Journal of Experimental Agriculture International

44(9): 210-214, 2022; Article no.JEAI.89507
ISSN: 2457-0591
(Past name: American Journal of Experimental Agriculture, Past ISSN: 2231-0606)

An Economic Analysis of Price Spread, Marketing Efficiency and Marketing Cost of Tomato in Prayagraj District of Uttar Pradesh, India

Yousuf Alameen Ajji Koushi [a*] and Mukesh Kumar Maurya [a]

[a] Department of Agricultural Economics, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj, Uttar Pradesh, India.

Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JEAI/2022/v44i930868

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/89507

Original Research Article

Received 27 April 2022
Accepted 11 July 2022
Published 15 July 2022

ABSTRACT

The study was carried out to analyse the price spread, marketing efficiency and marketing cost of tomato. The Prayagraj district of Uttar Pradesh was selected purposively for the study because of the large amount of tomato production. Due to the perishable nature of tomato the farmers couldn't stock up and had to sale in lean month. So, there wasn't much difference in marketable and marketed surplus of tomato. The percentage of marketable surplus was highest in medium size farm group i.e., 95.28 percent followed by small farmers with 94.94 percent and large size farmers with 94.02 percent. The average marketable surplus was 320.09 quintals that is 94.75 percent. The average total marketing cost was Rs 800/qtls, the average net price received by the farmers was Rs 2000/qtls the average price spread was Rs 800/qtls, and the average Marketing efficiency was Rs 2.5/qtls.

Keywords: Price spread; marketing efficiency; marketing cost; market surplus.

1. INTRODUCTION

Peru of South America is the place from which tomato is originated. It is the second important crop of world after potato. Vitamin A, C, potassium and minerals are the richest source present in tomato [1,2]. It is used as an ingredient in the preparation of soup, juice and

**Corresponding author: E-mail: yosuf84x@gmail.com;*

ketch up, powder. Bihar, Karnataka, Uttar Pradesh, Orissa, Maharashtra, Andhra Pradesh, Madhya Pradesh and West Bengal are the major tomato producing states in India [3-6].

In India Tomato ranks third in priority just after potato and onion but second in the world after potato [7-9]. In case of production and area of tomato India ranks second in the world. China, USA, Italy, Turkey, India and Egypt are the major tomato growing countries in the world. The total tomato production is 182.43 lakh tons in India (State Directorates of Horticulture 2019). All India expected production of tomato in 2019-20 is estimated to be 186.08 Lakh Tonnes (State Directorates of Horticulture, 2019). As reported by states upto April 2020, Rabi Area sown is 6.055 Lakh Ha. against 5.73 Lakh Ha. last year (State Directorate of Horticulture, 2019). Maximum yield of tomatoes was in Andhra Pradesh, Orissa, Karnataka, Maharashtra, West Bengal, Bihar, Gujarat etc. Throughout the year tomatoes were available for import. High yielding F1 hybrids are being cultivated by growers on a relatively good scale [10,11]. Allotment of raised seedlings of F1 hybrids is quite prevalent and is getting popular among vegetable growers. APEDA has established a number of Agri Export Zones for vegetables videlicet in Punjab, U.P., Gujarat, Bihar, Jharkhand and West Bengal for promoting exports of vegetables and infrastructure for the same is being/has been set up. (APEDA Database, 2011-12).

2. RESEARCH METHODOLOGY

2.1 Source of Data

The study was conducted in Prayagraj District of Uttar Pradesh was selected purposively because it had large amount of tomato production takes place in Prayagraj. There were 20 Blocks in Prayagraj district out of those present Prayagraj districts Chaka and Karchana has been selected purposively for present study as the selected species i.e. Tomato is extensively grown in this specific area. The list of 10 villages that comes under selected block was prepared and village namely Baswar, Mohabbatganj, Merauke, Mahewa West and Dandi from Chaka Block and Barawan, Dewari, Kherwa, Numaiya and Bisauna from Karchana Block were selected purposively because these blocks had maximum number of farmers grow Tomato on large number.

From the list of selected tomato growers based on their size of land holdings they were categorised into three groups

1. Marginal farmer (< 1 ha)
2. Small farmer (1-2 ha)
3. Medium farmer (2-10ha)

60 respondents were selected using random sampling technique.

2.2 Primary Data

The primary data was collected by preparing a well-structured schedule. The required data was collected by personal interviews.

2.3 Secondary Data

The secondary data was taken from the published report at Block, Tehsil and District offices.

2.4 Period of Enquiry

The data was collected during the agriculture year 2020-2021.

Analytical Tools Used

Producer's Share in Consumer's Rupee:

2.4.1 Marketing cost

M =
Cf+Cm1+Cm2+Cm3+……+Cmn

Where,

M = Total cost of marketing
Cf= Cost incurred by the producer (from the produce leaves the farm till the sale of the produce), and
C_{mn}= Cost incurred by the i^{th} middlemen in the process of buying and selling.

2.4.2 Marketable surplus

MS=P-C

Where,

MS= Marketable surplus
P= Total Production
C= total requirements (family and farm)

2.4.3 Marketing margin of middlemen

(a) Absolute margin = PRi– (Ppi+ Cmi)

(b) Per cent margin = $\frac{PRi-(Ppi+Cmi)\ X\ 100}{PRi}$

2.4.4 Producer's share in consumer's rupee

$$\frac{P = (C - M)\ X\ 100}{M}$$

Where,

P = Producer's share in Consumer's Rupee
C =Consumers' rupee
M = Marketing cost

2.4.5 Price spread

Price Spread = Total Marketing Cost+ Total Marketing Margin

2.4.6 Marketing efficiency (Acharya & Agrawal)

$$Marketing\ Efficiency = \frac{Consumer\ price}{Total\ marketing\ cost\ +\ marketing\ margin}$$

3. RESULTS AND DISCUSSION

Table 1 revealed the disposable pattern of tomato shows that Total production of tomato was highest in medium size farms (337.7 quintals) as compared to small size farms (329 quintals) and marginal size farms (307.33 quintals). Home consumption is mostly in small size farms as compared to medium and large size farms. Kind payment instead of wages is highest in large size farms as compared to small and medium size farms. The medium farmers gave highest quantity of produce for religious purpose. The highest percent of produce was retained by medium size farms (17.62 quintals) followed by small (16.75 quintals) and marginal size farms (14.5 quintals) respectively. It was found that the highest percentage of marketable surplus was for medium size farm group i.e. 95.28 percent followed by the small farm group with 94.94 percent and the large size farmers with 94.02 percent. The average marketable surplus was 320.09 quintals with 94.75 percent.

Table 2 revealed that marketing cost/ha 1st packaging material 184 2nd Packaging charges 73 ,3rd Transportation 350 ,4th Loading Un-loading charges 117 ,5th Weighing charges 76. Total is Rs-800/Qtl. The transportation cost incurred was highest due to increase in petrol and diesel cost. The packaging cost was also high due to unavailability of materials.

From Table 3 it is observable that the comparison of total marketing cost, total marketing margin, price spread, producer share in consumer rupee and marketing efficiency (Rs/qtls) – 1st Net price received by farmer/qtl – 2000, 2nd Total marketing cost – 800, 3rd Price spread – 800, 4th Marketing efficiency – 2.5. There is a huge gap between the price received by the farmers and the price at which the consumers buy the produce, it's because of all the middleman that comes in during marketing.

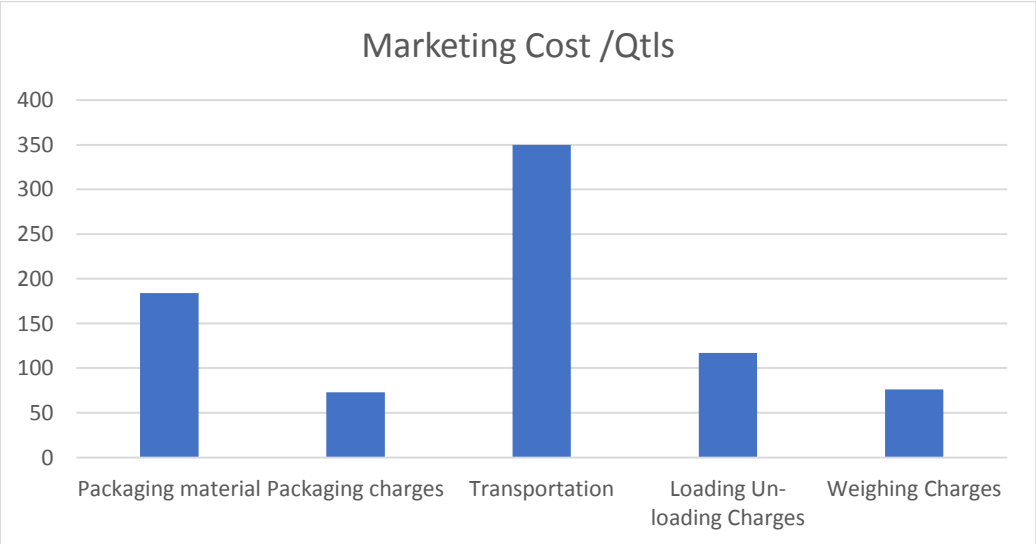

Fig. 1. Differences in marketing cost and qualities

Table 1. Disposal Pattern of Tomato per hectare in different Size of Farms Group in Prayagraj district (Qtl. /ha)

Particular	Size of farm groups			Sample average
	Marginal	Small	Medium	
Total yield	307.33	329	337.71	324.68
Home consumption	6.15	7.57	8.10	7.27
Kind payments as wages	0.63	1.34	1.68	1.22
Relatives and religious person	7.7	7.84	7.84	7.79
Total retention	14.5	16.75	17.62	16.29
Marketable surplus	292.83	312.25	320.09	308.39

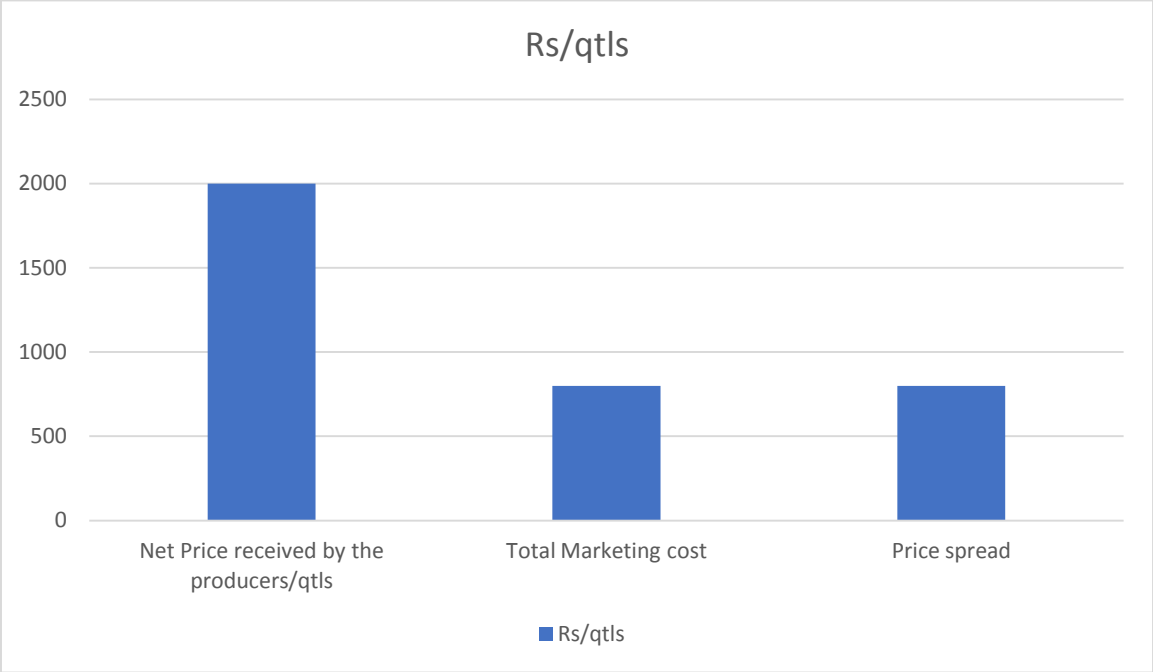

Fig. 2. Comparison between the total marketing cost, total marketing margin, price spread, producer share in consumer rupee (%)

Table 2. Marketing Cost/Qtl

S. No.	Particulars	Total cost (Rs/qtl)
1	Packaging material	184
2	Packaging charges	73
3	Transportation	350
4	Loading Un-loading Charges	117
5	Weighing Charges	76
	Total	800

Table 3. Comparison between the total marketing cost, total marketing margin, price spread, producer share in consumer rupee (%) and marketing efficiency (Rs/qtls)

S.No	Particulars	(Rs/qtls)
1	Net price received by farmer/qtl	2000
2	Total marketing cost	800
3	Price spread	800
4	Marketing efficiency	2.5

4. CONCLUSION

The study reveals that the disposable pattern of tomato showed that the medium size farmers (337.7 quintals) had highest total production of tomato as compared to small size farmers (329 quintals) and then comes the marginal size farmers (307.33 quintals). Home consumption was found to be highest in small size farmers as compared to medium and large size farms. Large size farmers were first in kind payment as compared to small and medium size farms. Medium sized farmers were leading in giving wages has kind payments. The medium size farmers (17.62 quintals) retained the highest percent of produce followed by small (16.75 quintals) and marginal size farms (14.5 quintals) respectively. It was also found that the highest percentage of marketable surplus was found in medium size farm group i.e., 95.28 percent

followed by small farm group with 94.94 percent and large size farm group with 94.02 percent. The sample average marketable surplus was 320.09 quintals with 94.75 percent.

The comparison between the total marketing cost, total marketing margin, price spread, producer share in consumer rupee and marketing efficiency (Rs/qtls) – 1st Net price received by the producers/qtls – 2000, 2nd Total marketing cost – 800, 3rd Price spread – 800, 4th Marketing efficiency – 2.5.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Ishag KHM, Al-Rawahy MSS. Risk and economic analysis of greenhouse cucumber and tomato cropping systems in Oman. Sustainable Agriculture Research. 2018;7(4):115-114.
2. Willcox JK, Catignani GL, Lazarus S. Tomatoes and cardiovascular health," Critical Reviews in Food Science and Nutrition. 2003;43(1):1–18.
3. Adenegan KO, Adeoye IB. Price analysis of tomato in rural and urban retail markets of Oyo state. Int. J. Agric. Econs & Rur. Dev.; 2011.
4. Asfaw DM. Analysis of technical efficiency of smallholder tomato producers in Asaita district, Afar National Regional State, Ethiopia. PLoS ONE. 2021;16(9):e0257366. DOI:https://doi.org/10.1371/journal.pone .0257366.
5. Harisha N, Tulsiram J, Joshi AT. Techno-economic analysis of vegetable production under protected cultivation in Kolar district of Karnataka. Agricultural Science Digest. 2019;(39):224-227.
6. Isah AS, Amans EB, Odion EC, Yusuf AA. Growth rate and yield of two tomato varieties (*Lycopersicon esculentum* Mill) under green manure and NPK fertilizer rate Samaru Northern *Guinea savanna*. International Journal of Agronomy. 2014;2014:1-8. Article ID 932759. DOI: http://dx.doi.org/10.1155/2014/932759
7. Ugonna CU, Jolaoso MA, Onwualu AP. Tomato value chain in Nigeria: issues, challenges and strategies. J. Sc. Res. & Rep. 2015;7(7):501-515. Article No.: JSRR.2015.231. DOI: 10.9734 /JSRR/2015/16921. ISSN: 2320-0227.
8. Usman J, Bakari UM. Profitability of dry season tomato (*Lycopersicon esculentum* Mill.) production in Fufore local government area of Adamawa State, Nigeria. Youth Initiative for Sustainable Agriculture (YISA) (2013) Yoccap tomato project value chain. Abuja, Nigeria; 2013.
9. Vanitha SM, Chinnappa Reddy BV, Gajanana TM. Economic Analysis of Profitability in Tomato Production at Different Seasons and Market Prices: a Study in Kolar district of Karnataka. International Journal of Agriculture Sciences. 2018;10(16):6961-6966. ISSN: 0975-3710 & E-ISSN: 0975-9107,
10. Prasad R, Kumar S. An economic analysis of marketing of tomato (*Lycopersicon esculentum*) in Prayagraj District of U.P. International Journal of Applied and Pure Science and Agriculture (IJAPSA). 2019;05(5): 1-5.
11. Rahman MS, Acharjee DC. Impact of off-season summer tomato cultivation on income and food security of the growers. Agricultural Economics; 2020. DOI: 10.5772/intechopen.93674.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/89507