

# Marketing Efficiency of Pomegranate and its Supply Chain Management in Himachal Pradesh

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## ABSTRACT

Himachal Pradesh is known as the country's fruit bowl, situated in the lap of aesthetic Himalayan mountains between 32° 22' 40" N and 33° 12' 40" N latitude and 75° 47' 55" E and 79° 04' 22" E longitude. The study was conducted in Kullu district. A sample of 60 farmers cultivating pomegranate was selected using multistage random sampling. Local markets of Bhuntar and Kullu were selected purposively for conducting marketing study. A total sample of 5 wholesalers and 5 retailers from Bhuntar and Kullu market were selected randomly. The study revealed that there were three main marketing channels prevalent in the study area. Among these channel-B, consisting Producer → Wholesaler → Retailer → Consumer was found to be the most preferred channel as 54.09 per cent of the produce was traded through this marketing channel. The highest producer's share in consumer rupee was found in channel A 99.44 per cent. Channel A was found to be efficient (Producer → Consumer). The major marketing problem of pomegranate faced by the growers was the higher transportation charges which was ranked at seventh position, lack of inadequate or incorrect price which was ranked eighth. Model of cooperative farming should be developed to ensure better marketing for the harvest of the crop. Information on market potential, price and market intelligence is required to be collected through market survey so that proper marketing strategy could be formulated.

**Keywords:** Market, efficiency, producer share and channel

Pomegranate (*Punica granatum* L.) is a fruit of family Punicaceae. It is a significant crop of arid and semi-arid regions of the world. The name "Pomegranate" came from two Latin words "Pomuni" and "Granatum" which means seeded apple. The most promising cultivars of pomegranate grown in India are Alandi, Dholka, Kabul, Kandhari, Muskat red, Vellode, Ganesh, G-137, Jyoti, Mridula, Phule Arakta and Bhagwa.

In Himachal Pradesh, total fruits cultivated on an area of 230852 ha with a production of 565307 MT. Among this, pomegranate occupies an area of 2771

ha with a production of 3148 MT (1.2 per cent of total area under fruits in the state). Pomegranate is mainly cultivated in Mandi (479 ha), Kullu (383 ha), Sirmaur (297 ha) and Solan (176 ha) districts of Himachal Pradesh. Among these the highest production of pomegranate is in Kullu district (1359 MT), followed

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by Sirmaur (945 MT), Solan (225 MT), Mandi (196 MT) and rest of the districts having production of 423 MT (Statistical abstract of Himachal Pradesh, 2019).

Kullu district is located in the northern part of Himachal Pradesh and lies between 31.58°N latitude and 77.64°E longitude. The total geographical area of the district is 5503 square kilometers. Horticulture plays a crucial role in the economic life and development of the Kullu people. Among all the fruits grown in Kullu, apples are most widely grown followed by plum, pomegranate, apricot and kiwi as well as almond nuts (Anonymous, 2015). Suitable soil and climatic conditions are responsible for concentration of pomegranate cropped area in the district. The area under pomegranate is gradually increasing in the district. Pomegranate fruit has lots of its medical benefits along with its greater demand in market. Nutritionally, the fruit is most delicious and nourishing. The pomegranate is very much liked for its cool, refreshing juice and also for its medicinal properties. The juice is considered useful for patients suffering from leprosy. Its barks and rinds are used for control of dysentery or diarrhoea. This fruit can be utilized in fresh form or in the form of its products like Juice, Jam, Squash and Syrup etc. It is a good species for afforestation of degraded hill slopes or rehabilitation of wastelands. Hence, it is one of the most widely grown commercial fruits in India.

Marketing is a matter of great importance to farmers, consumers and middlemen. The peak harvesting period for different pomegranate cultivars in mid-august to mid-october. Pomegranate plants take 4-5 years to come into bearing. Pomegranate being a non-climacteric fruit should be picked when fully ripe. The fruits become ready for picking after 120-130 days of fruit set. The present study was undertaken in Himachal Pradesh with the main objectives to analyze the marketing system of pomegranate.

## METHODS

In the present dissertation work, the required data were collected for the year 2019-20 in Kullu district of Himachal Pradesh.

### Selection of market and market intermediaries

To examine the various marketing aspects of pomegranate, a sample of 60 farmers cultivating

pomegranate, five wholesalers and five retailers were selected randomly from the Bhuntar and Kullu market to study the functioning of market in Himachal Pradesh. To study the nature and extent of the market secondary data were collected from the production market i.e.; Kullu APMC (Divyanshu, 2020).

### Compound growth rate (CGR)

The compound growth rates for different variables were computed by fitting the exponential function to the figures of area, production and productivity of pomegranate for the period of 2008-09 to 2015-16 of Himachal Pradesh. The ordinary least square method was used to fit the power function of the following form  $Y = ae^{bt}$ . It was converted into log linear function with the help of logarithmic transformation as under:

$$\ln Y = \ln a + t b.$$

Where,

$Y$  = Dependent variable (area, production and productivity etc.)

$t$  = Independent variable (time in a year).

Compound growth rate (CGR) was calculated by using the following formula:

$$CGR = b \times 100$$

For significance testing  $t$  value was calculated using formula:

$$t\text{-statistic} = \frac{CGR}{SE(CGR)}$$

## Market Analysis

### Marketing Margin

Marketing Margin of middleman calculated as the difference between the total payments (marketing cost + purchase price) and receipts (sale price) of the middlemen and calculated as follows.

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

Where,

$A_{mi}$  = Absolute margin of middlemen

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

$Pp_i$  = Purchase value of goods per unit

$C_{mi}$  = Cost incurred on marketing per unit

### Price spread

The difference between the price paid by consumer and price received by the producers was the marketing margin or price spread. Generally, the economic efficiency of marketing system is measured in terms of price spread. Smaller the price spread; greater is the efficiency of the marketing system.

### Marketing efficiency of the marketing channels

The marketing efficiency of various channels in the study area has been computed by using Acharya's method (Acharya, 2001) as under:

$$ME = \frac{RP}{MC + MM} - 1$$

Where,

$ME$  = Marketing efficiency

$RP$  = Retailer's price

$MC$  = Total marketing costs.

$MM$  = Total marketing margins

### Marketing problems

Garrett's ranking technique was used to evaluate the problems faced in marketing of pomegranate (Garett and Woodworth, 1969):

$$\text{Per cent Position} = \frac{(R_{ij} - 0.5)}{N_j}$$

Where:

$R_{ij}$  = Rank given to  $i^{\text{th}}$  position by the  $j^{\text{th}}$  individual

**Table 1:** Area, production, productivity and compound growth rate of total fruits and pomegranate in Himachal Pradesh

Years (2008-09 to 2018-19)	Total fruits			Pomegranate		
	Area ('000 ha)	Production ('000 MT)	Productivity (MT/ha)	Area ('000 ha)	Production ('000 MT)	Productivity (MT/ha)
Coefficient (b)	0.013	0.008	-0.004	0.9	0.235	0.13
	-0.001	-0.034	-0.033	-0.008	-0.026	-0.02
CAGR %	1.27**	0.86	-0.41	9.61**	23.50**	13.92**

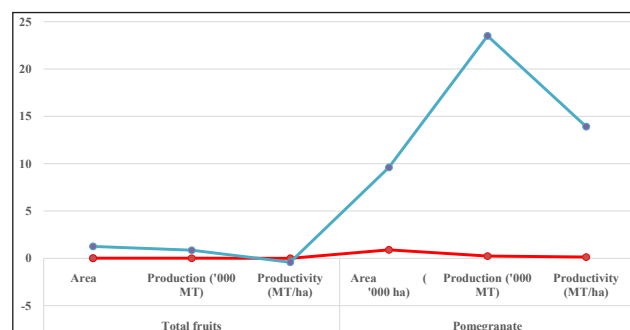
CAGR- Compound annual growth rate, \*\*significant at 5 per cent level.

$N_j$  = Numbers of problems ranked by  $j^{\text{th}}$  individual

## RESULTS AND DISCUSSION

### Area, production and productivity

From Table 1, it was depicted that the compound annual growth rate of area, production and productivity of total fruits in Himachal Pradesh was 1.27, 0.86 and -0.41 per cent respectively from 2008-09 to 2018-19. While in case of pomegranate it was observed that area, production and productivity increasing significantly with 9.61, 23.50 and 13.92 per cent in area, production and productivity respectively.



**Fig. 1:** Graphical representation of area, production and productivity of total fruits and pomegranate in Himachal Pradesh

### Marketing channels

Channel B was most widely followed by the growers of the study area. In channel A, the producers sold their produce directly to consumer. In Channel B and C wholesalers and retailers act as the intermediary between the producer and the retailers. In the study area maximum farmers show interest to sell their crop to the wholesalers. He was also responsible for

transporting the produce to the wholesale market and has to bear the marketing costs incurred in these operations.

**Table 2:** Quantity of pomegranate marketed through various channels

Marketing channels	Market Intermediaries	% Share
Channel-A	Producer → Consumer	10.01
Channel-B	Producer → Wholesaler → Retailer → Consumer	54.09
Channel-C	Producer → Retailer → Consumer	35.9
<b>Total</b>		<b>100</b>

## Marketing costs

### Marketing Cost incurred by producers:

Marketing costs and margins of various functionaries involved in the different marketing channels were analysed and presented in Table 3. The data shows in the case of Channel-A, the total marketing cost incurred by the producer worked out to be ₹ 46.67 per quintal. Producer in channel B sold their produce through the wholesaler in the market and the marketing cost incurred by the producer worked out to be ₹ 109.65 per quintal. In case of channel C, the total marketing cost incurred by the producer worked out to be ₹ 69.67.

### Marketing cost incurred by wholesaler

The was found in the marketing channel-B and these wholesalers also act as commission agents. The commission charges, transport and tax constituted the important items of marketing costs. In this channel, wholesalers spent on marketing activities viz, for room rent, commission charges transportation costs which accounted for ₹ 888.04 per quintal.

### Marketing cost incurred by retailer

The retailer was found in the marketing channel B and C. The commission charges, transportation charges wholesaler and taxes were the important marketing cost incurred by them. In channel B and C, retailers incurred ₹ 780.12 and 735.23 per quintal as marketing cost respectively. The major components of cost were found as commission charges and

transportation costs. Similar results were observed from the findings of Patel and Pundir (2016).

**Table 3:** Marketing costs and margin of different functionaries in the different marketing channels of pomegranate in Bhuntarand Kullu market of Himachal Pradesh (₹/ Quintal)

Sl. No.	Particulars	A	B	C
<b>(I) Marketing cost incurred by producers</b>				
1	Net price received by farmer	8339.02	7436.72	8067.62
2	Transportation cost	11.67	74.65	34.67
3	Packing material cost	—	—	—
4	Loading / unloading	35.00	35.00	35.00
5	Commission charge	—	—	—
6	Mandi Tax	—	—	—
7	Telephone Charges	—	—	—
	Total	46.67	109.65	69.67
	Farmer's selling price	8385.69	7546.37	8137.29
<b>(II) Marketing cost incurred by Wholesaler</b>				
(A)	Gross price paid by Wholesaler		7546.37	
(B)	Cost components of Wholesaler			
1	Loading / unloading		24.67	
2	Room rent		324.67	
3	Telephone Charges		12.50	
4	Transportation cost		110.59	
5	Mandi Tax		150.93	
6	Commission charge		452.78	
(C)	Total		1076.14	
(D)	Wholesalers Margin		75.91	
(E)	Wholesaler Selling price/ Retailer purchase price		8698.42	
<b>(III) Marketing cost incurred by Retailer</b>				
(A)	Gross price paid by Retailer		8698.42	8137.29
(B)	Cost components of Retailer			
1	Loading / unloading		27.69	27.69
2	Telephone Charges		14.00	14.00
3	Transportation cost		42.56	42.56
4	Mandi Tax		173.97	162.75
5	Commission charge		521.91	488.24



(C)	Total	780.12	735.23
(D)	Retailer Margin	275.00	275.00
(E)	Retailer Selling price	9753.54	9147.52
(IV)	<b>Consumer Purchase Price</b>	<b>8385.69</b>	<b>9753.54</b>
		<b>9147.52</b>	

### Price spread among different marketing channels

The results of the analysis of the price spread in the pomegranate marketing among different channels are presented in Table 4. It can be observed from the table that producer's net price received varied from ₹ 7436.72 in channel B to ₹ 8339.02 in channel A. The gross marketing margin was maximum in channel B 23.75 per cent followed by channel C 11.81 per cent and A 0.56 per cent. The highest producer's share in consumer rupee was found in channel A 99.44 per cent followed by channels C 88.19 per cent and B 76.25 per cent. Marketing margins varied between 3.01 per cent in channel C to 3.60 per cent in channel B. Marketing cost varied between 0.56 to 20.16 per cent among different channels. Similar results were noticed from the findings of Dogra *et al.*, (2017)

**Table 4:** Price spread of pomegranate among the different marketing channels in the Bhuntar market of Kullu district of Himachal Pradesh

Particulars	Marketing channels		
	A	B	C
Producer net receipt (₹)	8339.02	7436.72	8067.62
Consumer's price (₹)	8385.69	9753.54	9147.52
Gross marketing margin (GMM) (₹)	46.67	2316.82	1079.90
Net marketing cost (₹)	46.67	1965.91	804.90
Net market margin (₹)	—	350.91	275.00
Total gross marketing margin (%)	0.56	23.75	11.81
Marketing cost (%)	0.56	20.16	8.80
Marketing margin (%)	—	3.60	3.01
Producer's shares	99.44	76.25	88.19

### Marketing efficiency of different marketing channels

Marketing efficiency which is an indicator of the efficiency of marketing channels' overall performance was analysed and are presented in Table 5. The results indicate highest efficiency in

channel A (178.68) followed by channels C (7.47) and B (3.21). Channel A was found to be efficient but transacted volume was very low 10.01 per cent. Similar interpretation of observations noticed from the study of Singh *et al.*, (2020).

**Table 5:** Marketing efficiency of different marketing channels followed in study area (₹/Quintal)

Particulars	Marketing channels		
	A	B	C
Net marketing cost (₹)	46.67	1965.91	804.90
Consumer's price (₹)	8385.69	9753.54	9147.52
Net marketing margin (₹)	—	350.91	275.00
Marketing efficiency	178.68	3.21	7.47

### Constraints faced in marketing of pomegranate

An informal conversation with the sampled farmers and intermediaries has shown that pomegranate marketing has a few marketing issues. Although pomegranate cultivation is profitable, there is still a lacuna in the pomegranate marketing. The major problem related to marketing of pomegranate faced by the growers was the higher transportation charges which was ranked at first position, lack of inadequate or incorrect price which was ranked second and lack of transport facilities ranked last problem.

**Table 6:** Ranking of problems faced by farmers and intermediaries during marketing of pomegranate

Sl. No.	Problems	Garret Score	Percent	Rank
1	Higher transportation charges	3104	31.04	I
2	Lack of inadequate or incorrect price of produce	3011	30.11	II
3	Higher Commissions by middlemen	2737	27.37	III
4	Wholesaler not taking consent while selling	2715	27.15	IV
5	Lack of technical knowledge	2405	24.05	V
6	Lack of transport facilities	2386	23.86	VI

### CONCLUSION

The study focused on several issues related to pomegranate's marketing within the study area. To meet the growing demands of pomegranate, emphasis must also be placed on their marketing

capacity. In the study area, three main marketing channels were found for marketing of pomegranate. Among these channel-B, consisting Producer → Wholesaler → Retailer → Consumer was found to be the most preferred channel as 54.09 per cent of the produce was traded through this marketing channel. Highest efficiency was found in channel A followed by channels C and B respectively. Though channel A was found efficient but the transacted volume was very low 10.01 per cent, because the produce was directly traded to the consumer. Higher commission charges, lack of inadequate or incorrect price and wholesaler not taking consent while selling the produce of the farmers were the major marketing problems in study area. Pomegranate has strong commercial potential in the area and there is a significant increase in the area under this crop during past decade. Hence, the government should intend to set up new processing units, provide scientific storage facilities and forward linkage in the area to protect the interest of pomegranate growers. Short-term training programs should be coordinated in the pomegranate-producing areas in terms scientific processing and grading methods to improve producers' skills in optimizing net profit and reduce commodity wastage.

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