Analysis of Marketing Facilities available for Tomato Growers of Haryana

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ABSTRACT

Market plays crucial role in the economic life of farmers, and essential in the chain of commodity distribution. Postharvest losses in tomato are a matter of concern for all tomato growers, therefore a need for farmers to sell their produce instantly after harvesting is felt. Provision of better marketing facilities would assist in better handling of the produce and reduce storage losses, thereby offering higher and remunerative prices to the growers. The present study was conducted during 2020-21 in four districts of Haryana, namely Nuh, Sonipat, Gurugram and Palwal. The investigation was focused on the marketing facilities available for the farmers, their knowledge and adoption level regarding post-harvest management practices. A total sample of 160 respondents were selected and personally interviewed. The results indicated that farmers had medium degree of mass media exposure, extension contact and extension participation. To test the adequacy of sample, factor analysis using KMO and Bartlett's test of sphericity was applied and yielded 10 factors and explaining a total of 69.58 per cent of the variance for the entire set of marketing facilities.

INTRODUCTION

The vegetable sector plays a vital role in farm income enhancement and alleviation of poverty in many developing countries. Food and agricultural sector in developing countries are being transformed as the relative importance of grains and staple foods declines and high-value agriculture, including vegetables, increases (Birthal et al., 2005; Gulati et al., 2007). A high demand for fresh vegetables created by the consumers, but major challenge in meeting this demand for fresh vegetables is postharvest losses which account about 30.00 per cent in India (FAO 2018). Tomato (*Lycopersicon esculentum* Mill.) is a vegetable crop popularly consumed all over the world. The global tomato processing in the year 2020 was approximately 38.777 million MT whereas, India accounts for 130 million tons of tomato processing. In India the total production of tomato is 205.72 lakh tonnes from 796.87 thousand hectares area (FAOSTAT, 2019-20), which is 08.00 per cent higher than the normal production as well as last year

production. Postharvest losses in tomato are a matter of concern and their management plays key role in loss reduction, value addition, food security, employment and income generation. Whereas, availability of better marketing facilities aids in stimulating production and consumption of produce as it acts as critical link between farm production and non-farm sectors. Adoption of scientific practices in agri-horti system is dependent on knowledge of the farmers (Nain and Chandel, 2013) and as information sources the credibility is placed on localized sources (Bhagat et al., 2004: Ravikumar et al., 2015). Lack of efficient marketing system, more distance to the markets, manipulation of weighing machines, lack of proper grading and proliferation of middlemen who charge enormous commissions forced farmers to sell their produced at unregulated markets therefore, there is urgent need of competitive market system with adequate infrastructure facilities.

Development and establishment of new market complexes with modern amenities will influence the market structure and pricing mechanism by increasing the efficiency of markets. Thus,

an efficient regulated marketing system will attract greater market arrivals and offer remunerative prices to the growers. The present investigation makes an attempt to understand the role of marketing facilities in attracting the farmers to sell their produce at the right place and at the right time so as to reduce their postharvest losses.

METHODOLOGY

The present investigation was conducted purposively in four districts namely; Gurugram, Nuh, Palwal and Sonipat of Haryana state, as these districts are contributing highest production of tomato in the state. Primary data on tomato growers was collected by applying purposive and systematic random sampling procedures for the selection of districts and respondents. Further, two blocks were selected, randomly from each of four districts and from each of eight blocks, two villages were chosen, randomly and thereby a total number of sixteen villages were selected for the data collection. Finally, ten farmers were selected randomly from each village, thus making a total sample of 160 tomato growers. The data was collected with the help of a well-structured and pretested interview schedule comprising the items for assessment of the marketing facilities available with the farmers. The marketing facilities and communication profile were computed with the statistical measures like frequency, percentages, weighted mean score, rank order and factor analysis used to analyze the data to draw the tangible and meaningful inferences from the study.

RESULTS AND DISCUSSION

The results along with the relevant discussion have been presented in prime heads as communication profile and marketing facilities available with the tomato farmers so that they could reduce their post-harvest losses.

Communication profile of the respondents

Data presented in Table 1 reveals that majority (48.12%) of the tomato growers had medium degree of mass media exposure. Similar results were reported by Nagesha (2012) where majority of vegetable farmers had medium mass media exposure. Data further revealed that 49.80 per cent of the farmers had medium degree of extension contact. The probable reason might be that, the farmers had maintained good contact with the extension functionaries to get solutions of their problems. Similar results were obtained by

Table 1. Communication profile of the respondents

S.No.	Categories	Percentage
1.	*Mass Media Exposure*	
a	Low (Less than 13)	22.50
b	Medium (13-17)	48.12
c	High (more than 17)	29.38
2.	*Extension Contact*	
a	Low (Less than 18)	22.50
b	Medium (19-23)	49.38
c	High (more than 23)	28.12
3.	*Cosmopoliteness*	
a	Low (Less than 9)	24.38
b	Medium (9-12)	43.75
c	High (more than 12	31.87

Sindhu (2021) in adoption behavior of post-harvest practices by the farmers and found that majority of farmers were under medium category of extension contact followed by high. 43.75 per cent of the farmers had medium degree of cosmopoliteness. Factually such farmers are obliged to engage in marketing and acquire the necessary skills in addition to obtaining the necessary agricultural inputs. Thus, farmers had more contacts with the people outside and within the village leading to higher cosmopolite behaviour. Similar trend of results was reported by Singh et al., (2014).

Marketing facilities available with the respondents

The data depicted in Table 2 indicates that regarding place of selling, cent per cent of the respondents were selling in the village markets itself indicated with weighted mean score 2.00 and ranked 1st followed by, selling in nearby markets (weighted mean 1.72), and in distant markets (weighted mean 1.62) respectively. Further, with regards to reasons for selling at a particular place, cent per cent of the farmers selling their produce at market which is very near to their place indicated with weighted mean score 2.00, followed by reasons as the better transport facilities available for that place (weighted mean 1.72), better marketing facilities available in the market (weighted mean 1.41) and the better prices are available in that market (weighted mean 1.35), respectively. Regarding reasons for selling at a particular period/time it is observed from that the tomato growers' were found selling their produce as there were no cold storage facilities and tomato is highly perishable indicated with weighted mean score 2.00, followed by indebtedness to traders (weighted mean 1.00). From Table 2 it can also be observed that regarding persons to whom produce is sold, majority of the farmers sold their produce to the wholesaler (weighted mean 1.91), followed by selling directly to the consumers (weighted mean 1.53), to village level baniyas/middlemen (weighted mean 1.38) and none of the selling their produce at government agencies/exporters directly.

The data from Table 2 implied that with regard to opinion of farmers about existing marketing facilities it can be observed that majority (weighted mean 1.74) of the respondents thought that market is insufficient, followed by quite sufficient (weighted mean 1.72) and sufficient (weighted mean 1.00), respectively. Further, regarding opinion of growers about prevailing market prices it can be observed that majority of them had low (weighted mean 2.00) perception about prevailing market prices ranked first, followed by medium (weighted mean 1.66) and high (weighted mean 1.00) perception regarding market prices indicated with 2nd and 3rd ranks, respectively. Therefore, it can be concluded that the farmers with more market orientation were more prone towards the markets and market prices, in order to get maximum returns they tend to get more knowledge and adopt more. The findings of the study were in agreement with the results obtained by Ramrao (2018) & Shriwas et al., (2015) revealed that majority of the respondents had medium marketing facilities, followed by low and high market facilities, respectively.

Factor analysis: Suitability of the data

It is evident from the Table 3 that two tests were applied to test the adequacy of data for factor analysis. The KMO measure

Table 2. Distribution of the respondents according to their availability of marketing facilities

S.No.	Statements	Frequency		WMS
		Yes (2)	No (1)	
1.	*Place of selling*			
a	In the village itself	160 (100.00)	00 (00.00)	2.00
b	Nearby market	115 (71.87)	45 (28.13)	1.72
c	Distant market	98 (61.25)	62 (38.75)	1.62
2.	*Reasons for selling at a particular place*			
a	Market is very near to place	160 (100.00)	00 (00.00)	2.00
b	The better transport facilities available for that place	115 (71.87)	45 (28.13)	1.72
c	The better market facilities available in that market	66 (41.30)	94 (58.70)	1.41
d	The better prices are available in that market	56 (35.00)	104 (65.00)	1.35
3.	*Reasons for selling at a particular period/ time*			
a	Highly perishable	160 (100.00)	00 (00.00)	2.00
b	Quality was not good	23 (14.37)	137 (85.63)	1.14
c	No cold storage facilities available	160 (100.00)	00 (00.00)	2.00
e	Indebtedness to trader	00 (00.00)	160 (100.00)	1.00
4.	*Persons to whom sold*			
a	Directly to the consumers	79 (49.40)	81 (50.60)	1.53
b	To village level Trader/ Baniya/middlemen	60 (37.50)	100 (62.50)	1.38
c	To the wholesaler/ exporters through commission agents	145 (90.6)	15 (09.40)	1.91
d	To the Govt. agencies/exporters directly	00 (00.00)	160 (100.00)	1.00
5.	*Opinion about existing market facilities*			
a	Insufficient	119 (74.40)	41 (25.60)	1.74
b	sufficient	00 (00.00)	160 (100.00)	1.00
c	quite sufficient	115 (71.90)	45 (28.10)	1.72
6.	*Perception about prevailing market prices*			
a	High	00 (00.00)	160 (100.00)	1.00
b	Medium	105 (65.60)	55 (34.4)	1.66
c	Low	160 (100.00)	00 (00.00)	2.00

Table 3. KMO and Bartlett's Test of Sphericity to test the suitability of the sample

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.641
Bartlett's Test of Sphericity	Approx. Chi-Square	1825.36
	d.f.	666
	Sig.	.000

of sampling indicates that if KMO value is >0.50 which is acceptable that means the sample is suitable for factor analysis. The KMO measure of sampling adequacy was 0.641 thus, confirming the appropriateness of the factor analysis. Whereas, Bartlett's test of Sphericity indicates whether a given correlation matrix is an identity matrix which would indicate the distinct variables. The table indicates that Bartlett's test of Sphericity is significant at the level of p=0.01 indicated that variables are highly correlated.

Normal varimax solution for identified factor of marketing facilities available for the tomato growers

Data presented in Table 4 &5 indicates that factors with eigenvalues greater than one considered being significant and other factors were ignored. Fourth-one items related to marketing facilities available with the tomato growers were factor analysed by using principal component analysis with varimax rotation. The factor analysis yielded ten factors with eigenvalue >1 and together these factors explaining a total of 69.58 per cent of the variance for the entire set of variables. Table shows the rotated component matrix

and reports the factor loadings for each variable on the components or factors after rotation. Each number represents the partial correlation between the items and the rotated factors. Factor 1 was labeled as "Reasons for selling at a particular place" due to the high loadings by the items, viz, to village level Trader/Baniya/ middlemen, to the wholesaler through commission agents, previous agreement/ contract farming, directly to the consumers, transportation through tempo / Jeep, the better prices are available in that market, the better transport facilities available for that place and the better market facilities available in that market. The variance explained by this factor was 15.14 per cent. Factor 2 was labeled as "Opinion about prevailing market" three items had high loadings, viz, sufficient market facilities, high prevailing prices and medium prevailing prices. The variance explained by this factor was 22.36 per cent. The Factor 3 derived was labeled as "Reasons for selling at a particular time" two items had high loadings, viz, immediate cash payment and better price for produce. The variance explained by this factor was 28.91 per cent. Factor 4 derived was labeled as "Opinion about prevailing market facilities" due to the high loadings of items, viz, quite sufficient market facilities, trucks available for marketing and insufficient market facilities. The total variance explained by this factor was 38.42 per cent. The Factor 5 was labeled as "time of selling" three items had high loadings, viz, the agency is very nearer one, To the Govt. agencies/exporters directly and distant markets. The variance explained by this factor was 47.13 per cent. The Table 5 displayed factor 6 which was labeled as "Opinion about existing market situation" due to the high loading

Table 4. Normal Varimax solution for identified factor of marketing facilities for the tomato growers

Items	Factors				
	F1	F2	F3	F4	F5
To village level Trader/Baniya/ middlemen	0.781				
To the wholesaler through commission agents	0.775				
Previous agreement/contract farming	0.672				
Directly to the consumers	0.632				
Transportation through tempo / Jeep	0.571				
The better prices are available in that market	0.563				
The better transport facilities available	0.501				
The better market facilities available	0.412				
Sufficient market facilities		0.783			
High prevailing prices		0.771			
Medium prevailing prices		0.474			
Immediate cash payment			0.837		
Better price for produce			0.750		
Quite sufficient market facilities				0.733	
Trucks available for marketing				0.711	
Insufficient market facilities				0.633	
The market is very nearer one					0.716
To the Govt. agencies/exporters directly					0.535
Distant markets					0.769
Eigenvalues	5.605	2.671	2.423	1.725	1.583
Variance (%)	15.148	7.219	6.550	4.662	4.278
Cumulative (%)	15.148	22.367	28.917	38.423	47.139

Extraction Method: Principal Component Analysis, Rotation Method: Varimax

Table 5. Normal Varimax solution for identified factor of marketing facilities available for the tomato growers

Items	Factors				
	F6	F7	F8	F9	F10
Low prevailing prices	0.777				
Availability of consumers	0.634				
When it is convenient	0.548				
Polythene bags used for packaging		0.730			
Plastic crates used for packaging		0.456			
Proper handling while packaging		0.725			
When prices are attractive		0.577			
Highly perishable commodity			0.783		
Quality was not good			0.530		
Selling at nearby market				0.691	
Non-availability of cold storage facilities in market				0.686	
Market is very near to place				0.784	
In the village itself					0.781
Immediately after the harvest					0.562
The agency is very nearer one					0.784
Eigenvalues	1.464	1.341	1.219	1.167	1.003
Variance (%)	3.957	3.625	3.293	3.153	2.711
Cumulative (%)	51.096	54.721	58.016	61.170	69.582

Extraction Method: Principal Component Analysis, Rotation Method: Varimax

of items, viz, low prevailing prices, the agency is very nearer one and when it is convenient. The total variance explained by this factor was 51.09 per cent. With regard to factor 7 was labeled as "Mode of packaging" due to the high loading of items, viz, polythene bags, plastic crates, proper handling while packaging and highly perishable. The total variance explained by the factor was 54.72 per cent. The factor 8 was labeled as "Non-availability of storage facilities at market place" due to high loadings of items, viz, highly perishable commodity and quality was not good. The total variance explained by this factor was 58.01 per cent. The factor 9 was labeled as "Suitable market for selling the produce" due to the high loadings of the items, viz., selling at nearby market, no cold storage facilities available in the market and market is very near to place. The total variance explained by this actor was 61.17 per cent. The last Factor 10 extracted was labeled as "Place of selling" due to the high loadings of items, viz, in the village itself, immediately after the harvest and the market is very nearer one. The total variance explained by this factor was 69.58 per cent. These all the factors were independent on one another (i.e. they are not correlated).

CONCLUSION

From the above cited results it can be concluded that if farmers will get need based trainings and equipped with knowledge regarding better marketing facilities and will be provided well developed infrastructure at market places results in positive impact on their livelihood and will enhanced their income. The study investigated ten major factors regarding marketing facilities viz., "Reasons for selling at a particular place", "Opinion about prevailing market", "Reasons for selling at a particular time", "Opinion about prevailing market facilities", "time of selling", "Opinion about existing market situation", "Mode of packaging", "Non-availability of storage facilities at market place", "Suitable market for selling the produce" and "place of selling". All these ten factors together were explained the total variance of 69.54 per cent. Thus, to provide trainings regarding marketing system government organizations like SAUs, Extension education institutes and ICAR institutes should impart training from time to time to educate and make farmers aware marketing strategies and prevailing market prices so as to overcome the ill effects or post harvest losses.

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