**Constraints and Farmer-Recommended Interventions for Integrated Farming Systems in Dausa District, Rajasthan, India**

**ABSTRACT**

The present study was conducted to identify major constraints and farmer-recommended interventions for adopting Integrated Farming Systems (IFS) in Dausa district, Rajasthan. A multistage random sampling method was used to select 140 farmers from 14 villages. The Garrett ranking technique was employed for analysis. The results showed that the main constraint was lack of information on the type and size of enterprises suitable for IFS models (Garrett Score 64.29). Other significant constraints included inadequate market facilities, insufficient knowledge of farming systems, lack of timely financial support, limited training opportunities, poor transport infrastructure, shortage of skilled labour and absence of storage facilities for perishable produce. The farmers suggested that timely financial assistance from institutions was their primary recommendation, followed by the availability of quality agricultural inputs at subsidized prices, provision of remunerative market prices, organization of training programs to attract rural youth and improvement of storage and marketing facilities. Addressing these constraints through targeted policies, capacity building, financial support, and infrastructure development can enhance IFS adoption and improve farm productivity, profitability, and livelihoods in the region.

**Keywords:** Integrated Farming System, constraints, farmer perception and garret score.

**INTRODUCTION**

Agriculture continues to remain the primary source of livelihood for more than 70 per cent of the Indian population, with the majority of rural household’s dependent on farming and related activities for their sustenance and income generation (Momin and Dwived, 2024). It contributes significantly to GDP, supplies raw materials for industries and helps to mitigate the economic downturns (Mandal and Sengdo, 2025). It provides raw materials for various industries, including paper, sugar and textiles, fostering industrial growth (Hemlata, 2020). This also very important for addressing poverty, unemployment and inequality by creating gainful employment opportunities, particularly for landless and small farmers (Hemlata, 2020). The agricultural productivity and increased rural income led to higher demand for industrial products, promoting overall economic development (Praburaj, 2018). Although the income of farmers has increased, it has also led to certain drawbacks due to the overuse of fertilizers and plant protection chemicals, which ultimately deteriorate the quality of soil and land resources. Therefore, there is a need to adopt Integrated Farming Systems to ensure sustainability that benefits both the environment and the farmers. The Integrated Farming Systems (IFS) offer a sustainable approach to agriculture, addressing environmental and economic challenges faced by farmers (Mamun *et al.,* 2012; Sharma, 2021). IFS combines multiple enterprises, such as crops, livestock and fish, to efficiently utilize resources and reduce risks associated with monoculture farming (Mir *et al.,* 2022).

The Integrated Farming System (IFS) is a holistic approach that combines multiple agricultural components to enhance productivity, profitability and sustainability for small and marginal farmers (Bhagat *et al.,* 2024). Integrated Farming Systems (IFS) offer significant benefits for smallholder farmers, including improved profitability, sustainability and food security (Priyanka Bhati *et al.,* 2024) and but effective implementation of IFS still faces numerous constraints at the farmer level. Therefore, understanding the nature, extent and underlying causes of these constraints becomes crucial for designing appropriate strategies, policies and interventions that can effectively address the existing barriers and promote the adoption of IFS. In this context, the present paper aims to analyse the major constraints faced by farmers in adopting and managing Integrated Farming Systems, thereby providing valuable insights to policymakers, researchers, extension personnel and development agencies to formulate targeted and evidence-based solutions for overcoming these challenges and enhancing the overall impact of IFS on rural livelihoods.

**MATERIAL AND METHODS**

The present study was conducted in Dausa district, Rajasthan, as it is mainly agrarian with diverse farming practices, making it ideal for studying Integrated Farming Systems and understanding related constraints and opportunities in the region. Therefore, the selection of the study area and respondents was carefully weighted towards their relevance to the adoption of IFS. Dausa district comprises 15 tehsils, many of which are conducive to the implementation of IFS. For the study, seven tehsils i.e., *Dausa, Lalsot, Bandikui, Ramgarh Pachwara, Lawan, Mandawar, and Nangal Rajawatan* were selected. From each tehsil, two villages were randomly chosen, resulting in a total of fourteen villages. A multistage random sampling method was used to select farmers, with 10 farmers randomly chosen from each village, resulting in a total sample size of 140 farmers for the study. In order to rank the constraints faced by farmers in the adoption of IFS, the Garrett ranking technique was used; the same method was applied to rank the suggestions given by the farmers.

**Garrett ranking technique**

The Garrett ranking technique was used to analyze the constraints faced by the farmers in adoption of Integrated Farming system (IFS). The per cent position was converted into scores by referring to the Table given by Garrett and Woodworth (1969). These orders of merit were transformed into units of scores by using the following formula.

 Percent position = $\frac{100(Rij-0.50)}{Nj}$

Where,

Rij = rank given for the ith constraint/suggestion (i=1,2,3…. n) by the jth farmer (j= 1,2,3…. n)

Nj = number of constraints/suggestions ranked by the jth individual farmer.

The Garrett ranking technique was used for both constraints and suggestions. For constraints, farmers ranked each individual constraint, and the ranks given by all farmers for a particular constraint were summed up. These summed ranks were then converted into scores using the Garrett table, and the final scores were calculated accordingly. For suggestions, farmers provided their suggestions and ranked them based on their importance, which were then analyzed using the same technique to identify the top suggestions.

**RESULT AND DISCUSSION**

This section is divided into two parts for better understanding and clarity. The first part discusses the constraints faced by farmers in the adoption of the Integrated Farming System (IFS) model. It highlights the major problems and challenges that prevent farmers from successfully adopting and implementing Integrated Farming System. The second part presents the suggestions given by farmers to improve the functioning and adoption of the Integrated Farming System model. It includes the recommendations shared by farmers based on their field experiences to overcome the constraints they face. Overall, this section aims to provide a comprehensive understanding of both the problems faced by farmers in adopting IFS and their suggestions to address these problems for better implementation and outcomes in the future.

1. **Constraints Faced by Farmers in Adopting Integrated Farming System**

The data presented in Table 1 and Figure 1 reveals the constraint faced by farmers in the Dausa district of Rajasthan. The major constraints faced by farmer was the lack of information on the type and size of enterprises related to the Integrated Farming System (IFS), which obtained the highest Garrett Score of 64.29 and was ranked first among all the constraints. Similar findings were reported by Sabharwal *et al.* (2024), indicating that this is a widespread issue in many regions promoting IFS. This highlights a significant knowledge gap among farmers regarding the selection of appropriate enterprises for integration, such as specific crops, livestock breeds, fishery units and allied activities, as well as the optimum scale or size required for effective integration and profitability. Due to this lack of information, farmers are unable to make decisions regarding the resource allocation, enterprise selection and efficient utilization of their farm resources, which ultimately limits their productivity, diversification potential and income enhancement.

The second major constraint identified by farmers was inadequate market facilities and limited accessibility to markets, with a Garrett Score of 62.86. The similar constraint was also observed in the study of Pandey *et al.,* (2019). This implies that even when farmers adopt diversified enterprises under IFS, the lack of proper market linkages and facilities such as regulated markets, market yards and collection centers restrict their ability to sell their produce at remunerative prices. The third constraint was the lack of information and knowledge regarding different farming systems, which scored 61.43, showing that general awareness and technical understanding of integrated approaches remain insufficient among all the farmers. The fourth constraint was the lack of financial support from financial institutions, with a Garrett Score of 60.00. The similar constraint was also recorded in the study of Pandey *et al.,* (2019), Chandana *et al.,* (2022) and Bhardwaj *et al.,* (2024). This indicating challenges in accessing timely and adequate institutional credit required for investment in diversified IFS components such as poultry units, fisheries, horticultural crops and improved livestock management practices. The fifth constraint was lack of training on integrated farming system practices with a Garrett Score 59.29, which highlighting the absence of regular, practical and need-based training programs that could build farmer’s confidence in implementing integrated approaches effectively.

The sixth constraint reported was the lack of good transport facilities for farm produce, with a Garrett Score of 58.57, suggesting difficulties in moving perishable and diverse farm products to nearby markets or processing units. The similar constraints faced by farmers in the study of Chandana *et al.,* (2022). The seventh constraint was the lack of skilled labours and the high cost of labour, scoring 57.86, indicating labour shortages during peak operations and unaffordable wage rates, which affect the management of labour intensive components of IFS. The eighth and the last constraint was no storage facilities for perishable farm produce, with a Garrett Score of 56.43. The similar constraints faced by farmers in the study of Akshit and Dolli(2022). The absence of proper storage infrastructure compels farmers to sell their produce immediately after harvest, often at non-remunerative prices, thus reducing their bargaining power and potential profits.

**Table 1: Constraints faced by the farmers in adoption of integrated farming system**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Constraints** | **Garret Score** | **Rank** |
| 1 | Lack of information on type and size of enterprises related to IFS model | 64.29 | I |
| 2 | Inadequate market facilities and accessibility to market | 62.86 | II |
| 3 | Lack of information and knowledge regarding different farming systems | 61.43 | III |
| 4 | Lack of financial support from financial institutions | 60 | IV |
| 5 | Lack of training on integrated farming system | 59.29 | V |
| 6 | Lack of good transport facilities for the farm produce | 58.57 | VI |
| 7 | Lack of skilled laborers and high cost of labour | 57.86 | VII |
| 8 | No storage facilities for perishable farm produce | 56.43 | VIII |

**Figure 1: Graph showing the Constraints faced by the farmers in adoption of integrated farming system**

1. **Suggestions Given by Farmers About Integrated Farming System**

The major suggestions provided by the farmers of Dausa district in Rajasthan regarding the Integrated Farming System (IFS) are presented in Table 2 and Figure 2. The first and most important suggestion was the provision of timely financial support from financial institutions with the Garret Score of 67.14. The similar finding was recorded in the study of Kumar *et al.,* (2022). This highlights that farmers are facing significant financial challenges in adopting and managing Integrated Farming Systems, as these systems require initial investments in multiple enterprises such as livestock, crop diversification, fisheries and allied activities. Therefore, timely availability of credit or loans would enable them to invest confidently in necessary inputs and infrastructure without delays or financial stress.

The second major suggestion was related to the timely sanctioning of high-quality agricultural inputs and implements at subsidized prices, which had a Garrett Score of 64.29. The similar constraints was recorded in the study of Kumar *et al.,* (2022). This indicates that farmers are concerned about the delayed availability and high costs of critical inputs such as seeds, fertilizers, plant protection chemicals, machinery and tools required for integrated farming. Ensuring the availability of these inputs at the right time and at affordable prices will help in smooth implementation of IFS models on their farms. The third suggestion emphasized that market prices for farm produce should be remunerative, with a Garrett Score of 60.00. The farmers pointed out that despite investing significant resources and labour in diversified farming systems, low and fluctuating market prices reduce their income and demotivate them from adopting improved practices. Therefore, ensuring fair and stable market prices is essential for enhancing farm profitability under IFS.

The fourth suggestion was that training programs should be undertaken to attract rural youth towards agriculture, with a Garrett Score of 57.86. The similar finding was recorded in the study of Kumar *et al.,* (2022) and Sheikh *et al.,* (2021). This reflects farmer’s awareness that Integrated Farming Systems require technical knowledge and skilled management for effective implementation. The fifth suggestion was providing adequate storage facilities for perishable farm produce, which received a Garrett Score of 55.71. This indicates that lack of proper storage infrastructure leads to post-harvest losses, especially in horticultural produce, livestock products and fishery, thereby reducing overall income from IFS. The last suggestion highlighted the need for better market facilities, with a Garrett Score of 53.57, as improved market infrastructure and accessibility would help them sell their diversified produce efficiently and fetch better returns.

**Table 2: Suggestions given by farmers about integrated farming system**

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Suggestions** | **Garret Score** | **Rank** |
| 1 | Providing timely financial support from financial institutions | 67.14 | I |
| 2 | Timely sanctioning of high quality of agricultural inputs and implements through subsidized prices | 64.29 | II |
| 3 | The market price should be remunerative | 60 | III |
| 4 | Training programmers should be undertaken for attracting rural youth in agriculture | 57.86 | IV |
| 5 | Providing storage facilities for perishable farm produce | 55.71 | V |
| 6 | Providing good market facilities | 53.57 | VI |

**Fig 2: Graph showing the suggestions given by farmers about integrated farming system**

**CONCLUSION**

The analysis of constraints and suggestions for adopting Integrated Farming Systems (IFS) in Dausa district, Rajasthan, highlights several key findings. The main constraint identified was the lack of information about the appropriate type and scale of enterprises for IFS, which hampers effective planning and implementation. Farmers suggested practical interventions, with the foremost being timely financial support from banks and cooperatives. To address these issues, it is recommended that the government and relevant agencies conduct regular training programs to educate farmers on suitable crops, livestock and allied enterprises for integration. Ensuring the timely and easy availability of financial support or loans will enable farmers to invest confidently in IFS. Additionally, the provision of quality seeds, fertilizers, and other agricultural inputs at subsidized prices should be prioritized. Skill development initiatives should also be implemented to enhance farmers’ capacities, attract rural youth into agriculture, and improve market access, thereby enhancing farm productivity and profitability.

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