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# Recasting farm income through integrated farming system – A success story from Rajasthan

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*This article provides details of success story of Shri Bajrang Singh Rajawat who initiated an Integrated Farming System (IFS) model on a 6.0 ha farm area with the efforts and technical guidance of Krishi Vigyan Kendra. The model comprises crop production, guava orchard, agroforestry, livestock, goatry, poultry, and vermicomposting enterprises. At present, the farmer is earning approximately ₹15.34 lakh per year from this IFS model. The primary objective of this system is to enhance farm productivity and profitability while increasing overall farm income through efficient utilisation and recycling of available resources. This success story highlights the transformation of a semi-medium farmer through the integration of multiple farm components and also demonstrates the potential of the IFS in improving farm sustainability under changing climatic conditions.*

**Keywords:** Livestock, Poultry, Profitability, Sustainability

INDIAN agriculture is largely dominated by small and marginal farmers, who constitute nearly 86% of the farming community but operate in less than half of the total cultivable land. The average operational holding size was about 1.16 ha during 2010–11, and continued subdivision of land has further reduced the size of farms over time. Such increasing fragmentation poses serious challenges to the long-term sustainability, food security, and economic viability of agricultural production systems in the country. Marginal and small farmers primarily depend on cereal-based and monocropping systems, which significantly increase the risk of crop failure, insect and disease susceptibility, and income instability. Such production systems also contribute to the decline in soil fertility, depletion of natural resources, nutritional insecurity, economic vulnerability, soil erosion, excessive dependence on chemical inputs, and loss of agricultural biodiversity. Collectively, these challenges intensify the risk faced by farmers in achieving sustainable income and long-term profitability. Integrated Farming Systems (IFS), which combines crop and animal enterprises, have gained renewed attention among marginal, small, and medium farmers. The IFS approach promotes ecological intensification by reducing dependence on anthropogenic inputs while enhancing key ecosystem functions such as nutrient recycling, soil formation, and improvement of soil fertility.

## Background information

Shri Bajrang Singh Rajawat, a dynamic farmer from village Khijuri, Sawaimadhopur, Rajasthan has 6.0 ha land with medium soil fertility and slightly undulating topography. He was previously dependent on the prominent cropping system of pearl millet–mustard, and pearl millet–wheat just like other farmers but after 2019, he totally changed the concept of farming by integrating livestock, orchards, goatry, poultry, vegetable production, vermicomposting, etc.

## The challenges

Monocropping was not providing any profit to the farmer, as the input costs were high and the returns were very low. The fertility and sustainability of the farm were also at a very low level. During the COVID period, lack of financial stability and money compelled the farmer to shift from monocropping to an integrated farming system.

## The innovations

In 2020, guided by the Krishi Vigyan Kendra, Sawaimadhopur



Goatry Unit





Livestock unit

through trainings and scientific interactions, he started the IFS model in 6.0 ha area which integrates multiple farming components to optimise productivity and income. His new approach included:

***Diverse cropping*:** He diversified his farm with multiple vegetables (2.0 ha) such as cabbage, cauliflower, raddish, onion along with pearl millet–mustard and pearl millet–wheat. He also incorporated summer mung in his pearl millet–mustard cropping system for enhancing system productivity and intensification of system. He then added guava orchard (2.0 ha) variety 'L-49', *Burfkhan gola* and aonla (2.0 ha) orchards in the cropping.

***Livestock*:** He maintains six cows (Red Sindhi, Holstein Frisian, Gir) and two buffaloes (Murrah) alongside a fodder block to feed them (berseem napier grass).

***Goatery*:** He integrated 30 goats of *Sirohi* breeds which are used for milk and meat purposes also.

***Poultry*:** He has 100 birds of Kadaknath, Pratapdhan, Aseel, etc. which has been used for eggs and meat purposes also. Backyard poultry requires low investment and can be easily integrated with crop and livestock components of the farm. Poultry droppings enrich soil fertility by adding organic matter and nutrients, thereby reducing the need for chemical fertilisers. Backyard poultry also helps in improving household nutritional security through the supply of eggs and meat. Overall, it enhances farm sustainability, risk reduction, and livelihood resilience.

***Agroforestry*:** He has diversified his cropping pattern with agroforestry tree plantation such as neem, ardu, mausambi, karaunda, mango, and sapota.

***Vermicompost unit*:** He utilises dung and farm wastes/residues for making vermicompost and FYM which is used in guava orchards and vegetable cultivation. He has four beds of vermicompost unit.

Before IFS adoption, the farmer earned approximately ₹6.0–6.7 lakh/yr from conventional crop-based farming on 6.0 ha, which increased to ₹13.98 lakh/yr after IFS adoption. Overall, the total annual net returns were ₹15,34,935 with an average of ₹2,55,882/ha, indicating that integration of crops, horticulture, and livestock under IFS substantially enhances farm profitability and resource-use efficiency.

## Sustainability and spread

The adoption of IFS by farmers demonstrates significant potential





Poultry unit




Horticulture components

for improving the sustainability and resilience of agricultural systems. By integrating crops, horticulture, livestock, and other components such as vermicomposting, IFS enhances resource-use efficiency, improves soil fertility, and ensures year-round farm income, thereby reducing economic risks associated with monocropping. Perennial crops like guava and aonla contribute to long-term productivity, while short-duration vegetables and poultry provide regular cash flow.

The IFS approach also promotes ecological sustainability through nutrient recycling, reduced dependence on external chemical inputs, and diversified production, which in turn strengthens food and nutritional security. Its economic viability, demonstrated by substantial net returns across components, facilitates wider adoption and replication among small and marginal farmers. Participatory extension, farmer-to-farmer demonstrations, and field trainings have enabled the spread of IFS practices, leading to broader adoption in the region and potential scaling to similar agro-ecological zones.

Overall, IFS represents a sustainable, profitable, and adaptable farming model that integrates economic, environmental, and social benefits, making it a viable strategy for enhancing rural livelihoods and agricultural sustainability.

**Table 1.** Economic benefits of IFS components

| Crop/component | Variety/breed | Yield | Economics | | |
|---|---|---|---|---|---|
| | | | Cost of cultivation (₹) | Gross returns (₹) | Net returns (₹) |
| *Kharif* harvest | | | | | |
| Pearl millet (1.0 ha) | Private hybrids | 21 q/ha | 18,098 | 58,275 | 40,177 |
| Black gram (1.0 ha) | Kota Urd-3 | 7.8 q/ha | 22,132 | 62,244 | 40,112 |
| Orchard | | | | | |
| Guava (2.0 ha) | L-49, Gola (300 plants/5 yr) | 18 t/ha | 90,000 | 3,70,000 | 2,80,000 |
| Aonla (2.0 ha) | Chakkaiya (300 plants/3 yr) | 24 q/ha | 28,990 | 72,000 | 43,010 |
| *Rabi* harvest | | | | | |
| Mustard (1 ha) | RH-725, Giriraj | 23 L/ha | 22,068 | 1,21,200 | 99,132 |
| Wheat (1 ha) | Raj-4037 | 43 q/ha | 32,678 | 97,825 | 65,147 |
| Vegetable cultivation | | | | | |
| Raddish (0.1 ha) | Hybrid | 10 q/ha | 5,698 | 20,000 | 14,302 |
| Cauliflower (0.1 ha) | Hybrid | 6 q/ha | 6,789 | 12,000 | 5,211 |
| Onion (500 $m^2$) | Nasik Red | 11 q/ha | 11,099 | 27,500 | 16,041 |
| Tomato (500 $m^2$) | Arka Rakshak | 15 q/ha | 13,897 | 37,500 | 23,603 |
| Animal component | | | | | |
| Dairy | 6 cows | 7,300 L/yr | 90,000 | 5,28,500 | 4,38,500 |
| | 2 buffalo | 5,400 L/yr | 90,000 | 3,24,000 | 2,34,000 |
| Goatry | 30 Sirohi | Meat and milk purpose | 50,000 | 1,85,500 | 1,35,500 |
| Poultry | 100 birds | Eggs and meat purpose | 49,800 | 1,50,000 | 1,00,200 |
| Total | | | | | 15,34,935 ₹/yr |
| Average (1.0 ha) | | | | | 2,55,822 ₹/yr |

## SUMMARY

The integrated farming system (IFS) demonstrated remarkable profitability and resource-use efficiency by combining crops, horticulture, and livestock. High-value crops, perennial orchards, and short-duration vegetables, along with dairy, goat, and poultry enterprises, contributed significantly to overall returns. The system not only enhanced farm income, with total annual net returns of ₹ 15,34,935 from 6 ha, but also improved soil fertility and sustainability through practices like vermicomposting. This success highlights the potential of IFS to provide year-round income, diversify risks, and promote sustainable agriculture for farmers. As farmers adopt and adapt integrated farming systems, the future of diversified agriculture in the region looks bright. This approach serves as a model for others, demonstrating how combining crops, horticulture, and livestock can enhance income, sustainability, and resilience against changing agricultural and climatic challenges.

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