



Doubling Farmers Income through Adoption of Integrated Farming System- A Case Study

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ABSTRACT

The declining trend in land holding per capita poses a serious challenge to the sustainability and profitability of farming. Considering the efficacy of this viable production system, the study was carried out purposively in a farm regarding the farm income through adopting integrated farming system in Bwigriguri village under Udalguri subdivision of district Udalguri during 2019-20. The study revealed that the integrated farming system could address the issues of sustainability, livelihood security and income generation effectively.

Key Words: Efficacy, Integrated farming system, Livelihood, Profitability, Sustainability

INTRODUCTION

Association of two or more farming components that become part of entire system is termed as integrated farming system. Out of many farming systems involving fish with horticulture, modern trend now-a-days is integration of livestock with fishery. Integrated farming has immense potentiality to emerge out as an effective tool for improvement of rural economy due to low investment and high profitability (Nanda and Bandopadhyay, 2011). Demand of food is increasing constantly with increase in population. Food security is presently the major concern of developing countries like India. In this context, sustainable integrated farming can be a very good option for achieving optimum productivity with due environmental consideration. It maximizes production per unit area through incorporation of recycling wastes and residues from one farming system to the other. India being an agrarian economy produces huge quantities of plant and animal residues, the former.

In an integrated fish culture, animal wastes and undigested and spilt food particles are directly consumed by the fish and some portion of waste

acts as nutrients and organic substrates for many microorganisms which in turn consumed directly by fish or by invertebrate fish food organisms (Misra *et al*, 2016). Integrated fish farming also 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 utilization. Among various integrated fish farming technologies, a simple and economically viable system of fish-cum-poultry farming has been developed. Under this system the nutrients from the poultry are recycled in the pond and this allows for escalation of production and income while reducing the affluent along with the dumping of the wastes would have had on the environment (Singh *et al*, 2014; Mishra *et al*, 2016). Direct use of livestock wastes is one of the most widespread and conventionally accepted forms of integrated fish farming and the practice increases the efficiency of both duck farming and fish culture through the profitable utilization of animal and feed waste products. The cost of formulated fish feed is usually

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about 70 per cent of production costs and the use of animal manure considerably reduces operational costs and makes it possible for low income fish farmers to profitably engage in the enterprise. Banerjee *et al* (2014) reported that the use of cow dung and duck manure for practicing aquaculture is a viable option for natural biodiversity. Bhuiyal *et al*, (2014) documented that the integrated farming system improve the efficiency of marginal and small farms that appeared to be the most efficient performers in the integration and arrangement of farming enterprises. In Bwigiguri, village under Udalguri subdivision of district Udalguri, majority of the farmers are either small or marginal, the income from only aquaculture sector in their farm is not at all sufficient to run their families. As the economy condition of the farmers are very poor, they are incapable of feeding the fish with high protein containing mesh sized feed for higher production. Integrated fish farming with piggery would provide ways to reuse and recycle produce/waste material of one component as input in the other linked component and to reduce the cost of production of the economic produce of the component two and finally to enhance the net-income of the farm as a whole. So, the present study was aimed to assess the farmer's income through integrated farming system which can lead towards doubling the farm income.

MATERIALS AND METHODS

Udalguri district is situated between 26°45'13.21" N latitude and 92°06'7.74" E longitude. Shri Bishop Basumatary is a fish farmer and he started fish farming with 3 bighas of land area in 1993. Initially, he cultured fish in composite fish farming basis. The productivity was very low as compared to the standards. During the year 2017-18, Shri Basumatary came to contact and participated in extension activities of Krishi Vigyan Kendra, Udalguri. IFS model comprising improved variety of pig breed Rani as well as fish farming and horticultural crops was demonstrated by KVK Scientists in his plot. The study was carried out to evaluate the farm income of Shri Basumatary

through adopting the technology of integrated farming system developed by KVK, Udalguri.

RESULTS AND DISCUSSION

Shri Basumatary has already sold ninety two (92) nos. of piglet (Breed-Rani) to other farmers of the district during the financial year 2018-19 and 2019-20. Seeing his success many of the farmers from nearby villages started adopting integrated farming system and came with good result. Presently, he gets an average annual net income of Rs. 10.50 lakh with an average of Rs. 87,500.00 per month. The net income increased 57.6 percent by adopting improved agricultural practices, integrated farming system and fish seed production.

The income received from different enterprises is given in the Table 1. Integrated Farming System provided opportunities as crop insurance cover as money round the year was obtained from different farm produces. The integrated farming system not only increased the farm income but it also increased the sustainability by the ways given below –

1. Productivity: Increased economic yield per unit area - per unit time by virtue of intensification of crops canopy, agricultural crop rotation and allied enterprise.
2. Profitability: The system as a whole provided opportunity to make use of produce/ waste material of one component as input on the other component at the least cost.
3. Potentiality/Sustainability: In Integrated Farming System, organic supplementation through effective utilization of by-products of linked components as a measure was possible and this certainly provided opportunity to promote soil health and to sustain the potentiality of the soil which was the production base.
4. Balanced food: In Integrated Farming System, components of different nature enabling to produce different sources of nutrition, namely, protein, carbohydrates, fats, minerals, vitamins, etc were linked from the same unit area. It

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Table 1: Income received from different enterprises.

Activity	Enterprise	Area (in ha)	B:C ratio	Gross Income	Net Income
i. Fisheries (farming & fish seed production)	Fish Farming	3.0 ha.	5.2	990000	800000
ii. Horticultural crops	Areca nut, coconut	153 no.	2.5	60000	47000
iii. Rice	Rice	4.5 ha	2.91	290853	196533

provided opportunity to mitigate malnutrition problem of the farmers.

KVK Udalguri in all the enterprises whenever Mr. Basumatary needed.

Current scenario

At present Shri Basumatary have been deriving his livelihood through integrated farming system and fish seed production from the 28 bighas of land and a fish eco-hatchery at village Bwigriguri, under Udalguri sub-division of district Udalguri. Besides the seed production of Indian Major Carps and Exotic Carps, he was also producing Kawoi seed in his farm. He is also produced a *Bodo* traditional fish product namely “Napham” and marketed locally. Many a times KVK, Udalguri has motivated and helped him to participated in different district and state level exhibitions for development of his skill and promoting marketing facilities.

He was awarded with the following recognitions:

- Best fish farmer award by ICAR in 2014
- Felicitation conferred by CIFA, Bhubaneswar

Impact of the technology

After observing the success of Mr. Basumatary through integrated farming system, many of the nearby farmers visited his farm to learn about the technology and thereby adopted the same in the succeeded period

Support and guidance received from different departments

He has received financial support from Assam GraminVikas Bank, Udalguri for construction of fish hatchery. He has also received financial and technical support for construction of brood stock pond from Department of Fisheries. Above all, different technical guidance has been provided by

CONCLUSION

Rural farming system in our country is quite scattered in nature. Compared to many Farming technologies, integrated farming system is a low cost technology. It saves farmers time, allowing them to undertake double benefit from the same field or same area. To achieve optimum production with cost effective low investment recycling of wastes and residues from one farming to other system with due environmental consideration is very much necessary. Sustainable integrated farming practice is a very good option. This is a viable option for augmenting overall farm productivity and better economic return of rural pond based farming community.

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