

Diversified Farming Technologies: Scope for Sustainable Rural Development in Lesser Himalayas of Jammu and Kashmir

Sartaj Ahmad Wani^a, Subhash Chand, Rafiq A. Shah

*Faculty of Horticulture, Sher-e-Kashmir University of
Agricultural Sciences and Technology, J & K*

ARTICLE ID: 011

Introduction

Farming systems these days have many implications than before because of the growing concerns about agricultural and environment. Accelerated soil erosion, rapid loss of habitat and genetic diversity are common degrading processes in lesser Himalayan region resulting in low production of crops. Soil exhaustion, build up of serious pests and diseases, frequent droughts and floods under modern intensive monoculture system has lead to frequent crop failures. Crop production activity is subject to high degree of variability due both natural and man-made risks. Crop substitution is mainly governed by production cost, productivity trends and economics. Market risks are more common. At the time of harvest farmers have to sell their produce at lower distress prices. Rising cost of inputs and discouraging market prices in regular years have greatly shrinked profit margin. All these things have lead to dissatisfaction of farmers resulting in steady migration of farm youth from agriculture sector to urban areas.

Under these circumstances, a ray of hope in proper and efficient management of available natural resources and socio-economic development deserves immediate strategies and management. There is urgent need to select suitable crops backed by frontier technologies to substitute uneconomic and environment damaging systems on the inventory of local resources, constraints, needs and demand.

Why diversified and integrated farming systems.

Adoption of diversified and integrated farming systems leads stability and sustainability in farm income through multiple enterprises that aim at maximum utilization of available resources to meet the needs. It aims at generating a threshold level of farm income

required for the farm family to maintain sustained interests in farming thereby preventing migration of people from farming sector. A greater risk on exclusive dependence on farming for livelihood security demands immediate need of diversification. Moreover, the diversified farming and integrated systems have the potential to contribute sustainable and socially just systems that may buffer against global change. In general in order to meet several objectives viz; natural resource sustainability thorough arresting degradation of natural resources and environment and attaining national of self reliance in critical crop products,, earning foreign, exchange, employment generation, risk coverage,.

Determinants of Agriculture Diversification

1. Environmental factors such as rainfall, temperature and soil fertility
2. Technology related factors like seeds, fertilizer and water technologies, market related price and trade policies, storage, processing, harvest, distribution et.
3. Institutional and infrastructural-related factors such as farm size, location, tenacity, arrangements, research in field technical support
4. Household related factors including regional food traditions,, fodder and fuel as well as labour and investment capacity of farm people

Agriculture Diversification

From a broader view, diversification of agriculture is a process of gradual movement from subsistence farming (particularly staple food crops) towards diversified market-oriented cash crops that have a larger potential for returns. In general, diversification of agriculture could be classified into following three categories:

- Shift of resources from farm to no-farm activities
- Shift of resources within agriculture from less profitable to more profitable crop / enterprise
- Use of available resources in diverse but complimentary activities

Agriculture diversification involves the shifting of resources from the regional dominance of one crop or livestock to a large mix of crops or livestock. Diversification of agriculture in favour of non-cereals and high-value commodities such as fruits, vegetables, milk, meat,, eggs, fish etc. are emerging as a promising source of income augmentation, employment

generation, employment generation and export promotion. Maintaining of different crop species and genetic diversity through intercropping can lead to greater productivity in crops, minimal nutrient leaching and volatilization and greater ecosystem stability. Resource partitioning under diversified and integrated farming systems results in greater productivity and nutrient retention. In diversified farming, different species require resources resulting more important complementary interactions. Minimal dependence on industrialized monocropping and diversification of a wide range of cultivated crops will reduce irrigation needs as well as off-set vulnerability. Similarly preservice of biological diversity as well as establish opportunities for profitable specialization to farmers can be achieved by maintaining a variety of seed types in seed banks.

The availability of improved rural infrastructure, rapid technological advancements in agricultural production and changing food demand patterns can greatly trigger agriculture diversification under changing climatic scenario. Hence, agriculture diversification process towards high value crops may improve agriculture growth and usher in a new era of rural entrepreneurship opportunities.

Diversification into Productive Areas & Activities in Jammu & Kashmir

Diversification includes two aspects: one relates to diversification of crop production and the other relates to a shift of workforce from agriculture to other allied activities (livestock, poultry, fisheries etc.) and non-agriculture sector.

Some of the important areas for diversification in Jammu & Kashmir, to harness the benefits of available ecological and economic resources, include the following:-

- Diversification towards cultivation of horticultural crops with varieties of improved pedigree and performance should ameliorate the agrarian economy of the hill region. Not only the traditional fruit crops like apple, pear, cherry, almond, walnut need to be considered where improved cultivars, but concerted efforts are needed to expand area under quality temperate fruits like kiwi, strawberry, olive, etc. Quality of local nut types in almond and walnut need to be improved to make them competitive in the national and international market. This may require more attention in light of the state having been identified as an Agri-expo zone for these crops.



- Integrated soil fertility improvement and pest management strategies through vermicomposting, phospho-composting and use of bio-fertilizers to rejuvenate soil health as well as reduce cost of cultivation and reliance on chemical pesticides besides being environment friendly. However, it still needs to be disseminated more extensively in farmers participatory mode for effective farm management and ensuring high yield.
- Specialized farming of high value low volume crops like saffron and kala zeera. Sustainable production technology for saffron cultivation need to be extended to non-traditional and domestication of *Kala zeera* through standardization of agro technology.
- Ornamental flowers of high economic value could be a profitable vocation for generation of employment and meeting national demand of flowers. Commercial floriculture under protected conditions can also accrue considerable economic advantage to the growers.
- Zero energy cool chambers are on-farm storage chambers are constructed with locally available materials that keep the temperature 10-15°C less than the ambient temperature and maintains high humidity and helps for preservation of fruits and vegetables.
- Forage crops and natural grasses need to be intensively cultivated for dairy development in milk shed areas. Considerable feed production need be geared up particularly cereals, to help develop a potent and economically viable poultry industry. Diversification towards cultivation of fodder crops (leguminous / non-leguminous) is required to make adequate fed and fodder resources available to the livestock.
- Popularization of other traditional agricultural vocations requires considerable attention both by researchers and policy planners. Small cottage industries in the areas of sericulture, apiculture, mushroom cultivation, sheep rearing, rabbitary etc. need adequate attention and scientific development and growth. Earnest efforts are needed to revive these sectors to transform this hill region from a subsistence level to a prosperous and sustainable agrarian economy.
- Development of rainfed agriculture is another area of intervention. If proper varieties and resource management technologies such as mulching, water harvesting, etc are put in place, such areas will lead to sizeable production of cereals, vegetables, fruits.
- Cultivable waste lands can optimally be used for diversified cropping systems such as agri-silviculture, silvi-pastoral and other integrated farming systems to augment the



requirement of feed, fuel and fodder. By agriculture diversification and development of allied sectors, additional burden can be shifted thereby, making it remunerative.

- Popularization of diversified integrated farming systems among farming community such as mixed crop-livestock farming system (cattle, sheep, goat, fowl etc).

Conclusion

Although many challenges are there such as small and fragmented holding of land, lack of market facilities and non-availability of good planting material, lack of agro processing industries but technological advance and capital investment like farm electrification for cheap irrigation facility, investment in fertilizers, seeds, agriculture machinery and industrial facilities as well as education and advisory of skilful knowledge, can have huge potential to make diversification a success.