

Role of Integrated Farming System in Increasing Farmers Income in Rainfed Farming

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Introduction

Indian economy is mainly agriculture oriented. Small and marginal farmers are the core of the Indian rural economy constituting 85% of the total farming community but possessing only 44% of the total operational land (GOI 2014). The growth rate of agriculture in the recent past is very slow inspite of the rapid economic growth in India. The average size of operational land holdings has reduced by half from 2.28 ha in 1970-71 to 1.16 ha in 2010-11. The declining trend of per capita land availability poses a serious challenge to the sustainability and profitability of farming. One of the options is to evaluate the potential of the IFS approaches to enhancing the income of farm families within a reasonable time period. Mixed farming based enterprise combinations for their contribution to sustainable production as well as the livelihood of farm families with income enhancement as a major plank. The Integrated Farming Systems (IFS) therefore assumes greater importance for sound management of farm resources to enhance the farm productivity and reduce the environmental degradation, improve the quality of life of resource poor farmers and maintain sustainability. Integrated farming system approach is not only a reliable way of obtaining fairly high productivity with considerable scope for resource recycling, but also concept of ecological soundness leading to sustainable agriculture.

Goals of integrated farming system: The four primary goals of IFS are:

- ✓ Maximization of yield of all component enterprises to provide steady and stable income at higher levels
- ✓ Rejuvenation/amelioration of system's productivity and achieve agro-ecological equilibrium.

- ✓ Control the buildup of insect-pests, diseases and weed population through natural cropping system management and keep them at low level of intensity.
- ✓ Reducing the use of chemical fertilizers and other harmful agro-chemicals and pesticides to provide pollution free, healthy produce and environment to the society at large.

Importance of Integrated farming system-

- ✚ **Productivity-** Integrated farming system provide opportunity to increase yield per unit area per unit time by virtue of intensification of crops and allied enterprises. Time concept by crop intensification and space concept by building up of vertical dimension through crops and allied enterprises are the ways to increase productivity.
- ✚ **Profitability-** The system a whole provides opportunity to make use of produce or waste material of one component as input on other component at the least cost. Thus, by reduction cost of production of component two and extending similarly on other components linked, the profitability per rupee invested are being enhanced by eliminating the interference of middleman in most of the inputs used and working out the net income for farm as a whole the benefit- cost ratio is increased.
- ✚ **Potentiality / sustainability-** of late with an enthusiasm to produce more and more within the land area available to meet the requirement of additional population recorded at 2.2% every year huge quantum of inorganic, fertilizer, inorganic pesticides, fungicides, herbicides etc., are dumped. Thus, there is every likelihood of soil and environment becoming polluted. Once when we loose larger area by virtue of problem indicated, the productivity of soil would automatically be reduced in the years to come.
- ✚ **Balanced food-** In IFS, components of varied nature are linked enabling to produce different sources of nutrition viz., protein, carbohydrate, fat, minerals and vitamins etc., from the same unit area. This will provide an opportunity to solve the malnutrition problem that exists in the diet of the Indian farmers.
- ✚ **Pollution free environment-** Application of huge quantity of fertilizer, pesticide, fungicide and herbicide pollute the soil, water and environment to an alarming level. In case of integrated farming system, waste material are effectively utilized by linking appropriate components and thus utilizing the by- products as organic manures.

- ✚ **Recycling-** IFS established its stability due to effective recycling of waste materials of any of the component as input on the other component linked in the programme. Thus, by way of recycling their own material at the farm level, the farm could be able to reduce the cost of production which enables ultimately to increase the net income of the farm as a whole.
- ✚ **Money round the year-** Unlike conventional crop activity where there money is expected only at the time of disposal of the economic produce received after five to fifteen months depending upon the duration of the crop, the IFS provides flow of the money to the farmers round the year by the way of disposal of eggs, milk, edible mushroom, honey, cocoons of silkworm, etc.
- ✚ **Solve fodder crisis-** In IFS, each and every cm² of land area is effectively utilized. Growing of perennial fodder legumes trees in the borders and water courses is a recommended practices in IFS.
- ✚ **Solve fuel and timber crisis-** In IFS, by linking agroforestry appropriately, the production level of fuel wood and industrial wood can be enhanced without detrimental effect on crop activity in the field level.
- ✚ **Avoid degradation of forests-** By linking agroforestry in IFS, the degradation of forest area could be minimized to certain extent by supplementation of fuel and timber wood.
- ✚ **Employment generation-** Combining crop enterprises with that of livestock to take advantage of complementary and supplementary relationship between them, would increases the labour requirements tremendously and can help in solving the problem of underemployment to a great extant. IFS, provide enough scope to employ family labour round the year.
- ✚ **Provides opportunity for agri-oriented industries-** When once the produces the different components linked in IFS are increased to commercial level and if there is glut in the market, leads to the development of allied industries for preserving the by-products.
- ✚ **Increase use efficiency-** the IFS, provides enough scope to use the inputs on different components very effectively. This again leads to increased benefits- cost ratio.

- ✚ **Improved the standard of living of farmers-** When once provision are made in the farm level to generate bio energy, produce edible mushroom, fruit, eggs, milk honey, vegetable, etc., for the family use of farmers apart from commercial purpose through IFS, create a sort feeling among the farmers that they are no way inferior to the other professional lists in the region.

Component of integrated farming system-

- ✚ **Crop husbandry-**Ensuring household food (food grains - cereals, pulses, oilseeds and milk & meat for human beings and feed and fodders for animals) requirements of a family and making farmers less dependent on market, is pre requisite of any of the research and developmental programmes carried out for small farm holders. Systems should be consist cereals, pulses, oilseeds, vegetables, flowers and green fodder crops.
- ✚ **Livestock production-**Livestock considered to be a valuable and critical asset of the rural poor in supporting their livelihoods particularly during unfavorable times. Mixed (crop livestock) farming systems provide flexible asset regime and reduce risk and vulnerability of the poor farmers.
- ✚ **Poultry-** 100-200 birds (broiler) can be reared in an area of 225 sq. ft. by making a thatched hut. All around wire meshing should be done at the inner walls to protect the birds from predators and hunting animals. The hut should be airy and proper arrangement of bulb or other lighting should be done before rearing the chicks.
- ✚ **Horticulture-** Horticultural crops are nutritionally rich mainly of essential proteins and vitamins which make human diet complete and help human being physically fit and mentally more sound. This way horticultural crops produce round the year high value crops and provide more employment to the family members as compared to crops alone.
- ✚ **Aquaculture-** Fish production is an emerging field of supply high quality protein and other nutrient rich meat particularly in northern India, southern part of the country being the leading fish production states by habitat.
- ✚ **Apiculture-**Bee keeping is an enterprise which is being practiced mainly by the orchard owners and landless families residing near vicinity of the orchards. Besides producing honey and wax, they play an important role in the pollination of various crops. It has been stated that for every rupees worth of honey and wax produced,

honey bee works worth rupees ten as pollinator. To fetch higher profits from this enterprise round the year availability of flowers is essential.

- ✚ **Mushroom cultivation-** Year round mushroom production can be done in an area of 25 X 20' by making a thatched hut for optimum return. In this shed about 200 mushroom bags can be kept at a time by making bamboo shelves. Selection of the mushroom strains should be done on the basis of climate and humidity in the atmosphere as March-September: straw/paddy/milky mushroom.
- ✚ **Agro-forestry-** Practicing agriculture with livestock farming is more profitable than doing agriculture alone. In addition to goat rearing in agriculture, growers growing goats 20 to 30, per year will give minimum 40 to 50 thousand rupees as additional profit. Agroforestry and goat rearing doing together may give many benefits to the farmers.
- ✚ **Biogas plants-**Already agriculture is known to contribute significantly to the global climate change; nevertheless, the transformation of animal wastes and other agricultural wastes will reduce the impact agriculture has on the environment. The issue of climate change with its concomitant challenges due to increasing CO₂ in the atmosphere could be addressed by the use of renewable energy resources such as biogas

Conclusion-

Farming system approach not only fulfills the household needs but enrich diet of human being and animals both for nutritional security.

Diversified nature of the model provides employment opportunity for unemployed rural youth-Economic and livelihood analysis of the system revealed that beside household food, feed, fodder and fuel security, the system generates a sizeable amount of savings which will assists to meet other liabilities of family including education, health and social obligations and overall improvement in livelihood of small farm holders. Over two decades of extension agencies have been encouraging farmers to adopt ways of integrating resources for better efficiency and two reduce the dependency on adopting practices with high input cost.

Reference



GOI. 2014. *Agricultural statistics at a glance*, Directorate of Economics and Statistics, Govt. of India, New Delhi.

