

STUDY THE MARKETING COST AND PRICE SPREAD UNDER DIFFERENT MARKETING CHANNEL OF TOMATO IN JASHPUR DISTRICT OF CHHATTISGARH

Avinash Toppo*, B.C. Jain, Punam Lal Kerketta, Anup Kumar Paul and Nirmala Paul

Indira Gandhi Krishi Vishwavidyalaya Raipur (C.G) INDIA

Email : avinashtoppo86@gmail.com

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Abstract: The present study was conducted in the Jashpur districts of Chhattisgarh. Sixty farmers were selected randomly from three villages namely Ludeg, Saraitola and Katangjor and were categorized into marginal, small, medium and large farmers based on their holding size. The primary data were collected for the year 2010-11. The major findings of this study revealed that the average size of farm was worked out to be 1.93 hectares, overall on an average cropping intensity was observed to be 101.64 per cent. Out of total cropped area kharif, rabi, and zaid crops occupied about 88.38, 8.32 and 3.22 per cent of total cropped area respectively. On an average the cost of cultivation per hectare of tomato was found Rs. 26576.89. Overall on an average the cost of production per quintal of tomato was observed as Rs. 222.84. Cost of production per quintal of these vegetables shows decreasing trend with increase in farm size where as cost of cultivation increases with increase in the farm size. There were two marketing Channels for tomato, which are: Channel-I: Producer-Village-merchant-Wholesaler-Retailer-Consumer and Channel-II: Producer-Retailer-Consumer. That price received by tomato producer was 800 Rs/qlt. in both Channels. The major constraints pertaining to cultivation of tomato was problem of decreasing yield due to growing the crop regularly in same field and lack of irrigation. A major constraint in marketing of tomato was fluctuation of price and storage facility in the study area. In view of findings study suggested that the Irrigation facilities are to be developed in the proper way so that farmers can adopt improved technologies with assured irrigation facilities. Extension agencies should provide information on new varieties and package of practices as well as procedures of standardization, grading of produce and their benefits. Horticultural crop producer's co-operative societies should be formed for better performance and achievement. Some specific minimum prices should be declared for tomato to ensure benefit for the producers.

Keyword: Constraints marketing channel, Tomato

INTRODUCTION

More than 93 per cent rainfed area of Jashpur district of the Chhattisgarh state has produced the maximum tomato throw that of other district of the state and famous for tomato producing district. During 2010-2011, the tomato was cultivated in 4.04 thousand hectare and production 50.51 thousand tons of tomato with average productivity of 12.50 t/ha (office record, 2010-11, Department of Horticulture C.G. Govt., Jashpur) Jashpur district is lying under Northern Hill Zone of Chhattisgarh State. This district is dominated having abundance with tribes and natural resources biodiversity.

Jashpur district comprised of eight blocks of Jashpur, pathalgaon is known for red desert due to cultivation of tomato in more than 80 per cent area to the total cropped area of pathalgaon.

Chhattisgarh state is known for rainfed rice production system and recognized for "rice bowl" state of the country. Despite the rice cultivation of state vegetable have also been cultivated in 4.38 per cent area to the net cropped area of the state. Among the vegetable cultivation, tomato was cultivated in the

maximum area (20.86%) followed by potato (16.46per cent), brinjale (12.73%), okra (12.06%), cauliflower (8.11%), cabbage (6.90 %) and minimum area in sweet potato (1.84%). Area under other vegetables was recorded by 16.46 per cent area includes beans, chili, coriander, cluster been, pea, sponge gourd, bottle gourd etc.

The area, production and productivity of vegetables in the Chhattisgarh state during 2009-10 vegetables was about 197.95 thousand hectares and production was 2781.45 thousand tones. The share of tomato to the total area and production of vegetables was 20.86 and 21.59 Per cent, which placed 1st rank in area and 2nd rank in production by ordering the different vegetables of the state.

It has been observed that tomato was cultivated in 6.51 per cent area of Chhattisgarh to the total area of tomato of the country and ranked in 7th position by area and 8th position by production. This important crop are grown on 634.37 thousand hectares area and production of 12,433.17 thousand tonnes with average productivity 14.55 t/ha of Chhattisgarh state, which is quit lower than that of the country production of 19.6 t/ha.

Table 1. Crop wise area, production and productivity of major vegetables in India (2009-10).

S.No.	Crops	Area ('000 ha)	Production ('000 tons)	Productivity (t/ha)
1	Potato	1,835.34	36,577.32	19.93

*Corresponding Author

		(24.84)	(29.82)	
2	Onion	756.14	12,158.81	16.08
		(10.23)	(9.91)	
3	Tomato	634.37	12,433.17	19.60
		(8.59)	(10.14)	
4	Brinjal	589.71	10,164.65	17.24
		(7.98)	(8.29)	
5	Okra	452.52	4,803.17	10.61
		(6.12)	(3.92)	
6	Cauliflower	337.85	6,410.46	18.97
		(4.57)	(5.23)	
7	Cabbage	331.02	7,281.50	22.00
		(4.48)	(5.94)	
8	Sweet potato	118.87	1,094.64	9.21
		(1.61)	(0.89)	
9	Other	2,332.43	31,724.51	13.60
		(31.57)	(25.87)	
10	Total	7,388.24	1,22,648.24	
		(100.00)	(100.00)	

Source: Indian Horticulture Database, 2010, NHB, Ministry of Agriculture. Government of India, New Delhi. (Figure Indicate percentage to total.)

Table 2. Crop wise area, production and productivity of major vegetables in Chhattisgarh (2009-10).

S.No.	Crops	Area (^{'000} ha)	Production (^{'000} 'mt.)	Productivity (t/ha)
1	Tomato	41.29	600.6	14.55
		(20.86)	(21.59)	
2	Potato	32.59	449.8	13.8
		(16.46)	(16.17)	
3	Sweet potato	3.64	32.42	8.91
		(1.84)	(1.17)	
4	Onion	9.06	160.32	17.7
		(4.58)	(5.76)	
5	Okra	23.87	217.3	9.1
		(12.06)	(7.81)	
6	Cauliflower	16.06	268.87	16.74
		(8.11)	(9.67)	
7	Cabbage	13.66	227.84	16.68
		(6.9)	(8.19)	
8	Brinjal	25.19	374.5	14.87
		(12.73)	(13.46)	

9	Other	32.59	449.8	13.8
		(16.46)	(16.17)	
10	Total	197.95	2781.5	
		(100.00)	(100.00)	

Source: Indian Horticulture Database, 2010, NHB, Ministry of Agriculture. Government of India, New Delhi.

Note: Figure Indicate percentage to total.

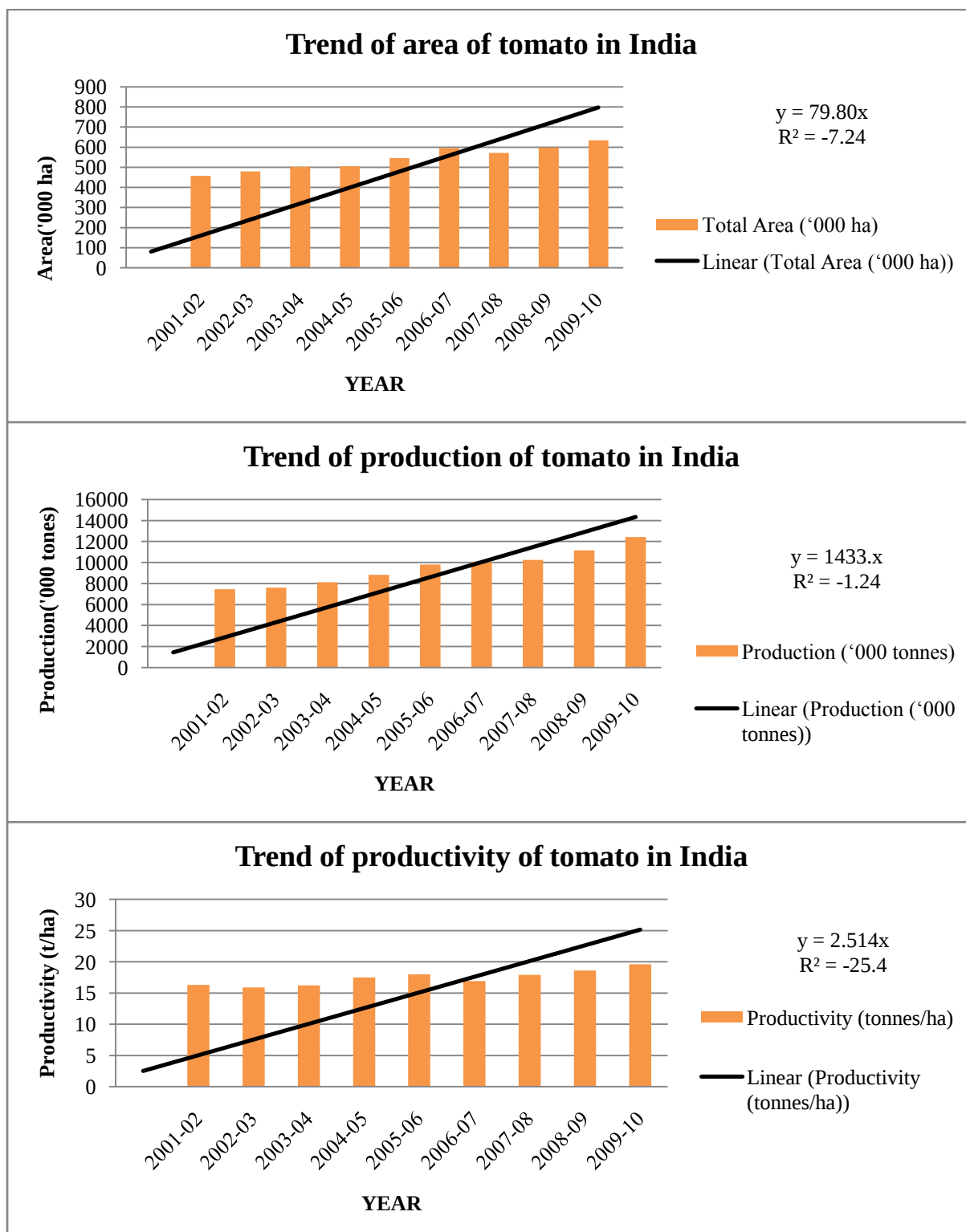


Fig. Trend of area, production and productivity of tomato in India

RESEARCH METHODOLOGY

Methodology of the study which has been used at various stages. It has been applied particularly for selection of area, block, villages, sample size, collection of information from farmers, traders and method of analysis.

Sampling design

The selection of state, district, block, villages and crops are presented under the following sub- sections:

Selection of study area

This study was conducted in the Jashpur district of Chhattisgarh State, since this district is famous for tomato production than that of other districts of the State. This district included eight blocks among these blocks Pathalgaon block, occupied more than 80 per cent area and production of tomato among all the blocks of Jashpur District. Therefore Pathalgaon block was selected for the present study.

Selection of Tomato Growers

Pathalgaon block of Jashpur district having 109 villages. Out of them 30 where tomatoes growing village among them 3 villages were selected proportionally. From each sampled village, 20 tomato growers were randomly selected and then categorized into marginal (below 1 ha), small (1-2 ha), medium (2-4 ha) and large (above 4 ha). Totally 60 farmers were selected for the study comprise of 25 marginal, 20 small, 5 medium and 10 large farmers.

Selection of Intermediaries

Though, no official records are available in the market about the number of wholesaler/commission agents and retailers involved in the tomato marketing. Hence the information about number of middleman and number of large farmers were cultivating the tomato. Were functioning in the study area, collected through RAEO'S. A proportionate sample of 15 of each intermediary was considered for the study.

Table 3. Selection of middlemen involved in tomato marketing Jashpur district of Chhattisgarh.

Market	Total Middlemen				Sample Middlemen			
	Wholesalers	Village Merchants	Retailers	Total	Wholesalers	Village merchants	Retailers	Total
Ludeg	25	10	10	45	5	5	3	13
Saraitola	20	5	5	30	2	1	2	5
Katangjor	7	5	5	17	1	1	1	3
Total	52	20	20	92	8	7	6	21

(B) Method of enquiry and data collection

Primary data from the farmers were collected through well prepared schedule designed for the study. The cost of different operations along with quantity of produce, were recorded on item wise included of fixed as well as variable costs of Tomato production. The relevant on cropped area, cropping pattern, irrigated area their sources inventory, etc. were recorded on the schedule designed for the study.

In order to compute the growth rate of area, production and productivity of Tomato in the Jashpur district of Chhattisgarh state. Time series secondary from 2000-2001 to 2009-2010 was collected.

Period of Inquiry

The detail inquiry was done for the year of 2010-11.

Analytical tools

Compound growth rate

To compute the growth rate of area, production and productivity of Tomato of Jashpur district, the following mathematical model was used

$$Y = aB^t$$

$$\log Y = \log a + t \log B$$

Where,

Y = Area/ production /productivity

a = Constant

B = Regression coefficient

t = time in year (from 2000-2001- to 2010-2011)

Compound growth rate (per cent) = (Antilog B-1)100

Marketable Surplus

It is the quantity of produce, which is left by the farmers to meet out the requirement of the family consumption etc. in this marketable surplus was computed by use of following mathematical model:-

$$MS = P - (C + W + S)$$

Where,

MS – Marketable surplus

P – Total production

C – Family consumption

W - Quantity use for wage

S – Quantity kept other purpose

Marketing Cost, Margins and Price Spread

For fulfillment of the objective second of the present study i.e. involvement of marketing cost for tomato, market margin and price spread was worked out by applying the following formula :-

$$C = C_f + C_{mi} + C_{mii} + \dots + C_{mn}$$

Where,

C – Total marketing cost of produce

C_f – Cost paid by producer (from the time produce leaves the farm till he sells it) and

C_{mi} – Cost incurred by i_{th} middlemen in the process of buying and selling the product.

RESULT AND DISCUSSION

Marketing of tomato

Like other agricultural commodities, marketing is playing very important role for the disposal of tomato. The Jashpur district of Chhattisgarh is difficult terrain and lack of infrastructural development for the marketing of agricultural commodities including tomato. The Ludeg, Saraitola and Pathalgaon villages of the study area were situated in interior area of Pathalgaon having unorganised market.

During the course of study, producers, village merchants, wholesalers and retailers were generally engaged in assembling of tomato and their marketing.

Producers:

Tomato growers dispose their produce by themselves in Jashpur vegetable market. It has been observed that about 70-80 per cent of the total produce was assembled by the growers themselves. Generally, the farmers of the nearby villages bring their produce to sell in the market in order to secure better prices. Small producers consider it better to sell their produce in the village to avoid deception existed in the marketing at Jashpur vegetable market.

2. Village merchant

Tomato producers were sold their produce mostly to the Village Merchant. Generally, Village Merchant contact with farmer and purchase the tomato at appropriate rate which is suitable to producer. The

Village Merchant charges their commission and sells to wholesaler at more prices.

3. Wholesalers

Mostly, Tomato producers were sold their produce of wholesaler in market. After purchase the produce by wholesaler they transfer the produce to other district market or at processing units.

4. Retailer

The retailer was the last intermediary in market. The retailer purchases the tomato in market by farmers and sold out them by to various small markets at their own prices.

Market functionaries

In the marketing of Tomato, the main market functionaries engaged in the marketing of tomato were pacca arhatias (brokers), kachcha arhatias, weight men, palledars and sweepers etc.

Marketable surplus

Marketable surplus is defined as from the total quantity of produced output subtracted the quantity of produced output used for payment of wages of labours, quantity stored or used for home consumption, etc. as per the theoretical concept, the marketable surplus is worked out and shown in Table 4.12. It reveals that 123.22 q/ha of tomato was produced at the sample farms, irrespective to the farm size of holdings. Nearly, 95 per cent of tomato was for marketable surplus. However quantity used for wage payment and quantity used for home consumption was found to be 2.36 and 2.27 per cent, respectively. It is important to note that almost nearly 95 per cent quantity was used for marketable surplus with respect to all the farm size of holdings.

Marketing channels and cost of Tomato

There were two types of marketing channels identified, in the study area. Those which are as follows:

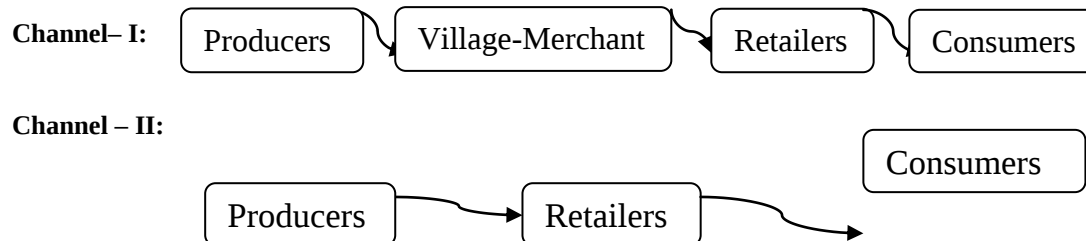


Table 4. Marketable surplus of tomato of sampled households

S.No.	Particulars	Farm size				(q/ha)
		Marginal	Small	Medium	Large	Average
1.	Total quantity produced (q)	118.19	122.09	129.17	135.08	123.22

		(100.00)	(100.00)	(100.00)	(100.00)	(100.00)
2.	Quantity paid for wages	2.95	3.05	2.58	2.70	2.91
		(2.50)	(2.50)	(2.00)	(2.01)	(2.36)
3.	Quantity used for home	2.36	2.44	3.88	4.05	2.80
		(2.00)	(2.00)	(3.00)	(3.02)	(2.27)
4.	Total quantity utilized	5.32	5.49	6.46	6.75	5.71
		(4.50)	(4.50)	(5.00)	(5.04)	(4.64)
5.	Marketable surplus	112.87	116.60	122.71	128.33	117.06
		(95.50)	(95.50)	(95.00)	(95.71)	(95.00)

Note: Figures in parenthesis indicate percentage to total quantity produced.

The marketing charges paid by the tomato producer to the commission agents and retailers (Channel-I), which was worked out and found to be Rs.24, Rs.40, Rs.55 and Rs.80 per quintal respectively. The marketing charge paid by the tomato producer to wholesaler (channel-II) was Rs.56 and Rs.105 per quintal, respectively. Total marketing charges were higher being Rs. 199 per quintal in channel-I than that of channel-II Rs.161 in the study area. In channel –II, the producer directly sold their produce to retailer and finally retailer sold this produce in Bilaspur, Korba, Ambikapur, Jharkhand, Orissa and other markets. In those channel, producers paid Rs. 80 cost and Rs. 105 to the retailers for marketing of tomato. Therefore, producer has paid more marketing cost in channel-II as compared to channel-I.

Marketing and Price spread

The difference between price paid by consumer and price received by producers is price spread and the share goes to the different functionaries in the market

is marketing margin of commodities. The price spread and marketing margin is worked out with use of theoretical concept and presented in table 4.13 it was noticed that price received by tomato producer was Rs.800 in both Channels i.e. channel-I and II. Net price received by tomato producers was Rs. 776 in channel-I and Rs. 744 per quintal in channel-II. Commission charges paid by producers to the commission agent by an amount of Rs. 24 and Rs. 16 in Channel-I and Channel-II. The per cent of commission paid by tomato produce in Channel-I was comparatively more than that of Channel-II. The sold out tomato by farmers was ultimately reached to the consumers through different market functionaries and consumers paid the price of Rs/q 1600 and Rs/q 1400 in channel-I and Channel-II. The marketing margins were noticed to be 50 and 42 per cent in channel-I and channel-II. In Channel-I, the gross margin of Village merchant, wholesaler and retailer are Rs. 200, Rs. 300 and Rs.300 respectively as well as in channel-II, the gross margin of wholesaler is Rs. 600.

Marketing charges paid by various intermediaries in different marketing channel of tomato.

(Rs/qt)

Particulars		Channels	
		Channel-I	Channel-II
A	Producer		
1	Transport charge	-	30
3	Mandi fees	-	5
4	Loading-unloading	-	5
5	Others (include commission)	24	16
	Subtotal	24	56
B	Village Merchant		
1	Transport charge	30	-
2	Mandi fees	5	-
3	Loading-unloading	5	-
	Subtotal	40	-
C	Wholesaler		
1	Transport charge	30	-
2	Packaging / Weighting	10	-
3	Mandi fees	5	-
4	Loading-unloading	5	-
5	Others	5	-

	Subtotal	55	-
D	Retailer		
1	Transport charge	55	75
2	Loading-unloading	5	10
3	Mandi fees	5	5
4	Packaging	5	5
5	Other	10	10
	Subtotal	80	105
	Total	199	161

Table 5. Market margin and Price spread under different marketing channels of tomato.

S.N.	Particulars	Channels-I	(percentage)	Channels-II	(percentage)
Producer					
1.	Net price received by producer	800	(50.00)	800	(57.14)
2	Market cost incurred by producer (include commission)	24	(1.5)	56	(1.14)
3	Gross price received by producer	776	(48.50)	744	(53.14)
Village-merchant					
1	Purchase price	800	(50.00)	-	-
2	Market cost incurred	40	(2.50)	-	-
3	Net price	840	(52.50)	-	-
4	Selling price	1000	(62.50)	-	-
5	Profit	160	(10.00)	-	-
	Market margin	200	(12.50)	-	-
Wholesaler				-	
1	Purchase price	1000	(62.50)		-
2	Market cost incurred	55	(3.44)	-	-
3	Net price	1055	(65.94)	-	-
4	Selling price	1300	(81.25)	-	-
5	Profit	245	(15.31)	-	-
	Market margin	300	(18.75)	-	-
Retailer					
1	Purchase price	1300	(81.25)	800	(57.14)
2	Market cost incurred	80	(5.00)	105	(7.50)
3	Net price	1380	(86.25)	905	(64.64)
4	Selling price	1600	(100.00)	1400	(100.00)
5	Profit	220	(13.75)	495	(35.36)
	Market margin	300	(18.75)	600	42.86
Consumer price					
	Consumers price	1600*	(100.00)	1400*	(100.00)

Note :-(*) Indicate ultimate consumer.

Producer's share in consumer rupee

Table 4.17 shows that the price paid by consumers for per quintal of tomato was Rs.1600.00 in Channel-I. Producer's share in consumer rupee was 50.00 per cent in Channel-I of the tomato as well as the

producers share in consumer rupee in channel-II was 60.04 per cent. On the basis of above results the hypothesis that large marketing channels reduced producer's share in consumer rupee is accepted.

Table 6. Producer's share in consumer rupee.

Particular	(Rs /q)			
	Channels			
	I		II	
Retailer				
(a.) Marketing cost	80	(5.00)	56	(4.00)
(b.) Net price received	220	(13.75)	495	(35.35)
Wholesaler				
(a.) Marketing cost	55	(3.43)	-	-
(b.) Net margin	300	(18.75)	-	-
Village merchant				
(a.) Marketing cost	40	(2.50)	-	-
(b.) Net margin	200	(12.50)	-	-
Producer				
(a) Marketing cost	24	(1.50)	56	(4.00)
(b) Net price received	776	(48.50)	744	(53.14)
Producer share in		50.00		60.04
Consumer rupee (%)				-
Price paid by consumer	1600	(100.00)	1400	(100.00)

Note: Figures in parenthesis indicate percentage to the price paid by consumer.

Constraints**Constraints in tomato production**

Under vegetable production some of the constraints was noticed which are essential to understand the real practices performed for tomato cultivation in the study area. The opinion of farmers with regarding to tomato production was asked to the sample farmers on various aspects namely infestation of crop with insect/pest/disease, lack of irrigation, non-availability of labour in peak season /time etc. The elicitation of sample farmer's with regard to production of tomato was decreasing the yield of tomato due to cultivation of same crop since long period of time, which was reported by 88.33 per cent farmers and was the most burning constraints for tomato cultivation. The second most important constraint was lack of irrigation which was reported by 85 per cent farmers followed by lack of availability of fund in proper time (75%), lack of latest technical knowledge (70%), infestation of insect/pest/disease (66.67%) and minimum farmers

reported for scarcity of labour during peak season/time.

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