Pattern of tomato sales - marketing costs and margins

VISHNU SHANKER MEENA[1], SHIRISH SHARMA[1] AND KRISHNA KANT*
CATAT, Indian Agricultural Research Institute, NEW DELHI (INDIA)
(Email : kkt485@gmail.com)

Abstract : Marketing of vegetable crops is quite complex and risky due to the perishable nature of the produce, seasonal production and bulkiness. The present study was undertaken in two districts of Rajasthan, *viz.*, Jaipur and Kota districts. In this study it was found that 13543 quintal of tomato was produced by the sample households, of which 13425 quintal was the marketed surplus. Due to perishable nature of vegetable, the farmers did not stock tomato for sale in lean months. Therefore, there was no difference in marketable and marketed surplus of tomato. Two marketing channels were found in marketing of tomato. In channel–I and channel –II, producer's share in consumer's rupee was 50.0 per cent and 47.27 per cent, respectively in Jaipur Market and 52.73 and 43.33 per cent, respectively in Kota Market. Marketing efficiency was 1.12 for channel-I and 1.07 for channel –II in Kota market. In case of Jaipur market marketing efficiency was 1.00 for channel-I and 0.76 for channel -II. Channel I was found more efficient than channel II in all the markets of both districts in Rajasthan.

Key Words : Tomato, Marketing costs, Margins

INTRODUCTION

Marketing of vegetable crops is quite complex and risky due to the perishable nature of the produce, seasonal production and bulkiness. The spectrum of prices from producer to consumer, which is an outcome of demand and supply of transactions between various intermediaries at different levels in the marketing system, is also unique for vegetables. Moreover, the marketing arrangements at different stages also play an important role in price levels at various stages *viz.*, from farm gate to the ultimate user. Efficient marketing plays an important role in the development of any enterprise. Hence, it was found necessary to investigate the prevalent marketing systems - channels, marketing costs, margins and price spread in different channels as well as in different markets and other general problems faced by the vegetable growers in selling their produce. In this study, an attempt has been made to investigate marketing aspects of tomato cultivation with the following specific objectives to examine the pattern of sales of tomato and marketing costs and margins .

MATERIAL AND METHODS

The study was undertaken in two districts of Rajasthan, *viz.*, Jaipur and Kota as these districts are the major tomato growing districts of the state, and Jaipur being the Capital of Rajasthan is a major demand centre of fresh farm produce. The study is based on the primary data collected during the year 2010-11 from intermediaries in (5 wholesalers, 5 commission agents, 5 village traders' and 5 retailers from each district). To calculate marketed and marketable surplus 100 farmers were selected from both districts.

Analysis of data:
Marketable and marketed surplus:
Marketable surplus was worked out by deducting the total quantity required for family consumption, for seeds and payment of wages to labours in kind etc. from the total quantity available. The difference between marketable surplus

* Author for correspondence
[1]RI AER Centre, Delhi University, NEW DELHI (INDIA)

and marketed surplus as specified by Bhupal (1987) can be worked out by using the following formula.

$$\mathbf{Mtd\,S = [X - x_h + x_{k(1-d)}]}$$
$$\mathbf{Mbl\,S = [X - x_h + x_{k(1-d)} + x_r]}$$

where,

X = total output

x_h = output required for home consumption

x_k = output paid in kind

x_r = output retained for marketing in future (nil in the case of tomato)

d = that part of output in kind which is marketed again.

Marketing cost:

The marketing cost incurred by farmers was computed by using following formula:

$$\mathbf{MCi = CGi + CPi + CTi + CCi + CMi}$$

where,

MCi = Average marketing cost of ith vegetable crop (Rs./q)

CGi = Average cost of grading i^{th} vegetable crop (Rs./q)

CPi = Average cost of packing i^{th} vegetable crop (Rs./q)

CTi = Average cost of transporting i^{th} vegetable crop (Rs./q)

CCi = Average amount of commission paid for i^{th} vegetable crop (Rs.q)

a) CMi = Average miscellaneous cost of ith vegetable crop (Rs./q).

Absolute and per cent margin:

$$\text{Absolute margin} = \mathbf{PR_{ji} - (P_{Pji} + C_{Mji})}$$

$$\mathbf{Per\,cent\,margin = \frac{P_{Ri} - (P_{Pi} + C_{Mi})}{P_{Ri}} \times 100}$$

where,

P_{Rji} = Total value of receipts of jth functionary for i^{th} commodity (sell price)

P_{Pji} = Total purchase value of jth functionary for i^{th} commodity (purchase price), and

C_{Mji} = Cost incurred in marketing.

Producer's share in consumer's rupee:

The producer's share in the consumer's rupee was worked out as under:

$$\mathbf{P_S = \frac{P_F}{P_C} \times 100}$$

where,

P_S = Producer's share in consumer's rupee,

P_F = Price of the produce received by the farmer, and

P_C = Price of the produce paid by the consumer.

Marketing efficiency:

The modified marketing efficiency (MME) suggested by Acharya was worked out:

$$\mathbf{MME = \frac{RP}{MC + MM} - 1}$$

where,

MME = Modified measure of marketing efficiency

MC = Marketing cost

MM = Marketing margin

RP = Price paid by consumer.

Various constraints faced by farmers and intermediaries in production and marketing of selected vegetable crops were also studied.

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been summarized under following heads :

Marketing cost, marketing margin, price spread and marketing efficiency in Jaipur district:

Two marketing channels were prevailing in the study area as under;

Channel- I: Producer – Commission agent cum wholesaler – Retailer – Consumer.

Channel- II: Producer – village trader - Commission agent cum wholesaler – Retailer – Consumer.

Table 1 provides the marketing cost and margin for market functionaries involved in sale of tomato in channel-I. Marketing cost borne by producer was Rs. 90 per quintal. Net price received by farmer was 50.0 per cent of price paid by consumer. Average selling price of commission agent cum wholesaler agent was Rs. 800 per quintal and it was 66.67 per cent of consumer's rupee. The commission agent cum wholesaler incurred marketing cost of Rs. 68.34. The commission agent cum wholesaler sold it to retailer at an average price of Rs. 800, and earned a margin of Rs. 41.66 per quintal. The retailer incurred an average cost of Rs. 60.0 per quintal and received on an average margin of Rs. 340.0 per quintal, which accounted for 28.33 per cent of consumer's rupee. The average price paid by the consumer was Rs. 1200.0 for a quintal.

The marketing cost in channel-II is presented in Table 2. The table reveals that total cost incurred by village trader was Rs. 92.0 per quintal of tomato, which was 7.67 per cent of consumer rupee. Cost incurred by commission agent cum wholesaler was Rs. 66.62 per quintal of tomato, which was 5.55 per cent of consumer rupee. Margins earned by village trader and commission agent cum wholesaler were Rs. 58.0 and 63.38 per quintal, respectively. Cost incurred by retailer was Rs. 60.0 per quintal of tomato, which was 5.00 per cent

of consumer's rupee. The producer's share in consumer rupee was 43.33 per cent. Margin earned by the retailer was Rs. 340.0, which was 28.33 per cent of consumer's rupee. Total cost incurred and margin earned along with price spread for different intermediaries is presented in Table 3. These figures have been derived from Table 1 and 2. Channel-I is more efficient as the producer's share in consumer's rupee was 50.0 per cent in channel- I and 43.33 per cent in channel-II. Total cost of marketing in channel- I was 18.20 per cent

and 18.22 per cent in channel-II. Analysis of marketing margin showed that higher margin of 38.45 per cent was earned by intermediaries in channel-II as compared to 31.80 per cent in channel-I.

Marketing efficiency for channel –I and channel-II was worked out and is presented in Table 4. Marketing efficiency

Table 1 : Marketing cost and margins in channel–I in Jaipur market

Sr. No.	Particulars	Rs. per q	Per cent of consumer's purchase price
1.	Producer's net price	600.0	50.00
2.	Cost incurred by producer		0.00
	Labour cost, grading and packing	4.0	0.33
	Karet	34.0	2.83
	Loading charges	2.0	0.17
	Transportation	50.0	4.17
	Total cost	90.0	7.50
3.	Producer's sale price/ commission agent cum wholesaler purchase price	690.0	57.50
4.	Cost incurred by commission agent cum wholesaler		0.00
	Market tax (1.6%)	11.04	0.92
	Commission (6.0%)	41.40	3.45
	Unloading	2.0	0.17
	Weighing	2.0	0.17
	Quantity loss @ 1%	6.90	0.58
	Miscellaneous	5.0	0.42
	Total cost	68.34	5.70
5.	Net margin of commission agent cum wholesaler	41.66	3.47
6.	Sale price of commission agent cum wholesaler/purchase price of retailer	800.0	66.67
7.	Cost incurred by retailer		
	Loading	2.0	0.17
	Transportation	30.0	2.50
	Unloading	2.0	0.17
	Quantity losses (2%)	16.0	1.33
	Store charges	5.0	0.42
	Miscellaneous	5.0	0.42
	Total cost	60.0	5.00
8.	Retailer net margin	340.0	28.33
9.	Sale price of retailer/ purchase price of consumer	1200.0	100.00

Table 2 : Marketing cost and margins in channel–II in Jaipur market

Sr. No.	Particulars	Rs. per q	Per cent of consumer's purchase price
1.	Producer's net price/ purchase price of village trader	520.0	43.33
2.	Cost incurred by village trader		
	Labour charges, grading and packing	4.0	0.33
	Kerat	34.0	2.83
	Loading charges	2.0	0.17
	Weighing charges	2.0	0.17
	Transportation	50.0	4.17
	Total cost	92.0	7.67
3.	Net margin of village trader	58.0	4.83
4.	Sale price of village trader/ purchase price of commission agent cum wholesaler	670.0	55.83
5.	Cost incurred by commission agent cum wholesaler		
	Market tax (1.6%)	10.72	0.89
	Commission (6.0%)	40.2	3.35
	Unloading	2.0	0.17
	Weighing	2.0	0.17
	Quantity loss @ 1%	6.7	0.56
	Miscellaneous	5.0	0.42
	Total cost	66.62	5.55
6.	Net margin of commission agent cum wholesaler	63.38	5.28
7.	Sale price of commission agent cum wholesaler /purchase price of retailer	800.0	66.67
8.	Cost incurred by retailer		
	Loading	2.0	0.17
	Transportation	30.0	2.50
	Unloading	2.0	0.17
	Quantity losses 2%	16.0	1.33
	Store charges	5.0	0.42
	Miscellaneous	5.0	0.42
	Total cost	60.0	5.00
9.	Retailer net margin	340.0	28.33
10.	Sale price of retailer/purchase price of consumer	1200.00	100.00

VISHNU SHANKER MEENA, SHIRISH SHARMA **and KRISHNA KANT**

Table 3 : Price spread in marketing of tomato in different marketing channels in Jaipur Market

Sr. No.	Particulars	Channel –I (Market sale)		Channel –II (Village sale)	
		Rs./q	Per cent share in consumer's rupee	Rs./q	Per cent share in consumer's rupee
1.	Producer's net price	600	50.00	520	43.33
2.	Cost incurred by				
	Producer	90	7.50		
	Village trader			92.0	7.67
	Commission agent cum wholesaler	68.34	5.70	66.62	5.55
	Retailer	60	5.00	60.0	5.00
	Total cost	218.34	18.20	218.62	18.22
3.	Margin earned by				
	Village trader			58	4.83
	Commission agent cum wholesaler	41.66	3.47	63.38	5.28
	Retailer	340	28.33	340.0	28.33
	Total margin	381.66	31.80	461.38	38.45
4.	Consumer's price	1200	100.00	1200	100.00

Table 4: Marketing efficiency in marketing of tomato in Jaipur Market

Sr. No.	Particulars	Channel I	Channel II
1.	Price paid by consumer (Rs./q)	1200	1200
2.	Marketing cost (Rs./q)	218.34	218.62
3.	Marketing margin (Rs./q)	381.66	461.38
4.	Marketing efficiency	1.00	0.76

was 1.00 for channel-I and 0.76 for channel -II. Table reveals that efficiency was higher in channel- I hence; it was the most efficient market.

Marketing cost, Marketing margin, Price spread and Marketing efficiency in Kota district:

There were two marketing channels identified in marketing of tomato in Kota market .These were:

Channel- I: Producer – Commission agent cum wholesaler – Retailer – Consumer.

Channel- II: Producer – village trader - Commission agent cum wholesaler – Retailer – Consumer.

The marketing costs and margins in channel-I (Table 5) indicate that the cost incurred by producer was Rs. 80 per quintal of tomato which was 7.27 per cent of consumer's rupee. Cost incurred by commission agent cum wholesaler was Rs. 65.76 per quintal of tomato which was 5.98 per cent of consumer's rupee. Cost incurred by retailer was Rs. 54.6 per quintal of tomato which was 4.96 per cent of consumer's rupee. The farmer's share in the consumer's rupee was 52.73 per cent in channel-I. The margins earned by the commission agent cum wholesaler and retailer were Rs. 54.24 and Rs. 265.4 which accounted for 4.93 and 24.13 per cent of consumer's rupee, respectively.

The marketing cost in channel-II is presented in Table 6. It reveals that the total cost incurred by village trader was Rs. 82.0 per quintal of tomato, which was 7.45 per cent of consumer's rupee. Cost incurred by commission agent cum wholesaler was Rs. 65.76 per quintal of tomato, which was 5.98 per cent of consumer's rupee. Margin earned by village trader and commission agent cum wholesaler was Rs. 58.0 and 54.24 per quintal, respectively. Cost incurred by retailer was Rs. 54.6 per quintal of tomato, which was 4.97 per cent of consumer's rupee. The producer's share in consumer's rupee was 47.27 per cent. Margin earned by the retailer was Rs. 265.40, which was 24.13 per cent of consumer's rupee. Total cost incurred and margin earned along with price spread for different intermediaries is presented in Table 7. These figures have been derived from Table 5 and 6. Channel-I was more efficient as the producer's share in consumer's rupee was 52.73 per cent in channel- I and 47.27 per cent in channel-II. Total cost of marketing in channel- I was 18.21 per cent and 18.40 per cent in channel-II. Analysis of marketing margin showed that higher margin of 34.33 per cent was earned by intermediaries in channel-II as compared to 29.06 per cent in channel-I.

Marketing efficiency for channel –I and channel-II was worked out and is presented in Table 8. Marketing efficiency was 1.12 for channel-I and 1.07 for channel -II. Table reveals that efficiency was higher in channel- I, Hence, it was the most efficient market.

Policy implications:

Marketable surplus being almost zero does not leave any opportunity for farmers to reap lean season benefits of

Table 5 : Marketing cost and margins in channel–I in Kota Market			
Sr. No.	Particulars	Rs. per q	Per cent of consumer's purchase price
1.	Producer's net price	580	52.73
2.	Cost incurred by producer		
	Labour cost, grading and packing	4.0	0.36
	Karet	34.0	3.09
	Loading charges	2.0	0.18
	Transportation	40.0	3.64
	Total cost	80.0	7.27
3.	Producer's sale price/ commission agent cum wholesaler purchase price	660.0	60.00
4.	Cost incurred by commission agent cum wholesaler		
	Market tax (1.6%)	10.56	0.96
	Commission (6.0%)	39.60	3.60
	Unloading	2.0	0.18
	Weighing	2.0	0.18
	Quantity loss @ 1%	6.60	0.60
	Miscellaneous	5.0	0.45
	Total cost	65.76	5.98
5.	Net margin of commission agent cum wholesaler	54.24	4.93
6.	Sale price of commission agent cum wholesaler / purchase price of retailer	780.0	70.91
7.	Cost incurred by retailer		
	Loading	2.0	0.18
	Transportation	25.0	2.27
	Unloading	2.0	0.18
	Quantity losses (2%)	15.60	1.42
	Store charges	5.0	0.45
	Miscellaneous	5.0	0.45
	Total cost	54.6	4.96
8.	Retailer net margin	265.4	24.13
9.	Sale price of retailer/purchase price of consumer	1100.0	100.00

Table 6 : Marketing cost and margins in channel–II in Kota market			
Sr. No.	Particulars	Rs. per q	Per cent of consumer's purchase price
1.	Producer's net price/ purchase price of village trader	520.0	47.27
2.	Cost incurred by village trader		
	Labour charges, grading and packing	4.0	0.36
	Kerat	34.0	3.09
	Loading charges	2.0	0.18
	Weighing charges	2.0	0.18
	Transportation	40.0	3.64
	Total cost	82.0	7.45
3.	Net margin of village trader	58.0	5.27
4.	Sale price of village trader/ purchase price of commission agent cum wholesaler	660.0	60.00
5.	Cost incurred by commission agent cum wholesaler		
	Market tax (1.6%)	10.56	0.96
	Commission (6.0%)	39.60	3.60
	Unloading	2.0	0.18
	Weighing	2.0	0.18
	Quantity loss @ 1%	6.6	0.60
	Miscellaneous	5.0	0.45
	Total cost	65.76	5.98
6.	Net margin of commission agent cum wholesaler	54.24	4.93
7.	Sale price of commission agent cum wholesaler / purchase price of retailer	780.0	70.91
8.	Cost incurred by retailer		
	Loading	2.0	0.18
	Transportation	25.0	2.27
	Unloading	2.0	0.18
	Quantity losses 2%	15.6	1.42
	Store charges	5.0	0.45
	Miscellaneous	5.0	0.45
	Total cost	54.6	4.96
9.	Retailer net margin	265.40	24.13
10.	Sale price of retailer/purchase price of consumer	1100.0	100.00

higher prices. Therefore, provision of cold storage facilities at the village level and adequate refrigerated transport facilities for the smooth movement of vegetables from the places of production to the various consumption centers are suggested to improve the efficiency of marketing of vegetables in the state. This will help in reducing the wide gap prevailing between price paid by the consumer and price received by the vegetable growers.

Because fresh vegetables are highly vulnerable to market conditions some sort of price stabilisation efforts in form of minimum support prices, or other financial incentives can be resorted to.

There is an urgent need to set up an efficient market information network by state Government, so that farmers can get timely and adequate market information which may

Table 7 : Price spread in marketing of tomato in different marketing channels in Kota market

Sr. No.	Particulars	Channel –I (Market sale)		Channel –II (Village sale)	
		Rs./q	Per cent share in consumer's rupee	Rs./q	Per cent share in consumer's rupee
1.	Producer's net price	580	52.73	520	47.27
2.	Cost incurred by				
	Producer	80	7.27	-	-
	Village trader	-	-	82	7.45
	Commission agent cum wholesaler	65.76	5.98	65.76	5.98
	Retailer	54.6	4.96	54.6	4.97
	Total cost	200.36	18.21	202.36	18.40
3.	Margin earned by				
	Village trader	-	-	58	5.27
	Commission agent cum wholesaler	54.24	4.93	54.24	4.93
	Retailer	265.4	24.13	265.4	24.13
	Total margin	319.64	29.06	377.64	34.33
4.	Consumer's price	1100	100.00	1100	100.00

Table 8 : Marketing efficiency in marketing of tomato in Kota market

Sr. No.	Particulars	Channel I	Channel II
1.	Price paid by consumer (Rs./q)	1100	1200
2.	Marketing Cost (Rs./q)	200.36	202.36
3.	Marketing margin (Rs./q)	319.64	377.64
4.	Marketing efficiency	1.12	1.07

help them to get better prices of vegetables.

Looking at quantum of the marketed surplus coupled with perishability of vegetables, every effort should be made by the policy makers to promote processing of vegetables for value addition and should also exploit other export avenues from the state.

REFERENCES

Anonymous (2011). Indian Horticulture Database-2011. National Horticulture Board, Ministry of Agriculture, Government of India, Gurgoan (HARYANA) INDIA.

Bhupal, D.S. (1987). Marketing of Cotton in Haryana, AERC, Delhi University, p 49

Mittal, Surabhi (2006). Structural Shift in Demand for Food: Projections for 2020. Working Paper No 184. New Delhi: Indian Council for Research on International Economic Relations (ICRIER).

Sharan, Girja (1998). An Operational Study of the CJ Patel Vegetable and Fruit Market of Ahmedabad, CMA, IIMA, 1998.

Sidhu, R.S., Kumar, S., Vatta, K. and Singh, P. (2010). Supply Chain Analysis of Onion and Cauliflower in Punjab. *Agric. Econ. Res. Review,* **23** : 445-453.

Viswanadham, N. (2006). Food and retail chains in India. ISAS Working Paper No 15, October 6, 2006, Singapore: ISAS.

■ **WEBLIOGRAPHY**

Singh, M.K. (2009). Economics of Production and Marketing of Vegetables in Madhya Pradesh, India. http://www.ivcs.org.uk/ (IVCS - Indian Volunteers for Community Service) / ijrs.

10th Year
★★★★★ of Excellence ★★★★★