PRODUCTION AND MARKETING OF MANGO IN HIMACHAL PRADESH

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EXECUTIVE SUMMARY

Abstract: *Mango is mainly grown in the lower areas of Himachal Pradesh. In the State, the area under this fruit is increasing manifolds as the farmers of lower areas have new plantations on a large scale due to acute shortage of labour because field crops cultivation is mainly labour intensive and returns from mango cultivation are far higher them that of field crops. The present study is confined to two districts namely Bilaspur and Kangra selected on the basis of area and production. The main varieties grown in these two districts are Dushehari and Langra besides Desi mangoes. The study examines the cost of production, marketing system and the problems of mango producers. The results of the study reveal that the total annual maintenance cost was Rs. 17,293 in the age group of 0-5 years and Rs. 22,638 in the age group of above 25 years. This cost was observed to be more in Kangra as compared to Bilaspur. The net returns were also relatively higher in Kangra as compare to Bilaspur. Overall, net returns were observed to be Rs. 207200, 223505 and 207050 for the age group of 5-15, 15-25 and 25 and above respectively. The producer's share in consumer's rupee was 71 and 87 percent for Delhi and Chandigarh markets respectively. Problems of mango producers with respect to grading, packing, packing material, storage, transportation, marketing intelligence, malpractices in the market etc. are also discussed in detail in the present study.*

Objectives of the Study

i) To study the trends in area, production and productivity of mango in the state;

ii) To study the cost of cultivation of mangoes;

iii) To study the marketing system of mangoes in the study areas;

iv) To study the problems of mango producers and to suggest the future strategies for development of mangoes in H.P.

Methodology

In the present study multistage stratified random sampling technique has been used to finalize the sample for detailed study. In the first stage two districts of state were chosen on the basis of area and production of Mango. District Kangra was on the first place in this respect and district Bilaspur was occupying the second place. Both these districts formed the primary sample unit of the study. From the selected districts two development blocks each with largest area under mangoes were selected. In this manner, blocks Bilaspur Sadar and Jandhuta in district Bilaspur, Indora and Nurpur in Kangra district were selected. From selected village a random sample of 25 mango orchardists was selected for detailed study.

Main Findings:

Area, Production and Productivity of Mangoes in Himachal Pradesh:

Mango is grown in all the districts except Kinnaur and Lahaul-Spiti districts in Himachal Pradesh. The cultivation of Mango is carried out in low hills and valleys of the state. During 1990-91 to 2002-2003 the area under mango in the state has increased by about 57 per cent. The maximum area under mango is in Kangra district, followed by Bilaspur, Mandi, Solan and Sirmour districts. But, the growth in area over the years is highest in Kullu (341%), followed by Sirmour (157%), Shimla (116%) and Una (99%). However, this means that other districts have now also started paying more attentions to this crop. Over all, area under mango has increased from 19,754 hectares to 30,933 hectares during the period under reference. This growth in area may be attributed to high profitability of mango orchards relative to other farming possibilities. Mango production in Himachal Pradesh during the period 1990-91 to 2002-03 has increased significantly from 11,748 metric tones to 25,311 metric tonnes with 115 percent over a period of more than two decades. However, the productivity of mango in the state is still much less as compared to the national average.

Profile of Sampled Mango Orchardists:

The family size is an important determinant of the consumption and the resources available for investment on the farms. The average family size at overall level was found to be 6.4 persons per family. Regarding educational level, majority of sampled population was literate and about 94 per cent male and 85 per cent female population were literate in the present study. Analysis reveals that agriculture is primary occupation of only 40 per cent of the sampled male workers and 75 per cent female workers. The service was the next important primary occupation absorbing about 23 per cent male and 3 percent female work force. Field crops were grown in 0.80 hectare of which 0.35 hectare was irrigated. Orchards in total occupied 1.28 hectares of total land holdings and almost 50 per cent of this was irrigated.

Analysis reveals that at over all level maize accounted for 20 per cent of the irrigated and 26 per cent of un-irrigated area where as paddy accounted for only two percent of each. In Rabi season wheat accounted for 19 per cent of irrigated and 23 per cent of un-irrigated area and Barley was found on 3 per cent of irrigated and 5 per cent of an un-irrigated area.

Livestock profile reveals that at overall level each farm had 1.20 bullocks, 2 heads of milch cattle, 0.16 goat, 0.04 sheep and 1.04 heads of other livestock.

General Features of the Market:

The present study was conducted in two markets i.e. Chandigarh and Azadpur at New Delhi. All basic amenities are available in the markets under study like suitable space for auction, covered shed, storage, sanitary facilities, telephone, etc. The markets also have separate market intelligence cells.

Growers and dealers coming from distant places face no problem of boarding, loading, storage, transportation, advance payments and market information etc. The mode of payment is based on the decision of sellers and can be cash, cheque or demand draft in both the study markets. In Chandigarh, all the commission agents deals with mango. In Delhi market there are 2146 registered commission agents out of which only 12 deals with mango.

Mango growers for marketing their produce generally use the following channels:

1. Producer- Consumer
2. Producer- Forwarding Agent- Commission Agent- Wholesaler- Retailer- Consumer
3. Producer- Producers Co-operative- Wholesaler – Retailer - Consumer
4. Producer- Pre-harvest contractor – Commission Agent/ Wholesaler- Retailer – Consumer.
5. Producer-Wholesaler- (self as forwarding agent)- Retailer- consumer.
6. Producer- Commission Agent (self as forwarding agent) Wholesaler - Retailer- Consumer.
7. Producer- HPMC- Wholesaler-Retailer- Consumer.
8. Producer- Processing unit-consumer.

Among the eight channels listed above, the second channel is most important for marketing of mango.

Generally there is a wide gap between the price paid by the consumer and that received by the producer. The rate of commission differs from state to state. The prescribed rate of commission in Chandigarh is five percent while in Delhi it is eight percent. Although, legally the commission can be charged only from buyers, but in actual practice commission was being charged from both buyers and sellers in Delhi market.

Cost and Returns from Raising Mango Orchard in Himachal Pradesh:

On an average 160 plants of grafted variety are planted in a hectare. The average total cost of establishment of mango orchard was Rs. 17,379 per hectare. The initial cost ranges between Rs.16,283 per hectare in Kangra district to Rs. 18,173 per hectare in Bilaspur district.

Annual maintenance cost on the farms of Bilaspur district was Rs.17097 in the age group of 0-5 years and Rs.22117 in the age of above 25 years where as it was Rs.17,388 and Rs.22,810 respectively in Kangra district. On the whole total maintenance cost was Rs.17,293 in age group of 0-5 years and Rs.22,638 in age group of above 25 years.

On the whole net returns on marginal farms ranged between Rs 2,05,119 to Rs.2,01,477 per hectare. In the case of small farmers at overall level net returns ranged between Rs. 211204 to Rs. 227026 per hectare. On all farms of medium category the returns were Rs. 204903 and 208295 per hectare in the age group of 5-15 years and above 25 years respectively. The returns were relatively higher on sampled farms of Kangra district as compared to Bilaspur district. Further study reveals that the returns were comparatively more in the age group of 15-25 years and lesser in the age of above 25 years.

Problems in Marketing of Mango:

Efficient marketing strategy especially for horticulture produce, depends mainly on the decision on where, when, how much to market. Increase in production, productivity is not only the factor, which maximizes profit, but other factors such as time of picking, time taken in transportation, role of middlemen are also important. In this regard study reflects that at over all level 27 per cent of the farmers reported that there was a shortage of skilled labour. The problem was more acute for marginal category of farmers and became less severe as the size of holding increased.

At overall level thirty three percent of the sampled orchardists felt that wages of the skilled labour were high. This problem was more acute for small farmers (45 percent) at overall level. The incidence of this problem was high in the developed blocks in both the districts. The study reveals that at over all level 43 per cent of the sampled orchardists felt the shortage of skilled labour and 46 per cent felt that the wages of labour were higher. About 32 per cent orchardists were constrained due to non-availability of labour whereas 27 per cent did not feel any problem in this regard.

Most common problem related by 65 per cent of the orchardists was that the packing material was not available on credit where as 62 per cent revealed that packing material was not available at desired place.

Study reveals that 85 per cent of the sampled orchardists had no storage facilities at all and the rest 15 per cent had inadequate storage facilities. The study indicates that overwhelming majority of the respondents (88 per cent) had no problems what so over in this concerned. Although there was no lack of vehicles for transportation, about 12 per cent respondents complained that sometimes vehicles were not available well in time.

Majority of the orchardists (67 per cent) thought that the information available was in-adequate and it was risky to base the marketing decisions on such inadequate information. Study revealed that most acute problem faced by 45 per cent of the respondents was that the traders do not take the consent of farmers while selling. Due to this, many times the product is sold at lower prices.

The respondents revealed that the facilities of processing and cold storage are hardly available to them, 65 per cent revealed that there are no cooling facilities available and 58 percent revealed that no cold storage facility was available to them.

Regarding the problem of support of procurement price policy, about 8 percent respondents felt that the prices are not paid in time and 13 percent reported that such prices are low as compared with ruling market prices.

Chapter -1

INTRODUCTION

Relevance of the Study

Fruits are important not only because they are a source of income and employment to the producers but also because they add quality to diet. Balanced diet that contains both calorie yielding and body building foods promotes healthy growth of human body. The Indian Council of Medical Research has recommended 3 ounces of fruits per capita per day. But the per capita consumption of fruits in India is less than one ounce as compared to 4 to 16 ounces in the developed countries like U.S.A., Canada and the United Kingdom. Such low per capita consumption of fruits is mainly because of non-availability of fruits through out the year.

The mango has been acknowledged as an excellent fruit from the ancient times and has been liked by adults and infants alike. Among all the fruits, mango occupies a special status being an oldest introduction on the Indian land from the far East. Originally mango is a native of South Asia. However, this was and continues to be the choicest fruit of this country. In India the mango tree is a part and parcel of rural life. Moreover, it is the only fruit, which is put to multifarious uses right from its first stage of development to maturity and ripening stage. No other fruit has so much diversification in its use. In India the mango is produced in almost all the states. In the beginning the production of this fruit was confined to few states viz. Uttar Pradesh, Andhra Pradesh, Bihar and Maharashtra, Gujarat, West Bengal, Karnataka and Kerala only. But now most of the states have entered in its cultivation in which Punjab, Haryana and Himachal Pradesh are the new entrants. The main varieties grown in India are Alphonso, Dashehari, Langra, Bombay Green and Chausa etc. In the States of West Bengal, Andhra Pradesh and Tamil Nadu, Banganpalli, Neelum, Bangalora and Swarnarekha are commonly grown.

Himachal Pradesh by and large is hilly and the agro climatic conditions found in the large part of the state restrict the cultivation of field crops but offer great scope for the development of forestry and horticultural industry. Earlier the state was known for the production of temperate fruits but in the recent past, mango cultivation has gained momentum. Mango in

the state is mainly grown in the lower areas such as Bilaspur, Kangra, Hamirpur, Una and parts of Mandi, Solan and Sirmour districts. The main varieties grown in these districts are Dashehari and Langra besides Desi mangoes. In this State the area under this fruit is increasing manifolds day by day as the farmers of lower districts of the Pradesh have started planting new orchards on a large scale and have started switching over from the traditional field crops cultivation to mango cultivation. The basic reasons for such change is that at the one hand farmers are facing acute shortage of labour because field crops cultivation is mainly labour intensive and on the other hand returns from mango cultivation are far higher than that of field crops. The farmers of these districts are optimistic that the mango cultivation will help in improving their economy.

The area under mango was about 27,697 hectares during 1995-96. The production of this fruit was merely 1345 tonnes during 1977-78 and has increased to 3987 tonnes during 1995-96. Bilaspur district ranks first (area wise) because in this district about 2.45 per cent area was reported under this fruit. Kangra district ranked record and it has about 2.43 per cent area, slightly less than Bilaspur. Therefore, the present study is confined to these two districts only with the following objectives:

Objectives of the Study

v) To study the trends in area, production and productivity of mango in the state;

vi) To study the cost of cultivation of mangoes;

vii) To study the marketing system of mangoes in the study areas;

viii) To study the problems of mango producers and to suggest the future strategies for development of mangoes in H.P.

Sampling Design

Multistage stratified random sampling technique has been used to finalize the sample for detailed study. In the first stage two districts of the state were chosen on the basis of area and production of mango. District Kangra was on the first place in this respect and district Bilaspur was occupying the second place. Both these districts formed the primary sampling unit of the study. From the selected districts two development blocks each with largest area under mangoes were selected. In this manner, blocks Bilaspur Sadar and Jandhuta in district Bilaspur, Indora and Nurpur in Kangra district were selected. The details have been

provided in Table 1.1. From each selected block one revenue village each was randomly selected. From the selected village a random sample of 25 mango orchardists was randomly selected for detailed study. Thus, the study has been based on a random –cum-purposive sample of 100 orchardists located in four villages of four blocks in two districts.

Table-1.1: Sampling Details

District	**Bilaspur**		**Kangra**	
Blocks	Bilaspur Sadar	Jandhuta	Indora	Nurpur
Village	Jukhala	Rishikesh	Indpur	Raja-ka-Talab
Sample	25 orchardists	25 orchardists	25 orchardists	25 orchardists

Classification: The sample of 100 orchardists has been divided into three size classes as per standard size classification. The sample has been divided into three categories because no orchardists of large category were encountered in the sample. The details have been presented in Table 1.2. It may be seen from the table that 36 per cent of the sample was classified as marginal, 33 per cent as small and the rest 31 per cent as medium category farmers.

Data Collection: Data was collected from the selected orchardists on pre-designed and pre-tested schedules by personal interview method. The primary data thus collected was supplemented with secondary data collected mainly from the records of department of Horticulture.

Data Analysis: Tabular analysis has been carried out mainly in order to arrive at the conclusions.

Table-1.2: Size Classification of Selected Mango Orchardists

Category	Marginal	Small	Medium	All
Bilaspur				
Bilaspur Sadar	9 (36.0)	7 (2.80)	9 (36.0)	25 (100.0)
Jandhuta	10 (40.0)	10 (40.0)	5 (20.0)	25 (100.0)
Total	19 (38.0)	17 (34.0)	14 (28.0)	50 (100.0)
Kangra				
Indora	6 (24.0)	10 (40.0)	9 (36.0)	25 (100.0)
Nurpur	11 (44.0)	6 (24.0)	8 (32.0)	25 (100.0)
Total	17 (34.0)	16 (32.0)	17 (34.0)	50 (100.0)
All	36 (36.0)	33 (33.0)	31 (31.0)	100 (100.0)

Note: Figures in parenthesis are the percentages from respective total.

Methods of Measurement of Marketing Margins:

There are three methods generally used for the calculation of marketing margins[1] which are as follows:

(a) Following the specific lot of consignment through the marketing system and then assessing the cost involved at each of the different stages.

(b) Summation of average gross margins obtained by dividing money value of sales minus money value of purchase by the number of units transacted for each type of marketing agency.

(c) Comparison of prices at different levels of marketing over the same period of time.

None of the above methods is perfect and each has its own merits and demerits.

However, for this study, the first method was found to be more suitable as in case of perishable commodities the time-gap between the commodity when it enters the market and when it reaches to the consumer is comparatively short whereas, in case of non-perishable items like grains, it is not so.

1.Mirchandani, R.T. and Faruqi, N.Y.Z., " Price Spread and Marketing Efficiency", paper published in Seminar Series V, Seminar of Marketing of Agricultural Commodities, Indian Society of Agricultural Economics, Bombay, April 1965, p. 157.

Concepts and Definitions

Bearing tree: A tree of bearing age has been defined as a tree which has attained the specified age irrespective of the fact whether during the reference period it bore fruit or not. This age has been taken to be five years after planting.

Non-Bearing Tree: A non-bearing tree has been defined as a tree, which has not reached the bearing age.

Orchard: An area having at least ten mango plants has been defined as an orchard irrespective of its geographical contiguity or scatteredness.

Orchardist: Any person owning an orchard has been defined as an orchardist.

Main Occupation: The main occupation of a person is taken to be that activity from which a person gets his largest income.

Subsidiary Occupation: The subsidiary occupation has been taken as the occupation from which a person gets his second largest income.

Picking: Means harvesting of the fruits.

Grading: Means separation of the fruits into various lots according to quality and size of each fruit.

Productivity: Average yield per fruit bearing tree in terms of weight.

Marketable Surplus: The quantity of fruit, which can be marketed after fulfilling the domestic needs.

Marketed Surplus: Refers to the quantity of the produce actual marketed.

Distributing Market: Distributing market has been defined as one where the produce from the producing areas comes first and from where some part of it is redistributed to other markets.

Consuming Market: A market, which utilizes most of its supplies for local consumption.

Assembling Point: Assembling point has been defined as a place where the growers assemble their fruit for the purpose of transporting to various distributing and consuming markets.

Pre-harvest Contractor: Pre-harvest contractor is one who buys the standing crop from the growers i.e. they buy the crop before its harvest and undertakes to perform all the marketing operations including picking at their own risk and cost.

Commission Agent: The Commission agent, also known as ' Katcha Arhatia' acts as a seller for the goods booked to him by the growers. He charges commission for his services but does not take the title of the goods.

Wholesaler: A wholesaler is one who buys and sells produce in bulk at his own risk. He takes title of the goods.

Wholesaler-cum-commission Agent: A wholesaler-cum-commission agent also known, as 'Pucca Arhatiya' is one who performs both the functions of commission agent as well as wholesaler.

Retailer: The retailers an intermediary in the marketing channel, usually licensed, who undertakes the job of retailing and caters to the needs of consumers. He generally keeps a small establishment such as a shop with weighing equipments.

Forwarding Agent: Forwarding agents perform the function of forwarding the produce to the destination and to the person for whom the produce has been marked by the consignor. He charges his fee for the service from the consignor.

Marketing Margin or Price Spread: Marketing margins refer to the difference between the price received (after deducting all marketing expenses incurred) by the grower and that paid by the consumer. This difference is also often called 'Price Spread'.

Chapter – II

AREA, PRODUCTION AND PRODUCTIVITY OF MANGOES IN HIMACHAL PRADESH

Horticultural industry in the State has developed as a business proposition since independence. But most of the development has taken place after the establishment of a separate Directorate of Horticulture in 1970. The area under fruits has increased from 44,330 hectare in 1970-71 to 2,12,951 hectare in 1999-2000. Likewise the production too increased from 1,48,580 tons in the year 1970-71 to 3,76,736 tones during the same period.

It is however, 'mango' which occupies the top place among all sub-tropical fruits grown in low hills due to highest per hectare returns. Mango alone accounts for about 13 per cent of the area and 2 per cent of the production of all sub-tropical fruits in 1999-2000. Thus mango is of great importance to the economy of sub-tropical region in Himachal Pradesh. Further, with the development of mango industry in the State, some small-scale allied industries such as saw mills, fruit processing units, etc. are coming up and which will ultimately provide employment to local people.

History

The mango is indigenous to Northeast India and north Burma, in the foothills of Himalayas and is said to have originated in the Indo-Burma region (De Candolle 1904; Popenoe 1920, Mukherjee 1951a).

The mango was found throughout South-East Asia and the Malaya archipelago in early days. The Chinese literature of the seventh century describes it as an important fruit crop in the warmest parts of china and Indo-China. When the Portuguese opened the sea routes to the Far East at the beginning of the 16th century, the mango became known in the Western world and its worldwide distribution started. From Indo-China it traveled to the islands of Mindanao and the sulu of the Philippines through Muslim missionaries some time towards the beginning of the 15th century. However, it was not until the end of the 15th century and early 16th century that Spanish voyagers carried the fruit from India to the Philippines.

The Portuguese introduced the mango from Goa into South Africa and from there into Brazil about the beginning of the 18th century. About the middle of the 18th century, it was introduced into Barbados in the West Indies, whence some plants reached Santo Domingo. During the course of traffic between the Philippines and the western coast of Mexico in the 17th and 18th centuries, the Spanish introduced the crop into their tropical American colonies. Jamaica received it from Barbados in 1782 and other West Indian islands in the early part of the 19th century. Mangoes were introduced from Mexico into Hawaii in 1809 and California about 1880, while the first permanent planting in Florida dates around 1861.

Egypt imported budded plants of mango from Bombay first in 1825 and these established themselves successfully (Singh, 1960). In Israel the first successful attempt to introduce mixed mango stones from Egypt was made in 1929. From then onwards varieties of mango have been carried there from South Africa, Indonesia, Florida, India and Egypt. Now there are flourishing orchards of mango in Israel.

Thus, besides India, mango is now being cultivated commercially in a number of countries. In South-East Asia, mention may be made of the Philippines, Indonesia, Thailand, Burma, Malaysia and Sri Lanka. Other important countries growing mango are Egypt, South-East Africa, South Africa, Israel, Tropical Australia, the U.S.A. (Hawaii and Florida), Mexico, Brazil, Cuba and the islands of the West Indies.

Soil and Climatic Requirements

Although a tropical fruit, the mango grows equally well under semi-tropical conditions. Seedling trees have been observed growing even at an altitude of 1400 metres but fruiting is poor above 500 metres. It thrives equally well from Kanya Kumari in southern India to sub mountainous regions in the North. The annual mean temperature at which mango thrives best is around 26.7^0 C. The optimum growth temperature for mango has been reported to be 23.9^0 C to 26.7^0 C (Woodrow, 1910). If the temperature is below 1.1^0 C the mango plants are adversely affected by frost. Sturrock (1951) reported from Florida that short spell of -3.3^0 C and consequent long-drawn-out cold spell led to the drying out of the young shoots and leaves of mango plants, killing the tree from the top down to point where the bark was thick and the sap moved very slowly. Popenoe (1920) also reported that young mango trees in vigorous growth may be injured seriously by a temperature of 0^0 C.

Important Commercial Varieties

There are hundreds of varieties in mango out of which only a few happen to be of commercial importance. Different regions of the country have their own commercial varieties because, as has already been indicated in the beginning, a particular variety of mango is not expected to perform equally well under different sets of climatic factors prevailing in various parts of the country. The most well known varieties throughout the country are 'Dashehari', 'Langra', Alphonso', and 'Banganpalli' Amarapalli, Mallika and Neelam. Thus the choice of a commercial grower in north India is mostly confined to 'Bombay Green' (early), 'Langra', 'Dashehari' and 'Samar-behisht', 'Chausa'.

Cultural Schedule and its Importance

One of the important schedules in mango orchard management is maintenance of excellent sanitary conditions in the orchard and regular pruning of the malformed parts (both vegetative and floral) in the tree, if any. This will ensure reduced incidence of mango malformation.

Proper irrigation of trees particularly during summer is very essential to get quality crop from the bearing trees and proper growth in young plants. While bearing tree ought to be irrigated at an interval of a fortnight during summer, younger plants need weekly irrigation.

Trees must be regularly observed for any set back due to one cause or the other and steps must be taken immediately to remedy it. A proper round the year cultural schedule must be drawn up before hand and operations done as per schedule. This will ensure production of quality crop from healthy mango trees. A monthly Calender of operations followed at the Horticultural Research Centre, Patharchata, G.B. Pant University of Agriculture and Technology, Pant Nagar, is being given below to give an idea of the operations in a mango orchard of 20-year-old trees.

Monthly Calendar of Operations

Month	Fortnight	Operation
January	I	Smoking
	II	Fertilizer application
February	I	Harrow
	II	First Spray - Thiodan 0.2%, Sulphur (Karathane), 60g in 100 litres
March	I	Second spray Thiodan 0.2%, Sulphur (Karathane), 60 g in 100 litres
	II	Irrigation Cleaning of tree basins
April	I	Irrigation Third Spray – Thiodan and Sulphur
	II	Irrigation Ist Sprary - Metasystox 0.1% Ist Spray - Blitox 0.125%
May	I	Irrigation
	II	Irrigation Watching against birds
June	I	Irrigation Watching against, birds Basin cleaning
	II	Irrigation Protection against birds Collection of dropped fruits
July	I	Harrowing Harvesting
	II	Harvesting -Fertilizer application Harrowing. Ist spray-Blitox- 0.125%
August	I	IInd spray -Fertilizer application Harrowing. Ist spray-Blitox- 0.125%
	II	-
September	I	IInd Spray -Metasystox and Blitox
	II	IIIrd Spray - Metasystox and Blitox
October	I	Basin Cleaning Irrigation
	II	-
November	I	Irrigation
	II	-
December	I	Pruning of dead and diseased wood, digging of basins
	II	Mix B.H.C. dust @ ½ kg/tree in the soil around the trunk Smoking, Irrigation (light)

Nutritional Advantage

A comprehensive report on the chemical composition of mango has been published by the Indian Council of Medical Research in the special report series No.42 (1966). More than 25 varieties of mangoes have been analysed. The following is the range of chemical constituents present in mango according to this report.

Moisture	73.9 to 86.7	Per cent
Carbohydrate	11.6 to 24.3	,,
Protein	0.3 to 1.0	,,
Fat	0.1 to 0.8	,,
Minerals	0.3 to 0.7	,,
Vit. A	650.0 to 25,940	I. U.
Vit. C	3.0 to 83	mg/100g

Sugars constitute the main bulk of the carbohydrates and most of the soluble solids in ripe mango.

Area Production and Productivity of Mango in Himachal Pradesh

Mango is grown in all the districts except Kinnaur and Lahaul-Spiti districts in Himachal Pradesh. The cultivation of Mango is carried out in low hills and valleys of the state. A cursory glance on Table-2.1 reveals that during 1990-91 to 2002-2003 the area under mango in the state has increased by about 57 per cent. The maximum area under mango is in Kangra district, followed by Bilaspur, Mandi, Solan and Sirmour districts. But, the growth in area over the years is highest in Kullu (341%), followed by Sirmour (157%), Shimla (116%) and Una (99%). From the point of view of absolute area, these districts have small proportion to total area of the state and therefore do not affect the total picture significantly. However, this means that other districts have now also started paying more attentions to this crop. Over all, area under mango has increased from 19,754 hectares to 30,933 hectares during the period under reference. This growth in area may be attributed to high profitability of mango orchards relative to other farming possibilities.

The production of Mango is too much dependent upon the availability of irrigation, variety and age of plants. Also, mango is an alternative bearing crop, therefore, there can be large

fluctuation in its production. The mango production in Himachal Pradesh during the period 1990-91 to 2002-03 has increased significantly from 11,748 metric tones to 25,311 metric tonnes with 115 percent growth over a period of more than two decades. The declined trend in production of mango was observed in Una district. This may be due to the relatively new plantation and low productivity due to certain soil and climatic factors. The production of mango during the period of two decades was recorded higher growth in mango production except Hamirpur district as compared to the state as a whole. Kangra district alone accounts for 53 percent of total production of the state and the same have increased significantly with 174 per cent growth during the period under study. However the productivity of mango in the state is still much less as compared to the national and international average.

Table-2.1: Area Production and Productivity of Mango in H.P.

Districts	1990-91			1991-92			1992-93		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1.Shimla	90	19	0.21	90	5	0.05	90	10	0.11
2. Kullu	22	2	0.09	22	-	0	22	-	0
3. Mandi	1884	595	0.32	1914	256	0.13	1974	415	0.21
4. Chamba	399	95	0.24	404	31	0.08	432	90	0.20
5. Kinnaur	-	-	-	-	-	-	-	-	-
6. Lahaul & Spiti	-	-	-	-	-	-	-	-	-
7. Kangra	11032	4886	0.44	11716	1260	0.10	12449	7629	0.61
8. Solan	1063	39	0.03	2	25	12.5	-	30	0
9. Sirmour	1141	547	0.48	1410	202	0.14	1651	716	0.43
10. Bilaspur	2158	1047	0.49	2307	278	0.12	2451	559	0.22
11. Una	924	3694	4.00	934	505	0.54	1016	5407	5.32
12. Hamirpur	1041	824	0.80	1128	125	0.11	1251	503	0.40
Total	19754	11748	0.59	21035	2687	0.13	21336	15359	0.72

Contd…….

Table-2.1: Contd……

Districts	1993-94			1994-95			1995-96		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1.Shimla	94	-	0	94	3	0.03	99	4	0.04
2. Kullu	22	-	0	25	-	0	43	-	0
3. Mandi	2066	80	0.03	2237	212	0.10	2402	140	0.05
4. Chamba	481	20	0.04	506	119	0.23	553	19	0.03
5. Kinnaur	-	-	-	-	-	-	-	-	-
6. Lahaul & Spiti	-	-	-	-	-	-	-	-	-
7. Kangra	12771	340	0.02	14072	4640	0.32	14965	1682	0.11
8. Solan	1253	9	0.00	1327	-	0	1382	15	0.01
9. Sirmour	1872	172	0.10	2032	397	0.20	2154	255	0.11
10. Bilaspur	2637	90	0.03	2835	40	0.01	3077	392	0.12
11. Una	1070	250	0.23	1246	3670	3.04	1366	1295	0.95
12. Hamirpur	1374	49	0.03	1482	158	0.10	1656	185	0.11
Total	23660	1010		25852	9600		27697	3987	

Contd…

Table-2.1: Contd…

Districts	1996-97			1997-98			1998-99			1999-2000		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1.Shimla	99	5	0.05	106	8	0.07	128	10	0.07	133	25	0.18
2. Kullu	43	-	-	59	10	0.17	73	16	0.21	77	20	0.25
3. Mandi	2402	130	0.05	2607	168	0.06	2695	311	0.11	2795	480	0.17
4. Chamba	553	19	0.03	570	108	0.18	583	124	0.21	591	116	0.19
5. Kinnaur	-	-	-	-	-	-	-	-	-	-	-	-
6. Lahaul & Spiti	-	-	-	-	-	-	-	-	-	-	-	-
7. Kangra	14966	1650	0.11	14443	9155	0.63	15223	8505	0.55	15833	4040	0.25
8. Solan	1382	14	0.01	1477	92	0.06	1542	26	0.01	1572	103	0.06
9.Sirmour	2154	250	0.11	2279	1014	0.44	2383	1696	0.71	2533	1860	0.73
10.Bilaspur	3076	390	0.12	1879	180	0.09	2386	541	0.22	2686	875	0.32
11. Una	1366	1295	0.95	1377	793	0.57	1485	3627	2.44	1585	945	0.60
12. Hamirpur	1656	185	0.11	1511	177	0.11	1811	2040	1.12	2028	950	0.47
Total	27697	3938		26308	11759		28299	16892		28833	9414	

Contd…

Table-2.1: Contd..

Districts	2000-2001			2001-2002			2002-2003		
	Area	Production	Productivity	Area	Production	Productivity	Area	Production	Productivity
1.Shimla	142	4	0.03	169	9	0.05	194	52	0.27
2. Kullu	83	6	0.07	88	0	0	97	12	0.12
3. Mandi	2931	173	0.06	3035	786	0.26	3165	609	0.19
4. Chamba	603	25	0.04	619	845	1.37	662	546	0.82
5. Kinnaur	-	-	-	-	-	-	-	-	-
6. Lahaul & Spiti	-	-	-	-	-	-	-	-	-
7. Kangra	16277	7514	0.46	16689	19567	1.17	17390	13383	0.77
8. Solan	1637	44	0.03	1705	466	0.27	1804	371	0.21
9.Sirmour	2662	1366	0.51	2806	561	0.20	2932	3250	1.11
10.Bilaspur	2813	596	0.21	3001	1270	0.42	3223	2231	0.69
11. Una	1680	2161	1.29	1698	2190	1.29	1839	3416	1.86
12. Hamirpur	2105	1209	0.57	2227	1050	0.47	2378	1441	0.60
Total	30933	13098		32037	26744		33684	25311	

Chapter-III

PROFILE OF SAMPLE MANGO ORCHARDISTS

For the adoption of modern agriculture, Government initiation, though essential, is not the only factor but the attitude of the people who have to adopt such innovation is more important. Therefore, before going into the details of the study, it will be better to have an idea about the socio economic resources of the sample farmers. The availability of resources on the farms includes human resources, land resources, and other resources such as capital resources. The utilization pattern of these resources for the production of agricultural products is an important aspect for examining the past, present and future of the crop. The better use of these resources can certainly be resulted into generating enough income to feed family members and to achieve higher level of living. In this chapter family size, educational level of the household, work force and occupation pattern of the household workers has been discussed. The land utilization pattern and age-wise distribution of Mango plant among different categories of farms have also been examined.

Farm Family Size

The family size is an important determinant of the consumption and the resources available for investment on the farms. It is therefore desirable to have smaller family size so that enough resources could be spared for investment and hence the farm development. The average family size of different categories in both the districts and blocks has been presented in Table 3.1. The table reveals that at overall level out of the total sampled population of 639 persons, 56 percent were male and the rest female indicating the lop sided sex ratio in the sampled families. The picture was almost same among all the categories with the worst scenario among the medium farmers. The average family size at overall level was found to be 6.4 persons per family and was highest among the small farmers and least in the marginal. It may be further the seen from the table that the average family size was considerably smaller in the developed blocks of both the district as compared with under developed blocks.

Table- 3.1: Age wise Distribution and Family size

(% age)

Category	0-5		5-14		14-18		18-60	
	Male	Female	Male	Female	Male	Female	Male	Female
Bilaspur								
Developed Block								
Marginal	-	-	21.0	19.0	7.0	10.0	65.0	57.0
Small	9.0	6.0	13.0	17.0	-	-	65.0	66.0
Medium	3.0	4.0	29.0	13.0	10.0	-	45.0	78.0
All	2.0	3.0	17.0	16.0	5.0	3.0	66.0	68.0
Under Developed Block								
Marginal	6.0	8.0	13.0	24.0	13.0	11.0	62.0	43.0
Small	10.0	-	19.0	16.0	5.0	24.0	56.0	52.0
Medium	5.0	6.0	15.0	12.0	-	-	60.0	59.0
All	6.0	4.0	22.0	19.0	6.0	14.0	53.0	50.0
Kangra								
Developed Block								
Marginal	6.0	8.0	13.0	15.0	12.0	15.0	63.0	62.0
Small	13.0	8.0	7.0	4.0	7.0	20.0	79.0	68.0
Medium	15.0	-	12.0	6.0	-	12.0	65.0	71.0
All	12.0	5.0	10.0	7.0	6.0	16.0	67.0	67.0
Under Developed Block								
Marginal	12.0	4.0	10.0	16.0	2.0	4.0	69.0	68.0
Small	15.0	10.0	22.0	30.0	7.0	5.0	52.0	50.0
Medium	5.0	4.0	18.0	8.0	11.0	4.0	53.0	71.0
All	10.0	6.0	16.0	17.0	7.0	4.0	59.0	64.0
Overall								
Marginal	6.0	5.0	18.0	20.0	7.0	9.0	60.0	55.0
Small	12.0	5.0	16.0	16.0	5.0	15.0	60.0	58.0
Medium	6.0	4.0	16.0	10.0	5.0	4.0	61.0	70.0
All	8.0	5.0	17.0	15.0	6.0	10.0	62.0	61.0

Contd……

Table: Contd…

Category	60 & above		Total			Family size
	Male	Female	Male	Female	Total	
Bilaspur						
Developed Block						
Marginal	7.0	14.0	58.0	42.0	50(100.0)	5.6
Small	13.0	11.0	56.0	44.0	41(100.0)	5.9
Medium	13.0	4.0	57.0	43.0	54(100.0)	6.0
All	10.0	10.0	57.0	43.0	145(100.0)	5.8
Under Developed Block						
Marginal	6.0	14.0	51.0	49.0	75(100.0)	7.5
Small	10.0	8.0	52.0	48.0	79(100.0)	7.9
Medium	20.0	23.0	54.0	46.0	37(100.0)	7.4
All	13.0	13.0	52.0	48.0	191(100.0)	7.6
Kangra						
Developed Block						
Marginal	6.0	-	55.0	45.0	29(100.0)	4.8
Small	3.0	-	55.0	45.0	55(100.0)	5.5
Medium	8.0	11.0	60.0	40.0	43(100.0)	4.8
All	5.0	5.0	57.0	43.0	127(100.0)	5.1
Under Developed Block						
Marginal	7.0	8.0	63.0	37.0	67(100.0)	6.1
Small	4.0	5.0	57.0	43.0	47(100.0)	7.8
Medium	13.0	13.0	61.0	39.0	62(100.0)	7.7
All	8.0	9.0	61.0	39.0	176(100.0)	7.0
Overall						
Marginal	9.0	11.0	57.0	43.0	221(100.0)	6.1
Small	7.0	6.0	54.0	46.0	222(100.0)	6.7
Medium	12.0	12.0	59.0	41.0	196(100.0)	6.3
All	7.0	9.0	56.0	44.0	639(100.0)	6.4

Educational Status

The educational level is an important parameter in the study of socio-economic profile of any group of persons. The educational level of the sampled or target households determines the mental level and aptitude which is a variable which has to be kept in mind while framing the policies or when the policies designed have to be applied in certain area or group of households. With this background the educational profile of the sampled households has been studied and the results of analysis presented in Table 3.2. It is desirable that majority of the population is not only literate but has higher level of formal education. The analyses indicate that overwhelming majority of the sample population was literate, about 94 percent male and 85 percent female population was literate. About 25 percent of these had passed the primary level of education and about 15 per cent had passed their middle level examination. About 34 per cent male and 24 per cent female had passed their matriculation examinations but this percentage for graduation was 9.44 and 7.91 per cent respectively. Only 2.88 percent females had obtained postgraduate degrees and about 3 per cent males and 2 per cent females had obtained some technical qualifications.

Primary Occupation of Workers

The primary occupation, which utilizes the majority of time and yields highest proportion of income for a worker, is the main occupation. The sampled workers were observed to be having different primary occupations and the results of analysis have been presented in Table 3.3. The table reveals that the agriculture, which used to be the primary occupation of majority of persons, is presently the occupation of only about 40 percent of the sampled male workers. In case of females agriculture was primary occupation of about 75 per cent workers. The service was the next important primary occupation absorbing about 23 per cent of male and about 3 per cent of female work force. Only male workers were found to be engaged in non-agriculture labour and business.

Table: 3.2 Educational Status of Sampled Orchardists.

(% age)

Category	Illiterate		Literate		Primary		Middle		Matric	
	Male	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**	**Male**	**Female**
Bilaspur										
Developed Block										
Marginal	16.89	28.57	93.11	71.43	27.58	28.57	10.34	9.52	34.48	28.57
Small	4.54	22.22	95.46	77.78	22.73	27.78	9.09	11.11	40.91	22.22
Medium	6.45	17.39	93.55	82.61	9.68	17.39	12.91	8.69	25.81	8.69
All	6.09	22.58	93.91	77.42	19.51	24.19	10.96	9.68	32.93	19.35
Under Developed Block										
Marginal	2.70	7.89	97.30	92.10	29.73	23.68	8.11	28.95	48.65	31.58
Small	9.52	-	90.48	100.0	11.90	21.62	16.67	13.51	35.71	37.84
Medium	5.00	23.53	95.00	76.47	25.00	11.76	5.00	11.76	15.00	17.64
All	6.07	7.61	93.93	92.39	21.21	20.65	11.11	19.56	36.36	31.52
Kangra										
Developed Block										
Marginal	-	-	100.0	100.0	25.00	46.15	25.00	23.08	25.00	23.08
Small	-	12.00	100.0	88.00	16.67	24.00	23.33	24.00	30.00	24.00
Medium	11.54	23.53	88.46	76.47	7.69	5.88	3.85	23.53	30.77	41.18
All	4.17	12.73	95.83	87.27	15.28	23.64	16.67	23.64	29.17	29.09
Under Developed Block										
Marginal	9.52	28.00	90.48	72.00	28.57	44.00	9.52	-	35.71	24.00
Small	-	20.00	100.0	80.00	40.74	50.00	14.81	100.0	22.22	5.00
Medium	5.26	8.33	94.37	91.67	13.16	29.17	13.16	16.67	47.36	16.67
All	5.61	18.84	94.39	81.16	26.17	40.58	12.15	8.69	26.45	15.94
Overall										
Marginal	5.65	16.49	94.35	83.51	28.22	32.99	11.29	16.49	29.84	27.84
Small	4.13	11.00	95.87	89.00	21.49	29.00	16.53	15.00	23.97	25.00
Medium	6.96	17.28	93.04	82.72	13.04	17.28	9.57	14.81	3.22	19.75
All	5.55	14.75	94.45	85.25	21.11	26.98	12.50	15.47	34.17	24.46

Contd….

Table: Contd…….

Category	Graduate		Post graduate		Technical		N.S.G.		Total Sample		Total
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Bilaspur											
Developed Block											
Marginal	13.79	4.76	6.89	-	-	-	-	-	58.00	42.00	100.0
Small	9.09	5.56	-	-	9.09	5.56	4.54	5.56	55.00	45.00	100.0
Medium	19.35	26.09	6.45	4.35	19.35	13.04	-	4.35	57.41	42.59	100.0
All	14.63	12.90	48.78	1.61	9.76	6.45	1.22	3.22	56.94	43.06	100.0
Under Developed Block											
Marginal	54.05	-	-	-	2.70	-	2.70	7.89	49.33	50.67	100.0
Small	7.14	10.81	11.90	2.70	-	2.70	9.52	-	53.16	46.84	100.0
Medium	100.0	5.89	30.00	23.53	5.00	-	5.00	5.88	50.05	45.95	100.0
All	7.07	5.43	11.11	5.43	2.02	11.09	6.06	4.34	51.83	48.17	100.0
Kangra											
Developed Block											
Marginal	-	-	-	-	-	-	6.25	7.69	55.17	44.83	100.0
Small	10.00	4.00		4.00	3.33	-	13.33	8.00	54.55	45.45	100.0
Medium	15.38	5.88		-	-	-	15.38	-	60.47	39.53	100.0
All	9.97	3.63		1.81	13.89	-	12.50	5.45	56.69	43.31	100.0
Under Developed Block											
Marginal	4.76	-		-	-	-	11.90	4.00	62.69	37.31	100.0
Small	11.11	10.00		5.00	-	-	11.11	-	57.45	42.55	100.0
Medium	7.89	20.83		-	2.63	41.67	5.26	41.67	61.29	38.71	100.0
All	7.48	10.14		1.45	0.93	1.45	9.35	2.89	60.79	39.21	100.0
Overall											
Marginal	6.45	1.03		-	0.81	-	6.45	5.15	56.11	43.89	100.0
Small	9.09	8.00		3.00	2.48	2.00	9.09	3.00	54.75	45.25	100.0
Medium	13.04	16.05		6.17	6.96	4.94	6.09	3.70	58.67	41.33	100.0
All	9.44	7.91		2.88	3.33	2.16	7.22	3.96	53.89	41.61	100.0

Table: 3.3 Primary Occupations of Sampled Orchardists.

(Percentage)

Category	Agriculture		Non-Agri. labour		Service		Business		Rural		Household	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Bilaspur												
Developed Block												
Marginal	29.41	34.29	100.0	-	41.18	-	-	-	-	-	25.00	50.00
Small	41.18	28.57	-	-	29.41	-	25.00	-	-	-	37.50	33.33
Medium	29.41	37.14	-	-	29.41	100.0	75.00	-	-	-	37.50	16.67
All	100.0	100.0	100.0	-	100.0	100.0	100.0	-	-	-	100.0	100.0
Under Developed Block												
Marginal	25.00	19.35	100.0	-	42.11	-	23.08	-	-	-	38.46	35.71
Small	45.00	58.06	-	-	36.84	66.67	53.85	-	-	-	30.77	21.43
Medium	30.00	22.59	-	-	21.05	33.33	23.07	-	-	-	30.77	42.86
All	100.0	100.0	100.0	-	100.0	100.0	100.0	-	-	-	100.0	100.0
Kangra												
Developed Block												
Marginal	25.00	18.52	-	-	-	-	22.22	-	-	-	25.00	27.27
Small	31.25	37.04	-	-	80.00	-	66.67	-	-	-	25.00	54.55
Medium	43.75	44.44	-	-	20.00	-	11.11	-	-	-	50.00	18.18
All	100.0	100.0	-	-	100.0	-	100.0	-	-	-	100.0	-
Under Developed Block												
Marginal	33.33	42.11	61.54	-	38.46	-	80.00	-	-	-	40.00	28.57
Small	20.83	21.06	38.46	-	23.08	-	20.00	-	-	-	10.00	14.29
Medium	45.84	36.83	-	-	38.46	-	-	-	-	-	50.00	57.14
All	100.0	100.0	100.0	-	100.0	-	100.0	-	-	-	100.0	100.0
Overall												
Marginal	27.96	29.77	68.75	-	37.04	-	25.71	-	-	-	34.29	34.21
Small	33.33	35.11	31.25	-	35.19	40.00	45.71	-	-	-	25.71	31.58
Medium	38.71	35.12	-	-	27.77	60.00	28.58	-	-	-	40.00	34.21
All	100.0	100.0	100.0	-	100.0	100.0	100.0	-	-	-	100.0	100.0
Overall												
Marginal	33.33	75.00	14.10	-	25.64	-	11.54	-	-	-	15.38	25.00
Small	38.75	76.67	6.25	-	23.75	3.33	20.00	-	-	-	11.25	20.00
Medium	48.00	74.19	-	-	20.00	4.84	13.33	-	-	-	18.67	20.98
All	39.91	75.29	6.87	-	23.18	2.87	15.02	-	-	-	15.03	21.84

Secondary Occupation of Workers

Majority of workers, in edition to primary occupation generally have some other occupation which is termed as secondary occupation as it does not generate as much income or consume as much time as the primary occupation does. The details of secondary occupation of the sampled orchardists have been presented in table 3.4. The table reveals that at overall level about 89 per cent of the male and 12 per cent of the females had agriculture as their secondary occupation. The business and non-agriculture labour was the secondary occupation of only 5.72 and 3.57 per cent males only. Majority of the persons in the individual size classes had agriculture as main occupation.

Table: 3.4 Secondary Occupations of Sampled Orchardists.

(Percentage)

Category	Agriculture		Non-Agri. labour		Service		Business		Rural		Household	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Bilaspur												
Developed Block												
Marginal	37.04	-	-	-	-	-	100.0	-	-	-	100.0	34.09
Small	22.22	-	-	-	-	-	-	-	-	-	-	29.55
Medium	40.74	100.0	-	-	-	-	-	-	-	-	-	36.36
All	100.0	100.0	-	-	-	-	100.0	-	-	-	100.0	100.0
Under Developed Block												
Marginal	34.21	-	-	-	-	-	-	-	-	-	-	38.09
Small	44.74	40.00	-	-	-	-	-	-	-	-	-	42.86
Medium	21.05	60.00	-	-	-	-	-	-	-	-	-	19.05
All	100.0	100.00	-	-	-	-	-	-	-	-	-	100.0
Kangra												
Developed Block												
Marginal	11.76	41.67	-	-	-	-	-	-	-	-	-	12.00
Small	52.94	41.67	-	-	-	-	-	-	-	-	-	36.00
Medium	35.30	16.16	-	-	-	-	-	-	-	-	-	52.00
All	100.0	100.0	-	-	-	-	-	-	-	-	-	100.0
Under Developed Block												
Marginal	46.51	66.67	60.00	-	-	-	42.86	-	-	-	-	48.78
Small	27.91	-	40.00	-	-	-	28.57	-	-	-	-	19.51
Medium	25.58	33.33	-	-	-	-	28.57	-	-	-	-	31.71
All	100.0	100.0	100.0	-	-	-	100.0	-	-	-	-	100.0
Overall												
Marginal	36.00	33.33	60.00	-	-	-	50.00	-	-	-	100.0	35.53
Small	35.20	33.33	40.00	-	-	-	25.00	-	-	-	-	31.58
Medium	28.80	33.34	-	-	-	-	25.00	-	-	-	-	32.89
All	100.0	100.0	100.0	-	-	-	100.0	-	-	-	100.0	100.0
Overall												
Marginal	83.33	11.48	5.56	-	-	-	7.41	-	-	-	3.70	88.52
Small	91.17	12.73	4.16	-	-	-	4.16	-	-	-	-	87.27
Medium	94.74	12.28	-	-	-	-	5.26	-	-	-	-	87.72
All	89.29	12.14	3.57	-	-	-	5.72	-	-	-	1.42	87.86

Land Utilization Pattern

The land utilization pattern of the sampled mango orchardists has been presented in Table 3.5. The table reveals that overall level of both the districts the gross cropped area was 1.58 hectares. The highest gross cropped area was found to be in the developed block of district Bilaspur (1.91 ha.) and the least in the under developed block of same district (1.26 ha.). The total land at overall level was 2.21 hectares per farm of which 0.97 hectares was irrigated and the rest 1.24 hectares was un irrigated. Field crops were grown in 0.80 hectares of which 0.35 hectares were irrigated. Orchards in total occupied 1.28 hectares of total land holding and almost 50 percent of this was irrigated. Inter crops were found in 0.97 hectares and about 2/3 of it was irrigated. There were no fallow lands and Ghasni occupied about 0.13 hectares per farm. The net area sown at over level was 0.80 hectares per farm and this was highest among the medium farmers and least among the marginal farms.

Table: 3.5 Land Utilization Pattern of Sampled Household.

(Per Farm)

Category	Total land			Field crops			Orchardist			Inter cropping		
	Irr.	Un-irri	Total	Irr.	Un-irri	Total	Irr.	Un-irri	Total	Irr.	Un-irri	Total
Bilaspur												
Developed Block												
Marginal	-	0.66	0.66	-	0.34	0.34	-	0.27	0.27	-	-	-
Small	-	1.72	1.72	-	0.74	0.74	-	0.61	0.61	-	-	-
Medium	3.35	1.95	5.31	0.89	0.84	1.73	2.46	0.57	3.03	2.22	-	2.22
All	1.21	1.42	2.63	0.32	0.63	0.95	0.89	0.47	1.36	0.80	-	0.80
Under Developed Block												
Marginal	-	0.62	0.62	-	0.24	0.24	-	0.27	0.27	-	0.27	0.27
Small	-	1.34	1.34	-	0.77	0.77	-	0.41	0.41	-	0.37	0.37
Medium	1.09	2.05	3.14	1.09	0.05	1.14	-	1.57	1.57	-	0.24	0.24
All	0.22	1.20	1.41	0.22	0.41	0.63	-	0.59	0.59	-	0.30	0.30
Kangra												
Developed Block												
Marginal	0.51	-	0.51	0.08	-	0.08	0.43	-	0.43	0.43	-	0.43
Small	1.53	-	1.53	0.56	-	0.56	0.97	-	0.97	0.97	-	0.97
Medium	4.77	-	4.77	1.67	-	1.67	3.10	-	3.10	3.10	-	3.10
All	2.45	-	2.45	0.84	-	0.84	1.61	-	1.61	1.61	-	1.61
Under Developed Block												
Marginal	-	0.49	0.49	-	0.08	0.08	-	0.41	0.41	-	0.41	0.41
Small	-	1.34	1.34	-	0.63	0.63	-	0.69	0.69	-	0.69	0.69
Medium	-	5.68	5.68	-	1.82	1.82	-	3.85	3.85	-	2.65	2.65
All	-	2.36	2.36	-	0.77	0.77	-	1.58	1.58	-	1.19	1.19
Overall												
Marginal	0.08	0.49	0.57	0.01	0.18	0.19	0.7	0.27	0.34	0.07	0.20	0.27
Small	0.46	1.02	1.48	0.17	0.51	0.68	0.29	0.38	0.67	0.29	0.24	0.53
Medium	2.53	2.36	4.89	0.92	0.72	1.64	1.61	1.41	3.02	1.55	0.72	2.27
All	0.97	1.24	2.21	0.35	0.45	0.80	0.62	0.66	1.28	0.60	0.37	0.97

Contd…

Table: Contd…..

Category	Fallow	Ghasni	Net area sown	GCA
Bilaspur				
Developed Block				
Marginal	-	0.05	0.34	0.68
Small	-	0.38	0.74	1.48
Medium	-	0.54	1.73	3.47
All	-	0.32	0.95	1.91
Under Developed Block				
Marginal	-	0.12	0.24	0.47
Small	-	0.22	0.78	1.55
Medium	-	0.43	1.11	2.27
All	-	0.20	0.63	1.26
Kangra				
Developed Block				
Marginal	-	-	0.08	0.16
Small	-	-	0.56	1.11
Medium	-	-	1.67	3.34
All	-	-	0.84	1.69
Under Developed Block				
Marginal	-	-	0.08	0.16
Small	-	0.03	0.63	1.21
Medium	-	-	1.82	3.49
All	-	0.52	0.77	1.48
Overall				
Marginal	-	0.04	0.19	0.38
Small	-	0.21	0.68	1.34
Medium	-	-	1.64	3.24
All	-	0.13	0.80	1.58

Cropping Pattern

The cropping pattern of the sampled orchardists has been presented in Table 3.6 wherein four crops, two in Kharif viz. Maize and Paddy and two in Rabi viz. Wheat and Barley have been considered. At overall level about 158 hectares of area was under crop and this was accounted for by marginal (13.57 ha.), small (44.28 ha.) and medium farmer (1.54 ha.). At overall level the maize accounted for 20 per cent of the irrigated and 26 per cent of the un irrigated area whereas paddy accounted for only two percent of each. In rabi season wheat accounted for 19 percent of irrigated and 23 percent of un irrigated area and barley was found in 3 per cent of irrigated and 5 per cent of un irrigated area.

Table-3.6: Cropping Pattern of Sampled Orchardists in Bilaspur and Kangra District.

(Percentage)

Category	Maize		Paddy		Total		Wheat	
	Irri.	Un-Irri	Irri.	Un-Irri	Irri.	Un-Irri	Irri.	Un-Irri
Bilaspur								
Developed block								
Marginal	-	43.0	-	7.0	-	50.0	-	41.0
Small	-	45.0	-	5.0	-	50.0	-	41.0
Medium	22.0	24.0	3.0	-	26.0	24.0	26.0	19.0
All	15.0	31.0	2.0	2.0	17.0	33.0	17.0	27.0
Under Developed block								
Marginal	-	50.0	-	-	-	50.0	-	42.0
Small	-	50.0	-	-	-	50.0	-	45.0
Medium	48.0	2.0	-	-	48.0	2.0	48.0	-
All	17.0	33.0	-	-	17.0	33.0	17.0	28.0
Kangra								
Developed block								
Marginal	42.0	-	8.0	-	50.0	-	42.0	-
Small	42.0	-	8.0	-	50.0	-	40.0	-
Medium	47.0	-	3.0	-	50.0	-	40.0	-
All	46.0	-	4.0	-	50.0	-	40.0	-
Under developed block								
Marginal	-	44.0	-	6.0	-	50.0	41.0	-
Small	-	43.0	-	9.0	-	52.0	38.0	-
Medium	-	47.0	-	5.0	-	52.0	40.0	-
All	-	46.0	-	6.0	-	52.0	39.0	-
All								
Marginal	3.0	43.0	1.0	3.00	-	50.0	3.0	39.0
Small	11.0	35.0	2.0	2.00	-	50.0	10.0	31.0
Medium	26.0	21.0	2.0	1.00	-	50.0	25.0	17.0
All	20.0	26.0	2.0	2.00	-	50.0	19.0	23.0

Contd…..

Table: Contd…

(Percentage)

Category	Barley		Total		GCA		
	Irri.	Un-Irri	Irri.	Un-Irri	Irri.	Un-Irri	Total
Bilaspur							
Developed block							
Marginal	-	9.0	-	50.0	-	100.0	6.00(100.0)
Small	-	9.0	-	50.0	-	100.0	10.40(100.0)
Medium	-	5.0	26.0	24.0	51.0	49.0	31.20(100.0)
All	-	6.0	17.0	33.0	34.0	66.0	47.68(100.0)
Under Developed block							
Marginal	-	8.0	-	50.0	-	100.0	4.72(100.0)
Small	-	5.0	-	50.0	-	100.0	15.52(100.0)
Medium	-	2.0	48.0	2.0	96.0	4.0	11.36(100.0)
All	-	4.0	17.0	33.0	34.0	66.0	31.60(100.0)
Kangra							
Developed block							
Marginal	8.0	-	50.0	-	100.0	-	0.96(100.0)
Small	10.0	-	50.0	-	100.0	-	11.12(100.0)
Medium	10.0	-	50.0	-	100.0	-	30.08(100.0)
All	10.0	-	50.0	-	100.0	-	42.16(100.0)
Under developed block							
Marginal	9.0	-	50.0	-	-	100.0	1.81(100.0)
Small	10.0	-	50.0	-	-	100.0	7.24(100.0)
Medium	8.0	-	48.0	-	-	100.0	27.90(100.0)
All	8.0	-	48.0	-	-	100.0	36.95(100.0)
All							
Marginal	1.0	7.0	50.0	-	7.0	93.0	13.57(100.0)
Small	3.0	6.0	50.0	-	25.0	75.0	44.28(100.0)
Medium	3.0	5.0	50.0	-	57.0	43.0	100.54(100.0)
All	3.0	5.0	50.0	-	44.0	56.0	158.39(100.0)

Implements and Machinery

The implements and machinery owned by sampled orchardists have been presented in Table 3.7. All the implements have been clubbed in to three classes viz minor implements, bullock drawn implements and plant protection implements/equipments. The analysis reveals that each farm at overall level had about 24 minor implements, 2.49 bullock drawn implements and 2.38 plant protection equipments. These numbers were directly related with the farm size. The other block wise and size wise details can also be referred from the table.

Table: 3.7 Implements and Machinery of Owned by Sampled Orchardists.

(No/Farm)

Category	Minor Implement	Bullock drawn Implement	Plant Protection
Bilaspur			
Developed Block			
Marginal	25.0	1.44	1.33
Small	18.43	2.43	1.57
Medium	27.22	3.00	3.67
All	23.96	2.28	2.24
Under Developed Block			
Marginal	26.50	1.40	1.60
Small	19.00	3.10	2.20
Medium	42.60	4.00	6.40
All	26.72	2.60	2.80
Kangra			
Developed Block			
Marginal	19.67	2.17	1.83
Small	19.30	3.30	2.10
Medium	20.78	3.00	2.11
All	19.92	2.92	2.04
Under Developed Block			
Marginal	24.73	1.45	1.36
Small	20.00	2.50	1.67
Medium	30.00	2.87	4.50
All	25.28	2.16	2.44
Overall			
Marginal	24.44	1.56	1.50
Small	19.15	2.91	1.94
Medium	28.54	3.13	3.87
All	23.97	2.49	2.38

Livestock Profile

The livestock profile of the sampled orchardists has been presented in Table 3.8 wherein it may be seen that at overall level each farm had 1.20 bullocks, 2 heads of milch cattle, 0.16 goat, 0.04 sheep and 1.04 heads per farm of other livestock.

Table-3.8: Livestock Distribution Among Sampled Households in Bilaspur and Shimla District of Himachal Pradesh.

(No./Farm)

Category	Bullock	Milch Cattle	Goat	Sheep	Others
Bilaspur					
Developed Block					
Marginal	1.11	1.78	0.88	1.78	0.78
Small	1.71	1.85	0.5	1.71	0.71
Medium	1.11	2.55	-	0.89	1.33
All	1.28	2.08	0.48	1.44	0.96
Under Developed Block					
Marginal	0.60	1.90	0.80	0.30	-
Small	1.40	2.50	0.80	0.60	0.10
Medium	1.20	2.40	1.20	0.20	0.40
All	1.04	2.24	0.88	0.40	0.12
Kangra					
Developed Block					
Marginal	-	2.00	-	-	1.00
Small	0.60	3.00	-	-	0.70
Medium	1.11	2.67	-	-	1.00
All	0.64	2.64	-	-	0.88
Under Developed Block					
Marginal	1.27	1.82	0.18	0.09	0.90
Small	1.00	1.67	0.17	-	1.33
Medium	1.25	2.50	0.12	-	1.00
All	1.20	2.00	0.16	0.04	1.04

Chapter – IV

GENERAL FEATURES OF THE MARKETS

The present study was assigned to the Agro-Economic Research Centre to study the mango marketing activities in the selected markets viz; Chandigarh and Azadpur Subzi Mandi in New Delhi. The Himachal mango is also sent to other markets like Pathankot, Hoshiarpur etc located in Punjab and are near to the producing areas of mangoes in Himachal Pradesh. However, these markets have not been included in the present study. Both the markets included in the present study are regulated markets.

The following are the correspondence addresses for the above market authorities, which are wholly responsible for normal functioning of these markets.

1. Secretary
   Market Committee
   Grain market, Sector 26
   Chandigarh.
   Phone 0172-770590

2. Sh. Sudhir Mahajan
   Secretary
   Agricultural Produce Market Committee
   Azadpur New Delhi
   Phone 011- 7435584, 7115584
   Fax 011- 7131149.

Regulation of Markets

The technology break through in Indian agriculture has brought about spectacular increase in yield levels. This has generated new problems of marketing for which adequate attention has not been paid even though it is universally recognized that the solution of these problems is a precondition for agricultural prosperity.

The movement of each product from the farm to the ultimate consumer plays a crucial role in determining the price for the farmer. Unless marketing improves, no incentive to increase

production will attract the orchardists. This is all the more important in the case of perishable, which cannot be stored for long period. In such cases the speed as well as efficiency of marketing operations is crucial in determining profits of the product on the one hand and the level of satisfaction of the consumer on the other.

The marketing costs are shared between the producer and the final consumer. While by and large, all traditional charges/costs market fees etc. are mandatory, in some markets some other charges like rural development fund etc. seems to have become an additional burden. No doubt, under the market regulation acts in most of the places better market yards have been provided and some employment has also been generated, but the very purpose of regulation has not yet borne the desired fruits, for which strict vigilance and sincere physical efforts are essential.

Facilities Available In The Markets

All basic amenities are available in the markets under study. The details regarding facilities available in the market are presented in table 4.1. In this table it shows that market yard, suitable space for auction, covered shed for temporary storage, storage and sanitation facilities are available in both the markets. This is because of the reason that subzi mandi in these markets are situated in old place and traders are not willing to shift the shops in new market yards.

Table: 4.1 Physical Facilities Available in the Selected Markets.

Name of the Market	Market yard	Suitable space for Auction	Covered shed for Temporary Storage	Storage	Sanitation
Chandigarh	X	X	X	X	X
Delhi	X	X	X	X	X

Note: X Indicates presence.

Source: Market Committees of respective Market.

Facilities of market Intelligence

The telephone and the STD facilities are available in both the markets. They also have separate market intelligence cells. However the facility of Fax is available only in Delhi market. The details have been presented in Table 4.2.

Table: 4.2 Market Intelligence Facilities Available in the Selected Markets.

Name of the Market	Telex	S.T.D.	Fax	Telephone	Market Intelligence Cell
Chandigarh	-	X	-	X	X
Delhi	-	X	X	X	X

Note: X Indicates presence.

Source: Market Committee of respective Market.

Facilities Provided by Traders

Growers and dealers coming from distant places face no problem for night stay in the markets under study. Commission agents or wholesalers generally feel happy to oblige their clients by way of arranging for their boarding and lodging. As per market rules commission agents are not allowed to charge commission from seller but in general practice it was noticed that commission agents charge Commission both from buyers as well as sellers. Table 4.3 shows that boarding, lodging, storage, transportation, advance payments and market information etc. is provided to sellers in all the markets.

Through, the commission agent need to pay the full amount of sale to seller just after the sale is over, it was observed that in general practice the period of payment depends on mutual understanding or relationship between buyer and seller. The mode of payment is based on the decision of seller and can be cash, cheque or demand draft.

Table- 4.3: Facilities Provided by the Traders in Selected Market

Name of the Market	Boarding and Loading	Storage of Fruit	Transportation of Fruit	Advance Payment	Market Information	Cash	Mode of payment D.D. Cheque	Other
Chandigarh	X	X	X	X	X	X	X	X
Delhi	X	X	X	X	X	X	X	X

Note: X Indicates Presence.

Source: Market Committee of respective Market.

Working Hours

Normally, in the regulated market the business hours are directed by Market Committee but in practice these can be fixed only with the cooperation of the local functionaries of the market. Committee uses to fix the working hours in consultation with unions of traders and no case of clash was observed in any of the market. Table 4.4 shows the working hours of different markets under study. Generally market transactions start in the morning and end at noon. The evening markets are observed in both Chandigarh and Delhi this is because of the reason that traders generally functions as a Mashakor and transaction continued whole of the day especially at Chandigarh market. But Delhi is the biggest market in Asia and due to higher quantity of arrivals the evening function are essential. Each of the Commission agents has a fixed place where he usually displays his commodities for sale. It is observed during the investigation that all the transactions are completed by noon in most of the markets.

Table: 4.4 Working Hours of the Selected Markets.

Name of the Market	**Morning**		**Evening**	
	From	To	From	To
Chandigarh	7.00 A.M	11.00 A.M.	3.00 P.M.	8.00 P.M.
Delhi	6.00 A.M.	12.00 A.M.	3.00 P.M.	7.00 P.M.

Source: Market Committee of the Different Market.

Closing Days

It was observed during the investigations that some markets observed holiday after a week whereas, there are some others, which observe it fortnightly. No selected market was observed to have monthly holidays. Table 4.5 indicates the holidays of each market under study. The table shows that Chandigarh market remain closed on every Monday while, Delhi closes on Sunday. Other holidays are 15 August and 26th January in all the markets whereas, Holi and Diwali are included in addition to regular holidays.

Table: 4.5 Holidays in the Selected Market

Name of the Market	Weekly	Fortnightly	Monthly	Other Holiday
Chandigrah	Monday	-	-	26th Jan. 15th August & Dipawali
Delhi	Sunday	-	-	Holi & Diwali 15th August & 26th Jan.

Source: Market Committee of Different Markets.

Commission Agent of Mango

In the selected market list of important Commission Agents who deals with mango was prepared and presented in table 4.6 and 4.7. In Chandigarh 14 Commission Agents deal with mango, In Delhi market there are 2146 registered commission agents out of which only 12 deals with Mango.

Table: 4.6 Firms Dealing With Mango in Subzi Mandi, Sector 26, Chandigrah.

Name of the Firm	Shop No.	Trade No.	Telephone No. Code 0172	
			Office	Residence
1.Himachal Fruit Agency	1	HFA	777272	
2.M/S J.K.Fruit Agency	2	J &K	530244	560700
3.New Ashoka Fruit Co.	3	AF/CDG	782285	570158
4.Gurunanak Fruit Agency	5	GNFA	771292,771274, 770958,781209	770662,781951
5.Ahuja Brothers	10	AB	781524,781371	562426,581986
6.Thakur Fruit Traders	11	TFT	770766	657527,656269
7.Hans Fruit Traders	12	HFT	781216	560949
8.Jalandhar Fruit Company	16	JFC	770727,780216 782616,542558	560846
9.Narula & Sons	17	NS	771264	686048,651485
10.Mehta Fruit Traders	20	MFT	545506	
11.Mangal Sain & Sons	22	MSS	780950	576906
12.Gobind Ram Ashok Kumar	23	GAK	770961	563066
13.Shanker Fruit Traders	24	SFT	770484	714384,773537
14.Mohan Singh Mehta & Sons	25	MSM	781204	730498

Source: APMC, Chandigarh.

Table: 4.7 List of Commission Agents Dealing with, Mango at Delhi Market.

Name Of The Firm	Shop No.	Trade Mark	Telephone No. Code 011	
			Office	Residence
1. JAC Enterprises	C-49	JAC	7143965,7245199, 7413066	
2.Delhi Shimla Fruit Traders	B-165	DSF	7459548	
3.Sharma Fruit Centre	D 398	SFC	7241814,7434291	
4.JCO Traders	C-124	JCO	7234194,7215701, 7137489	7471700,7471800, 7070747
5.Laxmi Fruit Company	C -60	LFC	7232369,7244334	
6. Mohinder Singh Satpaul Singh	C-19	LFC	7142344	
7. Sh. Ganesh Apple Company	B-212	SGAC	7245798	
8. Om Prakash, Naresh Kumar	A-990	SPN	7442159	
9. Hari & Company	C-9	HXC	7452959	
10.Harbans Raj, Bhagwan Rai Narula	B-214	HB	7431295	
11.New Krishana Fruit Company	C-28	KFC	7244237,7218110, 7477662	7477922
12.Apple Grower marketing Agency	B-215	AGMA	7431711,7413679	

Source: APMC, Delhi.

Chapter - V

MARKETING OF MANGO PRODUCTION

The marketing of fruit is a complex process and includes all the functions and processes involved in the movement of the produce from the growers to final consumers. The number and type of functions, the cost of performing these functions, the margins or profits of those who perform these functions and the competition in the trade all these vary from commodity to commodity, time to time and from place to place. The following paragraphs provide the details.

Preparation of Produce for the Market

All goods produced, whether agricultural or not have to be necessarily prepared for the market in a way that it can attract buyers in a better way. Fruit production is highly seasonal and geographically centered in areas that are often located far away from consumers. From producers 'view point' an efficient marketing system is one, which maximizes the net revenue for which the preparation starts from the orchard itself by producing fruits of as good quality as possible. The following stages are involved in prep ration of produce for marketing.

Picking: Picking is the first and most important function in preparation of fruit for the market. The proper picking of fruit vitally affects their shelf life. It involves two aspects viz stage of maturity when the fruit should be picked and the method of picking. The right stage for picking which seems to be the easiest requires the most skillful decision. If the fruits reach the market in an over ripped condition it will fetch lower price because of its low shelf life. On the other hand, unripe fruits that are much below the maturity stage will not be welcome as these lack the taste and vigor of properly ripened fruit. The stage of picking depends upon the time needed for marketing the fruit to reach its destination and the speed with which it attains maturity. The metabolic activities in fruits generally increase after picking. It is therefore, up to the orchardists to judge if a fruit picked at a particular stage of maturity can reach the market in best form or not. Farmers do not know the scientific

methods of picking for a particular fruit but each grower is led by his own experience in the matter and it varies with variety and fruit.

Small orchardists generally pick the fruits with the help of their family members while large orchardists have to employ hired labour to help them in this task. Pre-harvest contractors generally engage casual labour for this purpose. Mango should be harvested for distant markets when no colour formation has taken place but has attained the full size. 50 percent surface red colour development occurs.

Assembling: Assembling of Mango fruit does not require any special skill because the skin of fruit is not so delicate. Kilta are used for assembling the fruit in the orchard for sorting/grading and packing.

Grading: Grading is a process of sorting out the produce into different uniform lots in such a manner that the fruit within each lot have uniform quality characteristics. These characteristics may be of size, shape colour, flavour, degree of ripeness etc. The main purpose of grading is to help the buyers to select the most suitable produce for the uses they have in mind and the price they can pay for. In case of mango the practice of scientific grading has not been followed by the producers of Himachal Pradesh. The only thing done is that the injured, bruised, and diseased discolored and blemished fruits are sorted out separately. Generally the growers put small and poor quality fruits at bottom of the container and few layers of better quality fruits are placed on the top of each container.

Packing: After grading, the fruit are packed in suitable containers. The type of containers used for a particular fruits generally depends on the type of fruit and the material available locally far the same. Packing means arranging of fruits in suitable containers in such a way that the produce is not damaged en route and the consumers get good quality fruit at their place. The mangoes are packed depending upon the variety. While the local quality produce is marketed in baskets or gunny bags, the superior quality mangoes like *Dushahri* are brought to the market in boxes containing 8 to 10 Kg. of fruit.

Marketing Services

After the produce has been prepared for the market, the same has to be transported and at times stored for a better market.

Transportation: Like all other commodities, fruits and vegetables produced on commercial scale are not consumed in the producing areas itself. In such a situation, adding the place utility to the produce is important which is provided by the transportation. Fruits are perishable in nature and therefore, require quick transportation so that fruit may reach the market/consumers well in time and in good condition. As the mangoes are picked for the market in raw form and the skin of the fruit is not so delicate the losses during transportation are almost negligible. The important modes of transport used by the mango growers of Himachal Pradesh are as follows:

(a.) Manual Labour: This is an important mode of transport used for bringing the fruit from orchard to the road head or local assembling market. In the market the manual labour is used for loading and unloading of produce.

(b) Bus Roofs: Some small farmers use this mode to bring their produce from assembling place to market or up to local assembling point. This is not very popular mode but for small quantity of produce this is good and cheap mode.

(c) Trucks: Trucks are the important mode of transport used by all type of growers and contractors. It was observed that stone fruits from Himachal to the desired markets are brought by trucks only.

Storage: Storage is an essential function of marketing, which add time utility to the commodities. Storage means holding the produce in appropriate places till it moves to the next market/agency. The storage facilities also make it possible to take advantage of off-season when the prices are generally higher and higher net returns can be realized. Though fruits have demand through out the year but production is seasonal. The excessive supply at a particular point of time after the harvest results in gluts leading to low prices. This affects the producer's interest adversely.

In the absence of proper storage facilities, the producers are compelled to sell their produce immediately after harvest resulting in realization of low prices. Presently cold storage facilities are not available in the growing areas.

Financing: Farmers and pre-harvest contractors need finance to perform market function like picking, packing, grading, transportation and storage etc. Functionaries revealed that in fruit marketing, it is ones own arrangement of money, which enables him to carry on his business. Though the needy growers/sellers were reported to be getting loans from commission agents/wholesalers whom they patronize but this usually leads to the exploitation of farmers. Further the survey revealed that in all the markets no bank had any programmes to finance the fruit growers for post harvest loans in easy installments.

Distribution and Marketing Channels

Marketing is basically the process of movement of goods from producer to consumer at the desired time, place and form. In this process the fruit has to pass through more than one hand except when it is directly sold to consumer by the producer. In this chain various agencies like grower's pre-harvest contractors, wholesalers, retailers etc. are engaged. This chain of intermediaries/ functionaries is called the marketing channel. The following channels are generally used by fruit growers for marketing their produce.

1. Producer- Consumer
2. Producer- Forwarding Agent- Commission Agent- Wholesaler- Retailer- Consumer
3. Producer- Producers Co-operative- Wholesaler – Retailer - Consumer
4. Producer- Pre-harvest contractor – Commission Agent/ Wholesaler- Retailer – Consumer.
5. Producer-Wholesaler- (self as forwarding agent)- Retailer- consumer.
6. Producer- Commission Agent (self as forwarding agent) Wholesaler - Retailer- Consumer.
7. Producer- HPMC- Wholesaler-Retailer- Consumer.
8. Producer- Processing unit-consumer.

Among the eight channels listed above, the fourth channel is most important for marketing of mango followed by the second channel.

Functionaries

Pre-harvest Contractors: The phenomena of selling the standing crop to contractors is common in mango growing areas of Himachal Pradesh as more than 80% of the sampled orchardists sold their crop to pre-harvest contractors. The pre-harvest contractors undertake the entire marketing functions involved such as picking of the fruit, grading, packing, arrangement of the transportation and selling of the crop etc. Normally, such agreements are finalized for two crop seasons and the amount agreed to be paid to the grower in installments. Such details are given in table 5.1 wherein it may be seen that in majority of the cases the amount was paid to orchardists in three installments. However, in case of small orchardists, the payments sometimes were made even in one installment.

Table: 5.1 Distribution of Orchardists According to Tenure of Contract and No. of Installments in Which Contractual Amount is Paid.

(No. of orchardists)

Particulars	**District**		
	Bilaspur	**Kangra**	**Total**
One year	15 (36)	18 (45)	33 (40)
Two year	27 (64)	22 (55)	49 (60)
Three year	-	-	-
Four & above years	-	-	-
Total No. of orchard given on contract	42 (100)	40 (100)	82 (100)
One installments	12(29)	8(20)	20(24)
Two instalments	9(21)	14(35)	23(28)
Three instalments	21(50)	18(45)	39(48)
4 & above	-	-	-
Total No. Of orchard given on contract	42(100)	40(100)	82(100)

Note: Figures in brackets are the percentage to total

The reasons for contracting out the orchards were ascertained from the growers. The main reason attributed was to avert the market risk as well as to avoid other marketing problems (Table 5.2). Another important reason ascribed by the farmers was that they remain busy in other agricultural operation on the farm and are unable to spare time for undertaking marketing operations. But the most important reason was found to be that the farmers wanted to avoid the marketing problems. More than half of the farmers were unaware of the

intricacies of the marketing operations and hence thought it to be wise to resort to pre harvest contractors for taking care of the marketing operations. Moreover, the pre-harvest contractors are specialized persons in undertaking the marketing of fruits and also they enjoy the economy of scale by contracting number of orchards. Thus they handle the marketing of fruits efficiently as compared to growers.

Table: 5.2 Reasons For Giving Orchard to Pre-harvest Contractor.

(%)

Particulars	District		
	Bilaspur	Kangra	Total
1. Labour Problems	57	75	66
2. To avoid market problems	85	78	82
3. To avoid risk and uncertainty of market	35	39	37
4. Busy in other farm operations	81	87	84
5. To look after other domestic work	24	21	23
6. Un-aware about the marketing	66	52	59
Total No. of orchards given on contract	42	40	41
Total sample size	50	50	100
Percentage of orchards given on contract	84	80	82

Note: Figures in Parenthesis are the percentage of total.
Source: Own Survey.

Commission Agents/Wholesalers**:** The basic difference between a commission agent and a wholesaler is that the former does not hold the title of the produce while the later purchases the commodity for resale, accepting the risks of spoilage, shrinkage, fluctuations in price etc. There is no sharp demarcation between the wholesalers and commission agents in both the markets under study. It was also observed that some wholesalers/commission agents also act as a retailer. Normally it is expected that a commission agent will sell the produce on behalf of the seller and charge a fixed percentage of the value of transaction from the seller/purchaser. But in practice, it was observed that the commission agent/wholesaler was performing something more than this. They (i) arrange for the night stay for sellers, (ii) store produce on behalf of the seller for few days, if so desired (iii) advance loans to the sellers (iv) make payments to the seller.

Mashakhors: Mashakhors are the small wholesaler or big retailer who purchase fruits, and vegetables through commission agent and resell by negotiations the same to the retailers or such consumers who need relatively bigger quantities. It was observed that some small

commission agents/wholesalers also act as mashakhors. On the arrival of fruit in the wholesale market many functionaries like porters, weighmen, brokers etc. help in marketing.

Method of Sales: **Generally**, open auction method of sale is practiced in both the markets under study. Under this method the bids are offered openly by the potential buyers and the highest bidder takes away the lot. This system is free from the major defects of the 'under cover system' of sale. This system is prevalent in all the markets under study.

Market Charges and Price Spread

The objective of the producer is to maximize his returns for his produce while consumer wants the maximum satisfaction from his money. Both of them feel dissatisfied if neither of them is able to achieve his aim because of the share of intermediaries/connecting the two. Generally, there is a wide gap between the price paid by the consumer and that received by the producer. For this purpose it becomes essential to ascertain charges of each agency involved in the marketing. The marketing charges in different markets bear no relation with each other; it differs from state to state because of the regulations of markets. But in the same states for different markets the charges will remain the same. Although, the growers dispatch their produce to various nearby markets however, in the present study only two markets namely Chandigarh and Delhi market only have been included for the detailed analysis.

The market charges levied and margins of different intermediaries in the markets under study are discussed as follows:

Commission of the Commission Agent: The commission agents charge at the rate of 5 to 6 percent on face value of the produce sold in different markets. Such commission is chargeable from buyers only. The rate of commission differs from state to state. The prescribed rate of commission in Chandigarh is five percent while in Delhi it is eight percent. Although, legally the commission can be charged only from buyers, but in actual practice commission was being charged from both buyers and sellers presented in Table 5.4. The rate of commission also varies from seller to seller according to mutual understanding and the quantity sold. If orchardists get loan from commission agent a higher rate of commission will be charged from them.

Table: 5.4 Commission of Commission Agent Charged for Mango in Selected Markets.

(Percentage of sale proceed)

Nam of the Market	Prescribed Commission		Actual Commission	
	Payable by seller	Payable by buyer	Payable by seller	Payable by buyer
Chandigarh	-	5	5	5
Delhi	-	6	6	6

Source: Market Committee of Respective Market.

Market Fee: The commission agents are supposed to charge market fee from the purchaser ranging from 1 to 2 percent on the sale value of goods in different markets. This fee has to be deposited with market committee. The market fee is 2 percent in Chandigarh, while 1 percent in Delhi Azadpur Mandi (Table 5.5).

Table-5.5: Market Fees Charged by Market Committee on Selected Markets for Mango.

(Percentage of sale proceed)

Name of the Market	Prescribed fee		Actual fee	
	Payable by seller	Payable by buyer	Payable by seller	Payable by buyer
Chandigarh	-	2	-	2
Delhi	-	1	-	1

Source: Market Committee of Respective Market.

Price Spread and Marketing Margins

Price spread is the difference between the price received by the orchardist and price paid by the consumer which comprises of cost of undertaking and rendering market services such as assembling grading, transporting, processing, wholesaling, retailing and the margins of the intermediaries. These also include the market charges, state tax etc. These margins and costs are influenced by the performance or efficiency of different marketing functionaries and in turn, influence the returns to the growers on the one hand and cost of produce to the consumer on the other. In order to increase the operational efficiency and minimize the cost, understanding the nature and extent of marketing margins, cost and price spread is essential.

Table: 5.6 Cost of Marketing of Mango Borne by Sample Orchardists in H.P.

(Rs. /box of 10kg.)

Particulars	Delhi	Chandigarh
1. Net Price Received by the orchard	97.38 (70.96)	158.78 (86.99)
A 1. Packing and Picking	66.15 (48.20)	103.25 (56.57)
(a) Picking, packing, grading and assembling	2.75 (2.00)	2.75 (1.51)
(b) Packing materials	14.00 (10.20)	14.00 (7.67)
All	16.75 (12.20)	16.75 (9.18)
B.2. Transportation		
(a) Orchard to road head	0.50 (0.36)	0.50 (0.27)
(b) Road head to market	11.00 (8.02)	5.50 (3.21)
© Loading/un loading	0.50 (0.36)	0.50 (0.27)
All	12.00 (8.74)	6.50 (3.56)
C.3 Market Charges and Taxes		
(a) Commission to forwarding agents	- (0.00)	- (0.00)
(b) Commission of commission agent	8.48 (6.18)	- (0.00)
© Market fees	2.12 (1.54)	- (0.00)
(d) State tax	- (0.00)	- (0.00)
(e) Octroi & Postage charges	0.50 (0.36)	0.50 (0.27)
All	11.10 (8.09)	0.50 (0.27)
Total Marketing Cost (A+B+C)	39.85 (29.04)	23.75 (13.01)
4. Whole Scale Price	106.00 (77.24)	127.00 (69.58)
5. Expenses Incurred by Commission Agent/mashakhor		
(a) Carriage and handling changes	2.00 (1.46)	2.00 (1.10)
(b) Market fees and commission of commission agent	- (0.00)	8.89 (4.87)
Sub-total	2.00 (1.46)	10.89 (5.97)
6. Mashakhor's Margins	3.18 (2.32)	- (0.00)
7. Mashakhor's Sale Price	111.18 (81.02)	- (0.00)
8. Retailer's Expenses		
(i) Carriage and handling changes	2.22 (1.62)	2.00 (1.10)
(ii) Retailers losses @ 10%	11.11 (8.10)	12.70 (6.96)
Sub-Total	13.33 (9.71)	14.70 (8.05)
9. Retailers Margin	12.72 (9.27)	15.24 (8.35)
10. Consumer's Price	137.23 (100.00)	182.53 (100.00)

Note: Figures in parenthesis are percentage to total.

Chapter- VI

COST AND RETURNS FROM RAISING MANGO ORCHARD IN HIMACHAL PRADESH

The state has witness a rapid increase in mango production over past one decade. This has been possible mainly due to bringing more area under mango and higher productivity as a result of improved management practices. In this chapter, an attempt has been made to work out cost and returns from raising mango orchard in the sub-tropical areas of Himachal Pradesh. For working out the cost in raising mango orchards, various costs such as initial cost and maintenance costs were computed.

Initial Costs of Raising Mango Orchard

Mango is the most important fruit crop of the state especially in sub-tropical region of low hills. After plantation, it takes about 5 years to reach the bearing stage. The initial investment is quite heavy for reasons of the cost involved in digging pits, putting manure and fertilizers, cost of plants, transplanting, etc. On an average, 160 plants of grafted variety are planted in a hectare. The orchardist has to incur costs on maintenance for about 5 years. The initial costs of establishment of mango orchard have been presented in Tables 6.1, 6.2 and 6.3 for sampled growers of Kangra, Bilaspur and overall respectively. On an average, total cost of establishment of mango orchard was Rs 17,379 per hectare on all sampled growers under study. The initial cost ranges between Rs 16,283 per hectare in Kangra district to Rs 18,173 per hectare in Bilaspur district. The value of human labour employed accounted for about 34.74 percent of total initial costs. Material costs such as value of plants, FYM, fertilizers, etc were 20.56 percent of the total cost. Nearly 40 percent of the total costs of establishment of mango orchard were the rental value of owned land. The percentage share of value of human labour, material cost and rental value of owned land was 31.44, 20.80 and 42.68 percent in case of sampled orchardists in Kangra district respectively. In case of Bilaspur district the share of these cost items was 37.66, 20.36 and 36.81 percent respectively. The details of initial costs of establishment of mango orchard on sampled farm households in developed and under developed blocks are presented in Tables 6.1, 6.2 and 6.3.

Table-6.1: Initial Cost of Plantation of Mango Orchard on Sampled Farms in Bilaspur

(Rs/Ha.)

Cost Component	Developed block				Under Developed Block				Over all			
	Unit	Price/ unit (Rs)	Qty.	Cost (Rs)	Unit	Price/ unit (Rs)	Qty.	Cost (Rs)	Unit	Price /unit (Rs.)	Qty.	Cost (Rs)
A. Variable Cost												
1. Human labour												
Land development	days	75	22	1650	days	70	24	1680	days	72	13	1665
Digging of pits	Pits	10	175	1750	Pits	12	170	2040	Pits	11	172	1895
Filling of pits	Pits	2	175	350	Pits	3	170	510	Pits	3	172	430
Manure & Fertilizer	days	75	12	900	days	70	14	980	days	72	13	940
Plant protection	days	75	6	450	days	70	7	490	days	72	6	470
Planting	days	75	9	675	days	70	10	700	days	73	9	687
Irrigation	days	75	12	900	days	70	12	840	days	73	12	870
Sub-Total	-	-	-	6675	-	-	-	7240	-	-	-	6957
2. Material												
Plant Material (including transport)	Plants	15	175	2625	Plant	15	170	2550	Plant	15	172	2587
Manure	Plants	25	25	625	Plant	25	30	750	Plant	25	28	687
Fertilizer	Plants	1.50	175	263	Plant	1.50	170	255	Plant	1.50	172	259
Insecticides/Pesticides	Plants	1.35	175	236	Plant	1.30	170	221	Plant	1.32	173	228
Miscellaneous	Hect	1.50	1.00	150	Hect	150	1.00	150	Hect	150	1.0	150
Sub-Total	-	-	-	3899	-	-	-	3626	-	-	-	3762
3. Interest on working capital	Hect	10574	0.06	634	Hectare	10866	0.06	652	Hect	10720	0.06	643
Total variable cost	-	-	-	11208	-	-	-	11518	-	-	-	11363
(B)Fixed cost	-	-	-		-	-	-		-	-	-	
Land revenue and taxes	Hect	20.0	1.00	20.0	Hectare	20.00	1.00	0.20	Hect	20.0	1.00	20.0
Depreciation (Machinery, equipments) etc.	Hect	290	1.00	290.0	Hectare	290	1.00	290	Hect	290	1.00	290.0
Rental value of land	Hect	6800	1.00	6800	Hectare	6800	1.00	6800	Hect	6800	1.00	6800.0
Total Fixed Cost	-	-	-	7100	-	-	-	7110	-	-	-	7110
Total Cost (A+B)	-	-	-	18318	-	-	-	18628	-	-	-	18473

Table-6.2: Initial Cost of Plantation of Mango Orchard on Sampled Farms in Kangra.

(Rs./Ha.)

Cost Component	Developed block				Under Developed Block				Over all			
	Unit	Price/ unit (Rs)	Qty.	Cost (Rs)	Unit	Price/ unit (Rs)	Qty.	Cost (Rs)	Unit	Price /unit (Rs.)	Qty.	Cost (Rs)
A. Variable Cost												
1. Human labour												
Land development	days	80	12	960	days	70	15	1050	days	75	13	1005
Digging of pits	Pits	8	150	1200	Pits	8	150	1200	Pits	8	150	1200
Filling of pits	Pits	3	150	450	Pits	3	150	450	Pits	3	150	450
Manure & Fertilizer	days	80	10	800	days	70	12	840	days	75	11	820
Plant protection	days	80	5	400	days	70	6	420	days	75	6	410
Planting	days	80	8	640	days	70	10	700	days	75	9	670
Irrigation	days	80	8	640	days	70	7	490	days	75	7	565
Sub-Total	-	-	-	5090	-	-	-	5150	-	-	-	5120
2. Material												
Plant Material (including transport)	Plants	15	150	2250	Plant	15	150	2250	Plant	15	150	2250
Manure	Plants	30	25	750	Plant	25	25	625	Plant	27	25	687
Fertilizer	Plants	1.00	150	150	Plant	1.0	150	150	Plant	1.0	150	150
Insecticides/Pesticides	Plants	1.00	150	150	Plant	1.0	150	150	Plant	1.0	150	150
Miscellaneous	Hect	150	1	150	Hect	150	1	150	Hect	150	1	150
Sub-Total	-	-	-	3450	-	-	-	3325	-	-	-	3387
3. Interest on working capital	Hect	8504	0.06	512	Hect	8475	0.06	508	Hect	8489	0.06	510
Total variable cost	-	-	-	9052	-	-	-	8983	-	-	-	9017
(B)Fixed cost	-	-	-	-	-	-	-	-	-	-	-	-
Land revenue and taxes	Hect	20.00	1.00	20	Hect	20.0	1.00	20	Hect	20	1.0	20
Depreciation (Machinery, equipments) etc.	Hect	298	1.00	298	Hect	298	1.00	298	Hect	298	1.00	298
Rental value of land	Hect	6950	1	6950	Hect	6950	1.00	6950	Hect	6950	1.00	6950
Total Fixed Cost	-	-	-	7268	-	-	-	7268	-	-	-	7268
Total Cost (A+B)	-	-	-	16320	-	-	-	16251	-	-	-	16285

Table-6.3: Initial Cost of Plantation of Mango Orchard on All Sampled Farms.

(Rs./Ha.)

Cost component	**Unit**	**Price/unit (Rs.)**	**Qty/Nos**	**Cost(Rs)**
A. Variable Cost				
1. Human labour	Mandays	73	13	1335
Land development	Pits	9	161	1532
Digging of pits	Pits	3	161	440
Filling of pits	Mandays	73	12	880
Manure & Fertilizer	Mandays	73	6	440
Plant protection	Mandays	74	9	678
Planting	Mandays	74	9	717
Irrigation	-	-	-	6038
Sub-Total		-	-	-
2. Material				-
Plant Material (including transport)	Plants	15	161	2418
Manure	Plants	27	26	687
Fertilizer	Plants	125	161	204
Insecticides/Pesticides	Plants	116	161	189
Miscellaneous	Hectare	150	1.0	150
Sub-Total	-	-	-	3574
3. Interest on working capital	Hectare	96045	0.06	576
Total variable cost	-	-	-	10190
(B)Fixed cost	-	-	-	-
Land revenue and taxes	Hectare	20	1.0	20
Depreciation (Machinery, equipments) etc.	Hectare	294	1.0	294
Rental value of land	Hectare	6875	-	6875
Total Fixed Cost	-	-	-	7189
Total Cost (A+B)	-	-	-	17379

Annual Maintenances Cost of Raising Mango Orchard

The sampled orchards have been classified in to various age groups i.e. up to 5 years, 5 to 15, 15 to 25, 25 and above. The growers have to incur costs on maintenance for about 5 years. The plants started giving fruits after the age of 5 years. In the analysis, the initial cost of investment has been spread over the economic life of the orchard considering it as expected depreciation on fixed investment. The main costs involved in maintenance are human labour used in various operations, value of manure, fertilizers, insecticides/pesticides, etc. The cost on maintenance of orchard on various age groups of orchard has been worked out and presented in Tables 6.4 to6.13. Annual maintenance cost on various operations in mango cultivation in case of marginal farms is summarized in Tables 6.4, 6.5 and 6.6. On an average, annual cost of maintenance of Mango orchard on marginal farms in Bilaspur district was Rs 17,238, Rs 21,619, Rs 22,025 and Rs 22,294 per hectare in case of up to 5 years, 5-15 years, 15-25 years and above 25 years age group of orchard respectively. In Kangra district per hectare annual maintenance cost was Rs 17,309, Rs 21,691, Rs 22,203 and Rs 22,373 respectively on various age groups under reference. On the whole, per hectare annual maintenance cost was Rs 17,290 in case of orchard in the age of 0-5 years, Rs 21,680 in case of age group of 5-15 years, Rs 22,003 in case of age group of 15-25 years and Rs 22,116 in case of age group of above 25 years.

In case of small farms the per hectare annual maintenance cost was Rs 17,050, Rs 21,519, Rs 22,008 and Rs 22,287 respectively in Bilaspur district (Table 6.7). In Kangra district per hectare annual maintenance cost ranges between Rs 17,263 in age group of 0-5 years to Rs 23,140 in the age group of above 25 years (Table 6.8). On the whole annual maintenance cost was Rs 17,164, Rs 21,786, Rs 22,349 and Rs 22,883 per hectare in case of age groups of 0-5, 5-15, 15-25 and above 25 years respectively (Table 6.9). Per hectare annual maintenance cost on Medium farmers ranges between Rs 17,091 to Rs 22,103 in Bilaspur district, Rs 17,411 to Rs 22,178 in Kangra district and Rs 17,313 to Rs 22,167 in case of all medium farms (Tables 6.10, 6.11 and 6.12).

Table 6.13 summarized the per hectare annual maintenance cost on all sampled farms of Bilaspur, Kangra and over all sample. In case of Bilaspur district annual maintenance cost was Rs 17,097 in the age of 0-5 years and Rs 22,117 in the age of above 25 years whereas it was Rs 17,388 and Rs 22,810 respectively in Kangra district. On the whole total annual

maintenance cost was Rs 17,293 in the age group of 0-5 years and Rs 22,638 in the age group of above 25 years.

Table-6.4: Age wise Annual Maintenance Cost of Mango Orchard on Marginal Farms in Bilaspur District.

(Rs./Ha.)

Cost Components	Developed Block				Under Developed Block				Over all			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Value of Labour	3870	3945	4140	4190	3795	4090	4290	4380	3815	4020	4214	4286
Value of Manure	690	740	890	950	670	795	815	870	675	768	853	909
Value of fertilizer	450	770	930	960	710	780	820	890	640	775	876	925
Value of insecticide-pesticide	330	360	430	450	410	590	640	720	394	479	533	586
Land revenue cases other taxes	20	20	20	20	20	20	20	20	20	20	20	20
Interest on working capital	321	350	384	394	336	376	346	413	332	363	365	404
Depreciation	290	290	290	290	290	290	290	290	290	290	290	290
Rental value of owned land	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800
Interest of fixed capital	4272	4272	4272	4272	4272	4272	4272	4272	4272	4272	4272	4272
Prorated establishment cost	-	3764	3764	3764	-	3841	3841	3841	-	3802	3802	3802
Total Cost	17043	21311	21920	22120	17303	21854	22134	22496	17238	21619	22025	22294

Table-6.5: Age wise Annual Maintenance Cost of Mango Orchard on Marginal Farms in Kangra District.

(Rs./Ha.)

Cost Components	Developed Block				Under Developed Block				Over all			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Value of Labour	3860	4120	4390	4480	3790	4140	4510	4560	3805	4132	4461	4527
Value of Manure	725	830	890	920	710	820	895	930	713	824	892	925
Value of fertilizer	490	520	540	590	450	490	525	532	459	502	531	556
Value of insecticide-pesticide	420	610	690	740	335	392	440	462	353	484	541	578
Land revenue cases other taxes	20	20	20	20	20	20	20	20	20	20	20	20
Interest on working capital	331	366	392	405	318	352	383	390	321	358	384	396
Depreciation	298	298	298	298	298	298	298	298	298	298	298	298
Rental value of owned land	6950	6950	6950	6950	6950	6950	6050	6950	6950	6950	6950	6950
Interest of fixed capital	4390	4390	4390	4390	4390	4390	4390	4390	4390	4390	4390	4390
Prorated establishment cost	-	3726	3726	3726	-	3740	3740	3740	-	3733	3733	3733
Total Cost	17153	21830	22286	22520	17261	21592	22151	22302	17309	21691	22203	22373

Table-6.6: Age wise Annual Maintenance Cost of Mango Orchard on All Marginal Farms.

(Rs./Ha.)

Cost Component	Overall			
	0.5	5-15	15-25	25 & above
Value of 1. Labour	3807	4106	4332	4390
Value of Manure	703	811	872	916
Value of fertilizer	505	565	532	573
Value of insecticide-pesticide	363	483	536	581
Land revenue cases other taxes	20	20	20	20
Interest on working capital	324	359	375	400
Depreciation	296	296	296	296
Rental value of owned land	6912	6912	6912	6912
Interest of fixed capital	4360	4360	4360	4360
Prorated establishment cost	-	3768	3768	3768
Total Cost	17290	21680	22003	22116

Table-6.7: Age wise Annual Maintenance Cost of Mango Orchard on Small Farms in Bilaspur District.

(Rs./Ha.)

Cost Components	Developed Block				Under Developed Block				Over all			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Value of Labour	3851	3990	4150	4210	3785	4125	4390	4420	3816	4059	4225	4312
Value of Manure	705	750	910	950	695	780	810	850	699	765	866	901
Value of fertilizer	432	540	710	750	530	810	925	1110	483	678	820	925
Value of insecticide-pesticide	350	350	425	440	405	615	690	715	359	485	541	574
Land revenue cases other taxes	20	20	20	20	20	20	20	20	20	20	20	20
Interest on working capital	319	339	373	382	326	381	399	427	323	360	384	403
Depreciation	282	282	282	282	282	282	282	282	282	282	282	282
Rental value of owned land	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800
Interest of fixed capital	4268	4268	4268	4268	4268	4268	4268	4268	4268	4268	4268	4268
. Prorated establishment cost	-	3764	3764	3764	-	3841	3841	3841	-	3802	3802	3802
Total Cost	16987	21103	21711	21866	17111	21922	22425	22733	17050	21519	22008	22287

Table-6.8: Age wise Annual Maintenance Cost of Mango Orchard on Small Farms in Kangra District.

(Rs./Ha.)

Cost Components	Developed Block				Under Developed Block				Over all			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Value of Labour	3825	4095	4380	4450	3760	4090	4480	4510	3798	4093	4416	4460
Value of Manure	715	850	910	950	680	810	925	940	760	836	915	948
Value of fertilizer	510	790	850	1025	495	722	825	985	504	766	841	1019
Value of insecticide-pesticide	390	540	760	990	320	590	715	890	362	578	744	973
Land revenue cases other taxes	20	20	20	20	20	20	20	20	20	20	20	20
Interest on working capital	328	378	415	446	317	374	418	441	324	377	416	412
Depreciation	295	295	295	295	295	295	295	295	295	295	295	295
Rental value of owned land	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950
Interest of fixed capital	4310	4310	4310	4310	4310	4310	4310	4310	4310	4310	4310	4310
.Prorated establishment cost	-	3726	3726	3726	-	3740	3740	3740	-	3733	3733	3733
Total Cost	17343	21954	22616	23142	17147	21901	22678	23041	17263	21958	22640	23140

Table-6.9: Age wise Annual Maintenance Cost of Mango Orchard on All Small Farms.

(Rs./Ha.)

Cost Component	Overall			
	0.5	5-15	15-25	25 & above
Value of Labour	3806	4080	4330	4422
Value of Manure	699	809	893	936
Value of fertilizer	494	733	831	995
Value of insecticide-pesticide	361	544	645	871
Land revenue cases other taxes	20	20	20	20
Interest on working capital	323	371	400	410
Depreciation	289	289	289	289
Rental value of owned land	6881	6881	6881	6881
Interest of fixed capital	4291	4291	4291	4291
.Prorated establishment cost	-	3768	3768	3768
Total Cost	17164	21786	22349	22883

Table-6.10: Age wise Annual Maintenance Cost of Mango Orchard on Medium Farms in Bilaspur District.

(Rs./Ha.)

Cost Components	Developed Block				Under Developed Block				Overall			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Value of Labour	3892	3952	4150	4175	3780	3990	4170	4245	3869	3960	4154	4183
Value of Manure	712	735	895	930	725	692	710	790	715	725	851	913
Value of fertilizer	460	775	935	968	450	760	895	940	458	769	925	964
Value of insecticide-pesticide	340	372	445	465	320	360	420	442	336	366	439	462
Land revenue cases other taxes	20	20	20	20	20	20	20	20	20	20	20	20
Interest on working capital	325	351	387	393	318	349	373	386	323	350	383	389
Depreciation	295	295	295	295	295	295	295	295	295	295	295	295
Rental value of owned land	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800	6800
Interest of fixed capital	4275	4275	4275	4275	4275	4275	4275	4275	4275	4275	4275	4275
. Prorated establishment cost	-	3764	3764	3764	-	3841	3841	3841	-	3802	3802	3802
Total Cost	17119	21339	21966	22085	16983	21382	21799	22034	17091	21362	21944	22103

Table-6.11: Age wise Annual Maintenance Cost of Mango Orchard on Medium Farms in Kangra District.

(Rs./Ha.)

Cost Components	Developed Block				Under Developed Block				Overall			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Value of Labour	3940	4035	4245	4390	3660	4042	4390	4410	3812	4039	4310	4399
Value of Manure	738	810	840	910	712	825	910	922	726	818	871	915
Value of fertilizer	520	545	552	565	415	460	510	545	472	485	533	550
Value of insecticide-pesticide	435	595	602	610	340	370	415	490	392	438	517	501
Land revenue cases other taxes	20	20	20	20	20	20	20	20	20	20	20	20
Interest on working capital	339	360	376	389	309	343	375	407	325	348	375	398
Depreciation	304	304	304	304	304	304	304	304	304	304	304	304
Rental value of owned land	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950	6950
Interest of fixed capital	4410	4410	4410	4410	4410	4410	4410	4410	4410	4410	4410	4410
.Prorated establishment cost	-	3726	3726	3726	-	3740	3740	3740	-	3733	3733	3733
Total Cost	17656	21755	22025	22274	17120	21450	22010	22584	-	21538	22016	22228

Table-6.12: Age wise Annual Maintenance Cost of Mango Orchard on All Medium Farms.

(Rs./Ha.)

Cost Component	Overall			
	0.5	5-15	15-25	25 & above
Value of Labour	3829	4022	4240	4342
Value of Manure	722	784	861	914
Value of fertilizer	467	596	708	662
Value of insecticide-pesticide	375	412	482	490
Land revenue cases other taxes	20	20	20	20
Interest on working capital	324	349	379	395
Depreciation	299	299	299	299
Rental value of owned land	6905	6905	6905	6905
Interest of fixed capital	4372	4372	4372	4372
.Prorated establishment cost	-	3768	3768	3768
Total Cost	17313	21527	22034	22167

Table-6.13: Age wise Annual Maintenance Cost of Mango Orchard on All Sampled Farms.

(Rs / Hectare)

Cost Components	Bilaspur				Kangra				Over all			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Value of Labour	3856	3976	4192	4276	3810	4055	4337	4452	3825	4025	4271	4364
Value of Manure	710	732	858	906	722	821	878	936	718	788	869	921
Value of fertilizer	472	757	466	933	475	526	570	826	473	612	523	905
Value of insecticide-pesticide	351	388	512	411	386	433	547	787	375	416	531	699
Land revenue cases other taxes	20	20	20	20	20	20	20	20	20	20	20	20
Interest on working capital	323	352	383	401	325	353	381	406	324	352	382	403
Depreciation	292	292	292	292	303	303	303	303	299	299	299	299
Rental value of owned land	6800	6800	6800	6800	6950	6950	6950	6950	6902	6902	6902	6902
Interest of fixed capital	4273	4273	4273	4273	4397	4397	4397	4397	4357	4357	4357	4357
.Prorated establishment cost	-	3802	3802	3802	-	3733	3733	3733	-	3768	3768	3768
Total Cost	17097	21392	21598	22117	17388	21591	22116	22810	17293	21539	21922	22638

Annual Gross Returns and Net Returns

The cost and returns from bearing plants of mango on different sizes of farms are analysed and the same are given in Tables 6.14 to 6.21. It may be seen from the Table 6.14 that the annual per hectare net returns over cost in case of marginal farms of Bilaspur district were Rs 2,05,694 in the age group of 5-15 years which were higher Rs 2,07,799 in the age group of 15-25 years. The returns were decreased to Rs 1,99,629 in the age of above 25 years. In Kangra area, sampled orchards of marginal category earned net profit between Rs 2,04,596 to Rs 2,07,090 per hectare in the age group of 5-15 and above 25 years age. On the whole, net returns on marginal farms ranges between Rs 2,05,119 to Rs 2,01,477 per hectare (Table 6.16).

In the case of small farms of Bilaspur district the net return over cost were Rs 2,03,532 in the age of 5-15 years and Rs 2,26,624 per hectare in the age group of above 25 years. In Kangra district these were Rs 218371 and Rs 227765 per hectare. At over all level the sampled orchardists of this category earned Rs 2,11,204 to Rs 2,27,026 per hectare (Table 619).

The returns and cost on sampled orchardist of medium category are presented in Tables 6.20 to 6.22. In Bilaspur district the net returns were Rs 2,00,582 in the age group of 5-15 years and Rs 2,04,189 per hectare in the age of above 25 years. The net returns per hectare on sampled farms of Kangra district were Rs2,09,377 and Rs 2,12,404 in the respected age groups. On all farms of medium category the return were Rs 204903 and Rs 208295 per hectare in the age group of 5-15 years and above 25 years respectively.

It may be observed from the Table 6.23 that the returns were relatively higher on sampled farms of Kangra district and lesser on sampled farms of Bilaspur district. Further, study reveals that the returns were comparatively more in the age group of 15-25 years and lesser in the age of above 25 years.

Table-6.14: Annual Cost and return from Mango Orchard on Marginal Farms in Bilaspur District.

(Rs / Hectare)

Cost and Returns	Developed Block				Under Developed Block				Over all			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Total Cost	17043	21311	21920	22120	17303	21854	22134	22496	17238	21619	22025	22294
Grass return	-	229334	230843	223553	-	225292	228804	220292	-	227313	229824	221923
Net return over paid out cost	-	208023	208923	201433	-	203447	206670	197796	-	205694	207799	199629

Table-6.15: Annual Cost and return from Mango Orchard on Marginal Farms in Kangra District.

(Rs / Hectare)

Particulars	Developed Block				Under Developed Block				Over all			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Total Cost	17153	21830	22286	22520	17261	21592	22151	22302	17309	21691	22203	22373
Grass return	-	233963	235258	230317	-	218608	225267	220608	-	226286	230263	225463
Net return over paid out cost	-	212133	212972	207797	-	197016	203116	198306	-	204596	208060	207090

Table-6.16: Annual Cost and return from Mango Orchard on All Marginal Farms.

(Rs / Hectare)

Particulars	Overall			
	0.5	5-15	15-25	25 & above
Total Cost	17290	21680	22003	22116
Grass return	-	226799	230044	223693
Net return over paid out cost	-	205119	208041	201477

Table-6.17: Annual Cost and return from Mango Orchard on Small Farms in Bilaspur District.

(Rs / Hectare)

Particulars	Developed Block				Under Developed Block				Overall			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Total Cost	16987	21103	21711	21866	17111	21922	22425	22733	17050	21519	22008	22287
Grass return	-	230832	265146	252485	-	220469	260329	245337	-	225651	262738	248911
Net return over paid out cost	-	209729	243435	230619	-	198547	237904	222604	-	203532	240730	226624

Table-6.18: Annual Cost and return from Mango Orchard on Small Farms in Kangra District.

(Rs / Hectare)

Particulars	Developed Block				Under Developed Block				Overall			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Total Cost	17343	21954	22616	23142	17147	21901	22678	23041	17263	21958	22640	23140
Grass return	-	242547	276445	252137	-	238112	270356	249678	-	240329	273005	250908
Net return over paid out cost	-	220593	253889	228995	-	216211	247678	226637	-	218371	250365	227765

Table-6.19: Annual Cost and return from Mango Orchard on All Small Farms.

(Rs / Hectare)

Particulars	Overall			
	0.5	5-15	15-25	25 & above
Total Cost	17164	21786	22349	22883
Grass return	-	232990	267872	249909
Net return over paid out cost	-	211204	245523	227026

Table-6.20: Annual Cost and return from Mango Orchard on Medium Farms in Bilaspur District.

(Rs / Hectare)

Particulars	Developed Block				Under Developed Block				Overall			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Total Cost	17119	21339	21966	22085	16983	21382	21799	22034	17091	21362	21944	22103
Grass return	-	225317	235258	230317	-	218571	228399	222267	-	221944	231829	226292
Net return over paid out cost	-	203978	213292	208232	-	196989	206600	200253	-	200582	209885	204189

Table-6.21: Annual Cost and return from Mango Orchard on Medium Farms in Kangra District.

(Rs / Hectare)

Particulars	Developed Block				Under Developed Block				Overall			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Total Cost	17656	21755	22025	22274	17120	21450	22010	22584	-	21538	22016	22228
Grass return	-	233716	252571	237716	-	228113	237232	22198	17411	230915	244902	234632
Net return over paid out cost	-	211961	230546	215442	-	206663	215222	209350	-	209377	222886	212404

Table-6.22: Annual Cost and return from Mango Orchard on All Medium Farms.

(Rs / Hectare)

Particulars	Overall			
	0.5	5-15	15-25	25 & above
Total Cost	17313	21527	22034	22167
Grass return	-	226430	238366	230462
Net return over paid out cost	-	204903	216332	208295

Table-6.23: Annual Cost and return from Mango Orchard on All Sampled Farms.

(Rs / Hectare)

Particulars	Bilaspur				Kangra				Over all			
	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above	0.5	5-15	15-25	25 & above
Total Cost	17097	21392	21598	22117	17388	21591	22116	22810	17293	21539	21922	22638
Grass return	-	224969	241464	222375	-	232510	249390	237001	-	228739	245427	229688
Net return over paid out cost	-	203577	219866	200258	-	210919	227274	214191	-	207200	223505	207050

Chapter – VII

PROBLEMS IN MARKETING OF MANGO

Efficient marketing strategy especially for horticulture produce, depends mainly on the decision on where, when, how and how much to market. In the process of marketing, a product has to pass through a number of marketing agencies and make use of the services of several functionaries. Fruits pass through different channels on their way to the ultimate consumers and the share of consumer's money received by the grower depends upon the channel followed.

Himachal Pradesh is well known for quality fruits in India. Several varieties of apples, stone fruits, citrus etc. are grown in different parts of the State depending on the suitability of climatic conditions. The area under these fruits have increased by manifolds till nineties therefore, the growth in areas of these fruits have been increasing constantly. Thus an increase in production has also brought in many problems with regard to the marketing of these fruits and this ultimately affects both producers as well as consumers. Increase in production/Productivity is not the only factor, which determines profit maximization, but other factors such as time of picking, time taken in grading and packing, time taken in transportation, role of middlemen etc. are also important. Hence keeping in view these factors, the problem of Mango (the fruit under study) orchardists of Himachal Pradesh with respect of grading and packing, packing material, storage, transportation, marketing intelligence, malpractice in the market have been discussed in this chapter. Multiple response analysis on these problems has been carried out and the results have been presented and discussed in the following text.

Problems in Relation to Picking of Fruit

Two problems in relation to picking of Mango fruit were reported by the sampled of orchardists and these were shortage of skilled labour and the wages of skilled labour being high. The results of analysis have been presented in Table 7.1 which reveals that there was not even a single respondent who did not had any problem in this concerned. At overall level 27 per cent of the farmers reported that there was a shortage of skilled labour and this

problem was more acute for marginal category of farmer and was reduced as the size of holding increased. This problem was more pronounced in district Bilaspur. At overall level, thirty three per cent of the sampled orchardists felt that the wages of the skilled labour was high. This problem was more acute for small farmers (45 per cent) at overall level. The incidence of this problem was high in the developed blocks in both the districts.

Table: 7.1 Problems Relating to Picking of Fruit.

(Multiple response, %)

Category	Shortage of skilled labour	Wages are high	No. Problem
Bilaspur			
Developed block			
Marginal	3 (33.0)	5 (55.0)	-
Small	2 (29.0)	3 (43.0)	-
Medium	4 (44.0)	4 (44.0)	-
All	9 (36.0)	12 (48.0)	-
Under developed block			
Marginal	5 (50.0)	3 (30.0)	-
Small	3 (30.0)	5 (50.0)	-
Medium	1 (20.0)	1 (20.0)	-
All	9 (36.0)	9 (36.0)	-
Kangra			
Developed block			
Marginal	1 (17.0)	2 (34.0)	-
Small	3 (30.0)	6 (60.0)	-
Medium	1 (11.0)	3 (33.0)	-
All	5 (20.0)	11 (44.0)	-
Under developed block			
Marginal	2 (18.0)	5 (45.0)	-
Small	1 (17.0)	1 (17.0)	-
Medium	1 (13.0)	1 (13.0)	-
All	4 (16.0)	7 (28.0)	-
Overall			
Marginal	11 (30.0)	10 (28.0)	-
Small	9 (27.0)	15 (45.0)	-
Medium	7 (23.0)	9 (29.0)	-
All	27 (27.0)	33 (33.0)	-

Problems Regarding Grading and Packing Labour

Grading and packing are the important functions in ensuring that the quality of fruit is maintained during whole of the marketing process. The main problems encountered during this function related mainly to the availability and wages of labour. The results of analysis have been presented in Table 7.2 and it may be seen that at overall level 43 per cent of the sampled orchardists felt the shortage of skilled labour and 46 per cent felt that the wages of labour were higher than justified. About 32 per cent orchardists were constrained due to non-availability of labour whereas 27 per cent did not feel any problem in this regard. In district Bilaspur this problems were encountered by higher percentage of orchardists in developed block whereas the percentage of farmers in developed and under developed block was almost identical in district Kangra,

Table: 7.2 Problems Regarding Grading and Packing Labour.

(Multiple Response, %)

Category	Shortage of skilled labour	Higher wages	Non-availability of labour	No Problem
Bilaspur				
Developed block				
Marginal	5 (55.0	4 (44.0)	5 (55.0)	3 (33.0)
Small	2 (29.0)	5 (71.0)	1(14.0)	2 (29.0)
Medium	4 (44.0)	6 (67.0)	3 (33.0)	4 (44.0)
All	11 (44.0)	15 (60.0)	9 (36.0)	9 (36.0)
Under developed block				
Marginal	4 (40.0)	5 (50.0)	4 (40.0)	3 (30.0)
Small	5 (50.0)	4 (40.0)	3 (30.0)	3 (30.0)
Medium	3 (60.0)	2 (40.0)	1 (20.0)	1 (20.0)
All	12 (48.00)	11 (44.0)	8 (32.0)	7 (28.0)
Kangra				
Developed block				
Marginal	2 (33.0)	2 (33.0)	1 (17.0)	2 (33.0)
Small	4 (40.0)	5 (50.0)	3 (30.0)	3 (30.0)
Medium	4 (44.0)	3 (33.0)	2 (22.0)	2 (22.0)
All	10 (40.0)	10 (40.0)	6 (24.0)	7 (28.0)
Under developed block				
Marginal	5 (45.0)	6 (55.0)	4 (36.0)	2 (180)
Small	2 (33.0)	2 (33.0)	2 (33.0)	1 (170)
Medium	3 (38.0)	2 (25.0)	3 (38.0)	1 (130)
All	10 (40.0)	10 (40.0)	9 (36.0)	4 (16.0)
Overall				
Marginal	16 (44.0)	17 (47.0)	14 (38.0)	10 (28.0)
Small	13 (39.0)	16 (48.0)	9 (27.0)	9 (27.0)
Medium	14 (45.0)	13 (42.0)	9 (29.0)	8 (26.0)
All	43 (43.0)	46 (46.0)	32 (32.0)	27 (27.0)

Problems Regarding Packing Material

The results of analysis pertaining to various problems related with packing material have been presented in Table 7.3 which reveals that 21 per cent of respondents did not face any problem relating to the availability or prices etc. of the packing material. Most common problem related by 65 percent of the orchardists was that the packing material was not available on credit whereas 62 percent revealed that the packing material was not available as desired place. The grouse of 43 per cent of respondents was that packing material was very costly. This problem was more acute for marginal farmers and was reduced with increasing size of holding. Shortage of wooden boxes and gunny bags was reported by 29 per cent respondents whereas 25 per cent revealed that there was also a shortage of other packing material. These problems were reported by almost equal percentage of farmers in developed and under developed blocks of each district.

Table: 7.3 Problems Regarding Packing Material.

(Multiple Response, %)

Category	Shortage of wooden boxes/gunny bags	Shortage of other packing material	High prices	Not available on credit	Not available in time	Not available at desired place	No problem
Bilaspur							
Developed block							
Marginal	3 (33.0)	3 (33.0)	5 (56.0)	7 (78.0)	2 (22.0)	6 (67.0)	2 (22.0)
Small	2 (29.0)	2 (29.0)	3 (43.0)	5 (71.0)	1 (14.0)	5 (71.0)	1 (14.0)
Medium	2 (22.0)	3 (33.0)	4 (44.0)	6 (67.0)	3 (33.0)	7 (78.0)	2 (22.0)
All	7 (28.0)	8 (32.0)	12 (48.0)	18 (72.0)	6 (24.0)	18(72.0)	5 (20.0)
Under developed block							
Marginal	3 (3.00)	2 (20.0)	6 (60.0)	8 (8.00)	3 (30.0)	8 (80.0)	3 (30.0)
Small	2 (20.0)	2 (20.0)	5 (50.0)	7 (70.0)	2 (20.0)	8 (80.0)	2 (20.0)
Medium	1 (20.0)	1 (20.0)	2 (40.0)	3 (60.0)	1 (20.0)	2 (40.0)	1 (20.0)
All	6 (24.0)	5 (20.0)	13 (52.0)	18 (72.0)	6 (24.0)	18(72.0)	6 (24.0)
Kangra							
Developed block							
Marginal	1 (17.0)	1 (17.0)	1 (17.0)	3 (50.0)	1 (17.0)	3 (50.0)	1 (17.0)
Small	4 (40.0)	3 (30.0)	4 (40.0)	7 (70.0)	3 (30.0)	5 (50.0)	2 (20.0)
Medium	3 (33.0)	2 (22.0)	3 (33.0)	5 (55.0)	2 (22.0)	4 (44.0)	2 (22.0)
All	8 (32.0)	6 (24.0)	8 (32.0)	15(60.0)	6 (24.0)	12(48.0)	5 (20.0)
Under developed block							
Marginal	4 (36.0)	3 (27.0)	6 (54.0)	7 (63.0)	3 (27.0)	6(54.0)	3 (27.0)
Small	2 (33.0)	1 (17.0)	2 (33.0)	3 (50.0)	2 (33.0)	3(50.0)	1 (17.0)
Medium	2 (25.0)	2 (25.0)	2 (25.0)	4 (50.0)	2 (25.0)	5(63.0)	1 (14.0)
All	8 (32.0)	6 (24.0)	10 (40.0)	14 (56.0)	7 (28.0)	14(56.0)	5 (20.0)
Overall							
Marginal	11 (31.0)	9 (25.0)	18 (50.0)	25 (69.0)	9 (25.0)	23(64.0)	9 (25.0)
Small	10 (30.0)	8 (24.0)	14 (42.0)	22 (67.0)	8 (24.0)	21(64.0)	6 (18.0)
Medium	8 (25.0)	8 (25.0)	11 (35.0)	18 (58.0)	8 (26.0)	18(58.0)	6 (19.0)
All	29 (29.0)	25 (25.0)	43 (43.0)	65 (65.0)	25(25.0)	62(62.0)	21(21.0)

Problems Regarding Storage Facility

The analysis of this aspect of marketing revealed that either the respondents had no storage facilities at all or the facilities were inadequate. The results of analysis have been presented in Table 7.4 revealing that 85 per cent of the sampled orchardists had no storage facilities at all and the rest 15 per cent had inadequate storage facilities. The problem of absence of storage facilities was most acute in under developed block of Bilaspur district where 96 per cent of the sampled orchardists had no storage facility.

Table: 7.4 Problems Regarding Storage Facility.

(Multiple Response, %)

Category	No storage	Inadequate storages facility	No Problem
Bilaspur			
Developed block			
Marginal	8 (89.0)	-	-
Small	5 (71.0)	-	-
Medium	7 (78.0)	-	-
All	20 (80.0)	-	-
Under developed block			
Marginal	9 (90.0)	-	-
Small	10 (100.0)	-	-
Medium	5 (100.0)	-	-
All	24 (96.0)	-	-
Kangra			
Developed block			
Marginal	5 (83.0)	-	-
Small	8 (80.0)	-	-
Medium	7 (78.0)	-	-
All	20 (80.0)	-	-
Under developed block			
Marginal	10 (90.0)	-	-
Small	5 (83.0)	-	-
Medium	6 (75.0)	-	-
All	21 (84.0)	-	-
Overall			
Marginal	32 (89.0)	-	-
Small	28 (84.0)	-	-
Medium	25 (81.0)	-	-
All	85 (85.0)	-	-

Problems Regarding Transportation

Due to good network of roles in the state the transportation has been greatly facilitated even in the interior areas of the state. This is evident from the analysis of the problems related with the transportation of Mangoes from producing areas to the markets, Table 7.5 presents the results. It may be seen that overwhelming majority of the respondents (88 per cent) had no problems whatsoever in this concerned. Although there was no lack of vehicles for transportation, about 12 per cent respondents complained that sometimes vehicles were not available well in time. The most common complaint was about high transportation charges and for 30 per cent of the respondents this was one of the important problems.

Table: 7.5 Problems Regarding Transportation.

Category	Lack of vehicles	Vehicles not available in time	Villages are not linked with metalled road	High transportation charges	Lack of all weather roads	No. Problem
Bilaspur						
Developed block						
Marginal	-	-	-	3 (33.0)	-	8 (89.0)
Small	-	-	-	2 (29.0)	-	7 (100.0)
Medium	-	3 (33.0)	-	4 (44.0)	-	9 100.0)
All	-	3 (12.0)		9 (36.0)	-	24(96.0)
Under developed block						
Marginal	-	2 (20.0)	-	4 (40.0)	-	8 (80.0)
Small	-	1 (10.0)	-	3 (30.0)	-	7 (70.0)
Medium	-	1 (20.0)	-	1 (20.0)	-	3 (60.0)
All	-	4 (16.0)	-	8 (32.0)	-	18 72.0)
Kangra						
Developed block						
Marginal	-	-	-	2 (33.0)	-	5 (83.0)
Small	-	2 (20.0)	-	3 (30.0)	-	9 (90.0)
Medium	-	-	-	2 (22.0)	-	9 (100.0)
All	-	2 (8.0)	-	7 (28.0)	-	23 (92.0)
Under developed block						
Marginal	-	1 (9.0)	-	3 (27.0)	-	10 (90.0)
Small	-	-	-	1 (17.0)	-	6(100.0)
Medium	-	2 (25.0)	-	2 (25.0)	-	7 (88.0)
All	-	3 (12.0)	-	6 (24.0)	-	23 (92.0)
Overall						
Marginal	-	3 (83.0)	-	12 (33.0)	-	31 (86.0)
Small	-	3 (9.00)	-	9 (27.0)	-	29 (88.0)
Medium	-	6 (19.0)	-	9 (29.0)	-	28 (90.0)
All	-	12 (12.0)	-	30 (30.0)	-	88(88.0)

Problems Regarding Market Intelligence

The availability of timely and dependable market intelligence plays a very important role in efficient marketing system, especially of perishable products like fruits. The responses of sampled orchardists were sought about factors like late, inadequate, and misleading information and that information was available only for limited markets. The results of the analysis have been presented in Table 7.6 revealing that only 23 per cent of the respondents had no problem in relation to market intelligence. Majority of the orchardists (67 per cent) thought that the information available was inadequate and it was risky to base the marketing decision on such inadequate information. More than half of the sampled orchardists complained that marketing intelligence was available for limited markets only and hence they could not send their produce to other markets. Forty eight per cent orchardists felt that the information was available late and many times they could not make use of such information. Some of the respondents (19 per cent) felt that available information was misleading and did not present the true picture of market situation.

Problems Regarding Malpractices in Market

There are many malpractices present in the market and many traders try to fleece the producers by deducting higher charges, part payment, multiplicity of charges etc. The responses on such factors were collected from the respondents and the results of analysis have been presented in Table 7.7. It is revealed that the most acute problem being faced by 45 per cent of the respondents was that the traders do not take the consent of the farmers while selling. Due to this many times the product is sold at lower prices. About one-third of the sampled respondents complained about the part payment meaning there by that sale proceeds are paid over a period of time in number of instalments and not in a single instalment, as it should have been. Eleven percent of the farmers thought that the traders deduced more charges than prescribed. Only three per cent of the respondents had no problem in this relation.

Problems Regarding Processing and Cold Storages

The functions of processing and cold storage are important for increasing the shelf like of the perishable product. The respondent revealed that such facilities are hardly available to them, 65 per cent revealed that there are no pre-cooling facilities available (Table 7.8) and 58 per

cent revealed that no cold storage facility was available to them. Sixty three per cent respondents complained that processing plant was not located near by and hence they could not make use of this facility.

Table: 7.6 Problems Regarding Market Intelligence.

(Multiple Response %)

Category	Late information	Information available for limited markets only	Inadequate information	Misleading information	No. Problem
Bilaspur					
Developed block					
Marginal	5 (56.0)	6 (67.0)	7 (78.0)	2 (22.0)	3 (33.0)
Small	4 (57.0)	4 (57.0)	5 (71.0)	1 (14.0)	2 (29.0)
Medium	6 (67.0)	5 (55.0)	8 (89.0)	3 (33.0)	2 (22.0)
All	15 (60.0)	15 (60.0)	20 (80.0)	6 (24.0)	7 (28.0)
Under developed block					
Marginal	5 (50.0)	5 (50.0)	8 (80.0)	2 (20.0)	2 (20.0)
Small	3 (30.0)	7 (70.0)	7 (70.0)	2 (20.0)	3 (30.0)
Medium	2 (40.0)	2 (40.0)	2 (40.0)	1 (20.0)	1 (20.0)
All	10 (40.0)	14 (56.0)	17 (68.0)	5 (20.0)	6 (24.0)
Kangra					
Developed block					
Marginal	2 (33.0)	1 (17.0)	2 (33.0)	1 (17.0)	1 (17.0)
Small	6 (60.0)	5 (50.0)	8 (80.0)	3 (30.0)	2 (20.0)
Medium	3 (33.0)	4 (44.0)	7 (78.0)	1 (11.0)	2 (22.0)
All	11 (44.0)	10 (40.0)	17 (68.0)	5 (20.0)	5 (20.0)
Under developed block					
Marginal	6 (54.0)	8 (73.0)	9 (82.0)	1 (9.00)	3 (27.0)
Small	2 (33.0)	2 (33.0)	1 (17.0)	-	1 (17.0)
Medium	4 (50.0)	3 (38.0)	3 (38.0)	2 (25.0)	1 (13.0)
All	12 (48.0)	13 (52.0)	13 (52.0)	3 (12.0)	5 (20.0)
Overall					
Marginal	18 (50.0)	20 (55.0)	26 (72.0)	6 (17.0)	9 (25.0)
Small	15 (45.0)	18 (54.0)	21 (63.0)	6 (18.0)	8 (24.0)
Medium	15 (48.0)	14 (45.0)	20 (64.0)	7 (22.0)	6 (19.0)
All	48 (48.0)	52(52.0)	67 (67.0)	19 (19.0)	23 (23.0)

Table: 7.7 Problems Regarding Malpractices in Market.

(Multiple Response, %)

Category	Deduct more charges	Part payment	Multiplicity of charges	Deduct undue charges	Do not take the consent of the farmer while selling	Quote lower price than actual price	No. Problem
Bilaspur							
Developed block							
Marginal	2 (22.0)	2 (22.0)	1 (11.0)	-	5 (56.0)	-	-
Small	-	3 (43.0)	-	1 (14.0)	3 (43.0)	-	-
Medium	2 (22.0)	5 (56.0)	2 (22.0)	-	4 (44.0)	2 (22.0)	1 (11.0)
All	4 (16.0)	10 (40.0)	3 (12.0)	1 (4.00)	12 (48.0)	2 (8.00)	-
Under developed block							
Marginal	-	4 (40.0)	-	-	6 (60.0)	2 (20.0)	-
Small	-	3 (30.0)	2 (20.0)	-	5 (50.0)	-	2 (20.0)
Medium	1 (20.0)	1 (20.0)	-	-	2 (40.0)	-	-
All	1 (4.00)	8 (32.0)	2 (8.00)	-	13 (52.0)	2 (8.0)	2 (8.0)
Kangra Developed block							
Marginal	-	1 (17.0)	1 (17.0)	-	2 (34.0)	-	-
Small	2 (20.0)	3 (30.0)	-	2 (20.0)	4 (40.0)	-	-
Medium	1 (11.0)	3 (33.0)	1 (11.0)	-	3 (33.0)	-	-
All	3 (12.0)	7 (28.0)	2 (8.0)	2 (8.0)	9 (36.0)	-	-
Under developed block							
Marginal	3 (27.0)	5 (45.0)	2 (18.0)	3 (27.0)	6 (54.0)	2 (18.0)	-
Small	-	1 (17.0)	-	-	2 (33.0)	-	-
Medium	-	2 (25.0)	1 (13.0)	1 (13.0)	3 (38.0)	-	-
All	3 (12.0)	8 (32.0)	3 (12.0)	4 (16.0)	11 (44.0)	2 (8.00)	-
Overall							
Marginal	5 (14.0)	12 (33.0)	4 (11.0)	3 (83.0)	19 (53.0)	4 (11.0)	-
Small	2 (6.0)	10 (30.0)	2 (6.0)	3 (9.0)	14 (42.0)	-	2 (6.0)
Medium	4 (13.0)	11 (35.0)	4 (13.0)	1 (3.0)	12 (38.0)	2 (6.0)	1 (3.0)
All	11 (11.0)	33 (33.0)	10 (10.0)	7 (7.00)	45 (45.0)	6 (6.00)	3 (3.00)

Table: 7.8 Problems Regarding Processing/Cold Store.

(Multiple response %)

Category	No pre cooling facility	Inadequate pre cooling facility	No cold store facility	Inadequate cold store facility	Processing plant is not nearly located	Inadequate processing facility	No problem	Other specify
Bilaspur								
Developed block								
Marginal	7 (78.0)	-	6 (67.0)	-	5 (56.0)	-	-	-
Small	3 (43.0)	-	3 (43.0)	-	3 (43.0)	-	-	-
Medium	8 (89.0)	-	7 (78.0)	-	6 (67.0)	-	-	-
All	18 (72.0)	-	16 (64.0)	-	14 (56.0)	-	-	-
Under developed block								
Marginal	8 (80.0)	-	8 (8.00)	-	7 (70.0)	-	-	-
Small	9 (90.0)	-	7 (70.0)	-	6 (60.0)	-	-	-
Medium	3 (60.0)	-	2 (40.0)	-	2 (40.0)	-	-	-
All	20 (80.0)	-	17 (68.0)	-	15(60.0)	-	-	-
Kangra Developed block								
Marginal	2 (33.0)	-	2 (33.0)	-	2 (33.0)	-	-	-
Small	6 (60.0)	-	7 (70.0)	-	8 (80.0)	-	-	-
Medium	3 (33.0)	-	3 (33.0)	-	7 (78.0)	-	-	-
All	11 (44.0)	-	12(48.0)	-	17(68.0)	-	-	-
Under developed block								
Marginal	8 (73.0)	-	8 (73.0)	-	9 (82.0)	-	-	-
Small	3 (50.0)	-	2 (33.0)	-	3 (50.0)	-	-	-
Medium	5 (63.0)	-	3 (48.0)	-	5 (63.0)	-	-	-
All	16(64.0)	-	13 (52.0)	-	17 (68.0)	-	-	-
Overall								
Marginal	25 (69.0)	-	24 (67.0)	-	23 (64.0)	-	-	-
Small	21 (64.0)	-	19 (58.0)	-	20 (61.0)	-	-	-
Medium	19 (61.0)	-	15 (48.0)	-	20 (64.0)	-	-	-
All	65 (65.0)	-	58(58.0)	-	63 (63.0)	-	-	-

Problems Regarding Support/Procurement Price Policy

Many mango orchardists were not satisfied with the support/procurement price policy for mangoes. The results of analysis have been presented in Table 7.9 revealing that 21 per cent of the respondents felt that prices are not announced well in time. About 8 per cent respondents felt that the prices are not paid in time and 13 per cent reported that such prices

are low as compared with ruling market prices. Only one per cent of the respondents had no problems in this concerned.

Table: 7.9 Problems Regarding Support/Procurement Price Policy.

(Multiple response, %)

Category	Prices not announced in time	Prices are not paid in time	Prices are low	Do not give announced price	No. Problem
Bilaspur					
Developed block					
Marginal	3 (33.0)	1 (11.0)	2 (22.0)	-	1 (11.0)
Small	2 (29.0)	-	-	-	-
Medium	3 (33.0)	-	-	-	-
All	8 (32.0)	1 (4.0)	2 (8.0)	-	1 (4.0)
Under developed block					
Marginal	2 (20.0)	-	3 (30.0)	-	-
Small	3 (30.0)	2 (20.0)	2 (20.0)	-	-
Medium	1 (20.0)	-	-	-	-
All	6 (24.0)	2 (8.00)	5 (20.0)	-	-
Kangra					
Developed block					
Marginal	-	-	-	1 (17.0)	-
Small	3 (30.0)	2 (20.0)	3 (30.0)	-	-
Medium	-	1 (11.0)	-	-	-
All	3 (12.0)	3 (12.0)	3 (12.0)	1 (4.0)	-
Under developed block					
Marginal	3 (2.70)	2 (18.0)	3 (27.0)	2 (18.0)	-
Small	-	-	-	1 (17.0)	-
Medium	1 (13.0)	-	-	-	-
All	4 (16.0)	2 (8.0)	3 (12.0)	3 (12.0)	-
Overall					
Marginal	8 (22.0)	3 (8.0)	8 (22.0)	3 (8.0)	1 (3.0)
Small	8 (24.0)	4 (12.0)	5 (15.0)	1 (3.0)	-
Medium	5 (16.0)	1 (3.0)	-	-	-
All	21 (21.0)	8 (8.0)	13 (13.0)	4 (4.0)	1 (1.0)

Table: 7.10 Problems Regarding Approach Road to Village.

(Multiple response, %)

Category	No all season approach road	Road is not mettle	No. Problem
Bilaspur			
Developed block			
Marginal	3 (33.0)	1(11.0)	-
Small	2 (28.0)	1 (14.0)	-
Medium	4 (44.0)	3 (33.0)	-
All	9 (36.0)	5 (20.0)	-
Under developed block			
Marginal	6 (60.0)	4 (40.0)	-
Small	5 (50.0)	5 (50.0)	-
Medium	2 (40.0)	3 (60.0)	-
All	13 (52.0)	12 (48.0)	-
Kangra			
Developed block			
Marginal	-	-	3 (50.0)
Small	-	-	6 (60.0)
Medium	-	-	4 (44.0)
All	-	-	13 (52.0)
Under developed block			
Marginal	-	-	6 (54.0)
Small	-	-	2 (33.0)
Medium	-	-	4 (50.0)
All	-	-	12 (48.0)
Overall			
Marginal	9 (25.0)	5 (13.0)	9 (25.0)
Small	7 (21.0)	6 (18.0)	8 (24.0)
Medium	6 (19.0)	6 (19.0)	8 (26.0)
All	22 (22.0)	17 (17.0)	25 (25.0)