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INTEGRATED FARMING SYSTEM -a way for doubling farmers income

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Introduction.

Integrated farming system is a sustainable agricultural system that integrates livestock, crop production, fish, poultry, tree crops, plantation crops and other systems that benefit each other. It is based on the concept that 'there is no waste' and 'waste is only a misplaced resource which means waste from one component becomes an input for another part of the system. IFS approach is considered to be the most powerful tool for enhancing profitability of farming systems especially for small and marginal farmers to make them beneficial. It to deliver more sustainable agriculture without compromising the quality or quantity of agricultural products. Integrated farming combines modern tools and technologies with traditional practices according to a given site and situation, often employing many different cultivation techniques in a small growing area.

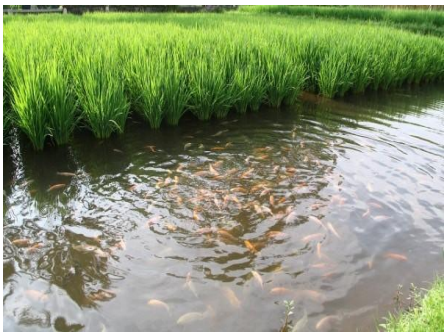
Objectives of integrated farming system

- Enhancing productivity per unit area.
- Proper waste management and soil health management.
- Generation of income round the year.
- Reducing use of chemicals.
- Maximization of yield of all component enterprises.

Components of IFS

- Crop production
- Dairy farming
- Poultry farming
- Fish farming

- Sheep and goat rearing
- Biogas production
- Vermicomposting



1. Paddy-cum-Fish Culture

- Rice is grown in the field as usual.
- Fish are stocked in trenches or ponds inside the paddy field.
- Fish move around the flooded field and feed on insects, weeds, and organic matter.

Advantages

- Fish eat insect pests and mosquito larvae.
- Fish movement improves soil aeration.
- Fish waste acts as natural fertilizer.
- Reduces the need for chemical pesticides.
- Fish get natural food like plankton, insects, and weeds.
- Water temperature remains moderate because of rice plants.
- Less feed cost.

2. Paddy-cum-Duck Farming

- Ducks are released into the paddy field after the rice seedlings are established (usually 20–25 days after transplanting).
- Ducks move around the field searching for food.
- They eat insects, snails, weeds, and larvae.
- Their droppings act as organic manure for the rice.
- Natural pest control — Ducks eat pests like stem borers and leaf hoppers.
- Weed control – Ducks uproot young weeds while searching for food.
- Better soil aeration – Their movement stirs the soil.
- Organic fertilization – Duck droppings add nutrients.
- Ducks get natural feed (insects, weeds, small snails).
- Reduced feed cost.
- Good growth and egg production

3. Fish-cum-Poultry Farming

Paddy is grown in the field. In fish-cum-poultry farming, fingerlings (small fish) are released after the pond is prepared and poultry birds are placed. Usually 10–15 days after poultry birds are introduced or after manure starts entering the pond. Poultry droppings enter the pond. This produces plankton (natural fish food). When enough natural food develops, fingerlings are released so they grow faster. Birds eat insects, worms, and small pests near the

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pond. This improves the farm hygiene and protects pond banks.

4. Fish-cum-Pig Farming

- Integrated fish-cum-pig farming is a highly productive and eco-friendly system, turning pig manure into fish feed and crop fertilizer. It reduces costs, increases protein production, and makes efficient use of land and water.
- Pigs don't get food directly from the fish pond, but the system can improve their environment, health, and farmer care, which indirectly benefits them.Pigs are raised in pens near fish ponds. Pig manure, rich in nutrients (nitrogen and phosphorus), is collected or allowed to flow into ponds.

5. Crop-Livestock System

- Crops like paddy, maize, or vegetables are grown.
- Crop leftovers such as straw, husks, and stalks can be used as animal feed, reducing feed costs.
- Animal waste (cow dung, poultry manure) is rich in nutrients like nitrogen and phosphorus, which improves soil fertility and increases crop yield.

Benefits

- Higher farm income from multiple sources.
- Better soil fertility using organic manure.
- Efficient use of farm resources.
- Reduced dependence on chemical fertilizers.
- Year-round employment for farmers.
- Risk reduction (if crops fail, livestock still provide income).

6. Horticulture-cum-Beekeeping

- Fruit crops like mango, coconut, or guava are grown.
- Bee boxes are kept in the orchard.
- Beehives are placed in or near the orchard.
- Bees improve pollination and fruit yield and produce honey.
- Beekeeping works best with crops that produce good nectar and pollen.

Benefits of Horticulture-cum-Bee Keeping

- Higher crop yield due to better pollination (20–70% increase).
- Extra income from honey and beeswax.
- Low investment compared to many farm enterprises.
- Better biodiversity and ecological balance.
- Employment generation in rural areas.

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7. Fish–Cum–Makhana Cultivation

Growing makhana (fox nut plant) and fish together in the same pond. Both help each other: fish get cover and food from plants, and their waste fertilizes the makhana. Better use of pond space. Fish waste acts as natural fertilizer for makhana this system is popular in water-logged areas and ponds because both use the same water body efficiently. Seeds are sown in December–January in shallow water or nursery. Seedlings are transplanted into the pond in February–March. Plants spread and cover the water surface. Fish are introduced after makhana establishment.

Ideal Pond Conditions:

- Pond depth: 1–2 meters
- Clay or loamy soil
- Water retention throughout the year
- Pond size: 0.5–2 hectares is ideal
- pH of water: 6.5–8

Benefits of Fish-cum-Makhana Farming

- Dual income from fish and makhana.
- Better use of pond area.
- Reduced pest problems.
- Natural fertilization from fish waste.
- Higher profit than single crop farming.

Advantages of Integrated farming system

- Efficient use of resources.
- Higher productivity and income.
- Soil quality enrichment.
- Mitigation of risk
- Biodiversity conservation.
- Sustainable agriculture
- Employment generation.

Conclusion:

The Integrated Farming System (IFS) is a sustainable, profitable, and eco-friendly approach that maximizes farm productivity by recycling by-products and integrating multiple enterprises like crops, livestock, and aquaculture. It enhances income, provides year-round employment, and ensures ecological stability, making it essential for small and marginal farmers.

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