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SPATIAL DIFFUSION OF ORCHARDS IN HIMACHAL PRADESH**Doctoral Dissertation Abstract (2002)****Author:** Navneet Kaur**Supervisor :** Prof. Dhian kaur

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The state of Himachal Pradesh has experienced considerable diffusion of orchards over the years. The area under various kinds of fruits has increased from 693.7 hectares in 1951 to 1.89 lakh hectares in 2004-2005 and the production increased from 1200 tones to 2.69 lakh tones during the same period.

It is important to mention that studies done on orchards of Himachal Pradesh are mostly based on district level data hence lack in many details. The accomplished doctoral dissertation sets a wider agenda for itself and has included the study of spatial patterns of diffusion of orchards in the state over a period of 4 ½ decades extending from 1951 to 1995. Tehsil has been taken as the basic spatial unit of the study area.

The study has been organized into eight chapters. It's first chapter provides a comprehensive view of physico-socio-economic background of the state. The second and third chapters relate themselves to the spatial patterns of diffusion of apple and other fruits. The fourth and fifth chapters aimed at tracing the determinants of spatial diffusion of orchards and impact of these orchards on ecology, society and economy of the state. The case studies of a few orchards to know the grass-root realities and the problems and prospects of orcharding in Himachal Pradesh have been dealt with in the following chapters.

The summary of conclusions has been given in the last chapter followed by a comprehensive bibliography in the end. The thesis incorporates text (pp.1-226), 13 tables, 40 figures and 3 graphs.

The compatible agro-climatic conditions, topography and socio-economic variables have led to a wide spatial spread of fruits (especially apple) in Himachal Pradesh. A shift from cultivation of food crops to fruit crops has been observed in the state and almost every district now specializes in the cultivation of one fruit or the other. The state has also earned itself a distinct place on the horticulture map of India. The spatial spread of fruits however varies markedly over the state.

Apple the most sought after fruit covered around 84,112 ha of total area under fruits in the state in 2003-04 and accounted for nearly 60 per cent of state's total production of fruits. It occupied only 10 per cent (134 ha) of total area under fruits in 1951 which was confined to a few pockets namely Mahasu, Kullu, Mandi, etc. from where it diffused to other parts of the state. The credit of discovering the potentialities of growing apple fruits in Himachal Pradesh goes to the American and European settlers and missionaries. The name of Samuel Nicholas Stokes is somehow glued with the apple cultivation in Himachal Pradesh

as he was the pioneer who actually brought the delicious apple varieties to Kotgarh block of Mahasu district (now Shimla). Today apple is confined to Shimla, Kulu, Mandi, Chamba, and Kinnaur districts of Himachal Pradesh. The state has earned its name as the "Apple State" of India.

The fruits (other than apple) are broadly categorized into temperate and sub-tropical fruits. The temperate fruits (excluding apple) grown in the state are peach, pear, plum, apricot, nuts and dry fruits such as walnut, hazelnut and almonds. Peach in this category is the most widespread stone fruits in the state and basically confined to several tehsils of district Sirmaur. This area is known as the "Peach Valley" of Himachal. After peach, nuts and dry fruits comprising of walnut, hazelnut and almonds are of importance. These are grown in Kinnaur, parts of Lahul, Kangra, Kullu Valley etc.

The sub-tropical fruits such as mango, litchi, loquat, ber, banana, guava and papaya are grown in the areas supporting a lower elevation. The prominent among these are the citrus fruits and mango which enjoy favourable growing conditions in tehsils like Poanta Sahib, Nahan, Palampur, Mandi Sadar, Joginder Nagar, Sunder Nagar, Chachyat, Karsog, Ani, Nalagarh, Hamirpur, Una, Amb, etc.

These fruits have shown both expansion and contraction in the area. Some fruits like nuts and dry fruits, citrus and mango have experienced expansion on a limited scale while a few others like plum and peach have experienced a contraction in area. Despite this the overall area under fruits is expanding and the state is heading towards becoming the 'Fruit Basket' of India.

The physical determinants of terrain, climate and soils have played a dominant role in the diffusion of fruit orchards in the state. The uneven terrain mostly in eastern and partially in the central and

south-western parts of the state has effected the planting of more trees on individual holdings. In the northern regions, very few growers were affected by the factors of difficult terrain but the problem of soil erosion and limited amount of rainfall was prevalent. Besides, the non-physical determinants have also affected the spread of orchards in Himachal Pradesh. The technological factors, market, development of transport network, coming up of various progeny-cum-demonstration orchards/ nurseries, regional research centres, establishment of Horticultural Produce Processing and Marketing Corporation (HPMC), the Y.S. Parmar University of Horticulture and Forestry which conducts *Kisan Melas* annually have given a major boost to the expansion of fruit orchards and displayed their impact from time to time. The political factors have also played an important role in the spatial spread of orchards.

The impact of diffusion of orchards has been directly upon the ecology of the state. The soil erosion has been reduced in several areas whereas on the negative side many grazing lands have gone out of use for grazing the livestock. The increased fruit cultivation has been responsible for deforestation for meeting the requirement of packing cases. Though the corrugated cartons and cartons prepared from wood of eucalyptus and poplar trees which is imported from neighbouring states is fulfilling most of this requirement.

The coming up of fruit orchards has brought a significant change in social life of the people especially quality of housing of growers of fruits in Himachal Pradesh. The standard of living has improved. There has also been a positive impact on the state's economy. It has been found that orchards were bringing higher returns as compared to field crops from the same amount of land. Hence, most of

the farmers replaced grain cultivation by planting fruit trees on considerable part of their farm-land. The state economy has also gained from diffusion of orchards by way of increase in domestic income and promotion of tourism. The cultivation of fruit trees on wider areas have added to the greenery of the state, which is an added attraction for thousands of tourists each year.

The process of diffusion of orchards however has been affected adversely by various problems such as unreliable rainfall, absence of adequate irrigation basically for apple crop. The fragmented land holdings, shortage of labour and packing material are some of the basic problems of the growers. The provision of

roads by the government although has been reported as a big facility by all the selected growers yet many villages in the interiors are still not linked by metalled roads. The facilities for storage of fruits during bad weather are also lacking. Besides, the marketing of fruits is a big problem.

In spite of these problems, persistence of higher profits from fruits cultivation has motivated the farmers not only to shift to orchard farming but also to plant fruit trees on many additional areas. This has provided a permanent green cover to the affected area and protection against soil erosion. Thus, the activity has bright prospects provided the problems related to it are taken care of.