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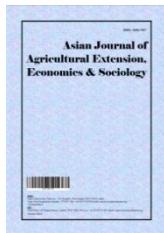
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Study on Marketing Channels of Black Pepper in Kolli Hills of Namakkal District in Tamil Nadu

C. Indhumathi^{1*}, R. Senthilkumar², C. Muralidharan³ and R. Pangayar Selvi⁴

¹Department of Social Sciences, Agricultural College and Research Institute, Tamil Nadu, Agricultural University, Killikulam, Thoothukudi - 628 252 (Tamil Nadu), India.

²Department of Social Sciences, Anbil Dharma lingam Agricultural College and Research Institute, Tamil Nadu, Agricultural University, Trichy – 621105 (Tamil Nadu), India.

³Department of Social Sciences, Agricultural College and Research Institute, Tamil Nadu, Agricultural University, Killikulam, Thoothukudi - 628 252 (Tamil Nadu), India.

⁴Department of Physical Sciences and Information Technology, Tamil Nadu, Agricultural University, Coimbatore - 641 003 (Tamil Nadu), India.

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

Aim: The present study was conducted with the aim to analyze the marketing cost, margin, price spread and marketing efficiency of farmers in different marketing channels of Black pepper in Kolli Hills of Namakkal district.

Methodology: About 80 farmers were interviewed for this study. Data related to marketing performance of black pepper was collected using the well-structured pre tested interview schedule and the results were tabulated.

Results: Among the different marketing channels, total marketing cost was low in channel III (Rs.39/Qt) as compared to channel II (Rs.92/Qt) and channel I (Rs.74/Qt). This shows that marketing cost was low if the channel does not have any market intermediaries. The best channel

*Corresponding author: E-mail: navanindh99@gmail.com;

for both producer and consumer were found to be channel III in which producers receives the maximum share of consumers rupee (89.46 per cent) and consumers purchase the produce at the low price of Rs. 370/Qt.

Conclusion: This study reveals that, among the other marketing channels, channel III has the highest marketing efficiency of 9.48 per cent and 8.48 per cent. Middleman exploitation was the major problem which reduce the net income of the farmers in the study area.

Keywords: *Black pepper; marketing cost; marketing margin; price spread and marketing efficiency.*

1. INTRODUCTION

Global demand for spices has kept increasing in recent years, due to the increase in the consumption of snacks, confectionary, and convenience foods. The increased surge in fast food consumption in many countries, such as China and India, drive the spice market. In Asia Pacific, the major market for spices was China, followed by India. Global spice production peaked in the year 2019, with India leading the way with 57 million tons, accounting for 42 per cent of total production. From 2007 to 2019, the global average spice yield increased at 1.6 per cent annual rate. It is forecasted that the Compound Annual Growth Rate (CAGR) will increase by 3.1 per cent from 2019-2030, which means by the end of 2030, spice production will be 18 million tons.

India, "The Land of Spices", is known for its rich and varied flavors of spices, which are predominantly used in kitchens. India is one of the largest producers, exporters, and consumers of spices in the globe. Indian spices are in high demand in the global market for their gastronomic value and medicinal properties. Spices from India and Egypt were known as the best in the world, adding a unique flavor and aroma to food. The economic condition of India has been greatly influenced by Indian spices since ancient times. Indian spices were as old as human civilization, which was evidenced that the information about spices was found in the Rig Veda, which was written around 6000 BC, the Samaveda, Yajurveda and Atharveda.

In recent years, the area under spice production has increased steadily. During the last four decades, global spice demand has increased, which has led to an increase in spice exports from India. India supplied about 70 per cent of global spice demand. The total export of spices was US \$4.00 billion in April 2020 to March 2021. Major exported spices during 2018-19 were turmeric, chilli, pepper, mint products, cumin, cardamom, garlic, curry paste and spice oils.

Black Pepper (*Piper nigrum* L.) belongs to the piperaceae family, popularly known as the "king of spices". There are many spices in the piperaceae family, among which black pepper is unique due to piperine, the principal pharmacological component. Due to the export value, black pepper is called "Black Gold". It is the most traded spice in the world. Indian pepper had a significant impact on the mediaeval European economy. Many western nations owed their wealth to this spice, which commanded a premium price. Black pepper is used to add flavour to the majority of food products such as candies, beverages, meat products, cheese, etc. The oil extracted from the berries is used for manufacturing perfumes. Among the other states, Kerala ranks first in black pepper production with a future estimated production of 36,000 tonnes in the years 2020-21 [1].

1.1 Objectives

1. To analyse the marketing cost, marketing margin and price spread of different marketing channels of black pepper.
2. To estimate the marketing efficiency of spices among the different marketing channels of black pepper.

2. REVIEW OF LITERATURE

Saraswat et al. [2] undertook a study on marketing performance of peach in Himachal Pradesh. The results showed that farmers receive highest profit from Mumbai market (Rs.100/Box) followed by Delhi market (Rs.41.40/Box) and retailers' margin was high in Mumbai market (Rs.11.88/Box) followed by Delhi market (Rs.11.75/Box) and Chandigarh market (Rs.11.66/Box).

Srikala et al. [3] conducted research in Guntur district of Andhra Pradesh to analysis the price spread of green chillies with the sample size of 60 farmers. They found five different marketing channels in their study area. They conclude that

farmers share in consumers rupee was 64.45 per cent whereas wholesalers and retailers share was 9.85 per cent and 8.21 per cent.

Jorwar et al. [4] in their research observed that total marketing cost of chilli in channel I, II and III was Rs.107/qt, Rs.246/qt and Rs.290/qt and channel I had the highest marketing efficiency of 24.02 per cent followed by channel II (9.17 per cent) and channel III (8.24 per cent). They discovered that the growing number of intermediaries, which also lowered marketing efficiency and raised marketing expenses, was the primary restriction to raising farmers' revenue.

Prabakar et al. [5] attempted to investigate the price spread of tapioca in the Salem district of Tamil Nadu. They discovered that the producers' share of the consumer rupee was high on channel III (Rs.70/Qt), which has the lowest marketing cost of any channel, followed by channel I (Rs.33/Qt), and channel IV (Rs.24/Qt).

Dhok et al. [6] attempted to study the turmeric marketing in Sangli district of Maharashtra. Among the channels, Channel III accounts for approximately 55.29 per cent of turmeric marketing. They found that channel I was more efficient than others, with the lowest marketing cost of Rs.136.19/qt followed by channel II (Rs.216.74/qt) and channel III (Rs.226.04/qt).

3. MATERIALS AND METHODS

Among the 38 districts in Tamil Nadu, Namakkal district was selected purposely to study the marketing performance of black pepper. Namakkal district comprises of 15 blocks, among which Kolli hills block was selected using purposive sampling which holds the major area under spices cultivation. In the kolli Hills block, among the 15 villages following villages were selected based on purposive random sampling. Devanur nadu, Selur nadu, Thinnanur nadu, Thirupulli nadu, Valappur nadu and Valavanthi nadu are the villages selected for the study. From each village 10 farmers were selected using the random sampling. Thus, a total of 60 farmers was selected from those six villages. Apart from these, wholesalers (5), Retailers (5), processors (5) and consumers (5) were randomly selected from the above villages. So that, the total sample size of this study was 80. To satisfy the objectives of the study, required data were collected through the well-structured pre tested interview schedule which was prepared individually for farmers and market

intermediaries. This study was based on primary data collected from the pepper growing farmers, market intermediaries and consumers in the study area.

3.1 Tools of Analysis

3.1.1 Marketing cost

Marketing cost includes grading, packaging, transportation, commission charges, loading and unloading charges occurred in the movement of the final product. Marketing cost involves all the expenditure involved by the farmers and market intermediaries in bringing the produce from farm gate to the end consumers [7].

3.1.2 Marketing margin

Marketing margin is defined as the difference between the price paid by the consumers and price received by the producers for the equivalent quantity sold and with the associated marketing costs.

$$\text{Marketing Margin} = [(\text{selling price} - \text{purchase price}) - \text{marketing cost}]$$

3.1.3 Price spread

Difference between the consumers paid price and the producers received price per unit of the commodity is known as price spread. Price spread was calculated using the following formula

$$\text{Price Spread} = \frac{\text{Consumer price} - \text{Net price of the producer}}{\text{Consumer price}} \times 100$$

4. RESULTS AND DISCUSSION

4.1 Marketing Cost

Major marketing channels in the study area were identified and data related to marketing cost were collected and tabulated below. Three major marketing channels identified were,

- I. Farmer → Wholesaler → Retailer → Consumer
- II. Farmer → Wholesaler → Processor → Consumer
- III. Farmer → Consumer

Marketing cost of pepper incurred by farmers in different marketing channels were tabulated below. Cost of Post-harvest process in channel I was higher (Rs.1100/Qt) than the other two

channels (Rs.200/QtI and Rs.300/QtI). Packaging was high to marketing channel II (Rs.600/QtI) while comparing to channel I (Rs.200/QtI) and channel III (Rs.200/QtI).

In channel I, grading of pepper was done manually by the farmers. So, this channel incurred high cost (Rs.1000/QtI) for grading than the other channels. The product travelling distance was high for channel II which costs around Rs.1300/QtI followed by channel I (Rs.900/QtI) and channel III (Rs.700/QtI). Loading and unloading charges are similar for channel I and channel II such as Rs.600/QtI and Rs.500/QtI. Weightment cost high in channel II

and III (Rs.300/QtI) followed by channel I (Rs.200/QtI). Cost of physical loss was low (Rs.100/QtI) in channel I followed by channel II and channel III (Rs.200/QtI). Total Marketing cost of farmers was low in channel III (Rs.3900/QtI) as it does not include any market intermediaries. Marketing costs for channel I and channel II were Rs.4600/QtI and Rs.4500/QtI. Net income of farmers is high in channel III (Rs.36,610/QtI) followed by channel I (Rs.35,040/QtI) and channel II (Rs.34,050/QtI).

Marketing cost incurred by wholesalers in different marketing channels were presented in the Table 2.

Table 1. Marketing cost of farmers in different channels n=60

S. No	Particulars	Channel I		Channel II		Channel III	
		Cost (Rs. /QtI)	Per centage to the total	Cost (Rs. /QtI)	Per centage to the total	Cost (Rs. /QtI)	Per centage to the total
1	Post-harvest process	1100	23.91	200	4.44	300	7.69
2	Packaging	200	4.35	600	13.33	200	5.13
3	Grading	1000	21.74	800	17.78	800	20.51
4	Transportation	900	19.57	1300	28.89	700	17.95
5	Loading	600	13.04	600	13.33	700	17.95
6	Unloading	500	10.87	500	11.11	700	17.95
7	Weightment	200	4.35	300	6.67	300	7.69
8	Physical loss	100	2.17	200	4.44	200	5.13
9	Others	-	0.00	-	0.00	-	0.00
	Marketing cost (Rs. /QtI)	4600	100	4500	100	3900	100
	Net Income (Rs. /QtI)	35,040		34,050		36,610	

Table 2. Marketing cost of Wholesalers in different channels n=5

S. No	Particulars	Channel I		Channel II	
		Cost (Rs. /QtI)	Per centage to the total	Cost (Rs. /QtI)	Per centage to the total
1	Post-harvest process	200	5.40	300	6.98
2	Packaging	300	8.11	300	6.98
3	Grading	200	5.41	300	6.98
4	Transportation	1400	37.83	1600	37.21
5	Loading	600	16.22	600	13.95
6	Unloading	600	16.22	600	13.95
7	Weightment	300	8.11	300	6.98
8	Physical loss	100	2.70	300	6.98
9	Others	-	0.00	-	0.00
	Marketing cost	3700	100	4300	100
	Quantity purchased (QtI/year)	23.67		23.50	
	Purchase price (Rs. /QtI)	35,500		34,500	
	Sale price (Rs. /QtI)	40,500		41,500	

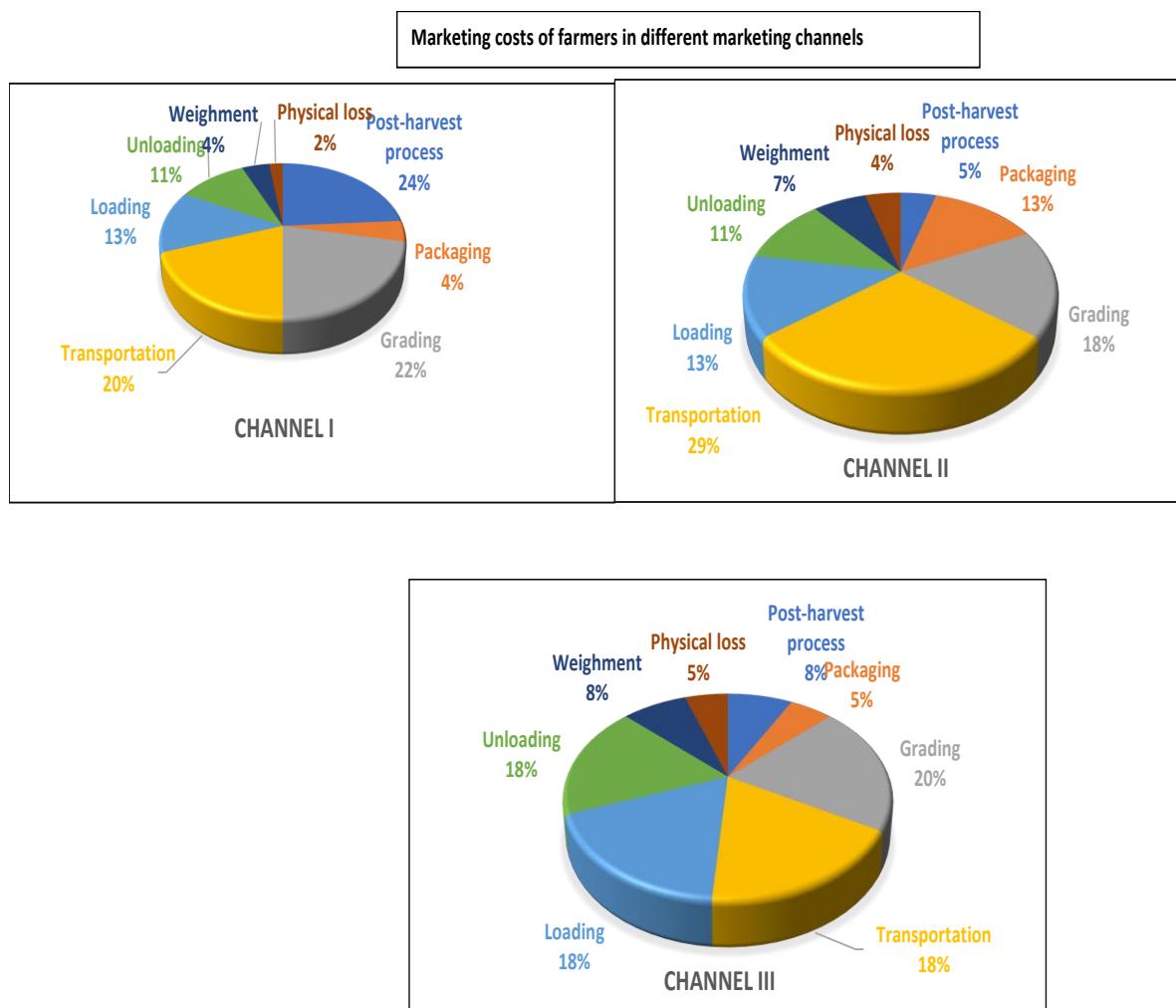


Fig. 1. Marketing cost of farmers in different marketing channels

Marketing cost incurred by wholesalers in channel I was Rs.3700/QtI followed by Rs.4300/QtI in channel II. Wholesalers in channel I purchases more quantity of black pepper than the wholesalers in channel II. In channel I, wholesalers purchase the product for Rs.35,500/QtI and sell it for Rs.40,500/QtI whereas in channel II, wholesaler purchases for Rs.34,500/QtI and sell it for Rs.41,500/QtI.

Table 3 provides the marketing cost of Retailers and processors in channel I and channel II. Marketing cost of Retailers in channel I was Rs.3700/QtI whereas, marketing cost of processors in channel II was Rs.4900/QtI which includes the cost of processing. Retailers in channel I purchases the product at the rate of Rs.40,500/QtI from the wholesalers and sell it to the consumers at the rate of Rs.48,500/QtI. And the quantity transacted by the retailers in the whole year was 15.74 Qtls. In channel II,

processors purchase the product from the wholesalers at the rate of Rs.41,500/QtI and sell it to the consumers at the rate of Rs.47,000/QtI. Total quantity transacted per annum was 23.10 Qtls.

4.2 Price Spread and Marketing Margin

The price spread of different marketing channels involving different market intermediaries was presented in the Table 4 shows. Net price received by farmers in different channels were Rs.30,900/QtI, Rs.30,000/QtI and Rs.33,100/QtI respectively which constitutes per centage of consumer price of 63.71 per cent, 63.88 per cent and 89.45 per cent. The producer's sale price in channel I was Rs.35,500/QtI, Rs.34,500/QtI in channel II and Rs.37,000/QtI in channel III which was about 73.19 per cent of consumer price in channel I followed by 73.40 per cent in channel II.

Table 3. Marketing cost of retailers and processors in different channels n=5+5

S. No	Particulars	Channel I (Retailers)		Channel II (Processors)	
		Cost (Rs. /Qtl)	Per centage to the total	Cost (Rs. /Qtl)	Per centage to the total
1	Post-harvest process	-	0.00	-	0.00
2	Packaging	200	5.40	300	6.12
3	Grading	400	10.81	300	6.12
4	Transportation	1400	37.84	1500	30.61
5	Loading	600	16.22	600	12.24
6	Unloading	600	16.22	600	12.24
7	Weighment	300	8.11	300	6.12
8	Physical loss	200	5.40	100	2.04
9	Others	-	0.00	1200	24.49
	Marketing cost	3700	100	4900	100
	Quantity purchased (Qtl/yr.)	15.74		23.10	
	Purchase price (Rs. /Qtl)	40,500		41,500	
	Sale price (Rs. /Qtl)	48,500		47,000	

Consumer's rupee of marketing cost was highest in channel III (10.54 per cent) marketing followed by channel II and I (9.48 per cent and 9.57 per cent). Wholesalers purchase price was Rs.35,500/Qtl which constitutes 73.19 per cent of consumers rupee followed by Rs.34,500/Qtl in channel II which constitutes for 73.40 per cent. The marketing cost of wholesalers in channel I and channel II were Rs.3700/Qtl (7.62 per cent) and Rs.4300/Qtl (9.14 per cent) respectively. Wholesaler sale price to retailers and processors was Rs.40,500/Qtl (83.51 per cent) and Rs.41,500/Qtl (88.29 per cent). Marketing margin of wholesaler was high in channel II (Rs.2700/Qtl) followed by channel I (Rs.1300/Qtl). Marketing cost of retailer and processor was Rs.3700/Qtl (7.62 per cent) in channel I and Rs.4900/Qtl (10.42 per cent) channel II. Marketing margin of processors was 1.28 per cent in channel II and 8.87 per cent for retailers in channel I. Retailers sell their produce at the high rate of Rs.48,500/Qtl and processors sell their produce at the rate of Rs.47,000/Qtl. Among the different marketing channels, total marketing cost was low in channel III (Rs.3900/Qtl) as compared to channel II (Rs.9200/Qtl) and channel I (Rs.7400/Qtl). This shows that marketing cost was low if the channel does not have any market intermediaries. The same result was reported by Kumari et al. [8]. The difference between the price paid by the consumers and price received by the producers

was high in channel I (Rs.17,600/Qtl) followed by channel II (Rs.17,000/Qtl) and channel III (Rs.3900/Qtl). Producers share in consumers rupee was high in channel III (89.45 per cent) followed by 73.40 per cent in channel II and 63.71 per cent in channel I. This shows that if the farmers sell their produce directly to the consumers, then their share in consumer's rupee was high [9]. The best channel for both producer and consumer were found to be channel III in which producers receives the maximum share of consumers rupee (89.45 per cent) and consumers purchase the produce at the low price of Rs. 37,000/Qtl. It was supported with the findings of Bhat et al., [10].

4.3 Marketing Efficiency

Marketing efficiency of different marketing channels were calculated using Acharya's approach and shepherd's formula and the results were tabulated. By using Acharya's approach, marketing efficiency was high in channel III (8.48 per cent) followed by channel I (2.37 per cent) and channel II (2.40 per cent). In Shepherd's formula, channel III has the highest marketing efficiency of 9.48 per cent followed by 5.10 per cent in channel II and 6.55 per cent in channel I.

Both of the methods give the same results that, if the marketing channel doesn't have any market intermediaries and sell the product directly to the

consumers, then that channel is said to be an efficient than the others [11]. In the study area, channel III was said to be the efficient channel with the highest marketing efficiency of 9.48 per cent and 8.48 per cent.

Table 4. Price spread of different marketing channels n=80

S. No	Particulars	Channel I		Channel II		Channel III	
		Cost (Rs. /Qtl)	Per centage to Consumer price	Cost (Rs. /Qtl)	Per centage to Consumer price	Cost (Rs. /Qtl)	Per centage to Consumer price
1	Farmer's sale price	35,500	73.19	34,500	73.40	37,000	100
2	Farmers Marketing cost	4600	9.48	4500	9.57	3900	10.54
3	Net price received by farmers	30,900	63.71	30,000	63.88	33,100	89.45
4	Wholesalers purchase price	35,500	73.19	34,500	73.40	-	0.00
5	Marketing cost of wholesalers	3700	7.62	4300	9.14	-	0.00
6	Sale price of wholesalers	40,500	83.51	41,500	88.29	-	0.00
7	Marketing margin of wholesalers	1300	2.68	2700	5.74	-	0.00
8	Retailers/processors purchase price	40,500	83.51	41,500	88.29	-	0.00
9	Marketing cost of Retailers/processors	3700	7.62	4900	10.42	-	0.00
10	Marketing margin of retailers/processor	4300	8.87	600	1.28	-	0.00
11	Sale price of retailers/processors	48,500	100	47,000	100	-	0.00
12	Total Marketing cost	7400		9200		3900	
13	Total Marketing margin	5600		3300		-	
14	Price spread	17,600		17,000		3900	
15	Producers share in consumers rupee		63.71		73.40		89.45

Table 5. Marketing efficiency of different marketing channels

S. No	Marketing channels	Acharya's approach			Shepherd's formula		
		Net price received by the farmers (Rs. /Kg)	Marketing cost + Marketing Margin (Rs. /Kg)	Marketing efficiency	Consumer purchase price (Rs. /Kg)	Total Marketing cost (Rs. /Kg)	Marketing efficiency
1	Channel I	30900	13000	2.37	48500	7400	6.55
2	Channel II	30000	12500	2.40	47000	9200	5.10
3	Channel III	33100	3900	8.48	3700	3900	9.48

5. CONCLUSION

This study revealed that, among the other marketing channels, channel III has the lowest marketing cost of Rs. 3900/Qty. Price spread was high in channel I (Rs.17600/Qty) followed by channel II (Rs.17000/Qty) and channel III (Rs.3900/Qty). The results show that, producers share in consumers rupee was high (89.45 per cent) if the farmers sell their produce directly to the consumers. Middleman exploitation was the major problem which reduce the net income of the farmers in the study area. Same results were reported by Rajur and Patel [12].

SCOPE OF THE STUDY

Among the spice growing states of India, Tamil Nadu plays a vital role in spice production and ranks fourth. Kolli Hills are popularly known for their versatile range of spices and medicinal plants in Tamil Nadu. This study will highlight the marketing costs, marketing margins, and efficiency of the different marketing channels. The results will give insight into the selection of the appropriate marketing channel with the lowest marketing cost, which helps to enhance the farmer's income.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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