Impact of Emerging Marketing Channels in Agriculture Marketing-Benefit to Producer- Sellers and Marketing Costs and Margins of Apple and Tomato in Himachal Pradesh

Ranveer Singh, C.S.Vaidya, Meenakshi, Pratap Singh

Agro Economic Research Centre
Himachal Pradesh University
Shimla-171005 (India)

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Research Team

Project Leaders	Dr Ranveer Singh
	Dr C.S.Vaidya
Project Associates	Dr (Mrs) Meenakshi
	Dr Pratap Singh
	Dr S.P.Saraswat
	Dr M.L.Sharma
	Mr Khem Raj Sharma
	Mr Narender Kumar
Word processing	Mrs Meera Verma
	Mr Chaman Lal
Photocopying	Mr Amer Chand Sharma

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Abstract: The introduction of corporate sector in the apple and tomato trade (emerging marketing channels) in Himachal Pradesh is recent one and it operates at all level of marketing from producers to consumers. The 'emerging' marketing channels (EMC) are supposed to reduce the transaction costs and ensure that the 'high' margins that certain agents get in the traditional marketing channels (TMC) are reduced in the 'new' emerging marketing channels. In the present study an attempt has been made to examine the marketing efficiency under TMC vis-à-vis EMC in marketing of Apple and Tomato, major fruit and vegetable crops in Himachal Pradesh. The results of the study revealed that the total marketing cost of apple was higher, Rs 2347/quintal in traditional marketing channel compared to Rs. 1321/quintal in emerging channel. The marketing margin of various agents operating in the trade of apple was also higher in traditional channel Rs 833/quintal than that of emerging channel Rs 632/quintal. The value added and retailer's sale price was Rs 3180 and Rs 8486/quintal, respectively under the traditional marketing channel which are relatively higher than that of emerging marketing channel. Marketing efficiency was 2.06 in case of emerging marketing channel which is higher than the efficiency of 1.67 estimated under traditional marketing channel. In the case of Tomato, the total marketing cost was higher, Rs 750/quintal in traditional marketing channel. The marketing margins of various agents operating in the trade of tomato were also higher in traditional channel, Rs 298/quintal as compared to Rs 258/quintal under emerging channel. The value addition by retailer and retailer's sale price was Rs 1048 and Rs 1568/quintal under the traditional marketing channel which was higher than that of emerging marketing channel Rs.507 and Rs.1496 respectively. Marketing efficiency was 1.95 in case of emerging marketing channel which was higher than the efficiency of 0.50 estimated under traditional marketing channel in tomato. The study suggests that there should be the promotion of other alternative marketing channels as direct marketing to consumers, retail chains, farmers markets, contract farming etc. To protect the interest of producers and consumers, it is essential to integrate the role of intermediaries. In order to avoid exploitation of farmers and to reduce the role of intermediaries, the market information system should be strengthened.

Objectives

The present study has been conducted to answer the following research questions:

1. What has been the share of producer in the consumer rupee in emerging marketing channels vis-à-vis the traditional marketing channels?
2. What is the degree of market efficiency and incidence of post-harvest losses in emerging marketing channels vis-à-vis traditional marketing channels?
3. What are the market practices and services provided by different agencies in the emerging marketing channels vis-à-vis traditional marketing channels?
4. What are the constraints faced by the farmers and different market functionaries in the emerging marketing channel vis-à-vis traditional marketing channels?

Methodology

Apple among fruit crops and tomato among vegetable crops were selected for the study on the basis of area and production in Himachal Pradesh. Shimla district ranks first in production and area under apple and Solan district is on the top in tomato in the State. Hence, Shimla district for apple and Solan for tomato were selected for the study. In the selected districts, a block where farmers were selling their produce through traditional and emerging channel was selected in each district for each crop under study. In the selected block a cluster of three villages was formed on the same ground. A list of farmers selling their produce through traditional and emerging marketing channel was prepared and a sample of 50 growers under each channel was drawn for the study (Table-1). The sampled farmers were classified based on land holding classes (Marginal, Small, Medium and Large farmers).

Table-1.: Classification of Sample Farm Households

Crops/channel	Marginal	Small	Medium	Large	All
Apple					
TMC	25 (50)	18 (36)	7(14)	-	50(100)
EMC	34(68)	10(20)	6(12)	-	50(100)
Tomato					
TMC	30(60)	14(28)	4(8)	2(4)	50(100)
EMC	27(54)	9(18)	10(20)	4(8)	50(100)

Note: Figures in brackets are percentages.

The apple and tomato crops were sold under TMC and EMC at Fruit and Vegetable Market, Azadpur, Delhi. Five traders dealing in each crop and channels were selected. Similarly, five retailers in each channel were chosen from fruit and vegetable market Laxminagar, Delhi for the study. The traditional channel, producer-wholesaler/commission agent-Mashakhor-Retailer-Consumer has been selected as 60 percent of marketed surplus of apple is being sold at terminal market, Delhi through this channel. In the case of tomato the traditional channel, producer-commission agent-retailer-consumer has been selected as 40 percent of the total marketed surplus of tomato is marketed at terminal market at Delhi through this channel. In the emerging marketing channels, for apple Adani group is the major agent and the supply chain through this group is producers-Adani-wholesaler/commission agents- Mashakhor-retailers-consumers. In the case of tomato, Mother Dairy is the major emerging agent and the supply chain through this agent is producer-Mother Dairy-retail booths-consumers.

Main Findings

The following are the main findings of the study:

To enable the farming community to derive maximum value from the new market access opportunities, the need was felt that the marketing system in the country be modernized, integrated and strengthened. Accordingly, a Modal APMC Act was finalized in 2003 and circulated to all states in country by Government of India. Himachal Pradesh took initiative in introducing the agricultural marketing reforms on the lines of the Model Act by repealing the old Act and putting in place a new Act, The Himachal Pradesh Agricultural and Horticultural Produce Marketing (Development and Regulation) Act, 2005. This Act came into force with effect from 26.5.2005. Himachal Pradesh is the first State in the country to take lead in this regard. It provides for setting up of private markets, consumer/farmers markets and creation of post harvest infrastructure in the State. Himachal Pradesh introduced single point levy of market fee system in the State.

The introduction of corporate sectors in the apple and tomato trade (emerging marketing channels) in Himachal Pradesh is recent one and they operate at all level of marketing from producers to consumers. The 'emerging' marketing channels (EMC) are supposed to reduce the transaction costs and ensure that the 'high' margins that certain agents get in the traditional marketing channels (TMC) are reduced in the 'new' emerging marketing channels.

Features of TMC and EMC

Features of Traditional Channel: Apple marketing under traditional marketing system proved very speculative exercise which resulted in low level of returns to farmers. Orchardists of Himachal Pradesh were entirely dependent on traders especially of Azadpur market of Delhi for marketing of the produce. Traders charge 6 to 8 percent as commission from the growers which illegal and is too high. Apple growers from Himachal Pradesh were paying an annual commission of about 50 crores to agents at the Delhi market. According to an estimate a single Himachal grower used to pay Rs.6073 as commission to the Delhi based agents. During 1975-76, 80 percent of the entire apple crop was marketed in Delhi. This has, however, marginally come down to 77 percent during 2000-01. In this channel the buyers provide the facility of credit to the growers at free of cost. In TMC there is surety of buying all produce of growers by the traders. But in this channel traders do not give the facilities like supply of packing material, inputs etc.

Features of Emerging Channel: The reduction in the quantum of produce sent to Delhi market is due to the fact that some new channels emerged for marketing and large buyers started purchasing apple directly from the orchards. In addition to this, these corporate buyers constructed very sophisticated cold stores with modern technology where fruit can be preserved for a longer period. Presently, two major bulk buyers, Adani group and Indian Railway Board are purchasing apple in the state. Initially, Adani group started purchasing only of 'A' grade apple. This resulted in conflict between the growers and Adani group. But now the Adani group is buying all grades and retaining 'A' grade of apple in its own store and disposing off all other grades of apple procured from the growers to local traders. This system has created a new environment in apple marketing as now the apple producers selling the apples to Adani group are no more dependent upon the traditional local and other traders.

Under this system plastic crates are distributed free of cost to the member growers for carriage of produce to the stores of Adani group. The members are generally selected from high elevation of apple growing area for ensuring the better quality of produce. The orchards located at mid and low elevations are producing the bulk of apple but are deprived for selling produce to Adani group. It is because of this reasons that the cold stores are not able to meet their demand for procurement of apple produce and are running at lower than installed capacity. As a result, low elevation growers are compelled to sell their produce to local, Delhi and Chandigarh traders.

Like apple marketing, the emerging channel in the form of Mother Dairy is also operating in the field of tomato marketing. It is the only emerging channel in marketing of tomato in vegetable growing region of the state. The role of this emerging channel is also the same as in apple with minor differences. The farmers are supplied with plastic crates for facilitating the collection but charged one rupee for each crate from the farmers. This is the only difference in marketing of apple and tomato. Mother Dairy uses to purchase tomatoes produced within a specific temperature ensuring the better shelf life and keeping quality. This is ensured by measuring the strength of tomatoes with some mechanical device which indicates the required quality of the produce. In case of apples similar method was used earlier but later on simply restricted their purchase at high elevations. In case of tomatoes collection sites are regularly changed.

Marketing Cost, Price Spread and Marketing Efficiency

The price spread and marketing costs & margins for apple can be seen from Table 2. It can be observed from table that in TMC, the farmers received Rs. 6833 per quintal, they had to incur

marketing cost of Rs. 1527 per quintal and hence their net price after deducting marketing costs was Rs. 5306 per quintal. The profit margin in marketing of apple under TMC was Rs. 34 per quintal in case of wholesalers / commission agent. The profit margin of Mashakhor and retailer was Rs. 71 and Rs. 728 per quintal respectively. Finally, it was observed that the share of the farmers in the consumer's price under TMC was 62.52 percent, while marketing costs as a percentage of consumer's price was 27.66 and marketing margin as percentage of consumer's price was 9.82 percent.

Table-2: Producer's Share and Marketing Margins in Apple under TMC and EMC

(Rs. Per Qtl.)

Price Spread	**T M C**	**E M C**
1 Wholesale price received by farmer	6833	4428
2. Expenses Incurred by farmer		
(i) Picking, packing, grading, and assembling	153	153
(ii) Packing Material	730	-
(iii) Transportation cost	226	56
(iv) Loading/unloading charges	8	-
(v) Commission of forwarding agent	-	-
(vi) Commission of Commission Agent & Market Fee	410	-
Sub-Total	1527	209
3. Net price received by farmer	5306	4219
4 Expenses incurred by wholesaler		
(i) Carriage & handling charges	138	690
(ii) Market fee	102	-
(iii) Commission of Commission Agent	34	50
Sub-Total	274	740
5. Mashakhor Purchased price	7107	5168
6. Mashakhor's expenses	107	77
7. Mashakhor's Margin	71	52
8. Mashakhor's sale price	7285	5297
9. Retailer's Expenses		
(i) Carriage & handling charges	109	80
(ii) Retailer's losses	364	265
Sub-Total	473	345
10. Retailer's margin	728	530
11. Consumer's price	8486	6172
12.Share of farmer(%) in Consumer's price	62.52	68.35
13.Marketing costs as % of Consumer's price	27.66	21.40
14.Marketing margins as % of Consumer's price	9.82	10.25
15.Marketing Efficiency (MME)	1.67	2.16

As far as sales through EMC are concerned, the net price received by the farmers was Rs. 4219 per quintal. The profit margin of marketing agents earned in marketing of apple under EMC was Rs. 50 per quintal in the case of wholesaler / commission agent. The profit margin of mashakhor and retailer was Rs. 52 and Rs. 530 per quintal respectively. Thus, the wholesaler earned relatively higher profit under EMC than that of TMC whereas Mashakhor earned relatively higher profit under TMC than that of EMC. The share of farmers in consumer's rupee under EMC was 68.35 percent which is higher than that of TMC. Marketing costs as a percentage of consumer's was 21.40 under EMC which is lower than that of TMC. The marketing margin as percentage of consumer's price was 10.25 percent.

The price spread and marketing costs of tomato under TMC and EMC are presented in table 3. In case of sales through TMC it was observed that sample farmers has to incur marketing costs of Rs. 489 per quintal and the farmer's net price was Rs. 520 per quintal. Thus, the highest marketing cost of Rs 489 per quintal was incurred by the farmers followed by the Retailers Rs. 143 per quintal, Wholesaler/Commission agent Rs. 100 per quintal. Transportation cost was the highest component of marketing costs of farmer amounting to Rs. 168 per quintal. The wholesaler earned a profit of Rs. 100 per quintal under TMC. The profit margin of the retailer was Rs. 186 per quintal. The share of farmer in consumer's price under TMC was 33.17 percent. Marketing costs and marketing margin as percentage of consumer price was 47.83 and 19 percent respectively.

In case of EMC the sample farmers had to incur lesser marketing cost of Rs. 73 per quintal as compared to TMC, hence the farmer's net price was Rs. 989 per quintal which was higher than TMC. Marketing costs were significantly lower in EMC, Rs. 73 per quintal as compared to TMC where it was Rs. 489 per quintal. As Mother Dairy purchased tomato from the farmers directly, all the costs were born by this agency. The farmers incurred expenses on assembling, packing material (plastic crates) loading/unloading and carriages up to procurement point. The wholesaler earned relatively higher profit of Rs. 106 per quintal under EMC than that of TMC (Rs. 100 per quintal). The profit margin of retailer was Rs. 152 per quintal. The share of the farmers in consumer's rupee under EMC was 66.10 percent which is significantly higher than TMC. Marketing costs and marketing margin as percentage of consumer's price was 16.65 and 17.25 percent respectively.

Table-3: Producer's Share and Marketing Margins in Tomato under TMC and EMC

(Rs. Per Qtl.)

Price Spread	TMC	EMC
1. Wholesale price/ Mother Dairy paid price & received by farmer	1009.00	1062.00
2. Expenses Incurred by farmer		
(i) Picking, packing, grading, and assembling	80.00	46.00
(ii) Packing Material	155.00	5.00
(iii) Transportation cost	168.00	13.00
(iv) Loading/unloading charges	10.00	9.00
(v) Commission of Forwarding Agent	-	-
(vi) Commission of Commission Agent & Market Fee	56.00	-
(vii) Other charges	20.00	-
Sub-Total	489.00	73.00
3. Net price received by farmer	520.00	989.00
4 Expenses incurred by wholesaler/Mother Dairy		
(i) Transportation	50	50.00
(ii) Loading/Unloading	50	50.00
(ii) Margin	100.00	106.00
Sub-Total	200.00	206.00
5. Mashakhor Purchased price	1209.00	-
6. Mashakhor's expenses	18.00	-
7. Mashakhor's Margin	12.00	-
8. Mashakhor's /Mother Dairy sale price	1239.00	1268.00-
9. Retailer's /Mother Dairy retail booth		
(i) Carriage & handling charges	18.00	-
(ii) Retailer's losses	125.00	76.00
Sub-Total	143.00	76.00
10. Retailer's margin	186.00	152.00
11. Consumer's price	1568.00	1496.00
12.Share of farmer(%) in Consumer's price	33.17	66.10
13.Marketing costs as % of Consumer's price	47.83	16.65
14.Marketing margins as % of Consumer's price	19.00	17.25
Marketing Efficiency (MME)	0.50	1.95

In the case of apple the benefit- cost ratio and producers share in consumer's price were higher, 1:5.05 and 87 percent respectively on farms under EMC than that of TMC, 1:3.03 and 86 percent respectively. The same trend was observed in the case of Tomato also.

Out of total losses in apple, the maximum losses were observed in the form of culled fruit (62 percent in traditional and 81 percent in emerging channel) in both the channels. At retailer's level the losses were 12 percent in emerging channel as compared to traditional channel 7.63

percent, while in case of tomato the maximum losses were at retailer's level (more then 60 percent) in both the channels.

According to Acharya's approach, in apple marketing efficiency (MME) was 2.16 in case of EMC which is higher than the efficiency of 1.67 estimated under TMC. The same trend was observed in the case of tomato also, MME in the case of tomato was estimated to be 1.95 under EMC which is significantly higher than that of TMC 0.50.

Suggestions and Policy Implications:

It is suggested that more private traders should be encouraged and allowed for setting up of private markets to make it competitive for the benefit of producers as well as consumers.

As in the case of traditional marketing channels a major share (60% in case of apple and 40% in case of tomato) of marketed surplus is being sold at terminal market Delhi and in this regard the growers face various problems of distant market. Selling of farm produce outside the State not only adds to the marketing costs in terms of freight, handling, commission charges, deterioration in quality of produce but reduces the margin of market share of producers in consumer's purchase price. To enable the growers to derive maximum returns from their produce the marketing network in the State need to be upgraded, integrated and strengthened by creating infrastructure facilities, like shop-cum - godown, auction platform, farmers' rest houses etc. Also seasonal markets should be set up in producing areas providing minimum facility of auction platform, storage structure, grading and packing houses, public facilities etc.

Though, Delhi market is a regulated market but there is no Market Regulation Act enforced in true sense. The growers are being charged commission, which is against the law. About 5-7 percent of the producer's share is reduced by this malpractice. Therefore it is suggested that the regulation Act should be enforced strictly to safeguard the interests of the producers.

It is suggested that there should be the promotion of other alternative marketing channels as direct marketing to consumers, retail chains, farmers markets, contract farming etc. To protect the interest of producers and consumers, it is essential to integrate the role of intermediaries.

Mostly the growers in the State are not aware of market information. They have to depend upon local traders, commission agents, and forwarding agents etc for market information who purchase their produce at far below the prevailing market rates. Therefore, growers do not get the remunerative prices of their produce. None of the sampled growers obtained market price information through AGMARKNET indicating that the electronic media has not been popular

among farmers. In order to avoid exploitation of farmers and to reduce the role of intermediaries the market information system should be strengthened.

Generally, the means of transport are not readily and easily available in producing areas. Farmers bring their produce to road head and keep on waiting for the transport and traders. Since there is no facility for the protection of agricultural produce, it remains open to vagaries of weather, theft etc. To save the growers from such losses, marketing infrastructure should be strengthened in production areas through involvement of APMC, Cooperatives and private sector.

The growers are not getting adequate return of their produce due to inadequate knowledge about post harvest handling and marketing. Therefore grower's awareness camps should be organized to make them aware of post harvest management, market regulation, market information etc.

Chapter 1

INTRODUCTION

1.1 Brief Introduction of the Study

This transition from subsistence to commercial farming is inevitably linked with the development of marketing infrastructure and its efficiency of operation is closely linked with the overall agricultural development. In early phase of development the growth of transport and communication infrastructure helps in the evolvement and development of a market. The development of marketing accompanies the movement towards specialization of agriculture production, division of labour, monetization of production process and increase in the use of purchased inputs; all of which are characteristics of an advanced economy.

Marketing in under-developed regions is often viewed as being unproductive, and the various agents that make up the marketing system are frequently felt to be highly exploitative of those with whom they deal. To examine market problems, we need to understand the total marketing system and the operational characteristics of its sub-system. Analyzing the functions of various marketing agencies is particularly helpful in evaluating marketing performance. The breaking down of a complex marketing task into its components functions greatly aids in efforts to understand and to improve the performance of the marketing system. The key issue concerning marketing functions is whether these functions are being performed in the most efficient manner.

Efficient functioning of a market is an essential pre-requisite of a sound marketing system to provide remunerative prices to the producer farmers as well as providing goods at reasonable prices to the innumerable consumers. The present status of fruits and vegetable marketing in the Himachal Pradesh is not orderly and efficient from the viewpoint of sellers and buyers. Inspite of market regulation a number of undesirable aspects like high commission charged by commission agents, higher marketing cost, malpractices by commission agents/ intermediaries, lack of timely market information to the sellers and many other factors have increased the miseries of producers in marketing of their products in the regulated markets.

Effective marketing strategy specially for agricultural commodities depends mainly on the decision of where, when, how and how much to market. For this the services of a chain of middlemen and functionaries becomes inevitable. Each of the functionaries and services has to be paid (Swarup, et al, 1985). The share of the consumer's rupee received by the producers depends upon several factors including the channel used. The difference between the price paid by the consumer and that received by the producer consists of marketing costs and marketing margins. As the product moves closer and closer to the ultimate consumer, the price per selling unit increases in order to provide for the margins of the various intermediaries and functionaries and to provide auxiliary services as well. Therefore, to protect the interest of producers and consumers, it is essential to integrate the role of intermediaries.

To enable the farming community to derive maximum value from the new market access opportunities, the need was felt that the marketing system in the country be modernized, integrated and strengthened. In this perspective, the Government of India appointed an Expert Committee which suggested various reforms concerning to agricultural marketing system as well as in policies and programmes for development and strengthening of agricultural marketing in the country. The reports have noted that the control over agricultural markets by the State has to be eased out to facilitate greater participation of the private sector, particularly to engender massive investment required for development of marketing infrastructure and supporting services. While promoting the alternative marketing structure, the state government also required to put in place adequate safeguards to avoid any exploitation of the farmers/producers by the private traders and industries. Hence, a Modal APMC Act was finalized in 2003 and circulated to all states in country by Government of India. The changes made in the APMC Act, direct marketing, contract farming, corporate entry, promotion of agri-processing and exports etc have began to make inroads in to agricultural marketing in the country.

Keeping in view the above facts in mind, it is essential to investigate the role of emerging marketing channel in agriculture and benefits to producers and consumers. The 'emerging' marketing channels (EMC) are supposed to reduce the transaction costs and ensure that the 'high' margins that certain agents get in the traditional marketing

channels (TMC) are reduced in the 'new' emerging marketing channels. In this context the present study has been conducted to examine the efficacy of the emerging marketing channels vis-à-vis regular marketing channels in marketing of apple and tomato in Himachal Pradesh. Apple is the main fruit crop in Himachal Pradesh accounting for 60 percent of the area and 82 percent of the total fruits production of the state. Among vegetables tomato accounted 31 percent of total vegetable production in the State.

1.2 Objectives

The present study has been conducted to answer the following research questions:

5. What has been the share of producer in the consumer rupee in emerging marketing channels vis-à-vis the traditional marketing channels?
6. What is the degree of market efficiency and incidence of post-harvest losses in emerging marketing channels vis-à-vis traditional marketing channels?
7. What are the market practices and services provided by different agencies in the emerging marketing channels vis-à-vis traditional marketing channels?
8. What are the constraints faced by the farmers and different market functionaries in the emerging marketing channel vis-à-vis traditional marketing channels?

1.3 Review of Literature

An attempt has been made to present a brief resume of work done on various aspects of marketing of fruits and vegetables with specific focus on studies on the same channels and crops chosen for the study.

Raghubanshi and Kansal (1978) studied costs, margins and returns of off-season tomatoes in Himachal Pradesh and found that producer's share in the consumer rupee ranged between 56 to 63 per cent. *Singh and Sikka (1989)* studied the production and marketing of hill vegetables in Himachal Pradesh and found that producers shares in consumers' rupee was 49, 46, 43, 38, 34 and 33 per cent in peas, cabbage, tomato, cauliflower, capsicum and French beans respectively. *Thakur et. al. (1994)* in a study

on economics of off-season vegetable production and marketing in Hills of Himachal Pradesh found that in tomato, capsicum and cabbage the producer's share was less than fifty per cent in the channels through which majority of produce was sent. *Singh, Sharma and Sharma (1994)* in their study of vegetables in Himachal Pradesh found that the producers' share in consumer rupee ranged between 35 to 50 per cent. *Thakur et. al. (1997)* found that the producer share in consumer rupee was 46 per cent in tomato, cauliflower and cabbage. It was 53 per cent in capsicum. *Chakrabarty, Prasher and Negi (2004*) in their study of marketing of off-Season vegetables in Himachal Pradesh found that producers' share in the consumer rupee for tomato ranged from 32 to 73 per cent, while, for peas this range was 61 to 66 per cent for the different marketing channels. *Lal and Sharma (2004)* in the study of economics of production and marketing of off-season garden peas in Lahaul Valley of Himachal Pradesh found that in absence of organized marketing the producers were getting one third to one fourth of the price paid by the consumers. *Verma (2004)* in his study of marketing of fruits and vegetables in Himachal Pradesh found that the producers' share in consumer rupee ranged from 30 per cent in tomato to 61 per cent in peas.

In the co-operative channels and in regulated markets the share of the producer in consumer rupee was higher and also the consumer paid less. *Hugar et al. (1983)* conducted a study on the costs and margins in marketing of brinjal in Belgaun city and found there was significant positive effect in the case of marketing agency on the wholesale pricing, indicating that the wholesale price was higher for lots sold through co-operative society. *Bhupal (1994)* while studying vegetables in Delhi market found that the share of the producers in private channels ranged between 36 to 65 per cent with Super Bazaar the producers' share is around 67 per cent of the price paid by the consumer. The consumer paid less per Kg. price while, the share of producer was almost equal to other private channels. *Atibudhi (1998)* made a comparative analysis to find out the producer share in consumer price and marketing margins in Sakhigopal, a regulated market and Satsankh, an unregulated market. He observed that the share of producer in consumer's rupee was 72 per cent in regulated market, whereas, it was 64.52 per cent in the unregulated market. *Salvaraj and Krishnamoorthy (1990)* conducted a study in Mettupalayam district of Tamil Nadu and found that the producer's

share in the consumer rupee was higher in the channels where co-operative organizations were involved.

The net margin of the retailer was very high. *Nagaraj and Chandrakanth (1992)* found that retailer share in tomato was 39 per cent of consumer rupee. *Patil and Mahajan (1993)* found the retailer share was 56 per cent of consumers' rupee. *Bhupal (1994)* in Delhi market found retailer share was 40 per cent in consumer rupee. *Venkataramana and Gowda (1996)* in their study of marketing of tomato in Kolar district of Karnataka state found that retailer share varied between 30 to 31 per cent of consumers' rupee. *Goswami (1991)* in his study of tomato marketing in Kamrup district of Assam found that retailer got 42 percent of the consumer rupee. *Thakur et al. (1994)* found the share of retailer between 18 to 20 per cent after accounting for the 10 percent of cost of spoilage of consumer's rupee.

The retailers' share had increased over last decade. *Bhupal (2000)* in his study of vegetable marketing in Delhi between 1988 and 1998 found that in 1988, the percentage share of the Mashakhor was 18 per cent of consumer's rupee. During the decade the retailer has been able to increase his share over more than that received by the producer.

In some markets, the marketing margins were increasing over the period of time. *Chahal, Man and Singh (1997)* studied marketing of tomato in Amritsar and Jalandhar districts and found that in tomato marketing decline in producers' share in consumers' rupee was more than proportional to the rate of rise in the price level indicating that tomato marketing system was not conducive to the interest of the producers and consumers as the price spread overtime had increased. *Hugar and Hiremath (1984)* while analyzing the efficiency of alternative channels in the marketing of vegetables in Belgaun city found that there was an increase in marketing margins for both brinjal and cabbage under both channels, indicating a123 decline in the efficiency of the marketing mechanism over the period under study. However the increase in the marketing margins was found to be much greater in the case of brinjal as compared to cabbage. Consequently the share of the producer in the consumer rupee registered a decline in over a period of five year for both the commodities.

Singh et al. (2004) examined the price spread and marketing efficiency for Himachal Apples in a regulated market. The study reveals that during 1975-79, the net price received by the apple growers decreased whereas during 1979-84 it registered an increasing trend. Further, decreasing trend was also observed during 1989-95. However, net price received by growers were relatively higher in 2001-02 than other periods under study. Analysis of data over a period of time revealed that the share of growers is generally higher in years of high prices and lower in years of low prices. Further, rise or fall in the producer's share is more than proportional to the rate of rise or fall in price level. This is so only because several costs remain constant and are independent of prices. The empirical evidence showed that the benefits of rise in prices are not fully passed down to growers and their gains have been intercepted by the middlemen, reflecting the inefficiency of the marketing mechanism. Although, Delhi is a regulated market but in real sense regulation act is not enforced in true sense. Apple growers are illegally being charged commission. About 5-7 percent of the producer's share is reduced by this malpractice. Himachal apple growers paid about Rs. 49 crores as commission to commission agents on the total quantity of apples traded at Delhi market during 2001-02 season.

In the present marketing system, most of the benefits are reaped by the affluent apple producers. It is suggested that an attempt should be made to strengthen the marketing system by organizing apple growers' cooperative society particularly of small growers. Suitable policy measures, e.g.; establishing sophisticated apple grading and packing houses equipped with modern facilities like chemical washing of fruits and waxing etc are needed. Promotional efforts should be made for expanding markets. Availability of timely and better transportation facilities and strict enforcement of market regulation will go a long way in improving marketing efficiency for Himachal apples.

The marketing efficiency had no clear-cut trend as indicated by the fact that it was 237 percent in 1975-76 declining to 171 per cent in 1979-80 and then increasing to 190 per cent in 1984-85. During 1989-90 and 1995-96, marketing efficiency remained constant at 179 per cent. Further, the marketing efficiency increased to 217 per cent in the year 2001-02.

The review of literature given above indicates that in Himachal Pradesh the studies are generally confined to the analysis of traditional marketing channels and touched one or the other aspect of the problems. These studies do not make the comparison of traditional marketing channels and emerging marketing channels. But in the recent past the marketing sector has been opened by the Govt. to the private sector. Thus, there is need to compare the producer's share in consumer's rupee, marketing cost, margins and marketing efficiency in both the channels viz. TMC as well as EMC. The present study will fill this research gap to large extent by analysing and comparing these aspects in both channels.

1.4 Methodology for the Study and Data

The following methodology has been adopted for the present study.

1.4.1 Sample Selection Method for Primary Data

Selection of crops, district area and farmers has been presented below:

1.4.2 Selection of Crops: Two crops, apple in fruits and tomato in vegetables have been selected for the study. Apple is the main commercial fruit crop in Himachal Pradesh. Apple alone accounted for about 60 percent of the area and 82 percent of the total fruit production of all fruits in Himachal Pradesh during 2006- 07. In the state vegetable crops like peas, tomato, cauliflower, cabbage, beans are grown commercially. Among vegetables, tomato accounted for about 31 percent of total vegetable production in the state during 2008- 09.

1.4.3 Selection of Districts: District Shimla for apple and Solan for tomato have been selected on the basis of area and production. The maximum area under apple is in Shimla district, which accounted for 33.4 percent of area and 60.84 percent of production in the State. District Solan has 42 percent area and about 44 percent of production of tomato in the state. In the selected district, one block (Rohru for apple and Kandaghat for tomato) where farmers selling their produce through traditional and emerging channels both was selected in each district for each crop under study.

1.4.4 Selection of Area and Farmers in the Districts: In each selected block a cluster of three villages for apple and tomato where traditional and emerging channels existed has been chosen. The name of villages selected has been given below:

Crops	EMC	TMC
Apple	Shiladesh, Ramtedhi, Kharal,	Pujarli, Tikkari, Sirotha
Tomato	Basal, Dera, Kotlu	Powash, Dharain, Chionth

Further, a list of farm households marketing their produce through traditional and emerging channels was prepared and a sample of 50 farm households from each channel was drawn randomly. Thus, the study is based on 200 farm households in the state. The classification of sampled households is given in Table 1.1.

1.4.5 Selection of Market and Traders: The apple and tomato crops were sold under TMC and EMC at Fruit and Vegetable Market, Azadpur, Delhi. Hence, five traders dealing in each crop and channels were selected. Similarly, five retailers in each channel were chosen from retail market, Laxminagar, Delhi for the study. A sample of five consumers of each crop in Delhi city was drawn. Five Market Committee members of Fruit and Vegetable Market, Azadpur, Delhi were interviewed for the study. The details of the traders selected for the study has been given in Table 1.2.

Table-1.1: Classification of Sample Farm Households

Crops/channel	Marginal	Small	Medium	Large	All
Apple					
TMC	25 (50)	18 (36)	7(14)	-	50(100)
EMC	34(68)	10(20)	6(12)	-	50(100)
Tomato					
TMC	30(60)	14(28)	4(8)	2(4)	50(100)
EMC	27(54)	9(18)	10(20)	4(8)	50(100)

Note: Figures in brackets are percentages.

Table- 1.2: Number of Sampled Traders.

Crops/channel	Commission agents/ Wholesalers	Mashakhors*	Retailers	Consumer	Market Committee Members
Apple					5
TMC	5	5	5	5	
EMC**	5	5	5	5	
Tomato					
TMC	5	5	5	5	
EMC	-	-	5	5	

* Mashakhor is a big retailer and work as a wholesaler to some extent.

** Adani group purchases apple and sells it in Azadpur market through wholesalers, whereas in case of tomato, Mother Dairy purchases the produce from farmers and sells it through its own retail outlets.

The data has been collected through personal interview method using the well structured questionnaires designed specifically for the study by the coordinator of the study.

The data has been analysed using the MS Office Excel programme and as per instructions of the coordinator facilitating the comparison between the TMC and EMC and Farm categories.

1.4.6 Reference Period: The reference year of the study is 2009-10.

1.4.7 Secondary Data: The secondary data and information required for the study were collected from Himachal Pradesh Agricultural Produce Marketing Board, State departments of Agriculture, Horticulture, Land records, Adani group, Mother Dairy and various publications of AERC, Shimla, University of Horticulture and Forestry, Nauni, Solan and various issues of Indian Journal of Agriculture Marketing.

1.4.8 Analytical Tools

The methodology to calculate the MME and definitions for calculating Margins and Price Spreads are given below:

Market Efficiency

According to the Acharya approach, an ideal measure of market efficiency, particularly for comparing the efficiency of alternative markets/channels following analysis has been taken into account:.

(a) Total marketing costs (MC)
(b) Net Marketing Margins (MM)
(c) Prices received by the farmer (FP)
(d) Prices paid by the Consumer (RP)

Further, (i) Higher the (a), lower the efficiency

(ii) Higher the (b) lower the efficiency

(iii) Higher the (c) higher the efficiency

(iv) Higher the (d), lower the efficiency

MME = FP / (MC + MM)

where MME is the modified measure of marketing efficiency.

This measure of market efficiency can also be stated as

MME = [RP/ (MC + MM)] -1

RP = FP + MC + MM

However, while using these methods for comparing the market efficiency of alternative channels, the time, place and form of the commodity at the beginning and end of the channel are same in all the channels/markets which are being compared.

Marketing Margin/Price Spread

The difference between the price paid by the consumer and the price received by the producer for an equivalent quantity of farm produce is known as farm retail spread or price spread or marketing margin.

Lagged Margin: A lagged margin is the difference between the price received by a seller at a particular stage of marketing and the price paid by him at the preceding stage

of marketing during an earlier period. The length of the time between the two points denotes the period for which the seller has held the product.

A method for computing the marketing margin is the sum of average gross margins method.

$$M_T = \sum_{i=1}^{n} \left(\frac{Si - Pi}{Qi} \right)$$

where

M_T= Total Marketing Margin

Si = Sale value of a product of the I th firm

Pi = Purchase value of a product paid by the i th firm

Qi = Quantity of the product handled by the i th firm

i = 1, 2, …..n (Number of firms involved in the marketing channel).

Gross Marketing Margin

This can be broken down into 3 components. (a) Cost of performing various marketing functions (b) Statutory Taxes or levies payable in the marketing channel and net marketing margins retained by the market functionaries and (c) Net Marketing Margin retained by market functionaries.

Net Marketing Margin (NMM)

Net marketing margin is the amount retained by different market functionaries.

A higher marketing cost need not always reflect inefficiency in the marketing system; the size of the marketing costs reflect only one side of the coin and other aspects like consumer satisfaction have been given the due weightage.

1.5 Limitations of the Study

Very rarely the social science investigations are free of limitations. Sometimes they are far beyond the control of researchers. Following are some of the limitations of the present investigation.

1. The producers hardly maintain any record of production and marketing of fruit and vegetables, therefore, collected data largely relied upon the memory of the producers. Although every effort was made to extract correct and accurate information but possibility of some slips on the part of respondents could not be ruled out. The market functionaries and intermediaries were reluctant to show their actual records for various reasons best known to them and they also relied on their memory. Every direct and indirect method was used to cross check the information supplies by them. The information was cross checked by using market committee records and the market fee paid by them. The volume of produce handled by them was also ascertained and recorded by frequently visiting their shops in lean and peak season. But here again possibility of some misquoting of information could not be ruled out. In the absence of time series data, the trends, seasonal and secular variation in change in fruit and vegetables and district wise area and production of vegetables could not be attempted. Data collected was for a particular agricultural year, which may not be without limitations. The findings of the present investigation are based on the information collected from limited number of respondents. Hence the outcome of the study can be generalized to the area of the study as well to other areas with identical socio-economic and agro-ecological conditions only.
2. The authentic data of prices paid by various intermediaries during study period are not available. Generally intermediaries do not maintain the accounts. Even if they maintain, access of researchers to such records is almost impossible.
3. There are divergent methods of handling and transportation followed in different regions which results in large variation in marketing costs, margins and price spread across commodities and regions.
4. Producers do not maintain any account for farm practices and therefore the authentic data not available from their side.
5. Adani Group and Mother Dairy did not provide the required data.

1.6 Chapter Plan, Organization of the Report

The present study has been divided into five chapters. Chapter first sets forth introductory information. It provides the brief Introduction of the study and limitations. The objectives of the study and methodology have also been presented in this chapter. Chapter II has been devoted to analyzing the background on agricultural market reforms: traditional and emerging marketing channels. Chapter III includes the socio-economic profiles of area under study. Chapter IV is related with the comparison of the benefits and constraints for the agents trading in the TMC and EMC. Finally chapter V pertains to the conclusion and policy implications.

Chapter 2

AGRICULTURAL MARKET REFORMS: TRADITIONAL AND EMERGING MARKETING METHODS

2.1 Agriculture Market Reforms in Himachal Pradesh

The Himachal Pradesh Agricultural Produce Markets Act, 1969 (Act No.9 of 1970) was passed by the state assembly which came into effect from 25.3.1970 in all the twelve districts of the state. The main objective of the Act was "to consolidate and amend the law relating to the better regulation of the purchases, sale, storage and processing of agricultural produce in Himachal Pradesh". Prior to this "The Patiala Agricultural Produce Markets Act, 2004 B.K." (i.e. 1948 AD) was extended to the erstwhile Himachal Pradesh with effect from 8.11.1960. The new areas of Himachal Pradesh, i.e. Shimla, Kullu, Kangra and Lahaul-Spiti which were transferred in the year of 1966 from Punjab to Himachal Pradesh were governed by the Punjab Agricultural Produce Markets Act, 1961. Hence after 1966 two Acts were in vogue in Himachal Pradesh i.e., "The Patiala Act" in the old areas of Himachal Pradesh and the "Punjab Act" in the newly merged areas in Himachal Pradesh. This created confusion and duality. That is why in 1970 one uniform common Act, i.e. the Himachal Pradesh Markets Act, 1969 was passed wherein all these Acts were repealed.

The Himachal Pradesh Marketing Board is a statutory Apex Body constituted under section 3 (1) of the Himachal Pradesh Agricultural Produce Markets Act, 1969 for the enforcement of market regulation in Himachal Pradesh. The Himachal Pradesh Agricultural Marketing Board is headed by a Chairman (appointed by the State government) and represented by 15 members of whom 5 are officials and 10 are non-officials (which are nominated by the state government). The Chairman and the Secretary of the Marketing Board are the Chief Executive and the Executive respectively. The Secretary is appointed by the State Government of Himachal Pradesh from the Joint Directors of Agriculture, Department of Agriculture of the State

Government. The term of the office of the Board members is three years from the date of their appointments.

The following powers and functions have been given to the Board in the Himachal Pradesh Agricultural Produce Markets Act, 1969 and rules framed there under:-

i) The Himachal Pradesh Agricultural Marketing Board shall advise the State Government in matters of better Marketing and trade relation and better regulation of trade in agricultural produce and improvement of agricultural marketing in the Regulated Markets of the Pradesh.

ii) The Board shall also act as a liaison between the State Government and the Market committees in all matters under the purview of the Act.

iii) The Board has the responsibility of framing bye laws for better marketing of agricultural produce.

iv) The Board with the prior approval of the State Government has also powers to declare its intention of exercising control over the purchase, sale, storage and processing of agricultural produce in a specified area.

v) The Board exercises superintendence and control over all Market committees established and constituted under this Act.

vi) The Board has the powers to establish a Market committee for every Notified Market Area.

Thus, the marketing Committees are accountable to the Marketing Board for their day to day functioning. The Marketing committees have also been given certain duties under section (1) of the Himachal Pradesh Agricultural Produce Markets Act. The Market Committees are corporate bodies, comprising members from the producers and trade license holders. It is the duty of the Market Committees to enforce the provisions of this Act and the rules and bye-laws made there under in the Notified Market Area.

The Himachal Pradesh Agricultural Marketing Board has declared 10 Notified Market Areas which cover the whole geographical areas of the State. One district comprises one Notified Market area except Kinnaur and Lahaul-Spiti districts which are amalgamated with Shimla and Kullu districts respectively. There is a provision under section 10 (1) that a Market Committee should have either 9 or 16 members out of

which 5 members should be from the producers of the Notified market area 4 from the licensed traders and one salaried person, in case there are 9 members. If total members are 16, then 9 would be producers, 6 licensed traders and one salaried person. The Board has decided to keep strength of 16 members in each Market Committee to give wider representation to the maximum area of the Notified Market area.

After liberalization of trade, agricultural marketing is witnessing major changes World over. To enable the farming community to derive maximum value from the new market access opportunities both at home and globally, Himachal Pradesh took initiative in introducing the Agricultural Marketing reforms on the lines of the Model Act by repealing the old Act and putting in place a new Act, The Himachal Pradesh Agricultural and Horticultural Produce Marketing (Development and Regulation) Act, 2005. This Act came into force with effect from 26.5.2005. Himachal Pradesh is the first State in the country to take lead in this regard. It provides for setting up of private markets, consumer/farmers markets and creation of post harvest infrastructure in the State. Himachal Pradesh introduced single point levy of market fee system in the State. The rate of market fee in the State is lowest (1%) as compared to the neighbouring States of Punjab (4.5% including Dev. Charges) and Haryana (4%).

2.1.1 Comparison of Old and New Acts

Under the old act, only market committees were entrusted the responsibility of developing infrastructures and regulating the sale and purchase of the notified agricultural produce in their respective notified areas whereas under new Act, the marketing sector has been opened to the private and cooperative sectors to make it competitive as they are now allowed to set up private markets. In the new Act the alternative marketing system by encouraging direct marketing by the farmers to the bulk buyers/processors has also been allowed. There is a provision to setup farmers and consumers markets as well. Provision has been made for Public-Private Partnership in the management and development of Agricultural marketing in the state. It also provides for regulation and promotion of contract farming so that farmers can get benefit

from the advances of Agricultural technology and opportunities being offered by the liberalization.

Himachal Pradesh has taken benefits of centrally sponsored scheme of development/strengthening of agricultural marketing infrastructures, grading and standardization' associated with the new Act. This scheme is 'reforms linked' and is being implemented in those states which amended the A.P.M.C. Act, and it allows direct marketing/contract marketing and permits setting up of markets in private and cooperative sectors. The assistance under this scheme is being provided @ 33.33% subsidy of the capital cost of the project with no upper ceiling for subsidy to the state bodies like State Agricultural Marketing Boards, whereas the rate of subsidy is 33% of the capital project subject to maximum of Rs.60.00 lakh for each project to the private entrepreneurs. The Himachal Pradesh State Agricultural Marketing Boards has already availed assistance for 13 schemes for construction/modernization and strengthening of existing market yards amounting to Rs.6.49 Crores. The private sector is also availing assistance as provided under the scheme as a result of amendment in the Act. Besides this, M/S Adani Fresh Ltd., Container Corporation of India and Dev Bhoomi Cool Chamber Ltd are also buying the quality produce directly from the farmers. M/S Adani Group has set up 3 Controlled Atmosphere Stores with 6000 MT capacity in the state and M/S Dev Bhoomi is also setting up one Cold Store in the State. The scheme is being administered directly by the Directorate of Marketing and Inspection, Govt. of India and being implemented through NABARD.

There are total 48 Market Yards in the state including 10 Principal market yards, which handle about 15-20% of the total marketed surplus of fruits and vegetables within the State and rest of the produce is marketed outside the State. Selling of farm produce outside the state not only adds to the marketing costs in term of freight, handling, commission charges, deterioration in quality of produce but reduces the margin of market share of producers in consumers' purchase price. To enable the farmers to derive maximum value from new market access opportunities both at home and globally, the marketing network in the State need to be upgraded, integrated and strengthened. With opening up of marketing sector for private sector investment and

providing for contract farming in the State, the rural areas will become hub of agri-business activities.

2.1.2 Establishment, Constitution, Powers and Functions of the Board

The State Government may for coordinating the activities of markets and for development, promotion and regulation of agricultural marketing, establish the Himachal Pradesh State Agricultural Marketing Board.

The Board shall be a body corporate and shall be competent to acquire and hold property both moveable and immovable and to lease, sale or otherwise transfer any such property etc. The Board shall consist of a Chairman, who shall be appointed by the State Government and twenty members including Vice-Chairman of whom ten shall be ex-officio members and ten non-official members to be nominated by the State Government.

The Board shall, subject to the provisions of this Act perform the following functions:-

(i) Exercise superintendence and control over all the Committees established and constituted under this Act.

(ii) Coordinate the working of the Committees and other affairs including programmes undertaken by such Committees for the development of markets and market areas;

(iii) Undertake the State level planning of the development of agricultural produce markets;

(iv) Administer the Marketing Development Fund;

(v) To give directions to the Committees with a view to ensure improvement;

(vi) Any other functions specifically entrusted to it by this Act which may include to approve proposals for selection of new sites by the Committees for establishment of principal or sub-market yard; constructing infrastructure facilities in the market area such as grading, packing houses, storages, processing, other post harvest management facilities etc; supervise and guide the Committee in the preparation of plans and estimates of construction programme; execute all works chargeable to the

Board's fund; to undertake marketing extension activities in the Board for the transfer of marketing technology and extension services etc.

Rules

Powers of the Managing Director: the Managing Director shall be responsible for the smooth and efficient working of the Board, and shall, in that context, exercise all such administrative, financial and powers of general nature as are vested in him under this Act or these rules and such as may be delegated to him by the Board from time to time.

2.1.3 Functioning of Market/Private or Consumer or Farmer Market

(a) Development of Infrastructure for Providing Amenities, Facilities and Comforts in the Private/ Consumer or Farmer Markets.

The owner of a private market yard shall provide minimum common amenities and facilities in the yard such as; auction platforms, shops, godowns, canteen, drinking water, latrine, urinals, compost pits, street lights, etc. in the interest and for the convenience and comfort of producers as well as other individuals using the market. The owner of a private market yard may provide such other amenities and facilities therein as are requisite of a modern market such as, warehouses, precooling, cold storage (including controlled atmosphere cold storage), ripening chambers, pack houses having grading lines, kisan bhawns, loading and unloading sites, electronic auctioning, electronic display of market rates of different commodities, etc., and in particular such as are normally provided in an 'Apni Mandi', 'Kisan Haat', or 'Raitu Bazar', including stalls for the farmers/ growers, as also shops for ancillary services i.e., booths for sale of seeds, fertilizers, organic fruits & vegetables, milk, fruit and vegetables, etc.etc.

(b) Maintenance of Record, Circulation and Display of Rates.

The Committee shall maintain and circulate; a record of the arrivals as well as maximum, minimum and average rates of various items of agricultural produce brought into the market for sale on daily, weekly, monthly and yearly basis and further, shall display current sale rates on a particular day for each commodity on the notice board.

The Committee shall maintain and place at the disposal of those using the markets, information in respect of the prices of the agricultural produce prevailing at the principal marketing yards of the adjoining regions of the States.

The daily price bulletin shall be compiled into monthly bulletin, and at the end of the year, month-wise bulletins shall be compiled, analyzed, commodity-wise, along with arrivals.

(c) Grant/Renewal of Registration

Every person who desires to enter into trading activities with a view to setting up, establishing or continuing any place for the purchase, sale, storage of agricultural produce or purchasing, selling, storing and/ or processing or forwarding the agricultural produce; or as a seller or buyer or both buyer and seller; or as a contract farming sponsor entering into an agreement with the contract farming producer, shall register himself with the Committee.

Every person desirous to trade or transact or deal, as the case may be, in any notified agricultural produce in more than one market area, shall apply for registration to the Managing Director.

(d) Exemption from Registration

Producer who himself sells the agricultural produce to any person for his domestic consumption at any one time up to the following limits is exempted from registration:—

(a) Cereals 100 kg.

(b) Pulses 50 kg.

(c) Oil seeds 20 kg.

(d) Fruits (other than dry fruits) and Vegetables 100 kg.

(e) Dry fruits 2 kg.

(f) Animal products such as 10 kg. fish, ghee milk, etc,

(g) Spices 2 kg:

Petty traders or hawkers are those trader whose daily turn over is less than 5 Qtls and purchase produce from wholesale market. Such petty traders are also exempted.

2.2 Features of Traditional and Emerging Marketing Channels

2.2.1 Features of Traditional Marketing Channel

After independence, there have been continuous efforts to improve the lot of the farming community in general and of small and marginal farmers in particular in the country. The regulation of agricultural markets is a landmark in this direction as the main objective of this was to help the farmers escape various malpractices and undue deduction which have been prevalent in the trade since long. Unless there is an improvement in the marketing efficiency, neither the farmer can possibly get a suitable return from his produce nor the consumer should expect to have the commodity at a reasonable price in the desired form, and at the needed place and time. All the costs incurred in moving a commodity from the place of its production to ultimate consumer have finally to be shared between the primary producer and the ultimate consumer. The chain of market functionaries and intermediaries provide some service or perform some function for which they incur certain costs. The charges for each of such services or functions include the cost of that service/function to that functionary as well as some profit to him. Similarly, middlemen too provide or add time and/ or form utility to the commodities, for which they have every right to claim an appropriate margin so as to continue in the trade.

There exists a chain of intermediaries and functionaries in the marketing channel for every commodity, and each one of them charges for his services and also earns through his profession. As every function performed in marketing is essential to help the movement of commodities in the marketing channel, elimination of any of these will not be possible and even to integrate some of the functions will not be easy unless the integration is based on results of in-depth studies and observation made on the subject. It is true that the farmers of today are being subjected to nearly all those problems and malpractices under which their forefathers operated. Generally this is on account of their being an unorganized group which in turn is due to their ignorance, illiteracy, simplicity, small size of production, consequent poverty, etc which is, by and large exploited by

market functionaries who, on the other hand form a well organized group. More often than not it has been observed that the farmer suffers on account of prevalent malpractices and not so much because of the long marketing channel. The common malpractices are in weighment, price reporting, method of sale, over-charging for handling, charging for matters not concerned with farmers, etc. etc. Under regulation, rates of charges for various services and functions and also the party (seller or buyer) who is to pay each particular one are all prescribed.

As far as the commission and the Market Fee are concerned the provisions of the law are invariably honoured in their breach rather than in observance. The prescribed rates are atleast double in practice because instead of their being charged from one party only (i.e. buyer), these are collected from the buyer as well as from seller. As regard the Market Fee, prescribed rates are honoured , but infact, collection is doubled by way of collecting it from the buyer as well as from the seller while, as per the regulation, it should be charged from the buyer only. It was observed that the traders collect these charges from seller on the pretext of tradition, while these are collected from buyers on the basis of law. In the traditional marketing system various market charges were fixed by market-association in accordance with the socio-economic consideration and needs.

Traditionally, the rules of Mandi have been found to be in favour of traders and other functionaries of the market. Frequently, these traditions are practiced in such a way that they take the form of malpractices. While the law permits sales only through open auction, deals through negotiations and ‘under cover’ are equally popular. The Auction Recorder appointed by Market Committee is invariably absent at the time of sale. After auction of a lot is over, the auctioner picks up a few fruits from the lot. In the repacking of apple boxes, the repacker was observed to be putting lesser number of apples in each box and save some fruits thereby. After completion of the sale in the forenoon, appeals are entertained in the afternoon from purchasers who are mostly retailers for reduction in the sale price on the basis of poor quality fruits found in the lot purchased. Unauthorized charges in the name of union, charity etc are collected generally from sellers. It is rather rare that the buyer or the seller is given any written statement of accounts. What is most surprising is that all the above facts are known to the officials of

the Market Committee and every thing is operating right in their presence as if they are hand in gloves with the market functionaries and intermediaries.

Apple marketing under traditional marketing system proved very speculative exercise which resulted in low level of returns to the farmers. The orchardists of Himachal Pradesh were purely dependent on traders especially of Azadpur market of Delhi for marketing of the produce. The traders charge 6 to 8 percent as commission from the grower which illegal and is too high. Apple growers from Himachal Pradesh were paying an annual commission of about 50 crores to agents at the Delhi market. Study conducted in Agro Economic Research Centre, Shimla revealed that a single Himachal grower use to pay Rs.6073 as commission to the Delhi based agents. This study revealed that during 1975-76, 80 percent of the entire apple crop was marketed in Delhi. This has, however, marginally come down to 77 percent during 2000-01. In this channel the buyers provide the facility of credit to the growers at free of cost.

2.2.2 Features of Emerging Channel

The reduction in the quantum of produce sent to Delhi market is due to the fact that some new channels emerged for marketing and large buyers started purchasing apple directly from the orchardists. In addition to this, these corporate buyers constructed very sophisticated cold stores with modern technology where fruit can be preserved for a longer period. Presently, two major bulk buyers, Adani Group and Indian Railway Board are purchasing apple in the state. Both these groups have made their presence felt in Shimla district of Himachal Pradesh where this study was conducted. Presently, Adani Group has constructed three cold stores in Sainj, Rohru and near Dutt Nagar of study district. Whereas, Indian Railway Board restricts it's purchasing of apple only in Kinnaur district. However, this group was also purchasing apples in Shimla but for the last two years, shifted its activities to district Kinnaur situated at high elevation and famous for disease free quality apples having significantly longer shelf life. Presently, only Adani Group is present in Shimla and emerged as a big trader resulting to reduced flow of apples to Delhi market.

Box-1: Functioning of Adani Group in Shimla

Initially, this group started purchasing only of 'A' grade apple. The growers were not happy under this system of procurement as they still had to depend on private traders for marketing large proportion of their produce of other than 'A' grade. This resulted in conflict between the growers and Adani group. In this conflict trader of Delhi market left no stone unturned to poison the minds of growers and diverted them towards marketing the fruit with traditional traders. Their logic was that if the farmer has to sell inferior grade apple through TMC, why not sell the good grade also and make good rapport with them. It was ensured that if there is sole dependence on TMC the good marketing relations will eventually result in flow of credit and other services required by the farmer. Alarmed with this situation the Adani Group solved the problem by purchasing entire marketable produce of apple of all grades. Their new marketing strategy was to put 'A' grade produce in its cold stores for subsequent use and to sell remaining volume of produce to local traders. Perhaps, state government proved very helpful to Adani group for opening of local markets at different places named Rohru, Narkanda, Theog and Dhalli. Now alongwith Delhi market the traders of local markets have also given the competition to Adani Group.

This helped in emergence of entirely new channel under which the Adani Group sells its procured apples of other than 'A' grade to local traders. Under this system the Adani group fulfilled its purpose of retaining the 'A' grade of apple in its own store and simultaneously disposing off all other grades of apple procured from the growers to local traders. This system has created a new environment in apple marketing as now the apple producers selling the apples to Adani Group are no more dependent upon the traditional local and other traders.

2. Apple Purchasing System under Emerging Channel

The purchasing system of Adani Group is very unique as this group enrolls some persons as agents in apple growing area. These agents further enroll members from apple producers' community selling their produce to Adani Group. Under this system the members are supplied with plastic crates for collection of apple. These are distributed free of cost to the member growers for supply of produce to the stores of Adani Group. The members are generally selected from high elevation of apple growing area for ensuring the better quality of produce. During field survey it was observed that the growers of mid and low elevations are not enlisted as members and not allowed to sell their produce to them. The orchards located at these elevations are producing the bulk of apple but are deprived for selling produce to Adani Group. It is because of this reasons that the cold stores are not able to meet their demand for procurement of apple produce and are running at lower than installed capacity. As a result, low elevation growers are compelled to sell their produce to local, Delhi and Chandigarh traders. It was also observed that generally the big orchardists of the study

area are still selling their produce at Delhi market whereas marginal and small growers prefer local markets within the state. At overall level, the disposal pattern of apple produce indicates that presently about 10 percent of the apple produce is being disposed of through the emerging channel, 30 percent through local state markets and remaining 60 percent through the markets located out of state and of this about 50 percent is handled by traders/commission agents of Azadpur market at Delhi.

3. Tomato Purchasing System under Emerging Channel

Like apple marketing, the emerging channel in the form of Mother Dairy is also operating in the field of tomato marketing. It is the only emerging channel in marketing of tomato in vegetable growing region of the state. The role of this emerging channel is also the same as in apple cultivation with minor differences.

The Mother Dairy has opened a store for its collection of the produce from the field and procurement was made within a distance of 15 km from a particular site. The farmers are supplied with plastic crates for facilitating the collection but charged one rupee for each crate from the farmers. This is the only difference in marketing of apple and tomato.

It has been observed that Mother Dairy is regularly changing its sites for purchasing tomato. Initially this channel opened its store near Chail but after 7 to 8 years the site was changed to Sadhupul which is situated at low height as compared to previous one. Now for last three years again it shifted the tomato purchasing sites in low hill region of Chail area.

It was also observed that the Mother Dairy uses to purchase tomatoes produced within a specific temperature ensuring the better shelf life and keeping quality. This is ensured by measuring the strength of tomatoes with some mechanical device which indicates the required quality of the produce. In case of apples similar method was used earlier but later on simply restricted their purchase at high elevations. But in case of tomatoes collection sites regularly changed.

The procurement of tomato by emerging marketing agent is only about 10 percent of the total produce. About 40 per cent is sold at local market of Solan and 20 percent at

Chandigarh market and remaining 30 percent at Delhi market. The high perishable nature of tomato as compared to apple compels the majority of the producers to sell at nearby markets of Solan and Chandigarh.

2.3 Comparison Between TMC and EMC

In traditional marketing channel the traders charge 6 to 8 percent as commission from the growers whereas in emerging marketing channel there is no such practice. In TMC there is surety of buying all produce of growers by the traders while in EMC, traders buy selected produce from the growers. In TMC, traders do not give the facilities like supply of packing material, inputs etc. whereas in EMC the traders provide packing material to the growers. In TMC the buyers give credit facilities to growers with at interest while in EMC no such type of facilities are given to the growers.

2.4 Marketing Channels of Apple

Distribution comprises movement of apples from producer to ultimate consumer. In this process the fruit has to pass through more than one hand, except when it is directly sold to consumer by the producer, a rare phenomenon. In this chain various agencies like growers, pre-harvest contractors, wholesalers, retailers, etc., are engaged. Himachal apple growers for marketing their produce generally use the following channels.

(1) Producer—Consumer
(2) Producer—Forwardingagent—Commissionagent—Wholesaler—Retailer—Consumer.
(3) Producer—Producers' Cooperative—Wholesaler—Retailer—Consumer
(4) Producer—Pre-harvest contractor—Commission agent/Wholesaler—Retailer—Consumer
(5) Producer—Commission agent—Wholesaler—(Self as F.A.) Retailer—Consumer
(6) Producer—hpmc—Wholesaler—Retailer—Consumer
(7) Producer—Retailer—Consumer
(8) Producer—Processing Unit—Consumer

Channel- 1: Producer—Consumer: In this channel, the fruits of a particular lot are sold at assembling point. It may be the local consumer or any other agency on behalf of the consumer. This happens particularly in case of small growers, who have small lots

and prefer to sell at the earliest at orchard site in order to have quick returns and to avoid transportation charges. This channel gives maximum returns to grower as there are no intermediaries.

Channel- 2: Producer—Forwarding agent—Commission agent—Wholesaler—Retailer—Consumer: The role of forwarding agent (F.A.) in the marketing channel is to arrange for transport and to ensure that fruit reaches the particular market and commission agent, where the grower wants to send his produce. For his services the forwarding agent charges a very nominal fee. The grower takes his produce to the forwarding agent, who has his temporary establishment at roadhead near the assembling point and then it is the responsibility of the F.A. to make arrangements for sending the fruit boxes to specified agency in the specified market.

Channel-3: Producer—Producers'Cooperative—Wholesaler—Retailer—Consumer

In certain areas apple producers have formed their co-operative societies. Such societies handle marketing for the members only. The producers assemble their fruit and take it to market by hiring trucks. This, first middleman i.e. F.A. is eliminated from the marketing channel. The fruit is then sold in the market through commission agents in the presence of a nominee of the cooperative eliminating any possibility of cheating by the commission agents for which they are notorious.

Channel-4: Producer—Pre-harvest contractor—Commission agent/Wholesaler—Retailer—Consumer: In Himachal Pradesh, pre-harvest contractors are very common in Kullu area. They purchase standing crop and undertake to perform all the functions necessary for the disposal of the produce. This channel resembles channel-2 except that the pre-harvest contractor, instead of the producer, handles the produce.

Channel- 5: Producer—Commission agent—Wholesaler—(Self as F.A.) Retailer—Consumer: Some big producers, who have large quantity of apple to market, arrange transportation on their own and send the produce to market themselves. Thus, they themselves act as forwarding agents.

Channel -6: Producer—hpmc—Wholesaler—Retailer—Consumer: In this case, the producers send their produce to market through hpmc, which acts as the forwarding agent.

Channel -7: Producer—Retailer—Consumer: Here the producers send their produce directly to retailers in consuming markets. This is possible in case of small growers.

Channel- 8: Producer—Processing Unit—Consumer: Along with marketable quantity of apples there are about 16 per cent of apples, which are not fit for table purposes. Such apples are called 'culls' and are used for preparing juice, jam, jelly, etc., by processing units. Thus, growers send all culled apples directly to processing units. Such apples are packed in gunny bags instead of boxes. In the State hpmc is having the largest processing capacity.

2.5 Marketing Channels of Tomato

Different marketing agencies like firms and organizations whose activities evolve the mechanics of establishing the selling process and also establish the various arrangements, contacts and ensure the flow of goods and services form the marketing system. Due to the existence of these agencies working between producer and consumer there are different marketing channels for the marketing of apple and tomato. Movement of produce from producer to ultimate consumer comprises a chain of intermediaries, called marketing channel. In this chain various marketing agents like village trader, forwarding agent, primary commission agents, secondary commission agents, primary whole seller, secondary whole seller, etc. were engaged. In Himachal Pradesh tomato growers have generally used following channels:

Channel – I (Producer–consumer): In this channel the producers were directly selling produce to the consumers. The marginal producers who had very little land under the crops and also produce milk use this channel. They bring vegetables along with the milk to the urban areas and sell vegetables directly to their customers.

Channel – II (Producer–Retailer–Consumer): In this channel, the produce was directly sold to retailers for final sale to consumers. The retailers directly approach the producers for trade before auctioning in the local market and bypassing the commission

agents. Thus the retailer gets the cheaper fruit and vegetables and the producer gets fair price and quick disposal of the produce. Sometimes, when the produce is less the farmers straightway go-to the town market to the retailers and they prefer the sell to them instead of the market yard in which process is time consuming.

C**hannel–III (Producer-Village trader– Secondary Commission agents -Secondary wholesalers–Retailer- Consumer):** In this channel the producer or grower is not supposed to perform any marketing function other than that of assembling. Village traders are responsible for the further sale of the produce. The village traders usually collect the produce from different growers for further sale to the wholesalers or commission agents in the local or distant markets. The marginal farmers were the main sellers of their produce to the village traders, as some times they depend on them for the financial needs. Another reason emerged is that when the produce is less than one bag or one full unit of transportation, the transportation charges remain constant so the transportation of produce to the market yard becomes very high and time consuming, so the producers prefer to sell in the village market to village traders.

Channel-IV (Producer - Primary Commission agent – Secondary wholesaler-Retailer - Consumer): In this channel the primary commission agent only charges commission for the auction of the farm products. The produce is then collected by secondary wholesaler and taken to their respective markets and sold to retailers and finally to the consumers.

Channel-V (Primary wholesaler – Secondary commission agents-Secondary wholesaler -Retailer- Consumer): In this channel the primary wholesaler buys the produce from the growers in the local markets and then the produce is graded and repacked by them. The produce is then sent to the secondary commission agents in distant markets and through secondary wholesalers and retailers it reaches final consumer.

Channel- V (Forwarding Agent - Secondary commission agent - Secondary wholesaler - Retailer - Consumer): In this channel the produce is sent to the commission agents / wholesaler other than the local market. The produce packed in the wooden boxes, gunny bags and bamboo baskets.

Individual producers generally use one or more of the channels depending on the size of business, reliability of the marketing agency, economic position and monetary needs. The growers generally weigh their convenience and the price offers while selecting these channels.

2.6 Emerging Marketing Channels in Apple and Tomato

Various agencies are involved in marketing of apples and tomato in Himachal Pradesh. These agencies procure produce from farmers directly and sell through their outlets in the cities or through commission agents/wholesalers to retailers. The major emerging channels in apple and tomato are:

2.6.1 Producer-Adani-Commission agent/wholesaler-Mashakhor-Retailer-Consumer: Under this channel the Adani group procures all grade apples from members but keeps the 'A' grade apple for distant markets and sells all other grade apples to local traders who further dispose it through traditional channel.

2.6.2 Producer-Mother Dairy-Selling Booths at Delhi-Consumers: Mother dairy procures specified quality of tomato from members and disposes it through its retail booths at Delhi directly to consumers.

2.7 Conclusion

It is concluded that under the old Marketing Act only market committees were entrusted the responsibility of developing infrastructures and regulating the sale and purchase of the notified agricultural produce in their respective notified areas whereas under new Act, the marketing sector has been opened to the private sector and cooperative sector to make it competitive as they are now allowed to set up private markets. In the new Act the alternative marketing system has been introduced by encouraging direct marketing by the farmers to the bulk consumers/processors. There is a provision to setup farmers' and consumers' markets as well. Provision has been made for public-private partnership in the management and development of agricultural marketing in the state. It also provides for regulation and promotion of contract farming so that farmers can get benefit from the advances of agricultural technology and opportunities being offered by the liberalization.

Chapter 3

SOCIO-ECONOMIC PROFILES OF REGION UNDER STUDY

3.1 Profile of the State

Himachal Pradesh is situated in the lap of Himalayas in the North-West of India. Its altitude ranges from 350 M to 6975 M above the mean sea level. Geographically it is bordered by state of Haryana in the South, Uttarakhand in South East and Jammu and Kashmir in North, Punjab in the West and South West and Tibet in the East. It is situated between 30^0 22" 40" to 33^0 12 40" North latitude and 75^0 47' 55" to 79^0 04" 22" East longitude, thereby giving rise to agro-climatic conditions suited specially for raising horticulture crops.

Himachal Pradesh came to existence in April 1948 as a part C state of the Indian Union with the merger of 30 Punjab and Shimla Hill States into the Union. The then Himachal Pradesh covered an area of 2117 thousand hectares divided into four districts, viz. Chamba, Mahasu, Mandi and Sirmour. After about 6 years, the State of Bilaspur was also integrated and formed the 5^{th} districts of the state. For administrative reasons, Kinnaur was carved out of the Mahasu district as a separate district in 1960. The reorganization of Punjab in 1966 doubled the area of Himachal Pradesh by the transfer of the districts of Kangra, Kullu, Lahaul Spiti and Shimla along with a few more areas. Full statehood was granted to Himachal Pradesh on 25.1.1971. Thereafter in, 1972, Hamirpur and Una were formed separate districts; Solan was also named as a separate district while the name of Mahasu district was dropped. Presently, the state of Himachal Pradesh comprises of 12 districts namely Bilaspur, Chamba, Hamirpur, Kangra, Kinnaur, Kullu, Lahaul-Spiti, Mandi, Shimla, Sirmour, Solan and Una. The State Headquarter is located at Shimla.

The total population of Himachal Pradesh, according to 2001 census was 60,77,900 which gives a density of population of 109 persons per sq km which increased to 68,56,509 and123 respectively during 2011 census. There are wide variations in area

and population of the districts and district wise density varies from 2 persons per sq. kilometer in Lahaul & Spiti to 369 persons in Hamirpur district. The sex ratio is 968

females per 1000 males which marginally increased to 974 during 2011. The rural population accounted for 90.20% of the total population residing in 17,495 inhabited villages. The scheduled caste population in the state was 15,02,170 persons which was 24.72 per cent of the total population. The scheduled tribe population of the Pradesh was 2,44,587 persons which was 4.02 per cent of total population. There were 19,63,882 main workers and 10,28,579 marginal workers in the state. Over all literacy percentage of the state was 76.5 per cent which increased to 83.78 percent in 2011. The literacy among males and females was 85.30 per cent and 67.40 per cent respectively increasing to 90.83 and 76.60 percent in 2011 population census.

The Gross Domestic Product at factor cost at constant (new base year i.e. 1999-2000) prices in 2006-07 is estimated at Rs.28,64,310 crore. And the per capita income worked out to be Rs.29,642 in 2006-07. Agriculture happens to be the premium source of state income (GSDP), about 17.80 per cent of the total GSDP comes from agriculture and its allied sectors.

Roads are an essential ingredient of infrastructure of economy. In the absence of any other suitable and viable modes of transportation like railways and waterways, roads play a vital role in boosting the economy of the hilly state like Himachal Pradesh. The state government has constructed 30,834 kms of motorable roads inclusive of jeepable track till Sept. 2007.

Power is one of the most important inputs for economic development. It has been estimated that about 20,416 MW of hydel power potential can be exploited in the state. Out of this hydel power potential only 6370.12 MW has been harnessed by various agencies in the state. Out of total 17495 villages, 17183 villages have been electrified by the end of Dec. 2007.

Out of the total geographical area of 55.67 lakh hectares the area of operational holdings is about 9.79 lakh hectares and is operated by 9.14 lakh farmers. The average holding size comes to 1.1 hectares. According to 2000-01 Agriculture Census 86.4% of the total holdings are of small and marginal farmers, 13.2% of holdings are owned by

semi medium and medium farmers and only 0.4% by large farmers. Nearly 21 per cent of net area sown is irrigated in the state.

Agriculture is by far the major occupation of the people of Himachal Pradesh as it provides direct employment to about three fourths of the total working population. The valley areas of the State are most suited for growing food-grains. Elsewhere, due to climatic conditions varying from sub-tropical to temperate, the agro-climatic conditions are suitable for growing a wide variety of cash crops such as temperate fruits, potatoes, vegetables, ginger etc. Since the scope for extension of cultivation is limited, emphasis has to be laid on increased production by maximizing output per unit area available for cultivation.

As per latest state forest report of FSI an area of 14,353 sq. km. is actual forest cover. This is constituted by 1,093 sq. km. of very dense forests, 7883 sq. km. moderately dense and 5,377 sq. km. with open forest. In addition to this, 389 sq. km. area has been described as scrubs. Forest wealth of Himachal Pradesh is estimated at over Rs.100000 crore. Most of precious coniferous forests are of such nature that these cannot be truly regenerated by human beings if these are cut once. The state government has imposed a complete ban on commercial felling and the only removals from the forests are either by way of timber distribution rights to the people or salvage extraction. Even the royalty from the silviculturelly harvestable volume according to working plan prescription would presently be annually worth over Rs.250 crore. However, the state govt. has been denied of this financial resource for about two decades primarily for preserving the fragile Himalayan ecology and environment to serve the national interests.

At present there are 373 medium and large scale industries and about 34,152 small scale industries with a total investment of about 6,120.11 crore working in the state. These industries provide employment to about 2.09 lakh persons.

Tourism industry in Himachal Pradesh has been given very high priority and the government has developed an appropriate infrastructure for its development which includes provision of utility services, roads, communication net work, airports, transport facilities, water supply and civic amenities etc. Efforts are afoot in providing urban

facilities in rural areas thereby promoting tourism not only in urban but in rural areas of the Pradesh. Huge investment is being made to develop the tourism infrastructure. For the year 2007-08 there is an allotment of Rs.825.30 lakh for the development of tourism and Rs.175.28 lakh for the civil aviation. At present 1852 hotels having bed capacity of 41,511 are registered with the department up to December 2007.

3.1.1. Agro-Climatic Features in Himachal Pradesh

The Himachal Pradesh Directorate of Agriculture has divided the state into the following four agro-climatic zones on the basis of altitude, temperature, topography, rainfall and humidity: (a) Sub-mountain and Low Hills sub-Tropical Zone, (b) Mid hills Sub-Humid Zone, (c) High Hills Temperate Wet Zone, and (d) High Hills Temperate Dry Zone.

(i)Sub-Mountain and Low Hills Sub-Tropical Zone : The area in this zone is situated up to 650 meters above mean sea level with an average rainfall of 1000 mm. This zone is located in the Shiwalik belt of Himachal Pradesh and occupies approximately 25 per cent of the geographical area and 38 per cent of the cultivated area of the state. The population pressure is the highest in this zone. The main crops cultivated in this zone are wheat, paddy, maize, sugarcane, soyabean, pulses, oilseeds and barley. Citrus, mango and litchi are important fruit crops. Cattle dominate in the total livestock population of 2.63 million.

(ii) Mid Hills Sub-Humid Zone: The elevation of this zone varies from 651 meters to 1800 meters above mean sea level. The annual precipitation in this area varies from 1500 mm to 3000 mm, 70 per cent of which is received during monsoon season. This zone comprises of 41 per cent of the total cultivated area. The texture of soils of this zone varies from loam to clay loam. These are deficient in nitrogen and phosphorus with poor water and nutrient holding capacity. Soils are acidic in reaction and respond to liming. Soil conservation and water management are the main problems in this zone. Although this zone receives the maximum rainfall, the agriculture still suffers from losses every now and then due to low water holding capacity of the soils and erratic distribution of rainfall. The main crops cultivated in this zone are wheat, paddy, maize, seed potato, pulses and oilseeds. Stone and citrus fruits also occupy considerable area. Forestry and pastures constitute an important component in this zone. This zone

is milk-shed area wherein a number of chilling plants and milk processing plants have been installed. Out of total livestock population of 1.26 million 50.7 per cent are cattle and 6.1 per cent are buffaloes.

(iii) High Hills Temperate Wet Zone: The altitude of this zone ranges from 1801 meters to 2200 meters above mean sea level and covers 18.4 per cent of the total cropped area of the State. The soils are shallow in depth, acidic in reaction and silt loam to loam in texture. The soils are deficient in nitrogen and phosphorus. Terraced farming is practiced in this zone. The main crops are wheat, maize, paddy, barley, pulses and oilseeds. Mostly rainfed farming is practiced. Soil erosion, low fertility and inadequate water management are the main problems. The average rainfall is about 1000 mm, which is mainly received during monsoon months. This zone is suitable for raising off-season vegetables and seed production of temperate vegetables. Apples, other temperate fruits and nuts are important horticultural crops grown in this zone. Sheep and milch cattle dairying also supplement the income of the farmers. Cattle are the main milch animals accounting for 50 per cent of total livestock. Sheep and goats constituted about 47 per cent of total livestock population of 4.39 million.

(iv) High Hills Temperate Dry Zone: The area in this zone is situated above 2201 meters above mean sea level. Large parts of this zone remains covered with snow for nearly 5-6 months a year i.e. from December to April. The rainfall is very low (about 25 cm) and the temperature remains low throughout the year. The soils are sandy loam in texture and neutral to alkaline in reaction and low in fertility. Practically no crop can be raised without irrigation. Gravitational channels (kuhls) are the only source of irrigation in this zone. The soil erosion and water management are the main problems in this zone. Potato, barley, wheat, buckwheat, peas, minor millets, temperate vegetables and dry fruits are the main crops. Sheep and goat rearing is the main source of income. The flocks migrate to low hills in winter due to snowfall in this zone. About 66 percent of total livestock population of 0.76 million are sheep and goats.

Agriculture is by far the major occupation of the people of Himachal Pradesh as it provides direct employment to about three fourths of the total working population. The valley areas of the State are most suited for growing food-grains. Elsewhere, due to

climatic conditions varying from sub-tropical to temperate, the agro-climatic conditions are suitable for growing a wide variety of cash crops such as temperate fruits, potatoes, vegetables, ginger, etc. Since the scope for extension of cultivation is limited, emphasis has to be laid on increased production by maximizing output per unit area available for cultivation.

3.1.2 Rainfall

The state experiences two rainy seasons in a year, one from December to March and the other, which is the main one, extends from about middle of June till about the post monsoon season in the month of October. Nearly half of the rainfall is received during June-September season. Rainfall in the state is unequal and varies from district to district. Also rainfall is irregular and shows considerable variation from year to year. District Kangra, Sirmour, Mandi and Chamba are classified as high rainfall districts with 1946, 1461, 1456 and 1409 MM rainfall annually respectively. District Lahaul & Spiti receives very low rainfall with 460 MM annually and comes out to be in the very low rainfall region. District Kinnaur received rainfall 750 MM annually and falls in the category of low rainfall regions. Rest of the districts fall in the category of medium/normal rainfall regions.

3.1.3 Irrigation

With the adoption of high yielding varieties, the use of inorganic fertilizers is high and also more water is required because yields from these varieties are highly correlated with irrigation. All efforts to increase agricultural production will fail if the crops do not get the required moisture. The new package of inputs cannot depend on rains only, because rainfall is unequal and irregular and shows considerable variation from year to year. Thus, irrigation facilities become the necessary pre-requisite for productive agriculture. Green revolution can remain ever green if the needed irrigation facilities are provided in enough quantity as well as in time. In the state out of 540518 hectares of net area sown, only 19.4 percent area is irrigated. About 75 per cent of the net irrigated area is being fed by kuhls (included in other sources of irrigation) i.e. gravity channels taken out of numerous streams and rivers in the state are main sources of irrigation.

Proportion of gross irrigated and net irrigated area from different sources of irrigation is presented in Table3.1. The table shows that the gross irrigated area which was 67807 hectares (15.52 % of GCA) in 1962-64 Triennium ending has increased to 181120 hectares (19 % of GCA) in 2003-04. Similarly the net irrigated area which was 39373 hectare in 1962-63 with 14 per cent of net area shown has also increased to 105081 hectares (19% of net sown area) in the year of 2003-04. The table further reveals that the other sources of irrigation including Kuhls which is the main source of irrigation in the state has the major contribution in irrigation with more than 99 per cent in 1962-63 which has decreased to about 84 per cent in 2003-04. Tube wells are another source of irrigation and 10 per cent area was irrigated by this source in 2003-04. The contribution of canals and other wells in irrigation was only 6 per cent of the net irrigated area.

Table- 3.1: Proportion of Gross and Net Irrigated Area by Different Source of Irrigation Triennium Ending Average (TE) 1962-63 to 2004-05.

Particulars	Triennium Ending					Individual Years		
	1962-63	1972-73	1982-83	1992-93	2000-01	2001-02	2002-03	2003-04
Gross Irrigated Area (Ha.)	67807	159695	158643	172021	180675	180996	186562	181120
Percent of GIA to GCA	15.52	17.47	16.68	17.57	18.86	18.94	19.74	18.95
Source of Irrigation: Percentage to Net Irrigated Area								
Canals	0.41	0.61	1.69	-	3.03	3.59	3.43	3.35
Tanks	Neg.	0.10	0.54	0.96	0.27	0.27	0.26	Neg.
Tube wells	-	-	-	-	8.63	9.32	10.00	10.07
Other wells	0.06	1.55	4.56	3.90	3.20	3.31	3.51	2.82
Other sources	99.53	97.74	93.21	95.14	84.86	83.51	82.80	83.76
Net Irrigated Area (Ha. Percentage)	39373 (100)	91519 (100)	92240 (100)	99340 (100)	109674 (100)	102126 (100)	102263 (100)	105081 (100)

Source: Annual Seasons and Crop Report, Directorate of Land Records, Shimla, H.P.

3.1.4 Agriculture in Himachal Pradesh

It is well known that agriculture is one of the most crucial sectors in the Himachal Pradesh economy and alongwith its allied activities, it contributes around 24 percent of the Gross Domestic Product (GDP) and provides around 70 percent employment. The growth of agriculture sector has also a direct impact on poverty eradication. Therefore, agricultural growth assumes paramount importance in accelerating over-all economic growth.

The farming in this hilly region of India is done on tiny and terraced land holdings which in general are economically unviable. Therefore, farmers and the government to achieve higher income and employment in agriculture have to shift cropping pattern towards high value commercial crops. But this process has been with mixed blessings. The increased emphases on commercial crops like fruit, vegetables and flowers etc has resulted in better performance of these crops but in this process the cereals and other traditional field crops have been more or less neglected. Due to higher profitability of commercial crops, the input use pattern has become highly skewed in favour of these crops. The result is that the field crops are starving for attention of the farmers and use of modern farm inputs. The net result of this emerging scenario is reflected in the fact that the crop productivity has become almost stagnant, if not declining.

Since the agricultural sector accounts for the lion's share in the Net State domestic Product and employs more than 75 percent of the working population, its growth is vital for the State economy and, consequently, the socio-economic upliftment of the rural masses. From this perspective, it is interesting to make a critical appraisal of the changing profile of agriculture in Himachal Pradesh.

(i) Farm Size Structure: There has been an increase in the number of land holdings from 6,09,000 in 1970-71 to 914,000 in 2000-01 indicating rapid fragmentation of medium and large holdings due to law of succession; as well as allotment of land to the landless by the State. The percentage numbers of marginal and small operational holdings have gone up to 86.32 percent in 2000-01 while they owned only 50.76 per cent of the total land. The medium and large farmers, who constituted only 13.24 and 0.04 per cent, owned 42.8 and 6.44 per cent of the farmed land in the State. The land

resources are thus highly skewed in distribution and, with the increase in population, the land-man ratio has gone down and the average size of holdings in Himachal Pradesh has declined from 1.53 ha in 1970-71 to 1.07 ha in 2000-01. This works out to a 30 per cent decline in three decades (see Table 3.2).

Table- 3.2: Changing Structure of Land Holdings and Area Operated.

Holdings	No. of Holdings (Lakh)				Area Operated (lakh hectares)			
	1970-71	1980-81	1990-91	2000-01	1970-71	1980-81	1990-91	2000-01
Marginal (Below 1.0 ha.	3.55 (58.29)	3.52 (55.09)	5.32 (63.94)	6.15 (67.28)	1.35 (14.50)	1.46 (14.90)	2.15 (21.29)	2.52 (25.74)
Small (1.00-1.99 ha.)	1.23 (20.20)	1.40 (21.91)	1.66 (19.95)	1.74 (19.04)	1.77 (19.01)	2.00 (20.41)	2.35 (23.27)	2.45 (25.02)
Semi-Medium (2.00-3.99 ha.)	0.86 (14.12)	0.99 (15.49)	0.94 (11.30)	0.90 (9.85)	2.39 (25.67)	2.65 (27.04)	2.58 (25.54)	2.43 (24.82)
Medium (4.00-9.99 ha.)	0.38 (6.24)	0.41 (6.42)	0.35 (4.21)	0.31 (3.39)	2.21 (23.74)	2.44 (24.90)	2.05 (20.30)	1.76 (17.98)
Large (10.00 & above)	0.07 (1.15)	0.07 (1.09)	0.05 (0.60)	0.04 (0.44)	1.59 (17.08)	1.25 (12.75)	0.97 (9.60)	0.63 (6.44)
All	6.09	6.39	8.32	9.14	9.31	9.80	10.10	9.79
Av size of holding	-	-	-	-	1.53	1.53	1.21	1.07

Source: Agricultural Census, 1980-81 and 1990-91 and Economic survey Himachal Pradesh 2007-08.

Note: Figures in parenthesis denote percentages to total.

(ii) Cropping Pattern: A change in cropping pattern has been taking place in the State as elsewhere in the country. The shift in cropping systems is normally advantageous and indicates a dynamic economy. The change depends upon the crops involved and the multifarious stimuli such as the changing economic, technological, and institutional factors. Table 3.3 present a broad crop-group-wise changing crop pattern in the State. Food crops include cereals, pulses, vegetables, fruit crops, and spices and these together accounted for about 96 per cent of the total cropped area while the remaining was shared by non-food crops. The area under fruit and vegetable crops registered the highest increase of 3.73 percent in 1970-71 to 10.83 percent in 2003-04, followed by wheat, maize, and total spices. However, the area under two principal cereal crops, viz. paddy and barley, total pulses, and total oilseeds, decreased. The decrease in area under pulses and oilseeds might not be immediately disadvantageous to the farmers

because of the present low-level output-input ratios of these crops, but, nevertheless, it has national repercussions.

Table-3.3: Changes in the Cropping Pattern in Himachal Pradesh.

(Percent to gross cropped Area)

Crop	Triennium Ending					2003-04
	1962-63	1972-73	1982-83	1992-93	2000-01	
Rice	10.52	10.92	9.64	8.51	8.48	8.52
Maize	27.02	28.15	29.86	32.12	31.27	31.24
Wheat	33.29	34.94	38.28	38.71	38.72	38.02
Barley	6.85	4.51	3.86	2.87	2.76	2.55
Total Cereals	87.10	83.61	85.20	84.35	82.37	81.89
Total pulses	6.46	7.93	5.37	4.21	3.39	3.02
Total food grains	93.56	91.54	90.57	88.56	86.26	84.91
Total oilseeds	1.06	2.43	2.43	2.25	1.92	1.85
Fruits & Vegetables	3.70	3.73	5.09	7.26	9.61	10.83
Gross cropped area (In Ha.)	436958	914118	951117	979034	958148	955614

Source: Annual Seasons and Crop Report, Directorate of Land Records, Shimla, H.P.

3.1.5 Basic Indicators of Growth in Himachal Pradesh

In a hilly State like Himachal Pradesh, with meager infrastructural facilities (e.g. roads, schools, hospitals etc.), high priority in resource allocation had to be initially accorded to the creation of requisite infrastructure. Heavy allocation of resources for social overheads that provide education, medical facilities, and public health services is also justified. Because of the high priority given to transport and communication, the length of motorable roads increased more than four times during 1967 to 2002. In this period, the literacy rate also increased more than four times; it was 17 per cent in the 1961 Census and 77 per cent in the 2001 Census and about 84 percent during 2011 census. Education is one of the basic needs for economic development in a region. The Himachal Pradesh Government accorded due consideration to education and medical

facilities in different plans periods. The number of hospitals and dispensaries increased from 480 to 1262 from 1967-68 to 2001-02 (see Table3.4).

In a hilly region with sufficient rainfall and vast hydro-electric potential, the power sector should not be considered to be a mere component of infrastructural facilities; rather it should be counted as a commodity production sector and as a source of income. In Himachal Pradesh, during 1967-68, the electricity generated was only 3.7 million kwh and by 2001-02 it rose to 1149.5 million kwh, out of which about 50 per cent of the power (which was surplus) was sold to the neighboring States, thus providing a good source of income for the State.

Table-3.4: Basic Indicators of Growth in Himachal Pradesh.

#.	Indicators	1967-68	1972-73	1982-83	1992-93	2001-2002
1.	Population(millions)	3.22	3.57	4.28	5.37	6.07
2.	%of population living in rural areas	NA	94.97	92.38	91.31	90.28
3.	Population density/sq.km.	57.8	64.5	77.0	93.0	109
4.	Net state domestic product(Rs. in millions)	1830	2391	2960	3578	10310
5.	Per capita income (Rs./yr.)					
	a. at current prices	528	769	1658	5979	21368
	b. at 1970-71 prices	568	669	686	1278	10942*
6.	Literacy rate	21.24	31.96	42.48	63.90	77.13
7.	No. of doctors per million of population	218	203	296	204	268
8.	No. of hospital beds per million of population	1440	1270	1355	1482	1783
9.	No. of hospitals & dispensaries	480	590	830	1031	1262
10.	%of villages electrified	6.15	24.83	75.63	100.00	100.00
11.	Per capita domestic consumption of electricity (KWH)	3.1	5.6	75.63	52.72	109.45
12.	Electricity generated (million KWH)	3.7	162.6	540.5	1087.4	1149.5
13.	Mileage of roads (km.)	4308	7609	13600	22780	27217
	a. Per 100km of area (km.)	8.72	16.85	24.44	40.91	48.87
	b. Per thousand of population	1.51	2.61	3.18	4.24	4.48

*At the price of 1993-94

Source: Statistical Outline of Himachal Pradesh (Various issues), Shimla, Directorate of Economics and Statistics, Himachal Pradesh.

3.2. Profile of District Shimla

3.2.1 Physical Features: District Shimla is situated in humid temperate zone of Himachal Pradesh. The district is located between longitude 77^0 and 78^0 East and latitude 30^0. It is surrounded by Mandi and Kullu districts in the North, Kinnaur in the East and Sirmour in South and Solan in the West. The geographical area of the district is 5,131 sq kms which is 9.22 percent of the total area of the state. The elevation of the district varies from 600 mts above MSL at Tatapani to 5,760 mts above msl at Gushu Pishu . The entire district is mountainous with steep hills. The topography of the district is rugged and tough. Shimla district, in its present form, came into existence on Ist September, 1972 on re-organization of the districts of the state. It derives its name from Shimla town, the district head quarters and now the state capital of Himachal Pradesh. Present day Shimla district comprises of 19 erstwhile hill states.

3.2.2 Climate and Soil: The climate of the district varies from cold and dry zone to temperate and sub-tropical zone depending on the terrain and height of the area. The hills and mountain ranges are generally aligned in the east-west direction, which presents a complicated pattern of relief. Predominantly rough terrain, prevalence of interlocking spurs, narrow and steep side valleys throughout the district reflect the youthfulness of topography. There are four broad seasons. The climate conditions vary from the temperate to the alpine with low lying areas experiencing warm season. Seventy percent of total rainfall is precipitated during rainy season and remaining 30 percent during spring, winter and autumn seasons. Generally, soils of the district are medium in organic carbon and nitrogen, low in phosphorous and high in potassium. Deficiency of zinc, boron and sulphur are reported in some pockets of the district.

3.2.3 Demographic Features: The population of Shimla district as per 2001 census is 7,22,502 which accounted for 11.89 percent of the total population of the state. The total population of the district comprises of 380996 males and 341506 females giving the number of females per thousand males as 896 in 2001. The density of population increased from 120 persons per square kilometer in 1991 to 141 persons per square kilometer in 2001. The literacy level of the district has increased from 64.61 per cent in 1991 to 79.68 percent in 2001. The literacy rate of the district is higher than that of the

state average for 1991 and 2001. The male literacy is higher than that of the female literacy both for the district as well as for the state as a whole. The number of families below poverty line comes out to be 29 percent in the district and 24 percent in the state as a whole. The workers constituted nearly half of the total population in the district. Out of total workers, more than 80 percent are main workers. For the state as a whole, the percent share of marginal workers in total workers is higher (34.38%) comparatively than that of their proportion (17.43%) at the district level. As per 2001 census cultivators accounted for 64 percent of the total workers. The percent share of workers in other occupational categories viz. agriculture labour and household industry is 2.65 and 1.19 percent respectively. The workers in other occupations which included construction, transport and communication and services accounted for 32 percent of the total workers

3.2.4 Land Use Pattern: The land use pattern of Shimla district is presented in Table Annexure-1. The total geographical area in year 2007-08, as reported by village papers was 5,08,900 hectares. Out of total area, culturable waste, permanent pastures and other grazing land and land under miscellaneous tree crops consisted of 51 percent in the district as compare to about 37 percent in the state. The area under forests was 25.62 percent of the reported area. Fallow land accounted for 3.35 percent of the reported area while the area under barren and unculturable land and land put to non agriculture uses was 6.35 percent.

3.2.5 Distribution of Land Holdings: Table Annexure 2 presents the percent change in number and area of land holdings in Shimla district from 1980-81 to 1995-96. The table shows that the total number of holdings increased over the years from 60899 in 1980-81 to 90112 in 1995-96. In the case of area of holdings, almost similar trend is observed over the years. As per 1980-81 and 1995-96 agricultural census years, the proportion of marginal holding increased from nearly 42 percent to 55 percent while that of small holdings, it remained unchanged at about 24 percent. The proportion of medium and large holdings, however, recorded a continuous decline. The proportion of operated area accounted for by marginal and small holdings was around 43 percent, whereas medium and large size holdings accounted for nearly 57 percent of the total operated area. More or less similar pattern is observed for the state as a whole.

3.2.6 Cropping Pattern: The cropping pattern in the district has been presented in Table Annexure-3. The table reveals that the economy of the district is agriculture based and 99.27 percent of the total cropped area is covered by food crops and 0.73 percent by non food crops. Under food crops, it is the cereal crops viz. wheat, maize, paddy, barley and other cereals which accounts for major share (45%) of area of crops sown. The area under pulses is 5.32 percent of the total cropped area where as in the state as a whole it is only 0.83 percent. The total area under fruits and vegetables aggregates 21.08 percent of the total cropped area. As far as production is concerned total food grains account for 50.06 percent of the total production. Vegetable accounts 49 percent of the total output as compare to 13.78 percent in the state as a whole. The share of pulses in total production in the district comes out to be 1.36 percent.

3.3.7 Area and Production of Fruits: The area and production of different fruits in the district as well as in the state during 2006-07 is presented in Table Annexure-4. The table reveals that out of total area under fruits apple accounts for 83 percent in the district as compared to 69 percent in the state as a whole. The area under almond comes out to be 4.13 percent of the total area under fruit followed by pear (4.01%), apricot (1.81%), plum (1.63%), Kagzi lime (1.24%) and mango (0.75%). The area under orange and guava account for only 0.09 and 0.05 percent of the total area under fruits. As far as production is concerned apple is the major fruit which accounts for about 97 percent of the total production of fruits.

3.2.8 Infrastructure Facilities: The Table Annexure-5 reveals that the district is having 217298 L.P.G. consumers. There are 12 hospitals and 7 community health centers. Hundred percent villages are electrified in the district. The number of primary and middle schools, high and senior secondary school and colleges per lakh of population are estimated to be 279, 53 and 1.52 respectively. There are 477 fair price shops and 160 commercial bank branches. The district is having 4860 kms. length of motorable roads and a good number of post offices.

3.3 Profile of District Solan

3.3.1 Physical Features: Solan district of the state falls in low and mid hill regions. The district is situated between 76^0 42' to 77^0 20' East longitude and 30^0 30' to 30^0 15' North latitude. The district comprises of five development blocks namely Nalagarh, Dharampur, Solan, Kandaghat and Kunihar. The elevation of the district ranges from 300 to 3000 meters above mean sea level. The district has some parts of very low altitude and others of high altitude. The terrain is mostly mountainous except valleys of Saproon in Solan tehsil, Doon in Nalagarh tehsil and Kunihar in Arki tehsil. The mountains of lower elevation are found in Western and Southern part of district comprising of Nalagarh and Arki tehsil while higher ranges start from central region and extend up to North Eastern corner of the district comprising of Solan, Kasauli, Kandaghat and parts of Arki tehsil. Mangal and Berral Panchayats of Arki tehsil are situated on very high mountain ranges and difficult terrain.

3.3.2 Climate: The climate of district Solan varies from sub-tropical to sub temperate. The temperature ranges from 0^o C in winters to 40^0 C in summers. The climatic conditions of the district suit the cultivation of stone fruits (mid hill zone), sub tropical fruits (foot hill zone) and off season vegetables like tomato, capsicum, ginger, French bean, cabbage, cauliflower, peas etc. The district receives an average annual rainfall of 1420.40 mm, mostly during monsoon.

3.3.3 Demographic Features: The total population of Solan district was 303280 in 1981 which increased to 382268 in 1991 and 500557 in 2001. The sex ratio was 929 in 1981 which decreased to 909 in 1991 and 852 in 2001. The total families in the district were 7,37,333 out of which about 24 percent were BPL families. As per 2001 census there were 2,63,445 total workers. Out of which 56.92 percent were agricultural workers. The proportion of cultivators, agricultural labour, household industry workers and other workers was 54.53, 2.39, 1.25 and 41.84 percent of total workers, respectively.

3.3.4 Land Use Pattern: The total geographical area of the district by village papers is 21053 hectares. The net area sown in the district is 3338 hectare (15.86%) while it is 11.57 percent for the state. Total cropped area is 5632 hectares. Net irrigated area is 9509 hectares, which is 23.77% of the total net area sown of the district (see Annexure 1).

3.3.5 Distribution of Land Holdings: The Table Annexure-2 presents the percent change in the number and area of land holdings in Solan district from 1980-81 to 2000-01. It may be seen from the table that the number of holdings has been increased from 39442 in 1980-81 to 50576 in 2000-01. The area of holdings also increased over the years except in case of large holdings where the area decreased from 48.22 percent in 1980-81 to 35.09 percent in 2000-01. The number of holdings for the state as a whole has also increased from 637081 in 1980-81 to 913914 in 2000-01. The percentage of area has increased for the marginal and small categories where as medium and large categories show decreasing trend from 1980-81 to 2000-01.

3.3.6 Cropping Pattern: The Table Annexure-3 reveals that the area under cereals was about 83 percent of the total cropped area in the district and it was 82 percent for the state as a whole. The area under vegetables was about 6 percent as compared to 4 percent in the State. The share of Solan district in production of cereals was 78 percent whereas in the state it was 83 percent. The vegetables production was 17 percent of total crops production in the district as compared to 14 percent in the state during 2003-04. The total area under fruit was 6679 hectares in the district whereas in the state it was 197445 hectares during 2006-07. Mango was the major fruit accounting for about 28 percent of total fruit in the district as compared to 19 percent in the state. Pear was on the second place in the district followed by Apricot.

3.3.7 Infrastructure Facilities: The district is fully electrified and well connected by roads and communication facilities. There were 225 primary and middle schools, 23.17 Secondary and Senior Secondary schools and 0.80 Degree and professional colleges per lakh of population which were marginally less than the State averages. All the villages had good drinking water facility in the district. There are 296 Fair Price Shops

and 124 Commercial bank branches. Out of total families 73733 in the district, about 24 percent were BPL families which are equal to state average.

3.4. Socio-Economic Profile of Sampled Apple Farm Households

The profile of sampled apple growers marketing under TMC and EMC has been presented below:

3.4.1 Caste wise Number of Sampled Farm Households: The largest percentage of household under TMS belonged to general category, 96 percent and other 4 percent were scheduled caste. In case of EMC 76 percent households belonged to general category and rest 24 percent were from scheduled Caste category. The numbers of scheduled caste category households were relatively higher in case of EMC than that of TMC. Other details can be seen from the Tables 3.5 & 3.6.

Table- 3.5: Caste wise Socio-Economic Profile of Sample Farm Households under Traditional Marketing Channel.

Particulars	Marginal	Small	Medium	Large	All
General	24(96)	17(94.45)	7(100.00)	-	48(96.00)
SC	1(4)	1(5.56)	-	-	2(4.00)
ST	-	-	-	-	-
OBC	-	-	-	-	-
Total	25(100.00)	18(100.00)	7(100.00)	-	50(100.00)

Note: Figures in brackets are percentage to total.

Table- 3.6: Caste wise Socio-Economic Profile of Sample Farm Households under Emerging Marketing Channel.

Particulars	Marginal	Small	Medium	Large	All
General	22(64.70)	10(100.00)	6(100.00)	-	38(76.00)
SC	12(35.30)	-	-	-	12(24.00)
ST	-	-	-	-	-
Other	-	-	-	-	-
Total	34(100.00)	10(100.00)	6(100.00)	-	50(100.00)

Note: Figures in brackets are percentage to total.

3.4.2 Family Size: The average size of households was 4.74 members per households and this size was 4.52 persons in case of marginal farm households and 5 persons in case of medium category of farm households under traditional marketing channel. Among households under Emerging Marketing channel average size of household was 4.96 persons which was relatively higher in case of medium category and lower in small category of household**.** The details have been given in Table3.7.

Table- 3.7: Family Size of Sampled Households.

Particulars	Marginal	Small	Medium	Large	All
TMC					
Total population	113	89	35	-	237
Males	61	46	21	-	128
Females	52	43	14	-	109
Average Family size	4.52	4.94	5.00		4.74
EMC					
Total population	164	36	48	-	248
Males	85	18	27	-	130
Females	79	18	21	-	118
Average Family size	4.82	3.60	8.00	-	4.96

3.4.3 Educational Status of Sampled Farm Households: Largest percentage of the persons, 41 percent, at over all level had qualification up to secondary level. About 9 percent were illiterate and about 13 percent were graduate whereas only 3 percent had qualifications above the graduation level in case of households under TMC. Among households under EMC, 38 percent persons had qualification up to secondary level and 10 percent were graduates. Literacy rate was comparatively higher, 91 percent, in case of TMC households and 80 percent in EMC households. The category wise details in this respect can be seen from the Tables 3.8 & 3.9.

Table- 3.8: Educational Profile of Sample Farm Households under Traditional Marketing Channel.

Particulars	Marginal	Small	Medium	Large	All
Illiterate					
-Male	3	2	1	-	6
-Female	8	4	3	-	15
-Total	11(10.18)	6(7.14)	4(12.50)	-	21(9.37)
Primary					
-Male	11	6	1	-	18
-Female	16	10	2	-	28
-Total	27(25.00)	16(19.05)	3(9.38)	-	46(20.54)
Middle					
-Male	6	6	1	-	13
-Female	6	5	5	-	16
-Total	12(11.11)	11(13.10)	6(18.75)	-	29(12.95)
10th					
-Male	19	12	8	-	39
-Female	8	9	1	-	18
-Total	27(25.00)	21(25.00)	9(28.12)	-	57(25.45)
+2					
-Male	11	5	3	-	19
-Female	9	4	3	-	16
-Total	20(18.52)	9(10.71)	6(18.75)	-	35(15.60)
Graduate					
-Male	6	10	2	-	18
-Female	4	6	-	-	10
-Total	10(9.26)	16(19.05)	2(6.25)	-	28(12.50)
P.G.					
-Male	1	3	2	-	6
-Female	-	1	-	-	1
-Total	1(0.93)	4(4.76)	2(6.25)	-	7(3.12)
Technical					
-Male	-	1	-	-	1
-Female	-	-	-	-	-
-Total	-	1(1.19)	-	-	1(0.44)
Computer Literate	0	0	0	0	0
Total					
-Male	57	45	18	-	120
-Female	51	39	14	-	104
-Total	108(100.00)	84(100.00)	32(100.00)	-	224(100.00)

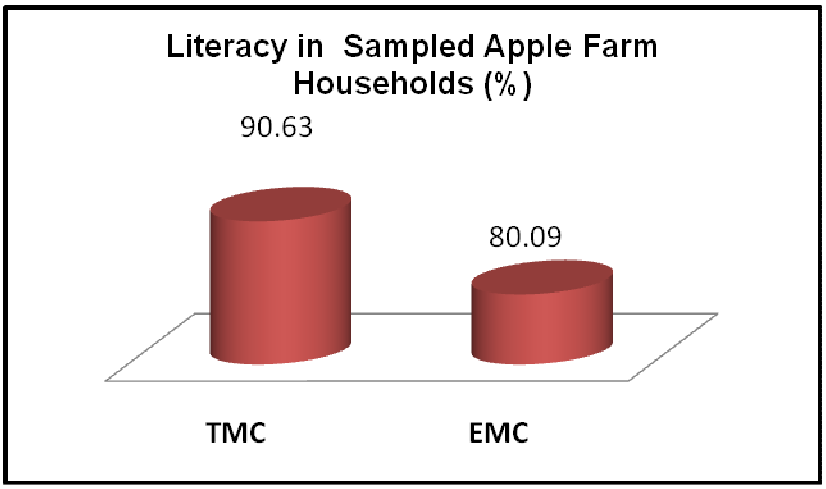
Note: Figures in brackets are percentage to total.

Table-3.9:Educational Profile of Sample Farm Households under Emerging Marketing Channel.

Particulars	Marginal	Small	Medium	Large	All
Illiterate					
-Male	9	-	1	-	10
-Female	22	8	4	-	34
-Total	31(21.23)	8(17.02)	5(17.86)	-	44(19.91)
Primary					
-Male	11	1	3	-	15
-Female	7	2	4	-	13
-Total	18(12.33)	3(6.38)	7(25.00)	-	28(12.67)
Middle					
-Male	14	6	-	-	20
-Female	13	2	-	-	15
-Total	27(18.49)	8(17.02)	-	-	35(15.84)
10th					
-Male	17	13	4	-	34
-Female	8	8	2	-	18
-Total	25(17.21)	21(44.68)	6(21.43)	-	52(23.53)
+2					
-Male	14	4	1	-	19
-Female	14	-	-	-	14
-Total	28(19.18)	4(8.51)	1(3.57)	-	33(14.93)
Graduate					
-Male	7	2	4	-	13
-Female	5	-	4	-	9
-Total	12(8.22)	2(4.25)	8(28.53)	-	22(9.95)
P.G.					
-Male	4	1	1	-	6
-Female	-	-	-	-	-
-Total	4(2.74)	1(12.12)	1(3.57)	-	6(2.71)
Technical				-	
-Male	1	-	-	-	1
-Female	-	-	-	-	-
-Total	1(0.68)	-	-	-	1(10.45)
Computer Literate	0	0	0	0	0
Total	-				
-Male	77	27	14	-	118
-Female	69	20	14	-	103
-Total	146(100.00)	47(100.000	28(100.00)	-	221(100.00)

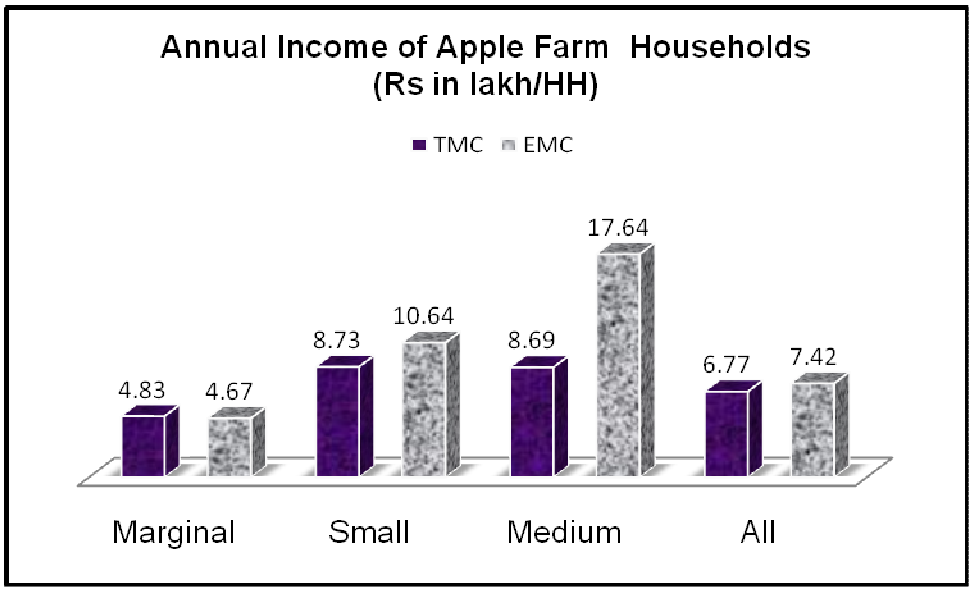
Note: Figures in brackets are percentage to total.

Fig.-3.1



3.4.4 Source wise Annual Income of Sampled Farm Households: The average household income of the sample has been presented in Table 3.10 for TMC household and 3.11 for EMC households. The analysis indicated that the total household income per annum was about Rs.6.77 lacs in case of TMC household and Rs.7.41 lacs in case of EMC households. It may be seen from the table that largest percentage of the income is derived from agricultural farm in both the cases. At over all level about 72 percent in case of TMC households and 91 percent of total income in case of EMC households was from this source. It was found that salary was the second largest source of income of sampled households. Among EMC households this source accounted for only about 6 per cent of the total income whereas in case of TMC households this percentage was about 20 per cent. Next important source of income was livestock rearing. The EMC households derived only about 2 per cent of their income from this source whereas the TMC households had about 2.54 per cent of their income coming from this source. Other details may be seen from the Tables 3.10 & 3.11

Fig.-3.2


Annual Income of Apple Farm Households
(Rs in lakh/HH)
TMC
EMC
4.83
4.67
8.73
10.64
8.69
17.64
6.77
7.42
Marginal
Small
Medium
All

.

Fig.- 3.3

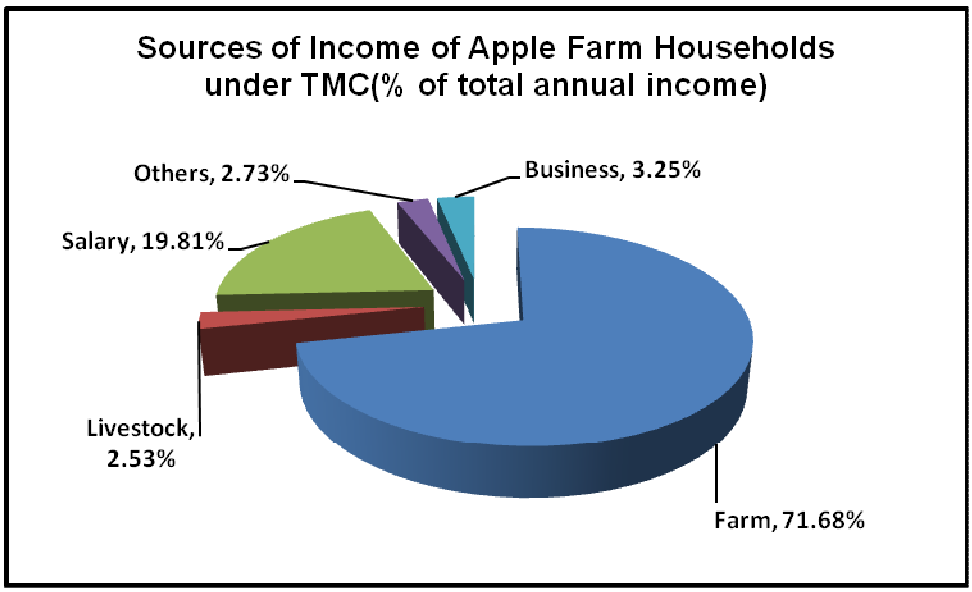

Sources of Income of Apple Farm Households
under TMC(% of total annual income)
Others, 2.73%
Business, 3.25%
Salary, 19.81%
Livestock, 2.53%
Farm, 71.68%

Fig.- 3.4

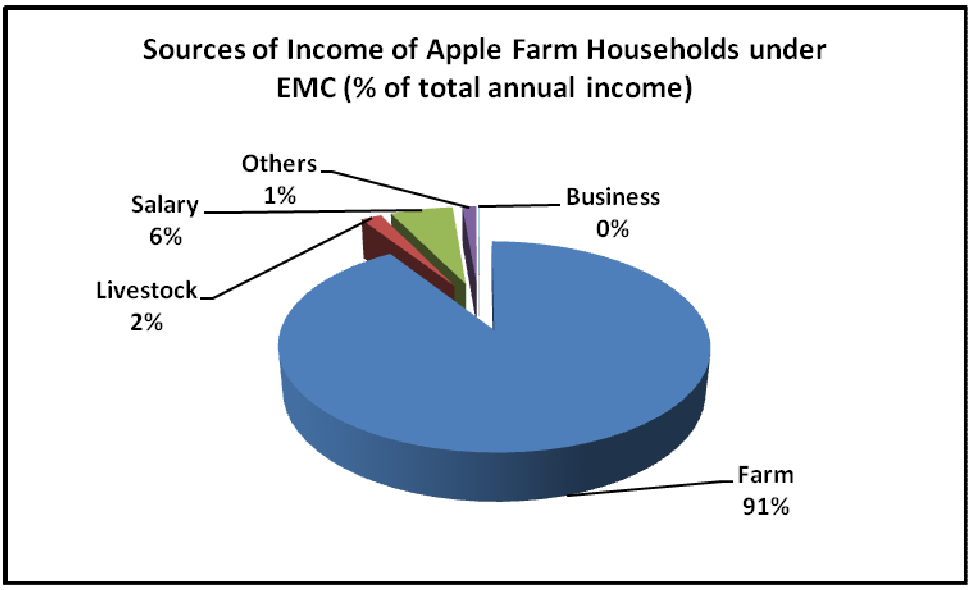


Table-3.10: Annual Income Sources of Sampled Farm Households under Traditional Marketing Channel.

(% to total income)

Particulars	Marginal	Small	Medium	All
Farms	64.29	73.07	82.71	71.68
Livestock	3.62	1.62	2.71	2.53
Salary	25.22	20.45	7.40	19.81
Business	4.97	2.54	1.64	3.25
Other	1.89	2.29	5.52	2.73
Total	100.00	100.00	100.00	100.00
Total income/farm (Rs)	4,82,980	8,73,250	8,68,857	6,77,500

Table-3.11: Annual Income Sources of Sampled Farm Households under Emerging Marketing Channel.

(% to total income)

Particulars	Marginal	Small	Medium	All
Farms	86.24	95.02	93.67	90.85
Livestock	2.44	2.38	0.66	1.92
Salary	10.37	2.03	2.83	5.83
Business	0.15	-	-	0.06
Other	0.79	0.56	2.83	1.31
Total	100.00	100.00	100.00	100.00
Total income/farm (Rs)	4,66,688	10,64,400	17,63,666	7,41,868

3.4.5 Land Holding of Sampled Households: The land resources owned by the sampled farmers have been presented in Tables 3.12 & 3.13 wherein it may be seen that each household at overall level owns 1.25 hectares of land in case of TMC and 1.03 hectares in EMC. The extent of irrigated land is almost insignificant which might have increased the risk of production in the crops owing to dependence on rains which is becoming increasingly erratic and scarce. This scenario might have motivated the farmers to opt for apple cultivation which has low dependence on rains.

Fig.- 3.5

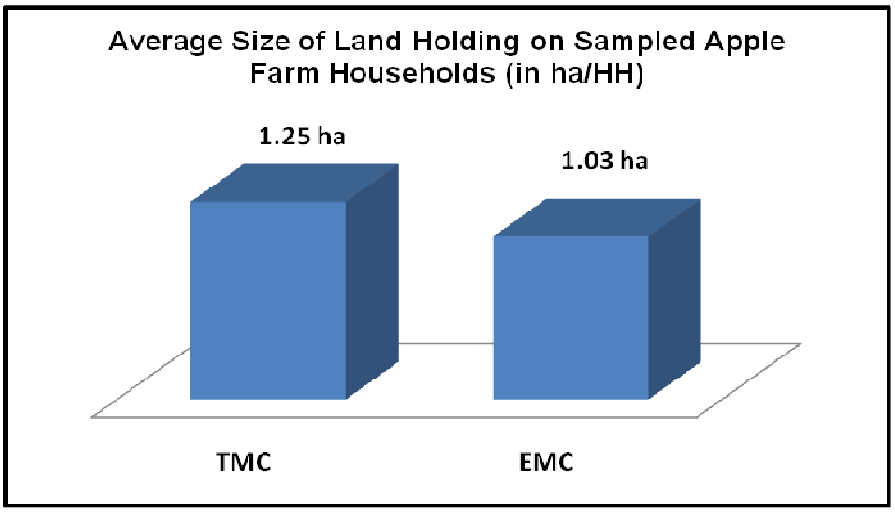


Table- 3.12: Land Holding Ownership and Cropping Pattern of Sampled Farm Households under Traditional Marketing Channel.

(Area in Ha/farm)

Particulars	Marginal	Small	Medium	All
Owned Land	0.60	1.49	2.97	1.25
Leased in land	-	-	-	-
Total un-irrigated	0.60	1.49	2.97	1.25
Land under Apple	0.60	1.49	2.97	1.25

Table-3.13: Land Holding Ownership and Cropping Pattern of Sampled Farm Households under Emerging Marketing Channel.

(Area in Ha/farm)

Particulars	Marginal	Small	Medium	All
Owned Land	0.43	1.56	3.53	1.03
Leased in land	-	-	-	-
Total un-irrigated	0.43	1.56	3.53	1.03
Land under Apple	0.43	1.56	3.53	1.03

3.4.6 Main Crops Grown on Sampled Farms: The entire cultivated area has been devoted to raising apple orchard by the sampled farmers of both the cases under study.

3.5. Socio Economic Profile of Sampled Tomato Farms

The profile of sampled tomato growers marketing under TMC and EMC has been presented below:

3.5.1 Caste wise Number of Sampled Farm Households: More than half of households under TMC belonged to general category, 21 percent were scheduled caste and rest 2 percent were OBC. In case of EMC, 62 percent households belonged to general category and rest 38 percent were Scheduled caste category. The numbers of scheduled caste category households were relatively higher in case of TMC than that of EMC. Other details can be seen from the Tables 3.14 & 3.15.

Table-3.14: Caste wise Socio-Economic Profile of Sample Farm Households under Traditional Marketing Channel.

Particulars	Marginal	Small	Medium	Large	All
General	12(40.00)	9(64.29)	4(100)	2(100)	27(54.00)
SC	18(60..00)	3(21.43)	-	-	21(42.00)
ST	-	-	-	-	-
OBC	-	2(14.28)	-	-	2(4.00)
Other	-	-	-	-	-
Total	30(100)	14(100)	4(100)	2(100)	50(100)

Note: Figures in brackets are percentages to total.

Table-3.15: Caste wise Socio-Economic Profile of Sample Farm Households under Emerging Marketing Channel.

Particulars	Marginal	Small	Medium	Large	All
General	12(44.44)	5(55.56)	10(100)	4(100)	31(62.0)
SC	15(55.56)	4(44.44)	-	-	19(38.0)
ST	-	-	-	-	-
OBC	-	-	-	-	-
Other	-	-	-	-	-
Total	27(100)	9(100)	10(100)	4(100)	50(100)

Note: Figures in brackets are percentages to total.

3.5.2 Family Size: The average size of households was 4.70 members and this size was 4.43 persons in case of marginal farm households and 6.5 persons in case of large category of farm households under traditional marketing channel. Among households under Emerging Marketing channel average size of household was 5.08 persons which was relatively higher in case of large category and lesser in marginal category of household**.** The details have been given in Table 3.16.

Table-3.16: Family Size of Sampled Households.

Particulars	Marginal	Small	Medium	Large	All
TMC					
Total population	133	68	21	13	235
Males	74	34	14	7	129
Females	59	34	7	6	106
Average Family size	4.43	4.86	5.25	6.50	4.70
EMC					
Total population	131	49	52	22	254
Males	67	28	25	10	132
Females	64	21	27	14	122
Average Family size	4.85	5.44	5.20	5.50	5.08

3.5.3 Educational Status of Sampled Farm Households: Largest percentage of the persons, 27 percent, at over all level had qualification up to primary level. About 12 percent were illiterate and 2.65 percent were graduate whereas only 1.33 percent had qualification above the graduation level in case of households under TMC. Among households under EMC, 30 percent persons had qualification up to primary level and 3 percent were graduates. Literacy rate was comparatively higher 92.18 percent, in case of EMC households and lesser 87.61 percent in TMC households. The category wise details in this respect can be seen from the Tables 3.17 & 3.18.

Table-3.17: Educational Profile of Tomato Farmers under Traditional Marketing Channel.

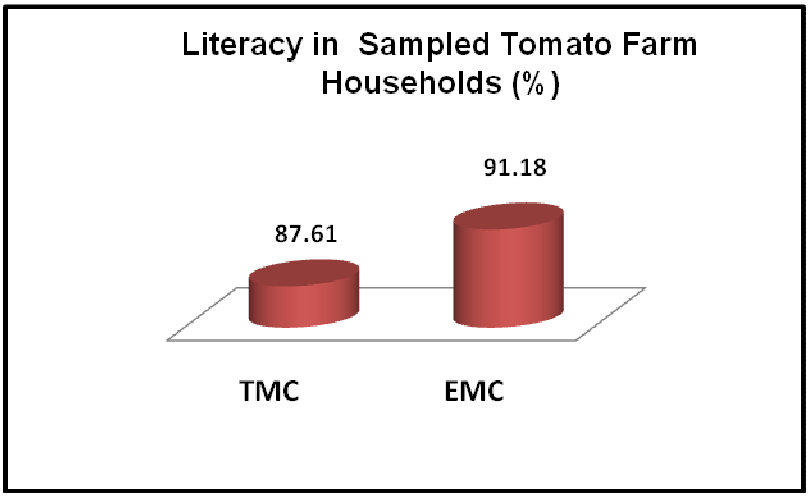
Particulars	**Marginal**	**Small**	**Medium**	**Large**	**All**
Illiterate					
-Male	7	0	0	0	7
-Female	15	4	1	1	21
-Total	22(17.05)	4(5.88)	1(5.00)	1(11.11)	28(12.39)
Primary					
-Male	22	5	2	1	30
-Female	17	14	1	0	32
-Total	39(30.23)	19(27.94)	3(15.00)	1(11.11)	62(27.43)
Middle					
-Male	14	9	2	0	25
-Female	7	9	1	0	17
-Total	21(16.28)	18(26.47)	3(15.00)	0	42(18.59)
10^{th}					
-Male	23	15	4	2	44
-Female	8	3	2	2	15
-Total	31(24.03)	18(26.47)	6(30.00)	4(44.44)	59(26.11)
+2					
-Male	3	4	3	1	11
-Female	8	4	2	1	15
-Total	11(8.53)	8(11.76)	5(25.00)	2(22.22)	26(11.50)
Graduate					
-Male	3	1	1	1	6
-Female	0	0	0	0	0
-Total	3(2.33)	1(1.47)	1(5.00)	1(11.11)	6(2.65)
P.G.					
-Male	1	-	1	0	2
-Female	1	-	0	0	1
-Total	2(1.55)	-	1(5.00)	0	3(1.33)
Technical	0	0	0	0	0
Computer Literate	0	0	0	0	0
Total					
-Male	73	34	13	5	125
-Female	56	34	7	4	101
-Total	129(100.00)	68(100.00)	20(100.00)	9(100.00)	226(100.00)

Table-3.18: Education Wise Profile of Tomato Farmers under Emerging Marketing Channel.

Particulars	Marginal	Small	Medium	Large	All
Illiterate					
-Male	6	2	-	-	8
-Female	9	2	-	-	11
-Total	15(12.00)	4(8.33)	-	-	19(7.82)
Primary					
-Male	22	6	6	2	36
-Female	21	5	9	2	37
-Total	43(34.40)	11(22.91)	15(30.61)	4(19.05)	73(30.04)
Middle					
-Male	14	5	8	3	50
-Female	15	3	10	5	33
-Total	29(23.20)	8(16.67)	18(36.74)	8(38.10)	63(25.93)
10th					
-Male	15	9	6	5	35
-Female	14	6	4	1	25
-Total	29(23.20)	15(31.25)	10(20.41)	6(28.57)	60(24.69)
+2					
-Male	7	5	-	2	14
-Female	2	3	1	1	7
-Total	9(7.20)	8(16.67)	1(2.04)	3(14.28)	21(8.64)
Graduate					
-Male	-	1	4	-	5
-Female	-	1	1	-	2
-Total	-	2(4.17)	5(10.20)	-	7(2.88)
P.G.	0	0	0	0	0
Technical	0	0	0	0	0
Computer Literate	0	0	0	0	0
Total					
-Male	64	28	24	12	128
-Female	61	20	25	9	115
-Total	125(100.00)	48(100.00)	49(100.00)	21(100.00)	243(100.00)

Note: Figures in brackets are percentages to total.

Fig.- 3.6



3.5.4 Source Wise Annual Income of Sampled Farm Households: The average household income of the sample farm families has been presented in Table 3.19 for TMC household and 3.20 for EMC households. The analysis indicated that the total household income per annum was about Rs.1.36 lacs in case of TMC households and Rs.1.33 lacs in case of EMC households. It may be seen from the table that largest percentage of the income is derived from farm/agricultural in both the cases. At over all level, about 54 percent in case of TMC households and 69 percent of total income in case of EMC households was from this source. It was found that income from salary was the second largest source of income of sampled households. Among EMC households this source accounted for about 22 per cent of the total income whereas in case of TMC households this percentage was about 28 per cent. Next in importance was income from livestock rearing. The EMC households derived only about 7 per cent of their income from this source whereas the TMC households had about 16 per cent of their income coming from this source. Other details may be seen from the Tables 3.19 & 3.20.

Fig.- 3.7

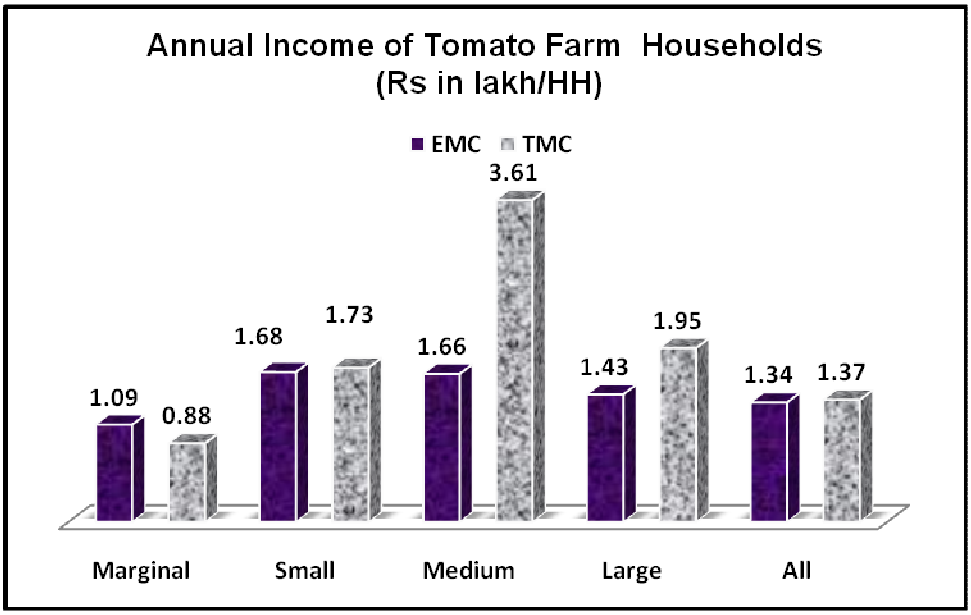

Annual Income of Tomato Farm Households
(Rs in lakh/HH)
EMC
TMC
1.09
0.88
1.68
1.73
1.66
3.61
1.43
1.95
1.34
1.37
Marginal
Small
Medium
Large
All

Fig.- 3.8

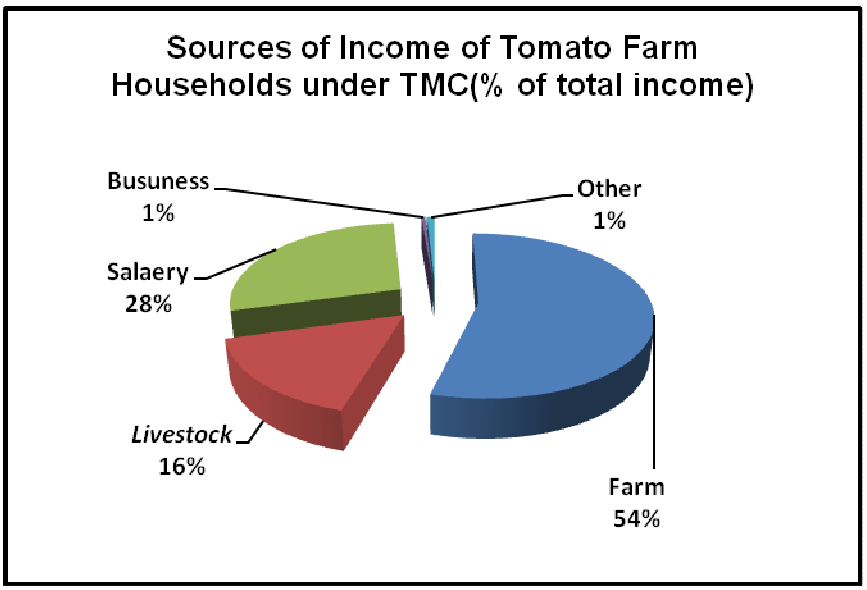

Sources of Income of Tomato Farm
Households under TMC(% of total income)
Busuness
1%
Other
1%
Salaery
28%
Livestock
16%
Farm
54%

Table-3.19: Annual Income Sources of Sampled Tomato Farms under Traditional Marketing Channel.

(Rs/ H.H)

Particulars	Marginal	Small	Medium	Large	All
Farms	60078 (68.15)	80040 (46.24)	142806 (39.58)	114375 (58.54)	74457 (54.42)
Livestock	21283 (24.14)	24785 (14.31)	20000 (5.54)	21000 (10.75)	22150 (16.19)
Salary	5800 (6.57)	68257 (39.45)	198000 (54.88)	-	38432 (28.09)
Business	1000 (1.14)	-	-	-	600 (0.43)
Other	-	-	-	60000 (30.71)	1200 (0.87)
Total	88161 (100.00)	173082 (100.00)	360806 (100.00)	195375 (100.00)	136839 (100.00)

Note: Figures in brackets are percentages to total.

Fig.- 3.9

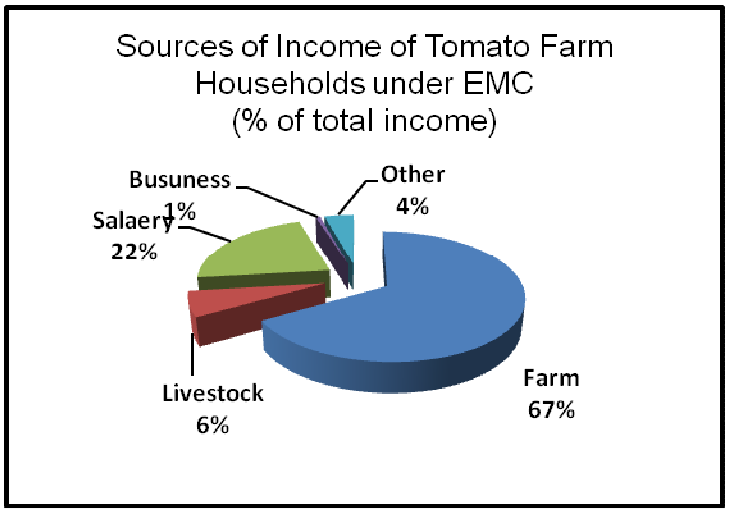


Table-3.20: Annual Income Sources of Sampled Tomato Farms under Emerging Marketing Channel.

(Rs/H.H.)

Particulars	Marginal	Small	Medium	Large	All
Farms	81207 (74.35)	103015 (61.23)	111577 (67.18)	94765 (66.49)	92291 (68.94)
Livestock	9815 (8.90)	7889 (4.69)	8100 (4.88)	11750 (8.25)	9280 (6.93)
Salary	13741 (12.58)	57333 (34.08)	46400 (27.94)	12000 (8.42)	27980 (20.90)
Business	3704 (3.39)	-	-	-	2000 (1.50)
Other	741 (0.68)	-	-	24000 (16.84)	2320 (1.73)
Total	109208 (100.00)	168237 (100.00)	166077 (100.00)	142515 (100.00)	133871 (100.00)

Note: Figures in brackets are percentages to total.

3.5.5 Land Holding of Sampled Households: The land resources owned by the sampled farmers have been presented in Tables 3.21 & 3.22 where in it may be seen that each household at overall level owns 1.24 hectares of land in case of TMC and 1.46 hectares in EMC. The extent of irrigated land in case of TMC farm households is almost insignificant which might have increased the risk of production in the crops owing to dependence on rains. In case of farm households under EMC about 32 percent land was irrigated. The extent of irrigated land was comparatively higher on marginal and small land holding than medium and large land holdings. Other details of the land resources may be seen from the Tables 3.21 & 3.22.

Fig.- 3.10

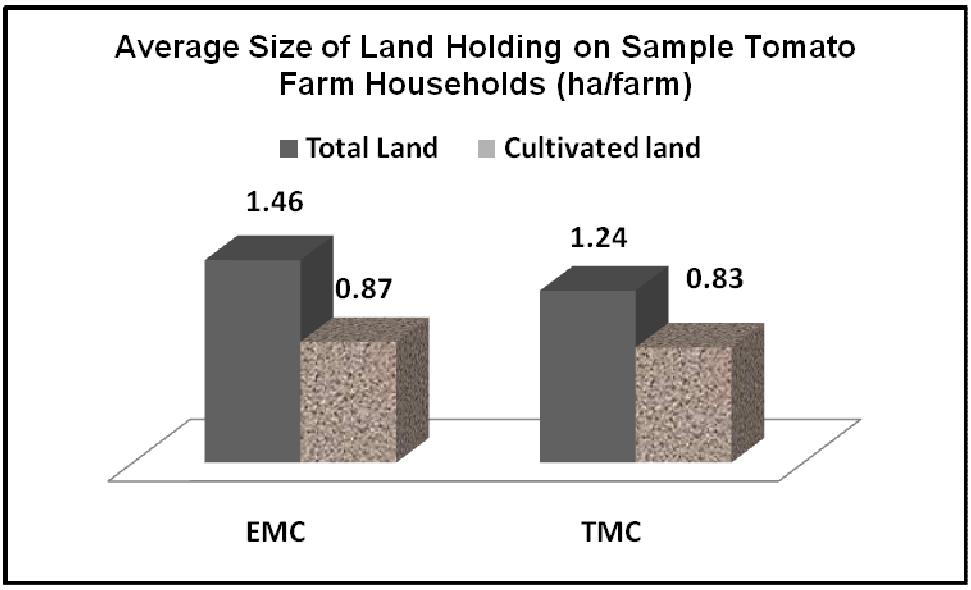


Table-3.21: Land Holding Ownership and Cropping Pattern of Sampled Farm Households under Traditional Marketing Channel.

(Area in Ha/farm)

Particulars	Marginal	Small	Medium	Large	All
Total Owned Land					
- Un-irrigated	0.58(100)	1.44(100)	3.33(100)	5.68(100)	1.24(100)
Leased in land	-	-	-	-	-
Cultivated land	0.26(44.83)	1.05(72.92)	2.20(66.67)	5.08(89.44)	0.83(66.93)

Note: Figures in brackets are percentages to total.

Table-3.22: Land Holding Ownership and Cropping Pattern of Sampled Farm Households under Emerging Marketing Channel.

(Area in Ha/farm)

Particulars	Marginal	Small	Medium	Large	All
Total Owned Land					
- Irrigated	0.31 (50.51)	0.68 (50.37)	0.53 (19.63)	0.90 (20.93)	0.47 (32.19)
- Un-Irrigated land-	0.29 (47.54)	0.67 (49.63)	2.17 (80.37)	3.40 (79.07)	0.99 (67.81)
Total	0.61 (100.00)	1.35 (100.00)	2.70 (100.00)	4.30 (100.00)	1.46 (100.00)
Leased in land	-	-	-	-	-
Cultivated land					
- Irrigated	0.31 (50.51)	0.68 (50.00)	0.53 (19.63)	0.90 (20.93)	0.47 (32.19)
- Un-irrigated	0.21 (34.43)	0.36 (26.47)	0.68 (25.19)	1.10 (25.58)	0.40 (27.40)
Total Cultivated land	0.52 (85.25)	1.04 (76.47)	1.21 (44.81)	2.00 (46.51)	0.87 (59.59)

Note: Figures in the parenthesis are the percentages of the total land.

3.5.6 Main Crops Grown on Sampled Farms: Cropping pattern of sampled farm households under TMC and EMC is presented in Tables 3.23 and 3.24. Wheat and maize were the major crops grown on farms under TMC which accounted for 25.57 percent and 23.80 percent of gross cropped area (GCA). The vegetable crops accounted for about 37 percent of GCA. Among vegetables, tomato occupied 13.51 percent of GCA, followed by capsicum, 10.49 percent, French beans, 6.95 percent and peas 1.7 percent.

Vegetables were the main crops grown by the farmers under EMC which accounted for about 57 percent of GCA and rest 43 percent was under wheat and maize crops. Among vegetable crops tomato was the main crop accounted for about 21 percent of GCA, followed by French bean 19 percent, capsicum 10 percent and peas 2 percent.

It can be concluded that majority of households belonged to general category under both the channels and in both the crops. In case of apple literacy percentage was higher in TMC households whereas in case of tomato it was higher in EMC households.

The largest percentage of income is derived from farm/agriculture in both channels and in both crops.

Fig.- 3.11

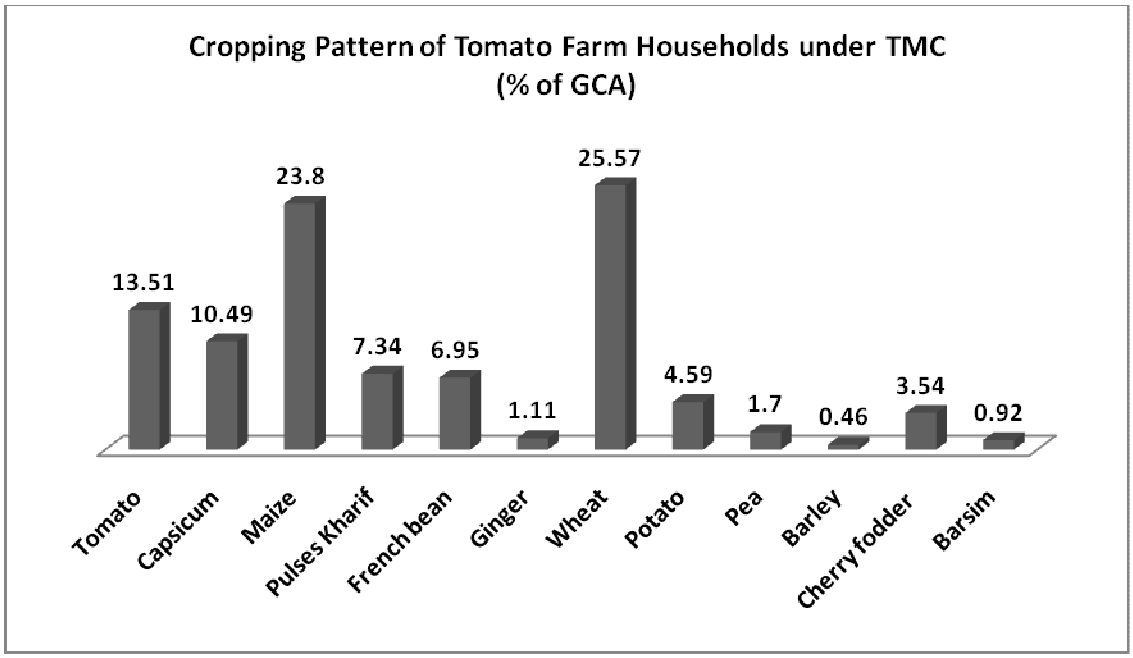


Table-3.23: Cropping Pattern on Tomato Farms under Traditional Marketing Channel.

(Percentage of GCA)

Particulars	Marginal	Small	Medium	Large	All
Tomato	13.45	11.88	16.81	13.85	13.51
Capsicum	13.45	8.61	8.40	6.15	10.49
Maize	13.45	29.71	24.37	53.85	23.80
Pulses	13.45	0.41	8.40	-	7.34
French bean	13.45	1.23	2.52	3.08	6.95
Ginger	0.45	1.64	2.52	-	1.11
Wheat	21.67	32.18	24.37	23.08	25.57
Potato	6.88	3.69	2.52	-	4.59
Pea	2.69	0.41	2.52	-	1.70
Barley	1.05	-	-	-	0.46
Cherry fodder	-	8.2	5.88	-	3.54
Barsim	-	2.05	9.52	-	0.92
GCA	100	100	100	100	100
GCA in ha	26.76	19.52	9.52	5.20	61

Fig.- 3.12

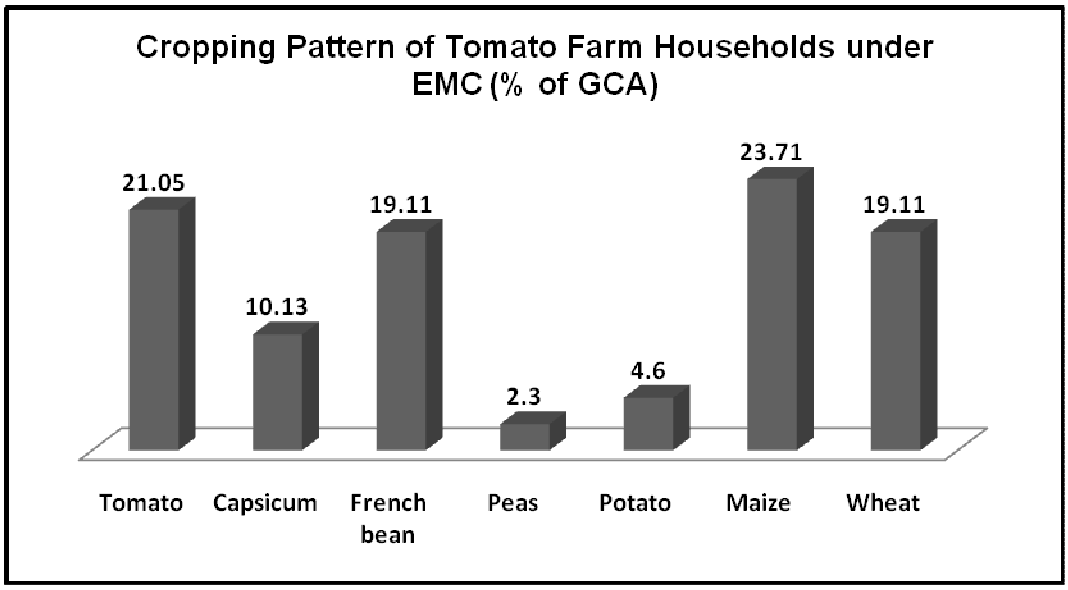


Table-3.24: Cropping Pattern on Tomato Farms under Emerging Marketing Channel.

(Percentage of GCA)

Particulars	Marginal	Small	Medium	Large	All
Tomato	26.83	20.56	20.00	12.26	21.05
Capsicum	10.62	8.51	12.00	9.43	10.13
French bean	25.48	18.44	20.00	5.66	19.11
Peas	2.32	5.67	1.14	-	2.3
Potato	7.34	7.80	1.14	-	4.60
Maize	16.99	20.57	26.86	28.30	23.71
Wheat	10.42	18.44	18.86	44.33	19.11
GCA	100	100	100	100	100
GCA in ha	20.72	11.28	14.00	8.48	55.68

3.6 Importance of Apple in the Agricultural Scenario in the State

3.7.1 History of Commercial Apple in HP

The success of fruit cultivation has been a very slow phenomenon over a long period of time. The apple cultivation started from Kotgarh area of district Shimla, where first apple plantations were done by Mr.Satyanand Stokes, who was a missionary and brought the planting material with him from America. From Kotgarh, the apple cultivation spread to nearby areas and came to village Kiari near Kotkhai during about 1930. At that time the area didn't had any roads and whatsoever little production was there had to be brought to Shimla city, the nearest and the only approachable market at that time. Apples were used to be packed in empty tea cartons and transported by mules. The profitability induced the other farmers gradually to take up this vocation. Slowly, the whole area has been transformed to one of the major apple-growing belt of the state.

Box-2: History of Apple Cultivation

The credit of apple cultivations goes to Alexander Couts who in 1887 planted an apple orchard in Mashobra (presently the site for Regional Research Station of UHF, Solan). Ivans Stokes is credited with popularizing apple in the state, who in 1918 brought a certain root stock from America. Around 1930s, the farmers in Kiari village near Kotkhai picked up this cultivation in a large scale. Similarly, the English had started to raise apple orchards in Manali and Naggar in Kullu. In early days, apples were packed in empty packing boxes from other businesses such as tea, and transported by mules to Shimla on to the plains. The returns from apple were fast noticed.

3.6.2 Recent Trends

Depending on the suitability and other factors, the farmers have taken the initiative, simultaneously, suitably assisted and guided by concerned departments of state government that two distinct groups comprising of fruit and vegetable farmers have emerged in the state. Recently, this clear-cut demarcation between the two has been observed to be fading and the farmers who had earlier taken up fruit production have been diversifying into the field of vegetable cultivation.

Various factors have been observed to be responsible for this scenario. First and most important has been the risk involved with fruit production. The changing weather pattern has given rise to uncertainty about the agro-climatic requirements like requisite number of chilling days for apple orchards and timely winter rains which are important for flowering and fruit set. The income from the orchards is at a point of time in a year and if this is jeopardized because of any reason whatsoever, the farmers are bound to look out for the alternatives. Fortunately, the agro-climatic requirements are almost the same for both the enterprises and the orchardists are devoting some of the resources for vegetable cultivation, may it be in the form of intercropping of vegetables with the orchard or diversion of some or all land under traditional field crops to vegetable cultivation. The vegetables not only generate income at 3-4 points of time in a year, these also have good demand all the year round. This has provided the orchardists a hedging mechanism against fruit crop failure.

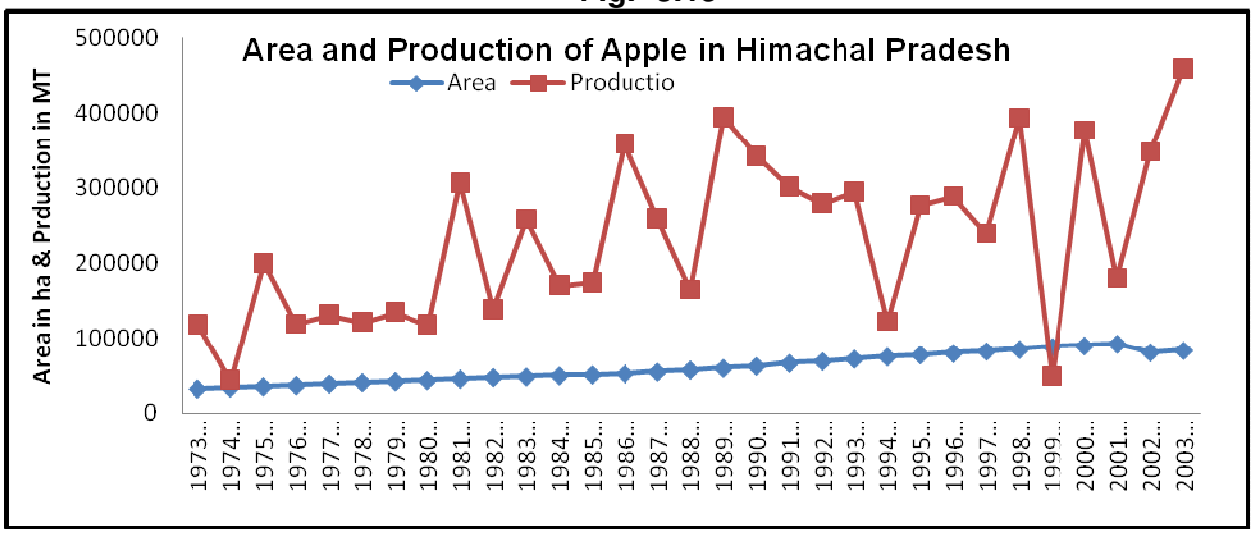
The present scenario is that the distinction between orchardists and vegetable cultivators is becoming hazy and a third group of commercial agriculture in the state has emerged comprising both fruit and vegetables, may be to a greatly varying extant. All over the state almost 40% of the orchardists have started cultivating vegetables and this phenomenon can be found in Rohru, Tikkar, Nerwa, Chopal, Theog, Mashobra and Sunni area of district Shimla. The areas like Rajgarh, Dadahu, Sarahan, Nohradhar, Haripurdhar and Pachhad etc of district Sirmour and Katrain, Karsog and Drang etc of district Mandi are also witnessing this shift. Under the present conditions simultaneous cultivation of fruit and vegetable is bound to spread to new areas and to larger number of farms. This is welcome change providing financial security, particularly to the marginal and small farmers.

3.6.3 Growth in Area and Production of Apple

It is however, 'apple' which occupies the top place among all fruits due to highest per hectare returns. Apple alone accounted for about 80 per cent of the area and 97 per cent of the production of all fruits. Thus, apple is of great importance to the economy of the state. Further, with the development of apple industry in the state, some small-scale allied industries such as cfb carton manufacturing, fruit processing units, etc. are coming up and which will ultimately provide employment to local people. The details of

the area under apples in different districts have been presented in Table Annexure- 6 and a cursory glance on table reveals that during 1973-74 to 2003-04 the area under apple in the state increased at the rate of 3.97 per cent per annum. The maximum area under apple is in Shimla district followed by Kullu and Mandi districts. But, the rate of growth in area over the years is highest in Lahaul & Spiti (35.38%) followed by Chamba (9.66%) and Kinnaur (7.56%) districts, respectively. From the point of view of absolute area, these districts have small proportion to total apple 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 attention to this crop. Overall, area under apple in the State has increased significantly and this growth may be attributed to the high profitability of apple orchards relative to other farming possibilities.

Fig.- 3.13



The production of apple is too much dependent upon the weather conditions, elevation and age of the plant, etc. Also, apple is an alternative-bearing crop; therefore, there can be large fluctuations in its production. Among the apple producing districts the growth in production of apple was highest in Kinnaur district, CGR 9.20 percent per annum (Table Annexure-7). The apple production in Himachal Pradesh during the period (1973-74 to 2003-04) has increased significantly, but has shown decreasing trend for Kangra, Solan and Sirmour districts. This may be due to the relatively new plantations and lower productivity due to certain soil and climatic factors. Remaining districts recorded higher

growth in apple production, except for Kullu and Mandi districts, as compared to the State as a whole. Shimla district alone accounts for 65 per cent of total production of the State and the same have increased significantly with compound growth rate of 3.67 per cent per annum. However, the productivity of apple in the state is still much less 63 Qtls per hectare as compared to the other apple growing countries, Argentina 2826, Australia 1341, Austria 8025, Belgium 4841, Brazil 3208, Germany 3034. Greece 1958, Hungary 1570, Ireland 2142, Israel 3177, Italy 3669 and Japan 2105 Qtls. per hectare.

Fig.- 3.14

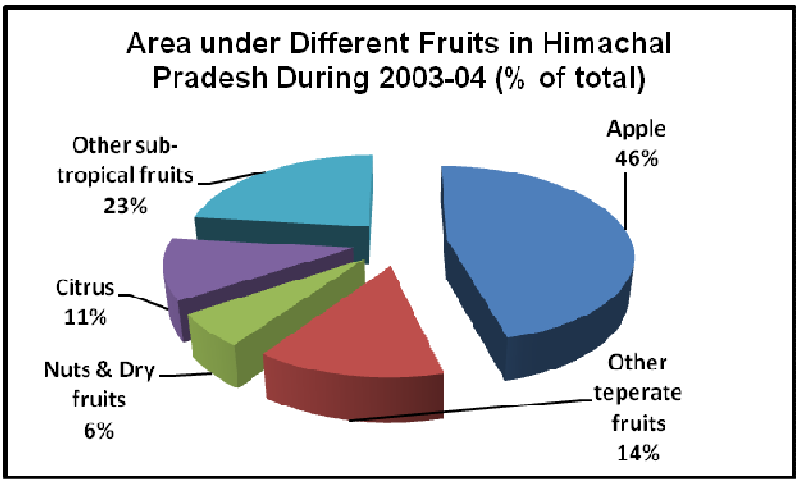
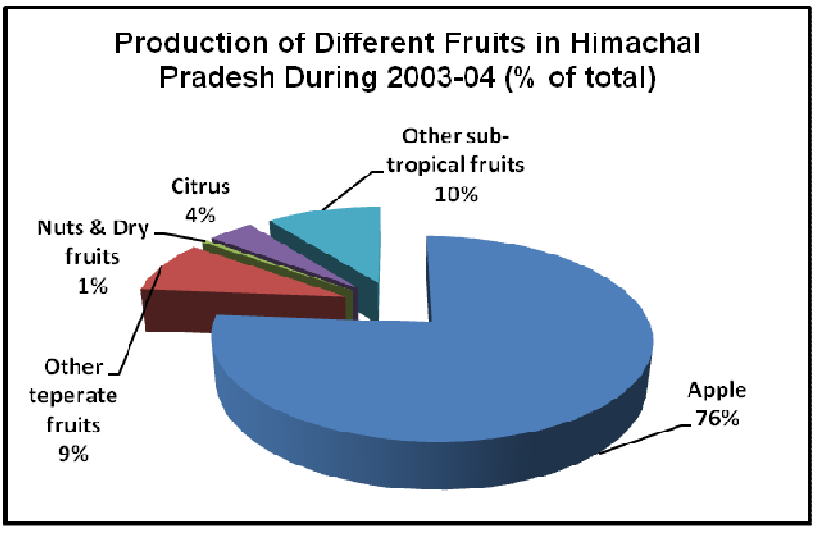


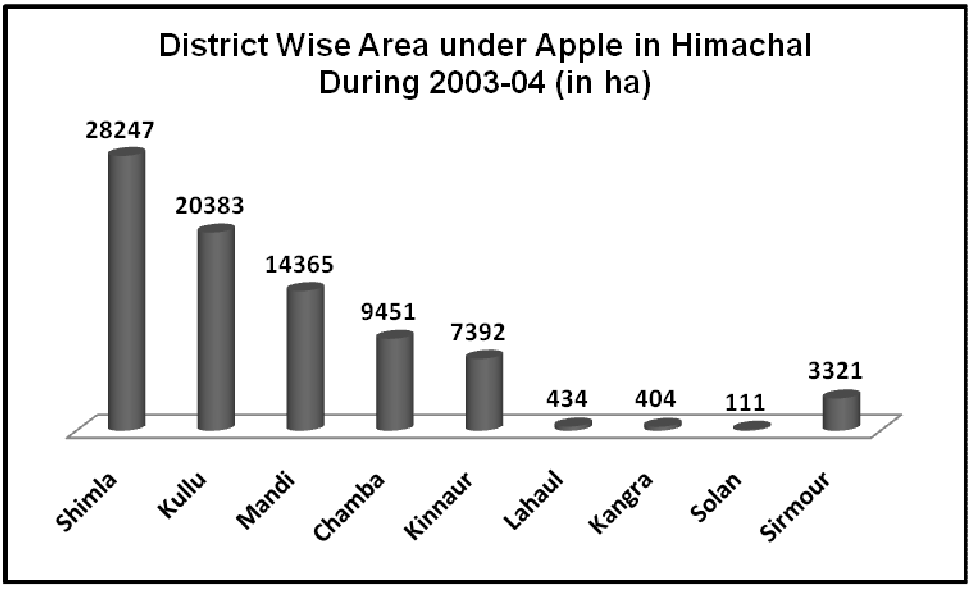
Fig.- 3.15



3.6.4 District wise Area and Production of Apple

Area and production of apple in different apple producing district has been presented in Table Annexure-7. It may be seen from the table that Shimla district ranked first in area as well production accounting 33.58 percent area and 60.36 percent of total production in the State. The area under apple in other district was 24.23 percent in Kullu, 17.08 percent in Mandi, 11.24 percent in Chamba, 8.78 percent in Kinnaur and 3.95 percent of total area in the state in Sirmour district. The production of apple in Kullu, Mandi, Chamba, Kinnaur and Sirmour districts was 26.88, 3.82, 1.43, 7.21 and 0.11 percent of total production in the State, respectively.

Fig.- 3.16



3.7 Study Crop Tomato

3.7.1 Historical Background

Tomato, an herbaceous plant and it is succulent, acid fruit of the family Bolanaceae. All cultivated forms of tomato belong to the species lycopercicon esculentum except to the tiny current tomato (Encyclopaedia Britannica).

The evolution of the cultivation of the wild tomato species are found in Peru-Ecuador-Bolivia areas of the Andes, in Mexico, and possibly in Central and South America. The tomato cultivation spread to Europe (from Mexico), Italy in 1554, England, France, Spain during 16th Century.

The characteristics of the tomato plant is a frost tender, having several branches, it spreads 2 to 6 feet's. The fruits are to be harvested depending on the purpose for which it is used. The stages are green, mature green, turning pink, red ripe and over ripe. The duration of the fruit bearing is 35-60 days. Waxing on the tomatoes reduces the weight loss and increases the shelf life. The reasons for the spoilage and reduced shelf life of tomatoes are high temperature, humidity, oxygen pressure and fruit firmness. It is commonly used as the main part of the meal, prepared either entirely with tomatoes or mixed with other vegetables all over the world. The fruit contains vitamins A and C.

Majority of vegetable production of Himachal Pradesh is off-season in nature. The term off-season means that these vegetables can be produced in the state due to varied climatic condition when the production of these vegetables is not economically viable and only can be produced under ideal conditions of green houses in controlled conditions in competing areas of neighbouring states. The high initial and maintenance cost of such venture would push the cost of production so much making it difficult to compete with the Himachal vegetables.

3.7.2 Area under Tomato (2008-09)

The area under various vegetables grown in the state has been presented in the Table Annexure-10 depicting that highest area was under peas (27%) followed by Tomato (26%), cabbage (6%), French beans (5%), capsicum and chilli (5%) and cauliflower (4%). The area under different vegetables in all the districts of the state has also been presented in this table.

3.7.3 Production of Tomato (2008-09)

The production of various vegetables in the state during the year 2008-09 has been presented in Table Annexure-11 indicating that largest production was of tomato (37%) followed by peas (15%), cabbage (10%), French beans (3%), cauliflower (5%) and

capsicum & chili (3%). The share of other vegetables in total production was 27 per cent. The district-wise details in this respect can be referred from this table.

Fig.- 3.17

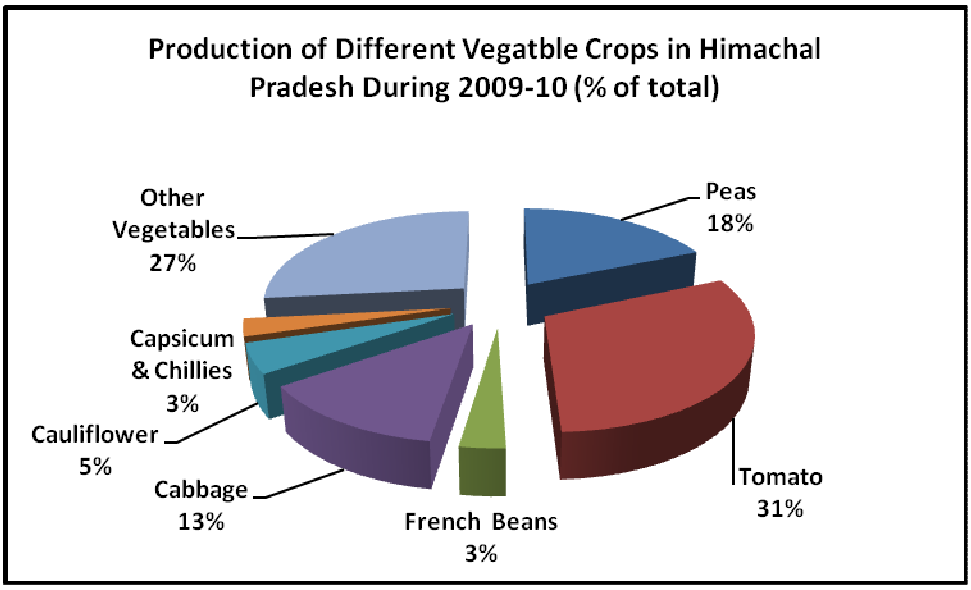
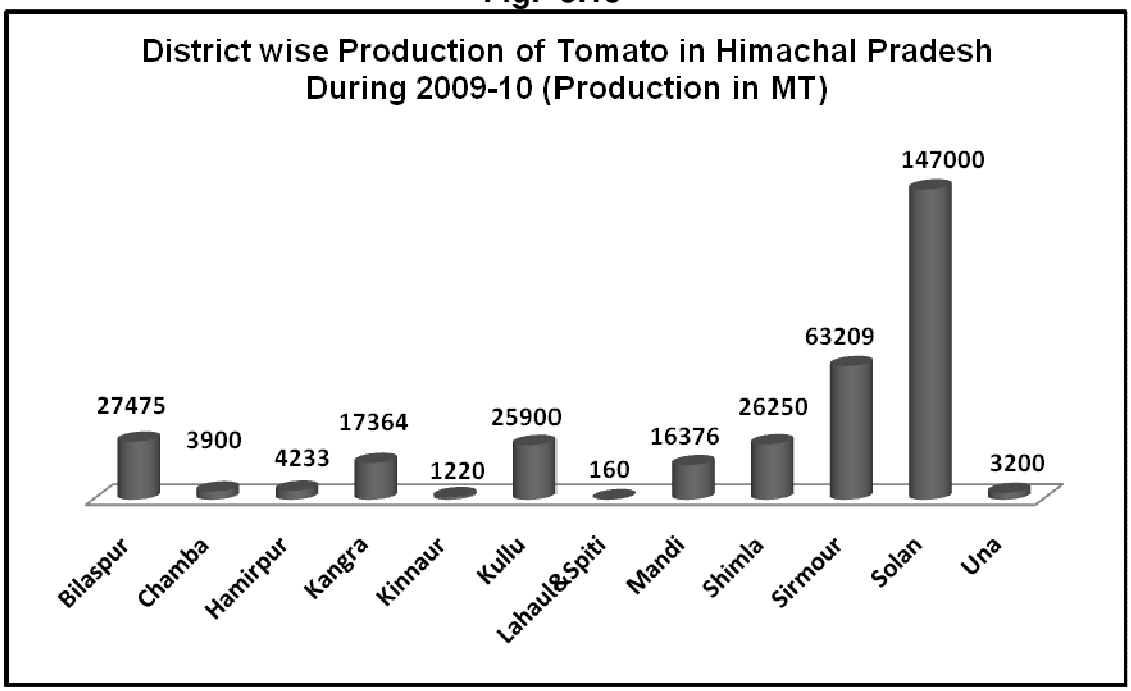


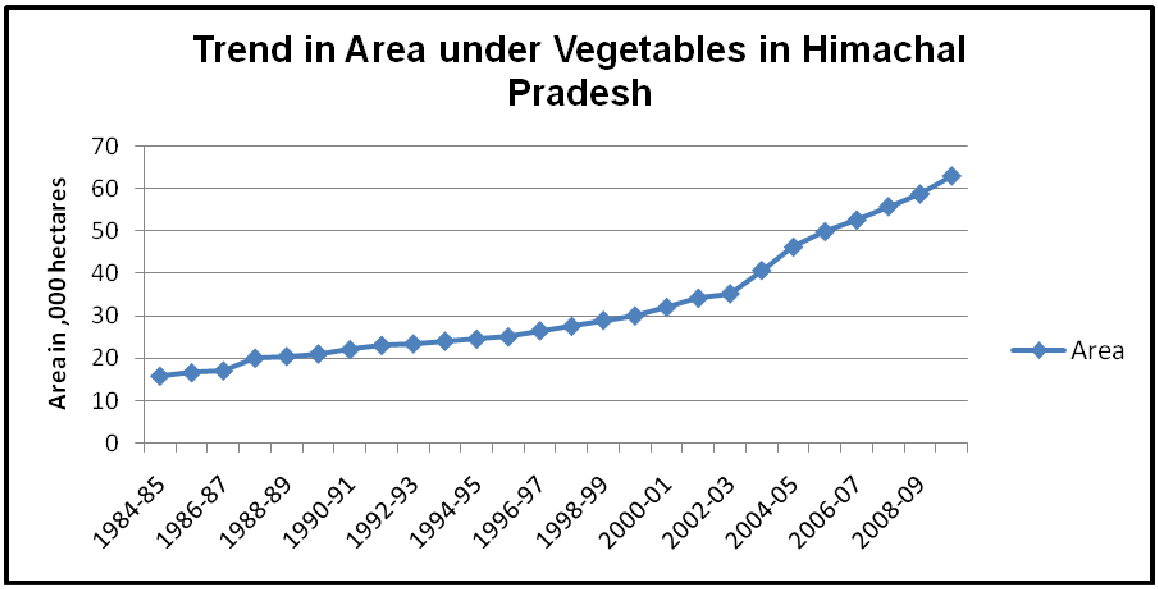
Fig.- 3.18



3.7.4 Trends in Area under Vegetables during 1984-85 to 2009-10

Table Annexure-12 depicts the change in area under vegetables from year 1984-85 to 2009-10. The table reveals that in year 1984-85, only 15.75 thousand hectares of land was under vegetables. In year 1991-92, area increased to 23 thousand hectares and it was over 46 percent increase over the year 1984-85. In year 2009-10, the area under vegetables reached to 63 thousand hectares and the relative increase in area over year 1984-85 was over 300 percent.

Fig.- 3.19



The highest percentage growth was in year 2004-05 when area increased by 60 per cent over previous year. In general, year-to-year growth during eighties was 2 to 5 per cent. In the period 1991-2000, year-to-year growth was 1.7 to 5.8 per cent and during 2001-10, it was 3.1 to 6.18 per cent. It reveals that the rate of growth in area is increasing.

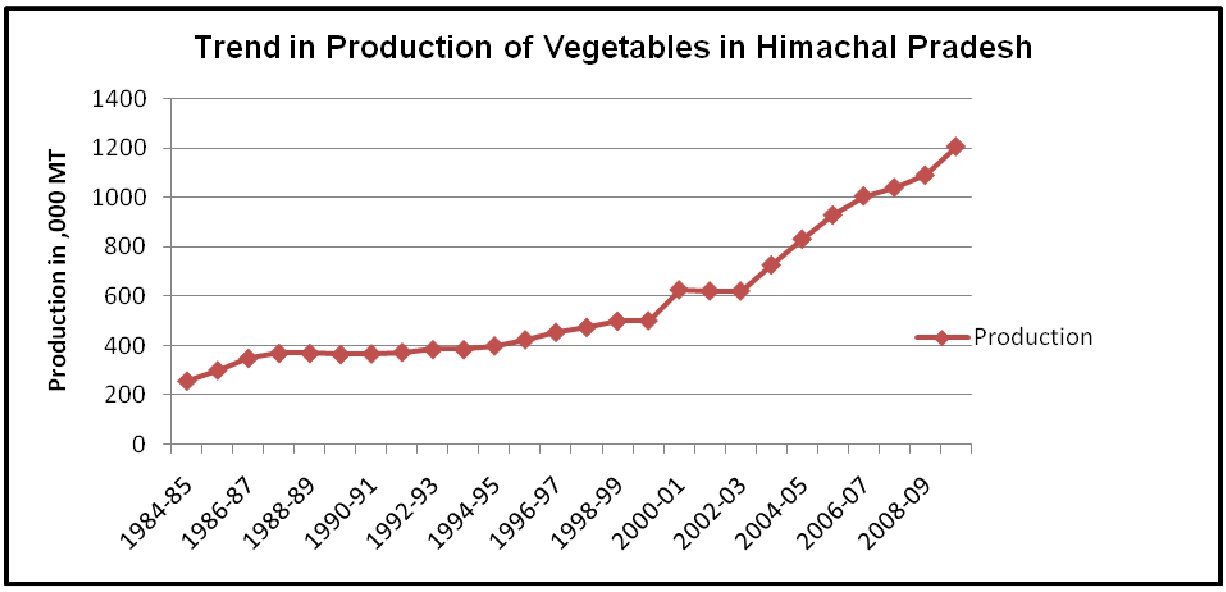
3.7.5 Trends in Production of Vegetables During 1984-85 to 2009-10

The Table Annexure-13 presents the change in production of vegetables from year 1984-85 to 2009-10. It reveals that in year 1984-85 only 258 thousand MT of vegetables were produced. In year 1990-91, production was 368 thousand MT and it increased by 42 percent over the year 1984-85. In year 1999-2000, the production was 502 thousand

MT and the increase over year 1984-85 was about 95 percent. In year 2009-10, the production of vegetables reached to 1206 thousand MT and the relative increase over year1984-85 was over 367 percent.

The percentage growth in production was high in period 1986-87 when production increased by more than 35 per cent over previous year. In general, year-to-year growth during year 1985-88 was high (5 to 16 %). The production almost stagnated during 1988-92. The growth again picked up from year 1992. During the year 2000-01, highest growth recorded in production was 24.9 per cent over previous year.

Fig.- 3.20



3.8 Traditional (TMC) and Emerging (EMC) Marketing Channels under Study

3.8.1 Traditional Marketing Channels in Marketing of Apple

Among different marketing channels in apple following channel has been selected as 60 percent of marketed surplus of apple is being sold at terminal market, Delhi:

Supply Chain in Apple through Traditional Channel

3.8.2 Traditional Marketing Channel in Marketing of Tomato

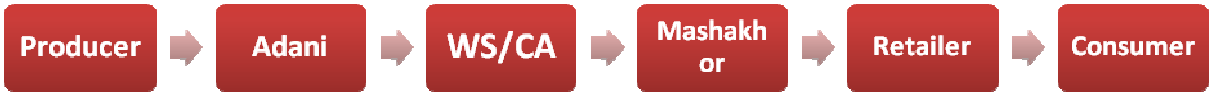
The channel mentioned below has been selected as 40 percent of total marketed surplus of tomato is marketed at terminal market, Delhi:

Supply Chain in Tomato through Traditional Channel

3.8.3 Emerging Marketing Channel in Marketing of Apple

Emerging agents entered in the marketing of apples, Adani group is the major agent and hence, has been selected for detail study. The supply chain of apple through this group is given below:

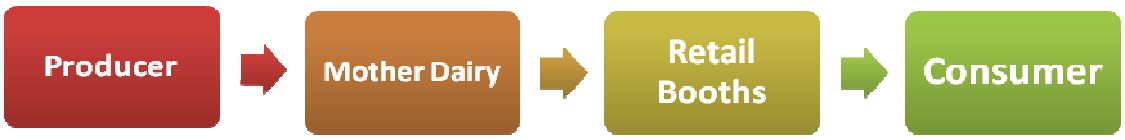
Supply Chain in Apple through Emerging Channel



3.8.4 Emerging Marketing Channel in Marketing of Tomato

Mother Dairy is the major emerging agents in marketing of tomato. Marketing through Mother Dairy has been chosen for the study. Supply chain of Mother Dairy is presented below:

Supply Chain in Tomato through Emerging Channel



3.9 Retail End of the Market

Under traditional marketing channel the marketing of apple and tomato takes place through producer wholesaler/CA, Mashakhor and then retailers' to consumers. Whereas under emerging marketing channel the marketing tomato takes place through producer, mother dairy and consumer. In this system the mother dairy bought the tomato from farmers and sale through its booths in retail market. On the other hand, Adani purchase the apple (under emerging marketing channel) from producer and sell it in Azadpur, Delhi market. Adani does not sell apple itself in retail market.

3.10 Conclusion

In Himachal Pradesh majority of the population lives in rural areas. Agriculture provides direct employment to about three fourth of the working population. The average size of holding has decreased over a period of time and came to 1.1 hectare. The State of Himachal Pradesh is more or less dependent upon rains and out of total net area sown only 19.4 percent is irrigated. Due to higher profitability of commercial crops, the input use pattern has become highly skewed in favour of these crops and the field crops are starving for attention of the farmers in terms of use of modern inputs. The net result is that crop productivity has been almost stagnant if not declining.

Tourism industry in the State has been given high priority and the government has developed on appropriate infrastructure for its development. The government also gave due consideration to education and to medical facilities in its plans.

The socio-economic profile `of sampled apple farmers reveal that majority of the households belonged to general category under both the channels i.e. in TMC as well as in EMC. Literacy percentage was higher i.e. 91 percent in case of TMC households. The largest percentage of the income is derived from farm/agriculture in both the cases. The entire cultivated area devoted to raising apple orchard by the sampled farmers of both the channels.

In the case of sampled tomato farmers, the percentage of household belonging to general category was 54 and 62 percent under TMC and EMC respectively. Literacy rate was comparatively higher in case of EMC households. The largest percentage of

the income is derived from farm/agriculture in both the channels but the percentage was more in EMC as compared to TMC. Among vegetables, tomato was the main crop.

It was found that during 1973-74 to 2003-04 the area and production of apple in H.P. increased at the rate of 3.97 and 3.21 percent per annum. As far as the growth in area and production of vegetables is concerned, the increase in the area in 2004-05 over the year 1984-85 was more than 300 percent. The increase in production in 2009-10 over the year 1984-85 was 367 percent.

The study of channels of marketing of apple reveal that the traditional channel of producer-wholesaler/commission agent-Mashakhor-Retailer-Consumer has been selected as 60 percent of marketed surplus of apple is being sold at terminal market-Delhi through this channel.

In the case of tomato the traditional channel of producer-commission agent-retailer-consumer has been selected as 40 percent of the total marketed surplus of tomato is marketed through this channel at terminal market at Delhi.

In the emerging marketing channels, for apple, Adani group is the major agent and the supply chain through this group is producers-Adani-wholesaler/commission agents Mashakhor-retailers-consumers.

In the case of tomato, Mother Dairy is the major emerging agent and the supply chain through this agent is producer-Mother Dairy-retail booths-consumers.

Chapter 4

COMPARISON OF THE BENEFITS AND CONSTRAINTS FOR THE AGENTS TRADING IN THE TMC AND EMC

4.1 Area and Production of Apple on Sample Farm Households

On an average, per farm area under apple was 1.25 hectares in case of traditional marketing channel (Table 4.1). The area under apple was 0.60 hectare, 1.49 hectares and 2.97 hectares on marginal, small and medium farms, respectively. The production per farm was 106.68 quintals which is directly related with the size of farms. Out of total production, 3.48 percent was retained for family consumption and rest 96.52 percent was sold. Quantity retained for family consumption was comparatively higher on medium farms than other category of farms. The reason behind this is that family size of medium farmers is higher in both TMC and EMC as compared to other categories (see table 3.9).

Per farm area under apple in case of sample farms under emerging marketing channel was 1.03 hectares and medium farmers having largest area followed by Small and marginal farmers (Table4.2). Average annual production of apple was 144.21 quintals per farm which ranges between 93.47 quintals on marginal farms to 283.54 quintals on medium farms. Out of total production, 2.93 percent was retained for family consumption and rest 97.07 percent was sold.

The area under apple on sample farms of traditional channel was higher than farms under emerging channel whereas production was higher on farms under emerging channel than traditional channel.

Table-4.1: Per Farm Area and Production of Apple on Sample Farms under TMC.

(Quintals/Farm)

Particulars	Marginal	Small	Medium	All
Total production	73.45(100)	129.42(100)	166.89(100)	106.68(100)
Home consumption	3.65(4.97)	3.65(2.82)	4.04(2.42)	3.71(3.48)
Sold Qty.	69.80(95.03)	125.77(97.18)	162.85(97.58)	102.97(96.52)
Per farm area under apple in ha	0.60	1.49	2.97	1.25
Productivity/Ha. (Qtls.)	122.42	86.86	58.19	85.34

Note: Figures in parentheses are percentages.

Table-4.2: Per Farm Area and Production of Apple on Sample Farms under EMC.

(Quintals/Farm)

Particulars	Marginal	Small	Medium	All
Total production	93.47(100)	233.13(100)	283.54(100)	144.21(100)
Home consumption	2.69(2.88)	8.13(3.49)	6.46(2.28)	4.23(2.93)
Sold Qty.	90.78(97.12)	225.00(96.51)	277.08(97.72)	139.98(97.07)
Per farm area under apple in ha	0.43	1.56	3.53	1.03
Productivity/Ha. (Qtls.)	217.37	149.44	80.32	140.00

Note: Figures in brackets are percentages.

4.2 Cost of Cultivation of Apple

Apple plantations have a gestation period of about 7-8 years before these reach the bearing stage. The initial investment is very high for reasons that the cost involved in digging of pits, manure and fertilizers application, cost of apple plant, transplanting etc is quite high. Farmers have to incur costs on maintenance for about 7 years. The maintenance cost is also high in bearing apple orchards. Apple is labour and capital intensive crop which requires modern inputs like fertilizers, micro nutrients and skilled labour. Per hectare use of modern inputs in cultivation of apple has been studied and the results are presented in Table 4.3. It may be seen from the table that the value of organic fertilizers, chemical fertilizers and hired labour accounted for Rs 28145/hectare in case of sampled farmers under traditional marketing channel. The expenditure on hired labour constituted 25 percent of total cost followed by expenditure on fertilizers

(organic & chemical) accounted for about 15 percent of total cost of maintenance of apple orchard. Further, analysis reveals that per hectare expenditure on fertilizers was higher on marginal and small farmers than that of medium farmers whereas cost of hired labour had positive relation with the size of holding.

The cost of organic, chemical fertilizers and hired labour in apple orchards under emerging channel was Rs 53786/hectare which constituted about 37 percent of total costs incurred on cultivation of apple (Table 4.4). The share of expenditure on hired labour constituted about 19 percent of total costs followed by value of chemical fertilizers, 10 percent, and bio fertilizers, 9 percent of total cost. Category wise use of modern inputs indicated that small farmers used high doses of fertilizers than other categories whereas medium farmers' expenditure on hired labour was higher than other categories of farms.

The above analysis on use of modern inputs in cultivation of apple indicates that the use of these inputs was higher on sample farms under emerging channel than that of traditional marketing channel under study.

Fig.- 4.1

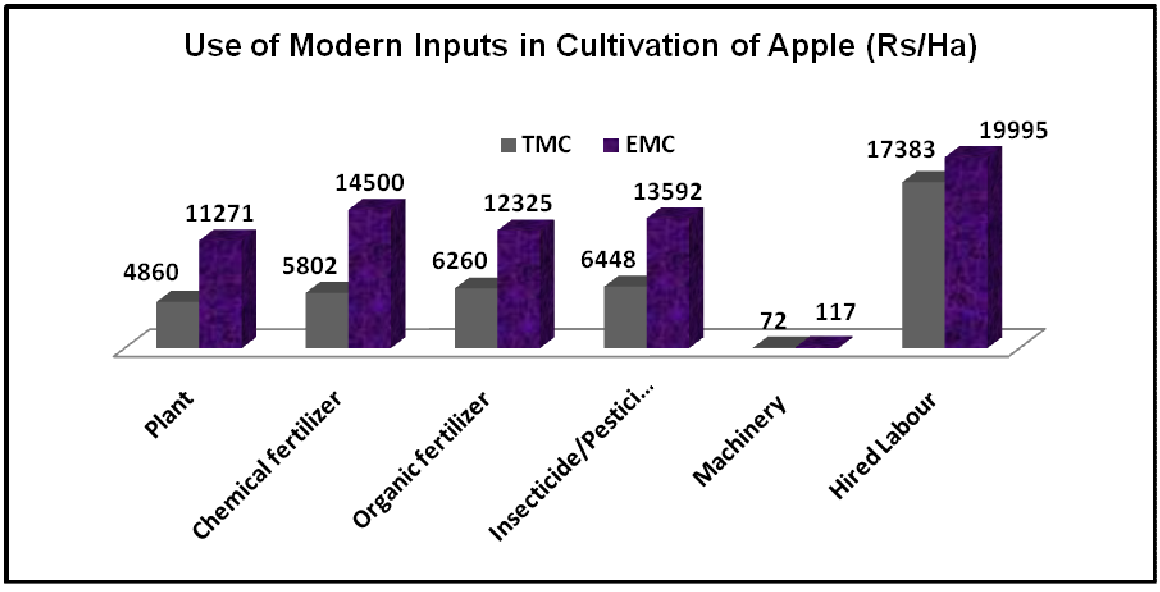


Table: 4.3 Cost of Cultivation of Apple on Sampled Farms Under TMC.

(In Rs./ha.)

Cost incurred on:	Marginal	Small	Medium	All
-Seed/plant	6217	4853	4034	4860
-Chemical fertilizer	7953	5486	4831	5802
-Organic fertilizer	11574	4608	4731	6260
-Insecticide/Pesticide	9023	5880	4418	6448
-Machinery	99	62	68	72
A. Total Inputs Cost	34866	20889	19182	23442
B. Hired Labour	21745	16819	14976	17383
C. Total paid out cost(A+B)	56611	37708	34158	40825
D. Fixed Cost	29313	21607	18266	22561
Total (C+D)	85924	59315	52424	63386
E. Family Labour	9248	6153	3726	6087

Table: 4.4 Cost of Cultivation of Apple on Sampled Farms Under EMC.

(In Rs./ha.)

Cost incurred on:	Marginal	Small	Medium	All
-Seed/plant	13202	11635	9665	11271
-Chemical fertilizer	15698	21218	8727	14500
-Organic fertilizer	13930	16987	7783	12325
-Insecticide/Pesticide	17487	15128	9764	13592
-Machinery	137	60	146	117
A. Total Inputs Cost	60454	65028	36085	51805
B. Hired Labour	27146	21795	13720	19995
C. Total paid out cost(A+B)	87600	86823	49805	71800
D. Fixed Cost	66191	51282	48355	54328
Total (C+D)	153791	138105	98160	126128
E. Family Labour	32330	21154	6698	18388

4.3 Economics of Apple Cultivation

The marketing costs, production cost, wastage, net revenue/profit, benefit-cost ratio and farmer's share in the consumer rupee in apple has been worked out and presented in Table 4.5. Total paid out cost for production of apple was Rs 479 per quintal which ranged between Rs 434 per quintal on small farms and Rs 587 per quintal on medium farms under traditional marketing channel. Expenditure on marketing of apple was Rs 1527 per quintal at overall level. The marketing costs were relatively higher on marginal farms, followed by small and medium farms indicating its inverse relation with the size of farms. On an average, wastages in apple accounted for Rs 251 per quintal which was relatively higher on marginal farms than small and medium category of farms. Farmer's prices and net returns were also having inverse relationship with the sizes of farms. On

an average, net returns were Rs 4576 per quintal on sample farms under traditional channel. The benefit cost ratio was 1:3.03 at overall level.

Table 4.6 reveals that the paid out cost of production of apple on farms under emerging channel was Rs 513 per quintal. Cost of production on marginal, small and medium farms was Rs 403, Rs 580 and Rs 620 per quintal, respectively. Marketing cost accounted for Rs 209 per quintal which was higher on marginal farms followed by small and medium farms. On an average, wastages in apple were Rs 154 per quintal of apple. Farmers' sale prices were Rs 4855, Rs 4020 and Rs 4408 per quintal on marginal, small and medium farms, respectively. Net profit in apple was Rs 3552 per quintal at over all level. The benefit cost ratio was 1:5.05.

Per quintal cost of production, wastages, farmer's price, net revenue were comparatively higher on sample farms under traditional channel than that of emerging marketing channel under study. However, marketing cost, benefit cost ratio and producer's share in consumer's price were more on farms under emerging channel than traditional channel.

Fig.- 4.2

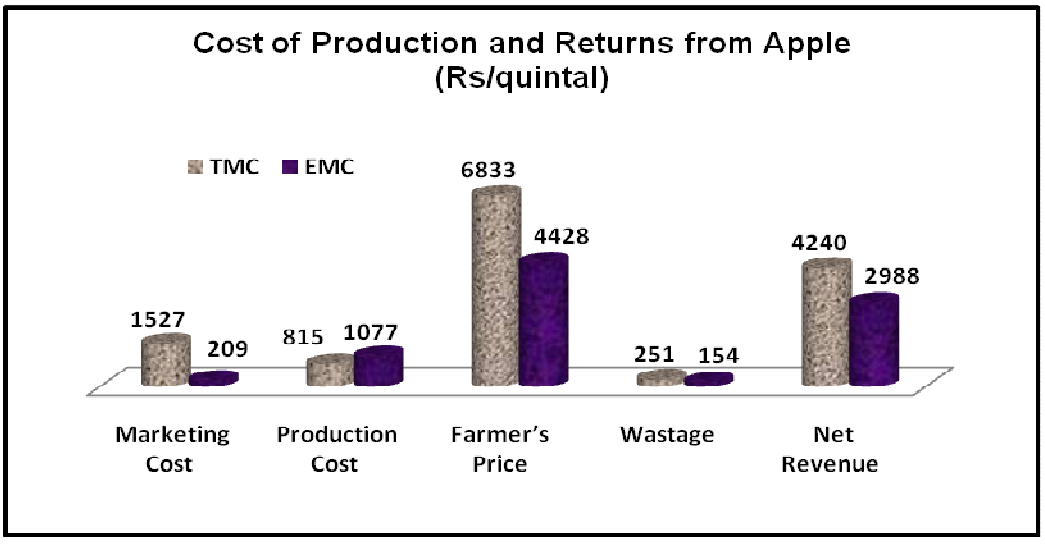


Table-4.5: Marketing, Production Costs, Returns and Wastages in Apple on Sampled Farm Households under Traditional Marketing Channel

(Rs/Quintal)

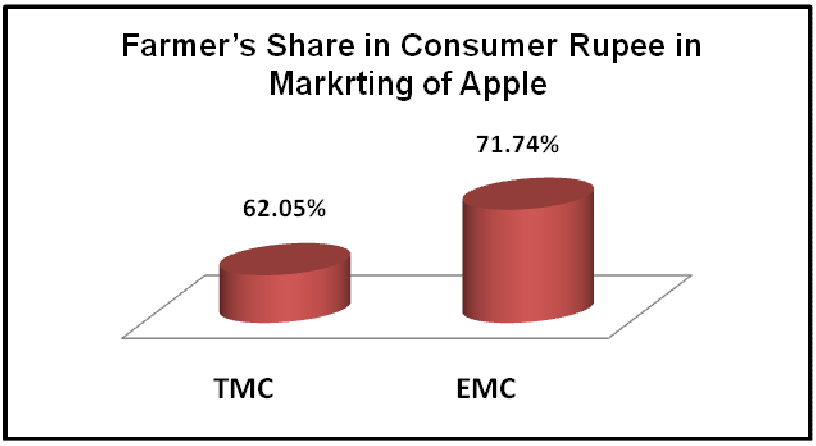
Particulars	Marginal	Small	Medium	All
1. Marketing Cost	1759	1462	1360	1527
2. Production Cost (paid out)	461	434	587	479
3. Farmer's Price	8000	6500	6000	6833
4. Wastage	300	257	179	251
5. Net Returns	5480	4347	3874	4576
6. Benefit cost Ratio (GR/MC+PC+W)	1:3.17	1:3.02	1:2.82	1:3.03
7. MC/Farmer's price	21.99	22.49	22.67	22.24

Table-4.6: Marketing, Production Costs, Returns and Wastages in Apple on Sampled Farm Households under Emerging Marketing Channel.

(Rs/Quintal)

Particulars	Marginal	Small	Medium	All
1. Marketing Cost	245	199	183	209
2. Production Cost(paid out)	403.00	580.00	620.00	513.00
3. Farmer's Price	4855.00	4020.00	4408.00	4428.00
4. Wastage	146	140	176	154
5. Net Returns	4061	3101	3429	3552
6. Benefit cost Ratio (GR/MC+PC+W)	1:6.11	1:4.34	1:4.5	1:5.05
7. MC/Farmer's Price	5.05	4.95	4.15	4.72

Fig.- 4.3



4.4 Transit Period

Apple and Tomato from the producing areas is transported through different means till it reaches the ultimate consumer. Delays in deliveries can result in serious damage and quality loss to the produce resulting in heavy cost. Thus, it is important to study the time taken for reaching the quantities in a particular market. The time required by various mode of transport to the same destination is obviously different. The average time requirement for the transportation of apple by road from producing areas to Delhi market is 20-30 hours through trucks and tomato 9-10 hours. The average time taken is calculated on the basis of the time spent by sampled farmers during transport (i) from orchard/farm to road head (ii) road head to terminal/assembling markets and (iii) in unloading/delivery of consignments at the destination.

4.5 Post-Harvest Wastage in Apple

The post harvest losses of apple under traditional marketing channel are presented in Table-4.7. The table reveals that the total losses at farmer's level and retailer's level come out to be 429 kg per farm which ranged between 289 kgs on marginal farms to 614 kgs per farm on medium farms. Out of total losses maximum loss 62 percent were observed in the form of culled apples and 8 and 7 percent at farm to road head and as rotten respectively. At retailer's level the highest loss was during the handling time which is more than 6 percent while weight loss was 1.63 percent. Almost same pattern

was observed for culled apple on different sizes of farms which varied from 56 percent on medium farms to 67 percent on small farms.

Per farm wastages in Apple under emerging marketing channel are presented in Table-4.8. The table shows that overall total losses at farmer's and retailer's level aggregated to 445.48 kgs per farm. Category wise per farm losses vary from 279.76 kg in marginal category to 934.71 kgs in medium category. Out of total losses, maximum losses were observed in the form of culled apples i.e. about 81 percent in overall category. Almost same pattern was observed in the case of other categories. On the whole about one percent losses were observed during transportation i.e. from road head to market. At the retailer's level, the losses during handling and in the form of weight loss were 12 percent in the overall category.

Box-3: Post-harvest techniques vital for apple trade

Himachal Pradesh which is often referred to as the apple state, is losing 14.48 percent of its total production, valued at Rs 56 crores of fruit annually because of poor post- harvest management techniques. A study conducted by Ranveer Singh at the Agro-Economic Research, Centre, Himachal Pradesh University, suggested that policy planners of the state government should redesign strategies for reduction this loss. While losses at the farmers' level was 11.57 per cent, 2.91 per cent losses were at the retailers' level. Maximum losses has been observed, when the apple is carried upto roadhead, on mules and ponies.

The study points out that per box loss was comparatively more on small farms, working out to Rs 21.10 per box as compared to Rs 19.90 per box in marginal farms. On an average, loss of apple in the state has been worked out at Rs 5360.36 per farm. At the retailer level, the losses have been estimated at Rs 10.01 per box in Delhi market and Rs 8.81 per box in Chandigarh market. On the whole, retailer's losses in the apple trade have been estimated at Rs 4094.69 per trader annually.

While the reasons for pre-harvest losses are inclement weather and poor management in orchards, post-harvest losses have been attributed to lack of appropriate packaging, safe transportation and cold storage facilities in producing and consuming markets.

The study identifies the need for upgradation of necessary infrastructures, such as packing houses, pre-cooling units and cold storage facilities in producing and marketing areas, to reduce post-harvest losses.

It also attributes other post-harvest losses to poor field management, infection by pathogens at different stages of fruit development, damage by pest, improper timing of picking, mechanical damage to fruits during harvesting and rough handling during loading and unloading operations.

Claiming that post-harvest management at the farm level in the state needs a lot of improvement on various fronts, including grading, packing, storage and transportation of fruit, the study says that while it was not possible to prevent losses completely, this could be reduced by adopting modern harvesting handling and marketing techniques.

Source: The Times India, New Delhi/ Chandigarh, Wednesday, July 7, 2004.

Table-4.7: Post Harvest Wastages in Apple on Farms under Traditional Marketing Channel.

(Kg./H.H.)

Losses at	Marginal	Small	Medium	All
Farm Level				
Culled	179 (61.93)	359 (67.23)	348 (56.68)	268 (62.47)
Rotten	28 (9.69)	31 (5.81)	35 (5.70)	30 (6.99)
Picking & Grading	25 (8.65)	33 (6.18)	15 (2.44)	27 (6.29)
Farm to road head	22 (7.61)	46 (8.61)	50 (8.14)	35 (8.16)
Road head to Market				
Pock marked	5 (1.73)	10 (1.87)	15 (2.44)	9 (2.10)
Rotten	8 (2.77)	18 (3.37)	15 (2.44)	13 (3.03)
Weight loss	8 (2.77)	2 (0.38)	20 (3.26)	12 (2.80)
Retailer's Level				
Damage during handling	11 (3.81)	28 (5.24)	93 (15.15)	28 (6.53)
Weight loss	3 (1.04)	7 (1.31)	23 (3.75)	7 (1.63)
Total losses	289 (100.00)	534 (100.00)	614 (100.00)	429 (100.00)

Note: Figures in brackets are percentages.

Table-4.8: Post Harvest Wastages in Apple on Farms under Emerging Marketing Channel.

(Kg./Farm)

Losses at	Marginal	Small	Medium	All
Farmers level				
Culled	234.00 (83.64)	606.00 (83.66)	680.00 (72.75)	360.00 (80.81)
Rotten	11.44 (4.09)	652 (0.90)	6.90 (0.74)	9.91 (2.22)
Picking & Grading	6.68 (2.39)	489 (0.68)	3.50 (0.37)	5.94 (1.33)
Farm to road head	7.62 (2.72)	8.16 (1.12)	6.22 (0.67)	7.56 (1.70)
Road head to market				
Pock marked	1.91 (0.68)	2.45 (0.34)	2.81 (0.30)	2.13 (0.48)
Rotten	286 (1.02)	164 (0.23)	2.14 (0.23)	2.53 (0.57)
Weight loss	1.91 (0.68)	2.45 (0.34)	2.14 (0.23)	2.04 (0.46)
Retailer's Level				
Damage during handling	10.67 (3.81)	90.00 (12.42)	185.00 (19.79)	47.59 (10.68)
Weight loss	2.67 (0.96)	2.25 (0.31)	46.00 (4.92)	7.78 (1.75)
Total loss	279.76 (100.00)	724.36 (100.00)	934.71 (100.00)	445.48 (100.00)

Note: Figures in brackets are percentages.

4.6 Area and Production of Tomato on Sample Farm Households

On an average, per farm area under tomato was 0.16 hectare in case of traditional marketing channel (Table 4.9). The area under tomato was 0.12 hectare, 0.17 hectare, 0.40hectare and 0.36 hectare on marginal, small, medium and large farms, respectively. The production per farm was 41.60 quintals which was higher on medium farms and lesser on marginal farms. Out of total production, 0.17 percent was retained for family consumption and rest 99.83 percent was sold. Quantity retained for family consumption was comparatively higher on large and medium farms than other category of farms.

Per farm area under tomato in case of sample farms under emerging marketing channel was 0.23 hectare and medium farmers were having largest area followed by small, marginal and large farmers (Table 4.10). Annual production of tomato was 54.26 quintals per farm which ranged between 50.84 quintals on marginal farms to 60.75 quintals on large farms. Out of total production, 1.12 percent was retained for family consumption and rest 98.88 percent was sold.

The production and area under tomato on sample farms of emerging marketing channel was higher than farms under traditional marketing channel.

Table- 4.9: Area and Production of Tomato on Sample Farms under TMC

(Quintals/farm)

Particulars	Marginal	Small	Medium	Large	All
Total production	35.01(100)	37.29(100)	92.10(100)	69.60(100)	41.60(100)
Home consumption	0.06(0.17)	0.08(0.21)	0.10(0.11)	0.10(0.14)	0.07(0.17)
Sold Qty.	34.95(99.83)	37.21(99.79)	92.00(99.89)	69.50(99.86)	41.53(99.83)
Per farm area under tomato in ha	0.12	0.17	0.40	0.36	0.16
Productivity/Ha.	292	219	230	193	260

Note: Figures in parentheses are percentages.

Table-4.10: Area and Production of Tomato on Sample Farms under EMC.

(Qtls. /farm.)

Particulars	Marginal	Small	Medium	Large	All
Total production	50.84 (100.00)	58.64 (100.00)	56.96 (100.00)	60.75 (100.00)	54.26 (100.00)
Home consumption	0.57 (1.12)	0.75 (1.28)	0.66 (1.16)	0.50 (0.82)	0.61 (1.12)
Sold Qty.	50.27 (98.88)	57.89 (98.72)	56.30 (98.84)	60.25 (99.18)	53.65 (98.88)
Per farm area in ha	0.21	0.26	0.28	0.26	0.23
Productivity/Ha.	242	225	203	234	236

Note: Figures in parentheses are percentages.

4.7 Cost of Cultivation of Tomato

Tomato is highly labour and capital intensive crop which requires modern inputs like fertilizers, micro nutrients and skilled labour. Per hectare use of modern inputs in cultivation of tomato has been studied and the results presented in Table 4.11. It may be seen from the table that the cost of organic fertilizers, chemical fertilizers and hired labour accounted for Rs 29641/hectare in case of sampled farmers under traditional marketing channel. The expenditure on organic fertilizers accounted for 28.13 percent followed by expenditure on hired labour 9.58 percent and chemical fertilizers 7.31 percent of total cost of cultivation of tomato crop. Further, analysis reveals that the expenditure on fertilizers was higher on marginal farms and lesser on large farms. Cost of hired labour was higher on large farms and lesser on small farms.

The cost of organic, chemical fertilizers and hired labour in cultivation of tomato crop under emerging channel was Rs 26188/hectare which constituted about 46 percent of total costs incurred on cultivation of tomato (4.12). The share of expenditure on organic fertilizers constituted about 31 percent of total cost of cultivation followed by chemical fertilizers 9 percent and hired labour about 6 percent of total costs. Category wise use of modern inputs indicated that marginal and small farmers used more fertilizers than other categories whereas small farmers' expenditure on hired labour was higher than other categories of farms. In case of small category less family labour is available on farm as compared to other categories because of their occupation outside the village.

Therefore, their expenditure on hired labour was higher than other categories of farms. (See table 3.22).

The above analysis on use of modern inputs in cultivation of tomato indicates that the use of these inputs was higher on sample farms under traditional channel than that of emerging marketing channel under study.

Fig.- 4.4

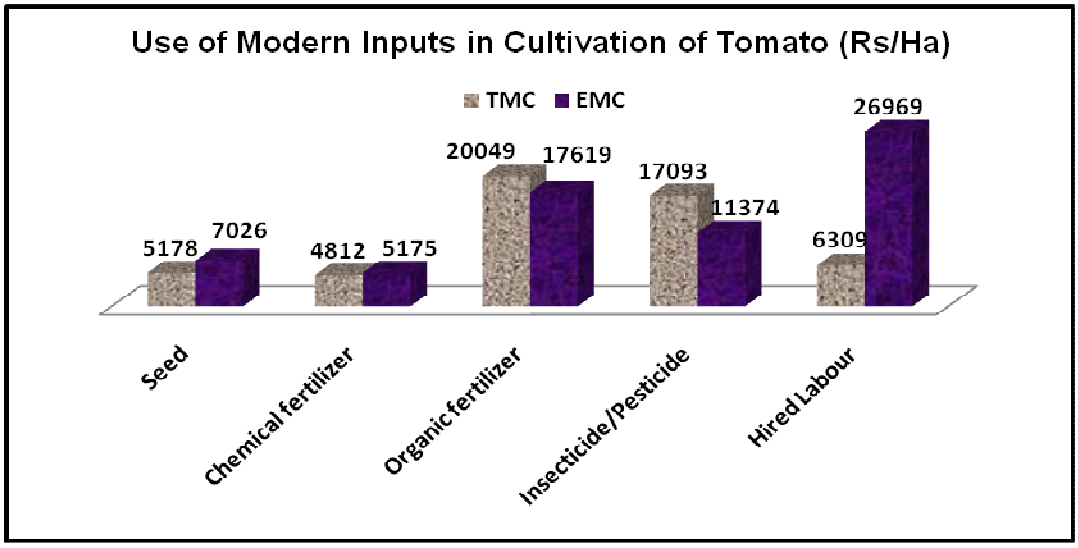


Table- 4.11: Cost of Cultivation of Tomato on Sampled Farms under TMC.

(In Rs./ha.)

Cost incurred on:	Marginal	Small	Medium	Large	All
-Seed/plant	5486	5086	4688	5019	5178
-Chemical fertilizer	5293	4793	3875	4555	4812
-Organic fertilizer*	22833	19397	15000	19444	20049
-Insecticide/Pesticide	15986	18879	17187	16667	17093
-Machinery	-	-	-	-	-
A. Total Inputs Cost	26765	28758	25750	26241	27083
B. Hired Labour	5817	4784	7312	11458	6309
C. Total paid out cost(A+B)	32582	33542	33062	37700	33392
D. Fixed Cost	46792	14310	15000	28000	29832
Total (C+D)	79374	47852	48062	65700	63224
E. Family Labour	21138	18837	15313	18056	19089

* Not purchased and therefore not included in input cost and paid out cost.

Table- 4.12: Cost of Cultivation of Tomato on Sampled Farms under EMC.

(In Rs./ha.)

Cost incurred on:	Marginal	Small	Medium	Large	All
-Seed/plant	6583	6444	7714	8846	7026
-Chemical fertilizer	4415	5776	5571	6827	5175
-Organic fertilizer*	18345	17026	16071	19230	17619
-Insecticide/Pesticide	13255	9310	9821	10096	11374
-Machinery	-	-	-	-	-
A. Total Inputs Cost	24254	21530	23107	25769	23575
B. Hired Labour	3270	4500	7483	3346	3394
C. Total paid out cost(A+B)	27524	26030	25850	29115	26969
D. Fixed Cost	12420	17025	16071	19231	14809
Total (C+D)	39944	43055	41921	48346	41778
E. Family Labour	15626	15983	14314	17077	15512

* Not purchased and therefore not included in input cost and paid out cost.

4.8 Economics of Tomato Cultivation

The marketing costs, production cost, wastage, net revenue/profit, benefit-cost ratio and farmer's share in the consumer rupee in tomato has been worked out and presented in Tables 4.13 & 4.14. Total cost of production of tomato was Rs 132 per quintal which ranged between Rs 112 per quintal on marginal farms and Rs 195 per quintal on large farms under traditional marketing channel (Table 4.13). Expenditure on marketing of tomato was Rs 483 per quintal at overall level. The marketing costs were relatively higher on marginal farms followed by small, medium and large farms showing its inverse relation with the size of farms. On an average, wastages in tomato accounted for Rs 60 per quintal which was relatively higher on marginal farms than other category of farms. Farmer's prices and net returns were also having inverse relationship with the size of farms. On an average, net returns were Rs 325 per quintal on sample farms under traditional channel. The benefit cost ratio was 1:1.48 at overall level. The producer's share in consumer's rupee was 48.30 percent.

Paid out cost of production of tomato on farms under emerging channel was Rs 117 per quintal. Cost of production on marginal, small, medium and large farms was Rs 111, Rs

114, Rs 127 and Rs 125 per quintal, respectively (Table 4.14). Marketing cost amounted to Rs 73 per quintal which was higher on marginal farms, followed by large, small and medium farms. On an average, wastages were Rs 64 per quintal of tomato. Farmers' sale prices were Rs 1086, Rs 1033, Rs 1035 and Rs 1081per quintal for marginal, small, medium and large farms, respectively. Net profit in tomato was Rs 808 per quintal at over all level. The benefit cost ratio was 1:4.18 at over all level.

Per quintal cost of production and marketing costs were comparatively higher on sample farms under traditional channel than that of emerging marketing channel under study. However, farmers price, net revenue, wastages, benefit cost ratio and producer's share in consumer's price were higher on farms under emerging channel than farms traditional marketing channel.

Fig.- 4.5

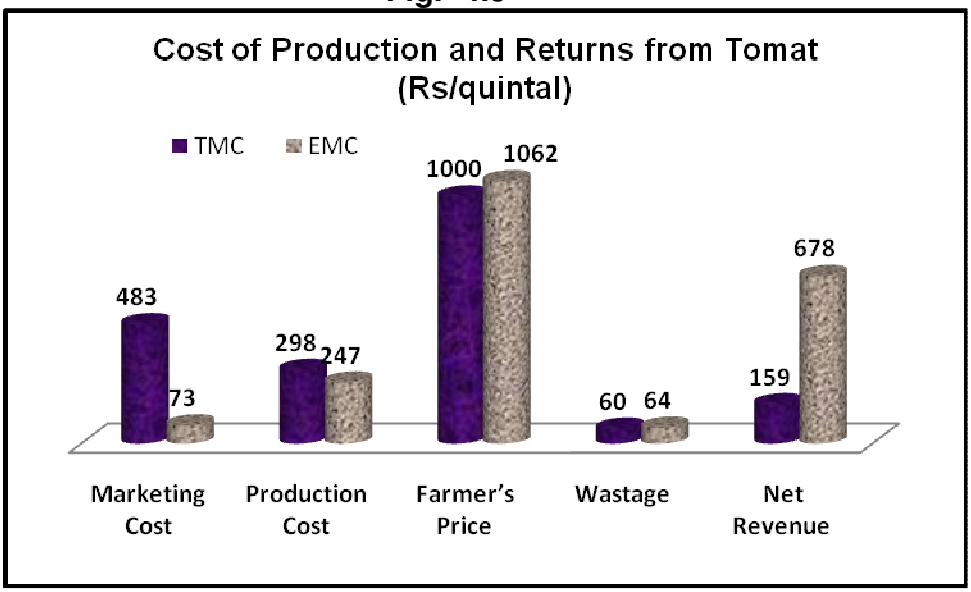


Table-4.13: Cost of Production of Tomato on Sampled Farm Households under Traditional Marketing Channel

(Rs. / Qtl.)

Particulars	Marginal	Small	Medium	Large	All
Marketing Cost	512	506	502	497	483
Production Cost (paid out)	112	149	144	195	132
Farmer's Price	1034	1002	1000	1000	1000
Wastage	62	60	60	60	60
Net Returns	348	287	294	248	325
Benefit cost Ratio (GR/MC+PC+W)	1:1.50	1:1.40	1:1.42	1:1.33	1:1.48
MC/Farmer's Price	49.51	50.50	50.20	49.70	48.30

Table-4.14: Cost of Production of Tomato on Sampled Farm Households under Emerging Marketing Channel.

(Rs. / Qtl.)

Particulars	Marginal	Small	Medium	Large	All
Marketing Cost	82	75	66	77	73
Production Cost (paid out)	111	114	127	125	117
Farmer's Price	1086	1033	1035	1081	1062
Wastage	65	62	62	62	64
Net Returns	828	782	780	817	808
Benefit cost Ratio (GR-MC+PC+W)	1:4.21	1:4.11	1:4.06	1:4.09	1:4.18
MC/Farmer's Price	7.55	7.26	6.38	7.12	6.87

4.9 Post-Harvest Wastage in Tomato

Per farm wastages in tomato under traditional marketing channel are presented in Table 4.15. The table shows that at overall, total loss at farmer's and retailer's level aggregated to 533 kg per farm. Category-wise per farm losses varied from 434 kg in small category to 1001 kg. in medium category. Out of total losses on the whole, maximum losses (about 68%) were at retailer's level in the form of damage during handling and weight loss. More or less same pattern was observed in different categories also. At overall level, losses during picking, assembling, grading and

packing of produce were 146 kg per farm which was 27.39 percent of the total losses. These losses varied from 25 percent in large category to 34 percent in medium category. Losses during transportation in the form of weight loss, rotten, broken, pockmarked etc. were 5 per cent of the total losses at overall level. Almost same pattern was in the case of other categories also.

Table-4.15: Post Harvest Wastages in Tomato on Farms under Traditional Marketing Channel.

(Kg/ farm)

Losses at:	Marginal	Small	Medium	Large	All
Farmers level					
Picking	21 (4.30)	22 (5.06)	55 (5.49)	42.00 (4.29)	25.00 (4.69)
Assembling	42 (8.61)	44 (10.13)	110 (10.99)	84 (8.57)	50 (9.38)
Grading	49 (10.04)	38 (8.75)	138 (13.79)	90 (9.18)	54 (10.13)
Packing of Produce	14 (2.87)	15 (3.45)	37 (3.70)	28 (2.86)	17 (3.19)
Sub Total	126 (25.82)	119 (27.39)	340 (33.97)	244 (24.90)	146 (27.39)
Transportation					
Weight loss	8 (1.64)	6 (1.33)	15 (1.50)	16 (1.63)	9 (1.69)
Rotten	4 (0.82)	3 (0.69)	7 (0.70)	8 (0.82)	5 (0.94)
Broken	3.50 (0.72)	2 (0.46)	6.5 (0.65)	7.5 (0.77)	4.5 (0.84)
Pock marked	3 (0.6)	2.5 (0.57)	6 (6.60)	7 (0.71)	4 (0.75)
Ambient temp	3.5 (0.72)	2 (0.46)	6.5 (0.65)	7.5 (0.77)	4.5 (0.84)
Sub total	22.00 (4.51)	15.50 (3.56)	41.00 (4.09)	46.00 (4.69)	27 (5.07)
Physical losses	15.50 (3.18)	11.00 (2.53)	28.50 (2.35)	31.50 (3.21)	18.50 (3.47)
Economic losses	6.50 (1.33)	4.50 (1.04)	12.50 (1.25)	14.50 (1.48)	8.50 (1.59)
Retailers level					
Damage during handling	272 (55.74)	240 (55.24)	496 (49.55)	552 (56.33)	288 (54.03)
Weight loss	68 (13.93)	60 (13.81)	124 (12.39)	138 (14.08)	72 (13.51)
Total loss	488 (100.00)	434.50 (100.00)	1001 (100.00)	980 (100.00)	533 (100.00)

The losses in tomato under emerging marketing channel have been presented in Table 4.16. The losses at overall level amounted to 716 kg per farm. Out of which the maximum losses were found at retailer's level constituting sixty percent of total losses. At the farmer's level losses during picking, assembling, grading and packing accounted for 20 percent of total losses in tomato. Other details have been presented in the table.

Table-4.16: Post Harvest Wastages in Tomato on Farms under Emerging Marketing Channel.

(Kg/farm)

Losses at:	Marginal	Small	Medium	Large	All
Farmers level					
Picking	25 (3.62)	29 (3.63)	25 (3.25)	32 (3.83)	23 (3.21)
Assembling	30 (4.35)	41 (5.13)	32 (4.16)	45 (5.39)	30 (4.19)
Grading	50 (7.24)	58 (7.26)	55 (7.14)	60 (7.19)	50 (6.98)
Packing of Produce	40 (5.80)	41 (5.13)	45 (5.84)	45 (5.39)	40 (5.59)
Sub Total	145 (21.01)	169 (21.15)	157 (20.39)	182 (21.80)	143 (19.97)
Transportation					
Weight loss	12(1.74)	13 (1.63)	12 (1.56)	13 (1.56)	10 (1.40)
Broken	15(2.17)	18 (2.25)	16 (2.08)	19 (2.28)	12 (1.68)
Pockmark	10 (1.45)	10 (1.25	11 (1.43)	11 (1.32)	8 (1.12)
Ambient temp	8 (1.16)	9 (1.13)	11 (1.43)	8 (0.96)	7 (0.98)
Sub total	45 (6.52)	50 (6.26)	50 (6.49)	51 (6.11)	37 (5.17)
Physical losses	27 (3.91)	31 (3.88)	28 (3.64)	32 (3.83)	22 (3.07)
Economic losses	18 (2.61)	19 (2.38)	22 (2.86)	19 (2.28)	15 (2.09)
Retailer's level					
Damage during handling	400 (57.97)	465 (58.20)	450 (58.44)	482 (57.72)	429 (59.92)
Weight loss	100 (14.49)	115 (14.39)	113 (14.68)	120 (14.37)	107 (14.94)
Total loss	690 (100.00)	799 (100.00)	770 (100.00)	835 (100.00)	716 (100.00)

Note: Figures in brackets are percentages.

4.10 Farmer's Perception of Transaction Costs in Marketing

4.10.1 Traditional Marketing Channels for Apples: The present analysis pertains to the information on costs and transaction costs of apple marketing under traditional marketing channels. Various related aspects have been covered in this analysis which indicates that the predominant source of information about the transaction costs etc. was the commission agents and traders, all the sampled orchardists getting information from this source (Table Annexure-14). In addition to this 60 percent of the farmers also received information by speaking with other farmers. It was found that all the respondents received information at the time of harvest and there was no delay whatsoever in this respect. None of the farmers obtained market price information through AGMARKNET indicating that the electronic media has not been popular among the orchardists. All the respondents received information before the actual sale took place. However, it was found that there was difference between the sale price and known price of apples. In this respect it was found that for 40 percent of the respondents realised prices were lower than expected whereas for 36 percent respondents these were somewhat similar to expected prices. Rest of the 24 percent respondents realised higher than expected prices. The prices were agreed at the time of sale as revealed by all the respondents. All the respondents mentioned that difference between sale and agreed prices was not applicable to them. The respondents had to go to merchant number of times to get the payment. About 58 percent respondents thought that merchant had bad record in observing agreed payment whereas the rest of the respondents found it to be satisfactory. All the respondents revealed that merchants signed the receipt for the produce. There were no conflicts reported as the merchant did not agree on the quality of the produce. It was reported by 48 percent respondents, that they had low confidence in the merchant in undertaking transactions; the rest had high confidence in this regard. All the respondents had taken loan and invariably the source of loan was the bank. In addition to this 46 percent respondents had also taken loan from buyer of the produce also. All these loans were crop loans taken for purchase of inputs. The loans were taken from buyer for the reasons that these were easily available and were interest free, as

reported by all the respondents who had taken loan from buyer of the produce. It was found that eight respondents had taken five loans during last five years. Whereas seven respondents had taken four loans each. The value of loan obtained each year from the buyer was Rs.19 lacs. No respondent reported that he had defaulted on loans taken and that he had taken the inputs from the buyers.

4.10.2 Emerging Marketing Channels for Apples: The analysis of emerging marketing channels for apples indicates that all the respondents got price information from commission agent and traders and in addition to this 66 percent respondents also received the information by talking to other farmers (Table Annexure-15). All the respondents received price information at the time of harvest and none of the respondents got this information from AGMARKNET indicating that this source of information has not become popular even under the scenario of emerging marketing channels. All the respondents received information at the time of sale but later on 38 percent respondents realised lower than excepted prices, 40 percent realised near to the excepted prices and the rest 22 percent realised higher than excepted prices. The prices were invariably agreed to at the time of sale and all the respondents had to visit the merchant number of times for getting the payment. All the respondents thought that the Adani had satisfactory record in observing the agreed payment. In each case the Adani signed the receipt for the produce. All the respondents revealed that the Adani agreed on the quality of the produce and there were no conflicts in this regard. Sixty six percent respondents had low confidence in the Adani in undertaking the transaction, rest had high confidence in this regard. All the respondents had taken loan and the source of loans invariably was the bank. No loan from any other source was taken. All these loans were crop loans for the purchase of inputs. All the respondent had reported that they did not take any inputs from buyers.

4.10.3 Traditional Marketing Channels for Tomato: The source of information regarding transaction cost and prices under traditional marketing channels, predominantly was personal source, 40 percent respondents agreeing to this (Table Annexure-16). Thirty two percent respondents received the information by speaking with other farmers and for the rest commission agent/trader were the source of information. All the respondents received the information at the time of harvest and nobody took

information from AGMARKNET. All the respondents came to know about the prices at the time of sale. It was found by 24 percent of the respondents that the prices realised were lower than the excepted prices but for majority of the respondents, 68 percent, the prices realised were somewhat similar to what they expected. Only eight percent respondents realised higher than the excepted prices. The prices were agreed at the time of sale and difference between sale and agreed prices was less for 24 percent respondents, it was same for 68 percent respondents and a bit more for eight percent respondents. It was revealed by 86 percent of the farmers that they did not go even once to the merchant for getting payment whereas 14 percent respondents had to go more than once for this purpose. All the respondents thought that merchant had satisfactory record in observing agreed payments and in all the cases the merchant gave the signed receipt for the produce. In this case the conflicts were reported because merchant did not agree on quality. Majority of the respondents had high confidence in the merchant in undertaking the transactions. No loans and inputs were reported by any of the respondents in this case.

4.10.4 Emerging Marketing Channels for Tomato: Under the emerging marketing channel, no respondent received information from commission agent/trader. Seventy six percent of respondents got information from personal sources and in addition 52 percent respondents got information from other farmers indicating that some of the respondents gathered information from more than one source (Table Annexure-17). The price information invariably was received at the time of harvest and none of the respondents got information through AGMARKNET. In all the cases the respondents found out the prices at the time of sale and 38 percent respondents realised lower than excepted prices. The price realisation for 38 percent respondents was similar to excepted prices whereas it was higher than the excepted prices for 20 percent of the respondents. It was revealed by 54 percent of the respondents that difference between sale and agreed price was less, for 30 percent it was same and for 16 percent it was a bit more for rest of the farmers. Only eight percent respondents did not visit the merchant for getting payment whereas 92 percent had to make more than one visit for getting payments. The record of merchant in observing agreed payment was reported to be satisfactory by 94 percent of the respondents and in each transaction the

merchant gave a signed receipt of the produce. Majority of the respondents, 58 percent, had high confidence in merchants in undertaking the transaction. Forty four percent of the respondents had taken loan and the source of loan mainly was bank followed by friends/relatives and self help group. All these loans were crop loans meant for purchasing of inputs. It was reported that 15 respondents had not defaulted on the loans taken whereas seven respondents who had taken loan from banks defaulted on repayment. 44 percent respondents received input advance for the reference season and this was meant for purchase of seed, fertilizer and pesticides.

4.11 Perception of Market Infrastructure by Farmers

4.11.1 Traditional Marketing Channels for Apples: Different marketing infrastructure like road to market etc were considered and it was found that 58 percent respondents found the condition of road to market to be good and 28 percent respondents found it to be average (Table Annexure-18). All the respondents revealed that market was located at a distance of more than 50 kilometers from their village and invariably the markets had no godown facilities. The market also had no cold storage facility. The auction arrangements were found to be of average quality by 52 percent of the respondents and rest found these to be good. Supervision of sale was reported to be of average quality by all the respondents. Loading facilities were found to be average by 62 percent and good by 38 percent respondents. The sorting facilities were found to be good by 34 percent respondents and weighing to be good by 54 percent respondents. All the respondents found packing facilities to be average quality other details can be seen from the Annexure Table.

4.11.2 Emerging Marketing Channels for Apples: Under the emerging marketing channels all the respondents found the condition of road to the market of average quality and for all the respondents the market was located within a distance of ten to twenty five kilometers (Table Annexure-19). The godown and cold storage facilities were not available in the market. The supervision of sale and loading facilities were found to be of average quality by all the respondents. All the respondents found sorting

and weighing facility to be good. The facilities like packing, internal telephone, banking, computing and internet facilities were not available in the market.

4.11.3 Traditional Marketing Channels for Tomato: All the respondents under this channel found the road leading to market to be of average quality and the market was situated at more than 50 kilometers (Table Annexure-20). The godown and cold storage facilities were not available in the market. Auction arrangement were found to be of average quality by half of the respondents and other half found auction arrangement to be bad. Same pattern was repeated for supervision of sale. Loading facilities were reported to be bad by 34 percent respondents whereas these were found to be of average quality by 66 percent respondents. The sorting, weighing and packing facilities were found to be bad by 64 percent respondents and to be of average quality by 36 percent. All the respondents found internal telephone facilities to be bad, banking facilities to be average and computing and internal facilities to be bad in the market.

4.11.4 Emerging Marketing Channels for Tomato: All the respondents found the road infrastructure to be of average quality and the market was located within a distance of 10 to 25 kilometers (Table Annexure-21). The godown and cold storage facilities were not available and auction arrangement were reported to be of average quality by all the respondents. Supervision of sale was reported to be of poor quality by 56 percent respondents and loading facilities to be poor by 24 percent respondents. All the respondents found sorting facilities to be average, weighing facilities to be bad and packing facilities to be average in the market. Internal telephone facility was in bad shape in the view of 48 percent respondents whereas 44 percent found this facility to be of average quality. All the respondents found banking facility to be of average quality and absence of computing and internet facilities.

4.12 Perception of the other Agents by the Farmer

4.12.1 Traditional Marketing Channels for Apples: All the respondents reported that after the buyer Mashakhor and retailer are the only other marketing agents and there is only one channel (Table Annexure-22). The analysis indicates that 40 percent of the respondents marketed the produce in Chandigarh, 34 in local market of Rohru and 26

percent marketed their produce in Delhi market. Sixty percent of the respondents reported that they knew about the price at which produce was sold. The margin of buyer was six percent which was reported to be high by all the respondents. Fifty six percent respondents said that they will not sell the produce to this agent again. All the respondents were of the view that support from government for realising better prices has to be in the form of subsidy on grading machines, all weather roads, arrangement of vehicles and opening up of big regulated markets.

4.12.2 Emerging Marketing Channels for Apples: In this case also Mashakhor and retailer were the other agents in the market. Under this channel all the respondents disposed of the produce to the corporate buyer locally and hence there is no question of other markets (Table Annexure-23). All the respondents had the information about the price at which produce was sold and no margin of buyer was reported. It was only 24 percent respondents who said that they will not use this channel again. All the respondents wanted government intervention for realising better prices.

4.12.3 Traditional Marketing Channels for Tomato: All the respondents using traditional marketing channel sold their produce in Delhi market but in addition four percent sent the produce to Chandigarh and 16 percent sent the produce to Solan market (Table Annexure-24). Sixty six percent respondents did not know the sale price of the produce and the price was reported to be in the range of Rs.15-17 per kg. by the respondents who had price information. Margin of buyer varied between 20-26 percent which was high in the opinion of all the respondents. Only 44 percent respondents wanted to use the present channel again. All the respondents wanted government intervention for realising better product prices.

4.12.4 Emerging Marketing Channels for Tomato: As all the respondents sold the produce through mother diary, there was no other marketing agent. The respondents had no idea of the sale price of the tomatoes. The margin of buyer was not reported to be high and all the respondents wanted to continue with this channel (Table Annexure-25). Like in previous cases all the respondents wanted government intervention for better price realisation. The farmers in this case felt constrained by the fact that only selected grades of tomatoes were procured. In view of respondents the constraint can

be eliminated by procurement of all grades of produce and advances for purchase of inputs. The forthcoming suggestions were in the form of facilitating the price and arrival information and strict implementation of market regulation act.

4.13 Comparison of TMC and EMC based on the Economics Reported by the Two Channels

4.13.1 Gross Price Received, Cost and Margin of Intermediaries in Trading of Apple

Wholesaler cum Commission agents and Mashakhor (big retailer) were operating in apple trade at Delhi market. The economics of apple trade has been analysed and presented in Table 4.17. It may be seen from the table that the cost of handling apple was Rs 240/quintal under the traditional marketing channel whereas it was about three times higher under the Emerging channel. However, wholesaler earned relatively higher profit under emerging channel than that of traditional channel. The profit margin of wholesaler was Rs 50/quintal in case of emerging channel while it was Rs 34/quintal in case of traditional channel. The Mashakhor earned significantly higher profit in trade of apple under the traditional channel than the profit earned under emerging channel. The cost incurred in apple trade was also higher in case of traditional channel than that of emerging channel. Other details are given in the Table.

Table- 4.17: Cost and Profit Margins of Traders in Marketing of Apple at Delhi Market.

(Rs/Qtl.)

Particulars	TMC			EMC		
	Gross price	Expenses	Margin	Gross price	Expenses	Margin
Whole seller	7107	240	34	5168	690	50
Mashakhor	7285	107	71	5297	77	52

4.14 Retail Market

4.14.1 Gross Price, Cost and Margin of Apple Retailers

The costs and profit of retailer in trade of apple at Delhi has been analysed and presented in Table 4.18. It may be seen from the table that the cost incurred by retailer in trading apple was Rs 473 in case of traditional marketing channel and Rs 345 in emerging channel. The profit margin of retailer was Rs 728/quintal under traditional channel and Rs 530/quintal in case of emerging channel. Other details are given in the table.

Table- 4.18: Cost and Profit Margins of Retailers in Marketing of Apple at Delhi Market.

(Rs/ Qtl.)

Particulars	TMC			EMC		
	Gross prices	Expenses	Margin	Gross Price	Expenses	Margin
Retailers	8486	473	728	6172	345	530
Consumer Price	8486	-	-	6172	-	-

4.15. Market Efficiency

4.15.1 Marketing System of Himachal Apple

Nearly 97 per cent of the total apple production is the marketed surplus in the State and remaining 3 per cent is retained by the farmers for home consumption. About 96 per cent of the marketable surplus is sold outside the state and remaining 4 per cent within the State. Marketing within the state involves purchases by the processing industries (5%) like Himachal Horticulture Produce Marketing and Processing Corporation, Ltd (HPMC) or by the private industries and 2 per cent is sold as fresh fruits (Prasher,

1997). About 70 per cent of total quantity of apples sent outside the state was received at Delhi market.

The apple marketing involves multifarious activities like picking, grading, packing, transportation, storages, processing, etc. After attaining the size and colour the fruit is picked by hand and kept in picking basket and then emptied in *Kilta* - a conical basket. The *Kilta* when filled is carried to godown and emptied in a heap by carefully lifting each fruit by hand (Nadda, et al, 1999). After picking, apples are classified into uniform lots on the basis of their size and quality. According to size apples are classified in six grades, i.e. super large, extra large, medium, small, extra small and pitto. These size grades are further classified in to three quality grades, i.e. extra fancy (Grade A), fancy (grade B) standard (grade c) and culls. Quality grading is based on the shape and development of fruit, colour defects and brightness, etc., of the fruit. Grading is generally done manually however, mechanized grading facilities are also available at grading and packing houses established by the HPMC and corporate sector like Adani. After grading, fruits are packed in the telescopic corrugated fiber board (cfb) cartons. Thereafter these cartons are strapped, sealed and stenciled providing details of the fruit packed and name of the consignee as well as consigner. Then the cartons are stacked at road head for onward transportation to markets. The apple boxes are carried from orchard to road head manually, mules or ropeways. From road head apples are generally transported by trucks upto markets.

4.15.2 Price Spread and Marketing Efficiency in Apple

Effective marketing strategy especially for such a commodity depends mainly on the decision of where, when, how and how much to market. For this the services of a chain of middlemen and functionaries become inevitable. Each of the functionaries and services has to be paid for. The share of consumers' rupee received by the producers depends upon several factors including the channel used. The difference between the price paid by the consumer and that received by the producer consists of marketing costs or marketing margins. As the product moves closer and closer to the ultimate consumer, the price per selling unit increases in order to provide for margins to the various intermediaries and functionaries and provide auxiliary services as well.

Therefore, to protect the interest of producers and of consumers it is essential to integrate the role of intermediaries. Thus, price spread is a good yardstick for measuring marketing efficiency i.e., minimum input of various economic resources which will result in satisfaction of goods and services desired by the consumers.

4.15.3 Marketing Costs in Apple

The marketing cost incurred by producer and intermediaries has been presented in Table Annexure 26. On an average, marketing cost per quintal, incurred by producers was Rs 1527 which was higher on marginal farms, followed by small and medium farms under traditional channel. The breakup of marketing costs incurred by the apple producer revealed that grading, packing charges, packing material and transportation (including carriage up to road head) constituted major share in total cost of producers. Commission for commission agent, taxes, loading unloading are the other cost components, ranged between Rs 488/quintal on marginal farms to Rs 368/quintal on medium farms.

On an average, marketing cost incurred by the wholesaler/commission agent was Rs 274/quintal which included carriage and handling charges and market fee paid to the market committee. Mashakor's cost on handling, repacking accounted for Rs 107/quintal which ranges between Rs 125 on marginal farms to Rs 94/quintal in case of medium farms. Marketing cost on carriage and handling charges amounted to Rs 109/quintal. The retailers also incurred losses in apple worth Rs 364/quintal which were higher in case of marginal farms and lesser in medium farms. The total marketing costs incurred by the agents was Rs 2347/quintal under the traditional marketing channel (Table 4.19).

Marketing costs In case of marketing under emerging channel incurred by various agents are presented in Table Annexure 27. It may be seen from the table that the marketing cost borne by the growers was Rs 209/quintal which was higher on marginal farms. The costs on various marketing operation carried out by the Adani was Rs 740/quintal. After procuring apple at purchasing centre the cost on various operations like transportation, grading, packing, storage, etc are borne by the Adani. The cost on handling, repacking, etc by the Mashakor was Rs 77/quintal. The retailers incurred

expenses on handling, carriage at retail point worth Rs 80/quintal. Besides these expenses, retailers incurred losses worth Rs 265/quintal. On the whole, total cost in marketing of apple under Emerging Marketing Channel was Rs 1321/quintal (Table 4.19).

The above analysis reveals that the marketing cost in apple was significantly higher under traditional marketing channel and lesser under emerging marketing channel. The cost incurred by traders and retailer was comparatively lesser under the emerging channel than that of traditional channel.

Fig.- 4.6

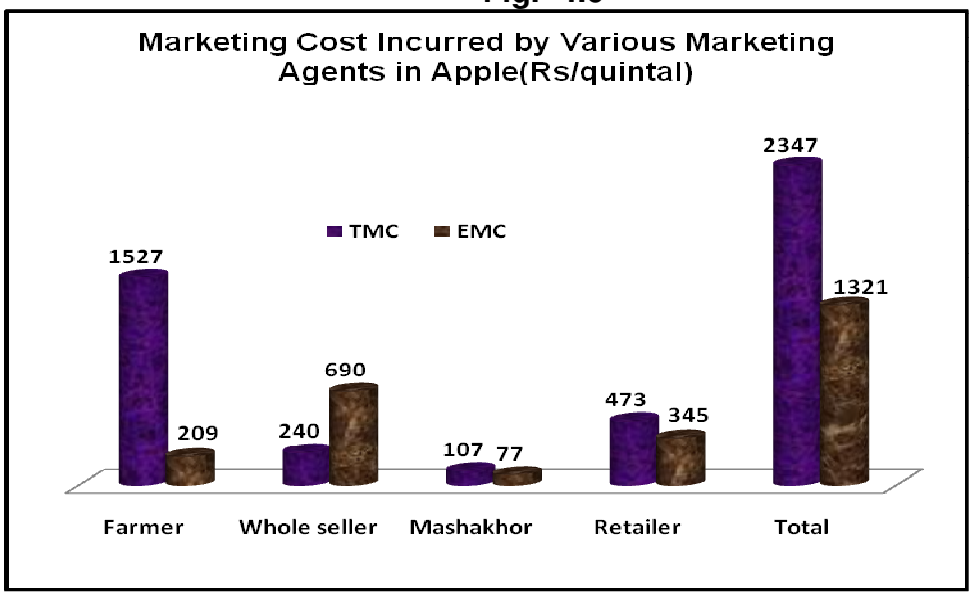


Table -4.19: Marketing Cost and Margins in Marketing of Apple.

(Rs/ Qtl.)

Particulars	TMC Apple			EMC Overall		
	Marketing Cost	Margin	Share %	Marketing cost	Margin	Share %
1. Farmer to Wholesaler	1527	5306	86.43	209	4219	86.97
2. Whole seller to Mashakhor	240	34	0.55	690	50	1.03
3. Mashakhor to Retailer	107	71	1.16	77	52	1.07
4. Retailer to consumer	473	728	11.86	345	530	10.93
5. Consumer to Farmer	2347	6139	100.00	1321	4851	100.00

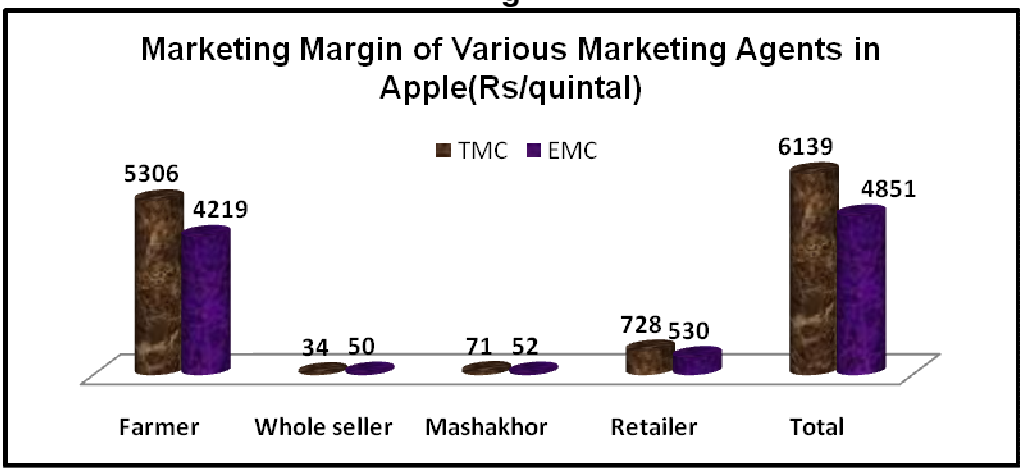
4.15.4 Marketing Margins in Apple

Net price received by producer was Rs 5306/quintal which was Rs 6241/quintal on marginal farms, Rs 5038/quintal on small farms and Rs 4640/quintal on medium farms. The profit margin of marketing agents earned in marketing of apple under traditional channel was Rs 34/quintal in case of wholesaler/commission agent. The profit margin of Mashakhor and Retailer was Rs 71 and Rs 728/quintal, respectively (Table Annexure 26). Out of total profit margin, of Rs 6139/quintal the share of farmer was 86.43 percent. The share of wholesaler/commission agent, Mashakhor and retailer was 0.55, 1.16 and 11.86 percent in total profit margin, respectively (Table 4.20).

The profit margin of various agents operating under emerging marketing channel indicates that net price received by the producer was Rs 4219/quintal. The wholesaler/commission agent, Mashakor and retailer earned profit of Rs 50, Rs 52 and Rs530/quintal respectively in apple trade (Table Annexure 27). Out of total profit margin of Rs 4851/quintal, 86.97 percent was the net price received by producer, 1.03 percent share was margin of wholesaler/commission agent, 1.07 percent margin of Mashakhor and 10.93 percent was the profit of retailer (Table 4.21).

The profit margin in apple trade was significantly higher under traditional marketing channel. Except wholesaler/commission agent, the profit margin of other marketing agents was lower under the emerging marketing channel. On an average, total marketing margin was Rs 6139/quintal in case of traditional marketing channel and Rs 4851/quintal in case of emerging marketing channel.

Fig.- 4.7

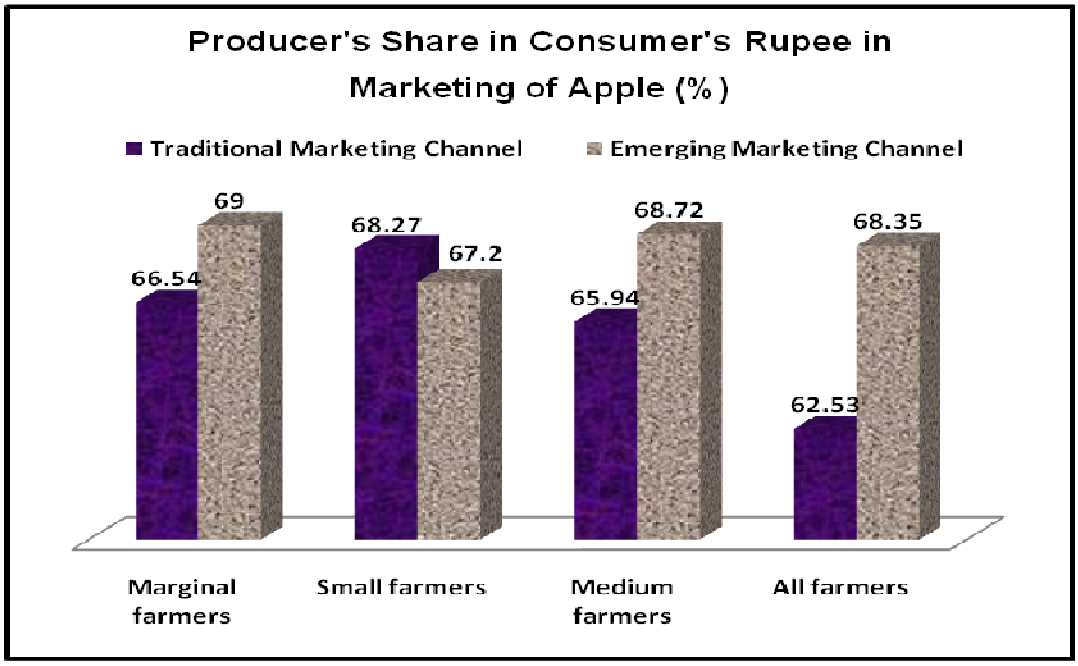


4.15.5 Producer's Share in Consumer's Rupee

Producer's share in consumer rupee was 62.53 percent under traditional marketing channel (Table 4.20). The share of producer in consumer price was 66.54, 68.27 and 65.94 percent on marginal, small and medium farms, respectively. The cost of marketing incurred by the producer was about 18 percent of the consumer price. Marketing cost and margin of wholesaler/commission agent accounted for about 3 percent of consumer price. About 2 percent of consumer price was the cost and margin of Mashakhor. The retailer's profit margin constituted about 9 percent of consumer price while cost and losses accounted for 1.28 percent and 4.29 percent of consumer price, respectively.

Net price received by the producer under emerging channel was 68.35 percent of consumer price which ranged between 67.20 percent in case of small farms to 69 percent on marginal farms (Table 4.21). The cost incurred by the producer was only about 3 percent of consumer price. The expenses and margin of Adani accounted for about 12 percent of consumer price. Mashakhor expenses and margin in apple were 1.25 and 0.84 percent of consumer price. Profit margin of retailer was 8.59 percent whereas losses were 5.59 percent and expense incurred accounted for 1.30 percent of consumer price.

Fig.- 4.8



The analysis of comparison between traditional and emerging channels under study reveals that the producer's share in consumer rupee was higher under the emerging channel than that of traditional channel. This is due to higher marketing cost and margins under traditional channel as compared to emerging channel. Also consumer is more benefited under EMC as compared to TMC as clear from the table 4.20 & 4.21.

Table-4.20: Producer's Share and Marketing Margins in Apple under TMC.

(Percentage)

Particulars	Marginal	Small	Medium	All
1. Net price received by farmer	66.54	68.27	65.94	62.53
2. Exp. Incurred by farmer	-			
(i) Picking, packing, grading, and assembling	1.92	1.96	1.90	1.80
(ii) Packing Material	9.13	9.41	9.08	8.60
(iii) Carriage up to road head	0.69	0.73	0.70	0.66
(iv) Transportation cost up to market	1.81	2.30	2.42	2.00
(v) Loading/unloading charges	0.08	0.11	0.11	0.09
(vi) Comm. of forwarding agent	-	-		
(vii) Comm. of C.A. & market fee	5.12	5.28	5.12	4.83
Sub-Total	18.75	19.81	19.33	17.99
3. Wholesale price paid price	85.29	88.08	85.26	80.52
4. (i) Expenses in carried & handling	1.70	1.77	1.75	1.63
(ii) Market fee	0.85	0.86	0.85	0.80
(iii) Commission of CA	0.43	0.44	0.41	0.40
Sub-Total	3.41	3.54	3.42	3.23
5. Mashakhor Purchased price	88.70	91.61	88.69	83.75
6. Mashakhor's expenses	1.33	1.37	1.33	1.26
7. Mashakhor's Margin	0.88	0.92	0.88	0.84
8. Mashakhor's sale price	90.92	93.90	90.90	85.85
9. Retailer's Exp.	-			
(i) Carriage & handling charges	1.36	1.41	1.35	1.28
(ii) Retailer's losses	4.54	4.69	4.55	4.29
Sub-Total	5.91	6.10	5.90	5.57
10. Retailer's margin	9.08	9.37	9.09	8.58
11. Consumer's price (Rs./Qtls.)	9380 (100.00)	7380 (100.00)	7037 (100.00)	8486 (100.00)

Table-4.21: Producer's Share and Marketing Margins in Apple under EMC.

(Percentage)

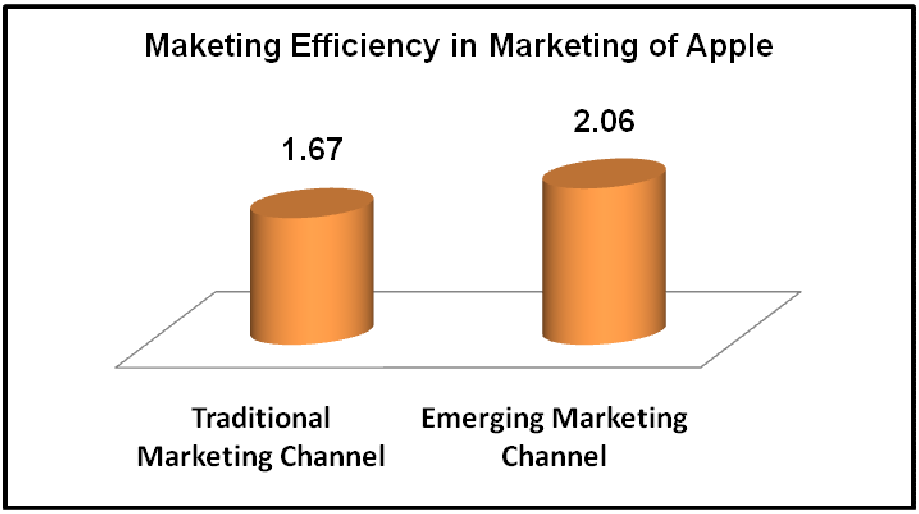
Particulars	Marginal	Small	Medium	All
1. Net price received by farmer	69.00	67.20	68.72	68.35
2. Exp. Incurred by farmer	-			
(i) Picking, packing, grading, and assembling	2.69	2.55	2.18	2.48
(ii) Packing Material	-	-		
(iii) Carriage up to road head	0.97	0.95	0.80	0.90
(iv) Transportation cost up to market		-	-	-
(v) Loading/unloading charges	-	-	-	-
(vi) Comm. Of forwarding agent	-	-	-	-
(vii) Comm. of C.A. & market fee	-	-	-	-
Sub-Total	3.67	3.50	2.98	3.39
3. Wholesale price/Adani paid price	72.67	70.70	71.70	71.74
4. (i) Expenses in transportation	2.54	2.99	2.77	2.75
(ii) Administrative, packing, elect.	7.78	9.14	8.46	8.42
(iii) Commission of CA	0.75	0.88	0.81	0.81
Sub-Total	11.08	13.01	12.04	11.99
5. Mashakhor Purchased price	83.74	83.71	83.73	83.73
6. Mashakhor's expenses	1.26	1.25	1.25	1.25
7. Mashakhor's Margin	0.84	0.84	0.83	0.84
8. Mashakhor's sale price	85.84	85.81	85.82	85.82
9. Retailer's Exp.	-			
(i) Carriage & handling charges	1.27	1.32	1.30	1.30
(ii) Retailer's losses	4.30	4.29	4.29	4.29
Sub-Total	5.57	5.61	5.60	5.59
10. Retailer's margin	8.59	8.58	8.59	8.59
11. Consumer's price (Rs./Qtls.)	6681 (100.00)	5686 (100.00)	6148 (100.00)	6172 (100.00)

4.15.6 Marketing Efficiency

According to the Acharya approach, an ideal measure of market efficiency, particularly for comparing the efficiency of alternative markets/channels the Total marketing costs (MC), Net Marketing Margins (MM), Prices received by the farmer (FP), Prices paid by the Consumer (RP) have been analysed and presented in Table 4.22. Further, higher the marketing costs lower is the efficiency, higher net marketing margins will lower the efficiency, higher price received by farmer indicates higher efficiency, and higher the retailer's price, lower the marketing efficiency.

However, while using these methods for comparing the market efficiency of alternative channels, the time, place and form of the commodity at the beginning and end of the channel are same in all the channels/markets which are being compared.

Fig.- 4.9



It may be seen that the total marketing costs were higher Rs 2347/quintal in traditional marketing channel and lesser in emerging channel which indicate that emerging marketing channel under study is relatively more efficient than that of traditional marketing channel. The marketing margin of various agents operating in the trade of apple was also higher in traditional channel Rs 833/quintal than that of emerging

channel Rs 632/quintal. However, net price received by producer was higher in case of traditional marketing channel i.e. Rs 5306/quintal and lower Rs 4219/quintal in case of emerging marketing channel. The value added and retailer's sale price was Rs 3180 and Rs 8486/quintal, respectively under the traditional marketing channel which are relatively higher than that of emerging marketing channel. According to Acharya approach, marketing efficiency was 2.06 in case of emerging marketing channel which is higher than the efficiency of 1.67 estimated under traditional marketing channel.

Table-4.22: Marketing Efficiency of Apple Marketed through TMC and EMC.

(Rs/Qtls)

Particulars	TMC	EMC
1. Retailer's Sale Price/Consumer Purchase Price (RP)	8486	6172
2. Total Marketing Cost (MC)	2347	1321
3. Total Net Margins of Intermediaries (MM)	833	632
4. Net Price Received by Farmer (FP)	5306	4219
5. Value Added	3180	1953
Acharya's Method (MME) 4/ (2+3)	1.67	2.16

4.16 Intermediary Survey of Tomato

4.16.1 Gross Price, Cost and Margin

Wholesaler cum Commission agents and Mashakhor (big retailer) were operating in tomato trade under traditional channel at Delhi market. In case of emerging channel, Mother Dairy operating is in the trade of tomato at Delhi. The cost and margin of these marketing agents in tomato trade has been analysed and presented in Table 4.23. It may be seen from the table that the cost of handling tomato was Rs 100/quintal under both the channels. However, Mother Dairy earned relatively higher profit under emerging channel than that of traditional channel. The profit margin of wholesaler was Rs 106/quintals in case of emerging channel while it was Rs 100/quintal in case of

traditional channel. The Mashakhor earned Rs 12/quintal in trade of tomato under the traditional channel. Other details are given in the table.

Table-4.23: Cost and Profit Margins of Traders in Marketing of Tomato at Delhi Market

(Per Qtl.)

Particulars	TMC			EMC		
	Gross prices	Expenses	Margin	Gross prices	Expenses	Margin
Wholesaler	1209	100	100	1289	100	108
Mashakhor	1239	18	12	-	-	-

4.16.2 Gross Prices, Cost and Margin of Retailer

The costs and profit of retailer and Mother Dairy in trade of tomato at Delhi has been analysed and presented in Table 4.24. It may be seen from the table that the cost incurred by retailer in trading tomato was Rs 141/quintal in case of traditional marketing channel. In case of Mother Dairy cost in trading tomato was Rs 77/quintal. The profit margin of retailer was Rs 186/quintal under traditional channel and Rs 155/quintal in case of emerging channel. Other details are given in the table.

Table-4.24: Cost and Profit Margins of Retailers in Marketing of Tomato at Delhi Market

(Per Qtl.)

Particulars	TMC			EMC		
	Revenue	Cost	Margin	Revenue	Cost	Margin
Retailers	1568	141	186	1521	77	155
Consumer Price	1568	-	-	1521	-	-

4.16.3 Price Spread and Marketing Efficiency

The price spread/margins in marketing of tomato at Delhi Market under traditional and emerging channels have been studied to know how much the producer is getting for his produce in this market. The marketing costs, margins of intermediaries, producer's share and marketing efficiency are analysed to ascertain the extent of overall improvement in tomato marketing system under marketing channels under study.

4.16.4 Marketing Costs

The marketing process for tomato has to be very quick and efficient because due to high perishability the produce has to reach the consumer within least possible time. In this regard, the study of tomato marketing assumes greater importance because a judgment regarding efficiency of marketing can be made from it and idea can be had as to whether various intermediaries are providing the services at reasonable rates or not. The marketing costs have been worked out for traditional and emerging channels and results presented in Table 4.25 and the following text provides details. The costs have been worked out on the basis of per quintal for different farm categories. The analysis indicates that total cost of marketing from farmers to consumers was Rs 750/quintal in case of traditional channel. The highest cost in marketing was incurred by the farmers, Rs 489/quintal followed by the retailers Rs 143/quintal, Mashakhor Rs 18 and wholesaler/commission agent Rs 100/quintal. It is indicated in table annexure 28 that transportation was the highest component of marketing costs of farmer amounting to about Rs. 168 per quintal at overall level. This was followed by packing material cost which amounted to about Rs. 155/quintal and picking, packing, grading the cost of which was about Rs. 80 per quintal. The cost incurred by wholesaler was Rs 200/quintal which included carriage, handling and market fee paid to market committee. Marketing cost incurred by Mashakhor was Rs 18/quintal. The expenditure on carriage, handling and losses incurred by the retailers amounting to Rs 143/quintal.

In case of emerging channel total cost of marketing incurred by the marketing agents accounted for Rs 249/quintal. The cost incurred by farmers was Rs 73/quintal. As Mother Dairy purchased tomato from the farmers directly and all the costs were borne by this agency. The farmers incurred expenses on assembling, packing material (Plastic

crates), loading/unloading and carriage up to procurement point. The marketing expenses incurred by Mother Dairy were Rs 100/quintal. Handling and losses during retailing the tomato by the Mother Dairy through retail booths amounted to Rs 76/quintal (Table 4.25).

Fig.- 4.10

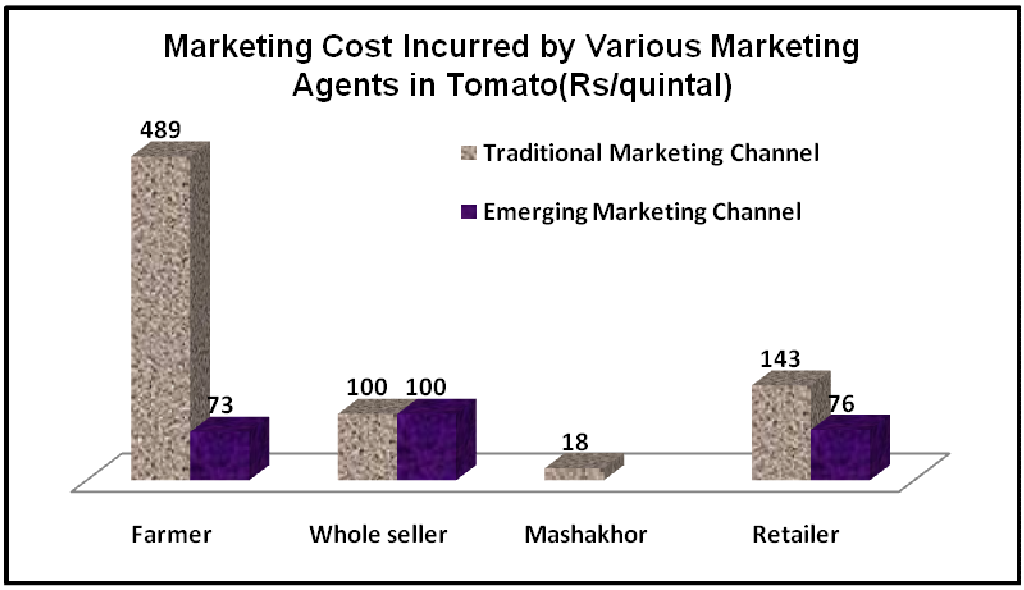


Table-4.25: Marketing Cost and Margins in Marketing of Tomato

(Rs/ Qtl)

Market Margins	TMC			EMC I		
	Marketing Cost	Margin	Share %	Marketing cost	Margin	Share %
1. Farmer to Whole-seller	489	520	63.56	73	989	79.31
2. Whole seller to Mashakhor	100	100	12.22	100	106	8.50
3. Mashakhor to Retailer	18	12	1.46	-	-	-
4. Retailer to consumer	143	186	22.74	76	152	12.19
5. Consumer to Farmer	750	818	100.00	249	1247	100

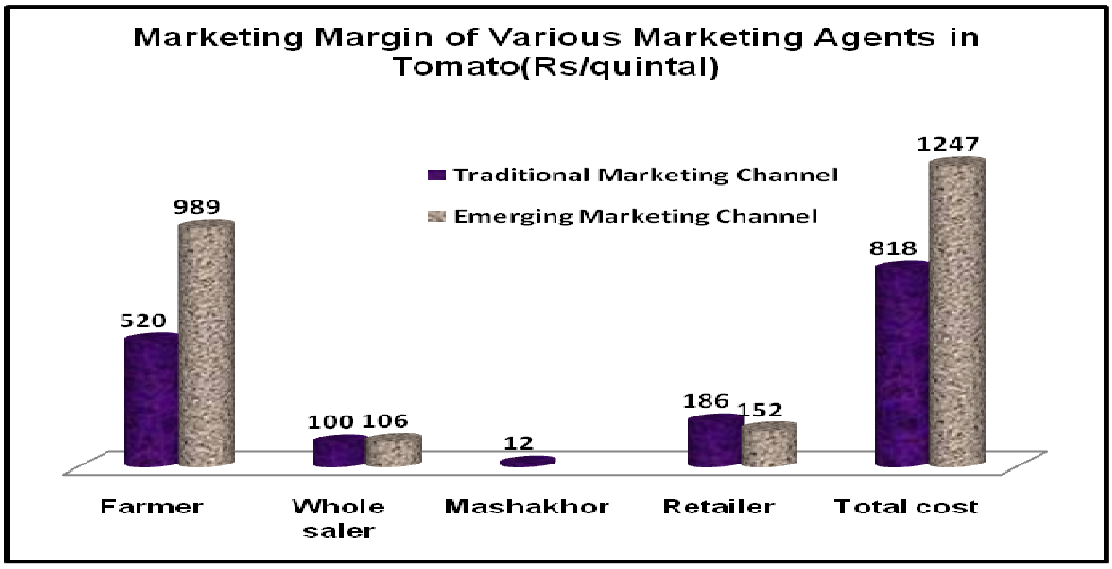
4.16.5 Marketing Margins

Net price received by producer was Rs 520/quintal which was Rs 522/quintal on marginal farms, Rs 496/quintal on small farms, Rs 498/quintal on medium farms and Rs 503/quintal on large farms in case of marketing through traditional channel (see Table Annexure 28). The profit margin of marketing agents earned in marketing of tomato under traditional channel was Rs 100/quintal in case of wholesaler/commission agent. The profit margin of Mashakhor and Retailer was Rs12 and Rs 186/quintal, respectively. Out of total profit margin of Rs 818/quintal the share of farmer was 63.56 percent. The share of wholesaler/commission agent, Mashakhor and retailer was 12.22, 1.46 and 22.74 percent in total profit margin, respectively (Table 4.25).

The profit margin of various agents operating under emerging marketing channel indicates that net price received by the producer was Rs 989/quintal. The Mother Dairy's profit margin was Rs 258/quintal in marketing of tomato. Out of total profit margin of Rs 1247, 79.31percent was farmer share and rest was the margin of Mother Dairy (Table 4.25).

The profit margin in tomato trade was significantly higher under emerging marketing channel. On an average, total marketing margin was Rs 818/quintal in case of traditional marketing channel and Rs 1247/quintal in case of emerging marketing channel.

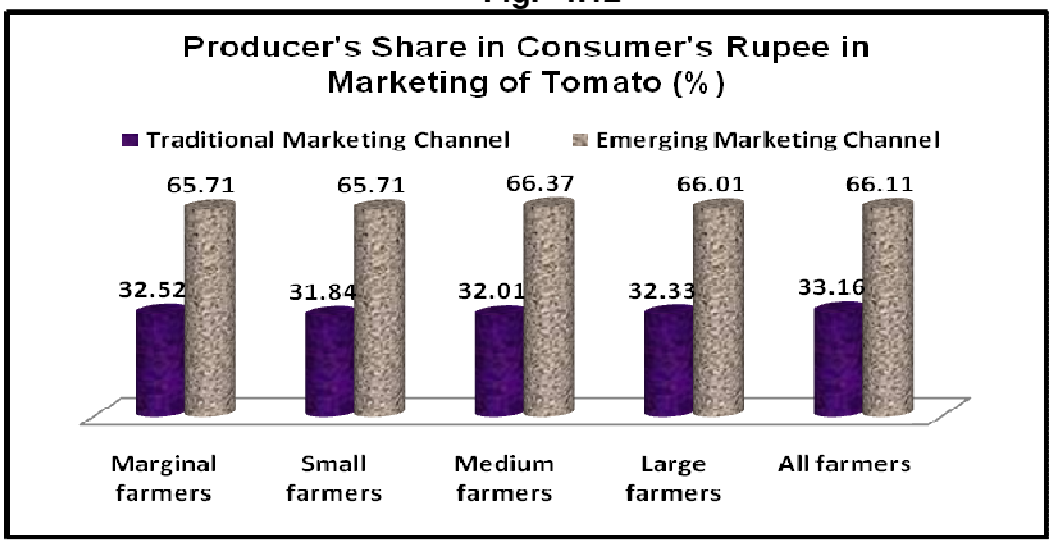
Fig.- 4.11



4.16.6 Producer's Share in Consumer's Rupee

Producer's share in consumer rupee was 33.16 percent under traditional marketing channel. The share of producer in consumer price was 32.52, 31.84, 32.01 and 32.33 percent on marginal, small, medium and large farms, respectively (Table-4.26). The cost of marketing incurred by the producer was about 31 percent of the consumer price. Marketing cost and margin of wholesaler/commission agent accounted for about 3 percent of consumer price. About 2 percent of consumer price was the cost and margin of Mashakhor. The retailer's profit margin constituted about 12 percent of consumer price while cost and losses accounted for 1.15 percent and 7.97 percent of consumer price, respectively.

Fig.- 4.12



Net price received by the producer under emerging channel was 66.11 percent of consumer price which ranged between 65.71 percent in case of marginal farms to 66.37 percent on medium farms (Table 4.27). The cost incurred by the producer was only about 5 percent of consumer price. The expenses and margin of Mother Dairy accounted for about 29 percent of consumer price.

The analysis of comparison between traditional and emerging channels under study reveals that the producer's share in consumer rupee was higher under the emerging channel than that of traditional channel. This is due to higher marketing cost and margins under traditional channel as compared to emerging channel. Also consumer is more benefited in EMC as compared to TMC as clear from the tables 4.26 & 4.27.

Table-4.26: Producer's Share and Marketing Margins in Tomato under TMC.

(Percentage)

Particulars	Marginal	Small	Medium	Large	All
1. Net price received by farmer	32.52	31.84	32.01	32.33	33.16
2. Exp. Incurred by farmer	-				
(i) Picking, packing, grading, and assembling	4.98	5.13	5.14	5.14	5.10
(ii) Packing Material	9.66	9.95	9.96	9.96	9.88
(iii) Carriage up to road head	-	-			
(iv) Transportation cost up to market	11.46	11.81	11.95	11.89	10.71
(v) Loading/unloading charges	0.62	0.45	0.64	0.64	0.64
(vi) Comm. of forwarding agent	-				
(vii) Comm. of C.A. & market fee	3.36	3.85	3.41	3.21	3.57
Other charges	1.31	1.28	1.16	1.09	1.27
Sub-Total	31.89	32.48	32.26	31.94	31.19
3. Wholesale price	64.42	64.31	64.27	64.27	64.35
4. (i) Expenses in transportation	3.12	3.21	3.21	3.21	3.19
(ii) Administrative, packing, elect.	3.12	3.21	3.21	3.21	3.19
(iii) Commission of CA	6.41	6.42	6.43	6.43	6.38
Sub-Total	12.65	12.84	12.85	12.85	12.76
5. Mashakhor Purchased price	77.07	77.15	77.12	77.12	77.10
6. Mashakhor's expenses	1.18	1.15	1.16	1.16	1.15
7. Mashakhor's Margin	0.81	0.77	0.77	0.77	0.76
8. Mashakhor's sale price	79.07	79.07	79.05	79.05	70.02
9. Retailer's Exp.	-				
(i) Carriage & handling charges	1.18	1.15	1.16	1.16	1.15
(ii) Retailer's losses	7.91	7.89	7.91	7.90	7.97
Sub-Total	9.09	9.05	9.06	9.06	9.12
10. Retailer's margin	11.84	11.87	11.89	11.89	11.86
11. Consumer's price (Rs./Qtls.)	1605 (100.0)	1558 (100.0)	1556 (100.0)	1556 (100.0)	1568 (100.0)

Table-4.27: Producer's Share and Marketing Margins in Tomato under EMC.

(Percentage)

Particulars	Marginal	Small	Medium	Large	All
1. Net price received by farmer	65.71	65.71	66.37	66.01	66.11
2. Exp. Incurred by farmer					
(i) Picking, packing, grading, and assembling	3.40	3.36	2.81	3.29	3.07
(ii) Packing Material	0.33	0.27	0.27	0.26	0.33
(iii) Carriage up to road head					
(iv) Transportation cost up to market	0.98	0.75	0.89	0.85	0.87
(v) Loading/unloading charges	0.65	0.75	0.55	0.66	0.60
Sub-Total	5.36	5.13	4.52	5.06	4.87
3. Wholesale price/Mother Dairy paid price	71.07	70.85	70.89	71.07	70.99
4. (i) Expenses in transportation	3.27	3.43	3.42	3.29	3.34
(ii) Administrative, packing, elect.	3.27	3.43	3.42	3.29	3.34
(iii) Commission of CA	7.13	7.06	7.05	7.10	7.08
Sub-Total	13.68	13.92	13.90	13.68	13.77
8. Mother Dairy sale price	84.75	84.77	84.79	84.75	84.76
9. Retail Booth Exp.	-	-	-	-	-
(i) Carriage & handling charges	-	-	-	-	-
(ii) losses	5.10	5.07	5.07	5.06	5.08
Sub-Total	5.10	5.07	5.07	5.06	5.08
10. Retail booth margin	10.14	10.15	10.14	10.19	10.16
11. Consumer's price (Rs./Qtls.)	1528 (100.0)	1458 (100.0)	1460 (100.0)	1521 (100.0)	1496 (100.0)

4.16.7 Marketing Efficiency

Marketing efficiency in tomato has been worked out for traditional and emerging channels under study and the results are presented in Table 4.28. It may be seen that the total marketing costs were higher Rs 750/quintal in traditional marketing channel and lesser in emerging channel which indicate that emerging marketing channel under study is relatively more efficient than that of traditional marketing channel. The

marketing margins of various agents operating in the trade of tomato were also higher in traditional channel, Rs 298/quintal as compared to Rs 258/quintal under emerging channel. Moreover, net price received by producer was also higher in case of emerging marketing channel i.e. Rs 989/quintal and lesser Rs 520/quintal in case of Traditional marketing channel. The value addition by retailer and retailer's sale price was Rs 1048 and Rs 1568/quintal under the traditional marketing channel which was relatively higher than that of emerging marketing channel. According to Acharya approach, marketing efficiency was 1.95 in case of emerging marketing channel which were higher than the efficiency of 0.50 estimated under traditional marketing channel in tomato.

Fig.- 4.13

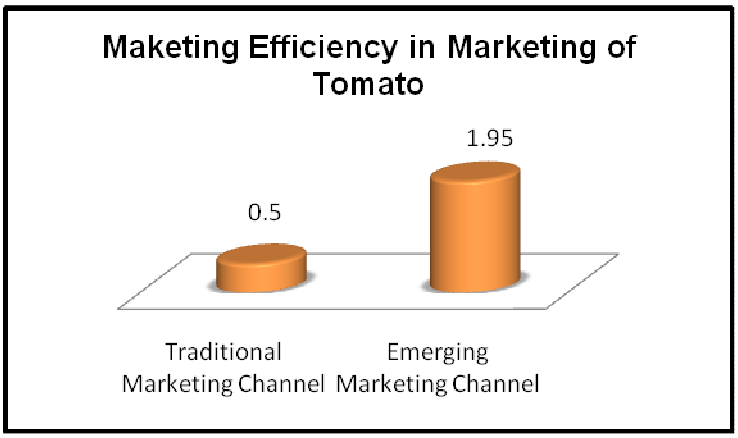


Table-4.28: Marketing Efficiency of Tomato Marketed through TMC and EMC.

(Rs/Qtl).

Particulars	Unit	TMC	EMC
1.Retailer's Sale Price/Consumer Purchase Price (RP)	Per Qtl.	1568	1496
2. Total Marketing Cost (MC)	- do-	750	249
3. Total Net Margins of Intermediaries (MM)	- do-	298	258
4. Net Price Received by Farmer (FP)	- do-	520	989
5. Value Added	- do-	1048	507
Acharya's Method (MME) 4 / (2+3)	- do-	0.50	1.95

4.17 Conclusion

It may be concluded from the above analysis that the use of modern inputs in cultivation of apple was higher on sample farms under emerging channel than that of traditional marketing channel. Whereas reverse trend was observed in the case of tomato.

Per quintal cost of production, wastages, farmer's price, net revenue were comparatively higher in apple on sample farms under traditional channel than that of emerging marketing channel. However marketing cost, benefit cost ratio and producer's share in consumer's price were higher on farms under emerging channel than that of traditional channel. The same trend was observed in the case of tomato also.

Out of total losses in apple, the maximum losses were observed to be in the form of culled apple (i.e. 62 percent in traditional and 81 percent in emerging channel) in both the channels. At retailer's level the losses were observed to be more (12%) in emerging channel as compared to traditional channel (7.63%). Whereas in case of tomato the maximum losses were observed at retailer's level (more than sixty percent) in both channels.

The price information invariably was received at the time of harvest and none of the respondents of both commodities and channels got information through AGMARKNET. In the case of apple in traditional channel the source of price information was both traders as well as speaking with other farmers. In the emerging channel most (66%) of the respondent received the price information from talking with other farmers. The percentage of respondents having low confidence in merchants was 48% and 66 % in traditional and emerging channel respectively. While in case of tomato majority of respondents had high confidence in the merchant in undertaking transactions in both channels. As far as infrastructure facilities are concerned, all of the respondents were of the view that there was no facility of godown and cold storage in the market. All the respondents of TMC told that the market was located at more than 50 km. while in EMC it was located within a distance of 10 to 25 kms from their village. The response of the farmers was almost same in the case of tomato.

In TMC, all apple respondents said that after the buyer, Mashakhor and retailer are only other marketing agents, margins of buyer was six percent which is high. All the respondents were of the view that support from government for getting better price has to be in the form of subsidy on grading machines, all weather roads, arrangement of vehicles and opening up big regulated market in the state. In the case of EMC all respondents had the information about price at which produce was sold but had no information about the margins of buyer. Whereas in the case of tomato under TMC the margin of buyer varied between 20-26% which was high in the opinion of all the respondents. Under EMC, the margin of buyer was not high according to all the respondents' opinion.

As far as margins of intermediaries trading apple under TMC and EMC are concerned, the wholesaler earned relatively higher (Rs.50/Qtl) profit under EMC than that of TMC (Rs.34/Qtl.) whereas Mashakhor earned relatively higher (Rs.71/Qtl.) profit under TMC than that of EMC (Rs.52/Qtl.). The profit margin of retailer was more (Rs.728/Qtl.) under traditional channel as compared to emerging channel (Rs.530/Qtl.). In the case of tomato, the wholesaler earned relatively higher (Rs.106/Qtl.) profit under EMC than that of TMC (Rs.100/Qtl.) whereas the cost was same (Rs.100/Qtl.) in both the channels. The Mashakhor earned Rs.12/Quintal in trade of tomato under TMC. The profit margin of relater was Rs.186/quintal under traditional channel and Rs.155/quintal under emerging channel.

On an average, total marketing margin was Rs.6139/quintal in case of traditional marketing channel and Rs.4851/quintal in case of emerging marketing channel. In the case of tomato the profit margin was significantly higher under emerging marketing channel.

The analysis of price spread concludes that marketing cost in apple was significantly higher Rs.2347 per quintal under traditional marketing channel whereas it was Rs.1321 per quintal under emerging marketing channel. In the case of tomato the marketing cost under traditional marketing channel was Rs.750 per quintal as compared to Rs.249 per quintal under emerging marketing channel. As far as margin is concerned, on an average, total margin in apple trade was 6139 per quintal in case of traditional channel

and Rs.4851 per quintal in case of emerging marketing channel. The farmer's share was 86.43 percent in traditional marketing channel as compared to 86.97 percent in emerging marketing channel.

In the case of tomato on an average, total marketing margin was Rs.818 per quintal in traditional marketing channel as compared to Rs.1247 per quintal in emerging marketing channel and the farmer's share in total margins was higher (79.31%) in emerging channel as compared to traditional channel (63.56%).

Chapter 5

CONCLUSION AND POLICY IMPLICATIONS

5.1 Progress of Reforms in the State and Emergence of New Channels

It is concluded that under the old Act there was provision that only Market Committees were entrusted the responsibility of developing infrastructures and regulating the sale and purchase of the notified agricultural produce in their respective notified areas whereas under new Act, the marketing sector has been opened to the private sector and cooperative sector to make it competitive. In the new Act, the alternative marketing system by encouraging direct marketing by the farmers to the bulk/processors has also been allowed. There is a provision to setup farmers and consumers markets as well. Provision has been made for public-private partnership in the management and development of agricultural marketing in the state. Also it provides far regulation and promotion of contract farming so that farmers can get benefit from the advances of agricultural technology and opportunities being offered by the liberalization.

5.2 Association of EMC with Farmers

It has been observed that the EMC is not associated with the affluent farmers only but cuts across all the categories of farmers. However, due to limited off take of the produce all the desiring producers could not be covered by the corporate buyers covered under the EMC. Another drawback observed is that the corporate buyers concentrate their activities in the regions/pockets where the agro climatic conditions are most favorable for cultivation of the product. This is done perhaps to ensure the better product quality leading to better shelf life and processing traits. There is demand from the producers' community to incentivize more corporate buyers to operate in the state for the benefit of the farming community at large. The farmers are motivated to be associated with such corporate house because of the fact that they provide certain inputs like trays for collection and local carriage of produce which is either free or at a

very nominal cost. The training programmes initiated by Adani group are also a motivating factor for many of the producers.

5.3 Reduction in Number of Intermediaries

The emerging channels in the case of tomato have been able to effectively reduce the number of intermediaries involved in the marketing chain thereby reducing the cost of marketing. However, the most important fact is that the procurement is at local level saving the producers from incurring heavy transportation and packing costs etc. Thus, the emerging channels have effectively taken care of the recommendation of farm scientists to reduce the number of intermediaries to safeguard the interest of farming community. In the case of apple the number of intermediaries has not been reduced but the cost of marketing has reduced due to the reason that farmers do not bear the cost of packing material and transportation.

Due to elimination of various intermediaries like forwarded agent, commission agent, wholesaler etc. the marketing cost in emerging channel is lower as compared with the traditional channels. It is not only the shortening of marketing chain but certain marketing functions like packing and transportation are avoided and hence the producer do not have spend anything on this account. This obviously means lower marketing cost for producers marketing their produce through emerging channels.

5.4 Comparison of the Farmer's Marketing Costs in the Channels

In the case of apple the farmer's marketing cost was less (Rs. 209/qtls.) in emerging channel as compared to traditional channels (Rs.1525/qtl.). Similarly in the case of tomato the farmers marketing cost was less Rs.73/qtl in emerging channel as compared to traditional channel Rs.489/qtls.

5.5 Business of Agents in the Emerging Channels

The marketing efficiency from the producer point of view has been increased under emerging marketing channels. In this channel the marketing cost borne by the producer was very less. From the traders point of view the business is also viable in this channel therefore, the private agents are running their business for so many years. As the concerned data was not available from these traders so it is difficult to calculate their viability in quantitative terms.

5.6 Ranges of Prices that Consumers pay; the Extent of Processing Involved in the Retail end

The prices which consumer pays in retail market ranges between Rs.57/kg to 94/ kg for apple. In the case of tomato it ranges between Rs.15 per kg to 17 per kg. The traders were not engaged in processing of both apple as well as tomato. .

5.7 Price Spread and MME

The comparison between traditional and emerging channel under study reveals that producer's share in consumer rupee was higher under emerging channel for both crops than that of traditional channel. This is due to higher marketing cost and margins under traditional channel as compared to emerging channel. To measure the marketing efficiency Acharya's approach has been taken as a tool. According to Acharya, higher marketing costs indicate lower the efficiency; higher the net marketing margins, lower the efficiency; higher the price received by producer indicate higher the efficiency and higher the retail price, lower the marketing efficiency. In this study the efficiency was higher under emerging marketing channel for both crops than that of traditional marketing channel.

5.8 Policy Implications:

Based on the results of the study there are some suggestions which are given as below:

In the State, Adani group and Mother Dairy are the major emerging agents in marketing of apple and tomato respectively. The producer's share in consumer's rupee in marketing of apple as well as in tomato is higher under the emerging channel than that of traditional channel because of higher marketing cost and margins under traditional channel. Therefore it is suggested that more private traders should be encouraged and allowed for setting up of private markets to make it competitive for the benefit of producers as well as consumers.

As in the case of traditional marketing channels a major share (60% in case of apple and 40% in case of tomato) of marketed surplus is being sold at terminal market Delhi and in this regard the grower faces various problems of distant market. Selling of farm

produce outside the State not only adds to the marketing costs in terms of freight, handling, commission charges, deterioration in quality of produce but reduces the margin of market share of producers in consumer's purchase price. To enable the growers to derive maximum from their produce the marketing network in the State need to be upgraded, integrated and strengthened by creating infrastructure facilities, like shop-cum godown, auction platform farmer's, rest houses etc. Also seasonal markets should be set up in producing areas providing minimum facility of auction platform, storage structure, grading and packing homes, public facilities etc.

Though Delhi market is a regulated market but there is no Market Regulation Act enforced in true sense. The growers are being charged commission, which is against the law. About 5-7 percent of the producer's share is reduced by this malpractice. Therefore it is suggested that the regulation Act should be enforced strictly to safeguard the interests of the producers.

In traditional marketing channel, margin of the commission agent was reported to be high by all the respondents, 6 percent in case of apples and 20-26 percent in case of tomato whereas in emerging marketing channel there was no margin of the buyer. Therefore it is suggested that there should be the promotion of other alternative marketing channels as direct marketing to consumers, retail chains, farmers markets, contract farming etc. To protect the interest of producers and consumers, it is essential to integrate the role of intermediaries.

Mostly the growers in the State are not aware of market information. They have to depend upon local traders, commission agents, and forwarding agents etc for market information who purchase their produce far below the prevailing market rates. Therefore growers do not get the remunerative prices of their produce. None of the sampled growers obtained market price information through AGMARKNET indicating that the electronic media has not been popular among farmers. In order to avoid exploitation of farmers and to reduce the role of intermediaries the market information system should be strengthened.

Generally, the means of transport are not readily and easily available in producing areas. Farmers bring their produce to roadhead and keep on waiting for the transport

and traders. Since there is no facility for the protection of agricultural produce, it remains open to vagaries of weather, theft etc. To save the growers from such losses, marketing infrastructure should be strengthened in production areas through involvement of APMC, Cooperative and private sector.

The growers are not getting adequate return of their produce due to inadequate knowledge about post harvest handling and marketing. Therefore grower's awareness camps should be organized to make them aware of post harvest management, market regulation, market information etc.

5.9 Arena for Further Research

The study of marketing margins is very essential in the formulation of an appropriate marketing policy. On the other hand, producers deserve a legitimate share in the consumer's rupee, and on the other, consumers have to be safeguarded against excessive prices. These twin objectives can be best achieved by ensuring the services of intermediaries and functionaries at reasonable costs. In this context, the importance of regular and continuous study of marketing margins in case of Himachal fruits and vegetables in various markets will be very important because it is the general assumption that the high cost of marketing is caused by excessive waste, inefficiencies and high profits of the agencies and individuals involved throughout the marketing channel.

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Annexure-1

Land Use Classification of Study Districts of H.P. During 2007-08.

(Hectares)

Particulars	Shimla		Solan		HP	
	In hectares	%	In hectares	%	In hectares	%
Total geographical area:						
By professional Survey (,000 hectares)	513.1		193.7		5567.3	
By village papers	508900	100	21053	100	4389704	100
Forest	130411	25.62	451	2.19	1083121	24.67
Not available for cultivation:						
Barren &uncultivable land	15681	2.08	1925	9.14	657505	14.97
Land put to non-agriculture uses	16638	3.26	1488	7.06	444133	10.12
Total	32319	6.35	3413	16.21	1101638	25.09
Other uncultivated land excluding current fallow:						
Culturable waste	21234	4.18	1402	6.65	123214	2.80
Permanent pastures and other grazing land	228567	44.91	11636	55.27	1434256	32.67
Land under misc. tree crops, etc.	11817	2.32	3	Neg	67028	1.52
Total	261618	51.41	13041	61.94	1624498	36.99
Fallow Land						
-Current fallow	13063	2.57	480	2.28	55881	1.27
-Other fallow	3979	0.78	330	1.57	16694	0.38
-Total	17042	3.35	810	3.85	72575	1.65
Net area sown	67510	13.26	3338	15.86	507872	11.57
Total cropped area	88476		5632		897403	
Area sown more than once	20966		2294		389531	

Source: Statistical out line Directorate of Economics and Statistics (2010)

Annexure-2

Area and Number of Holdings in Study Districts of H.P.

Particulars	Census years	Marginal		Small		Medium		Large		Overall	
		No	Area	No	Area	No	Area	No	Area	No	Area
Shimla:											
	1980-81	42.27	9.70	23.76	17.85	21.84	31.31	12.13	41.41	60899	118428
	1985-86	53.12	15.65	22.49	21.58	16.81	30.63	7.17	32.14	74498	113356
	1990-91	53.87	16.46	23.45	22.74	15.66	29.67	7.02	31.13	85521	120468
	1995-96	54.66	18.28	24.02	24.62	15.17	29.64	6.15	27.46	90112	125917
	2000-01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Solan:											
	1980-81	36.20	7.90	23.76	15.01	23.90	28.87	16.14	48.22	19442	91071
	1985-86	40.55	10.77	24.99	18.53	21.76	29.77	12.70	40.93	45091	91587
	1990-91	41.67	10.36	25.09	18.66	20.13	30.53	13.11	40.45	46936	91297
	1995-96	40.09	10.92	28.83	19.28	20.46	31.13	10.62	38.67	49584	91580
	2000-01	43.74	12.57	26.52	21.48	20.11	30.87	9.54	35.09	50576	90148
HP											
	1980-81	55.30	14.92	22.03	20.43	15.16	27.08	7.51	37.57	637081	980425
	1985-86	61.55	20.46	20.63	22.71	12.24	25.97	5.58	30.86	752882	980240
	1990-91	63.82	21.26	19.96	23.29	11.26	25.51	4.96	29.94	833793	1009766
	1995-96	62.85	23.05	19.61	24.07	10.74	25.54	6.80	27.34	84492	999099
	2000-01	67.29	25.72	19.06	24.99	9.83	24.86	3.81	24.42	913914	978754

Note: percentages have been worked out on the basis of total number and area (hect.) in each district shown in last column of the table.

Source: Agricultural census reports, Directorate of land records, Shimla HP.

Annexure-3

Cropping Pattern of Study Districts of H.P. During 2003-04

Name of the crops	Area (Ha.)						Production (MT)					
	Shimla		Solan		H.P.		Shimla		Solan		H.P.	
	Ha	%	Ha	%	Ha	%	MT	%	MT	%	MT	%
Paddy	2261	2.35	5355	8.39	81345	8.51	2207	1.48	7866	6.74	120624	7.24
Maize	14844	15.48	22499	35.20	298542	30.91	43322	29.13	46603	39.97	729571	43.81
Wheat	15912	16.59	23537	36.82	363369	30.02	15883	10.68	35905	30.79	296930	29.84
Barley	4674	4.87	6207	9.71	24330	2.54	5581	0.39	1103	0.95	28139	1.69
Total cereal	43042	44.89	52984	82.89	782580	81.89	72425	48.70	91510	78.48	1385706	83.22
Total pulses	5103	5.32	2869	4.48	28859	3.02	2024	1.36	1494	1.28	13884	0.83
Total food grains	48145	50.21	55853	87.38	811439	84.91	74449	50.06	93004	79.76	1399509	84.05
Vegetable	13866	14.46	3713	5.80	39238	4.10	72895	49.02	19508	16.73	229421	13.78
Fruits	6351	6.32	604	0.94	8288	0.86	NA		NA	NA	NA	NA
Total oilseeds	574	0.59	1379	2.15	17707	1.85	269	0.18	606	0.52	8658	0.52
Total food crops	95186	99.27	61281	95.88	924327	96.72	148443	99.82	115964	99.46	1656318	99.48
Total non-food crops	696	0.72	2635	4.12	31287	3.28	269	0.18	632	0.54	8696	0.52
Total cropped Area.	95882	100	63916	100	955614	100	148712	100	116596	100	1665014	100

Source: Annual season and crop report, Directorate of Land Records, HP, Shimla.

Annexure-4

Area under Major Fruit Crops in Study Districts of H.P During 2006-07

Name of the crops	Area (Ha.)						Production (MT)					
	Shimla		Solan		H.P.		Shimla		Solan		H.P.	
	ha	%	ha	%	ha	%	MT	%	MT	%	MT	%
Apple	30666	83.11	112	1.67	91804	46.49	163301	96.80	53	0.93	268402	68.97
Plum	600	1.63	629	9.42	8396	4.25	557	0.33	398	7.03	10546	2.71
Peach	304	0.82	270	4.04	5134	2.60	147	0.08	126	2.22	8173	2.10
Apricot	669	1.81	907	13.58	3178	1.61	269	0.16	1446	25.55	2768	0.71
Pear	1481	4.01	1119	16.75	7662	3.88	2632	1.56	732	12.93	12039	3.09
Almond	1523	4.13	735	11.00	5784	2.43	641	0.38	7	0.12	1211	0.31
Mango	278	0.75	1845	27.62	38370	19.43	52	0.03	1166	20.60	40159	10.32
Litchi	28	0.08	45	0.67	3759	1.90	3	neg	31	0.54	2851	0.73
Guava	18	0.05	333	4.98	2235	1.13	3	neg	291	5.14	2207	0.57
Orange	36	0.09	271	4.05	8178	4.14	1	neg	30	0.53	4650	1.19
Malta	0	0.00	8	0.12	1013	0.51	0	0.00	9	0.15	933	0.24
Kagzi Lime	460	1.24	399	5.22	9528	4.82	62	0.04	3033	57.59	2977	0.76
Galgal	75	0.20	175	2.62	2345	1.19	28	0.02	234	4.13	2862	0.73
Total Area	36896	100	6679	100	197445	100	168682	100	5659	100	389103	100

Source: Annual season and crop report, Directorate of Land Records, HP, Shimla.

Annexure-5

Infrastructure Available in Study Districts

Particulars	Shimla	Solan	HP
Area sq. Km	5131	1936	55673
Population	722502	500557	607790
Percentage of rural population	76.85	81.78	90.20
Density of population	141	259	109
Female per thousand male	896	892	968
LPG consumers	217298	114774	1255288
Hospitals	12	4	93
Community Health centers	7	4	73
Percentage of electrified villages	100	100	99.41
Education:			
Primary and Middle schools. (per lakh of population)	279.45	225.00	237.00
High and senior secondary schools (per lakh of population	53.00	23.17	28.29
Collages (per lakh of population	1.52	0.80	0.90
Motorable roads Km.	4860	2616	33171
Literacy percentage	70.1	76.9	67.40
Fair price shops	477	296	4415
Population served per post office	2517.43	2720.41	2186.30
Drinking water	100	100	100
Percentage irrigated area to net cropped area	3.60	24.79	20.50
Number of commercial Banks	160	124	980

Annexure-6

District- Wise Area under Apple in Himachal Pradesh During 1973 to 2004.

(Hectare)

Years	Shimla	Kullu	Mandi	Chamba	Kinnaur	L&S	Kangra	Solan	Sirmour	H.P
1973-74	15519	7536	4616	826	852	-	335	156	2287	32127
1974-75	15944	8101	4946	865	935	-	335	175	2327	33628
1975-76	16140	8573	5354	920	1094	29	351	198	2417	35076
1976-77	16600	9000	5660	1032	1234	31	394	216	2642	36709
1977-78	17352	9343	6041	1308	1420	32	394	336	2674	38900
1978-79	17855	9669	6290	1458	1703	36	394	438	2787	40630
1979-80	18355	9938	6468	1529	1843	42	401	470	2868	41922
1980-81	18887	10264	6728	1582	2026	48	416	483	2897	43331
1981-82	19422	10767	7106	1854	2203	52	436	490	3005	45335
1982-83	20122	11199	7303	2180	2403	56	472	493	3126	47354
1983-84	20255	11322	7344	2345	2826	58	487	494	3161	48292
1984-85	21066	11574	7504	2532	2929	63	495	500	3177	49840
1985-86	21611	11814	7604	2698	3066	71	510	505	3224	51103
1986-87	21939	12086	7864	2848	3279	85	515	506	3277	52399
1987-88	22453	13109	8318	3031	3572	95	522	512	3300	54912
1988-89	23266	13703	8972	3105	3839	107	540	517	3407	57447
1989-90	23980	14244	9513	3490	4043	112	560	523	3522	59988
1990-91	25191	14342	10141	3980	4302	131	589	528	3623	62828
1991-92	26754	15386	10638	4624	4431	145	592	529	3667	66767
1992-93	27916	15770	11054	5066	4608	156	596	540	3732	69439
1993-94	29123	16211	11681	5515	4770	175	598	544	3788	72406
1994-95	30114	16897	12105	6054	5116	216	602	546	3818	75469
1995-96	31213	17541	12431	6480	5332	281	599	547	3864	78288
1996-97	31956	17952	12749	6809	5516	334	602	548	3873	80339
1997-98	32908	18552	12872	7655	5010	342	600	550	3929	83056
1998-99	33707	19035	13232	8307	5836	407	600	550	3954	85631
1999-00	34465	19383	13727	9207	6249	475	603	552	4008	88673
2000-01	35052	19756	13853	9554	6369	536	603	553	4067	90347
2001-02	35905	19886	14065	10485	6604	608	603	554	4106	92820
2002-03	27678	20116	13957	9020	6840	345	382	110	3178	81630
2003-04	28247	20383	14365	9451	7392	434	404	111	3321	84112
Av	23486	13086	8824	3604	3350	133	501	461	3272	56737
CGR	3.23*	3.60*	4.18*	9.66*	7.57*	35.38*	2.47*	3.70*	2.11*	3.97*
T value	20.252	18.754	16.193	7.583	10.579	5.351	27.424	19.137	32.110	16.963

* Significant at 1 per cent level of probability.

L & S: Lahaul and Spiti

Source: Directorate of Horticulture, H.P. Shimla.

Annexure-7

District- Wise Production of Apple in Himachal Pradesh During 1973 to 2005.

(M.T.)

Years	Shimla	Kullu	Mandi	Chamba	Kinnaur	L&S	Kangra	Solan	Sirmour	Total
1973-74	50000	30214	31316	1564	2985	-	1215	802	10580	118676
1974-75	23923	10516	2023	583	432	-	968	66	4790	43299
1975-76	97031	62931	18892	2737	6622	-	1568	946	9273	200000
1976-77	81275	31387	2131	1178	2990	-	1406	74	193	119228
1977-78	72113	46853	6129	1044	3203	-	1214	292	769	131617
1978-79	80410	30741	3003	1375	4602	-	813	351	601	121896
1979-80	76981	42060	7524	2194	4551	-	710	416	1040	135475
1980-81	73521	29058	4190	1736	7151	-	694	504	1159	118013
1981-82	209240	72892	10665	2795	7768		822	627	1989	306798
1982-83	92617	33017	4302	3186	4612	5	513	179	655	139086
1983-84	178592	50025	12861	5448	9529	30	149	236	1043	257913
1984-85	129670	26387	6489	777	5323	20	79	148	1736	170629
1985-86	87593	60236	11854	3719	9788	25	27	175	1201	174618
1986-87	238364	83926	17021	6427	11066	42	31	212	2232	359321
1987-88	171522	69036	6846	3716	7326	26	54	105	646	259277
1988-89	105176	38651	7876	2365	10045	17	48	101	877	165156
1989-90	243938	123690	10123	4061	11582	42	361	121	950	394868
1990-91	243042	70857	15359	2661	9159	27	422	70	474	342071
1991-92	208247	64101	7388	4712	16530	50	130	256	316	301730
1992-93	191961	62925	8016	2079	12395	58	190	180	1247	279051
1993-94	172851	84758	8192	4982	23190	119	301	53	288	294734
1994-95	75250	20476	7588	1090	16345	60	169	112	1772	122782
1995-96	199373	48604	4612	5014	18219	55	196	71	537	276681
1996-97	201781	59429	6216	2502	17902	61	289	64	295	288539
1997-98	127341	69649	4185	7381	24639	65	213	38	742	239253
1998-99	258621	98219	11255	5685	18509	61	442	416	445	393653
1999-00	20536	7398	3726	1761	15432	56	110	33	77	49129
2000-01	274056	58926	16612	4480	21793	113	295	99	362	376736
2001-02	110857	30433	10905	8650	18808	112	300	61	402	180528
2002-03	229207	81489	10147	4238	22177	41	285	87	592	348263
2003-04	294402	98781	23261	8811	33074	135	595	66	367	459492
2004-05	318449	141844	20131	7564	38066	209	710	68	560	527601
Av.	142322	53106	9157	3116	10846	49	476	241	1653	220723
CGR	3.67*	1.78*	0.55*	4.33*	9.20*	10.73*	-6.78*	-6.20*	-7.60*	3.21*
T value	9.959	10.538	7.683	8.989	8.573	7.245	5.567	5.438	3.475	11.195

***** Significant at 1 per cent level of probability.

Source: Directorate of Horticulture, H.P. Shimla.

Annexure-8

District-wise Area under Fruit Crops in Himachal Pradesh

(Area in Hectares)

Districts/ Fruits	Apple		Other temperate fruits		Nuts & dry fruits		Citrus		Other sub-tropical fruits		All fruits	
	1975-76	2003-2004	1975-76	2003-2004	1975-76	2003-2004	1975-76	2003-2004	1975-76	2003-2004	1975-76	2003-2004
Shimla	16140 (46.0)	28247 (33.58)	2067 (17.1)	3281 (13.18)	462 (13.0)	1825 (16.68)	210 (2.8)	519 (2.56)	51 (1.0)	225 (0.53)	18930 (29.9)	34097 (18.69)
Kullu	8573 (24.4)	20383 (24.23)	1490 (12.3)	3018 (12.13)	331 (9.3)	486 (4.44)	103 (1.4)	85 (0.42)	16 (0.3)	95 (0.22)	10513 (16.6)	24067 (13.19)
Mandi	5354 (15.3)	14365 (17.08)	1662 (13.8)	5645 (22.68)	639 (18.0)	2723 (24.89)	1218 (16.1)	4225 (20.85)	1012 (19.8)	3933 (9.31)	9895 (15.7)	30891 (16.93)
Chamba	920 (2.6)	9451 (11.24)	354 (2.9)	1288 (5.18)	124 (3.5)	1547 (14.15)	232 (3.1)	611 (3.02)	212 (4.2)	510 (1.20)	1842 (2.9)	13407 (7.35)
Kinnaur	1094 (3.1)	7392 (8.78)	222 (1.8)	372 (1.49)	469 (13.2)	1221 (11.16)	-	-	-	-	1785 (2.8)	8985 (4.93)
Lahaul-Spiti	29 (0.1)	434 (0.52)	21 (0.2)	19 (0.08)	4 (0.1)	6 (0.05)	-	-	-	-	54 (0.1)	459 (0.25)
Kangra	351 (1.0)	404 (0.48)	2074 (17.2)	1135 (4.56)	583 (16.6)	781 (7.14)	3075 (40.7)	8824 (43.55)	2047 (40.0)	23453 (55.52)	8130 (12.9)	34597 (18.96)
Solan	198 (0.6)	111 (0.13)	2734 (22.6)	2935 (11.74)	298 (8.4)	304 (2.78)	746 (9.9)	817 (4.03)	299 (5.8)	2079 (4.93)	4275 (6.7)	6246 (3.42)
Sirmour	2417 (6.9)	3321 (3.95)	963 (7.9)	5085 (20.44)	411 (11.6)	1564 (14.30)	1050 (13.9)	1600 (7.90)	375 (7.3)	3101 (7.34)	5216 (8.2)	14671 (8.04)
Una	-	-	98 (0.8)	973 (3.91)	64 (1.8)	126 (1.15)	196 (2.6)	1490 (7.35)	243 (4.7)	2165 (5.13)	60 (0.9)	4754 (2.62)
Hamirpur	-	-	101 (0.9)	389 (1.56)	130 (3.7)	272 (2.49)	278 (3.7)	1212 (5.98)	286 (5.6)	2677 (6.34)	795 (1.2)	4550 (2.49)
Bilaspur	-	4 (0.01)	2.92 (2.5)	745 (3.00)	28 (0.8)	84 (0.77)	444 ?(5.8)	878 (4.34)	580 (11.2)	4006 (9.48)	1344 (2.1)	5717 (3.13)
H.P.	35076 (100.0)	84112 (100.0)	12078 (100.0)	24885 (100.0)	3543 (100.0)	10939 (100.0)	7552 (100.0)	20261 (100.0)	5121 (100.0)	42244 (100.0)	32268 (100.0)	182441 (100.0)

Note: Figures in the parentheses are percentage to respective totals

Source: Directorate of Horticulture, Government of Himachal Pradesh, Shimla

Annexure-9

District-wise Production of Fruit Crops in Himachal Pradesh.

(Qty in Tonnes)

Districts/ fruits	Apple		Other temperate fruits		Nuts & dry fruits		**Citrus**		Other sub-tropical fruits		All fruits	
	1975-76	2003-2004	1975-76	2003-2004	1975-76	2003-2004	1975-76	2003-2004	1975-76	2003-2004	1975-76	2003-2004
Shimla	97031 (48.5)	318449 (60.36)	6059 (34.7)	4180 (6.94)	705 (36.9)	115 (3.09)	806 (5.1)	94 (0.33)	126 (1.1)	57 (0.08)	104727 (42.6)	322895 (46.66)
Kullu	62931 (31.5)	141844 (26.88)	3624 (20.8)	33659 (55.91)	-	102 (2.74)	276 (1.8)	13 (0.05)	5 (Neg.)	7 (neg)	66836 (27.2)	175625 (25.38)
Mandi	18892 (9.4)	20131 (3.82)	2385 (13.7)	2647 (4.40)	60 (3.2)	228 (6.12)	526 (3.3)	380 (1.33)	1275 (11.7)	888 (1.23)	23138 (9.4)	24274 (3.51)
Chamba	2737 (1.4)	7564 (1.43)	572 (3.3)	511 (0.85)	119 (6.2)	1561 (41.89)	562 (3.6)	183 (0.64)	196 (1.8)	138 (0.19)	4186 (1.7)	9957 (1.44)
Kinnaur	6622 (3.3)	38066 (7.21)	53 (3.0)	595 (0.99)	554 (22.0)	357 (9.58)	-	-	-	-	7707 (3.1)	39018 (5.64)
Lahaul-Spiti	-	209 (0.04)	-	25 (0.04)	-	4 (0.11)	-	-	-	-	-	238 (0.03)
Kangra	1568 (0.8)	710 (0.13)	986 (5.6)	3809 (6.33)	25 (1.3)	284 (7.62)	10226 (65.3)	24906 (87.22)	7025 (64.6)	55878 (77.69)	19830 (8.1)	85587 (12.36)
Solan	946 (0.5)	68 (0.01)	1552 (8.9)	6056 (10.06)	178 (9.3)	123 (3.30)	533 (3.4)	484 (1.70)	202 (1.9)	1558 (2.17)	3411 (1.4)	8289 (1.19)
Sirmour	9273 (4.6)	560 (0.11)	1133 (6.6)	7125 (11.84)	232 (12.1)	926 (24.85)	966 (6.2)	559 (1.96)	520 (4.8)	3576 (4.97)	12124 (4.9)	12746 (1.84)
Una	-	-	-	1018 (1.69)	-	-	248 (1.6)	935 (3.27)	250 (2.2)	4557 (6.34)	498 (0.2)	6510 (0.94)
Hamirpur	-	-	275 (1.6)	324 (0.54)	38 (2.0)	23 (0.62)	588 (3.8)	760 (2.66)	727 (6.7)	1293 (1.80)	1628 (0.7)	2400 (0.34)
Bilaspur	-	-	315 (1.8)	253 (0.42)	-	3 (0.06)	929 (5.9)	240 (0.84)	553 (5.1)	3976 (5.53)	1797 (0.7)	4472 (0.64)
H.P.	200000 (100.0)	527601 (100.0)	17432 (100.0)	60202 (100.0)	1911 (100.0)	3726 (100.0)	15660 (100.0)	28554 (100.0)	10879 (100.0)	71928 (100.0)	245882 (100.0)	692011 (100.0)

Note: Negligible (area less than 0.1 per cent)

Source: Directorate of Horticulture, Government of Himachal Pradesh, Shimla.

Annexure-10

District wise Area under Different Vegetables in Himachal Pradesh During 2008-09.

(Area in in hectares)

Districts	Peas	Tomato	French Beans	Cabbage	Cauliflower	Capsicum & Chillies	Other Vegetables	Total
Bilaspur	90[3.91] (0.47)	785(34.13) (8.22)`	55(2.39) (1.72)	35(1.53) (0.78)	110(4.78) (3.93)	70(3.04) (2.86)	1155(50.22) (6.68)	2300(100) (3.92)
Chamba	1291(51.64) (6.82)	150(6.00) (1.57)	510(20.40) (15.95)	58(2.32) (1.29)	23(0.92) (0.82)	35(1.40) (1.43)	433(17.32) (2.50)	2500(100.00) (4.26)
Hamirpur	117 (4.05) (0.62)	92(3.19) (0.96)	71(2.46) (2.22)	97(3.36) (2.15)	215(7.44) (7.67)	100(3.47) (4.09)	2194(76.02) (12.68)	2886(100.00) (4.910
Kangra	554(7.67) (2.93)	388(5.37) (4.06)	426(5.90) (13.32)	391(5.41) (8.67)	505(6.99 (18.03)	321(4.44) (13.12)	4637(14.22) (26.80)	7222(100.00) (12.29)
Kinnaur	2150(68.93) (11.36)	61(1.96) (0.64)	325(10.42) (10.16)	125(4.01) (2.77)	33(1.06) (1.18)	30(0.96) (1.23)	395(12.66) (2.280	3119(100.00) (5.31)
Kullu	840(18.63) (4.44)	700(15.52) (7.33)	125(2.77) (3.92)	835(18.51) (18.51)	570(12.64) (20.36)	7091.55) (2.86)	1370(30.38) (7.92)	4510(100.00) (7.68)
Lahaul-Spiti	3820(93.42) (20.18)	10(0.26) (0.10)	42(1.04) (1.32)	42(1.04) (0.93)	32(0.79) 1.14)	4(0.09) (0.16)	118(2.91) (0.68)	4068(100.00) (6.92)
Mandi	2637(36.35) (13.93)	557(7.68) (5.83)	250(3.45) (7.82)	881(12.14) (19.53)	523(7.21) (18.67)	253(3.49) (10.34)	2154(29.68) (12.45)	7255(100.00) (12.35)
Shimla	4750(49.92) (25.09)	750(7.88) (7.85)	550(5.78) (17.21)	1795(18.86) (39.79)	423(4.45) (15.10)	425(14.47) (17.37)	823(8.64) (4.76)	9516(100.00)(16.20)
Sirmour	1461(22.76) (7.72)	1946(30.32) (20.37).	340(5.30) (10.63)	135(2.10) (2.99)	155(2.42)) (5.53)	410(6.39) (16.75)	1971(30.710 (11.39)	6418(100.00) (10.93)
Solan	1160(15.50) (6.12)	4020(53.72) (42.07)	456(6.09) (14.26)	62(0.83) (1.37)	110(.1.47) (3.93)	653(8.73) (26.68)	1022(13.66) (5.900	7483(100.00) (12.74)
Una	60(4.09 (0.32)	96(6.55) (1.00)	47(3.20) (1.47)	55(3.74) (1.22)	102(6.96) (3.64)	76(5.18) (3.11)	1033(70.46) (5.97)	14661(100.00) (2.49)
H.P.	18930(32.22) (100.00)	9555(16.27) (100.00)	3197(5.44) (100)	4511(7.68) (100)	2801(4.77) (100.00)	2447(4.17) (100.00)	17302(29.45) (100.00)	58743(100.00) (100.00)

Source: Directorate of Agriculture, Himachal Pradesh, Shimla

Note: Figures in ( ) represent percentage share of particular vegetable in total area under vegetables in district

Figures in { } represent percentage share of particular vegetable in total area under vegetables in state.

Annexure-11

District wise Production of Different Vegetables in Himachal Pradesh During year 2008-09.

(Production in M.T.)

	Peas	Tomato	French Beans	Cabbage	Cauliflower	Capsicum & Chillies	Other Vegetables	Total
Bilaspur	1880 (3.25) {0.92}	27475(47.59) {8.16}	825 (1.43) {2.49}	1051 (1.83) {0.75}	3025 (5.24) {5.55}	1050 (1.82) {3.30}	22419 (38.83) {7.69}	57725 (100) {5.29}
Chamba	22110(15.05) {10.91}	3900 (9.71) {1.15}	4590 (11.43) {13.86}	1491 (3.71) {1.06}	545 (1.35) {0.99}	405 (1.02) {1.27}	7123 (17.73) {2.45}	40164 (100) {3.68}
Hamirpur	845 (1.88) {0.42}	4233 (9.42) {1.26}	653 (1.45} {11.97}	2182 (4.85) {1.55}	3090 (7.54) {6.22}	1255 (2.79) {3.95}	32400 (72.07) {11.12}	44958 (100) {4.12}
Kangra	6839 (4.73) {3.38}	17364 (12.01) {5.16}	5204 (3.60) {15.72}	15781 (10.92) {11.20}	10216 (7.07) {18.74}	4177 (2.89) {13.13}	84968 (58.78) {29.17}	144549 (100) {13.26}
Kinnaur	23200 (59.86) {11.46}	1220 (3.15) {0.36}	3900 (10.06) {11.78}	2185 (5.63) {1.55}	650 (1.68) {1.19}	525 (1.35) {1.65}	7075 (18.26) {2.43}	38755 (100) {3.55}
Kullu	7980 (8.91) {3.94}	25900 (28.93) {7.70}	1000 (1.12) {3.02}	25050(27.89) {17.79}	11400 (12.73) {20.93}	630 (0.70) {1.98}	17560 (19.63) {6.02}	89520 (100) {8.22}
Lahaul-Spiti	39930 (91.67) {19.71}	160 (0.37) {0.05}	261 (0.60) {0.79}	760 (1.74) {0.53}	606 (1.39) {1.12}	47(0.11) {0.15}	1796 (4.12) {0.63}	43560 (100) {3.99}
Mandi	26818 (24.53) {13.24}	16376 (14.98) {4.87}	2112 (1.93) {6.83}	20986 (19.19} {14.90}	8872 (8.11) [16.27}	3123 (2.85) {9.82}	31054 (28.40) {10.67}	109341 (100) {10.03}
Shimla	47500 (27.33) {6.80}	26250 (15.10) {7.82}	5830 (3.35) {17.61}	62825 (36.15) {44.61}	9306 (5.36) {17.07}	5856 (3.37) {18.41}	16226 (9.34) {5.57}	173793 (100) {15.94}
Sirmour	13769(10.79) {23.45}	63209 (59.54) {18.79}	3402 (2.67) {10.27}	5128 (4.02) {3.65}	2422 (1.89) {4.45}	5333 (4.18) {16.76}	34325 (26.91) {11.78}	127588 (100) {11.70}
Solan	11050 (5.71) {5.45}	147000 (75.97) {43.73}	4689 (2.42) {14.16}	2025 (1.05) {1.43}	2010 (1.04) {3.69}	8510 (4.40) {26.75}	18219 (9.42) {6.25}	193503 (100) {17.75}
Una	600 (2.23) {0.30}	3200 (11.91) {0.95}	646 (2.40) {1.95}	1385 (5.15) {0.98}	2070 (7.70) {3.79}	899 (3.34) {2.83}	18078 (67.26) {6.22}	26878 (100) {2.47}
H.P.	202521(18.57 {100}	336287(30.84) {100}	33112 (3.04) {100}	140847 (12.92) {100}	54512 (4.99) {100}	31810 (2.92) {100}	291225 (26.72) {100}	1090334 (100) {100}

Source: Directorate of Agriculture, Himachal Pradesh, Shimla

Note: Figures in ( ) represent percentage share of particular vegetable in total production of vegetables in district
Figures in { } represent percentage share of particular vegetable in total production of vegetables in state.

Annexure-12

Trends in Area under Vegetables During Year 1984-85 to 2009-010.

Sr.	Year	Area 000' Hect.	Year to Year Percentage Change	Percentage Change from year 1984-85
1	1984-85	15.75	-	-
2	1985-86	16.55	5.08%	5.08%
3	1986-87	17.00	2.72%	7.94%
4	1987-88	20.00	17.65%	26.98%
5	1988-89	20.40	2.00%	29.52%
6	1989-90	21.00	2.94%	33.33%
7	1990-91	22.00	4.76%	39.68%
8	1991-92	23.00	4.55%	46.03%
9	1992-93	23.40	1.74%	48.57%
10	1993-94	24.00	2.56%	52.38%
11	1994-95	24.50	2.08%	55.56%
12	1995-96	25.00	2.04%	58.73%
13	1996-97	26.45	5.80%	67.94%
14	1997-98	27.50	3.97%	74.60%
15	1998-99	28.91	5.13%	83.56%
16	1999-00	30.00	3.77%	90.48%
17	2000-01	32.00	6.67%	103.17%
18	2001-02	34.15	6.72%	116.83%
19	2002-03	35.22	3.13%	123.62%
20	2003-04	40.71	15.58%	158.48%
21	2004-05	46.21	60.18%	193.39%
22	2005-06	49.85	7.88%	216.51%
23	2006-07	52.61	5.54%	234.03%
24	2007-08	55.76	5.98%	254.03%
25	2008-09	58.74	5.34%	272.95%
26	2009-10	63.00	7.25%	300.00%

Source: Directorate of Agriculture, Himachal Pradesh, Shimla

Annexure-13

Changes in Production of Vegetables During year 1984-85 to 2009-10.

Sr.	Year	Production 000' MT.	Year to Year Percentage Change	Percentage Change from year 1984-85
1	1984-85	258.00	-	-
2	1985-86	301.00	16.67%	16.67%
3	1986-87	350.00	16.28%	35.66%
4	1987-88	370.00	5.71%	43.41%
5	1988-89	370.00	0.00%	43.41%
6	1989-90	365.00	-1.35%	41.47%
7	1990-91	368.00	0.82%	42.64%
8	1991-92	374.00	1.63%	44.96%
9	1992-93	385.00	2.94%	49.22%
10	1993-94	385.00	0.00%	49.22%
11	1994-95	400.00	3.90%	55.04%
12	1995-96	425.00	6.25%	64.73%
13	1996-97	455.00	7.06%	76.36%
14	1997-98	475.00	4.40%	84.11%
15	1998-99	500.00	5.26%	93.80%
16	1999-00	502.00	0.40%	94.57%
17	2000-01	627.00	24.90%	143.02%
18	2001-02	622.00	-0.80%	141.09%
19	2002-03	622.00	0.00%	141.09%
20	2003-04	727.00	16.88%	181.78%
21	2004-05	832.00	14.44%	222.48%
22	2005-06	929.00	11.66%	260.08%
23	2006-07	1006.00	8.29%	289.92%
24	2007-08	1040.00	3.38%	303.10%
25	2008-09	1090.00	4.81%	322.48%
26	2009-10	1206.00	10.64%	367.44%

Source: Directorate of Agriculture, Himachal Pradesh, Shimla

Annexure-14

Perception of Apple Farmers of Traditional Marketing Channel about Transaction Costs
Information Costs.

(Number of farmers)

Particulars	Marginal	Small	Medium	All
Source of Information				
Personal	-	-	-	-
Speaking with other farmers	15	10	5	30
Speaking with CA/Trader	25	18	7	50
Speaking with E-Choupal agent	-	-	-	-
Time in Which the Price Information was Obtained				
0 At the time of the harvest	25	18	7	50
After one month of the harvest	-	-	-	-
More than 1 month of the harvest	-	-	-	-
Three or more months after harvest	-	-	-	-
Information Market Prices Obtained from AGMARKNET				
No	25	18	7	50
Yes	-	-	-	-
When did you find out the Price				
At the time of sale	-	-	-	-
Days before sale	25	18	7	50
How Different was the Sale Price to the Known Price				
Lower than expected	10	8	2	20
Similar to what expected	10	6	2	18
Higher than expected	5	4	3	12
How was Price Agreed				
At the time of sale	25	18	7	50
By previous agreement	-	-	-	-
Difference Between Sale and Agreed Price	-	-	-	-
Less	-	-	-	-
Same	-	-	-	-
A bit more	-	-	-	-
Not applicable	25	18	7	50
Number of times went to the merchant to get the payment				
None	-	-	-	-
Various times	25	18	7	50

Annexure-14: contd…

Particulars	Marginal	Small	Medium	All
Level of Fulfillment of the Merchant in Observing Agreed Payment				
Bad Record	15	10	4	29
Satisfactory Record	10	8	3	21
Did Merchant Sign the Receipt for the Produce	-	-	-	-
No	-	-	-	-
Yes	25	18	7	50
Conflicts Because Merchants did not Agree on the Quality				
No.	-	-	-	-
Accepts	25	18	7	50
How Confident are you in the Merchant in Undertaking Transactions				
Low	13	9	2	24
High	12	9	5	26
Perception on Services Provided by Different Agencies in the Marketing channels Access to credit				
Have you taken any loan				
No	-	-	-	-
Yes.	25	18	7	50
Source of the Loan				
Money Lander	-	-	-	-
Bank	25	18	7	50
Cooperatives	-	-	-	-
Friends/Relatives	-	-	-	-
Self help group	-	-	-	-
Buyer of the Produce	12	7	4	23
Other Source	-	-	-	-
What is the Purpose for Taking this Loan				
Crop Loan to Purchase the Inputs	25	18	7	50
What is the Reason for Taking Loan from the Buyer				
- Easily available	12	7	4	23
- With No interest	12	7	4	23

Annexure-14: contd…

Particulars	Marginal	Small	Medium	All
Number of Loans Obtained from the Buyer in the Past Five Years				
1	-	-	-	-
2	2	1	-	3
3	2	2	1	5
4	3	2	2	7
5	5	2	1	8
Value of the Loan Obtained Each Year From the Buyer	60000	50000	80000	190,0000
Have You Defaulted on Loans Taken				
No.	25	18	7	50
Yes.	-	-	-	-
Source of the Borrowing Agency for the Defaulted Loan				
Money Lender	-	-	-	-
Bank	-	-	-	-
Cooperative	-	-	-	-
Friends	-	-	-	-
Self help group	-	-	-	-
Buyer of the Produce	-	-	-	-
What are the Reasons for Defaulting? What was the penalty imposed for the default and how did you cope without?	-	-	-	-
Access to Inputs from the Buyer	-	-	-	-
Received Input Advance for the Reference Seasonal Yrs.	-	-	-	-
Seed	-	-	-	-
Improved Seed	-	-	-	-
Fertilizers	-	-	-	-
Pesticides	-	-	-	-
Knowledge on crop practices.	-	-	-	-
Extension support	-	-	-	-

Annexure-15

Perception of Apple Farmers of Emerging Marketing Channel about Transaction Costs

Information Costs.

(Number of respondents)

Particulars	Marginal	Small	Medium	All
Source of Information				
Personal	-	-	-	-
Speaking with other farmers	25	5	3	33
Speaking with CA/Trader	34	10	6	50
Speaking with E-Choupal agent	-	-	-	-
Time in Which the Price Information was Obtained				
0 At the time of the harvest	34	10	6	50
After one month of the harvest	-	-	-	-
More than 1 month of the harvest	-	-	-	-
Three or more months after harvest	-	-	-	-
Information Market Prices Obtained from AGMARKNET				
No	34	10	6	50
Yes	-	-	-	-
When did you find out the Price				
At the time of sale	34	10	6	50
Days before sale	-	-	-	-
How Different was the Sale Price to the Known Price				
Lower than expected	12	4	3	19
Similar to what expected	14	4	2	20
Higher than expected	8	2	1	11
How was Price Agreed				
At the time of sale	34	10	6	50
By previous agreement	-	-	-	-
Difference Between Sale and Agreed Price				
Less	-	-	-	-
Same	-	-	-	-
A bit more	-	-	-	-
Not applicable	-	-	-	-
Number of times went to the merchant to get the payment				
None	-	-	-	-
Various times	34	10	6	50

Annexure-15:contd….

Particulars	Marginal	Small	Medium	All
Level of Fulfillment of the Merchant in Observing Agreed Payment				
Bad Record	-	-	-	-
Satisfactory Record	34	10	6	50
Did Merchant Sign the Receipt for the Produce	-	-	-	-
No	-	-	-	-
Yes.	34	10	6	50
Conflicts Because Merchants did not Agree on the Quality				
No.	--	-	-	-
Accepts	34	10	6	50
How Confident are you in the Merchant in Undertaking Transactions				
Low	22	7	4	33
High	12	3	2	17
Perception on Services Provided by Different Agencies in the Marketing channels Access to credit				
Have you taken any loan				
No	-	-	-	-
Yes.	34	10	6	50
Source of the Loan				
Money Lander	-	-	-	-
Bank	34	10	6	50
Cooperatives	-	-	-	-
Friends/Relatives	-	-	-	-
Self help group	-	-	-	-
Buyer of the Produce	-	-	-	-
Other Source				
What is the Purpose for Taking this Loan				
Crop Loan to Purchase the Inputs	34	10	6	50
What is the Reason for Taking Loan from the Buyer	-	-	-	-
- Easily available	-	-	-	-
- With No interest	-	-	-	-

Annexure-15:contd….

Particulars	Marginal	Small	Medium	All
Number of Loans Obtained from the Buyer in the Past Five Years				
1	-	-	-	-
2	-	-	-	-
Value of the Loan Obtained Each Year From the Buyer	-	-	-	-
Have You Defaulted on Loans Taken	-	-	-	-
No.	-	-	-	-
Yes.				
Source of the Borrowing Agency for the Defaulted Loan				
Money Lender	-	-	-	-
Bank	-	-	-	-
Cooperative				
Friends	-	-	-	-
Self help group	-	-	-	-
Buyer of the Produce	-	-	-	-
What are the Reasons for Defaulting? What was the penalty imposed for the default and how did you cope without?	-	-	-	-
Access to Inputs from the Buyer	-	-	-	-
Received Input Advance for the Reference Seasonal	-	-	-	-
Yes				
No.				
Type of Input				
Seed	-	-	-	-
Improved Seed	-	-	-	-
Fertilizers	-	-	-	-
Pesticides	-	-	-	-
Knowledge on crop practices.	-	-	-	-
Extension support	-	-	-	-

Annexure-16

Perception of Tomato Farmers of Traditional Marketing Channel about Transaction Costs

Information Costs.

(Number of respondents)

Particulars	Marginal	Small	Medium	Large	All
Source of Information					
Personal	12	5	3	-	20
Speaking with other farmers	8	7	-	1	16
Speaking with CA/Trader	10	2	1	1	14
Speaking with E-Choupal agent	-	-	-	-	-
Time in Which the Price Information was Obtained					
0 At the time of the harvest	30	14	4	2	50
After one month of the harvest	-	-	-	-	-
More than 1 month of the harvest	-	-	-	-	-
Three or more months after harvest	-	-	-	-	-
Information Market Prices Obtained from AGMARKNET					
No	30	14	6	2	50
Yes	-	-	-	-	-
When did you find out the Price					
At the time of sale	30	14	6	2	50
Days before sale	-	-	-	-	-
How Different was the Sale Price to the Known Price					
Lower than expected	9	2	1	-	12
Similar to what expected	19	10	3	2	34
Higher than expected	2	2	-	-	4
How was Price Agreed					
At the time of sale	30	14	4	2	50
By previous agreement	-	-	-	-	-
Difference Between Sale and Agreed Price					
Less	9	2	1	-	12
Same	19	10	5	2	34
A bit more	2	2	-	-	4
Not applicable	-	-	-	-	-
Number of times went to the merchant to get the payment					
None	28	10	4	1	43
Various times	2	4	-	1	7

Annexure-16 : contd….

Particulars	Marginal	Small	Medium	Large	All
Level of Fulfillment of the Merchant in Observing Agreed Payment					
Bad Record	-	-	-	-	-
Satisfactory Record	30	14	4	2	50
Did Merchant Sign the Receipt for the Produce					
No	-	-	-	-	-
Yes.	30	14	4	2	50
Conflicts Because Merchants did not Agree on the Quality					
No.	18	10	3	1	42
Accepts	2	4	1	1	8
How Confident are you in the Merchant in Undertaking Transactions					
Low	2	4	1	1	8
High	18	10	3	2	42
Perception on Services Provided by Different Agencies in the Marketing channels Access to credit					
Have you taken any loan					
No	30	14	4	2	50
Yes.	-	-	-	-	-
Source of the Loan					
Money Lander	-	-	-	-	-
Bank	-	-	-	-	-
Cooperatives	-	-	-	-	-
Friends/Relatives	-	-	-	-	-
Self help group	-	-	-	-	-
Buyer of the Produce	-	-	-	-	-
Other Source	-	-	-	-	-
What is the Purpose for Taking this Loan					
Crop Loan to Purchase the Inputs	-	-	-	-	-
What is the Reason for Taking Loan from the Buyer					
- Easily available	-	-	-	-	-
- With No interest	-	-	-	-	-
-Not aware					

Annexure-16 : contd….

Particulars	Marginal	Small	Medium	Large	All
Number of Loans Obtained from the Buyer in the Past Five Years					
1	-	-	-	-	-
2	-	-	-	-	-
Value of the Loan Obtained Each Year From the Buyer					
Have You Defaulted on Loans Taken					
No.	-	-	-	-	-
Yes.	-	-	-	-	-
Source of the Borrowing Agency for the Defaulted Loan					
Money Lender	-	-	-	-	-
Bank	-	-	-	-	-
Cooperative	-	-	-	-	-
Friends	-	-	-	-	-
Self help group	-	-	-	-	-
Buyer of the Produce	-	-	-	-	-
What are the Reasons for Defaulting? What was the penalty imposed for the default and how did you cope without?					
Access to Inputs from the Buyer					
Received Input Advance for the Reference Seasonal					
Yes					
No.	30	14	4	2	50
Type of Input	-	-	-	-	-
Seed	-	-	-	-	-
Improved Seed	-	-	-	-	-
Fertilizers	-	-	-	-	-
Pesticides	-	-	-	-	-
Knowledge on crop practices.	-	-	-	-	-
Extension support					

Annexure-17

Perception of Tomato Farmers of Emerging Marketing Channel about Transaction Costs

Information Costs

(Number of respondents)

Particulars	Marginal	Small	Medium	Large	All
Source of Information					
Personal	22	5	7	4	38
Speaking with other farmers	13	5	5	3	26
Speaking with CA/Trader	-	-	-	-	-
Speaking with E-Choupal agent	-	-	-	-	-
Time in Which the Price Information was Obtained					
0 At the time of the harvest	27	9	10	4	50
After one month of the harvest	-	-	-	-	-
More than 1 month of the harvest	-	-	-	-	-
Three or more months after harvest	-	-	-	-	-
Information Market Prices Obtained from AGMARKNET					
No	27	9	10	4	50
Yes	-	-	-	-	-
When did you find out the Price					
At the time of sale	27	9	10	4	50
Days before sale	-	-	-	-	-
How Different was the Sale Price to the Known Price					
Lower than expected	5	5	5	4	19
Similar to what expected	12	4	5	-	19
Higher than expected	10	-	-	-	10
How was Price Agreed					
At the time of sale	27	9	10	4	50
By previous agreement	-	-	-	-	-
Difference Between Sale and Agreed Price					
Less	13	3	7	4	27
Same	6	6	3	-	15
A bit more	8	-	-	-	8
Not applicable	-	-	-	-	-
Number of times went to the merchant to get the payment					
None	-	-	-	4	4
Various times	27	9	10	-	46

Annexure-17: contd…

Particulars	Marginal	Small	Medium	Large	All
Level of Fulfillment of the Merchant in Observing Agreed Payment					
Bad Record	-	-	3	-	3
Satisfactory Record	27	9	7	4	47
Did Merchant Sign the Receipt for the Produce					
No	-	-	-	-	-
Yes.	27	9	10	4	50
Conflicts Because Merchants did not Agree on the Quality					
No.	27	9	10	4	50
Accepts	-	-	-	-	-
How Confident are you in the Merchant in Undertaking Transactions					
Low	13	8	-	-	21
High	14	1	10	4	29
Perception on Services Provided by Different Agencies in the Marketing channels Access to credit					
Have you taken any loan					
No	17	5	4	2	28
Yes.	10	4	6	2	22
Source of the Loan					
Money Lander	-	-	-	-	-
Bank	6	1	5	1	13
Cooperatives	4	1	1	1	7
Friends/Relatives	-	2	-	-	2
Self help group	-	-	-	-	-
Buyer of the Produce	-	-	-	-	-
Other Source					
What is the Purpose for Taking this Loan					
Crop Loan to Purchase the Inputs	10	4	6	2	22
What is the Reason for Taking Loan from the Buyer					
- Easily available	-	-	-	-	-
- With No interest	-	-	-	-	-
-Not aware	27	9	10	4	50

Annexure-17: contd…

Particulars	Marginal	Small	Medium	Large	All
Number of Loans Obtained from the Buyer in the Past Five Years					
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	-	-	-
4	-	-	-	-	-
5	-	-	-	-	-
Value of the Loan Obtained Each Year From the Buyer					
Have You Defaulted on Loans Taken					
No.	5	2	6	2	15
Yes.	5	2	-	-	7
Source of the Borrowing Agency for the Defaulted Loan					
Money Lender	-	-	-	-	-
Bank	5	2	-	-	7
Cooperative	-	-	-	-	-
Friends	-	-	-	-	-
Self help group	-	-	-	-	-
Buyer of the Produce	-	-	-	-	-
What are the Reasons for Defaulting? What was the penalty imposed for the default and how did you cope without?					
Access to Inputs from the Buyer					
Received Input Advance for the Reference Seasonal					
Yes	20	2	-	-	22
No.	7	7	10	4	28
Type of Input					
Seed	14	1	-	-	15
Improved Seed	-	-	-	-	-
Fertilizers	16	2	-	-	18
Pesticides	13	1	-	-	14
Knowledge on crop practices.	-	-	-	-	-
Extension support	-	-	-	-	-

Annexure-18

Perception of Apple farmers of Traditional Marketing Channel about the Market Infrastructure.

(Number of respondents)

Particulars	Marginal	Small	Medium	Large	All
Condition of Road to the Market					
Bad	7	-	-	-	7
Average	4	8	2	-	14
Good	14	10	5	-	29
Proximity of the Market	-	-	-	-	-
Within the village	-	-	-	-	-
Within 10 Km.	-	-	-	-	-
Between 10 to 25 Km.	-	-	-	-	-
More than 25 Km less than 50 kms.	-	-	-	-	-
More than 50 Kms	25	18	7	-	50
Godown Facilities					
Not available	25	18	7	-	50
Bad	-	-	-	-	-
Average	-	-	-	-	-
Good	-	-	-	-	-
Cold Storage					
Not available	25	18	7	-	50
Bad	-	-	-	-	-
Average	-	-	-	-	-
Good	-	-	-	-	-
Auction Arrangement					
Bad	-				
Average	12	10	4	-	26
Good	13	8	3	-	24
Supervision of Sale					
Bad	-	-	-	-	
Average	25	18	7	-	50
Good	-	-	-	-	
Loading Facilities					
Bad	-	-	-	-	
Average	15	11	5	-	31
Good	10	7	2	-	19

Annexure-18: contd…

Particulars	Marginal	Small	Medium	Large	All
Sorting Facilities					
Bad	-	-	-	-	-
Average	15	13	5	-	33
Good	10	5	2	-	17
Weighing Facilities					
Bad	-	-	-	-	-
Average	10	8	5	-	23
Good	15	10	2	-	27
Packing Facilities					
Bad	-	-	-	-	-
Average	25	18	7	-	50
Good	-	-	-	-	-
Internal Telephone					
Bad	-	-	-	-	-
Average	18	12	5	-	35
Good	7	6	2	-	15
Banking Facilities	-	-	-	-	-
Bad	-	-	-	-	-
Average	-	-	-	-	-
Good	25	18	7	-	50
Computing Facilities					
Bad	25	18	7	-	50
Average	-	-	-	-	-
Good	-	-	-	-	-
N.A.	-	-	-	-	-
Internet Facilities					
Bad	25	18	7	-	50
Average	-	-	-	-	-
Good	-	-	-	-	-
N.A.	-	-	-	-	-

Annexure-19

Perception of Apple Farmers of Emerging Marketing Channel about the Market Infrastructure.

(Number of respondents)

Particulars	Marginal	Small	Medium	All
Condition of Road to the Market				
Bad	-	-	-	-
Average	34	10	6	50
Good	-	-	-	-
Proximity of the Market	-	-	-	-
Within the village	-	-	-	-
Within 10 Km.	-	-	-	-
Between 10 to 25 Km.	34	10	6	50
More than 25 Km less than 50 kms.	-	-	-	-
More than 50 Kms	-	-	-	-
Godown Facilities				
Not available	34	10	6	50
Bad	-	-	-	-
Average	-	-	-	-
Good	-	-	-	-
Cold Storage				
Not available	34	10	6	50
Bad	-	-	-	-
Average	-	-	-	-
Good	-	-	-	-
Auction Arrangement				
Bad	-	-	-	-
Average	-	-	-	-
Good	-	-	-	-
Not applicable	34	10	6	50
Supervision of Sale				
Bad	-	-	-	-
Average	34	10	6	50
Good	-	-	-	-
Loading Facilities				
Bad	-	-	-	-
Average	34	10	6	50
Good	-	-	-	-

Annexure-19: contd….

Particulars	Marginal	Small	Medium	All
Sorting Facilities				
Bad	-	-	-	-
Average	-	-	-	-
Good	34	10	6	50
Weighing Facilities				
Bad	-	-	-	-
Average	-	-	-	-
Good	34	10	6	50
Packing Facilities				
Bad	-	-	-	-
Average	-	-	-	-
Good				
Internal Telephone	34	10	6	50
Bad	-	-	-	-
Average	-	-	-	-
Good	-	-	-	-
Banking Facilities	-	-	-	-
Bad	34	10	6	50
Average				
Good	-	-	-	-
Computing Facilities	-	-	-	-
Bad	-	-	-	-
Average	34	10	6	50
Good				
N.A.	-	-	-	-
Internet Facilities	-	-	-	-
Bad	-	-	-	-
Average	34	10	6	50
Good				
N.A.	-	-	-	-
Sorting Facilities	-	-	-	-
Bad	-	-	-	-
Average	34	10	6	50

Annexure-20

Perception of Tomato Farmers of Traditional Marketing Channel about the Market Infrastructure.

(Number of respondents)

Particulars	Marginal	Small	Medium	Large	All
Condition of Road to the Market					
Bad	-	-	-	-	-
Average	30	14	4	2	50
Good	-	-	-	-	-
Proximity of the Market					
Within the village	-	-	-	-	-
Within 10 Km.	-	-	-	-	-
Between 10 to 25 Km.	-	-	-	-	-
More than 25 Km less than 50 kms.	-	-	-	-	-
More than 50 Kms	30	14	4	2	50
Godown Facilities					
Not available	30	14	4	2	50
Bad	-	-	-	-	-
Average	-	-	-	-	-
Good	-	-	-	-	-
Cold Storage					
Not available	30	14	4	2	50
Bad	-	-	-	-	-
Average	-	-	-	-	-
Good	-	-	-	-	-
Auction Arrangement					
Bad	12	7	4	2	25
Average	16	7	-	-	25
Good	-	-	-	-	-
Not applicable					
Supervision of Sale					
Bad	12	7	4	2	25
Average	18	7	-	-	25
Good	-	-	-	-	-
Loading Facilities					
Bad	10	4	2	1	17
Average	20	10	2	1	33
Good	-	-	-	-	-

Annexure-20:contd….

Particulars	Marginal	Small	Medium	Large	All
Sorting Facilities					
Bad	18	10	3	1	32
Average	12	4	1	1	18
Good	-	-	-	-	-
Weighing Facilities					
Bad	18	10	3	1	32
Average	12	4	1	1	18
Good	-	-	-	-	-
Packing Facilities					
Bad	18	10	3	1	32
Average	12	4	1	1	18
Good	-	-	-	-	-
Internal Telephone					
Bad	30	14	4	2	50
Average	-	-	-	-	-
Good	-	-	-	-	-
Banking Facilities					
Bad	-	-	-	-	-
Average	30	14	4	2	50
Good	-	-	-	-	-
Computing Facilities					
Bad	30	14	4	2	50
Average	-	-	-	-	-
Good	-	-	-	-	-
N.A.	-	-	-	-	-
Internet Facilities					
Bad	30	14	4	2	50
Average	-	-	-	-	-
Good	-	-	-	-	-
N.A.	-	-	-	-	-

Annexure-21

Perception of Tomato Farmers of Emerging Marketing Channel about Market Infrastructure.

(Number of respondents)

Particulars	Marginal	Small	Medium	Large	All
Condition of Road to the Market					
Bad	-	-	-	-	-
Average	27	9	10	4	50
Good	-	-	-	-	-
Proximity of the Market					
Within the village	-	-	-	-	-
Within 10 Km.	-	-	-	-	-
Between 10 to 25 Km.	27	9	10	4	50
More than 25 Km less than 50 kms.	-	-	-	-	-
More than 50 Kms	-	-	-	-	-
Godown Facilities					
Not available	27	9	10	4	50
Bad	-	-	-	-	-
Average	-	-	-	-	-
Good	-	-	-	-	-
Cold Storage	-	-	-	-	-
Not available	27	9	10	4	50
Bad	-	-	-	-	-
Average	-	-	-	-	-
Good	-	-	-	-	-
Auction Arrangement					
Bad	-	-	-	-	-
Average	27	9	10	4	50
Good	-	-	-	-	-
Supervision of Sale					
Bad	14	5	6	3	28
Average	13	4	4	1	22
Good	-	-	-	-	-
Loading Facilities					
Bad	-	5	5	2	12
Average	27	4	5	2	38
Good	-	-	-	-	-

Annexure-21:contd….

Particulars	Marginal	Small	Medium	Large	All
Sorting Facilities					
Bad	-	-	-	-	-
Average	27	9	10	4	50
Good	-	-	-	-	-
Weighing Facilities					
Bad	27	9	10	4	50
Average	-	-	-	-	-
Good	-	-	-	-	-
Packing Facilities					
Bad	-	-	-	-	-
Average	27	9	10	4	50
Good	-	-	-	-	-
Internal Telephone					
Bad	15	4	5	-	24
Average	12	3	4	3	22
Good	-	2	1	1	4
Banking Facilities					
Bad	-	-	-	-	-
Average	27	9	10	4	50
Good	-	-	-	-	-
Computing Facilities	-	-	-	-	-
Bad	-	-	-	-	-
Average	-	-	-	-	-
Good	-	-	-	-	-
N.A.	27	9	10	4	50
Internet Facilities					
Bad	-	-	-	-	-
Average	-	-	-	-	-
Good	-	-	-	-	-
N.A.	27	9	10	4	50

Annexure-22

Perception of the Apple Farmers of Traditional Marketing Channel about Other Market Agents

(Number of respondents)

Particulars	Marginal	Small	Medium	All
1. After Buyer, Who are the Agents				
Mashakhor & Retailer	25	18	7	50
How many channels – 1	25	18	7	50
2. Name of Wholesale Market Where Crop was sold				
Delhi	5	5	3	13
Chandigarh	10	8	2	20
Rohru	10	5	2	17
3. Do you Know the Price at Which Produce Sold				
- Yes	15	10	5	30
- No.	10	8	2	20
- Price				
4. Margin of Buyer	6%	6%	6%	6%
5. Opinion About Margin, Is it high				
- Yes.	25	18	7	50
- No.	-	-	-	-
6. Will you sale the produce to this agent again				
- Yes	9	8	5	22
- No	16	10	2	28
Any other option				
7. Support from the Govt. for Better Price				
Subsidy on grading machine	25	18	7	50
All weather roads	25	18	7	50
Arrangement of Vehicles	25	18	7	50
Big regulated market should be open	25	18	7	50
8. Constraints Faced by Farmer		-	-	-
Market is far away	25	18	7	50
How Constraints may eliminate				
Big market should established in the state	25	18	7	50
Suggestions				
Proper implementation of Market regulation Act	25	18	7	50

Annexure-23

Perception of Apple Farmers of Emerging Marketing Channel about Other Market Agents

(Number of respondents)

Particulars	Marginal	Small	Medium	All
1. After Buyer, Who are the Agents				
Mashakhor & Retailer	34	10	6	50
How many channels – 1	-	-	-	-
2. Name of Wholesale Market Where Crop was sold				
Delhi	-	-	-	-
Chandigarh	-	-	-	-
Rohru	-	-	-	-
3. Do you Know the Price at Which Produce Sold				
- Yes	34	10	6	50
- No.	-	-	-	-
- Price	-	-	-	-
4. Margin of Buyer				
5. Opinion About Margin, Is it high	-	-	-	-
- Yes.	-	-	-	-
- No.	34	10	6	50
6. Will you sale the produce to this agent again				
- Yes	9	2	1	12
- No	25	8	5	38
Any other option	-	-	-	-
7. Support from the Govt. for Better Price				
Subsidy on grading machine	34	10	6	50
All weather roads	34	10	6	50
Arrangement of Vehicles	34	10	6	50
Big regulated market should be open	34	10	6	50
8. Constraints Faced by Farmer				
- Selected produce is procured by buyer	34	10	6	50
How Constraints may eliminate				
All grades produce should purchase by buyers	34	10	6	50
9. Suggestions				
Proper implementation of Market Regulation Act	34	10	6	50

Annexure-24

Perception of Tomato Farmers of Traditional Marketing Channel about Other Market Agents.

(Number of respondents)

Particulars	Marginal	Small	Medium	Large	All
1. After Buyer, Who are the Agents					
Mashakhor & Retailer					
How many channels – 1					
2. Name of Wholesale Market Where Crop was sold					
Delhi	30	14	4	2	50
Chandigarh	1	-	1	-	2
Solan	1	5	2	-	8
3. Do you Know the Price at Which Produce Sold					
- Yes	10	4	3	-	17
- No.	20	10	1	2	33
- Price/kg	15-16	16-17	15-16	16-17	15-16
4. Margin of Buyer	20%	26%	20%	26%	(20 to 26%)
5. Opinion About Margin, Is it high					
- Yes.	30	14	4	2	50
- No.					
6. Will you sale the produce to this agent again					
- Yes	18	4	-	-	22
- No	12	10	4	2	28
Any other option	-	-	-	-	-
7. Support from the Govt. for Better Price					
Subsidy on grading machine	-	-	-	-	
All weather roads	-	-	-	-	
Arrangement of Vehicles	-	-	-	-	
Big regulated market should be open	-	-	-	-	
Support price	30	14	4	2	50
8. Constraints Faced by Farmer	-	-	-	-	
Market far away	30	14	4	2	50
9. How Constraints may eliminate					
Establishing local market yard	30	14	4	2	50
Suggestions					
Pool price	30	14	4	2	50

Annexure-25

Perception of the Tomato Farmers of Emerging Marketing Channel about Other Market Agents

(Number of respondents)

Particulars	Marginal	Small	Medium	Large	All
1. After Buyer, Who are the Agents					
Mashakhor & Retailer					
How many channels – 1	27	9	10	4	50
2. Name of Wholesale Market Where Crop was sold					
Delhi	-	-	-	-	-
Chandigarh	-	-	-	-	-
Rohru	-	-	-	-	-
3. Do you Know the Price at Which Produce Sold					
- Yes	-				
- No.	27	9	10	4	50
- Price	-	-	-	-	-
4. Margin of Buyer					
5. Opinion About Margin, Is it high	-	-	-	-	-
- Yes.	-	-	-	-	-
- No.	27	9	10	4	50
6. Will you sale the produce to this agent again					
- Yes	27	9	10	4	50
- No	-	-	-	-	-
Any other option	-	-	-	-	-
7. Support from the Govt. for Better Price					
Support price	15	4	5	3	27
Nearest market yard	13	5	6	2	26
Proper implementation of market regulation Act	14	4	6	3	27
8. Constraints Faced by Farmer					
Selected farm produce	27	9	10	4	50
9. **How Constraints may eliminate**					
To purchase all farm produce	6	2	3	1	12
Advance for inputs	23	8	7	4	42
10. Suggestions					
Price information	8	3	4	2	17
Arrival information	12	4	4	1	21
Wholesale price information	13	5	5	2	25
Retail price information	13	3	5	2	23
Implementation of market regulation Act	4	3	5	1	13

Annexure-26

Producer's Share and Marketing Margins in Apple under TMC.

(Rs. Per Qtl.)

Particulars	Marginal	Small	Medium	All
1. Net price received by farmer	6241	5038	4640	5306
2. Exp. Incurred by farmer				
(i) Picking, packing, grading, and assembling	180	145	134	153
(ii) Packing Material	856	695	639	730
(iii) Carriage up to road head	65	54	49	56
(iv) Transportation cost up to market	170	170	170	170
(v) Loading/unloading charges	8	8	8	8
(vi) Comm. of forwarding agent	-	-	-	-
(vii) Comm. of C.A. & market fee	480	390	360	410
Sub-Total	1759	1462	1360	1527
3. Wholesale price	8000	6500	6000	6833
4 Expenses incurred by				
(i) Carriage & handling charges	160	131	123	138
(ii) Market fee	120	97	89	102
(iii) Commission of CA	40	33	29	34
Sub-Total	320	261	241	274
5. Mashakhor Purchased price	8320	6761	6241	7107
6. Mashakhor's expenses	125	101	94	107
7. Mashakhor's Margin	83	68	62	71
8. Mashakhor's sale price	8528	6930	6397	7285
9. Retailer's Exp.	-	-		
(i) Carriage & handling charges	128	104	95	109
(ii) Retailer's losses	426	346	320	364
Sub-Total	554	450	415	473
10. Retailer's margin	852	692	640	728
11. Consumer's price	9380	7380	7037	8486
12. Net Rates of return on investments%				
Adani/Wholesaler	14.29	14.47	13.68	14.17
Mashakhor	66.40	67.33	65.95	66.36
Retailer	153.79	153.78	154.22	153.91

Annexure-27

Producer's Share and Marketing Margins in Apple under EMC.

(Rs. Per Qtl.)

Particulars	Marginal	Small	Medium	All
1. Net price received by farmer	4610	3821	4225	4219
2. Exp. Incurred by farmer	180.00	145.00	134.00	153
(i) Picking, packing, grading, and assembling	-	-	-	-
(ii) Packing Material	-	-	-	-
(iii) Carriage up to road head	-	-	-	-
(iv) Transportation cost up to market	65	54	49	56
(v) Loading/unloading charges	-	-	-	-
(vi) Comm. Of forwarding agent	-	-	-	-
(vii) Comm. of C.A. & market fee	-	-	-	-
Sub-Total	245	199	183	209
3. Wholesale price/Adani paid price	4855	4020	4408	44.28
4 Expenses in Transportation	170	170	170	170
(i) Administrative packing, Elect., labour	520	520	520	520
(ii) Margin	50	50	50	50
Sub-Total	740	740	740	740
5. Mashakhor Purchased price	5595	4760	5148	5168
6. Mashakhor's expenses	84	71	77	77
7. Mashakhor's Margin	56	48	51	52
8. Mashakhor's sale price	5735	4879	5276	5297
9. Retailer's Exp.	-	-	-	
(i) Carriage & handling charges	85	75	80	80
(ii) Retailer's losses	287	244	264	265
Sub-Total	372	319	344	345
10. Retailer's margin	574	488	528	530
11. Consumer's price	6681	5686	6148	6172
12. Net Rates of return on investments%	-	-		
Adani/Wholesaler	7.25	7.25	7.25	7.25
Mashakhor	66.67	67.60	66.23	67.53
Retailer	154.30	152.97	153.48	153.62

Annexure-28

Producer's Share and Marketing Margins in Tomato under TMC.

(Rs. Per Qtl.)

Particulars	Marginal	Small	Medium	Large	All
1. Net price received by farmer	522.00	496.00	498.00	503.00	520.00
2. Exp. Incurred by farmer	-				
(i) Picking, packing, grading, and assembling	80.00	80.00	80.00	80.00	80.00
(ii) Packing Material	155.00	155.00	155.00	155.00	155.00
(iii) Carriage up to road head	-		-		
(iv) Transportation cost up to market	184.00	184.00	186.00	185.00	168.00
(v) Loading/unloading charges	10.00	7.00	10.00	10.00	10.00
(vi) Comm. Of forwarding agent	-	-	-		
(vii) Comm. Of C.A. 4 market fee	62.00	60.00	53.00	50.00	56.00
(viii) Other charges	21.00	20.00	18.00	17.00	20.00
Sub-Total	512.00	506.00	502.00	497.00	489.00
3. Wholesale price/Adani paid price	1034.00	1002.00	1000.00	1000.00	1009.00
4 Expenses in Transportation	50.00	50.00	50.00	50.00	50
(i) Loading/Unloading	50.00	50.00	50.00	50.00	50
(ii) Margin	103.00	100.00	100.00	100.00	100.00
Sub-Total	203.00	200.00	200.00	200.00	200.00
5. Mashakhor Purchased price	1237.00	1202.00	1200.00	1200.00	1209.00
6. Mashakhor's expenses	19.00	18.00	18.00	18.00	18.00
7. Mashakhor's Margin	13.00	12.00	12.00	12.00	12.00
8. Mashakhor's sale price	1269.00	1232.00	1230.00	1230.00	1239.00
9. Retailer's Exp.	-	-			
(i) Carriage & handling charges	19.00	18.00	18.00	18.00	18.00
(ii) Retailer's losses	127.00	123.00	123.00	123.00	125.00
Sub-Total	146.00	141.00	141.00	141.00	143.00
10. Retailer's margin	190.00	185.00	185.00	185.00	186.00
11. Consumer's price	1605.00	1558.00	1556.00	1556.00	1568.00
12. Net Rates of return on investments%	-				
Adani/Wholesaler	103.00	100.00	100.00	100.00	100.00
Mashakhor	68.42	66.67	66.67	66.67	66.67
Retailer	130.00	131.00	131.00	131.00	130.00

Annexure-29

Producer's Share and Marketing Margins in Tomato under EMC.

(Rs. Per Qtl.)

Particulars	Marginal	Small	Medium	Large	All
1. Net price received by farmer	1004	958	969	1004	989
2. Exp. Incurred by farmer	-				
(i) Picking, packing, grading, and assembling	52.00	49.00	41.00	50.00	46
(ii) Packing Material	5	4	4	4.00	5
(iii) Carriage up to road head	-		-		
(iv) Transportation cost up to market	15	11	13	13	13
(v) Loading/unloading charges	10	11	8	10	9
(vi) Comm. of forwarding agent	-	-	-	-	-
(vii) Comm. of C.A. & market fee	-	-	-	-	-
(viii) Other charges	-	-	-	-	-
Sub-Total	82	75	66	77	73
3. Wholesale price/Mother Dairy paid price	1086	1033	1035	1081	1062
4 Expenses in Transportation	50	50	50	50	50
(i) Administrative, packing, elect,	50	50	50	50	50
(ii) Margin	109	103	103	108	106
Sub-Total	209	203	203	208	206
5. Mother Dairy sale price	1295	1236	1238	1289	1268
6. Mother Dairy Retail Booth Exp.	-	-	-	-	-
(i) Carriage & handling charges	-	-	-	-	-
(ii) losses	78	74	74	77	76
Sub-Total	78	74	74	77	76
7. Retail margin	155	148	148	155	152
8. Consumer's price	1528	1458	1460	1521	1496
9. Net Rates of return on investments%	-	-			
Mother dairy	109	103	103	108	106
Retail Booth	199	200	200	201	200

Annexure- 30

Comments on the Report

Impact of Emerging Market Channels in Agriculture - Benefits to Producers-Sellers and Marketing costs and Margins of Apple and Tomato in Himachal Pradesh

(Coordinators- Ananda Vadivelu and Nilabja Ghosh, Institute of Economic Growth)

1. A comparison between the Model APMC Act (GOI, 2003) and the relevant reforms/Act in Himachal Pradesh will be desirable to bring out the degree and pace of reforms. The link for the Model Act is –

http://agmarknet.nic.in/amrscheme/modelact.htm

2. Transaction costs and other qualitative data that have been collected in the Primary survey may be analysed and discussed in the relevant section and chapter.

3. Estimation of the components of Marketing cost and Marketing efficiency may be presented taking account of all the links in the marketing chain from the farmer to consumer.

4. Please ensure that the report is proof-read and copy-edited by competent persons. There are many typographical and grammatical mistakes.

5. A preface needs to be provided in the report and the two coordinators (Ananda Vadivelu and Nilabja Ghosh of Institute of Economic Growth) must be acknowledged.

Annexure- 30

Action Taken by authors based on the comments received from the coordinator of the study

All the comments made by the coordinator of the study have been addressed at the appropriate place in report

Authors

June 1, 2011