

Research Paper

# Marketing Chain, Price Spread and Efficiency of Turmeric Crop in Yamunanagar District of Haryana (India)

Choote Lal<sup>1\*</sup>, Sumista Rani<sup>2</sup> and Suninder Singh<sup>1</sup>

<sup>1</sup>Department of Economics, Ch. Devi Lal University, Sirsa, Haryana, India

<sup>2</sup>Department of Economics, Vaish College of Law, Rohtak, Haryana, India

\*Corresponding author: chootelal123@gmail.com (ORCID ID: 0000-0001-9350-5304)

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## ABSTRACT

Since ancient times, spices have been used for in the kitchen and medicinal purposes. In addition, spices such as turmeric, coriander, garlic, fenugreek, cinnamon, cumin and clove are utilized as health remedies for various diseases. The study tried to find out various marketing channels, costs, price spread and marketing efficiency of spice crop turmeric in the Yamunanagar district of Haryana. The study is based on primary data for the year 2020-21. Acharya's approach to marketing efficiency has been employed to analyze the data. The turmeric producers adopted five marketing channels for turmeric crop in the Yamunanagar district of Haryana. The study concluded that among the marketing channels adopted by turmeric farmers in the Yamunanagar district of Haryana, channel-V (direct from the producer to the ultimate consumer) was the most efficient marketing channel because, by this channel, the producer receives a reasonable price for their turmeric crop and the consumer received turmeric at the lowest prices. Hence, both the consumer and producer's surplus are maximized.

## HIGHLIGHTS

- The study was conducted to find out various marketing channels, costs, price spread and marketing efficiency of spice crop turmeric in the market of Yamunanagar district of Haryana.
- The study is based on primary data for the year 2020-21.
- Acharya's approach has been employed to know the price spread and marketing efficiency.
- The study found that channel-V (direct from the producer to the ultimate consumer) was the most efficient marketing channel.

**Keywords:** Spices, turmeric, price spread, marketing efficiency, marketing channels

Spices play a significant role in the kitchen and for various medicinal uses like antibiotics, carminative aperients, and cough suppressants. Since ancient times, spices have been utilised for medicinal uses. Spices such as fenugreek, coriander, turmeric, cinnamon, cumin, and clove are used as health remedies for various diseases. Historically, including spices in diets has had an overall positive impact on health. All spices are utilised in Indian cooking, traditionally and in ways that date from the past. There are 80 different varieties of spices planted

around the world, but only approximately 50 of them are produced in India, which makes it a leading producer of spices. Besides improving the flavour and aroma, spices are an excellent source of iron, calcium, vitamins B and C, and other nutrients. Spices are produced from various

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plant components, including the bulb, leaf, stem, flowers, and fruit. Many medical enterprises, such as the beauty, medical, and fragrance industries, and perfumes, use spices (Kumar, V.). In spice, turmeric is a vital ingredient. Foods can be colored and given flavor by applying turmeric. Brine pickles and, to a lesser extent, mustard and flavor recipes, non-alcoholic beverages, gelatins, butter, and cheese, among many other products, use turmeric extract. As an ingredient, turmeric curcumin is employed because of its color. Furthermore, textile manufacturers utilise turmeric as a dye. It is used to plan to support creams, medicinal, and lubricants. In addition to being an antibiotic, it has carminative, tonic, and stomachic properties. With the positive uses of spices crops, it was important how these spices, like turmeric reach producers to the ultimate consumers. The intermediaries in the marketing of spices crops are actively engaged between the producer's space and the ultimate buyer. All the adopted marketing channels describe the way of selling the spices crop. Hence, it is a journey that starts from harvesting spices crops to the pocket of the ultimate consumer. Rani *et al.* studied the marketing costs and price spread for selected fruit crops in selected districts of Haryana state. The study revealed that the producer share in terms of consumer rupees is the highest in Channel VI, followed by Channels IV, V and II. Channel VI is the most efficient channel due to the absence of intermediaries. Channel I is the least efficient due to the greatest number of intermediaries present in this channel. Chalise *et al.* studied on Economics of the production of marketing of ginger in Sun sari district, Nepal. The study recorded three types of marketing channels viz., farmers-wholesalers-retailers-consumers, farmers-commission agents-wholesalers-retailers and farmers-retailers-consumers in the study. The study found NRs. 27.77 marketing margin of ginger with 80.65 per cent producer's share. Lal and Rohtas studied the growth performance of selected spice crops in Haryana state. They found that the area, production and productivity grew at a rate of 1.70%, 2.80% and 1.10%, respectively. Thus, the study reveals a positive growth rate for all selected spice crops, indicating growing prospects of spice cultivation in Haryana. Lal and Rohtas analysis the trends of area, production and productivity of selected spices and traditional crops in

Haryana. They concluded that spices grew at the rate of 1.7 per cent compared to the 0.7 per cent growth of traditional crops in Haryana. Production of spices grew at 2.8 per cent compared to 2.3 per cent of traditional crops in Haryana. So, these studies keep in mind that this study tried to find various marketing channels, costs, price spread and marketing efficiency of spice crop Turmeric in the Yamunanagar district of Haryana.

## MATERIALS AND METHODS

The present study has been conducted in the Yamunanagar district of Haryana state. Yamunanagar district was selected because it was the highest turmeric producer district among all districts. The study was based on primary data collected from turmeric growers and marketing intermediaries through a personal interview method with the help of a well-prepared pre-tested interview schedule for 2020-21. A sample of 80 farmers and ten respondents from each intermediary, such as wholesaler, processor, and retailer, has been randomly selected for collecting primary data. To determine the costs of marketing, price spread and marketing efficiency for the selected turmeric crop, the following formula was employed:

### Price Spread

The price spread calculated the difference between the price paid by the consumer and the price received by the spice's grower for a similar quantity of farm production. It is expressed in terms of the percentage of consumer rupees through the following formula:

$$Price\ Spread = \frac{\text{The price paid by the consumers} - \text{net price received by spices growers}}{\text{The price paid by consumers}} * 100$$

### Marketing Efficiency

This study estimates marketing efficiency using the *Acharya approach* (Acharya and Agarwal). According to Acharya, an ideal measure of marketing efficiency can be calculated by using the formula:

$$\text{Marketing Efficiency} = \frac{\text{Net selling price of grower}}{\text{Total marketing cost} + \text{Total marketing margin}}$$

## RESULTS AND DISCUSSION

### 1. Marketing Channels, Price Spread, and Marketing Efficiency of Turmeric Crop in Yamunanagar District of Haryana

The present section is further divided into three sub-sections as follows:

- 1.1: Marketing channels for Turmeric crop in Yamunanagar district of Haryana
- 1.2: Price spread of Turmeric crop in Yamunanagar district of Haryana
- 1.3: Marketing efficiency of selected marketing channels for Turmeric crop in Yamunanagar district of Haryana

#### 1.1: Marketing Channels for Turmeric Crop in Yamunanagar District of Haryana

The turmeric producers also adopted five channels. The details of marketing channels adopted by the turmeric producer in the Yamunanagar district of Haryana are as follows:

Table 1 shows marketing channels adopted by turmeric producers in the Yamunanagar district of Haryana. There are mainly five channels. Channel-I has five agents: producer, wholesaler, processor, retailer, and consumer. The producer is the sole originator of a crop, and the consumer is the ultimate user of that crop. Subsequently, wholesalers, processors, and retailers are the marketing channels' intermediaries. However, this channel has the longest supply chain. In channel-II, two intermediaries, i.e., processor and retailer, have been engaged, besides producer and consumer.

In the same way, in channel-III, the only processor is engaged between the producer and consumer. In channel-IV, the only retailer is engaged between producer and consumer, and retailers purchase the turmeric crop directly from the producer and sale to the consumer.

**Table 1:** The Marketing Channels for Turmeric crop in Yamunanagar District of Haryana

Channels	Intermediaries in the Channels
Channel-I	Producer → Wholesaler (through commission agent) → Processor → Retailer → Consumer
Channel-II	Producer → Processor → Retailer → Consumer
Channel-III	Producer → Processor → Consumer
Channel-IV	Producer → Retailer → Consumer
Channel-V	Producer → Consumer

*Source:* Field survey.

Finally, in channel-V, there is no engagement of intermediaries between producer and consumer, and in this channel, consumers directly purchase turmeric crops from producers.

#### 1.2: Price Spread of Turmeric Crop in Yamunanagar District of Haryana

The price spread is the difference between the consumer's price and the producer's net price for the equivalent quantity of spices crops. However, it includes the margin of intermediaries and marketing costs at different levels. For example, table 2 shows the price spread of turmeric crops through marketing channel-I in the Yamunanagar district of Haryana. The value and cost of production have been depicted in ₹ per quintal. In marketing channel-I, producer, wholesaler (through commission agent), processor, retailer, and consumer are engaged.

Further, the sale price of the producer or purchase price of the wholesaler was ₹ 2350.00 per quintal. In the marketing of the turmeric crop, the expenses borne by the producer were ₹ 111.75 per quintal. After deducting expenses borne by produce (from the turmeric crop's sale price), the producer's net price was ₹ 2238.25 per quintal. Further, expenses borne by the wholesaler were the cost of market fee of @ 6 per cent (₹ 141.00), the commission of @ 8 per cent (₹ 443.57), storage (₹ 67.57), and spoilage during storage @ 2 per cent (₹ 47.00). Hence, the total cost borne by the wholesaler was ₹ 443.57. The wholesaler's margin was ₹ 1350.00. The wholesaler's sale price or processor's purchase price was ₹ 4143.57 per quintal. Further, the total cost borne by the processor

**Table 2:** Price Spread of Turmeric crop in Yamunanagar District through Channel-I (₹ per quintal)

Sl. No.	Particulars	Value
1	Sale price of producer/purchase price of wholesaler	2350.00 (26.49)
	Cost incurred by the producer	
	Transportation cost	67.50 (0.76)
	Gunny bags/plastic bags	13.50 (0.15)
2	Loading charges	02.50 (0.03)
	Cleaning	17.00 (0.19)
	Storage losses @ 0.5 per cent	11.25 (0.13)
	Sub-total (i to v)	111.75 (1.26)
3	Net price received by producer [1-2(vi)]	2238.25 (25.23)
	Cost incurred by the wholesaler cum commission agent	
	Market fee @ 6 per cent	141.00 (1.59)
4	Commission @ 8 per cent	188.00 (2.12)
	Storage	67.57 (0.76)
	Spoilage during storage @ 2 per cent	47.00 (0.53)
	Sub-total (i to iv)	443.57 (5.00)
5	Total cost borne by wholesaler [1+4(v)]	2793.57(31.48)
6	Sale price of wholesaler/purchase price of processor	4143.57 (46.70)
7	Net margin of wholesaler (6-5)	1350.00 (15.21)
	Cost incurred by the processor	
	Transportation cost	51.25 (0.58)
	Boiling and drying	45.00 (0.51)
	Polishing	50.00 (0.56)
8	Mill charges	135.50 (1.53)
	Electricity charges	84.00 (0.95)
	Packaging	75.00 (0.85)
	Storage and marketing	122.00 (1.38)
	Sub-total (i to vii)	562.75 (6.34)
9	Total cost borne by processor [6+8(viii)]	4706.32 (53.04)
10	Sale price of processor/purchase price of retailer	7856.82 (88.55)
11	Net margin of processor (10-9)	3150.50 (35.51)
	Cost incurred by the retailer	
	Transportation	108.33 (1.22)
12	Loading and unloading	05.00 (0.06)
	Storage	52.25 (0.59)
	Sub-total (i to iii)	165.58 (1.87)
13	Total cost borne by retailer [10+12(iv)]	8022.40(90.42)
14	Sale price of retailer/purchase price of consumer	8872.40 (100)
15	Net margin of retailer (14-13)	850.00 (09.58)
	<b>Price spread (14-3)</b>	<b>6634.15</b>

Source: Field survey; Note: Figures in parentheses are the percentage of the consumer's price.

was ₹ 562.75. Therefore, the sale price of the processor or purchase price of the retailer (₹ 7856.82) contains the purchase price of the processor (₹ 4143.57), a margin of the processor (₹ 3150.50), and expenses borne by the processor (₹ 562.75), i.e., transportation cost, boiling

and drying, polishing, mill charges, electricity charges, packaging, and storage & marketing.

Ultimately, in this marketing channel, the farm product is supplied by retailers to the consumer. The sale price of the retailer or purchase price of the consumer includes

the purchase price of the retailer (₹ 7856.82), net margin (₹ 850.00), and the retailer bears expenses (₹ 165.58). Hence, the consumer's purchase price was ₹ 8872.40 per quintal.

Thus, the difference between the price paid by the consumer (₹ 8872.40) and the price received by the producer (₹ 2238.25) was the price spread (₹ 6634.15 per quintal). However, the longer the marketing channel of farm produce, the greater the price spread for that farm produce. In economic terms, existing literature highlighted that the marketing channels should be as short as possible, which benefits both the producers and consumers. Channel-I is the most extended marketing

channel, and the price spread is also the highest in this channel.

Table 3 shows the price spread of turmeric crops through marketing channel-II in the Yamunanagar district of Haryana. In marketing channel-II, producer, processor, retailer, and consumer are the main agents. The sale price of the producer or purchase price of the processor was ₹ 2600.00 per quintal. Total expenses borne by the producer were ₹ 53.00 per quintal. After the deduction of expenses borne by the producer, the net price received by the producer was ₹ 2547.00 per quintal.

Further, the sale price of the processor and purchase

**Table 3:** Price spread of turmeric through channel-II (₹ per quintal)

Sl. No.	Particulars	Value
1	Sale price of producer/purchase price of processor	2600.00 (32.92)
	Cost incurred by the producer	
	Transportation	22.50 (0.28)
2	Loading charges	02.50 (0.03)
	Cleaning	17.00 (0.21)
	Storage losses @ 0.5 per cent	11.00 (0.13)
	Sub-total (i to iv)	53.00 (0.67)
3	Net price received by producer [1-2(v)]	2547.00 (32.25)
	Cost incurred by the processor	
	Transportation cost	51.25 (0.64)
	Boiling & drying	45.00 (0.56)
	Polishing	50.00 (0.63)
4	Mill charges	135.50 (1.71)
	Electricity charges	84.00 (1.06)
	Packaging	75.00 (0.94)
	Storage and marketing	122.00 (1.54)
	Sub-total (i to vii)	562.75 (7.12)
5	Total cost borne by processor [1+4(viii)]	3162.75 (40.05)
6	Sale price of processor/purchase price of retailer	6612.75 (83.74)
7	Net margin of processor	3450.00 (43.69)
	Cost incurred by the retailer	
	Transportation	55.83 (0.70)
8	Loading and unloading	05.00 (0.06)
	Packaging (polythene bags)	45.00 (0.56)
	Storage	52.25 (0.66)
	Sub-total (i to iv)	158.08 (2.00)
9	Total cost borne by retailer [6+8(v)]	6770.83 (85.75)
10	Sale price of retailer/purchase price of consumer	7895.83 (100)
11	Net margin of retailer (10-9)	1125.00 (14.24)
	<b>Price spread (10-3)</b>	<b>5295.83</b>

**Source:** Field survey; **Note:** Figures in parentheses are the percentage of the consumer's price.

price of the retailer was ₹ 6612.75 per quintal, which was the addition of the purchase price (₹ 2600.00), margin (₹ 3450.00), and expenses borne by the processor (₹ 562.75). Hence, the net margin of the processor (₹ 3450.00 per quintal) was greater than the purchase price of the turmeric crop by the processor (₹ 2600.00) from the producer. Finally, the retailer is the ultimate supplier of turmeric crops to the consumer in this marketing channel. Therefore, the sale price of the retailer or purchase price of the consumer includes the purchase price of the retailer (₹ 6612.75), the net margin of the retailer (₹ 1125), and expenses borne by the retailer (₹ 158.08). Hence, the consumer's purchase price was ₹ 7895.83 per quintal.

Thus, ₹ 5295.83 per quintal was the price spread for marketing channel-II, which was lower than the price spread of channel-I. Hence, channel-II is more beneficial to producers and consumers than channel-I because producers receive a higher price for their produce, and consumers purchase at a lower price. Both consumer and producer maximise their benefits.

Table 4 shows the price spread of the turmeric crop through marketing channel-III in the Yamunanagar district of Haryana. Producers, processors, retailers, and consumers were the main agents. The sale price of the producer or purchase price of the processor was ₹ 2600.00 per quintal. The producer's total expenses were ₹ 53.00 per quintal. After the deduction of expenses borne by the producer, the net price received by the producer was ₹ 2547.00 per quintal.

Further, the sale price of the processor and purchase price of the consumer was ₹ 6162.75 per quintal, which is the addition of the purchase price (₹ 2600.00), margin (₹ 3450.00), and expenses borne by the processor (₹ 562.75). Hence, the net margin of the processor (₹ 3450.00 per quintal) is greater than the purchase price of the turmeric crop by the processor (₹ 2600.00) from the producer. Hence, the consumer's purchase price was ₹ 6612.75 per quintal.

The price spread for marketing channel-III was ₹ 4065.75 per quintal, which was lower than the price spread of

**Table 4:** Price spread of turmeric through channel-III (₹ per quintal)

Sl. No.	Particulars	Value
1	Sale price of producer/purchase price of processor	2600.00 (39.31)
	Cost incurred by the producer	
	Transportation	(0.34)
2	Loading charges	(0.03)
	Cleaning	17.00 (0.25)
	Storage losses @ 0.5 per cent	11.00 (0.16)
	Sub-total (i to v)	53.00 (0.80)
3	Net price received by producer [1-2(vi)]	2547.00 (38.51)
	Cost incurred by the processor	
	Transportation cost	(0.77)
	Boiling & drying	(0.68)
	Polishing	50.00 (0.75)
4	Mill charges	(2.04)
	Electricity charges	(1.27)
	Packaging	75.00 (1.13)
	Storage and marketing	122.00 (1.84)
	Sub-total (i to vii)	(8.51)
5	Total cost borne by the processor [1+4(viii)]	3162.75 (47.83)
6	Sale price of processor/purchase price of consumer	6612.75 (100)
7	Net margin of processor (6-5)	3450.00 (52.17)
	<b>Price spread (6-3)</b>	<b>4065.75</b>

**Source:** Field survey; **Note:** Figures in parentheses are the percentage of the consumer's price.

channel-I and II. Hence, channel-III was more beneficial for producers and consumers.

Table 5 shows the price spread of turmeric crop through marketing channel-IV in the Yamunanagar district of Haryana. Only retailers were the intermediary between producers and consumers in this marketing channel. The retailer purchased a fraction of the turmeric crop through this channel from producers. In this channel, the sale price of the producer or purchase price of the retailer was ₹ 3450.00 per quintal. After the deduction of total expenses borne by the producer, [i.e., transportation cost (₹ 22.50), loading charges (₹ 2.50), cleaning (₹ 17.00), boiling & drying (₹ 45.00), and storage losses (₹ 23.25 per quintal)], the net price received by the producer has left ₹ 3289.57 per quintal, which is higher than channel-I, II, and III's prices. Further, the sale price of the retailer or purchase price of the consumer was ₹ 4733.08 (including expenses borne by the retailer (₹ 158.08) and net margin (₹ 1125). Hence, the consumer's purchase

price was just ₹ 4733.08 per quintal, again lower than the consumer's purchase price through channels-I, II, and III.

However, producers receive higher prices for their crops, and consumers purchase at lower prices than in the abovementioned channels. The price spread for marketing channel-IV was ₹ 1443.33 per quintal, lower than channels-I, II, and III's price spread.

Table 6 shows the price spread of turmeric crop through marketing channel-V in the Yamunanagar district of Haryana. In marketing channel-V, there is no intermediary between producers and consumers. Producers directly sale to consumers, or consumers directly purchase from producers. However, it is the most efficient marketing channel for the turmeric crop in Haryana from the point of view of consumers' and producers' surplus. Consumers pay a minimum price for turmeric, and producers receive the highest price for their crop. The sale price of the producer or purchase

**Table 5:** Price spread of turmeric through channel-IV (₹ per quintal)

Sl. No.	Particulars	Value
1	Sale price of producer/purchase price of retailer	3450.00 (72.89)
	Cost incurred by the producer	
	Transportation	22.50 (0.47)
	Loading charges	02.50 (0.05)
2	Cleaning	17.00 (0.35)
	Boiling and drying	45.00 (0.95)
	Polishing	50.00 (1.05)
	Storage losses @ 0.5 per cent	23.25 (0.49)
	Sub-total (i to vi)	160.25 (3.38)
3	Net price received by producer [1-2(vii)]	3289.75 (69.50)
	Cost incurred by the retailer	
	Transportation	55.83 (1.19)
4	Loading and unloading	05.00 (0.10)
	Packaging (polythene bags)	45.00 (0.95)
	Storage	52.25 (1.10)
	Sub-total (i to iv)	158.08 (3.34)
5	Total cost borne by retailer [1+4(v)]	3608.08 (76.23)
6	Sale price of retailer/purchase price of consumer	4733.08 (100)
7	Net margin of retailer (6-5)	1125.00 (23.76)
	<b>Price spread (6-3)</b>	<b>1443.33</b>

**Source:** Field survey; **Note:** Figures in parentheses are the percentage of the consumer's price.

**Table 6:** Price spread of turmeric through channel-V (₹ per quintal)

Sl. No.	Particulars	Value
1	Sale price of producer/purchase price of consumer	3600.00 (100)
	Cost incurred by the producer	
	Transportation	22.50 (0.62)
	Loading charges	02.50 (0.07)
2	Cleaning	17.00 (0.47)
	Boiling and drying	45.00 (1.25)
	Polishing	50.00 (1.38)
	Storage losses @0.5 per cent	23.25 (0.64)
	Sub-total (i to vi)	160.25 (4.45)
3	Net price received by producer [1-2(vii)]	3439.75 (95.54)
	<b>Price spread (1-3)</b>	160.25

Source: Field survey; Note: Figures in parentheses are the percentage of the consumer's price.

**Table 7:** Marketing Efficiency of Turmeric Crop under Different Channels (₹ per quintal)

Sl. No.	Particulars	Channel- I	Channel- II	Channel- III	Channel-IV	Channel-V
1	Consumer's purchase price (RP)	8872.40	7895.83	6612.25	4733.08	3600.00
2	Net marketing costs (MC)	1171.90	720.83	562.75	158.08	160.25
3	Total margins of intermediaries (MM)	5350.50	4575.00	3450.00	1125.00	-
4	Net price received by producer (FP)	2238.50	2547.00	2547.00	3289.75	3439.75
	<b>Marketing efficiency</b>	0.34	0.48	0.63	2.56	21.46

Source: Field survey.

price of the consumer was ₹ 3600.00 per quintal. The costs incurred by the producer were ₹ 160.25 per quintal (i.e., transportation costs (₹ 22.50), loading charges (₹ 2.50), cleaning (₹ 17.00), boiling & drying (₹ 45.00), polishing (₹ 50.00) and storage losses (₹ 23.25 per quintal). Hence, the net price received by the producer was ₹ 3439.75. The price spread was ₹ 106.25 per quintal, equal to the cost incurred by the producer (₹ 106.25).

### 1.3: Marketing Efficiency of Selected Marketing Channels for Turmeric Crop in Yamunanagar District of Haryana

For the calculation of marketing efficiency, Acharya's approach is used. The detailed definition is depicted in section 1.3. The detailed findings concerning the turmeric crop are represented as follows:

Table 7 shows the marketing efficiency of the turmeric

crop under different marketing channels in the Yamunanagar district of Haryana. The study showed that the lowest consumer purchase price was found under channel-V, and the lowest net marketing costs and margins of intermediaries were also the lowest in channel-V. However, channel-V is the most efficient marketing channel for turmeric crop in the Yamunanagar district of Haryana, and the highest marketing efficiency (21.46) is found for channel-V. Thus, it can be concluded that the lower the number of intermediaries in marketing crops, the higher the marketing efficiency. The findings depicted that marketing channel-V is the most efficient channel with 21.46 points, followed by channel-IV (2.56), III (0.63), II (0.48), and I (0.34). Hence, channel-V provides turmeric at the lowest price to consumers and the highest price for producers, and surplus was maximised for both producer and consumer.

## CONCLUSION

It can be concluded that among the marketing channels adopted by turmeric farmers in the Yamunanagar district of Haryana, channel-V (direct from the producer to the ultimate consumer) is the most efficient marketing channel because, by this channel, the producer receives a reasonable price for their turmeric crop and the consumer received turmeric at the lowest prices. Hence, both the consumer and producer's surplus are maximized.

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