

## Integrated farming system: A way to improve rural livelihood

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### Abstract

Agriculture and allied activities support livelihood of nearly 70% India's rural population. In recent year, small and marginal farmers are increasingly becoming unsustainable, since their land is not able to support the family's food requirement and fodder for their cattle. As a result, rural households are force to look at alternative means for supplementing their livelihoods. In this context, rural resource based micro enterprises have emerged as alternative livelihood opportunity in rural areas. In an integrated farming systems (IFS) approach emphasis given to integrate cropping with other available allied enterprises. There are many allied enterprises available (dairy, fisheries, mushroom cultivation, sericulture etc. depending on agro-climatic zones and socio-economic status) which can be integrated with cropping system and profit can be maximized.



## Major objectives of IFS approach

- To integrate different production systems like dairy, poultry, livestock, fishery, horticulture, sericulture, apiculture etc. with agricultural crops production as the base.
- To increase the farm resource use efficiency (land, labour and production) so as to increase farm income and gainful employment opportunity.
- To promote multicropping.
- To maintain environmental quality and ecological stability.

## Components of integrated farming system

### Dairying

Dairy can be a constant source of earning for low-income people when it will be integrated with cropping. Availability of feed and fodder for cattle as well good marketing facilities are key requirement for successful dairy. In order to enhance profit through dairy, selection of proper breed is primary requirement.



There are major 5 groups of dairy cattles:

- Draft breeds:** The bullocks are good draft animals and cows are poor milkers e.g, Nagore, Hallikar Kangeyam.
- Dairy breeds:** The cows are high milkers e.g., Sahiwal, Sindhi.
- Dual Purpose:** The cows are good milkers e.g., Hariana, Ongole.
- Exotic breeds:** These are high milk yeilders, e.g., Jersey, Holstein-Friesian.
- Buffaloes:** Examples are Murrah, Nili Rav, Suti.

## *Sheep and goat rearing*

Rearing of sheep and goat is one of the popular allied enterprises in hilly and desert areas. Both sheep and goat rearing is relatively easy to manage than dairying and require less capital and small farm to raise. As both enterprises can be initiated by investing less capital and provides a continuous income throughout the year, thereby ensure enhanced net profit. Even by the utilization of poor grazing facilities and with very less managerial resources rearing of sheep and goats can return high profits to farmers. They not only provide net return but also a continuous healthy nutrition in terms of meat and milk.



## *Poultry Farming*

Poultry farming is another allied enterprise which is very helpful to provide healthy nutrition, to enhance economic stability and employment throughout the year. Out of all types of meat products poultry meat accounts for 27% and its consumption is increasing at a rate of 5% per year. Integration of poultry with fisheries can provide additional profit to farmers.





## Fisheries

In rural areas ponds serves many purposes like source of water for domestic use, fulfill requirement of irrigation for cultivation of crops, used to raise fisheries can be either in fresh water ponds or it can be integrated with cultivation of rice. In order to enhance net income, return and to supply food throughout the year it can also be integrated with poultry.



## Biogas plant

Biogas plant is a system which contain a digestion chamber and gas holder. In digestion chamber cow dung and remains of fodder is treated anaerobically to produce two important products i.e., biogas and organic slurry. Biogas produced as a result of this degradation reaction can be used as fuel and can be used for cooking purpose while because of the degradation of cellulosic material organic manure will be produced which act as a rich source of nutrients and can be used as organic fertilizers. Gas produced in the process is clean, unpolluted and can be produced by little investment.



## Bee keeping (apiculture)

Bee keeping is one of the most important agro-based industries, which does not require any raw material. Nectar and pollen act as raw material and available in nature in plenty of amount. There are three species of bee which can be used for apiculture, *Apis cerana indica* (Indian Bee), *Apis dorsata* (Rock bee) and *Apis mellifera*, (Italian Bee). The plants which will provide nectar and pollen for honey bees are known as bee pasturages. The bee keeping activity must begin with flowering season. Arrival of swarming season is the best time to do bee keeping. Swarming is a process when honey bees start to divide in the condition which is suitable for both parent colony and swarm.



## Sericulture

The keeping of silk moths and their larvae for the production of silk is called sericulture. It is an agro-industry and the ultimate product of sericulture is silk. The process of sericulture involves mulberry cultivation, rearing of silkworm and reeling the silk from the cocoons formed by the worms. The initial two activities are agriculture in nature while the remaining one is basically an industry.





## Mushroom cultivation

Integration of mushroom cultivation along with paddy production can improve the economic status of farmers. Paddy straw is used as a base material for the propagation of mushroom because of its good water holding abilities.



## Advantages of integrated farming system

- Enhanced food production which can fulfill the requirement of growing population of our country.
- Improved net income by the recycling of various allied resources.
- Recycling of natural resources maintain sustainability of environment.
- Integration of allied enterprises ensures continuous supply of nutritious food throughout the year.
- Reduced cost of production because of recycling of byproducts of a farming system.
- Regular and improved net income return throughout the year.
- Energy crisis will be resolved by the inclusion of dairy and cropping.
- Growing of fodder crops will provide food for dairy cattle.
- Integration of agro-forestry will reduce soil erosion as it will be helpful to cover the soil even during non-cultivated duration.
- Firewood and construction wood requirements could be met from the agro-forestry system without affecting the natural forest.
- Generation of regular employment for the farm family members of small and marginal

## Conclusion

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.

