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Farmer attitude towards organic vegetable cultivation in Rangunia Upazila, Chittagong, Bangladesh

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ABSTRACT

The study was undertaken to determine the attitude of farmers towards organic vegetable cultivation and explore the relationships between their selected characteristics with their attitude. Data were collected through personal interview using pre tested structured questionnaire from a sample of 65 randomly selected vegetable farmers and FGD during January to February 2015 in Pourashava and Sarafvata union under Rangunia upazila of Chittagong district. Attitude was measured against 13 statements regarding organic vegetable cultivation following five point Likert scale. To explore the relationship between the concerned variables correlation coefficient (r) was computed using SPSS. Descriptive statistics were used to describe the variables. Majority of the farmers (95.4%) had positive attitude towards organic vegetable cultivation. Correlation analysis indicates that level of education, extension media contact and agricultural training received had positive and significant relationship with their attitude score.

Key Words: *Attitude, vegetable farmers, organic farming and Chittagong*

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I. Introduction

The concept of organic farming has been adopted in Bangladesh in many years ago. Kazi and Kazi Tea Estate (KKTE) the only company producing world class organic tea, vegetables and herb to their 1400 hectares certified land both for domestic and export market (Uddin, 2015). Farmers are also practicing organic farming individual level. PROSHIKA a renowned NGO in Bangladesh is promoting organic agriculture as a part of its mission to develop a sustainable alternative agro-system and popularize organic agricultural practices. In 1978 PROSHIKA commenced an action research to produce safe and poison-free food and encourage its group members and other interested people to adopt organic agricultural practices (Sarker and Itohara, 2009). Rahman and Mikuni (1999) showed that farmers

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possessed favorable attitudes towards sustainable agriculture issues in Bangladesh. Vegetable is one of the most important and popular products in agriculture sector of Bangladesh. It is an important source of vitamins, minerals and plant proteins in human diets (Slavin and Lloyd, 2012). Vegetable cultivation and its marketing in rural and urban areas are also a source of income for the upland rural community. Side by side, vegetable cultivation is becoming more costly due to increased price of different inputs like pesticides, fertilizers, etc. In Bangladesh, farmers are cultivating large amount of vegetables like eggplant, cucurbits, carrot, country bean, bottle gourd, cabbage, cauliflower, radish, tomato, etc. in 989 thousands acre of land and produce 3729 thousands Metric tons vegetables in the year 2014-2015(Agricultural Statistical Yearbook, 2015). Organic farming is an approach for maintaining sustainable production through balanced utilization of natural resources. Organic farming emphasizes the usage of renewable natural resources and their recycling (Emsley, 2001). The farmers of Bangladesh are mostly dependent on pesticides in the endeavor to control the pests. Use of pesticides is not only expensive but also leads to a number of consequences like elimination of natural defenders, pesticides resistant pests out breaks so that crop loses increase (Saha *et al.* 1997; Rola and Pingali, 1993). Department of Agricultural Extension (DAE) as the largest extension organization in Bangladesh is responsible for promoting the farming community in order to ensure sustainable agricultural growth (National IPM Policy 2002). To fulfill this goal DAE adopted the New Agricultural Extension Policy (NAEP) in 1999. NAEP targeted 11 key components among which Integrated Environmental Support was one of the major components. This initiative was taken by DAE due to the accountability of the Government of Bangladesh to protect environmental degradation caused by agrochemicals used in the field of agriculture. Considering these facts the present study was undertaken to measure the attitude of vegetable farmers towards organic vegetable cultivation and to investigate relationship between their selected characteristics and their attitude towards organic vegetable cultivation.

II. Materials and Methods

The study was conducted in Pourashava and Sarafvata union under Rangunia upazila of Chittagong district. The villages were selected through discussion with upazila agriculture office of Rangunia upazila. The population of the study was the farmers who cultivate vegetables mainly. Data were collected from the sixty five farmers through personal interview using pre tested structured questionnaire and focus group discussion (FGD) during January to February 2015. Farmers attitude towards organic vegetable cultivation was the focus variable of the study. For measuring attitude of the respondents, a 5 point Likert scale (Likert, 1932) was used. There were 13 statements including both positive and negative to avoid the biasness of the respondents. Each respondent was asked to indicate his extent of agreement or disagreement against each statement along a 5 point scale: strongly agree, agree, undecided, disagree and strongly disagree. Weights assigned to these responses were 5, 4, 3, 2, and 1 respectively. The total score of a respondent was determined by summing up the weights for responses against all 13 statements.

Attitude score = 5xSA+4xA+3xU+2xDA+1xSDA

Where,
SA= Total number of respondents expressing their attitude 'strongly agree' for the statement
A= Total number of respondents expressing their attitude 'agree' for the statement
U= Total number of respondents expressing their attitude 'undecided' for the statement
DA= Total number of respondents expressing their attitude 'disagree' for the statement
SDA= Total number of respondents expressing their attitude 'strongly disagree' for the statement

This formula was considered for positive statements; on the other hand scoring was reverse for negative statements. In case of negative statements strongly agree, agree, undecided, disagree and strongly disagree were assigned weight as 1, 2, 3, 4 and 5 respectively. Attitude score of a respondent would be range from 13 to 65. The data were collected through face to face interview using a structured questionnaire, focus group discussion (FGD) from the respondents of the selected areas. SPSS (Statistical Package for Social Sciences) software was used to data management and analysis.

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III. Results and Discussion

The combined calculated attitude score of the respondents range from 35 to 56 and the possible attitude score of the farmers ranged from 13 to 65 with an average score of 48.18 and standard deviation 4.91. The respondents were categorized into five groups (highly favourable, favourable, neutral, unfavorable and highly unfavorable) based on their attitude score. The distribution of the farmers based on their attitude score has been shown in Table 01 below.

Table 01. Distribution of the respondents based on their attitude score

Range		Categories of farmers	Respondents		Mean	SD
Possible	Observed		No.	%		
13-65	35-56	Highly unfavourable (<26)	0	0	48.88	4.91
		Unfavourable (26-<39)	3	4.6		
		Neutral (39)	0	0		
		Favorable (>39-52)	50	76.9		
		Highly favorable (>52)	12	18.5		
Total			65	100		

Table 02. Extent of attitude of the farmers towards individual statement regarding organic vegetable cultivation

SL. No.	Statement	Extent of opinion					Total Score	Mean
		SA	A	U	D	SD		
1(+)	Organic vegetable cultivation reduces the production cost	32	33	0	0	0	292	4.49
2(+)	Organic vegetable cultivation ensure balanced utilization of natural resources	20	30	13	2	0	263	4.05
3(+)	Organic cultivation keeps soil fertile for long time	19	36	8	2	0	267	4.11
4(+)	Organic vegetable cultivation is environment friendly	15	44	6	0	0	269	4.14
5(+)	It reduces water pollution both surface and under ground	6	34	16	9	0	232	3.57
6(+)	Products from organic cultivation are good for health	21	42	0	2	0	277	4.26
7(+)	Chemical pesticides are harmful for our environment	25	38	2	0	0	283	4.35
8(+)	Use of excessive chemical fertilizer reduces long time soil fertility	7	44	9	5	0	248	3.82
9(-)	Less production due to organic cultivation procedure	4	5	13	41	2	227	3.49
10(-)	Management of organic farming system is very complex	3	17	12	32	1	206	3.17
11(-)	Less availability of inputs requiring organic vegetable cultivation	7	37	2	15	4	167	2.57
12(-)	Sustainability of organic vegetable cultivation is low due to less production	0	12	12	40	1	225	3.46
13(-)	Organic vegetable product's price is low	0	10	8	47	0	232	3.57

SA= Strongly Agree, A=Agree, U=Undecided, D=Disagree and SD= Strongly Disagree

It appears from the Table 01 that only 4.6% farmers have unfavourable attitude of organic vegetable cultivation. Nearly all the respondents (95.4%) have favourable and highly favourable attitude towards organic vegetable cultivation. Mohan and Helen (2014) showed that, In India Majority of the organic farmers (86.67%) had a favourable attitude towards organic farming practices followed by more favourable (10%) and less favourable (3.33%) attitude. More than 80 per cent of the conventional farmers had favourable attitude towards organic farming practices. Above 90 per cent of the organic as well as conventional farmers believed that use of organic farming practices was essential for better quality of vegetables. The vegetable farmers of South Western Nigeria had positive attitude towards organic agriculture. The most prominent attitudinal statements as ranked by the farmers were that organic agriculture improves soil fertility and soil structure, organic agriculture encourages the use of indigenous knowledge (Adebayo and Oladele, 2013). In our country most of the farmers are subsistence farmers and have little amount of land for cultivation (Dasgupta, 2005). Now the improved techniques are introduced towards safe food production. As a result farmers are also

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introduced with these technologies and they are motivated to adopt organic farming in their own situation. The information in Table 2 revealed that the respondents have highly favourable attitude towards organic vegetable cultivation regarding reduction of production cost, chemical pesticides are hazardous for environment and organic products are good health. Now-a-days organic products are sale in the market for high price also. From the Table 03, the findings shows that 73.8% farmers accessed training and demonstration on various agricultural issues like organic vegetable production, IPM, biological pest control etc. Accessible agricultural extension services on organic farming for the farmers. For the above reasons the farmers' posses a favourable and highly favourable attitude towards organic vegetable cultivation. Ullah *et al.* (2011) found that 18 percent farmers had favourable perception and 16 percent had highly favourable perception of One House One Farm Approach. Oluwasusi (2014) showed that majority of the farmers in Nigeria had positive attitude toward organic agriculture practices.

Table 03. Salient features of the selected characteristics of the farmers in the study area

Characteristics	Measuring unit	Possible range	Observed range	Categories	Respondents Percent (N=65)	Mean	SD
Age	Year	-	22-65	Young (18-35)	30.8	42.35	9.77
				Middle aged (36-50)	46.1		
				Old (above 50)	23.1		
Level of Education	Year of schooling	-	0.5-12	Illiterate (0-0.5)	24.6	5.63	3.68
				Primary (1-5)	30.8		
				Secondary (6-10)	40.0		
				Higher secondary (>10)	4.6		
Family size	Number	-	4-12	Small (up to 4)	9.2	6.18	1.60
				Medium (5-6)	50.8		
				Large (above 6)	40.0		
Farm size	Hectare	-	0.2-3.56	Small (up to 1 ha)	76.9	0.88	0.56
				Medium (1.01-3.0 ha)	21.6		
				Large (>3 ha)	1.5		
Organizational affiliation	Scale score	-	0-26	No participation (0)	41.5	3.80	4.95
				Low (1-8)	41.6		
				Medium (9-16)	15.4		
				High (Above 16)	1.5		
Annual income	'000' Tk	-	69-860	Low (up to 60)	0	235.48	139.65
				Medium (61-150)	20.0		
				Medium high (151-250)	56.9		
				High (> 250)	23.1		
Extension media contact	Scale score	0-33	5-21	Low (up to 11)	43.1	12.26	3.71
				Medium (11.1-22)	56.9		
Agricultural training received	Day(s)	-	0-4	No training received	26.2	1.35	1.01
				1 day	23.1		
				2 days	41.5		
				3 days	7.7		
				4 days	1.5		

The analysed data on the characteristics of the respondents and the data presented in the Table 02 indicate that the respondents of the study area were relatively middle aged and had primary to secondary level of education (30.8% primary and 40% having secondary level education). The average family size (6.18) was higher than that of the national average of 4.48 (BBS, 2015). The average farm size of the respondents was 0.88 ha which was higher than that of national average of 0.51 ha (BBS, 2015). Majority of the respondents had little organizational affiliation. Most of the respondents (56.9%) of the farm households had medium high family income, while 20% and 23.1% had medium and high annual family income respectively. It was found that all the respondents had low to medium extension media contact. It was an indication of good extension service to that areas provided by DAE and other NGOs. Relationship between the selected characteristics of the farmers and their attitude

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towards organic vegetable cultivation: It was ascertained by computing Pearson's Product moment coefficient of correlation (r) and presented in the Table 04.

Table 04. Relationship between the selected characteristics of the farmers and their attitude towards organic vegetable cultivation

Focus variable	Selected characteristics of the respondents	Correlation coefficient (r)
Attitude towards organic vegetable cultivation	Age	0.005
	Level of education	0.286*
	Family size	-0.150
	Farm size	0.027
	Organizational affiliation	0.052
	Annual household income	-0.118
	Extension media contact	0.584**
	Agricultural training received	0.212*

* Significant at 0.05 level of probability and ** Significant at 0.01 level of probability

Table 04 showed that level of education, extension media contact and training received of the respondent had significant positive relationships with their attitude towards organic vegetable cultivation. However, the rest of the characteristics of the farmers did not show any significant relationship. Oluwasusi (2014) found similar results regarding perception and attitude of farmers towards organic agricultural practices. Adebayo and Oladele (2013) showed that farming experience, farm size, household size, organization membership and frequency of extension contacts had significantly positive relationship with attitude to organic farming practices

IV. Conclusion

It can be concluded that most of the respondents have favorable and highly favorable attitude towards organic vegetable cultivation. From the selected characteristics of the farmers level of education, extension media contact and agricultural training received has positive and significant relationship towards organic agricultural practices. It is therefore recommended that the extension service providers like DAE and other NGOs should take into active consideration on providing training to the vegetable farmers and need based advisory services for organic vegetable cultivation.

V. References

[1]. Adebayo, S. A. and Oladele, O. I. (2013). Vegetable farmers' attitude towards organic agriculture practices in South Western Nigeria. Journal of Food, Agriculture & Environment, 11 (2), 548-552.
[2]. BBS. (2015). Statistical Yearbook of Bangladesh. Bangladesh Bureau of Statistics, Statistics Division, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka.
[3]. Dasgupta, S. (2005). The challenges of farming systems in bangladesh in the post globalization period. Food, agriculture and Rural Development Policies in a Globalizing World, 3-10. Available at http://www2.hcmuaf.edu.vn/data/pvhien/theme_1.pdf
[4]. Emsley, J. (2001). Going one better than nature. Nature, 410, 633-634. https://doi.org/10.1038/35093175; PMid:11557958
[5]. Likert, R. (1932). A technique for the measurement of attitudes. Archives of Psychology, 140.
[6]. Mohan, D. J. and Helen, S. (2014). Attitude of farmers towards organic vegetable cultivation. Agriculture Update, 9(3), 364-367. https://doi.org/10.15740/HAS/AU/9.3/364-367
[7]. National IPM Policy, (2002). National integrated pest management policy, 2002. Ministry of Agriculture, Government of the People's Republic of Bangladesh.
[8]. Oluwasusi, J. O. (2014). Vegetables farmers attitude towards organic agriculture practices in selected states of South West Nigeria. Journal of Agricultural Extension and Rural Development, 6(7), 223-230. https://doi.org/10.5897/JAERD2013.0572
[9]. Rahman, M. Z. and Mikuni, H. (1999). Farmers' attitude towards sustainable agriculture issues and environmental quality in a selected area of Bangladesh. American Journal of Alternative Agriculture, 14(1), 22-29. https://doi.org/10.1017/S0889189300007979

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[10]. Rola, A. C. and Pingali. (1993). Pesticides, rice productivity and farmers health. International Rice Research Institute, Philippines.
[11]. Saha A., Shumway C. R. and Havenner A. (1997). The Econometrics of Pest Control. American Journal of Agricultural Economics, 7(9), 77-85.
[12]. Sarker, M. A. and Itohara, Y. (2009). Farmers' perception about the extension services and extension workers: the case of organic agriculture extension program by PROSHIKA. American Journal of Agricultural and Biological Sciences, 4(4), 332-337. https://doi.org/10.3844/ajabssp.2009.332.337
[13]. Slavin, J. L. and Lloyd, B. (2012). Health benefits of fruits and vegetables. Advances in Nutrition, 3, 506-516. https://doi.org/10.3945/an.112.002154 PMid:22797986; PMCid:PMC3649719
[14]. Uddin, M. Z. (2015). Status and future prospect of organic agriculture for safe food security in Bangladesh. SAARC Agriculture Centre (SAC), BARC Complex, Farmgate, Dhaka-1215, Bangladesh. Available at www.sac.org.bd/archives/publications/Organic%20Agriculture.pdf
[15]. Ullah, S. M. A., Farouque M. G., and Rahman M. Z. (2011). Farmers' perception of one house one farm approach. Bangladesh Journal of Extension Education, 23(1&2), 75-82
[16]. Yearbook of Agricultural Statistics. (2015). Bangladesh Bureau of Statistics, Statistics and Informatics Division, Ministry of Planning, Government of the People's Republic of Bangladesh, Dhaka.

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