

CASE STUDY: BIOFLOC FISH FARMING OF GENETICALLY IMPROVED FARMED TILAPIA (GIFT) UNDER TSP SCHEME AT VAIKOM (KOTTAYAM DISTRICT) AND KANNICKAL, IDUKKI DISTRICT KERALA

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The Ulladan are an indigenous Scheduled Tribe group found in, Kerala, south India, and they are called so, as they come from the interior forests, and some of them are still living adjacent to forests of Kerala and Tamil Nadu. Hunting and fishing are a main source of income and way of life. Each locality has one elder called Ooru moopan (village head man), who will oversee significant problems and issues. Although development is taking place under the control of the government, their standard of living is low and educationally backward. Efforts to improve these conditions could greatly benefit the community and help preserve their unique cultural heritage. With a view to empower these community, CMFRI has selected willing Ulladan farmers from IHDP colony, Chemmanathukara, Vaikom, Kottayam district and Kannickal, Moolamattom Idukki District for biofloc fish culture. The farmers were given on hand training on various aspects of biofloc fish farming, water quality analysis and exposure visits to biofloc culture sites.

Biofloc technology (BFT) is an emerging fish culture method that is ensuring sustainable aquaculture production, where the water treatment is done *in-situ*. The BFT indeed revolutionizes aquaculture by creating a closed system that mimics natural ecosystems. In this method, high-density aquatic organisms are reared in tanks with limited water exchange. Instead of relying solely on external feed, the system promotes the growth of beneficial microorganisms within the water, which form aggregates called bioflocs. These bioflocs serve as both a source of nutrition and a natural water filtration system. As organic matter is converted into microbial biomass, it provides a sustainable food source for the cultured organisms, reducing the need for external feed inputs and minimizing environmental impact. BFT has gained popularity for its potential to improve water quality, increase production efficiency, and reduce operating costs in aquaculture operations worldwide. CMFRI has initiated Biofloc farming.

Biofloc technology is a promising fish culture method to undertake fish farming in the landlocked interior areas of tribal and SC community locations that have no access to coastal water, brackishwater or any other open water system. Under TSP, CMFRI Head Quarter has established 5 meter dia Biofloc units at farmers' site depending upon their land availability and amenity to water and electricity. The units were stocked with 2000 nos of GIFT Tilapia. The work was undertaken under full support and guidance from CMFRI (HQ) through its Tribal Sub Plan Scheme. The farmers were trained for the various aspects of biofloc: such as fish seed transport, seed disinfection, seed handling, seed stocking, daily water quality checking & maintenance, floc level monitoring, feeding, growth monitoring and water exchange. Since the maintenance of BFT is easy and the work is done near to their house premises, it was an added advantage for the women and old age persons to involve in this fish culture method and it has got wide spread popularity and acceptance among farmers.



Training programme on Biofloc farming



Trainees at Biofloc site



Seed Stocking at Vaikom, Kottayam



Fishes in the biofloc tank



Harvest Mela at IHDP Colony Vaikom



Team Trust- Kannickkal, Idukki

The culture period was lasted for 8 to 10 months and during this period, pellet feed (0.5 to 4 mm) were supplied at each phase of culture after analyzing growth. After 8 months , the farmed fish reached 400 to 500 gm and the farmers harvested 900 to 1000kg fish/ 5 meter biofloc tank and earned 1,80000/- to 200000/- . Since the fishes are sold in live condition, consumer demand was more. Since this approach is simple and practical and can be undertaken at their house premises (backyard), the beneficiaries (women and age old people) are more interested in the biofloc technology. After the successful harvest of biofloc farmed fishes, the farmers took this method of farming as a livelihood option and continuing the farming of fishes in Biofloc system.
