

Tarpaulin tank-based fish farming in Tilla land of Tripura: An innovative model and success story

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Genesis:

Tuimuk Broi mtho a woman-based NGO working under the Society of Chungmari registered under Govt. of Tripura. This NGO is comprised of all female members. The source of income for the society is based on various activities like rubber cultivation, poultry farming, animal husbandry, candle making and other Agri allied activities. Other activities for income generation of the society include lending financial credits to the member of the SHGs and earning through the interest.

Need for the innovation:

The people residing in the tilla land (slopy uphill land) of Tripura, fish farming was not possible as they don't have land that is suitable for fish farming. It is slopy uphill land and pond construction is not possible as tilla land (hilly) does not have water holding capacity. ICAR-CIFE have realised the problem of fish farming in tilla land. Therefore, a program under NEH was taken up in the year 2020-21. Under this ICAR-Central Institute of Fisheries Education (CIFE) Mumbai, took the initiative to develop the tarpaulin-based fish farming model in the tilla land of Tripura to culture fish in tilla land.

Details of the innovation:

To start the intervention a one-day awareness cum training program on scientific fish farming was organised for the farmer residing over those areas to make them aware about the scientific fish farming. Before the awareness programme a survey was conducted to realise the issues pertaining to that particular area. It was decided that selected people will be invited from that area and 25 members of the Chungmari society were invited during the awareness program. They were taught about tarpaulin tank-based fish farming, water quality management, feeding strategies and disease management.

Followed by this awareness programme 10 SHGs were selected and established 10 tarpaulin tank-based fish farming model in the farmer's field provided with the necessary inputs. Each unit received a 10,000-liter capacity tank, tilapia seeds, fish feed and water analysis kit to sustain the initial production cycle.

Equipped with these essential supplies, they diligently set up their tarpaulin tank-based fish farming system on their tilla land.



Awareness program organised at KVK South Tripura

Construction of Tarpaulin based tank:

Circular 10 units of tarpaulin-based tank with a capacity of 10000 lit were established. The diameter and height of the tanks are 3.5 metre and 1.2 meter respectively. The outer cover is made of iron mesh built on cement base. Tarpaulin is set on the mesh and proper outlet was made of PVC pipes and valves were fitted. One outlet was kept at the centre of the tank. Temporary shed made of bamboo and polyethene sheets were constructed to give shed to the tank.



Construction of Tarpaulin based circular Tank



Supply of inputs like tarpaulin sheet, water testing kit, air blower etc.

Stocking density:

In 10000 lit capacity tank tilapia was stocked. The stocking density was maintained @2000 fry/tank i.e. 200/m³. Tilapia seed was brought from Kolkata. Fish were quarantine and disinfected using KMnO₄ and acclimatised by supplying continuous aeration.



Tilapia seed transported from Kolkata and distribution

Feed management:

Initially the fish were fed with 32% protein containing feed of size 0.8 mm @ 5% of Body weight. Then the feed protein was reduced to 24-28 % with size of 1-2mm. Feeding was maintained @ 3-5 % of body weight.



Feed storage by the SHG members

Water quality management:

The source of water for the fish is underground tube well water. Regular exchange of water up to 20% in a week was done. Continuous aeration was provided by an air blower. Additionally, water was exchanged as and when required. Feeding rate was reduced during winter months. No fertilizers or chemicals were used for maintaining the water quality.



Fish harvest

Advantage and brief economics:

Over the course of four months, the women witnessed remarkable progress in their fish farming endeavour. The tarpaulin ponds were easy to set up, maintain, and relocate if necessary, making them an ideal solution for their specific circumstances. They efficiently managed the water quality, fed the fish with proper nutrition, and maintained the ideal environmental conditions required for optimal growth. The average size of the fish is 80-100 gm. These fish were sold among the members of the SHGs @ Rs.200/kg and the revenue were collected.

- Average production per unit: 125 kg/tank
- Average revenue per unit: Rs. 25000/-
- Culture duration: 4 months



Distribution of fish among the member of SHGs

Lesson learned:

- The Tuimuk Broi mtho, Purba Manu, Santir Bazar, South Tripura under Chungmari society is an example of Woman's based NGO which have venture their activities in fish farming.
- They could expand their activities which was limited to rubber cultivation, candle making, horticulture etc.
- As the members of the NGO were doing fish culture for the first time some mistakes were observed there during the culture period.
- The area where electricity is an issue generator set or solar facility can be developed to cope power failure.

Future scope:

The technology can be adopted in areas where suitable land is not available for pond construction or fish farming. Particularly the hilly areas where fish culture is a dream for many people, this technology can make it as a reality.