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Marketing of Fruits in Punjab

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Abstract

The present study was conducted to investigate the marketing aspects of fruits in Punjab. The analysis is based on primary data collected from sample fruit growers and various market intermediaries. The study revealed that marketed surplus of kinnow and malta, the major fruits of sample farmers constituted 98.20 per cent and 96.06 per cent total production of the respective fruits. As compared to channels in which producers themselves sold their produce in the market, in pre-harvest contract system the observed price spread was the highest and the producer's share in the price paid by consumer for the average quality fruits was found to be the lowest. The producer's share in consumer rupee was the highest when they sold their produce directly to the retailers and this channel was observed to be the highly efficient. Lack of processing plants in adjacent area, lack of cold supply chain, lack of local marketing centre, export bottlenecks, and fluctuations in prices were the major problems faced by fruit growers in marketing of fruits in the state. In order to bring the desired diversification of state agriculture, the problems faced by fruit growers need to be addressed on the priority basis through employing suitable technological interventions and policy tools.

Keywords: Fruits, Producer's share, Price spread, Marketing efficiency, Problems

JEL Classification: M31, Q12,Q13, Q18

Introduction

Agriculture being source of livelihood for major proportion of the total population has a significant impact on the overall economic development of country. Horticultural sector occupies an important place in agricultural economy of India. During 2018-19, fruits and vegetables accounted for over Rs 3.7 lakh crores in Indian economy. The contribution of this sector in Gross Value Added (GVA) of crops increased from about 24 per cent in 2011-12 to 28 per cent in 2018-19. Amongst horticultural crops, fruits occupy an important place from dietic, economic and medicinal value point of view and are considered under the category of protective foods. India with 6.71 million hectares of land under fruits and production of 100.44 million tonnes is the second largest producer of fruits in the world after China and contributing nearly 10 per cent of total world fruit production (GOI, 2020).

Underlining the importance of horticultural crops, it has been observed that the Punjab state has large potential for cultivation of fruits. Though about 90 thousand hectares of land is under the fruit cultivation in state, the rate of growth in area and production has been slowed down in the recent years (GOP, 2020). Various studies have pointed out that major bottleneck in further expansion of horticultural crops is the inadequate/inefficient existing marketing infrastructure.Under existing marketing practices, before the produce reaches to the ultimate consumer it passes through a long chain of intermediaries resulting into too wide price spread. Therefore, while the consumers have to pay higher prices for fruits, the producers are getting a small share in the price paid by them. The perishable nature of fruits, seasonality in production, and distribution of production far off from the consuming centers, inadequate cold storage and processing facilities, and lack of comprehensive marketing information are some of the important constraints hampering the efficiency of fruit marketing (Kaur and Singla, 2016). Due to these factors, majority of fruit growers are compelled to sell their produce unprocessed at the harvesting time hence resulting into gluts in the market and thereby fall in prices and lower returns. To avoid marketing risk, many fruit producers lease out the orchards to the pre-harvest contractors which further lower their returns. In this backdrop the present study was designed to examine the efficiency and constraints in marketing of major fruits produced in Punjab state.

Data Sources and Methodology

Multi-stage sampling was adopted to draw the representative sample for the study. At first stage of sampling two districts having the largest area (Fazilka and Hoshiarpur)

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under fruits in state were selected. Two blocks, one each from the sample districts viz. Abohar (Fazilka) and Bhunga (Hoshiarpur) were selected on the basis of the highest area under fruits in the respective district. Further, two villages from each selected block were selected with probability proportional to area under the fruits. For selected 4 villages, a list of fruit growers along with area under fruits was prepared and farmers were arranged in the ascending order with respect to the area under fruits and by employing cumulative cube root frequency method divided into three size categories, small (up to 4.14 acres), medium (4.14-7.47 acres) and large (above 7.47). Using random sampling procedure, representing the three size categories, a total sample of 60 farmers were selected for survey. From selected fruit producing areas, 10 pre-harvest contractors (5 from each district) were selected randomly. Two markets in the hinterlands of producing areas viz: Abohar and Hoshiarpur markets were selected on the basis of highest market arrival of fruits in the respective fruit producing districts of Fazilka and Hoshiarpur. In addition, Ludhiana market representing the major fruit consuming centre of state was also selected. To study the market channels 15 wholesalers and 15 retailers (5 each from selected markets) were selected randomly. The personal interview method was used for the collection of primary data. The relevant information related to the socio-economic characteristics like age, education, family size, occupational status, along with operational land holding size, cropping pattern etc. were collected from the selected fruit growers. The data regarding fruit production, marketed surplus, method of disposal of output, price received, marketing costs incurred, problems faced, etc. have also been collected from the sample farmers. Similarly, information on quantities transacted, marketing costs, prices paid and prices received have been collected from various sample market intermediaries like pre harvest contractors, wholesalers, and retailers. In data analysis the descriptive statistical tools viz: frequency, percentage, cumulative cube root method and mean score were used along with the following methods:

Marketed Surplus

Marketed surplus is that quantity of the produce which can be made available to the non-farm population. Marketed surplus is the residual left with the producer after meeting his requirement for home consumption, given free to the neighbours, and other disposal. This may be expressed as:

$$MS = P - C$$

Where,

MS = Marketed surplus

P = Total Production

C = Total requirement (Home consumption, given free to the neighbours, and other disposal).

Marketing Margins and Costs

Market margin the profit of the various marketing functionaries was calculated by subtracting the purchase price and marketing cost from the sale of market functionaries as following:

$$A_{mi} = P_{ri} - (P_{pi} + C_{mi})$$

Where,

A_{mi} = Absolute margin of the i^{th} middlemen

P_{ri} = Total value of receipts per unit (sale price)

P_{pi} = Purchase value of goods per unit (purchase price)

C_{mi} = Cost incurred on marketing per unit

Marketing Efficiency

The marketing efficiency was calculated by using Acharya's method (Acharya and Agarwal, 2011) as following:

$$MME = FP \div (MC + MM)$$

Where,

MME = Marketing efficiency

FP = Price received by farmer

MC = Total marketing costs

MM = Net marketing margins of intermediaries

Price Spread

Price spread refers to the difference between price paid by the consumer and price received by the producer for a unit quantity of farm produce. It consists of marketing costs and margins of the intermediaries.

$$\text{Price spread} = P_c - P_f$$

Where,

P_c = price paid by the consumer

P_f = price received by the producer

Producer's share in consumer rupee

It is the price received by the farmer as a percentage in the consumer's price

$$P_s = \frac{P_f}{P_c} \times 100$$

Where,

P_s = Producer's share in consumer's rupee,

P_f = Price of the produce received by the farmer,

P_c = Price of the produce paid by the consumer

Chi- square Test

In the process of production and marketing of major fruits farmers faced many problems. The identified problems were get ranked from the respondents on 5 point scale of

severity. The percentage of farmers showing different severity level of problem was tabulated. The significance difference between all five categories of severity level was calculated by using Chi-square test at 5 per cent level of significance.

$$\chi^2 = \Sigma \frac{(O_i - E_i)^2}{E_i}$$

Where,

χ^2 = Chi- square value

O_i = Observed value

E_i = Expected value

Results and Discussion

Socio-economic profile of fruit growers

The cultivation of fruits is a specialized operation in farming that is different from the cultivating of traditional crops such as cultivation of wheat, paddy and cotton in the state. Therefore, the knowledge of socio-economic profile of sample farmers is important to provide guidance in identification of potential of fruit growers. The distributions of sample fruit grower according to their socio- economic profile viz: age, education level, family size, occupation, and operation land holding etc, have been presented and discussed as under:

The data presented in Table 1 indicated that the age of sample farmers varied from 25 years to more than 55 years. The majority of farmers (45.00%) were in middle age group of 41 to 55 years. About 32 per cent farmers were in young age group of 25 to 40 years. The old age group farmers (above 55 year) constituted 23.33 per cent of total fruit growing farmers in the study area.

The education level of farmers in study area ranged from illiterate to post graduate level (Table 1). Majority of fruit growers (31.67 %) were having graduate level of education. About 27 per cent had education of higher secondary level, while 8.33 per cent were post graduate. About 25 per cent of fruit growers had education of matric level and remaining 6.66 per cent of total fruits growers were having education of primary to middle level (8th standard). Only 1.67 per cent of farmers were found to be illiterate i.e. those who cannot read and write.

The family size of fruit growers were categorized in two groups i.e. up to 5 and more than 5 family members. The majority of fruit growers (66.67 %) had family size up to 5 members and about 33.33 per cent of fruit growers had family of more than 5 members.

The fruit growers of the study area are not only indulged in farming as their livelihood but some of them having secondary occupations such as government / private service, trade etc. The sample fruit growers were categorized in two categories viz: with farming as only occupation and farming plus secondary occupation. The majority of fruit growers (86.67 %) had farming as their only occupation and about 13.33 per cent of fruit growers were having some subsidiary occupations along with farming in the study area.

The total operational land holding of sample fruit growers were 12.52 acres per farm which constituted 77.14 per cent owned and 22.86 per cent of the leased in land (Table 2). Category wise small, medium and large farmers were having operational area of 4.82, 8.86 and 23.87 acres per farm, respectively. Further, the proportional share of leased in area in total per farm operational area revealed a direct relationship with size of farm. The leased in area

Table1. Distribution of sample farmers w.r.t. age, education level, family size and occupation

Characteristics	Category	Frequency	Percentage
Age (years)	Young (25-40)	19	31.67
	Middle (41-55)	27	45
	Old (>55)	14	23.33
Education level	Illiterate	1	1.67
	Primary	2	3.33
	Middle	2	3.33
	Matric	15	25
	Higher Secondary	16	26.67
	Graduate	19	31.67
	Post graduate	5	8.33
Family size(No.)	Up to 5	40	66.67
	More than 5	20	33.33
Occupation	Farming only	52	86.67
	Farming + other occupation	8	13.33

Table 2. Operational land holding of sample farmers

(Acre/farm)

Category of farmers	Owned and managed land	Leased –in land	Operational land	Leased- out land	Average rental value (Rs./acre)
Small	4.06 (84.23)	0.76 (15.77)	4.82 (100)	0.33	27480
Medium	7.42 (83.74)	1.44 (16.24)	8.86 (100)	0.72	29180
Large	17.48 (72.15)	6.39 (27.84)	23.87 (100)	1.25	32500
Overall	9.65 (77.14)	2.86 (22.86)	12.52 (100)	0.76	29720

Note: Figures in parentheses are percentage of total operational land

constituted 15.77, 16.24 and 27.84 per cent of the operational area on small, medium and large farms respectively. In study area the average rental value of land was Rs. 29720 per acre. The highest rental value of land in study area was recorded for large farms with Rs. 32500 per acre, followed by medium and small farms with Rs 29180 and Rs 27480 per acre respectively. The reason for relative high rental value of land on large farm size categories was on account of relatively better access to irrigation infrastructure/facilities.

Marketed surplus

Under normal conditions, a producer would market or sell that portion of the produce which is over and above his farms and family consumption requirement. Marketable surplus depends on land holding size, yield per hectare, family size, relation of farmers with neighbours/ relatives and price of fruit in current season (Acharya and Agarwal, 2011). Marketed surplus of fruits is the part of produce that is actually sold in the market. The data regarding per farm production, home consumption and marketed surplus of kinnow in the study area during the year 2019-20 has been presented in Table 3. The perusal of Table 3 indicated that average home consumption of kinnow accounted for only 1.80 per cent (13.85 qtl.) out of total per farm kinnow production of 756.44 quintals. The large category of kinnow growers were found to have the proportionally the largest level of marketed surplus (98.50 %) followed by medium and small categories with marketed surplus of 97.93 and 97.25 per cent respectively. The total consumption in absolute terms was also higher in case of large farmers i.e. 21.28 quintals as compared to 12.75 on medium category and 7.73 quintals on small category of farms. Contrarily, in percentage term the total consumption of kinnow was the highest on small farms i.e. 2.75 per cent of the total production followed by medium farmers (2.07 %) and large farmers (1.50 %). The study carried out by Dhillon (2009) also reported that the proportional quantity of marketed surplus and home consumption varied directly and inversely with the orchard size respectively.

For the *malta*, the average marketed surplus and home consumption constituted 96.06 per cent and 3.94 per cent of the total per farm production (Table 3). The total per farm consumption in absolute terms for *malta* was found highest in case of large farmers i.e. 7.12 quintals as compared to 3.77 for medium farmers and 2.65 quintals for small farmers. However, in percentage term, the total consumption of *malta* was highest for small farmers i.e. 4.26 per cent of total production followed by medium farmers (3.63 %) and large farmers (3.51%). On the other hand, the proportionate and absolute quantity of marketed surplus of *malta* showed direct relationship with the size of orchard as it constituted 95.74 per cent (59.74 qtls), 96.37 per cent (96.37 qtls) and 96.49 per cent (171.48 qtls) of its total production on small, medium and large farms respectively. The results are in conformity with the findings of Kaur and Singla 2016.

Marketing channels

The chain of different intermediaries performing various marketing operations starting from assembling of produce at farm level to distribution of produce to ultimate consumer is called marketing channels. In this process intermediaries create different type of utilities i.e. time, place, form and possession. Marketing margin refers to the difference between the values of equivalent physical quantity at different levels of marketing. This section is devoted to elaborate the price spread for kinnow and *malta* in the study area. The price spread of *malta* worked out for the month of October, 2019 when the major portion of this fruit was sold, similarly for kinnow the month of January, 2020 has been selected. Three markets were studied for the purpose of calculating price spread including Abohar and Hoshiarpur from the producing area and Ludhiana market representing the major consumption centre in state. Following major marketing channels for distribution of kinnow and *malta* fruit were identified in the study area:

Channel-I: Producer- Pre harvest contractor- wholesaler (through commission agent) - Retailer- Consumer (Ludhiana)

Table 3. Marketed surplus of kinnow and *malta* on different category of sample farmers

(qtl/ farm)

Farm size category	Kinnow			*Malta*		
	Production	Home consumption*	Marketed surplus	Production	Home consumption*	Marketed surplus
Small	273.00 (100)	7.52 (2.75)	265.48 (97.25)	62.11 (100)	2.65 (4.26)	59.45 (95.74)
Medium	615.45 (100)	12.75 (2.07)	602.70 (97.93)	103.25 (100)	3.77 (3.63)	99.48 (96.37)
Large	1422.40 (100)	21.28 (1.50)	1401.12 (98.50)	178.60 (100)	7.12 (3.51)	171.48 (96.49)
Average	770.28 (100)	13.85 (1.80)	756.43 (98.20)	114.65 (100)	4.51 (3.94)	110.14 (96.06)

Figures in parentheses are percentage of total production
** including given free as gifts and other farm level consumption*

Channel-II: Producer- wholesaler (through commission agent) - Retailer- Consumer (Ludhiana)

Channel-III: Producer- wholesaler (through commission agent)- Retailer- Consumer (Local market)

Channel-IV: Producer- Retailer (through commission agent)- Consumer (Local market)

Channel-V: Producer- Processing units

Table 4 presents the comparative information on price spread, producer's share and marketing efficiency in different channels of kinnow and *malta*. The net price received by producer for kinnow was highest in channel –IV (Rs 1138.88 / qtl) followed by channel- II, III and channel-I with Rs 1012.84, Rs 898.28 and Rs 863.05 per quintal respectively. The total cost incurred by producer was highest in channel-II (Rs 365.26 / qtl) followed by channel-III and IV with Rs 231.22 and Rs 223.63 per quintal respectively. Channel-IV was the shortest channel among all; the producer's share in consumer rupees was maximum in this channel- IV at 53.91 per cent followed by channel-III, channel-II and channel-I with 42.52, 36.14 and 30.80 per cent of price paid by consumer. The price spread defined as the difference between price paid by consumer and price received by the producer of kinnow was maximum in channel - I at Rs 1939.44 per quintal followed by channel- II, III and IV at Rs 1789.66, Rs 1214.22 and Rs 973.63 per quintal respectively. In terms of per cent share of consumer's rupee, price spread in respective channels was 69.20, 63.86, 57.48 and 46.09 per cent. The market efficiency was maximum in channel –IV (1.18) followed by channel- III, II and I with magnitude of 0.74, 0.57 and 0.45 respectively.

The net price received by producer for *malta* was highest in channel –IV (Rs 2646.50/ qtl) followed by channel- III and I with Rs 1801.92, and Rs 1598.60 per quintal respectively. The total cost incurred by producer was highest in channel- IV (Rs 228.50 / qtl) followed by channel-III with Rs 223.08 per quintal. The price spread of *malta* was maximum in channel-I with Rs 2459.40 per quintal followed by channel- III and IV at Rs 1918.08 and Rs 1073.50 per quintal respectively. Channel-IV was the shortest channel among all and the producer's share in consumer rupees was maximum in this channel- IV with 71.14 per cent followed by channel-III and channel-I accounting for 48.44 and 39.47 per cent of price paid by consumer. The market efficiency was maximum in channel –IV (2.47) followed by channel- III, and I with magnitude of 0.94 and 0.65 respectively. Thus reduction in intermediaries enhanced market efficiency for both kinnow and *malta*.

In the study area, it was observed that kinnow also moved from producer to processing unit, before reaching the consumer in the form of a processed product. The channel from producer to processing was different from above channels because processing units were buying low grade kinnow only. The marketing cost and price received by producer for disposing kinnow in this channel has been presented in Table 5. The data revealed that when farmer sold their product through this channel the farmers have to incur the cost of Rs 104.50 per quintal on an account of packaging, loading, unloading, transportation and spoilage losses while delivering the fruits at the processing units.

In absolute term farmers were getting net price of Rs 516.20 per quintal in study area which turn out to be the lowest amongst all the channels identified in the study. The main reasons behind is that the processing units were purchasing only the poor grade (generally C- grade) fruits. In this channel price spread has not been worked out as the processing firms hesitate to share their costs and delivery price for the processed products.

Marketing related problems faced by fruit growers

Being perishable, the fruits need to be disposed immediately after harvesting and farmers have to face several

Table 4. Price spread, producer's share and market efficiency in different channels of kinnow and *malta*

(Rs/qtl)

Particulars	Channel-I		Channel-II	Channel-III		Channel-IV	
	Kinnow	*Malta*	Kinnow	Kinnow	*Malta*	Kinnow	*Malta*
Net price received by producer	863.05	1598.60	1012.84	898.28	1801.92	1138.88	2646.50
Total cost incurred by producer	-	-	365.26 (13.03)	231.22 (10.94)	223.08 (6.00)	223.63 (10.65)	228.50 (6.14)
Total margin of intermediaries	1140.24 (40.69)	1463.93 (36.15)	1100.79 (39.28)	657.50 (31.14)	1318.40 (35.44)	527.55 (24.97)	508.35 (13.66)
Total cost of intermediaries	799.20 (28.52)	895.47 (22.11)	323.61 (11.55)	325.50 (15.40)	376.60 (10.12)	222.45 (10.53)	336.65 (9.05)
Price paid by consumer	2802.50	4050.00	2802.50	2112.50	3720	2112.50	3720
Price Spread	1939.44 (69.20)	2459.40 (60.73)	1789.66 (63.86)	1214.22 (57.48)	1918.08 (51.56)	973.63 (46.09)	1073.50 (26.99)
Producer's share in consumer rupee	30.80	39.47	36.14	42.52	48.44	53.91	71.14
Marketing efficiency	0.45	0.65	0.57	0.74	0.94	1.18	2.47

Note: Figures in parentheses are percentage of price paid by consumer
Note: Malta was not disposed through channel-II

problems in this regard. The analysis of marketing problems helps to find out feasible solution to minimize the marketing losses of fruit growers. Different marketing problems based on their severity responses given by farmers to particular problem along with their mean score are presented in Table 6. The each problem has been ranked based on mean score of severity and detail of each problem has been discussed as following:

The weak processing infrastructure in hinterlands of fruits production areas of Punjab state is one of the main causes of ineffective utilization of these fruits (Mavi *et al*, 2012). The sample farmers identified this as most severe problem with a mean score of 4.23 at severity scale (Table 6). About 80 per cent of farmers have stated this problem as of severe or very severe nature. Lack of competitive kinnow and *malta* processing facilities on commercial scale is a great handicap in aiding value to the produce and ensuring better returns to the fruit growers.

The comparatively more sensitive and perishable nature of fruits make the fruit cultivation highly risk prone. The post-harvest handling, inadequate cold storage and cold store transportation alone create 20 to 40 per cent of losses both in quality and quantity of kinnow and *malta* (Ali and Kapoor, 2008). Non-availability of cold supply chain (cold store and transportation) in study area was reported as second major problem with mean score of severity 4.17. About 86 per cent of farmers have stated this problem as severe or very severe on severity scale. Therefore, availability of adequate cold storage and refrigerated vans could help farmers to earn high profits by selling the produce in the distant consuming markets and in the off season of fruits.

The marketing of kinnow and *malta* fruit in an efficient way has been found as main constraint in state. The existing marketing centres are not sufficient for handling of bulk arrival of fruits (Kumar *et al* 2017). The location of these marketing centres has found to be irrational to hinterlands of producing area of fruits and markets were not vertically integrated to each other. This forces the farmers to sell their

Table 5. Marketing cost and producer's percentage share in channel-V for kinnow

(Rs/qtl)

Particulars	Rs/quintal	% share in price paid by processing unit
Net price received by producer	516.20	83.16
Total cost incurred by producer	104.50	16.84
Sale price of producer/ purchase price of processing unit	620.70	100.00

Table 6. Fruits marketing related problems faced by farmers

Problem	Percentage of farmers facing different level of problem					Chi-square value	Mean score	Rank
	No	Low	Medium	Severe	Very			
Fluctuations in prices	-	15	18.33	35.00	31.67	67.32	3.83	V
Poor market information/ intelligence	11.67	30	36.67	21.67	-	43.99	2.42	VIII
Lack of local marketing center	3.33	6.67	11.67	40.00	38.33	95.65	4.00	III
Malpractices by middlemen /large number of middleman	-	10	33.33	33.33	23.33	69.32	3.67	VI
Lack of processing plants in adjacent area	-	11.67	8.33	25.00	55.00	131.31	4.23	I
Lack of cold supply chain	-	3.33	10.00	50.00	36.67	137.31	4.17	II
Export bottlenecks	3.33	1.67	20.00	40.00	35.00	94.31	3.98	IV
Transport / road bottlenecks	3.33	23.34	25.00	31.67	16.67	34.33	3.25	VII

Note: Chi-square value is significant at 5 % level of significance

produce to pre-harvest contractors, therefore resulting in low share of producer in the consumer rupee. The present study identified this as a third most important problem with a mean score of 4 at severity scale. About 78 per cent of farmers have perceived this problem of severe or very severe nature.

The most of the kinnow and *malta* exported from the country is restricted to developing countries only. The lack of cold supply chain for transportation, inability of fruits to satisfy international standards and preference of seedless kinnow in developed countries are the main bottlenecks identified for export of kinnow to foreign countries (NHRDF, 2018). With 3.98 mean score on severity scale, this problem has been put at fourth rank and about 75 per cent of farmers have stated this problem of severe or very severe nature. Therefore the development of kinnow and *malta* varieties according to international standards may boost the exports of these fruit from the state. These results are in line with the finding of Bhgyalaxmi (2005).

The seasonality and perishable nature of fruits leads to the high level of price fluctuations with low price in the markets during harvesting period. Arrival of fruits in the market has been concentrated in the peak period of 50 to 60 days in the harvesting season. This results gluts of fruits in the market, thus depressing the price. The problem of inter-year and intra-year fluctuations in price in study area was reported as the other main problem (5^{th} ranked) with mean score of severity 3.83. About 67 per cent of farmers have this problem of severe or very severe on severity scale. The problem of price fluctuation in study area adversely affected the interest of farmers and enthusiasm towards fruit production. The observations are in conformity with finding of Mavi *et al* (2012) and Kaur (2017).

The marketing process of fruits is associated with large number of market intermediaries which increase their margins through adopting malpractices like unauthorised quality related price cuts, cartel formation, etc. and reduce the producers share in the consumer rupee. The study of Grover *et al* (2013) also revealed that the producers share in consumer rupee was relatively less in comparison to when farmers sold their produce direct to the consumer. This problem of large number of exploitative intermediaries in study area ranked six with 3.67 mean score on severity scale. About 66 per cent of farmers have stated this problem as medium or severe on severity scale. The presence of large number of middlemen depresses farmer's share in consumer rupee on an account of associated marketing costs and margins of market functionaries.

The present infrastructure for transporting the fruits is highly uneconomical, insufficient and substantially injurious to the fruit transport. The roads connecting the different orchards are not suitable for specially designed fruit carriers. The railway had also not showed the interest in the development of fruit transportation. The present study identified this as a seventh ranked problem with a mean score of 3.25 at severity scale. About 56 per cent of farmers have stated this problem as medium or severe on severity scale.

Lack of sufficient market information / intelligence affects marketing efficiency of agricultural markets. Farmers do not have adequate information regarding fluctuations in price, changes in market demand - supply pattern and forecasted prices of fruits. Little information about market scenario is obtained by farmers from their personal contacts. Thus farmers miss the opportunity of selling fruits at right time on right price in high price markets (Dhillon, 2009). This problem in study area stands eighth rank with 2.42 mean score on severity scale. About 37 per cent and 22 per

cent of farmers have stated this problem as medium severe and severe on severity scale respectively.

Conclusion and Policy Implications

The percentage share of fruit growers in consumer rupees and market efficiency was highest when farmers sold the produce to retailers (channel-IV) in local markets for both kinnow and *malta*. On the other hand farmer's share in consumer rupee was observed to be the lowest when orchards were leased out to the pre-harvest contractors who after picking sold the fruits to wholesaler in the market. Thus, reduction in intermediaries leads to enhanced producer's percentage share in consumer rupees as well as to the enhancement of market efficiency of fruit marketing in the state. Kinnow producers who sold their output directly to the processors realized very low price because of low quality of fruit. Lack of processing plants in adjacent area, lack of cold supply chain, lack of local marketing centre, export bottlenecks, fluctuations in prices, malpractices by middlemen /large number of middleman, infrastructural bottlenecks and poor market information/ intelligence were the major problems faced by fruit growers in marketing of fruits in state.

In order to diversify towards fruits, the problems faced by farmers in production and marketing of fruits need to be addressed at priority. In this regard, the Government/ SAU/ KVKs should take the steps for strengthening of existing agricultural extension services along with creation and dissemination of adequate and reliable market related information. For enhanced fruit productivity as well its processing ability there is need to develop and supply the quality (eg. seedless kinnow), disease and insect resistant planting material of fruits. In order to increase producer's share in price paid by consumer, there is need to decrease the number of intermediaries involved and increase the reach of growers to the distant consumers markets of country even exports. For this establishment of FPO's or cooperative marketing need to be encourage among the fruit growers.

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