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Integrated Fish cum Duck Farming in West Kameng District Arunachal Pradesh: A Success Story

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INTRODUCTION

Now in the new era of fast urbanization in our country, to achieve the rapid progress in rural areas, our strategy must focus on; conserving their natural resources, enhancing efficient use of resources, increasing productivity and profitability and improving quality and competitiveness through reduced unit cost of production. In this reference Integrated Fish Farming may become a one of the best examples of mixed farming for sustainable development of the rural farming community. Integrated fish farming refers to the simultaneous culture of fish or shell fish along with other culture systems. It may also be defined as the sequential linkage between two or more culture practices. Fish culture can be integrated with several systems for efficient resource utilisation. Among various integrated fish farming technologies, a simple and economically viable system of fish-cum-Duck farming has been developed. Under this system the nutrients are recycled in the pond directly in the fish culture system as the cost of formulated fish feed is usually about 60% of production costs and the use of animal manure considerably reduces operational costs and makes it profitable specially for low-income fish farmers who cannot afford the fish farming alone. The marginal and small farmers appeared to be the most efficient performers in the integration and arrangement of farming enterprises. Integrated fish cum Duck farming is highly advantageous to the farmers as it improves the economy of production and decrease the input cost of fish farming in beneficial way. Under this system, the duck droppings freely recycled in the poly-culture fish ponds as duck is moving in the ponds surface area and act as a cleaning cum automatic fertilizing machine for the fish pond. It generally eats the soft vegetation of surface along with aquatic insects as well.

Which results in production of about 3.5-4.0t/ha fish with minimum input on culture practice along with good and immediate returns to the farmers in term of a handsome quantity of eggs and meat for supplement of animal protein in their diet at larger scale and may become a new source of gainful employment for their overall development.

The West Kameng district covers about 7422 Sq.KM of geographical region accounting for 8.86% of the total area of the state of Arunachal Pradesh, blessed with complex climatic environmental conditions having foothill as well as complex hill eco-system with the varying elevation ranging about from 300-4200 meter. On the agricultural front, it is still at the stage of subsistence level of farming therefore keeping the view of above facts the present study was taken during the year 2016-2020. The present study was conducted in the five villages i.e., Sangti, Chug, Changpa, Pangsa and Sangti goor from Dirang circle of West Kameng district lying approximately between 91° 30' to 92°40’ East longitudes and 26° 54' to 28° 01' North latitudes.

MATERIALS AND METHODS

The present study was conducted in farmer’s fields in 5 locations of district West Kameng Arunachal Pradesh Namely Sangti, Chug, Changpa, Pangsa and Sangti goor from Dirang circle using about 0.36 ha ponds area. After proper cleaning the ponds were prepared by application of cow dung @ 10 ton/ ha before one month of stocking of fingerlings followed by application of lime @ 500 kg/ ha after 15 days interval. The fingerlings of Indian major carps and exotic carps for all the said ponds in the proportion i.e. 20% Catla, 20% Rohu and 15% Mrigal from Indian Major carps and 20% Silver carps, 10% grass Carp and 15% common carps from exotic carps were stocked @ of stocking density 10,000/ ha considering the 10% mortality also. The fingerlings of all fish species were collected from hatchery and stocked at a time in each pond as per their capacity. Fish were fed with a mixture of rice bran and oilcake in 1:1 ratio daily @ 4% of body weight as farmer’s practice.

In case of experimental ponds, no supplemented feed was provided to the fish except grass carp which were fed with green grass/ leafs of cabbage/green maize as per their availability @ 5% of biomass.

Site of IFS on Fish-Duck at Chug

Advanced fingerlings for stocking

Site of IFS on Fish-Duck at Chug

Duck sheds prepared by using locally available woods and bamboo was installed on the dyke of the fish ponds. The floor of each house was made of slated bamboo and the space between slats was just enough to facilitate the wasted food and dropping to fall directly into the pond water specially to provide the shelter to the ducks during Sevier winter and rain. The Suitable size 2-4 months old ducklings were put for combinations at all the locations. Khaki Campbell and Indian runner good duck varieties were used for farming practices. Mostly locally available fine rice bran broken maize and soyabean were used as duck feed at the rate of 60-80 gm feed/day/duck. Duck feed should be stored at cool and dry environment. The ducks start laying the eggs after attaining the age of 24-26 weeks and continue to lay

eggs for two years. The ducks lay eggs only at night. It is always better to keep some straw or hay in the corners of the duck house for egg laying. The eggs were collected every morning after the ducks are let out of the duck house. The local variety of ducks, Indian runner and Khaki Campbell lay between 150-180 eggs in one year. Yields of fish, eggs and duck meat were evaluated and compared with farmer's practice.

RESULT /IMPACT:

A very good result was found as the locally available feed like broken rice, maize and broken and waste soyabean were used which helps in reducing cost of production at larger scale. It has been found that as the Duck-fish farms are ageing, and the farmers become fully experienced, the profit margin increased. The results were found very encouraging from all the locations in each year of trails with a quality production of egg, meat and fresh fish from the same land with minimized input cost which indicates that the technology is very feasible for the region. Now the farmers of the district are practicing this integration technology at larger scale in suitable areas.