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Popular Article

Role of Integrated Livestock Farming System for Upliftment of Small and Marginal Farmers

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Introduction

With about 536.76 million heads, India possesses the highest number of livestock population in the world. Agriculture is the main occupation of the people and majority of the people are related with agricultural business directly or indirectly. Grazing land for animals as well as cropping land of the country is continuously declining. As a result, there is lower production of feedstuff both for human as well as for animals. A combination of crop farming, livestock, fisheries, piggery, and poultry can be done for solving the problem of food security. This is called as Integrated Farming System. In integrated livestock farming system livestock are involved along with other farming systems.

There is difference between mix farming and Integrated, in integrated farming the enterprises in the integrated farming system are mutual to each other which is not in case of mix farming. Most of the farmers in India are small or marginal and livestock are central to their livelihood and culture, so livestock is also the most important source of income for village families. The main advantage of Integrated Farming System is that it increases economic yield per unit area per unit time and increases profitability and sustainability. Economy of India is rural and still dominated by agricultural sector.



Though our country is agriculture based, the growth of livestock is necessary either alone or along with the integration of other farming system. This is because agricultural crops which do not provide round the year income, livestock offers day-to-day income.

Role of livestock-based farming system

In India, livestock plays a versatile role by providing manure for crops, dung cakes as a fuel, mixture of dung along with other material as a floor material and most important one is as a draught purpose in agricultural field. In our country women plays very important role in Livestock keeping and management. Their activities vary widely ranging from care of animals, grazing, fodder collection, cleaning of animal sheds to processing milk and livestock products. In livestock management, indoor jobs like milking, feeding, cleaning, etc. are done by women in most of the families while management of male animals and fodder production are affected by men.

Women accounted for 93% of total employment in dairy production (World Bank, 1991). Depending upon the economic status, women perform the tasks of collecting fodder, collecting, and processing dung. Dung composting and carrying to the fields is undertaken by women. This provides employments to the women. Livestock are the part of nature's chain which is helpful in recycling nutrients, converting low quality fodder and roughages to high quality products like milk and meat, wool from sheep and dung can be used as fertilizer which is quite good for the land than the chemical fertilizers. Manure from sheep and Goat contains higher amount of nitrogen which is most important for them as a fertilizer.

Birthal *et al.* (2008) found livestock was an important source of income at the lower end of land distribution in India and it also has an equalizing effect on income distribution. They also reported reduction in rural poverty being more responsive to growth in the livestock sector than the growth in the crop sector. In a study from Uttar Pradesh, Ojha (2007) reported 23% of households escaping poverty through the livestock route. From a study of poultry producers in South Asia, Dolberg (2003) concluded that animal husbandry can be an entry point for reducing poverty among landless and near-landless households.

Integration of livestock with other farming systems

There are various systems which can be involved with livestock production. i.e., crop-livestock farming system, livestock-fish farming system etc. According to Clark (2004), "enterprise diversity was the norm", and mankind only developed single-enterprise agriculture and specialization



in the early decades of the 20th century. While specialization initially resulted in dramatic increases in yields and overall output of the farm, it is now known that it has also contributed to the deterioration of land resources, which has contributed to environmental degradation and is probably subsequently leading to low agricultural productivity. Block and Webb (2001) suggested quite clearly that crop-livestock integrated farming is preferable because it is said to be a way of enhancing agricultural productivity.

In livestock-fish farming, livestock wastes are used directly as food for fish or act as fertilizer for fish pond to generate plankton production. Use of livestock wastes such as cow dung, poultry manure and pig excreta, goat, and sheep pellets, in fish culture to enhance the production of fish food organisms as well as in reducing the expenditure on costly feeds and fertilizers have been well documented (Yadava, 1987). This will help in effective utilization of the available farm space, provide additional income, help in recycling the animal wastes which would otherwise pollute the environment and increase the supply of fish and the animal products. By this way this enhances the livelihood of small and marginal farmers.

Socio-economic benefits of Livestock in Integrated System

Livestock are often the most important cash crop for a significant proportion of population in the country. Unlike agricultural crops which do not provide round the year income, livestock offers day-to-day income. Livestock play multiple roles in rural systems and economy and have a strong human aspect, as manifested through socio-cultural link and involvement of women (Maki-Hokkonen, 1996).

Besides, this it plays an important role in agriculture, it also helping by providing food security at the time of crop failure, to the farmers and rural people. There are some advantages of keeping livestock with agriculture; generation of value-added products (e.g., utilization of fibrous crop residues to produce meat, milk, and fiber), promotion of linkages between system resource components (land, water, and crops) and contribution to sustainable agriculture and environmental integrity. Economic analysis of different farming systems (one hectare of irrigated land or 1.5 ha of un-irrigated land) indicated that under irrigated conditions, mixed farming with crossbred cows yielded the highest net profit, followed by mixed farming with buffalo, and arable farming.

Within integrated systems, animals play a particularly important role, the extent of which is dependent on the type of production system, animal species and scale of the operation. So, dairy



production is becoming an increasingly important integrated system in many countries, because it generates significant, and more importantly, daily cash income, as well as contributing to the improvement of the livelihoods of very poor people and the stability of farm households. It is for these reasons that dairying in the developing countries is an important instrument of social and economic change, and is identified with rural development (Kurien, 1987).

In the state of Gujarat in India for example, Holstein Friesian and Jersey crossbreeds are widely being adopted in mixed farming systems. These crossbreeds are having a considerable impact: 1.8 times more milk than Desi, Gir and Kankrej cows, acceptance by both tribal and non-tribal farmers in the farming systems, farm income, and employment opportunities (Patil and Udo, 1997). Baseline surveys in Gujarat India, indicated that around 75% of rural households kept cattle in the face of under-employment. More particularly, the farm surveys showed that cattle kept mainly for milk, contributed 32 and 20 % for tribal and non-tribal ethnic groups, respectively (Patil and Udo, 1997).

Conclusion

In India majority of the farmers are small or marginal containing little amount of land. Livestock is most important commodity for getting income and also the income is on regular or daily bases not just like in agricultural crop which gives at the end of harvesting. Though, livestock helps in reducing the poverty at some amount its integration with crop and other system help the farmers to get more benefit. These also increase the nutritional status of the poor people. Utilization of by-products of crop and livestock farming also increases the employment to the people and decreases the pollution occurs to nature and environment both.

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