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**Original article****Integrated Farming System - The Way to Farmers' Prosperity****Priyanka B N<sup>1\*</sup> and Deepak Chand Meena<sup>2</sup>**

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**Abstract**

Integrated Farming System (IFS) is a whole farm management approach that combines various agricultural activities on the same farm. This strategy aims to generate employment, diversify income sources, and improve the livelihoods of farmers and their families. By integrating different components, IFS maximizes resource utilization, reduces dependence on external inputs, and enhances farm sustainability. The success of IFS models depends on their development in collaboration with local farmers, taking into account the specific agro-climatic conditions and resource availability. While IFS offers advantages such as income diversification, resource optimization, and risk mitigation, it also presents challenges such as complexity, initial investment, and market access. Farmers implementing IFS require proper training, expertise, and support from agricultural institutions. Overall, IFS holds great potential for enhancing farmers' prosperity and contributing to sustainable agriculture.

**Keywords:** Integrated Farming System, Farm sustainability, Livelihood, Resource optimization, Risk mitigation

**Introduction**

A farmer has grown only one crop on his entire patch of land and there is no other source of income apart from this. If the crop has failed to produce yield due to pest or disease incidence, then what is the condition of the farmer who has been waiting the entire cropping season to harvest yield? On the other hand, what would be his situation if he had cultivated not just one, but many crops on his land and integrated this with other activities on his farm, and then incurred losses in one? Both situations make the difference. Yes, that's right!!

The difference between the two situations lies in the level of diversification and integration within the farming system. In first situation, with a single crop and no other income sources, leaves the farmer highly vulnerable to the failure of that crop. In another situation, with multiple crops and integrated activities, provides resilience and the ability to sustain income even if one crop encounters difficulties. Integrated farming systems offer a more robust and secure approach by spreading risks and ensuring multiple income streams, thereby improving the overall livelihood and resilience of the farmer.

**What actually Integrated Farming System is?**

An Integrated Farming System or IFS, a kind of strategy, is a whole farm management system that combines agriculture with animal husbandry, poultry, fishery, and many more on the same farm to generate employment and additional income throughout the year to support the livelihood of the farmer and his family. IFS helps to enhance farm sustainability in stressed ecosystems. This system facilitates the utilization of output from one activity as an input for another activity, so nothing in the system goes to waste. This reduces farmers' reliance on external inputs, lowering their production costs. For example, the growing of fodder crops between agricultural crop along with the maintenance of dairy animals and poultry. Dairy animals and poultry can be allowed to graze on fodder crops. The excreta of animals and poultry act as manure for agricultural crop. Thus, there is efficient utilisation of all available on-farm resources.

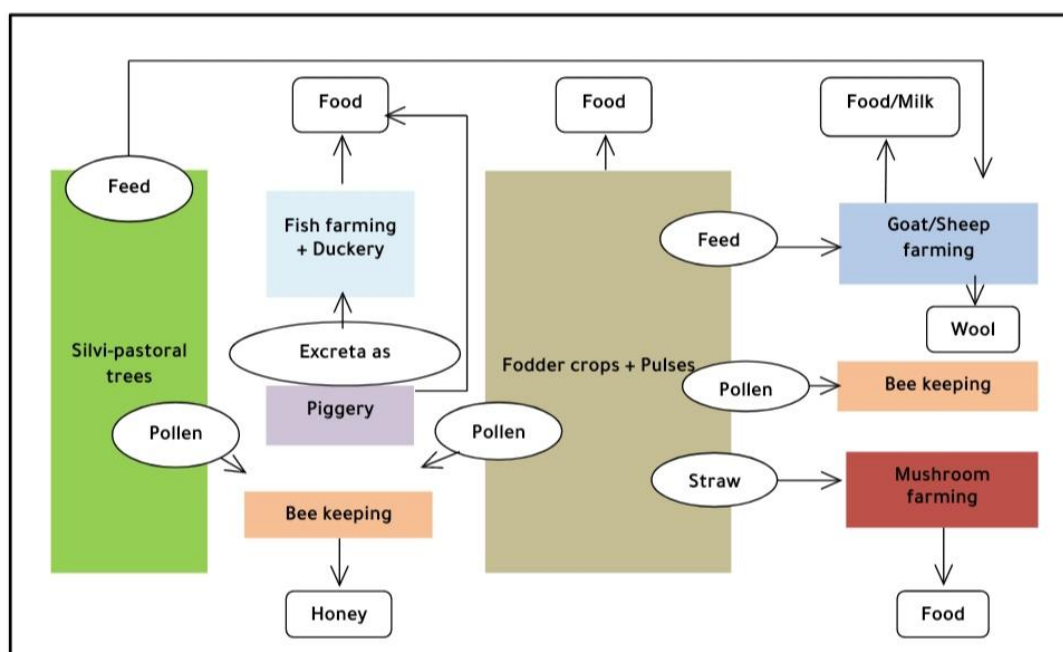
**Components under IFS**

IFS should satisfy five basic conditions, namely, economic feasibility, nutritional security, energy self-sufficiency, environmental sustainability, and climatic adaptability. The major components of

IFS are crops, livestock, birds, and trees. Crops include subsystems like monocrop, mixed crop, and multi-tier crops of cereals, pulses, oilseeds, and forage. Livestock includes milch cows, goats, sheep, and poultry. Tree component includes timber, fuel, fodder, and fruit trees. Soil type, rainfall, length of growing season, farmer’s need, and on-farm resource availability are the major factors to be taken into account while considering different components under IFS.

In our country, more than 80% of farmers have one hectare and even less than one hectare of land. Such small and marginal farmers can go for cultivation of fodders like maize, sorghum, and other grasses, and legumes in one-fifth of their land and the remaining four-fifth of land can be allocated for growing agricultural crops with the utilization of modern technologies and if crop rotation is followed, the returns from many farm activities would be high and the farmer would realise more income. Additionally, it should support the nutritional requirements of the family. IFS should generate less waste by utilising and recycling by-products efficiently within the system. This would facilitate a reduction of greenhouse gas emissions and also pollution of groundwater reservoirs. An IFS model with interaction among various components is illustrated in the below figure.

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**Advantages of IFS:**

- **Diversification:** IFS allows farmers to diversify their income sources by engaging in

**Advantages of IFS:**

- **Diversification:** IFS allows farmers to diversify their income sources by engaging in multiple agricultural activities. This reduces the dependence on a single crop or livestock species and provides a buffer against market fluctuations and unforeseen events.
- **Resource Utilization:** Integrated farming systems optimize the use of available resources. For example, byproducts from one component, such as livestock waste, can be utilized as organic fertilizer for crops, minimizing waste and maximizing resource efficiency.
- **Nutrient Cycling:** The integration of different components enables efficient nutrient cycling. For instance, livestock waste can be used as a nutrient source for crops, while crop residues can be used as animal feed. This reduces the need for external inputs and enhances soil fertility.
- **Risk Mitigation:** IFS spreads the risks associated with agriculture. If one component of the system faces challenges like disease outbreak or market fluctuations, the other components can provide a safety net by continuing to generate income.
- **Increased Productivity:** Integrated farming systems often lead to increased overall productivity. For example, the integration of fish farming with crop cultivation allows for the use

of fishpond water to irrigate crops, providing essential nutrients and moisture, which enhances crop yields.

#### **Disadvantages of IFS:**

- **Complexity:** Managing an integrated farming system can be complex and requires a higher level of knowledge, skills, and management compared to traditional single-component farming. Farmers need to understand the interactions between different components and maintain a balance for optimal results.
- **Initial Investment:** Setting up an integrated farming system may require a higher initial investment compared to conventional farming systems. It involves acquiring infrastructure and resources for multiple components, such as livestock sheds, fishponds, and agroforestry areas.
- **Expertise and Training:** Farmers need proper training and technical know-how to effectively manage an integrated farming system. This includes understanding the specific requirements of each component, disease management, and implementing best practices.
- **Market Challenges:** Integrated farming systems often require finding niche markets or establishing direct marketing channels to sell diverse products. This can pose challenges in terms of market access, pricing, and consumer awareness.
- **Scale and Size Limitations:** Integrated farming systems may be more suitable for small-scale or medium-scale farms due to the complexity and management requirements. Large-scale implementation can be challenging and may require specialized expertise and more extensive infrastructure.

It is worth noting that the advantages and disadvantages can vary depending on the specific context, local conditions, and the extent to which the different components are integrated.

#### **Conclusion**

An ideal Integrated Farming System (IFS) aims to minimize risk, requires lower investment, simple to implement and easily replicable, and provide farmers with quick returns. Several institutions working in the field of agriculture and allied fields have developed IFS models for different agro-climatic zones in India. However, the adoption of these models at the field level often faces challenges. The IFS models need to be developed in association with farmers at local level for its successful implementation and that ultimately aims at improving livelihood of the farmer. It is essential to note that implementing and managing an integrated farming system requires careful planning, monitoring, and knowledge of each component's requirements. Farmers need to consider factors like compatibility of different components considered, market demand, infrastructure, and the availability of technical support.