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Analysis of price spread, marketing efficiency and constraint faced by tomato growers in Raipur District, Chhattisgarh

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Abstract

The purpose of the study was to identify marketing channels, price spreads, marketing margins, and marketing efficiency of Tomato in Raipur district, Chhattisgarh, India. The primary data were collected only for Tomato by the survey method. The study focused on 60 Tomato farmers. It was conducted in Raipur district, Chhattisgarh, which has the highest area under cultivation and production. The selection of channel actors was made using a two-stage stratified random sampling technique. Three major marketing channels identified in the study were

1. Producer, Wholesaler, Processor, Retailer, and Consumer
2. Producer, village trader, wholesaler, retailer, and consumer
3. Producer, village trader, wholesaler, and processor

The farmers had to incur high expenses for packing material and transportation, whereas for other intermediaries in all the channels, weight loss and spoilage, followed by transportation, were the major marketing costs. The price spread was low in channel II as the produce was sold to the retailer directly by the farmer. The channel I used had the highest marketing efficiency. Comparing channels I, II, and III, it was revealed that the relatively lower marketing efficiency of channel II was due to one additional intermediary (a commission agent). The paper provides information for selecting the right marketing channel for Tomato marketing. The paper also provides empirical information that serves as a source for adopting market options for increased benefits to various chain actors.

Keywords: Marketing cost, marketing efficiency, price spread, tomato

Introduction

Tomato (*Solanum lycopersicum*) is a native of tropical America and belongs to family *solanaceae*. The horticulture sector encompasses a wide range of crops ex. Fruit, vegetable, Potato and tuber, ornamental, medicinal and aromatic, spices and plantation crops. India with its wide variability of climate and soil is highly favourable placed for growing a large number of horticulture crops. It is the fastest growing sector within agriculture contributing towards poverty alleviation, nutritional security and it provide sample scope for farmers to increase their income and is helpful in sustaining large number of agro-based industries, which generate huge employment opportunities. Tomato is grown in over 150 countries and around 80 percent of the tomatoes produced worldwide are consumed. The major tomato growing countries are China, India, USA, Italy, Turkey and Egypt. Total cultivated area under tomato is 45,82,438 thousand hectare, production of 182,5,08,395 MT and productivity of 32.8 tonnes/Ha In the world (year 2017-18). The total cultivated area of tomato in India is about 767.32 thousand ha with total production 20,7,08,000 MT (NHB DATABASE; 2017-18). The major tomato producing states in the country are Andhra Pradesh, Madhya Pradesh, Karnataka, Gujrat, Orissa, West Bengal, Chhattisgarh, Maharashtra, Bihar, Harayana, Uttar Pradesh, Telangana, and Tamil Naidu. There states are account for <90 per cent total production of the country. In Chhattisgarh, Total production of tomato is 11,33,435 MT from an area about 64,681 Ha (2017-18). In the Chhattisgarh State major tomato producing districts area Raipur, Durg, Bastar, Balod and Jashpur etc. Raipur district produces 82,096 MT tomatoes in 4508 hectare area under vegetable crop.

Research Methodology

Sampling design

Multi stage sampling design was adopted for the selection of district as the first stage unit, block as the second stage unit, villages as the third stage units and farm holding as the final

and ultimate stage units.

Selection of the districts

The state comprises 33 districts, among these districts, Raipur district was selected purposively for the study of Tomato for present study.

Selection of blocks

There are 4 blocks in Raipur District. Out of them Abhanpur block was selected purposively for this study.

Selection of Villages

A complete list of all village was obtained from the related Gram Panchyat, of which 5% villages were selected randomly. In order to select the villages from these districts Raipur was selected randomly having Tomato for the study. Block development officer was contacted and lists of Tomato growing villages were prepared. From the prepared information about the selected Districts, Block, Villages and respondents. The village Julum, Tekari, Raweli, Mundra and Kanhera

Selection of Respondents/ Farmers

SR. NO.	CATEGORY	SIZE - CLASS
1	Marginal	Below 1.00 hectare
2	Small	1.00-2.00 hectare
3	Semi medium	2.00-4.00 hectare
4	Small Medium	4.00-10.00 hectare
5	Large	10.00 hectare & above

(<https://www.pib.gov.in>)

A separate list of farmers growing Tomato of selected villages were obtained from Gram Pradhan. There after these farmers were categorized into different size farm groups. Out of that, 10% of respondents were selected randomly on the basis of Tomato cultivation for the study. Based on size of holding farmers were classified into three groups i.e. From this list 60 respondents were selected randomly through proportionate allocation to the population.

Marketing channels and price spread Marketable and Marketed Surplus

Marketable Surplus was worked out by deducting the total quantity required for family consumption, for seeds, payment of wages to labours in kind, home consumption, relatives etc. from the total quantity available.

$$MS = P - C$$

Where, MS = Marketable surplus. P= Total production.
C= Total requirement for family and farm.

Price-Spread

The producer's share, marketing costs and margins of different middle-men in the marketing of Tomato crop were worked out for the adopted channels using the formula.

$$Pf$$

$$Ps = 100$$

$$Pc$$

Where;

Ps=Producer's share in consumer's rupee
Pf = Price of the produce received by the farmer
Pc=Price of the produce paid by the consumer

Total cost of marketing

The total cost incurred on marketing of Tomato by the farmers and the intermediaries involved in the process of marketing was calculated as:

Where

$$C = CF + Cm1 + Cm2 + Cm3 + Cmn$$

C= Total cost of marketing

CF = Cost borne by the producer (farmer) in marketing of Tomato

Cmn= Cost incurred by the nth middlemen in the process of marketing.

Marketing Efficiency

The ratio of price paid by the consumer's (total value of goods) to total marketing cost is used as a measure of marketing efficiency.

$$\text{Marketing Efficiency} = (V/I) - 1$$

V=Total marketing cost

I=Consumer's price

Results and Discussion Marketing channel

The difference between the price paid by the ultimate consumer and the price received by the farmer for an equivalent quantity of produce is known as price spread. It includes cost of performing various marketing function and margins of different agencies associated in the marketing process of the commodity. The extent of price spread helps policy makers in devising suitable policies for increasing marketing efficiency either by way of reducing the marketing costs or eliminating unwanted middlemen from the marketing process of by both. The marketing costs, margins and price spread in marketing of Tomato through major channel have been presented based on the data collected from farmers and market functionaries. The channels identified in the study area were:

Channel I: Producer –Consumer

Channel II: Producer–Wholesaler–Retailer–Consumer

Channel III: Producer– Retailer–Consumer

Marketing cost

The marketing charges paid by the tomato producer (Channel-I), which was worked out and found to be Rs. 69.06 Qt-1. The marketing charge paid by the tomato producer to retailer and retailer to consumer (channel-II) was Rs. 69.2 and Rs.80.54 Qt-1 respectively. The marketing charge paid by the tomato producer to retailer (channel-III) was Rs 30.00, 63.69, 72.02 and 80.54 Qt-1 respectively. Total marketing charges were higher being Rs 246.25 Qt-1 in channel-III than that of channel-II Rs 149.60 Qt-1 and channel- I Rs 69.06 Qt-1 in the study area

Table 1: Marketing charges paid by various intermediaries in different marketing channel of tomato (₹Qt-1)

S No.	Particulars	Channel-I	Channel –II	Channel-III
		Producer		
1.	Transport charge	30.50	30.50	-
2.	Mandi fees	17.50	17.50	-
3.	Loading –unloading	5.04	5.04	-
4.	Other(including commission)	16.02	16.02	30.00
	Sub –total	69.06	69.06	30.00
Village Merchant				
1.	Transport charge	-	-	32.94
2.	Mandi fees	-	-	17.50
3.	Loading –unloading	-	-	6.00
4.	Packing /weighing	-	-	7.25
	Sub –total	-	-	63.69
Wholesaler				
1.	Packing/weighting	-	-	35.30
2.	Transport charge	-	-	17.50
3.	Mandi fees	-	-	6.02
4.	Loading –unloading	-	-	6.00
5.	Other	-	-	7.20
	Sub –total	-	-	72.02
Retailer				
1.	Packing/weightings	-	8.10	8.10
2.	Transport charge	-	38.94	38.94
3.	Mandi fees	-	17.50	17.50
4.	Loading –unloading	-	6.00	6.00
5.	Other	-	10.00	10.00
	Sub –total	-	80.54	80.54
	Total	68.58	149.60	246.25

Price spread and Market margin

Producer to consumer is the direct marketing channel of marketing. Consumer purchase required quantity of selected vegetables directly from the producer; hence consumer incurred lowest marketing cost. Table 2 show price and marketing margin under different marketing channels of tomato. The retailer's margin in Channel-II, and Channel-III

were worked out Rs. 369.50 Qt-1 and Rs 219.44 Qt-1 respectively. The wholesaler margin in channel-III was Rs.157.72 Qt-1 and village trader margin in channel-III was Rs. 106.62 Qt-1. The prices paid by consumer were Rs 900 Qt-1, Rs. 1300.04 Qt-1 and Rs. 1500.04 Qt-1 in Channel-I, Channel-II and Channel-III, simultaneously.

Table 2: Price spread and Market margin under different marketing channels of tomato (₹Qt-1)

S no.	Particular	Channel	Channel-	Channel –
Producer				
1.	Gross price received the producer	900.00	850.00	800.01
2.	Market cost incurred by producer	69.06	69.06	30.00
3.	Net price received by producer	830.94	780.94	770.01
Village merchant				
1.	Purchase price	-	-	800.01
2.	Market cost incurred	-	-	63.69
3.	Net price	-	-	863.70
4.	Selling price	-	-	970.32
5.	Profit	-	-	170.31
	Market margin	-	-	106.62
Wholesaler				
1.	Purchase price	-	-	970.32
2.	Market cost incurred	-	-	72.02
3.	Net price	-	-	1042.34
4.	Selling price	-	-	1200.06
5.	Profit	-	-	229.74
	Market margin	-	-	157.72
Retailer				
1	Purchase price	-	850.00	1200.06
2	Market cost incurred	-	80.54	80.54
3	Net price	-	930.54	1280.60
4	Selling price	-	1300.04	1500.04
5	Profit	-	450.04	299.98
	Market margin	-	369.50	219.44
	Consumer price (₹)	900.00	1300.04	1500.04

Producer's share in consumer rupee**Table 3:** Producer's share in consumer rupee in marketing of tomato in different marketing channels (₹Qt-1)

S N	Particulars	Channel-I		Channel-II		Channel –III	
		₹/Qt	Per cent share in consumer rupee	₹/Qt	Per cent share in consumer rupee	₹/Qt	Per cent share in consumer rupee
1.	Producer's net price	830.94	92.33	780.94	60.07	770.01	51.34
2.	Cost incurred by						
a.	Producer	69.06	7.67	69.06	5.31	30.00	2.00
b.	Village merchant	-	-	-	-	63.69	4.25
c.	Wholesaler	-	-	-	-	72.02	4.80
d.	Retailers	-	-	80.54	6.20	80.54	5.38
	Total Cost	69.06	7.67	149.60	11.51	246.25	16.43
3.	Margin incurred by						
a.	Village merchant	-	-	-	-	106.62	7.11
b.	Wholesaler	-	-	-	-	157.22	10.49
c.	Retailers	-	-	369.50	28.42	219.44	14.63
	Total margin			369.50	28.42	483.28	32.23
4.	Consumer Prices	900.00	100.00	1300.04	100.00	1500.04	100.00

Table 3 described the producer's share in consumer rupee in marketing of tomato in different marketing channels. In channel-I the producers shares in consumer rupee was 92.33

per cent while the marketing cost incurred by producer was 7.67 per cent. The marketing cost incurred by Producer and Retailer in channel-II was 11.51 per cent. The price paid by

the consumer was ₹1300.04 Qt-1 in which producers share was 60.07 per cent. The marketing cost incurred by Producer, village trader, Wholesaler and Retailer in channel-III was 16.43 per cent. The price paid by the consumer in channel-III was ₹1500.04 Qt-1 in which producers share was 51.34 per cent. Highest market margin was observed in Channel-III i.e. 32.23 per cent. It was found that comparatively channel-I found more profitable than channel-II and channel-III in tomato marketing in study area.

Marketing Efficiency

Table 4: Marketing efficiency in marketing of tomato (₹Qt-1)

S No.	Particulars	Marketing channels		
		Channel -I	Channel-II	Channel-III
1.	Price paid by consumer (₹)	900.00	1300.04	1500.04
2.	Marketing cost (₹)	69.06	149.60	246.25
3.	Marketing margin (₹)	-	369.50	483.28
4.	Marketing efficiency	13.03	2.50	2.05

Marketing efficiency for channel –I, channel- II and channel-II was worked out and is presented in Table 4. Marketing efficiency was 13.03 for channel-I followed by channel –II (2.50) and channel –III (2.05). Table 4 reveals that efficiency was higher in channel- I; hence, it was the most efficient market. It shows that marketing efficiency is inversely related. marketing efficiency.

Summary

The Three different channels of marketing of Tomato were identified in the study area.

Channel I: Producer–Consumer

Channel II: Producer–Wholesaler–Retailer–Consumer

Channel III: Producer–Retailer–Consumer

There were three channel found in each market. The channel I was more efficient than the II because producer share in consumer rupee was more (92.33%) in channel I, than channel II (60.07%) in Raipur market for channel III is (51.34%). The present investigation was intended to depict the picture of the Tomato-growing enterprise in Raipur district. The enterprise has assumed a prideful place in the economy of the tract as it is an important crop.

Conclusion

The marketing practises followed by the farmers were the assembly of produce, processing, grading, packaging, transportation, storage, selling, etc. The cultivators did not carry out the practises like grading and processing effectively; processing was carried out only for home purposes, and the grades were given on the basis of variety and foreign materials like soils and dried leaves in the produce. Per quintal cost of marketing, the total marketing cost, items such as commission, transport, packaging material, and other costs were observed to be the most important items of the cost. These costs can be minimised through certain measures, like efficient transport facilities and cheap packaging material. It also further indicated minimising the commission to be paid

by the producers. It is seen that with an increase in farm size, the quantity of marketable as well as marketed surplus increased. It is concluded that the cash requirements of farmers were comparatively higher. It can also be found that Tomatos are not consumed directly, so the marketed surplus is higher. It can be used for negligible indirect consumption. Prices and high commission charges are problems at the marketing level. High cost of pesticide and high cost of seed material constraints at the economic level of Tomato cultivation and technical level constraints are a lack of knowledge about identifying diseases and pests and a lack of technical knowledge about Tomato cultivation.

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