

Integrated Farming System: key for sustainable agriculture

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Summary

Farming sector is the backbone of any nation's economy. Farmers are the main building blocks of agrarian economy. Food, clothing, shelter, health, education, security, electricity and drinking water are the basic needs of any individual. Most of these basic needs are satisfied by the farmers. Thus, the prosperity of farming community is the key of prosperity of any nation. To get nutritious and healthy food during this period of COVID-19 has become very much crucial and challenging for boosting up the immune system. Integrated Farming System is the only solution to provide the nutritional security, boosting the immune system by utilizing the natural products produced on the farm itself. This system of farming enhances the farm income and increases the socioeconomic status of farming community. This approach combines the different enterprises of the farm like Cropping system, Horticulture, Dairy, Goatry, Poultry, Bee Keeping, Fishery and Forestry, etc. at a single farm or at same land to provide nutritional and income security to farmer. In this system, farmer uses the refuses of one enterprise as the input resource for other enterprise, thus each and everything is utilized in this approach and reduces the use of chemical and other purchasable agri- inputs. This approach reduces cost of cultivation thus enhancing farm income and provides the nutritional and environmental security.

INTRODUCTION

Integrated farming system (IFS) is efficient utilization of all the available resources of the farm for achieving sustainable agricultural produce which is economically viable and able to fulfil diversified needs of the farm family while conserving the natural resources and agroecosystem. This approach may play the important role for upliftment the agrarian economy and socioeconomic status of the farming community. Integrated farming system harnesses the

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important aspects and synergies of different components of farm enterprises for improving the farm productivity, sustainability and employment generation. This is the combination of different enterprises like crop production, horticulture, dairy, goatry, fisheries, forestry, sericulture, poultry, etc. for efficient use of available resources of the farm. In this system of farming all the available enterprises are better utilized and produce the input for another enterprise in the form of their byproducts. Thus, all the waste materials of the farm are further recycled for productive purposes in this system. Likewise, the dung, urine and other waste from dairy component can be used for production of FYM and vermicompost, which is used as manure for cultivation of crops and horticulture. The crop residue and straw from the crops is used as animal fodder. It is noteworthy to say that all the components of farming system are interrelated with each other. The adoption of this system by the farming community is important to face the economic and technological challenges during adverse situation. Considering these things, farming system approach may provide the important solutions to overcome problems and minimizes the risk of farmers and ensure the livelihood security to the farming community by managing different enterprises at same farm. On the basis of the available input resources, different location specific systems have been developed for sustainable development (Dashora and Hari Singh, 2014). A region may have various successful models of IFS as per the availability of resources. A successful model of integrated farming system for semi-arid regions has been represented in Fig 1. As this system uses refuses of one enterprise as input resource for another thus this approach is able to increase the productivity for the agricultural systems (CARDI, 2010). Integrated farming system is the scientific management of all the available resources of the farm by utilizing the latest agronomic practices, smart manure and fertilization technologies and new animal husbandry techniques for enhancing the productivity of traditional farming systems. Thus, we can say, this approach is the integration of knowledge of different disciplines which are utilized at a same farm for augmenting the productivity and profitability of the farm and providing the economic security to the farm family thus, improving the socio-economic status of farming community. This system generates round the year income from the farm. This approach is very much applicable and resolves the issues of small and marginal farmers. The main aim of this approach is to enhance the farm income and generate the employment of farm holding by integration of different enterprises and recycling of crop waste and by products on the farm.



Need of Integrated Farming System

In the present agriculture scenario Integrated Farming System is becoming the need of hour due to following reasons:

- Minimizing the risk factor of biotic and abiotic stresses
- Reduction in per capita land holding
- Involvement of more cost of input resources per unit area
- For fulfilling the need of food, feed, fibre, fuel and fertilizer
- Providing the nutritional security to the farm family
- Conserving the soil health
- Enhancing the income of farm

- Improving the socioeconomic status of farming community
- Maintaining the sustainability of agroecosystem

Aims of Integrated Farming System

- To increase the farm income
- Utilization of farm wastes and crop by-products
- Efficient utilization of all available farm resources
- To increase the productivity and profitability of farm
- To maintain the environmental balance
- To generate more employment
- Increase in the resource use efficiency
- Utilization of residue of one component of the system as input for another component

Key features of Integrating Farming System

- Integration of different production systems like dairy, poultry, livestock, fishery, horticulture, sericulture, apiculture, etc. with crop production.
- Enhancing the farm input use efficiency (land, labour and by-products) for increasing income from farm.
- Maintaining the environmental balance.
- Increase the productivity of the farm per unit area.
- To generate balanced food by integrating various enterprises resulting in production of energy sources as carbohydrates, proteins, minerals & fats etc from the same farm.
- To generate income round the year
- To save the energy by adopting the efficient utilization of recycled organic waste and residues
- To maintain the fodder round the year

Components of Integrated Farming System

- Crop Production
- Horticulture

- Dairy Unit
- Goatry
- Poultry
- Mushroom Production
- Apiary/Beekeeping
- Forestry
- Fisheries
- Vermicompost/Compost Production Unit
- Azolla Unit



Figure: A systematic diagram of IFS Model for Semi-Arid Region

Benefits of Integrated Farming Systems

- This system of farming ensures the regular and round the year income
- Every agri-residue or byproduct of the farm is recycled in very productive way
- Reduction in cost of cultivation

- Conserves the soil health
- Reduction in fertilizer consumption
- Maintains the ecological balance and sustainability of agroecosystem
- Integrated farming system gives food and nutritional security
- Reduces the pollution
- In this system micro climatic conditions are improved
- Reduces the risk of low productivity

Conclusion

Integrated farming system accelerates efficient utilization of resources and provides environmental security and make the farming community economically satisfied. India has the rich diversity of livestock, poultry, crops and horticulture. Utilization of our national resources efficiently is very much important for sustainable development. Thus, this system of farming is very promising for improving overall farm productivity, profitability, generating employment opportunities, conserving natural resources and maintain the sustainability of agroecosystem by effective recycling the farm byproducts and efficient utilization of available resources. Integrating Farming System is the unique approach for overall upliftment of rural community and conserving the natural resources and crop diversity.

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