

Farmers' Attitude Towards Post-Harvest Issues of Horticultural Crops

M. S. Meena¹, Ashwani Kumar², K. M. Singh³ and H. R. Meena⁴

1&3. Senior Scientist and PS & Head, Division of Socio-Economic, Extension & Training, ICAR Research Complex for Eastern Region, Patna, (Bihar), 2. Director, Directorate of Water Management, Bhubaneswar (Orissa),

4. Scientist (SS), Central Soil & Water Conservation Research & Training Institute, Dadwara, Kota, (Rajasthan),

Corresponding author Email: ms101@sify.com

ABSTRACT

Attitude as a component of human behavior is the pre-requisite for any action, which plays a dominant role in adoption of new post-harvest technologies. The present study was conducted in Ludhiana district of Punjab state to examine the farmers' attitude towards post-harvest issues of horticultural crops. A Likert-type-scale was developed, which consisted of 14-items. The survey instrument contained three sections namely environmental, technological and economic aspects. Data were solicited by personal interview method from eighty horticultural crop growers. Study reveals that farmers' had positive attitude towards post-harvest aspects of horticultural crops. The following measures have been recommended to boost-up and commercialization of post-harvest technologies: (i) organization of small farmers into groups or associations at block level (ii) emphasis on market-driven and decentralized extension system (iii) shifting of paradigm towards high-value enterprises and diversification (iv) organization of need-based and skill oriented trainings (v) popularization of post-harvest technologies by mass media, and (vi) informal education of farmers at village level.

Key words: *Attitude; Horticultural crop growers; Post-Harvest Issues;*

India has over 10% share of global fruits and vegetable in both production and export but hardly 2% of the production is being processed. Globally, post-harvest losses of fruits and vegetables are ranged from 30 to 40%. In India, this loss is estimated 30%. This loss is amounting to 40 million tons, which costs to US\$ 13 billion. The various factors which are accountable for the post-harvest losses are mainly: (i) environmental (such as temperature, moisture, mechanical damage during harvesting and handling), (ii) improper post-harvest sanitation, and (iii) poor cooling and environmental control. The lack of modern supply system including cold chains has prevented the strength of world's largest producer from being fully leveraged either for exports or processing. Two important issues prevent the development of a cold chain i.e., (i) lack of feasibility, and (ii) lack of support structure (human capital, quality benchmarks, and food protocols (Anonymous, 2007). The development and adoption of improved agricultural technologies play a decisive

role in productivity enhancement and welfare of farmers of limited resources. There is wide gap between agricultural technologies produced in research institutions and adoption of such technologies by small-scale farmers and rural households. Meena *et al.* (2006) noticed that technical intervention through training programmes increase the knowledge level of small-scale farmers in food processing and preservation aspects. Utilizing the improved post-harvest practices often results in reduced food losses, improved overall quality, food safety and higher profit for growers and marketers. The globalization of the world's food system represents both an opportunity and a threat for small-scale farmers. Globally, post-harvest innovation is a critical area that could support the poor in many ways through: production, employment, value addition and nutrition. This requires strengthening of post-harvest innovation systems, encouraging linkages, connections and learning processes (Hall *et al.*, 2002). Patil and Singh, (2007) reported that value addition of agricultural produce could

reduce post-harvest losses and provide employment in rural catchments. *Leary and Berge, (2006)* observed that agricultural technologies can increase food security in the developing world, while developing income generation activities and conserving environmental resources. Indian agro and food processing industries have great importance in terms of employment, income generation, poverty alleviation, export promotion and foreign earnings. Post-harvest management is also an integral component in changing global scenario to save the enormous loss as well as to secure the monetary returns in country like India. Attitude as a component of human behavior is the pre-requisite for any action, which plays a dominant role in adoption of new post-harvest technologies. Therefore, an investigation was undertaken with the objectives: (i) to study the demographic attributes and information source utilization of the farmers, and (ii) to determine their attitude towards post-harvest issues of horticultural crops.

METHODOLOGY

Attitude strength is an important determinant of attitude-behavior relationship. *Ajzen and Fishbein, (1980)* defined the attitude construct, as a person's degree of evaluative affect toward a target behavior. *Eagly and Chaiken, (1993)* defined attitude as a psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour. Individuals might hold multiple attitudes about an object, accessing different ones at different points in time (*Wilson, 1998*). The attitude of an individual varies significantly when he is working in a group. Attitudes are relatively stable and once adopted, which can provide a long-term effect (*Olgyaiova et al., 2005*). It was assumed that by changing the attitude of farmers, it would improve their performance in adoption and commercialization of horticultural products. A Likert-type-scale was developed, which consisted of 14-items. Cronbach's alpha coefficient of reliability test was observed as 0.82, which indicates good internal consistency (*George and Mallery, 2003*). Data were solicited from eighty horticultural crop growers on five-point Likert continuum namely Strongly Agree, Agree, Undecided, Disagree and Strongly Disagree with the weights of 5, 4, 3, 2 and 1 for positive statements and 1, 2, 3, 4 and 5 for negative statements. The possible minimum and maximum scores were 14 and 80,

respectively. The items were categorized into environmental, technological and economical related issues.

RESULTS AND DISCUSSION

Farmers' demographic attributes: The demographic attributes of farmers (Table 1) show that most of them (70 %) were in the range of 35-57 year. Most of the farmers were educated up to senior secondary level (73.75 %) and about one-tenth farmers (12.50 %) were illiterate.

Table 1. Demographic Attributes of Farmers. (N=80).

Demographic Attributes	f	%
<i>Age (years)</i>		
Young (< 35)	6	7.50
Middle (35-57)	56	70.00
Old (>57)	18	22.50
<i>Education</i>		
Illiterate	10	12.50
Primary	9	11.25
Middle	18	22.50
Senior secondary	32	40.00
Graduate and above	11	13.75
<i>Social Participation</i>		
Gram panchayat	10	12.50
Co-operative society	71	88.75
Milk co-operative society	61	76.25
Panchayat samiti	5	6.25
Rural youth club	29	36.25
Religious committee	62	77.50
Political organization	14	17.50
Growers association	33	41.25
<i>Land Holding (in Acre)</i>		
Small (< 4)	22	27.50
Medium (4-16)	49	61.25
Large (>16)	9	11.25
<i>Family Size</i>		
Small (< 2)	-	-
Medium (2-5)	52	65.00
Large (> 5)	28	35.00
<i>Occupation</i>		
Main		
Agriculture	80	100
<i>Complementary</i>		
Dairying	75	93.75
Labour	1	1.25
Business	3	3.75
Apiculture	9	11.25
Poultry	1	1.25
<i>Training Attended</i>		
Agriculture		
Short-term	5	6.25
Medium-term	1	1.25
Dairying		
Short-term	1	1.25

The participation in social institutions was prominent and most of the respondents were the members of co-

operative society (88.75%), milk cooperative society (76.25%) and religious organizations (77.50%). Rural youth clubs and growers associations were joined by 36.25% and 41.25% of respondents, respectively. Most of the farmers (61.25%) owned the land (4-16 acre). The respondents had 2-5 members in their family and all the respondents adopted agriculture as a major occupation with dairying as complementary occupation (93.75 %). Only few farmers adopted apiculture (11.25 %), business (3.75%), labour (1.25%) and poultry (1.25 %) as a complementary occupation.

Information Source Utilization of farmers: Study reveals that individual extension contact for seeking the agricultural information was not strong as it is costlier than mass media (Table 2). Most of the individual sources including Gram Sevak (Village Level Extension Worker), Agriculture Development Officer (ADO), Agriculture Officer (AO), Block Development Officer (BDO) were utilized on more than a month basis. A majority of them never visited / contacted the Krishi Vigyan Kendra and other research institutes to obtain the information related to agriculture. Farmers discussed in groups (95 %) to exchange their ideas. Demonstrations based on the principles “*Seeing is Believing*” and “*Learning by Doing*” to motivate and educate the farmers were opted by 88.75 % farmers. Field days, as an educational activity for mobilizing the farmers were also preferred by 80.50 % farmers. It was evident from the study that mass media was the prominent source of information. More than 70 % farmers got information from Television, Kisan mela / Animal fair, Demonstrations, Group discussions, Leaflets and Newspapers. Radio was also used as an important means of communication (37.50 %), while a small number of farmers had attended short-term training (1-3 days) on the production aspects of agriculture and dairying.

Farmers’ Attitude towards Post-harvest Issues: Attitude of farmers towards post-harvest issues has been assessed on environmental, technological and economical issues. The mean responses from the respondents on various statements are presented in Table 3. Farmers agreed that diverse agro-climatic conditions make it possible to grow almost all the varieties of horticultural crops throughout the year for processing ($\bar{x}=4.08$). Though the environmental aspects are not under the control of farmers directly, but it helps

Table 2. Information Source Utilization of Farmers, Ludhiana District, Punjab State, India, 2004 (N=80).

Information Source (s)	F	%
<i>Individual Contact (Gram Sevak)</i>		
Monthly	2	2.50
More than one month	40	50.00
Never	38	47.75
<i>Agriculture Development Officers</i>		
Monthly	7	8.75
More than one month	40	50.00
Never	33	41.25
<i>Agricultural Officer</i>		
Fortnightly	6	7.50
Monthly	35	43.75
More than one month	15	18.75
Never	24	30.00
<i>Block Development Officer</i>		
Weekly	3	3.75
Fortnightly	10	12.50
Monthly	24	30.00
More than one month	20	25.00
Never	23	28.75
<i>Research Institute</i>		
Fortnightly	10	12.50
Monthly	7	8.75
More than one month	20	25.00
Never	43	53.75
<i>Krishi Vigyan Kendra</i>		
Fortnightly	14	17.50
Monthly	15	18.75
More than one month	16	20.00
Never	35	43.75
<i>Dairy Man</i>		
Weekly	8	10.00
Fortnightly	27	33.75
Monthly	20	25.00
More than one month	12	15.00
Never	13	16.25
<i>Bank Officials</i>		
Weekly	15	18.75
Fortnightly	22	27.50
Monthly	10	12.50
More than one month	-	-
Never	33	41.25
<i>Group Contact</i>		
Demonstration	71	88.75
Group discussion	76	95.00
Farmers / Field day	64	80.00
<i>Mass Contact</i>		
Television	80	100.0
Radio	30	37.50
News paper	57	71.25
Leaflets / Pamphlets	41	82.00
Kisan mela / Animal fair	75	93.75

Table 3. Farmers' Attitude towards Post-Harvest aspects of Horticulture Crops,
Ludhiana District, Punjab State, India, 2004 (N = 80).

Attitude statements	Response Mean (\bar{x})	Standard deviation (s)
<i>Environmental aspect</i>		
1. Diverse agro-climatic condition allows farmers to grow most of the processing varieties of horticultural crops throughout the year	4.08	0.45
<i>Technological aspect</i>		
2. Pre-harvest treatments do not affect post-harvest quality.	4.00	1.01
3. Processing and storage of fruits and vegetables do not help in avoiding distress sale	4.07	0.74
4. Poor infrastructure for on-farm storage and handling affects the quality	4.28	0.55
For enhancing shelf life of horticultural crops, cool chain is not essential	4.12	0.91
5. Value addition at large level can sustain multi-national pressure	4.25	0.56
<i>Economic aspect</i>		
6. Graded materials get sold quickly and fetch better price for competition in international market, good quality raw material is required	4.03	0.51
	4.10	0.73
7. Cost of packaging should be reduced to boost up the processed goods	4.01	0.87
8. Diversification of on-farm processing is needed in present day competitive world	4.12	0.73
9. Post-harvest technologies are neither profitable to producers nor consumers	4.35	0.59
10. Technological advances in processing and preservation will enable the product availability throughout the world	4.30	0.51
11. Exports of good quality products / by-products can increase valuable foreign exchange	4.02	0.81
Value addition is a way to solve the unemployment problem	4.10	0.51

Rating Scale: 1 = Strongly Disagree; 2 = Disagree; 3 = Undecided; 4 = Agree; 5 = Strongly Agree

in making decisions to grow the most convenient crop from the post-harvest point of view. The farmers govern various technological issues and executed them at their own will. Respondents consented that pre-harvest treatments affected the post-harvest quality ($\bar{x} = 4.0$). Respondents tended to agree by their responses that storage and processing of fruits and vegetables help in avoiding distress sale ($\bar{x} = 4.07$) and poor infrastructure for on-farm storage and handling affects the quality of product ($\bar{x} = 4.28$). An agreement was observed on the statement that cool chain is essential for enhancing the shelf life of the horticultural crops ($\bar{x} = 4.12$) and value addition at large level can sustain multinational pressure ($\bar{x} = 4.25$). An agreement to these statements showed their inclination towards post-harvest aspects, provided the suitable post-harvest technology for horticultural crops. Respondents implied necessity for grading of horticultural crops, which helps in marketing and fetch handsome profit ($\bar{x} = 4.03$), and quality of raw material affects competitiveness in the international market ($\bar{x} = 4.10$). It was agreed that, by reduction in cost of packaging the marketing of processed foods might increase ($\bar{x} = 4.01$). Respondents

felt that diversification of on-farm processing is required in today's competitive world ($\bar{x} = 4.12$) and post-harvest technologies are profitable to both producer as well as consumer ($\bar{x} = 4.35$). Technological advancement in processing and preservation of horticultural crops may enable the product availability throughout the year ($\bar{x} = 4.30$), and exports of good quality products can increase the valuable foreign exchange ($\bar{x} = 4.02$). Farmers agreed that Value addition is a strong way to solve the unemployment problem ($\bar{x} = 4.10$).

CONCLUSION

The results of the empirical study indicate a positive attitude of farmers on post-harvest issues of horticultural crops i.e. environmental, technological and economic aspects. This shows the clear mind setup of farmers towards the post-harvest issues. The attitude of farmers can be more favourable if they are equipped with the knowledge on diversification, proper selection of appropriate technologies and financial assistance to gain more return with minimum risk. It was observed that most of the farmers were aged in the range of 35-57 years and this category of farmers is the most open for

the extension activities. Rural Youth Clubs and Grower's Association are also emerging as the important social institutions. Thus, there is a great need for the policy planners, extension administrators and other development departments to target this category of farmers before planning and implementation of development programmes. Study also reveals that about one-tenth respondents did not obtain even primary level education. They can be educated through informal education at the village level. Most of the farmers had 4-16 acre of land. These small farmers can be motivated for the group formation and to take up the income

generation activities for the livelihood. Organizing the farmers in-groups at block or cluster level, linking them to markets can give better results. Social capital or formation of groups to alleviate the rural poverty as a part of extension strategy. Only few farmers have opted diversified agriculture, hence, orientation of the farmers / groups can be changed from traditional to high-value crops / enterprises through awareness programmes. Only a small number of farmers attended training programmes in production sector of agriculture and dairying which can be dealt by organizing need based and skill-oriented trainings with special emphasis on marketing strategies.

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