



**TARALABALU
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**FISH CUM RICE
PRODUCTION**

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DEMONSTRATION OF FISH CUM RICE PRODUCTION AS AN ECOFRIENDLY SYSTEM IN WATER LOGGED SITUATIONS

Davanagere district has a total irrigated area of 33 % out of total cultivable area of 4,16,265 ha. The major crops are maize, paddy, sugarcane, cotton, banana, arecanut and coconut. The total paddy cultivation area is 2,21,936 ha with 5483 kg/ha productivity.

The total number of farm families are 2,64,720 in the district and they are categorised as below:

Farmer type	Number in %
Very small (<1 ha)	45.35
Small (1-2 ha)	30.38
Small medium (2-5 ha)	17.22
Medium (5-10 ha)	6.40
Large (> 10 ha)	0.65

We have tried to demonstrate the practice of **fish cum rice culture** in our KVK for the past few years. This is to show how best water logged areas can be made into to more resource efficient production systems. Saline and alkaline areas can also be efficiently brought under fish cum rice production system for a better growth on a whole. This is a representative sample of huge options available around us to mitigate the climate vagaries and manage the crisis for our advantage. This integrated technology is historically popular in China and Arunachal Pradesh. Nearly, 25 % of freshwater fish production in China comes from this technology. **Apatanis** community in Arunachal Pradesh is attached to this sustainable and ecofriendly technology since time immemorial and recognised as World Heritage Centre for the same.

The observations in our experiment are encouraging for all. We have used only cow dung slurry from biogas unit as manure for production of both fish and rice. That's the only external input. We could harvest quality rice and sell as farm fresh for interested people. The rice was organic in nature and unpolished for use. The details of that special demonstration were as below:

Crop	Technology Demonstrated	Variety	Demo. Yield Q/ha	Yield of local Check q/ha
			A	
1	2	3	6	7
Paddy cum Fish	Paddy cum fish production in trench cum ridge system	JGL Sona Catla, Rohu and Common carp	51.08 q/ paddy 13.08 q/ fish (Fish equivalent yield = 27.38 q fish /ha which include both rice and fish yields)	78.14 q / paddy (Similarly, fish equivalent yield = 21.84 q fish /ha)

Average Cost of cultivation (Rs./ha)		Average Gross Return (Rs./ha)		Average Net Return (Profit) (Rs./ha)		Benefit-Cost Ratio (Net Return / Cost)
Demo.	Local Check	Demo.	Local Check	Demo.	Local Check	
14	15	16	17	18	19	20
94580.17	71957.29	1,40,378.69	1,14,845.60	45,798.52	42,888.26	1.48 (Demo) 1.6 (Check)

Additional information on the demonstration:

- 10 months culture period and 200 Catla, Rohu and Common Carp were stocked with an average weight of 20-30 g (1.5 fish/m²).
- 145 m² trench area.
- 276 m² paddy area.
- Height of paddy plant : Average 30" (75 cm).
- Tillers per plant hill: 25 no.
- Grain test weight: 15 g / 1000 seeds
- Soil test observations:

	Before	After	Remarks
pH	8.84	8.4	Reduced pH
EC	0.48	0.38	-
N kg/acre	67.70	87.80	Increased N concentration
P kg/acre	8.75	9.8	Increased P concentration
K kg/acre	124	133	-

Soil characteristics were very supportive for future crop season due to organic practices and integrated fish culture. Rice quality and acceptance were of high level by the consumers. Labour cost is high. Use of mechanisation for paddy transplanting and harvesting would be beneficial. This can't be compared with conventional method of paddy cultivation at present.

Net profit in paddy cum fish production system is more than paddy alone, though BC was higher in the latter. Continued net income is more than paddy alone. Stocking of bigger size fingerlings will allow farmer to harvest a higher quantity of fish in short period. Soil health will become better in combination system as seen in soil analysis. Dependence on fertilisers to grow paddy may be reduced. Farmers appreciated the impact of integrating paddy with fish culture in an ecofriendly manner.

We have shown the possibility of integrating rice with fish culture in a small way. If each of our paddy farmer allocates a 5 % area of his total paddy area, then another blue revolution can be realised in the district alone. The production of fish will be enhanced by multifold

bringing a positive change in the scenario of fisheries sector on a whole. Farmers will resist change in the beginning but our perseverance will pay the dividends. Hence, the demonstration at KVK continues.

This effort can easily be replicated by other KVKs, farmers and institutions given suitable conditions for popularising the technology.

By 2050, the world population would cross 9 billion requiring another land area of a proportion of South American continent, according to an estimate. Food security and nutritional security are buzz words in our country in the recent times. To achieve these two, the most important person will be the FARMER. The right to information can be implemented with the help of files, but the right to food can be implemented only with the help of farmers, says Dr M S Swaminathan. Agriculture can become a powerful tool for national integration which is our heritage. Prof Vasant Natarajan says that a sustained two week drought in the Gangetic Plain, if it comes at the wrong time, will wipe out INDIA'S food supply for hundreds of millions of people. Therefore, harvesting the rainwater in proper way at the right time becomes the most crucial in India more than ever. Our KVK has taken steps to roof harvest the rainwater and use it for fish culture pond. Integrating other enterprises like dairy, horticulture (vegetables, fruits, leafy greens etc), silviculture, poultry, piggery etc are important for small holder farms.

Conclusion:

It would be appropriate to end this chapter with a quote from Prof Madhav Gadgil, “ It would appear that we are now more British than the British and are asserting that a nature-friendly approach in the cultural landscape is merely a contrivance to prevent the rich and powerful of the country and of the globalised world from taking over all lands and waters to exploit and pollute as they wish while pursuing lawless, jobless economic growth. Reality is indeed stranger than we can suppose”.

Waterlogged areas in the country can be put into effective use through aquaculture activities and a new revolution can be generated for a better world. Fisheries and aquaculture hold great promise to potential future. KVKs carry huge load of responsibility to make them real.



A view of full grown paddy cum fish trench cum ridge system



Side view of the unit with azolla naturally spreading around the plot.