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## Integrated farming system (IFS) is a possible way out for doubling of farmers income (DFI): A case study of an innovative farmer

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### Abstract

Farming in India is characterized by small, marginal, and fragmented land holdings and is highly depended on monsoon showers. Operating small holdings is often unviable and in this situation, farming is not a profitable business or enterprise. Therefore, there is an urgent need of transformation in agriculture production combined with Integrated Farming System (IFS) approaches that involves crop cultivation, dairy, poultry, fishery, vegetable and fruit production etc. Integration of different enterprises / crop by utilizing farmer's available resources is one of the best multidisciplinary approaches to double the farmers' income. Integrated Farming System (IFS) is a system of managing crops, livestock and fish with their environment to be closed to high productivity, security of production and conservation of resources that are relatively in line with limited land, labor and capital. The present study is focused to know the profile characteristics, key facts and impact of farm integration. The case study method is a comprehensive study of a selected farmer who effectively used all his farm resources less input usage drawn from the outside of his farm. This study reveals that the concept of integrated farming system may prove better than specialized or single community based farming system.

**Keywords:** Case study, integrated farming system, doubling of farmer's income

### Introduction

At present, the farmers concentrate mainly on crop production which is subjected to a high degree of uncertainty in income and employment to the farmers. Government of India has made an announcement about Doubling Farmers' Income by 2022. Doubling farmer's real income by 2022 is a goal established by the Honourable Prime Minister of India who is challenging the status of all involved stakeholders. Production and productivity increase in agriculture alone will not ensure doubling farmers' income (Srinivasan, 2017) [7]. To overcome obstacles and establish a direction for rural poverty in India, the members of NITI Aayog, ICAR and Scientists jointly hosted a meeting to brainstorm the idea of doubling farmers' income. Delegates from the Department of Agriculture, GOI, national research institutions, central/state agricultural universities, the private sector, international research centers, and NGOs were also convened to develop a strategy for meeting the PM's challenge (Wani and Singh 2017) [8]. However, experts are engaged in searching the options and strategies for achieving this enviable target. One of the options is to evaluate the potential of age-old integrated farming system (IFS) in enhancing income of farm families within the reasonable time period.

Integrated farming systems (IFS) is an eco-friendly approach in which waste of one enterprise becomes the input of another thus its make more efficient use of resources from the farm. IFS as a mixed farming system that consists of at least two separate but logically interdependent parts of a crop and livestock enterprises (Okigbo, 1995 and Gupta *et al.*, 2020) [4, 2]. IFS as a component of farming systems which takes into account the concepts of increasing production, minimizing risk and profits whilst improving the utilization of organic wastes and crop residues of the field (Radhamani *et al.*, 2003) [6]. IFS is a component of FRS (Farming System Research), introduces a transformation in the farming techniques for increasing production in the cropping pattern and takes care of excellent utilization of resources (Jayanthi, 2006) [3]. Integration is made in such a way that the product i.e. output of one enterprise/component should be the input for the other enterprises with high degree of complementarity effects (Panke *et al.*, 2010) [5]. Similarly the authors stated that the rationale of IFS is to minimize the wastes from the various sub systems on the farm and thus it improves employment opportunities, nutritional security and income of the rural people.

### Benefits or Advantages of Integrated Farming System

- 1. Productivity:** IFS provides an opportunity to increase economic yield per unit area per unit time by virtue of intensification of crop and allied enterprises.
- 2. Profitability:** Use waste material of one component at the least cost. Thus reduction of cost of production and form the linkage of utilization of waste material, elimination of middleman interference in most input used. Working out net profit B/ C ratio is increased.
- 3. Potentiality or Sustainability:** Organic supplementation through effective utilization of by-products of linked component is done thus providing an opportunity to sustain the potentiality of production base for much longer periods.
- 4. Balanced Food:** We link components of varied nature enabling to produce different sources of nutrition.
- 5. Environmental Safety:** In IFS waste materials are effectively recycled by linking appropriate components, thus minimize environment pollution.
- 6. Recycling:** Effective recycling of waste material in IFS.
- 7. Income Rounds the year:** Provides flow of money to the farmer round the year through integration of Crop, poultry, dairy and fishery etc.

### Methodology

The present study is a case study method in depth study of a particular situation. The case study method is a comprehensive study of a social unit comprised of a person, a group, a social institution, a district or a community (Young, 1996). It is the social microscope, as stated by Burgess (1993). A case study method was followed to study an innovative farmer hailed from Metlachittapur village of Jagtial District in Telangana state. He was purposively selected for the study due to his innovativeness in Integrated Farming and he bagged State best farmer award during 2013, District best farmer award during 2020 and Pudami Putra award during 2021. The farmer was personally inter-viewed and data was collected with the help of a semi-structured interview schedule.

### Results and Discussion

Modern farmers are trying to minimize costs and achieve maximum results. For this reason, it is important to carefully analyze and understand how to properly manage a farm. There are many successful cases where cattle breeding and

crop production have been combined in such a way that productivity was increased in both areas. Let's look at case of Sri. Rajarapu Bhumeswar practicing Integrated Farming System with components of cattle breeding, poultry, fishery and crop production to enhance the income.



Fig 1: Farmer along with his local breed cow

Sri. Rajarapu Bumeswar (Age of 49 years old) from Metlachittapur Village, Metpally Mandal in Jagtial district of Telangana State, India, studied up to the 5<sup>th</sup> standard. He has a small family that includes wife & two sons. He owns 7 acres of land and 7 cows. He grows Rice, Maize, Soybean, Green gram, fruits and Vegetables in the *vanakalam* season. Immediately after harvest of the *vanakalam* crops, he takes up Paddy, Blackgram, Greengram and Vegetables during the *yasangi* season. He practices intensive farming with available resources with major cropping sequences are Maize (Sweet corn)-Grams-Sesame and Rice-Maize-Fodder crops.

Sri. Bumeswar has been farming since childhood and he wants to continue with the integrated farming system model approach in a contemporary situation, where loss in one crop can be substituted with the other enterprise. He adopts University technologies like green gram preceding rice and direct seeding, drum seeding. He has good contact with fellow farmers and Input Dealers, facilitating a healthy exchange of information. He saves irrigation water by adopting drip method of irrigation in field crops. He has considerable mass media exposure as he watches the television and reads Telugu newspapers regularly. Sri. Bumeswar believes that the beauty of the mixed farming system is that he gets most of the ration from his own farm.



Fig 2: Visit of DAATTC, Karimnagar Scientists to poultry and fishery unit maintained by farmer

According to him, the supplementary and complementary relationship between the enterprises generates more income for farmers. He is the only farmer in the village to take up 10

different crops on 7 acres of land. He is of the opinion that farming can be successful when one takes the right decision at the right time and puts in considerable hard work. He grows

Vegetables on 0.2 acres of land, and with effective management, he gets a yield of 02 tonnes. Sri. Bhumeswar says that the availability of labour is the biggest challenge in a rural area, because of which he wants to purchase new machinery to substitute labour force for a better yield and help reduce the drudgery that farm women face. He gets Rs. 200 to 300/- on a daily basis by selling vegetables in his own village, to avoid losses due to middlemen, he travels from village to village to sell vegetables and chilli when the market price falls due to a glut. He says farming gives him self-confidence and a

considerable income to run his family and maintain a comfortable living standard.

Sri. Bumeswar gets Rs. 6 lakh net profit from his 7 acres of land. Apart from agriculture, he purchased 7 cows worth Rs. 13,500/-, each for Organic Farming. He has constructed Farmpond with the help of PMKSY FUNDS and draws parallels between farming and catching fish through a net: you need to look over each and everything for effective implementation at a farm level in order to increase production and productivity.



**Fig 3:** Visit of DAATTC, Karimnagar Scientists to cattle and vermicomposting unit maintained by farmer

According to him, having credit at hand while making decisions gives farmers confidence. He believes farming is remunerative and that it is correlated to socio-economic events of everyday life.

In addition to that, Sri. Bumeswar started desi poultry and fish farming in order to increase his net income. He utilizes crop residue incorporation and uses bulk seeds for fodder purpose in allied enterprises. He relates farming to interest and zeal rather than literacy and believes that one needs to take calculated risks in order to make profits by increasing production and productivity. He has been continuously practising organic farming since the last 7 years. He started organic agriculture practice by using Farm Yard Manure (FYM), compost and vermi-compost. Over four years of usage, he noticed his crops getting better and developed an interest in vermi-compost development and its continuous application. He started using liquid Jeevamrutha organic technique, a zero investment method in agriculture crop production, but the catch was that sufficient water was required to prepare liquid Jeevamrutha. With the water shortage situation in mind, he started experimenting with the use of solid Jeevamrutha and succeeded in raising crops over the last six years.

**Table 1:** Statement showing the Economics particulars under IFS Model farm by the farmer (Year round)

S. No.	Components	Area (Acres)	Expenditure (₹)	Income Generated (₹)
1	Rice (Organic)	4	60000	240000
2	Maize	2	28000	92500
3	Black gram	2	10000	84000
4	Korra	0.05	3000	20000
5	Vegetables	0.02	10000	35000
6	Poultry (Desi Chicks)	0.05	200000	450000
7	Fishpond	0.05	10000	30000
8	Vermicomposting	0.01	35000	10000
Total		7acres	356000	961500
B:C ratio		2.7:1		

### Conclusion

Integrated farming system made better utilization of resources, substantially with proper nutrition and feeding, diseases control and management, provides more profit. This case study finding showed the success of the Integrated Farming System (IFS) model followed by the farmer, where he integrated all the components of his farm and effectively used it with proper planning and management. Sri. Bumeswar income increased more than two times (Doubles the income) which improved his livelihood and its example for young farm graduates and other farmers to come forward and adopt such farming activities in a scientific and well-planned manner.

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