



Technological approach on Periphyton based stunted fingerling production for income generation in West Kameng District, Arunachal Pradesh, NER India *A-success story*

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INTRODUCTION

Quality and quantity of seeds are frequently a major issue and is the most important key input for the development and growth of aquaculture sector. Non availability of right type quality seed at right time in required quantity is major bottleneck for the growth of aquaculture in country as a whole and Arunachal including others hilly states of NER in particular. There are very few hatcheries in Arunachal are not in a position to meet out the required demand as a result major portion of seed are being import from other nearby state especially Assam where except few reliable suppliers most of the other sources are unknown and the seed supplied by them are far below in quality from the hatchery produced seed. Hence there are wide gap between demand and supply of quality fish seed in the Arunachal Pradesh especially in far flung areas and in this reference a technological approach on Periphyton based stunted fingerling production for income generation especially for small and marginal farmers had been started by the KVK West Kameng in the technical guidance and supervision of Dr Vipin Kumar Misra Subject Matter Specialist (Fisheries) at that time during the period of 2018-2021. The was initiated initially in the 5 locations of Dirang, Thembang and Rupa circle by the involvement of fish farmers Tenzing Thinley from Changpa, Tsering Khandu from Donglok, Karma Tsering from Pangsa, Zambey Tsering from Salari and Pema Khandu from Shergaon with a view to fulfill the gap between demand and supply of quality fish seed as well as to create an employment opportunity for the unemployed rural youth in the district. The said technological approach had also been started with a vision of aquaculture growth in the region by providing the right type, right size quality seed at right time having a regional acclimation for a longer duration through low cost stunted yearling production technology.

Stunted yearlings are the individuals which are having slow growth rate, early maturation, small size and their growth is restricted by density-dependent mechanisms and the diminished maximum size is not genetically determined. Typically these yearlings are defined as the fish fingerlings which have over wintered to add size/weight and to increase post-stocking survival in a hatchery, pond or tank. These are suitable stocking material for carp culture because of their higher survival rate and good growth. They have shown less vulnerability to predation, disease resistant and can withstand environmental fluctuations; can reach marketable size within a less time period i.e. grow up to 700-800 gm within 2.5 to 3 months leading to higher yield & income.

Methodology of Applied Intervention/Approach:

The experiment was conducted from 2018-2021 in different villages in West Kameng district as stated above. The aim of this study was to assess the Growth & Economic parameters of stunted yearling culture technique and their socioeconomic impact on fish farmers in the district.

In the first phase farmers training was organized for Proper dissemination of technology in different aspects of fish culture as Preparation of Pond, liming, stocking, manuring, feeding, health management and harvesting. Pre-stocking pond preparation methods are followed i.e. removal of predatory and weed fishes by bleaching powder

(10 mg/l chlorine) and then basal fertilization (3 tons. cow dung and 30 kg single super phosphate / ha) were carried out before stocking of fingerlings. For better motivation of the farmers to adopt this technology, critical inputs were also provided i.e. fish seed, feed, lime and fertilizers. Regular fertilization schedules were followed as recommended practices to increase the natural fish food organism. There was no any external feeding provision during the trial period to minimize the input cost and only culture had been practiced with help of natural fish food organism. The plankton growth have been increased by the technique of pond fertilization as said above and for the development of Periphyton the bunches of paddy straw had been put half submerged by hanging with the help of plastic ropes in the pond water. After decaying the older one new bunches were used for the said purpose. The cultured fry were selected from exotic categories i.e. Silver carp, grass carp and Amur carp as they are most demanding because of their good growth and survival in hilly conditions of Arunachal Pradesh. The ready ponds at all the locations were stocked in the month of April having stocking density @ 1, 20,000 -1, 50,000 advance fry/ha.

The data regarding survival rate average cost of production and gross return after sale of carried over stunted yearling were also recorded. The recorded data were analyzed by suitable statistical tools for the study of economic impact on farmer's economy.



Various locations of the intervention



Stunted fingerling Production in Chug valley area



Field day to popularize the technological approach

Programme Outcome:

The findings of present study on the various aspects of the above said intervention from all the locations clearly indicates that programme was very successful among the fish farming community as well as rural youth of the district. The survival rate and growth of stunted yearling was amazing as it has been proved from the recorded data below. The average survival rate recorded was 70.8% in Silver carps, 73.0% in the in case of grass carp and 73.4% in common carp fingerlings. Whereas in term of growth it was recorded 630+- 25 gms, in Silver carp, 920+-18 gm in grass carp and 550+-25 in case of common carp at the time of harvesting after the culture period of about 8 months. The recorded rate of survival and growth is very good in the hilly condition of the district as here is longer colder period which affects the growth performance of the carps. After seeing the

technology performance through the demonstrations and field days this technological approach is spanning horizontally and being adopted and practicing by the farmers and rural youth of villages in the rest of circles in the West Kameng district. The main villages adopting this technological approach are Nafra, Bura gaon, Jigaon, Thrizino, Rupa, Tippi and Bhalukpog which clearly shows the popularity and importance of this programme.

CONCLUSION

As per observation it has been found that the programme has a very good response in term of improved income of the farmers along with seed supply security at local level by the stunted yearling raising technology. The result obtained clearly indicates that the farmers of remote areas of the district also getting benefit by this technological approach.