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### From orchards to markets: The journey of Punjab's litchis

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#### Abstract

The study conducted an analysis of the marketing pattern and marketing efficiency of litchi cultivation in sub-mountainous zone of Punjab. A representative sample of 60 litchi growers was selected from four blocks of Pathankot and Hoshiarpur districts. The sampled growers had followed only two marketing channels which are; Channel-I: Producer-Pre-harvest contractor-Wholesaler-Retailer-Consumer and Channel-II: Producer-Direct sale by farmer-Retailer-Consumer. Channel-I was identified as the predominant channel, with 91.67 percent of the total produce being sold through this channel. Marketing costs of channel - I & channel - II worked out to be Rs. 884.05 & Rs. 866.90 per quintal which occupied about 19.48 and 19.09 percent share in the consumer's price. As indicated by the value of marketing efficiency index, channel-II was more efficient. Based on the study findings, the promotion of direct marketing of litchi is advised as a strategy to enhance the income of litchi growers.

**Keywords:** Costs, marketing, efficiency, litchi cultivation

#### Introduction

In the heart of Punjab's sub-mountainous zone, where the undulating terrain meets the subtropical climate, a tapestry of green orchards unfolds, laden with the jewel-like litchis. This region, known for its agricultural prowess, has not only embraced the cultivation of this succulent fruit but has also meticulously woven a narrative of marketing patterns and channels that breathe life into the journey of litchis from orchard to consumer.

Litchi (*Litchi chinensis*) is an important sub-tropical evergreen fruit crop, which is originated from China during 3000 years ago (Kumar & Kumar, 2018) <sup>[4]</sup>. India is the second largest litchi producing country with an area of 84.2 thousand hectare after China. In India, litchi reached from Burma and was firstly introduced in Bengal during 17<sup>th</sup> century after it spread to other countries. The major litchi producing states are Bihar, West Bengal, Jharkhand and Assam which accounts for 64.2 percent of the total production in the country (Sharma & Singh, 2018) <sup>[5]</sup>. Area under litchi in Punjab during the year 2019-20 was 27 thousand hectare with the production of 43,958 metric tons and its area is mostly located in Gurdaspur, Pathankot and Hoshiarpur districts (Anonymous, 2018).

The marketing landscape of litchis in the sub-mountainous zone of Punjab is a vibrant mosaic, intricately designed to showcase the unique qualities of this sought-after fruit. At the core of this marketing dance is a fusion of traditional and modern approaches, a delicate balance that reflects the region's agricultural heritage while adapting to the demands of a dynamic market.

The marketing patterns and channels of litchis in Punjab's

sub-mountainous zone are a dynamic interplay of choices, each with its set of advantages and challenges. The move towards direct marketing signals a shift towards empowerment, transparency, and a closer connection between producers and consumers. However, the cautionary tale of pre-harvest contracts underscores the importance of striking a delicate balance between financial security and the flexibility to adapt to market dynamics. As we journey through the orchards and markets of Punjab, the tale of litchi marketing unfolds, a story where choices made by farmers resonate far beyond the orchard gates, shaping the very fabric of agricultural sustainability in the sub-mountainous zone. In this exploration, we delve into the intricate dance of marketing patterns and marketing efficiency of litchi in south-western zone of Punjab.

#### Data and methodology

The present study has been conducted in the Punjab state. In order to achieve stipulated objectives of the study, multistage sampling technique was used for the selection of districts and blocks. At the first stage two districts viz. Pathankot and Hoshiarpur with the highest area under cultivation of litchi were selected purposively. Block-wise data on area under litchi cultivation in the selected districts were obtained from the Block Office of the Department of Horticulture, Punjab. At second stage one block each from both of the selected districts with the highest area under litchi was chosen. For the selection of respondents a complete list of litchi growers along with area under litchi spread in villages of the selected blocks was obtained from the respective block offices of the Department of

Horticulture, Punjab. These cultivators were arranged in ascending order with respect to area under litchi. By using cumulative cube-root frequency method, litchi growers were categorized. The study is based on primary data. The details of various components of establishment and operational cost, value of litchi orchard were recorded for orchards of different ages separately from selected litchi growers. As most of the litchi growers practiced intercropping during the initial years of non-bearing orchards, so the net returns from intercropping were also recorded.

**Marketing pattern of litchi**

The required data and relevant information required to study marketing pattern of litchi were collected from the litchi growers and market intermediaries involved in its marketing.

**Marketing margins and costs**

Ten wholesalers and ten retailers were selected for estimating the marketing margins and costs of different channels. The relevant data were collected with the help of a pre-tested, interview schedule. Information regarding marketing aspects of litchi was collected from the producers, pre-harvest contractors, wholesalers and retailers in order to find out the producer’s share in the price paid by the consumers. The different channels involved in the marketing of litchi were studied to work out the price spread.

Market margin is the profit of the various market functionaries and was calculated by subtracting the purchase price and marketing cost from the sale of market functionaries. It was worked out as.

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

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 index**

The marketing efficiency index was developed by using Acharya’s method and is as follows:

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

Where

- MME = Marketing efficiency
- FP = Price received by farmer
- MC = Total marketing costs
- MM = Net marketing margins of intermediaries (Acharya and Agarwal, 2011) <sup>[1]</sup>.

**Producer’s share in consumer rupee**

It is defined as the price received by the farmer indicated as a percent of the retail price (price paid by consumer). It is expressed as follows.

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

Where,

- $P_s$  = Producer’s share in consumer rupee
- $P_f$  = Producer’s price
- $P_r$  = Retail price

**Price spread**

It is the difference between the price paid by the consumer and the price received by the producer for the same quantity at a given point of time in a specific market.

**Results and discussion**

The marketed surplus, marketing costs, marketing margins, price spread and marketing efficiency of different marketing channels have been discussed in this section. The results with regard to marketing channels, sale pattern, price spread and marketing efficiency of litchi are discussed under the following heads.

**Marketing channels of litchi growers**

Each commodity has to pass through number of intermediaries to reach in the hands of ultimate consumers. The sampled growers have followed only two channels which are listed in Table 1. Pre-harvest contractor emerged as most important intermediary and about 91.67 percent of the total produce was sold through pre-harvest contractor. Wholesaler, commission agents were another important intermediary and direct marketing by litchi growers constituted about eight percent of the total produce. Hence, Channel-I emerged as the most important channel and growers preferred to market their produce through pre-harvest contractor rather than direct marketing. The results were in line with Kayastha *et al*, 2020 <sup>[3]</sup> and Kumar and Kumar, 2018 <sup>[4]</sup>.

**Table 1:** Marketing channels of litchi in Punjab, 2019-20

Channel	Quantity handled (%)
Channel-I: Producer-Pre-harvest contractor –wholesaler (through commission agent)-Retailer-Consumer	91.67
Channel-II: Producer-direct sale by producer farmer-Retailer (through commission agent)-Consumer	8.33

**Price spread and marketing efficiency of different channels**

It is very important to examine the marketing cost and margins of different marketing channels to improve the market structure of litchi. It is also helpful to improve the marketing efficiency by taking into account the producer’s share in the consumer’s rupee and explore the further improvement in the market structure. The marketing cost of

different marketing channels is illustrated in Tables 2 and 3.

**Marketing costs, marketing margins and price spread of Channel-I**

Major part of total production has been found to be marketed through channel-I. This is the most important channel followed by the sampled farmers in the study area. The producer farmer sold the produce to the pre-harvest

contractor at the rate of Rs 2463 per quintal. There were no marketing charges incurred by the producer farmer as rate of contract was finalised at the stage of fruit bearing time. It is also observed during the data collection that agreement of rate contract has been finalized on mutual and trust there was no written agreement. The producer farmer has transferred entire risk to the pre-harvest contractor after agreement and received Rs 2463 per quintal as net price which constituted 54.13 percent share in consumer's purchase price. The pre-harvest contractor sold the produce to wholesaler through commission agents at the price of Rs 2636.50 per quintal. While selling the produce to the wholesaler, marketing cost incurred by the contractor was Rs 308.50 per quintal. Hence the net margin of pre-harvest

contractor turned out to be Rs 173.46 per quintal which was about 3.81 percent of the consumer's purchase price. The wholesaler further sold out the produce to the retailer at the rate of Rs 3373.00 per quintal. The total marketing cost incurred by the wholesaler worked out to be Rs 295.05 per quintal which was about 6.48 percent of the consumer's purchase price. Hence net margin of the wholesaler was Rs 132.95 per quintal which accounted 2.92 percent share in the consumer's rupee. The per quintal marketing charges spent by retailer was Rs 283.00 per quintal and hence net margin received by the retailers accounted for Rs 894.00 per quintal which was 19.65 percent in the consumer's rupee. The price spread turned out to be Rs 2087 per quintal in this channel.

**Table 2:** Marketing costs, marketing margins and price spread of Channel-I in Punjab, 2019-20

S. No.	Particulars	Cost (Rs/q)	Share in consumer's rupee)
1.	Sale price of producer farmer and purchase price of pre-harvest contractor	2463.00	54.13
2.	Marketing cost of Pre-harvest contractor		
(i)	Watch & ward	58.50	1.29
(ii)	Interest for advance payment	12.90	0.28
(iii)	Plucking charges	115.25	2.53
(iv)	Grading	15.20	0.33
(v)	Packing materials	10.00	0.22
(vi)	Labour charges (Packing, loading and unloading)	35.15	0.77
(vii)	Transportation	61.50	1.35
	Total cost	308.50	6.78
	Pre-harvest contractor's margin	173.46	3.81
3.	Pre-harvest contractor's sale price/Wholesaler purchase price	2636.50	57.95
4.	Cost incurred by wholesaler		
(i)	Market fee @ 2%	58.90	1.29
(ii)	RDF/Sales tax @ 2%	58.90	1.29
(iii)	Commission@ 5%	147.25	3.24
(iv)	Transportation	17.50	0.38
(v)	Labour charges (loading, unloading etc)	12.50	0.27
	Total marketing cost	295.05	6.48
	Wholesaler's margin	132.95	2.92
5.	Wholesaler sale price/Retailer's purchase price	3373.00	74.13
6.	Cost incurred by Retailer		
(i)	Cost of polythene bags	85.50	1.88
(ii)	Transportation	43.75	0.96
(iii)	Others (rehri charges, weighing machine etc.)	153.75	3.38
	Total cost	283.00	6.22
	Net purchase price of retailer	4267.00	93.78
	Sale price of retailer/consumer's purchase price	4550.00	100.00
	Net margin of retailer	894.00	19.65
7.	Price spread		2087.00

### Marketing costs, marketing margins and price spread of Channel-II

In channel-II, the net price received by the farmers came out Rs 2979.50 per quintal which accounted for 65.64 percent of the consumer's purchase price. The farmer further sold out the produce to the retailer at the rate of Rs 3370 per quintal. The per quintal marketing charges spent by retailer was Rs 576.80 per quintal and hence net margin received by the

retailers accounted for Rs 693.20 per quintal which was 15.27 percent in the consumer's purchase rupee. The price spread turned out to be Rs 1560.10 per quintal in this channel. Overall, the net margin of the farmer producer and producer's share in consumer's rupee was higher in channel-II. Moreover, the price spread was minimum in channel-II as compared to channel-I, this indicates that channel-I observed to be more efficient than channel-II.

**Table 3:** Marketing costs, marketing margins and price spread (share of producer in consumer's rupee) of Channel-II in Punjab, 2019-20

S. No.	Particulars	Cost (Rs/q)	Share in consumer's rupee)
1.	Net sale price of producer farmer	2979.50	65.64
2.	Marketing cost borne by producer farmer		
(i)	Watch & ward	71.25	1.57
(ii)	Plucking charges	117.50	2.59
(iii)	Grading	18.20	0.40
(iv)	Packing materials	10.15	0.22
(v)	Labour charges (Packing, loading and unloading)	37.50	0.83
(vi)	Transportation	35.50	0.78
	Total cost	290.10	6.39
	Farmer sale price /Retailer 's purchase price	3270.00	72.03
3.	Cost incurred by Retailer		
(i)	Market fee @ 2%	65.40	1.44
(ii)	RDF/Sales tax @ 2%	65.40	1.44
(iii)	Commission@ 5%	165.50	3.60
(iv)	Cost of polythene bags	85.50	1.88
(v)	Transportation	43.25	0.95
(vi)	Others (rehri charges, weighing machine etc.)	153.75	3.39
	Total cost	576.80	12.70
	Sale price of retailer/consumer's purchase price	4540	100.00
	Net margin of retailer	693.20	15.27
4.	Price spread		1560.10

### Marketing efficiency of different marketing channel

Table 4 indicated that total marketing costs of all the market functionaries of channel - I and channel - II worked out to

be Rs 884.05 and Rs 866.90 per quintal which occupied about 19.48 and 19.09 percent share in the consumer's price.

**Table 4:** Marketing efficiency of different channels in Punjab, 2019-20., (Rs/q)

S No.	Particulars	Channel-I	Channel-II
1	Total marketing cost	886.55 (19.48)	866.90 (19.09)
2	Total net margin of intermediaries	1200.41 (26.38)	693.20 (15.27)
3	Net price received by farmers	2463.00 (54.13)	2979.90 (65.64)
4	Consumer's purchase price	4550 (100.00)	4540 (100.00)
	Marketing efficiency $3 \div (1+2)$	1.18	1.91

Figures in the brackets indicate percent to the consumer's rupee

The marketing cost observed to be varied with the number of market intermediaries, therefore, the marketing cost was the highest in channel-I. Pre-harvest contractor, wholesaler and retailer were the main functionaries in channel-I and retailer was the main functionary in channel-II, respectively. The net marketing margin was more in channel-I (Rs 1200.41/q) as compared to channel-II (Rs 693.20/q). The percent share of marketing margin to the consumer's rupee came out to be 26.38 and 15.27 percent in channel-I and channel-II, respectively. The marketing efficiency index was the highest in channel-II (1.91) which indicated that this market channel is the most efficient channel among all the channels in the study area.

### Conclusion

Pre-harvest contractor emerged as most important intermediary and about 91.67 percent of the total produce was sold to pre-harvest contractor. Wholesaler, commission agents were another important intermediaries which handled about eight percent of the total produce. Hence, Channel-I emerged as the most important channel and growers were preferred to market their produce though pre-harvest

contractor rather than self-marketing. The study brought out that total marketing costs estimated to be Rs 886.55 and Rs 866.90 per quintal in channel-I and channel-II which occupied 19.48 and 19.09 percent share in the consumer's price. The marketing cost observed to be varied with the number of market intermediaries, therefore, the marketing cost was the highest in channel-I. Pre-harvest contractor, wholesaler and retailer were the main functionaries in channel-I and retailer were the main functionaries in channel-II, respectively. The net marketing margin was more in channel-I (Rs 1200.41/q) as compared to channel-II (Rs 693.20/q). The percent share of marketing margin to the consumer's rupee came out to be 26.38 and 15.27 percent in channel-I and channel-II, respectively. The marketing efficiency index was the highest in channel-II (1.91) which indicated that this market channel is the most efficient channel among all the channels in the study area. The findings of the study recommended the direct marketing of litchi should be promoted to enhance the income of litchi growers through better marketing system. There is a need to develop storage and processing facilities for litchi produced along with market information for remunerative returns to

the litchi growers.

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