

Diversified Integrated Farming for Sustaining Small-Holder Farm Families in Uttarakhand



Fig. 1. Madhavanand Joshi.

In the mountains of Uttarakhand state in India over 90% of the holdings are > 1 ha and scattered in mostly rainfed tiny terraces. The marginal farmers find it difficult to sustain their family (5–6 members) on the low food production from these marginal farm lands. Food insecurity due to low rate of return from traditional agriculture, lack of non-farm income generating opportunities and growing need for cash income are the main issues that come in the way of sustainable farming. Agricultural development programmes have not met with desired success so far in addressing these issues and as a result farmers are losing interest to continue with the non-viable agricultural activities leading to land abandonment and out-migration in search of other sources of livelihood. However, contrary to this general scenario, some examples have been set by a few farmers integrating their farm and family resources by the use of modern technologies and thus not only meeting food demand of their families but also earning a good income. One such example of a progressive farmer is described in this article and lessons for sustainable farming in these mountains are drawn.

Shri Madhavanand Joshi: the Pundit of Farming

Shri Madhavanand Joshi is known to be one of the most progressive farmers of the region (Fig. 1). Born in 1936 in the Salla Rautela village (1520 m asl) in Almora district of Uttarakhand state, he spent his childhood days in the village and due to poor family background had schooling up to the fifth standard only. When became young, he went to a nearby plain city Ramnagar in search of a job. While staying in Ramnagar he admired the fertile land of plain areas, which produces more and generates good income to the farmers, and thought could such an economically profitable system of farming be developed in the mountains. It was his willingness that he returned to his village at an age of 28 years and decided to practise farming but in a different way than the traditional agriculture. Since climate of the region is suitable for the cultivation of a variety of temperate fruits, he decided to develop an orchard in the small piece of land (0.5 ha) owned by him. Through a loan of Rs. 2,500 obtained from the state horticulture department, he planted locally suitable fruit

trees in this land, those produced fruits after 4–5 years and earned some money for Mr. Joshi. That provided further impetus to the efforts that he put in to transform conventional agriculture into a profitable farming system. His continuous efforts and willingness resulted in an excellent diversified integrated model of farming that he developed over the years in his around 0.5 ha of land (Fig. 2). On-farm practices of his integrated farming model include cultivation of fruit trees on the margins of the agricultural fields, and the terraced land is utilized for growing a variety of cereals, pulses, vegetables and spices. While the practice of tea cultivation is fading away in the region, he has also planted around 100 bushes of tea in his land and feels proud to offer tea made out of his own farm. Floriculture is another on-farm activity that he has recently started. He has two fishponds, one unit each of Angora rabbit, mushroom cultivation, backyard poultry and a good population of goats and milch cattle as off-farm components of his diversified integrated farming model. Beauty of his diversified integrated farming model lies in the fact that the waste or by-product of one component supports the other. For example, paddy husk, which is otherwise a waste, is utilized for mushroom cultivation. Cow dung is converted into good quality compost through vermin-composting and applied to the soil for enhanced production. Straw and other agricultural residue is utilized to feed the goats and milch cattle. Angora rabbit and hens are fed with the coarse grain produced in the farm. He sells his farm produce, after meeting all his family needs, in the nearby Almora market. Once lived in extreme poverty he is now able to fetch an average, substantial annual income through these diverse and integrated farming practices. Because of this successful diversification and integration of different farming practices, he is now popularly known as “pundit of farming” among the agriculturist in the region. Today, Shri Joshi is 78 years old and still working in his farm actively. Further, he remains motivated all the time by the awards given to him time-to-time by government departments and research and extension institutions for his excellent economically profitable diversified integrated farming.

Lesson: A call for farm diversification

The fragile terrain, remoteness, and rainfed condition do not permit to undertake intensive agricultural practices in the Uttarakhand mountains, and this is why agricultural practices in the region remained traditional in spite of a huge development and modernization of agriculture in the country. These traditional agricultural practices, while helped rural communities in the past in sustaining their

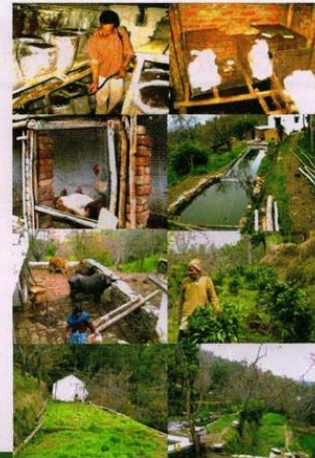


Fig. 2. Diversified integrated farming model developed by Shri Madhavanand Joshi. (A) Mushroom cultivation; (B) Rearing Angora rabbits; (C) Poultry; (D) Fish farming; (E) Animal husbandry; (F) Tea farming; (G) Vegetable cultivation (open and protected); (H) Horticulture and cultivation of cereal crops.

lives, now become unviable and insufficient to meet the food requirements of the peasants mainly due to population increase, aspirations for cash income and increased climate variability. Today, the situation in the region is that the traditional agriculture hardly meets half of the annual grain requirements of the peasants. To overcome these problems of outmigration and land abandonment there is, therefore, a need to develop and implement a farm-based system that could not only supplement the food requirements of the peasants but also generate substantial income. As has been observed in the case of Shri Joshi, farm diversification could be a potential approach to do so. In developing diversified integrated farming model, Shri Joshi was benefited by a collective piece of land while most of the land holdings in the region are scattered. However, this would not be seen as a constraint. Albeit the land holdings are scattered, most of the households in the region have a significant amount of land in and around their homesteads. Owing to the extent of available land in and around farmer's homesteads, degree of diversification may vary but it is not impossible to develop diversified integrated farming and achieve food self-sufficiency for family and earn cash for meeting other household needs. However, technical support along with motivation from government agencies and R&D institutions and adequate marketing opportunity are the two crucial factors in the successful replication of such integrated farming models.

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