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FARMERS' KNOWLEDGE AND ATTITUDE TOWARDS SUMMER TOMATO CULTIVATION OF BAGHERPARA UPAZILA UNDER JESSORE DISTRICT IN BANGLADESH

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ABSTRACT

Monalesa N, Ali MS, Islam MR (2016) Farmers' knowledge and attitude towards summer tomato cultivation of Bagherpara upazila under Jessore district in Bangladesh. *J. Innov. Dev. Strategy*. 10(2), 17-21.

The purpose of the study was to determine farmers' knowledge and attitude towards summer tomato cultivation and also to explore the relationships between each of eight selected characteristics of the farmers and their knowledge and attitude towards summer tomato cultivation. The study was conducted in 6 villages of Bagherpara upazila under Jessore district. The populations of summer tomato farmers in these villages were 168, from which 101 samples were drawn by using random sampling technique. A structured interview schedule was used for collecting data from March 20 to April 5, 2015. It was found that the majority (52.4 percent) of the farmers' possessed high knowledge, while 42.6 percent of the farmers possessed medium knowledge and only 5 percent of the farmers had low knowledge on summer tomato cultivation. It was also found that about 49.5 percent of the farmers had favorable attitude, while 37.6 percent farmers had unfavorable attitude and 12.9 percent farmers showed neutral attitude towards summer tomato cultivation. By calculation of the Pearson's Product Moment Correlation it was found that education, land possession, annual family income, extension contact of the farmers had positive significant relationship with farmers' knowledge on summer tomato cultivation, while problem faced had negative relationship with their knowledge. Land possession of the farmers had positive significant relationship with their attitude towards summer tomato cultivation. Vast majority (95 percent) of the farmers had medium to high knowledge on various aspects of summer tomato cultivation. Here also about half (49.5 percent) of the farmers had favorable attitude towards summer tomato cultivation. The cultivation of summer tomato will not be possible to improve to a significant extent unless the concerned authorities take proper steps to improve farmers' attitude towards summer tomato cultivation.

Key words: knowledge, attitude, summer tomato, summer tomato cultivation

INTRODUCTION

Vegetable production can help farmers to generate income which eventually alleviate poverty. Vegetables help to prevent various diseases resulting from malnutrition and unbalanced nutrition. These are rich and comparatively cheaper source of vitamins and minerals. Among the vegetables tomato is one of the most important vegetable in terms of acreage, production, yield, commercial use and consumption. At present from total area used for vegetable cultivation 6.72 percent (BBS 2011) area is under tomato cultivation both in winter and summer. It is the most consumable vegetable crop after potato and sweet potato occupying the top of the list of canned vegetable (Chowdhury 1979). It is cultivated all over the country due to its adaptability to wide range of soil and climate (Ahmed 1976). However, the yield of the crop is very low compared to those obtained in some advanced country (Sharfuddin and Siddique, 1985). In Bangladesh congenial atmosphere remains for tomato production during low temperature winter season that is early November is the best time for tomato planting in Bangladesh (Hossain *et al.* 1986). It is a good source of vitamin C (31 mg per 100 g), vitamin A, calcium, iron etc. (Matin *et al.* 1996). Although tomato plants can grow under a wide range of climatic conditions, they are extremely sensitive to hot and wet growing conditions, the weather which prevails in the summer to rainy season in Bangladesh. But limited efforts have been given so far to overcome the high temperature barrier preventing fruit set in summer-rainy (hot-humid) season. But the demand for both domestic and foreign markets has increased manifold due to its excellent nutritional and processing qualities (Hossain *et al.* 1999). Considering the growing demand and importance of tomato, Bangladesh Agricultural Research Institute (BARI) has taken initiative to develop off-season summer and rainy season tomatoes. So far BARI has developed and released 3 hybrid tomato varieties i.e. BARI hybrid tomato-3, BARI hybrid tomato-4 and BARI hybrid tomato-8 which can be grown during summer and rainy season under poly-tunnel. But, in Bangladesh very little information has so far been generated regarding the profitability and adoption of hybrid tomato cultivation technologies by the farmers in the country. Generalization from studies conducted by home and abroad regarding the tomato production may not be always applicable due to considerable variation in attributes of the technologies and for various others factors (Mohiuddin *et al.* 2007; Zaman *et al.* 2006; Islam 2005; Rahman *et al.* 1998; Ali and Gupta, 1978; Gupta and Rao, 1978). The farmers of Bagherpara upazila under Jessore district started to adopt this technology since 2005. It is recognized that in order to expand the area of this crop as well as to fit this crop in the farmers cropping system, studies are needed to ascertain its cost and return situation in relation to profitability, input use and farmer's resource use efficiency. Yet, no or little systematic knowledge and attitude towards summer tomato cultivation study has so far been conducted. Majority of the investigators conducted studies for their own requirements and very few common studies could be found, which is not enough to assess the overall farmers' knowledge and attitude towards summer tomato cultivation. Considering this fact the researcher is persuaded to conduct the research on 'farmers' knowledge and attitude towards summer tomato cultivation of Bagherpara upazila under Jessore district in Bangladesh'

with the following objectives: (a) to assess the extent of farmers' knowledge on summer tomato cultivation (b) to assess the attitude of farmers' towards summer tomato cultivation (c) to describe some selected characteristics (i.e. age, education, land possession, annual family income, training exposure, extension contact, tomato cultivation experience, problem faced on summer tomato cultivation of the summer tomato farmers (d) to explore the relationship of the selected characteristics of the farmers' with their knowledge and attitude towards summer tomato cultivation.

MATERIALS AND METHODS

The study was conducted in purposively selected six villages (Koikhali, Debinagar, Daatpur, Rustompur, Laxmipur and Bolorampur) from Bagherpara upazila under Jessore district. From a population of 168 summer tomato farmers of these six selected villages 101 farmers were selected as the sample by using proportionate random sampling technique. However, a reserve list of 17 farmers was also prepared who were supposed to be interviewed when a respondent in the original sample list was unavailable during data collection. An interview schedule was prepared keeping in view the objectives and variables of the study. Then it was pretested among 10 farmers who were not included in the sample size. Data were collected through face-to-face interview with the farmers during the period from 20th March to 5th April, 2015. For measuring knowledge on summer tomato cultivation, 13 questions regarding summer tomato cultivation were asked to the selected summer tomato farmers. Two (2) score was assigned for each correct answer and zero (0) for correct or no answer. Score one (1) was also assigned for partially correct answer. Thus the knowledge on summer tomato cultivation score of the respondent could range from 0 to 26, where zero indicating very poor knowledge and 26 indicate the very high knowledge on summer tomato cultivation. Attitude towards summer tomato cultivation was measured through Likert (1932) scale. Nine statements on various aspects of summer tomato cultivation were asked to the respondents. The number of positive statements were 5 and that of negative statements were 4. The respondents were asked to indicate for each of the statements whether they strongly agreed, agreed, undecided, disagreed and strongly disagreed with a corresponding score of 4, 3, 2, 1 and 0 for the positive items and vice-versa for the negative items. Hence, score of the respondents could range from 0 to 36 whereas zero (0) indicating less favorable attitude and 36 most favorable attitude towards summer tomato cultivation. Age of a respondent was measured by counting the years from his birth to the time of interview. Education of a respondent was measured in terms of classes passed by his/her formal education system. Land possession of the respondent was measured in terms of hectare as the size of his land on which he continued his farm practices during the period of study using the following formula: Land possession = $A_1 + A_2 + \frac{1}{2}(A_3 + A_4) + A_5$, where A_1 = area under homestead,

A_2 = area under own cultivation, A_3 = area given to others on barga, A_4 = area taken from others on barga and A_5 = area taken from others on lease. Annual family income was measured in thousand taka on the basis of total yearly earning from agricultural and non-agricultural sources by the respondents him/herself and other family members. Training exposure was measured by the total number of days a respondent received training in his/her entire life under different agricultural training programs. Extension contact score of a respondent was determined by summing up his/her scores for contact with eight selected media with four alternative responses as 'regularly', 'occasionally', 'rarely' and 'never' basis and weights were assigned as 3, 2, 1 and 0, respectively. Thus possible extension contact score could vary from zero (0) to 24, where zero indicated no extension contact and 24 indicated highest level of extension contact. Tomato cultivation experience was measured on the basis of years the respondent involved in summer tomato cultivation. Problem faced by the farmers in summer tomato cultivation was determined by computing a problem score based on selecting 7 problems regarding summer tomato cultivation. The nature of responses of the respondents to each of the 7 problems were severe problem, moderate problem, low problem and problem not at all, and scores were assigned as 3, 2, 1 and 0, respectively. Finally, problem faced in summer tomato cultivation score of a respondent was measured by adding up the scores of all the responses to all 7 problems. Thus, the possible score of the problem faced in summer tomato cultivation of a respondent could range from 0 to 21, while '0' indicating no problem and '21' indicating very severe problem faced in summer tomato cultivation.

RESULTS AND DISCUSSION

Summer tomato farmers' knowledge scores ranged from 3 to 26, with an average of 22.41 and standard deviation of 3.14, which has been presented in Table 1. Analyzing the knowledge scores the respondents were categorized into low knowledge, medium knowledge and high knowledge categories. The findings indicated that half of the farmers (52.4 percent) had high knowledge on summer tomato cultivation while 42.6 percent having medium knowledge and 5 percent fell in the low knowledge category. It is found that about 95 percent of farmers had medium to high knowledge on various aspects of summer tomato cultivation.

Table 1. Distribution of the farmers according to their knowledge on summer tomato cultivation

Categories (scores)	Respondents		Mean	Standard deviation
	Number	Percent		
Low knowledge (up to 18)	5	5		
Medium knowledge (19–22)	43	42.6	22.41	3.14
High knowledge (above 22)	53	52.4		
Total	101	100		

Source: Author's estimation

Attitude scores of the respondents towards summer tomato cultivation ranged from 0 to 36 with an average 18.92 and standard deviation 2.81 which has been presented in Table 2. The respondents were categorized into unfavorable, neutral and favorable based on extent of attitude score. Data presented in Table 2 indicated that about half (49.5 percent) of the respondents held favorable attitude towards the summer tomato cultivation, while the proportions of neutral and unfavorable were 12.9 and 37.6 percent, respectively.

Table 2. Distribution of the farmers according to their attitude towards summer tomato cultivation

Categories (scores)	Respondents		Mean	Standard deviation
	Number	Percent		
Unfavorable (up to 17)	38	37.6		
Neutral (18)	13	12.9	18.92	2.81
Favorable (above 18)	50	49.5		
Total	101	100		

Source: Author's estimation

Salient features of the farmers' selected characteristics

The findings of this study showed that 41.6% respondents were young and 49.5% were middle aged (Table 3). In respect of education it was found that only 26.8% of the respondents had no education. The remaining 73.3% had education ranged from primary to above secondary level. The rate of literacy rate in the study area seems to be higher than national literacy rate which is 61.5% (BBS 2012). Majority of respondents (81.2%) had three days training, low to medium extension contact (88.1%), low to medium tomato cultivation experience (61.4%). All of the respondents had small to medium land possession. Overwhelming majority of the respondents had low to medium annual family income (92.1%), medium to high problem confrontation in summer tomato cultivation (98%).

Table 3. Salient features of the selected characteristics of the summer tomato farmers

Characteristics	Range		Categories	Farmers		Mean	SD (±)
	Possible	Observed		No.	%		
Age (years)	-	25-55	Young (up to 35)	42	41.6	38.66	8.24
			Middle (36-50)	50	49.5		
			Old aged (>50)	9	8.9		
Education (schooling years)	-	0-12	Illiterate (0)	27	26.8	7.51	4.57
			Primary level (1-5)	1	1		
			Secondary (6-10)	49	48.5		
Land possession (hectare)	-	0.07-1.25	Higher level (>10)	24	23.8	0.45	0.29
			Small (up to 1.0)	89	88.1		
			Medium (1.1-3)	12	11.9		
Annual family income ('000' taka)	-	73-275	Large (above 3)	0	0	156.86	40.91
			Low (up to 100)	4	4		
			Medium (101-220)	89	88.1		
Training exposure (no. of days)	-	1-3	High (above 220)	8	7.9	2.62	0.79
			One day training (1 day)	19	18.8		
			Three days training (3 days)	82	81.2		
Extension contact (score)	0-24	10-22	Low (up to 14)	12	11.9	16.79	1.72
			Medium (15-18)	77	76.2		
			Large (above 18)	12	11.9		
Tomato cultivation experience (years)	-	5-12	Low (up to 7)	39	38.6	8.66	2.20
			Medium (8-10)	23	22.8		
			Large (above 10)	39	38.6		
Problem faced in summer tomato cultivation (score)	0-21	3-13	Low (up to 6)	2	2	9.42	1.61
			Medium (7-10)	77	76.2		
			High (above 10)	22	21.8		

±SD= Standard Deviation

Source: Author's estimation

Relationship between selected characteristics of the summer tomato farmers and their knowledge and attitude towards summer tomato cultivation

Co-efficient of correlation results revealed that out of 8 selected characteristics of the summer tomato farmers, 4 variables (i.e., education, land possession, annual family income and extension contact) had positive significant relationship with farmers' knowledge on summer tomato cultivation, while problem faced had negative relationship with their knowledge on summer tomato cultivation. Age, training exposure, tomato cultivation experience had no significant relationship with their knowledge on summer tomato cultivation. On the other hand land possession of the farmers had positive significant relationship with their attitude towards summer tomato cultivation. Age, education, annual family income, training exposure, extension contact, tomato cultivation experience and problem faced on summer tomato cultivation had no significant relationship with their attitude towards summer tomato cultivation.

Table 4. Co-efficient of correlation showing the relationship between selected characteristics and farmers' knowledge and attitude towards summer tomato cultivation

Characteristics of the Farmers	Correlation of co-efficient (r) with knowledge	Correlation of co-efficient (r) with attitude	Table value significant at (df= 99)	
			0.05 level	0.01 level
Age	0.006 ^{NS}	0.009 ^{NS}		
Education	0.267**	0.017 ^{NS}		
Land possession	0.285**	0.202*		
Annual family income	0.233*	0.134 ^{NS}		
Training exposure	0.066 ^{NS}	0.041 ^{NS}	0.195	0.254
Extension contact	0.211*	0.048 ^{NS}		
Tomato cultivation experience	0.086 ^{NS}	0.005 ^{NS}		
Problem faced in summer tomato cultivation	-0.200*	-0.136 ^{NS}		

NS= non-significant

*correlation is significant at the 0.05 level of significance

**correlation is significant at the 0.01 level of significance

CONCLUSION

On the basis of findings it was found that overwhelming majority of the summer tomato farmers had medium to high knowledge on various aspects of summer tomato cultivation. Their knowledge was particularly lower in summer tomato disease management, harvesting and marketing. The study also revealed that half of the summer tomato farmers had favorable attitude toward summer tomato cultivation. In order to create more favorable attitude, extension providers should give services including subsidized rate of improved summer tomato seed, fixation of minimum purchase price of summer tomato at primary market. Individual having more training had more favorable attitude toward summer tomato cultivation. These facts lead to the conclusion that the production of summer tomato will not be possible to improve to a significant extent unless the concerned authorities take proper steps to improve their knowledge and attitude in overall management of summer tomato cultivation and in particular the aspects in which their knowledge and attitude is poor. They should provide proper training on summer tomato cultivation, marketing opportunity and available credit facilities to increase their production which will ultimately uplift their socio-economic condition.

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