village are involved in this project. Now the project is replicated in 2 more villages, i.e. Siridao and Santa cruz under the Unnat Bharath Abhiyan program of Goa University. Replication of such projects in other villages of Goa having suitable conditions, will generate the self-employment, source of income and entrepreneurship. Also, such project has the potential to boost the economy of coastal state. Recently, my proposal on Indo-German bilateral workshop was successfully received grants that was submitted to IGSTC. Under this program a bilateral workshop was conducted in Germany on a theme “Marine Farming: An opportunity towards self-employment, entrepreneurship and sustainable rural development”.

In May 2022, mussel harvest program was inaugurated by his excellency Governor of Goa and Chancellor of Goa University Shri Sreedharan Pillai and in 2021 by then Governor of Goa Shri Bhagatsingh Koshiyari Ji. Program was attended by the Local MLA and power minister, Govt. of Goa Shri Sudin Dhavalikar, Fisheries minister shri Nilkanth Halarnkar in presence of honourable vice chancellor of Goa University Prof. H. Menon and Registrar of Goa University, Prof. V. Nadkarni.

Program also involved the felicitation of village ladies involved in green mussel cultivation, school students and SBSI students felicitation.





**INVITATION  
MUSSEL HARVESTING FUNCTION**

BY  
HIS EXCELLENCY, GOVERNOR OF  
GOA & CHANCELLOR OF  
GOA UNIVERSITY

**SHRI P.S. SREEDHARAN PILLAI**  
IN THE PRESENCE OF

**SHRI SUDIN DHAVLIKAR**  
(MINISTER OF POWER)

**SHRI NILKANTH HALARNKAR**  
(MINISTER OF FISHERIES)

**PROF. HARILAL B. MENON**  
(VICE CHANCELLOR, GOA UNIVERSITY)

**PROF. V.S. NADKARNI**  
(REGISTRAR, GOA UNIVERSITY)

**SMT LAXMI TARI**  
(SARPANCH, GRAM PANCHAYAT, MADKAI)

ORGANISED BY  
DIRECTORATE OF UNNAT BHARAT ABHIYAN  
GOA UNIVERSITY

DATE: 24<sup>TH</sup> MAY 2022

TIME: 10:20 AM

VENUE: AKSAN, MADKAI, MUSSEL FARMING

