

A REVIEW ON INTEGRATED FARMING SYSTEM

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What is integrated farming system (IFS)?

“Integrated Farming System” describe as a set of agricultural activities, while preserving land productivity, environmental quality, and maintaining biological diversity and ecological Stability.

According to Paul Harris, “It is a system which comprises of inter-related set of enterprises with crop activity as base, will provide ways to recycle produces and “waste” from one component becomes an input for another part of the system, which reduces cost and improves soil health and production and/or income.”

Introduction:

At present, the farmers concentrate mainly on crop production which is subjected to a high degree of uncertainty in income and employment to the farmers. In this contest, it is imperative to evolve suitable strategy for augmenting the income of a farm.

Integration of various agricultural enterprises viz., cropping, animal husbandry, fishery, forestry etc. have great potentialities in the agricultural economy.

These enterprises not only supplement the income of the farmers but also help in increasing the family labour employment.

1. The integrated farming system approach introduces a change in the farming techniques for maximum production in the cropping pattern and takes care of optimal utilization of resources.
2. The farm wastes are better recycled for productive purposes in the integrated system.
3. A judicious mix of agricultural enterprises like dairy, poultry, piggery, fishery, sericulture etc. suited to the given agro-climatic conditions and socio-economic status of the farmers would bring prosperity in the farming.

Advantages of Integrated Farming System:

- Higher food production to equate the demand of the exploding population of our nation
- Increased farm income through proper residue recycling and allied components

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- Sustainable soil fertility and productivity through organic waste recycling
- Integration of allied activities will result in the availability of nutritious food enriched with protein, carbohydrate, fat, minerals and vitamins
- Integrated farming will help in environmental protection through effective recycling of waste from animal activities like piggery, poultry and pigeon rearing
- Reduced production cost of components through input recycling from the byproducts of allied enterprises
- Regular stable income through the products like egg, milk, mushroom, vegetables, honey and silkworm cocoons from the linked activities in integrated farming
- Inclusion of biogas & agro forestry in integrated farming system will solve the prognosticated energy crisis
- Cultivation of fodder crops as intercropping and as border cropping will result in the availability of adequate nutritious fodder for animal components like milch cow, goat / sheep, pig and rabbit
- Firewood and construction wood requirements could be met from the agroforestry system without affecting the natural forest
- Avoidance of soil loss through erosion by agro-forestry and proper cultivation of each part of land by integrated farming
- Generation of regular employment for the farm family members of small and marginal farmers.

COMPONENTS OF INTEGRATED FARMING SYSTEM:

1. Crops, livestock, birds and trees are the major components of any IFS.
2. Crop may have subsystem like monocrop, mixed/intercrop, multi-tier crops of cereals, legumes (pulses), oilseeds, forage etc.
3. Livestock components may be milch cow, goat, sheep, poultry, bees.
4. Tree components may include timber, fuel, fodder and fruit trees.
5. Crop Farming: Integrated farming often includes diverse crop production, such as cereals, fruits, vegetables, and cash crops. Crop rotation, intercropping, and companion planting are commonly practiced to enhance soil health and minimize the risk of pests and diseases.

decides the selection of IFS components in any farm.

1. Suitable grain crops: According to soil type we can select suitable crops.

Black soil:

Cereals: Maize

Millets: Sorghum, bajra

Pulses: Green gram, black gram, red gram, chickpea, soybean, horse gram

Oilseeds: Sunflower, safflower

Fibre: Cotton

Other crops: Coriander, chillies,

Red soil

Millets: Sorghum

Minor Millets: ragi, tenai, samai, pani varagu, varagu

Pulses: Lab- lab, greengram, red gram, soybean, horse gram, cowpea

Oilseeds: Groundnut, castor, sesame

2. Suitable forage crops

Black soils

Fodder sorghum, fodder bajra, fodder cowpea, desmanthus, Rhodes grass, Mayil kondai pul, *Elusine sp.*, Thomson grass

Red soils

Fodder cholam, fodder bajra, Neelakolukattai (Blue Buffel Grass), fodder ragi, Sanku pushpam (Conch flower creeper), fodder cowpea, Muyal Masal (Stylo), siratro, marvel grasses, spear grass, vettiver

3. Suitable tree species

Tamarind, Simarouba, Vagai (Ladies tongue), Arappu, Kodai vel, *A. tortilis*, Maan Kathu vel, *A. mellifera*, Neem, Hardwickia binata, Ber, Indian Gooseberry, Casuarina, Silk cotton etc. are suitable for red gravelly/sandy red loam soils

Karu vel, A.tortilis, A.albida, Neem, Vagai, Holoptelia integrifolia, Manja neythi, Hibiscus tilifolia, Gmelina arborea, Casuarina, Subabuland Adinacordifolia are suitable for black soils.

4. Suitable livestock and birds

➔ Goat, sheep, white cattle, black cattle, pigeon, rabbit, quail and poultry.

➔ Agronomic approaches for increasing overall productivity and sustainability of IFS

➔ The various agronomic approaches for increasing the overall productivity and sustainability of IFS:

- Adoption of improved cropping system according to the rainfall and soil moisture availability
- Selection of suitable grain crop species, tree species that supply pods/leaves for a longer period or throughout the year
- The surplus fodder leaves, crop residues etc. during the rainy season should be preserved as silage/hay for lean season (summer).

Why IFS is needed?

- For reducing the risks due to biotic and abiotic stresses.
- High input costs
- For meeting the rising need of food, feed, fibre, fuel and fertilizer
- Nutritional requirement of family
- Increased demand of soil nutrients
- For increasing the income
- Employment
- Standard of living
- Sustainability

IFS for small and marginal farmers:

1. Integrated farming system with Goat and Sheep.
2. Country chicken in Integrated farming system.
3. Fodder production and Integrated farming system through Azola and Panchgavya.
4. Agro Forestry and Integrated farming system.
5. Biogas production through Integrated farming system.
6. Preparation of Vermicompost and Farm residues.
7. Integrated farming system suitable for dryland and fallow land.

Challenges and Future Prospects:

While integrated farming systems offer numerous advantages, they also present challenges. Managing multiple enterprises

requires more knowledge and effort, and the initial setup can be costly. Successful implementation often depends on local conditions and the adaptation of IFS to suit the specific needs and circumstances of each farm.

The future of integrated farming systems is promising. As global populations continue to rise and environmental concerns become more pressing, IFS provides a sustainable solution to feeding the world while reducing agriculture's environmental impact. With advances in technology, data analytics, and precision agriculture, farmers can make more informed decisions and optimize their integrated farming practices.

Conclusion:

Integrated Farming Systems represent a holistic approach to agriculture that aims to optimize resource use, increase productivity, and promote sustainability. By integrating different components like crop farming, livestock, aquaculture, agroforestry, and organic practices, IFS can lead to enhanced soil health, risk reduction, and diversified income sources for farmers. While challenges exist, the future of integrated farming systems looks promising as it aligns with the global need for sustainable, productive, and environmentally friendly agriculture. Embracing IFS is a step toward a more resilient and secure food system for future generations.

References:

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