

SCOPE OF CROP DIVERSIFICATION IN EXISTING ORCHARD SYSTEMS OF KASHMIR

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ABSTRACT

Diversification in orchard system allows paradigm shift from one crop to another resulting in desirable changes in the existing cropping pattern towards a more balanced cropping system to meet the demands of the increasing population. It improves soil health as well as agro-ecosystem with socio-economic improvement of the people by taking into account the economic returns from different crops and other allied farming activities. Kashmir is an agrarian economy. Crop diversification in the existing orchard system in the valley has huge scope and potential which can dramatically improve the socio-economic condition of the farmer. In Kashmir sole dependence on staple crops alone cannot suffice the economic growth and development of the farmer. This paper attempts to showcase the scope of crop diversification in the orchard systems in the valley.

Keywords: Apiculture, Crop diversification, Kashmir, Orchard system, Sericulture.

I INTRODUCTION

Kashmir valley is predominantly an agricultural economy and agriculture plays a prominent role in its economic development and skimming off the rural poverty. As per horticulture department an area of 3.37 lakh hectares was reported under major horticulture crops for the year 2015-16 with 71% area under fresh fruits. Production of fruit during 2015-16 was 24.87 lakh metric tonnes comprising of 22.17 lakh metric tonnes of fresh fruit and 2.70 lakh metric tonnes of dry fruit [1]. Export of fruit outside state for the year 2015-16 as per Directorate of Horticulture (P&M) was 14.58 lakh metric tonnes and import of fruits and vegetables during the same year was recorded to be 13.25 lakh metric tonnes [1]. With the advent of modern agricultural technology there is a continuous surge for diversified agriculture in terms of crops, primarily on economic consideration.

Crop diversification provides ample options in the production pattern so as to get maximum production besides reduction in the risk of crop failure. Orchard system is gaining momentum in the state as its contribution to GSDP remains around 7-8% over the past few years. Crop diversification in the existing orchard system in the valley is being acknowledged due to its more profitability, generation of additional employment and improvement of socio-economical status of the rural people and conservation of the natural resources.



II SOME IMPORTANT FRUIT CROPS IN THE EXISTING ORCHARDS IN THE VALLEY INCLUDE

2.1 Apple

It is the most valuable fruit crop of the state, accounting for about 48% area as per horticulture census 2016-17 [2]. Some superior hybrids which can be adopted are Ambri, Red spur, Star crimson, Red chief, Golden, Delicious etc. Ambri cultivar is the monopoly of the valley.

2.2 Walnut

It is a highly nutritious fruit, being labeled as a health food. It has a special place in international trade and the varieties available for cultivation are kaagazi, burzul and wonth.

2.3 Cherry

It's the season's first crop to reach the market. Amongst various cherry varieties, Awal Number and Siyah Gole have a very good potential, as these are earliest to reach the market in the month of May. Makhmali is an excellent cherry variety. Amongst all varieties Misri, a late maturing variety, has high self life and better consumer acceptability.

2.4 Almond

It is the first fruit to bloom before appearance of the leaves amongst the deciduous fruits in the valley. There are two varieties available for cultivation – Burzul or Kaagazi and Bitter or Tyouth.

2.5 Pear

Pear is one of the important fruit crops next to apple in the valley. The varieties available for cultivation in the orchards are Naak, Gosha bug.

2.6 Apricot

Apricot is one of the most nutritive, delicious and commercially important fruit crop. The varieties in vogue in Kashmir are Kaashir or Local and Sweet Botta Tchair or Ladakh variety.

Area and production of important fruit crops in the orchard system in the Kashmir valley

Source: Digest of statistics (2014)

Fruit crop	Area (hec)	Production (metric tonnes)
Apple	142501	1915448
Pear	6837	72644
Apricot	899	4790
Peach	901	3570
Plum	1366	7391
Cherry	2805	10236

Walnut	50591	174941
Almond	6977	7052
Other dry fruit	44	21

Crop diversification has huge scope as it suppresses pest outbreak, lessens pathogen transmission, provides more diversity in the produce, improves resilience and reduces crop failure risk. Diversification in orchard system will help resist soil erosion, protect environment and agro-ecosystem, energy, increase rainfall precipitation and availability of water throughout the year and thus gives better social equity in the respects. In diversified agriculture, there is plenty and ample scope of development of agriculture and allied industries like seed, fertilizer, organics,vermicompost, irrigation , feeds, harvesting appliances.

III SOME PROMISING INCOME GENERATING DIVERSIFIED ENTERPRISES WHICH CAN BE ADOPTED IN THE EXISTING ORCHARD SYSTEMS IN THE VALLEY ARE AS FOLLOWS

3.1 Apiculture / bee-keeping enterprise

Apiculture gives high returns with social benefits. Honey bees give honey and other hive products which are of great economic importance besides its role in pollination. Increased profits from the apiary units can be obtained by exploiting bees for the production of royal jelly, bee venom, bee pollen and propolis. It has been estimated that bee pollination causes 180% minimum increase in yield in apple, 240% in pear, 67% in plum and 55% in cherry over self pollination [3]. 5-8, 2or above, 2-3, 1-3,and 2 hives per hectare are sufficient for almond, apple, cherry, peach and plum orchards respectively for enhanced pollination.

3.2 Fodder

It has been estimated that J&K is 27.31% deficit in dry fodder, 67% deficit in green fodder and 85% deficit in concentrates as a result of which animals are not able to fully express their genetic potential.in order to make sufficiency in fodder , the area under fodder cultivation can be increased from present 2.5-8% by adopting horti-pastoral system. In pre bearing orchards oats, rye grass (high biomass), perennial grasses like *Festucaarundinacea,Lolliumperene*, red clover , broom , timothy, orchard grass, , lupin can be cultivated.

3.3 Saffron

Increased demand in international and national market makes saffron a remunerative agricultural activity because of its high value. Saffron can be cultivated in apple, almond and walnut orchards as mixed crop. Although walnut is strongly allelopathic but saffron grows successfully under walnut trees because when saffron attains its vegetative phase, the other fruit crop is in its dormant phase and at the time of fruiting phase of apples, almonds and walnut, saffron remains in quiescent phase thus avoiding competition.

3.4 Sericulture



Sericulture can improve the economic condition of the rural people and also generate employment opportunities when taken as an enterprise in the existing orchard system in the valley especially in the mulberry orchards. Approximately 6680 q of raw silk of Rs50 cr worth is produced annually in the state. The valley has tremendous scope for cultivation of mulberry and development of biovoltinesilk. Some races and hybrids viz SKAU-R-1, SKAU-R-6 AND SKAU-HR-1 can be utilized for commercial exploitation.

3.5 Floriculture

The availability of diverse agro climatic condition of the valley enables growing of all kinds of flowers almost throughout the year and this sector can be included in the existing orchard systems for making efficient use of time and space. Flower crops generate an income of Rs 8-9 lakh/hect with an employment of 913-1210 man days/hect in the state. The demand for flowers as cut, loose, dry, potpourri bulbs, seeds, bunches, bouquets, ornamentals, fillers is substantially increasing both in national and international markets and thus creating an ample scope for the adoption of this sector in the present orchard system. Flowers like daffodils, lilies, peonies, chrysanthemum, rose, orchids can be adopted.

3.6 Vegetables

Vegetables which yield more economic benefits can be adopted for cultivation in the orchards to make the enterprise more profitable. Potato is a potential crop for export which can fetch good foreign exchange. Some other crops like carrot, cauliflower, tomato, onion, garlic, fenugreek, ginger etc can be simultaneously cultivated for increased returns per unit area. Moreover anti-oxidant property of curcumin, piperine from pepper, zingiberin from ginger, anti-cholesterol and anti-diabetic properties of garlic, onion and fenugreek can be exploited to brighten the future of the spice industry.

IV CONCLUSION

Adoption of crop diversification can eliminate the risks involved with the current system of crop specialization and monoculture and will result in enhanced resource use efficiency, nutrient recycling, reduced risk of uncertainty and improved soil condition. Diversification and value addition with fruits and vegetables will be the key words in the years to come. A paradigm shift in research focus is required. The analysis of the extent of diversification at regional level shows that Jammu is depicting specialization in food grain crops while Kashmir is progressing towards diversification. In the valley diversification is determined by some factors viz area irrigated road density, orchard size, rainfall etc.

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