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To Study the Marketing Efficiency of Apple *(Malus domestica)* in Kullu District of Himachal Pradesh

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The present study investigate the efficiency of marketing of Apple in Kullu district of Himachal Pradesh. Kullu district was purposively selected for the study as apple is primarily grown crop in the district. The sample drawn for the study comprised of 100 apple growers of Kullu and Naggar blocks. The various analytical tools were used to analyse the efficiency of marketing channels of apple. The marketing channels involves in the study area is three in number, channel I (Producer–Retailer–Consumer) was the most effective channel as it had the highest marketing efficiency index of 2.28. Majority 18 per cent of the growers marketed apple through channel II (Producer–Wholesaler–Retailer–Consumer). The price spread was the lowest (Rs. 397.9) in channel I (Producer–Retailer–Consumer); and accordingly, the producer's share in final consumer rupee was the highest (69.57 %) in channel I.

Keywords: Apple; marketing efficiency; marketing channel; marketing cost; marketing margin.

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1. INTRODUCTION

Apple *(Malus domestica)* production is commercial in nature as almost the entire harvest is sold. Therefore, the prospects of increased production depend upon the prospects of markets. As the production increased, it gave rise to various marketing problems; viz., shortage of trained graders, lack of good packaging material, lack of appropriate storage and processing facilities, high marketing cost, manipulation by middlemen, problems of inappropriate and ineffectual mode of transportation, etc. [1,2]. The intermediaries involve in the marketing channels of apple, besides charging fees for carrying out their services, take significant advantage by way of malpractices and manipulation of market prices so as to generate a wide gap between the price paid by the ultimate consumer and the price received by the producer [3,4]. Marketing of apple requires well coordinated efficient marketing system which anticipates generally raising profitability of orchardists and increasing customer satisfaction at fair price. It can be improved by increasing operational and pricing efficiency [5-7]. The organisations, viz., Himachal Pradesh Horticultural Produce Marketing and Processing Corporation Limited (HPMC), Himachal Pradesh State Cooperative Marketing and Consumers Federation Limited (HIMFED), National Agricultural Co- operative Marketing Federation of India Limited (NAFED) and Fruit Growers Association are persistently working to minimize post-harvest losses and execute efficient marketing [8]. Several measures have been undertaken by the Government from time to time to revitalize the apple marketing system and it has undergone several changes during the past two and half decades [9,10]. These interference in the form of technological up-gradations, market promotion and improved marketing organisations have led to expansion of apple market in the country. A major portion of apple produced is marketed as a fresh fruit. It is also preserved in the form of apple jam, squash, canned product, syrup, candy and wine in order to fetch high market price, enable consumption during off- season and also minimize loss during the main fruit season [11-13]. The processing of apple mainly canned, bottled, frozen and several other products as jam, jelly, squash and alcoholic beverages are in high demand for export. The present study is an effort to analyse the efficiency of marketing of Apple in Kullu district of Himachal Pradesh.

2. MATERIALS AND METHODS

The sampling procedure adopted for the study to select the sample is multistage stratified random sampling procedure. Kullu district was purposively selected for the study as apple is primarily grown in this district. Two blocks viz. Kullu and Naggar were purposively selected as the apple crop is presiding in these blocks. In order to select a block, a complete list of blocks were obtained from the Head Quarter of Kullu district. Out of 5 blocks, 2 blocks namely Kullu and Naggar were selected on the basis of highest area under apple by adopting probability proportion method. . 5 villages from each block were arbitrarily selected. From Kullu block 5 villages namely Jari, Seobagh, Khokhan, Bashing and Bhuin were selected for the study purpose and from Naggar block badagran, Hurang, Vashisht, Jagatsukh and Katrain villages were selected. The primary data for the study was obtained from the sample farmers through personal interview method with the help of a pre- tested schedule. The help of Assistant Horticulture Officers of the Department of Horticulture, Kullu; HAREC (Hill Agricultural Research and Extension Centre) Bajaura; and local traders were availed in contacting the farmers as this instilled confidence in the minds of the farmers to provide reliable data. The data collected pertained to the agricultural year 2021-22.

2.1 Analytical Tools and Techniques

2.1.1 Market analysis

The total costs, incurred on marketing by the farmers and of the various intermediaries involved is calculated as follows:

$$C = C_F + C_{mi}$$

C = Total cost of marketing
C_F= *Cost paid by the farmers*
C_{mi}= Cost incurred by middlemen

2.1.2 Marketing margin

(a) Absolute margin (A_{mi})

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

(b) Percentage margin of i^{th} middlemen (P_{mi})

$$P_{mi} = \frac{P_{Ri} - (P_{Pi} + C_{mi})}{P_{Ri}} \times 100$$

Where,

P_{Ri}= Total value of receipt per unit (sale price)
P_{pi}= Purchase value of goods per unit
C_{mi}= Cost incurred on marketing per unit

The margin includes profit to the middlemen and returns to storage, interest on capital, overheads and establishment expenditure.

2.1.3 Price spread

Generally the economic efficiency of the marketing system is measured in terms of price spread. The smaller the price spread, the greater the efficiency of marketing system. Price spread refer to the difference between the price paid by the consumer and price received by the producer [14-16].

2.1.4 Producer's share in consumer's rupee

$$Ps = (P_F / P_R) \times 100$$

P_S= Producer's share in consumer's rupee.
P_F= Price received by farmer per unit.
P_R= Retail price per unit/ Consumer's purchase price.

2.1.5 Marketing Efficiency of the marketing channels

In case of marketing channels, the marketing efficiency is concerned with the movement of goods from producer to consumer at the lowest possible cost consistent with the provision of services desired by the consumers. The marketing efficiency of various channels in the study area is computed by using Acharya's method, as under:

$$ME = \frac{PF}{MC + MM}$$

Where,
ME = Marketing efficiency
PF = Price received by the farmer
MC = Total marketing costs
MM = Net marketing margins

3. RESULTS AND DISCUSSION

Marketing constitute of movement of apples from producer to ultimate consumer. In this process the fruits have to pass through more than one hand, except when it has been directly sold to consumer by the producer [1]. In this chain several agencies like growers, pre- harvest contractors, wholesalers, retailers, etc, are involved. This chain of intermediaries and functionaries is called the marketing channel. The following channels have been identified as prime channels in the study area.

Channel A: Producer–Retailer –Consumer
Channel B: Producer –Wholesaler–Retailer – Consumer
Channel C: Producer–Pre harvest contractor–Wholesaler–Retailer– Consumer

Table 1. Marketing channels adopted by the orchardists (farm categorywise)

		MarketingChannels		
Sr. No.	**Farm Size**	**A**	**B**	**C**
1.	**Marginal**	10	32	9
		(16)	(52)	(15)
2.	**Small**	8	9	3
		(32)	(36)	(12)
3.	**Semi Medium**	3	0	2
		(33)	(0)	(22)
4.	**Medium**	3	0	0
		(75)	(0)	(0)
	Overall	24	41	14
		(24)	(41)	(14)

Figures have been rounded off

Table 1: shows different marketing channels used by the orchardist to dispose off their produce. Generally four channels were found to be adopted by the orchardist in the study area. It was observed from the analysis that about 24 per cent of the orchardist were found to be disposing of the produce through channel A, 41 per cent through channel B and 14 per cent through channel C on overall basis. It can be seen that maximum percentage of orchardist were found to be disposing of their produce through channel B i.e. Producer -- wholesaler -- retailer-- consumer.

3.1 Mode of Sale

Table 2: shows the mode of sale adopted by the orchardist in the study area. It has been observed from the analysis that the percentage of the orchardists who disposed off their produce by themselves in the regulated markets ranged between 86 per cent in marginal category to 100 per cent in medium category and it was found out to be 86 per cent for overall data. The range of the orchardists who sold off their produce through pre harvest contractors was found to be between 14 to 18 per cent among different categories and about 13 per cent for the overall data. Maximum percentage i.e. about 18 per cent of the semi medium orchardist were found giving their orchards to pre harvest contractors which shows less managerial capacity amongst semi medium orchardist than other categories of the orchardist.

Table 3: shows the quantity of produce sold by different categories through above marketing channels. The table shows that out of total marketable surplus in total category maximum produce i.e. 18.23 per cent was disposed off through channel C i.e. Producer – wholesaler – retailer – consumer followed by channel A and channel B i.e. 6.15 and 17.29 per cent.

Marketing cost and price spread: Marketing cost incurred by various marketing functionaries has been shown in Table 4.

Table 2. Mode of Sale adopted by the orchardist (farm category wise)

Sl. No.	Farm Size	Through pre-harvest contractor	By themselves	Total
1.	**Marginal**	9	52	61
		(14)	(86)	(100)
2.	**Small**	3	22	25
		(11)	(89)	(100)
3.	**Semi Medium**	2	8	10
		(18)	(82)	(100)
4.	**Medium**	0	4	4
		(0)	(100)	(100)
	Overall	14	86	100
		(14)	(86)	(100)

Figures in the parentheses show percentages to the total

Table 3. Average produce sold through different channels (farm category wise)

(Quintals)

Sl. No.	Farm Size	Marketing Channels			
		A	**B**	**C**	**Total**
1.	**Marginal**	33.34	171.67	101.45	677.74
		(4.92)	(25.33)	(14.97)	(100)
2.	**Small**	40.97	152.25	103.77	681.82
		(6.01)	(22.33)	(15.22)	(100)
3.	**Semi Medium**	33.53	66.80	108.97	536.56
		(6.25)	(12.45)	(20.31)	(100)
4.	**Medium**	30.09	18.10	73.55	345.5
		(8.71)	(5.24)	(21.29)	(100)
	Total	137.93	408.82	387.74	2241.62
		(6.15)	(18.23)	(17.29)	(100)

Figures in the parentheses show percentages to the total

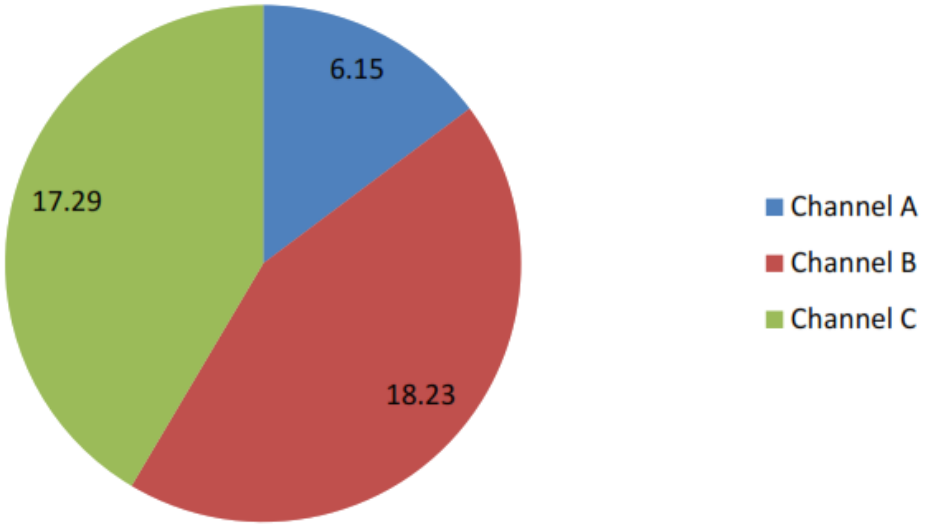

Fig. 1. Percent share in total quantity transacted through differentmarketing channels

Table 4. Marketing costs and margins of different functionaries in the different marketing channels of Apple

	MarketingChannels		
Particulars	**A**	**B**	**C**
I. Marketing costs incurred by producer			
Net price received by farmer	1043.1	945	910.1
Marketing cost	382.9		177.9
Farmer's selling price			
II. Marketing costs incurred by pre harvestcontractor			
Gross price paid by pre harvest contractor		945	
Marketing cost		312.9	
Pre harvest contractor margin		112.1	
Pre harvest contractor selling price/wholesaler purchase price		1370	
III. Marketing costs incurred byWholesaler			
Gross price paid by Wholesaler	1426	1370	
Marketing cost	44	40	
Wholesaler Margin	217	171	
Wholesaler Selling Price	1687	1581	
IV. Marketing costs incurred by Retailer			
Gross price paid by Retailer	1687	1581	1088
Marketing cost	40	40	40
Retailer Margin	230	230	180
Retailer selling price/Consumer purchaseprice	1957	1851	1308
V. Consumer purchase price	1957	1851	1308

3.2 Cost Incurred by Producers

In Channel A, producer sold their produce to the consumer through wholesaler. The total marketing cost incurred by the producer was worked out to be Rs. 254.6 per box. The major item of cost was found to be cost incurred on transportation which amounted to Rs. 90 per box. In Channel B, producer sold their produce to primary wholesaler. The total marketing cost incurred by the producer was worked out to be Rs. 187.6 per box. In Channels C, producer sold their produce to pre harvest contractor so there was no marketing cost to be borne by the farmers. In Channel-D, producer sold the produce to the consumer through retailer. The total marketing cost incurred by the producer was worked out to be Rs. 112.6 per box.

Table 5. Price spread and market efficiency of apple among the different marketing channels

(Rs./Box)

Particulars	Channel A	Channel B	Channel C
Producer's price(Rs.)	910.1	1043.1	945
Consumer's price(Rs.)	1308	1957	1851
Price spread	397.9	913.9	916
Producer's share in consumer rupee(%)	69.57	53.30	50.77
Total Marketingcost	217.9	466.9	392.9
Total Marketingmargin	180	447	513.1
Marketing efficiency (%)	2.28	1.14	1.04

Cost incurred by producers: In Channel A, producer sold their produce to the consumer through retailer. The total marketing cost incurred by the producer was worked out to be Rs.

177.9 per box. In Channels B, producer sold their produce to pre harvest contractor so there was no marketing cost to be borne by the farmers. In Channel C, producer sold the produce to the consumer through wholesaler. The total marketing cost incurred by the producer was worked out to be Rs. 382.9 per box.

Cost incurred by pre harvest contractor: The pre harvest contractor was found in the marketing Channel C. In Channel C pre harvest contractor spent Rs. 312.9 in the marketing.

Marketing cost incurred by wholesaler: The wholesaler was found in the marketing Channel B and C. The total marketing cost incurred by the wholesaler was found to be Rs. 44 per box in channel B and Rs 40 per box in channel C. The wholesaler marketing margins was found to be Rs. 217 in channel B and Rs 171 per box in channels C.

Marketing cost incurred by Retailer: Retailer was found to be present in all marketing Channels. The total marketing cost incurred by the retailer was Rs. 40 in all marketing channels. Retailer's margin was found to be Rs 180 per box in channel A and 230 per box in channel B and C respectively.

Price spread and marketing efficiency among different marketing channels: The price spread and marketing efficiency of apple among different channels has been presented in Table 5. The price spread was found to be minimum in channel A Rs 397.9 followed by Channel B and C i.e. Rs 913.9 and Rs 916 respectively. Producer's share in consumer rupee was found to be maximum in channel A i.e. 69.57 per cent and minimum in channel C i.e. 50.77 per cent.

Marketing efficiency which has been an indicator of overall performance of the marketing channels was found to be highest in channel A followed by channelsB and C respectively.

Table 5: shows that price spread at various levels, where the maximum price spread at Channel C i.e 916 per box followed by Rs. 397.9 and Rs. 913.9 per box at channel A and B. Whereas marketing efficiency is higher in Channel A i.e. 2.28 followed by 1.14 and 1.04 in Channel B and C.

4. CONCLUSIONS

Apple cultivation has proved to be highly advantageous farm activity. The present study, by concentrating on marketing aspect of apple produce projects the economic potential of apple cultivation in Kullu district. The produce was found to be marketed through three channels and maximum i.e about 18 percent has been disposed off through channel B i.e. Producer–wholesaler retailer–consumer. Comparison between different channels revealed the highest share in consumer rupee has been found in Channel A (Producer–retailer–consumer) i.e. 69.57 per cent, followed by channel B (Producer wholesaler–retailer–consumer) i.e. 53.30, Channel C (Producer–Pre harvest contractor–Wholesaler–Retailer–Consumer) i.e. 50.77 per cent. Marketing efficiency has also found to be highest in channel A i.e. 2.28 which means smaller the channel more profitable it is. Apple being a perishable product incurs immense post- harvest losses. In order to minimize these losses, steps are needed for quick disposal of the produce using improved technologies of refrigeration, proper storage and improved packing material,

maintenance and expansion of network of link roads should get more attention. Non-availability of sufficient market information to apple growers also affects the operational efficiency of the apple markets as a result of which the orchardist miss the opportunities to sell their produce at profitable prices, in right place and time. In this concern, credit and crop insurance of apple cultivation should be provided through the authorized institutional sources so as to lessen the orchardist dependence on traders and enhance negotiation power in the market. The practice of e-marketing could be used to enhance the marketing efficiency in apple trading.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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