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Integrated farming system possible way in doubling farmer's Income and livelihood

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Abstract

The integrated farming system is a comprehensive strategy in which various businesses are used cooperatively and where resources are effectively managed so that waste output from one business can be used as input for another. As the population grows, there is less and less arable land available per person, which limits the potential for horizontal agricultural expansion. There are 115 million working farms in India, with about 80% of them being small or marginal farmers. By effectively utilizing various businesses, an Integrated Farming System can raise the living standards of these farmers. The IFS is actually a mixed farming system in which various businesses like dairy, fish, poultry, and other profitable ventures offer higher returns with fewer risks, which can help to mitigate crop losses in the event of extreme climatic conditions.

Key words: Integrated Farming System managed efficiently, like dairy, fish, poultry, climatic conditions.

Introduction:

Integrated Farming Systems (IFS) is a sustainable approach that combines different farming practices to enhance the productivity and profitability of the land and livestock. It helps farmers in generating extra income and employment opportunities to improve their livelihoods. In this article, we will discuss how IFS can contribute to doubling farmers' income

By combining crop, livestock, fishery, and dairy farming, the IFS system is an effective and sustainable way to farm that aims to maximize land productivity.

When using IFS, farmers are guided by the values of sustainability, diversity, recycling, and integration.1370 million people will be in our country by 2030, and 1600 million by 2050. We'll need to produce 289 and 349 MT of food grains each of those times in order to meet future demand. By 2030, the country's current situation predicts a further reduction of cultivable land, with more than 20% of it being used for non-agricultural purposes Gill *et al.*, 2005. According to IFS, the by-products of one type of agriculture can be repurposed as a

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resource for n a different type. Because it makes use of wastes as resources, it not only reduces waste but also boosts the productivity of the entire farm (Ministry Of Economic Development, Belize). 2010;1- 58.A group of resource-saving methods known as integrated farming systems (IFS) aim to maximize profitability and productivity while simultaneously minimizing any unfavorable effects of intensive farming and protecting the environment. (Lal and Gupta *et al* 1999, 2012).

Efficient Use of Land and Resources

Diversification: IFS involves the integration of crops, livestock, and fish farming to utilize the land more efficiently. Diversified farming helps in maximizing land use and increasing output.

Reduced Waste: The use of organic waste as compost helps in land reclamation and reduces the use of chemical fertilizers and pesticides. It helps in managing waste and conserving natural resources.

Livestock Management

Water Management

Efficient Use: Water is a scarce resource, and IFS helps in the efficient use of water. Rainwater harvesting and wastewater recycling have proven successful in conserving and utilizing water resources.

Controlled Irrigation: Modern irrigation techniques like drip and sprinkler help in reducing water usage and increasing soil moisture, thereby benefiting crop growth.

Flood Control: The planting of grasses and trees in IFS helps in reducing soil erosion and controls floods and soil degradation.

How IFS System Aims to Double Farmers' Income

Reduced cost of production: The IFS system reduces the cost of production by minimizing the need for external inputs like fertilizers, pesticides, and feed. This is achieved through the use of integrated crop, livestock, and fish farming, which ensures efficient use of resources.

Diversification: IFS allows farmers to diversify their income sources by combining

Improved Nutrition: IFS ensures the balanced diet of the livestock by providing them with natural feed, which enhances the quality of milk, eggs, and meat.	**Income Generation:** The integration of poultry, dairy, and fish farming in IFS provides additional income and employment opportunities for farmers, especially small and marginal ones.
Improved Manure Management: The use of livestock manure in composts contributes to organic farming practices, reduces water pollution and improves soil health.	**Reduced Risk:** The IFS system reduces the risk of livestock loss due to disease outbreaks and weather changes.

different farming activities. This ensures that income is not solely dependent on one crop or activity.

Increased product value: IFS results in the production of high-quality organic produce, which can fetch a higher price in the market. The integration of livestock, fishery, and dairy farming increases the income streams as well.

Features of IFS System

Sustainability	**The system promotes sustainable agriculture by minimizing the negative impact on the environment and ensuring the efficient use of resources.**
Diversity	The strategy encourages the cultivation of multiple crops and integration of different farming methods, which ensures biodiversity and reduces the risk of crop losses.
Integration	The integration of different farming methods facilitates the recycling of resources and ensures maximum utilization of available resources.

Problems of Present Agriculture

Agriculture's growth rate is stagnant or declining. Growing malnutrition in young children and pregnant women; decreasing net cultivable area due to rapid urbanization; worsening environmental pollution and greenhouse gas emissions; and insufficient food production to feed the future generation. Depletion of the ground water table from indiscriminate use and shrinkage of land holdings as a result of population growth Due to conventional farming practices, low-income farms have experienced an increase in production costs, feed and fodder shortages, low employment rates from monoculture, and issues with farm workers brought on by large-scale migration.

IFS for Employment Generation

The techniques used by various farming systems led to an increase in the amount of man days in a year as well as gross revenue, net revenue, and income for farmers. According to their research, Murshed and Pems (2011) predicted that an integrated farming system would create more jobs than a conventional farming system. Initial studies using the IFS approach recommended productivity gains of 30–50% and more than twice as many jobs as in arable farming, depending on the quantity, nature, and upkeep of enterprises.

Benefits of the Integrated Farming System

Increased Crop Productivity: The Integrated Farming System promotes crop diversification and crop rotation, which helps increase the productivity of crops.

Better Livelihoods for Farmers: Integrated Farming System increases the income output of farmers and provides better livelihoods by adding value to the resources produced**.**

Less Environmental Impact: The system reduces the effects of monoculture, minimizes chemical use, and encourages crop rotations. This reduces soil erosion and water run-off for a healthier environment.

Increased Income for Farmers: The Integrated Farming System can result in more income for farmers through increased productivity, crop diversification, efficient resource use, less use of controls, and increased efficiency of farm inputs.

Components in IFS

The important components of integrated farming system include all agriculture related enterprises such as agriculture, mushroom cultivation, fish farming, horticulture, sericulture, duck rearing, seed production, feed mill, vegetable production, fodder production, poultry, rabbitry, azolla farming, value addition, seed production, nursery, goat/sheep,pigery rearing, diary, apiary and pigeon rearing.

Conclusion and Future Prospects of IFS System

Implementation of IFS System

IFS is being implemented in many countries to improve the livelihoods of farmers. With further development of the system, the future looks bright for small farmers. The success of integrated approaches by the farmers across the globe gives a visionary hope for small and marginal farmers of developing nations to boost their economies and enable them to compete in the local and international markets. Increased work opportunities and efficient use of farm resources lead to increased productivity for farm families as a result of integrated farming system. To ensure long-term viability and profitability of the agricultural production system, Integrated Farming System is essential. About 90% to 95% of a plant's nutritional needs are met by recycling resources, which reduces cultivation costs and increases profitability.

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