

Farmers' Problem Confrontation in Organic Farming at Magura Sadar Upazila of Bangladesh

Authors: Soumitro Biswas and Md. Matiul Islam*

Agrotechnology Discipline, Khulna University, Khulna-9208, Bangladesh

*Corresponding author: Md. Matiul Islam; E-mail: matiul_rubel@ku.ac.bd

ABSTRACT

The purpose of the study was to determine the problems confronted by the farmers in organic farming and to explore the relationship between the selected characteristics of the farmers and their problem confrontation in organic farming. A number of 24 problems in organic farming were selected. The 12 characteristics of the respondents were selected. Data were collected from randomly selected 61 farmers using a pre-tested interview schedule during January 5 to March 20, 2018. Majority (70.5%) of the respondents belonged to medium problem confrontation category, while 29.5% of the respondents fall in high problem confrontation category related to organic farming. A Problem Confrontation Index (PCI) was used to make comparison among the 24 selected problems. On the basis of PCI lack of knowledge on organic farming ranked first which is followed by lack of own poultry and livestock, very less production per unit area, while low accessibility of land due to share cropping ranked as the last confronted problem. Spearman's Rank Order Correlation was used to ascertain the relationship between the focus variable and personal characteristics of the respondents. Among the twelve selected characteristics of the farmers, educational qualifications and extension contact showed negative significant relationship with their problem confrontation in organic farming. The remaining characteristics showed no significant relationship with their problem confrontation. This meant that the farmers having more education and extension media contact were likely to have lesser problem confrontation in organic farming.

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INTRODUCTION

Bangladesh, a small country burdened with a huge population, is always under pressure from the time being to feed her large population. The population pressure led her to undertake high input agriculture which especially can be recognized by the introduction of HYVs back in 1960s. This made a revolution in agriculture popularly known as "Green Revolution" which resulted in a sudden boom in yield of grain crops especially in rice. This brought a revolutionary change in farmers' attitude and led the farmers towards profit motive. High input agriculture has produced great increase in crop yields but social and environmental costs have been high. Cultivation of HYVs has made her land exhausted to an extreme. This continued until early 1990s without raising any voice against this. Until mid 1980s the impact left by high input agriculture remained unfelt (Haque, 2006).

Over the past two decades sustainability becomes more and more a guiding principle in agriculture. In this context organic farming become recognized by the farmers, policy makers and consumers as one of the responsibilities for the farm in a more sustainable way. In such stage organic farming may be the timely and permanent solution for overcoming the impact of conventional agriculture. Organic farming is one in which environmental and social costs are considered along with productivity (Reganold and Wachter, 2016). Organic farming is still under the experimental stage but slowly gaining wide acceptance called sustainable agriculture, combining modern science with the indigenous knowledge of the people through organic agriculture and adopting an integrated farming system for pest control that is environmental friendly.

Organic farming is a holistic system that focuses on improvement of soil health, use of local inputs, and relatively high-intensity use of local labor, fits admirable for rural Bangladesh in many ways. The rural Bangladesh offers much remuneration that would make organic cultivation methods relatively easy to implement. The production method is not new for Bangladesh farmers. Although most of the field crops land under chemical cultivation/ conventional, but the homestead are still under organic cultivation by default. At present there are 25.35 million total (farm and non-farm) household and 14.9 million-farm household and there is enormous biodiversity of vegetables, fruits, tubers and livestock (BBS, 2017). In addition to this, Bangladesh possesses 10% of hill area and these are organic by default too. In the recent years, food quality and safety have been attaining a growing importance to consumers and recent food adulterations scandal also created ample scope to produce safe food. Moreover, many of the farmers have rich traditional knowledge, which is in compliance, the organic principles. However, high cost of production, inputs and lack of subsidies for organic farming poses a great challenge to adopt organic farming (Barik, 2017). So it is also necessary to identify the problems of the farmers prevailing regionally in the southwestern Bangladesh because organic farming has a great potential to maintain healthy environment.

In view of the above background and facts, the present study was aimed at providing information regarding the following queries: (i) what are the problems being confronted by the farmers in organic farming? and, (ii) what are the farmers selected characteristics that directly related to their problem confrontation in organic farming?

In view of the issues as stated above, the following specific objectives were formulated for giving proper direction to the study:

- i. To describe the selected characteristics of the respondents performing organic farming.
- ii. To measure the extent of problem confrontation in organic farming.
- iii. To explore the relationship between the selected characteristics of the respondents with their extent of problem confrontation in organic farming.

METHODOLOGY

The study was conducted following “descriptive and diagnostic” research design at three unions of Magura Sadar upazila under Magura district. The researcher deliberately selected three unions from the upazila, namely Hazrapur, Hazipur and Atharokhada. The selected areas are much improved in organic farming. An up-to date list of the farmers being involved in organic farming were considered as the population for this study which was prepared with the help of the concerned Sub Assistant Agricultural Officers (SAAOs) of the concerned unions. The list comprised of a total number of 202 farm families. Among them, 30 percent was selected following simple random sampling technique. Thus the sample size so drawn stood as 61. An interview schedule was prepared for collecting valid and reliable data according to the objectives of the study. The researcher collected data from the farmers through face to face interview during January 5 to March 20, 2018. The selected characteristics of the respondents performing organic farming were (A) personal: (1) age, (2) education, (3) family size, (4) experiences in farming, (5) experiences in organic farming, and (6) organic farming knowledge; (B) economical: (7) farm size, and (8) annual family income; (C) social: (9) organizational participation, (10) cosmopolitans, (11) extension media contact, and (12) training exposure in organic farming. All selected characteristics were measured following standard procedure and then categorized and arranged in simple tables for interpretation and discussion. Number, frequency, percentage, mean, standard deviation and range were used for statistical description. Spearman’s Rank Order Correlation “ ρ ” was used to ascertain the relationship between selected characteristics of the respondents and problem confrontation. Throughout the study, at least five-percent (0.05) level of probability was used.

Problem confrontation score was computed for each respondent. For this purpose each respondent was asked to indicate his problems on selected six broad areas related to organic farming such as (A) manures and fertilizers, (B) agricultural credit, (C) marketing facilities, (D) adoption of organic farming, (E) land, and (F) production. As a whole 24 problems were incorporated in the interview schedule. The extent of the problem confrontation was rated as “highly severe”, “moderately severe”, “less severe” and “not at all” and weights of the rating scale were assigned as 3, 2, 1 and 0, respectively (Pervin et al., 2018). The problem confrontation score of a respondent was determined by summing the scores of all the problems. Thus, the score could range from 0 to 72, where 0 indicated absence of problem and 72 indicated the highest magnitude of problem for each individual respondent. The severity of a problem was determined based on Problem Confrontation Index (PCI). The PCI was determined by using the following formula,

$$PCI = N_1 \times 3 + N_2 \times 2 + N_3 \times 1 + N_4 \times 0$$

Where,

N_1 = Number of respondents confronted the problems and rated as highly severe.

N_2 = Number of respondents confronted the problems and rated as moderately severe

N_3 = Number of respondents confronted the problems and rated as less severe

N_4 = Number of respondents did not confronted the problem at all

The computed PCI could range from 0 to 183, where 0 indicated “it’s not a problem” and 183 indicated “this is the highest confronted problem”. After determination of PCI, the severity of the problem was determined by following formula:

$$\text{Severity of the Problem} = \frac{\text{Observed Problem Confrontation Score}}{\text{Possible Problem Confrontation Score}} \times 100$$

RESULTS AND DISCUSSION

Selected characteristics of the respondents

The age of the respondents ranged from 25-65 years with a mean of 44.47 and standard deviation of 9.91 respectively (Table 1). Majority (60%) of the farmers were middle aged compared to 23% young and 16% old aged. It means that young to middle aged (84%) people of the study area engaged in organic farming. Elderly farmers seem to be somewhat less motivated to adopt new farm practices than younger ones. Young and middle aged people generally show more favorable attitude towards trying new ideas. The extension agents can target those people in designing their extension activities.

The observed educational scores of the respondents ranged from 0-17 having a mean of 6.65 and standard deviation of 3.91 respectively (Table 1). Data revealed that highest proportion (39.3%) of the respondents had secondary level of education while 36.1 and 13.1% farmers had primary and higher secondary level of education respectively. Data also showed that about 88.5% of the respondents had primary to higher secondary level of education. It means that educated people are more innovative and more conscious about environment and are involved in organic farming. They have much mental strength in deciding on a matter related to problem solving or adoption of technologies in their daily life.

The family size of the respondents ranged from 2 to 8 with a mean and standard deviation of 5.08 and 1.54 respectively (Table 1). It was evident that highest proportion (41%) of the respondents had medium sized family while 37.7 percent of the respondents had small sized family and 21.3 percent of the respondents had large sized family. The average family size (5.08) of the study area indicates that the respondents are not conscious about their family size and population growth because the average family size of the study area is more than that of national average 4.4 (BBS, 2011).

A remarkable variation (4-35 years) was found in the experience in farming of the respondents having an average and standard deviation of 15.49 and standard deviation 8.16 (Table 1). Data revealed that majority (62.3%) of the respondent had low experience followed by high experience (19.7%) and 18 percent the respondents had low level of experience in farming.

The experience of the respondents in organic farming varied from 0 to 6 years having an average and standard deviation 3.393 and 1.307 respectively (Table 1). Data revealed that majority (57.4%) of the respondent had low experience followed by both high and low level of experience (21.3%) each.

The knowledge of the organic farming scores of the respondents ranged from 5 to 16 with a mean and standard deviation of 7.47 and 1.96 respectively (Table 1). Data revealed that the majority (63.9 %) of the respondents belonged to the low knowledge on organic farming, while 34.5 percent of the respondents had medium knowledge on organic farming. Only 1.6 percent had high knowledge on organic farming. It indicates that majority of the respondents did not have enough knowledge on organic farming.

Farm size of the respondents in the study area varied from 0.13- 3.39 ha with a mean of 1.03 and standard deviation of 0.56 (Table 1). Data revealed that majority (52.5%) of the respondents had medium farm size while about 42.6% belonged to small farm size. Few (3.3 and 1.6%) respondents are marginal and large farmers. The average farm size of the farmers of the study area (1.03 ha) were higher than that of national average (0.60 ha) of Bangladesh (BBS, 2014). The farmers with medium to large farm size can easily adopt new technologies in a part of their farm as experiment and they play the role of early adopters.

The annual incomes of the respondents ranged from 70,000 to 2,75,000 taka with the mean and standard deviation of 1,30,934.42 taka and 42,290.64 taka respectively (Table 1). It was found that majority (59%) of the respondents had medium annual income while only 18% of the respondents had low annual income and 23% of the respondents had high annual income. Pervin et al. (2018) also found almost similar findings in his study. The average income of the farmers of the study area is not so high. The reason was that most (95.1%) of the farmers are smaller to medium farm holding category. The other reason might be due to the fact that most of the farmers of the study area were only engaged in agriculture. Farmers with the low income generally hesitate to adopt new technology in their own farms. They do not have enough money to take risk of yield loss and to make necessary investment.

The scores of organizational participation of the respondents varied from 0-2 with a mean of 1.42 and standard deviation of 0.49 respectively (Table 1). Data indicated that majority (57.4%) of the respondents had low participation as compared to no participation (41%) and medium participation (1.6%) in different organizations respectively. None of the respondents had high participation. Organizational participation helps an individual to find out solutions to their own problems as well as other social issues. The findings in the study area indicated that farmers felt less interest in organizational participation. As they are not highly educated and thereby their involvement in organizational participation is not satisfactory.

Cosmopolitanism scores of the respondents varied from 3-11 with a mean of 6.26 and standard deviation of 1.56 respectively (Table 1). Data showed that majority (63.9%) of

the respondents had medium cosmopolitanism as compared to 32.8 percent had low cosmopolitanism and only 3.3 percent had high cosmopolitanism. It indicates that people have an orientation to out of their own social system which may help to change their attitude towards organic farming.

Farmers use various information sources and media to different extent in order to receive organic farming information. Extension contact score of the respondents ranged from 8 to 26 with an average 14.04 and standard deviation 2.51 (Table 1). Data indicated that most (57.4%) of the respondent had medium extension media exposure while 41 percent had low extension media exposure. Only few (1.6%) respondents had high extension media exposure. Extension media exposure of the study area is low to medium. It might be due to their lower level of educational qualification that hinders them to access to the printed media. It may also because of lower level knowledge in modern technology and low exposure to interpersonal and group contact methods due to inadequate extension services.

Training exposure scores of the respondents ranged from 0-3 with a mean and standard deviation of 0.754 and 0.924 respectively (Table 1). It was found that majority (52.5%) of the respondents had no training and 47.5% of the respondent had low training. Among them low training recipients 24.6% had one training and 18, 4.9% respondent had two and three training respectively. Training helps the farmers to achieve deep knowledge about the respected aspects and to become more skillful. The farmers who are trained can easily manage adverse situation in cultivation. As majority portion of the respondent have no training, they might not be aware of problems on organic farming.

Problem confrontation in organic farming

Problem confrontation of the farmers in organic farming was the main focus of this study. The salient features of the problem confrontation in organic farming by the farmers have been presented in Table 2. The observed scores of problem confrontation in organic farming ranged from 35 to 55. The average score was 45.23 with a standard deviation 4.32. Data presented in the Table 2 indicated that the majority (70.5%) of the farmers had medium problem confrontation as compared to (29.5%) high problem confrontation in organic farming. This means that the most (100%) of the farmers had medium to high problem confrontation in organic farming.

To make comparison of the magnitude of confrontation among the different identified problems in inorganic farming, Problem Confrontation Index (PCI) of each of 24 problems was computed (Pervin et al., 2018). The computed PCI of the 24 problems ranged from 14 to 183 which were arranged in rank order according to their PCI score as shown in Table 3. Data presented in the Table 3 indicated that the respondents of this study faced all the selected problems to different extent. The findings of the study suggested that the problems like lack of knowledge of organic farming ranked 1st, lack of own poultry and livestock ranked 2nd, very less production per unit area ranked 3rd, low effectiveness of organic fertilizer ranked 4th, lack of fallow land for rearing poultry and livestock ranked 5th in case of confrontation magnitude.

Table 1. Distribution of respondents according to their selected characteristics

Characteristics	Categories	Score (Years)	Respondents (N=61)		Mean (\bar{x})	SD	Max.	Min.
			Number	%				
Age (years)	Young	≤ 35	14	24.0	44.47	9.91	65	25
	Middle	36-55	37	60.0				
	Old	> 55	10	16.0				
Education (schooling years)	Illiterate	0	5	8.2	6.65	3.91	17	0
	Primary	1-5	22	36.1				
	Secondary	6-10	24	39.3				
	Higher Secondary	11-12	8	13.1				
	Bachelor	13-16	1	1.6				
	Master's	> 16	1	1.6				
Family size (numbers)	Small	1-4	23	37.7	5.08	1.54	8	2
	Medium	5-6	25	41.0				
	Large	> 6	13	21.3				
Farm size (ha)	Landless	$< .02$	0	0	1.03	0.56	3.39	0.13
	Marginal	0.02-0.2	2	3.3				
	Small	0.2-1	26	42.6				
	Medium	1-3	32	52.5				
	Large	> 3	1	1.6				
Annual family income (BDT)	Low	$< 1,00,000$	14	23.0	1,30,934.42	42,990.64	2,75,000	70,000
	Medium	1,00,000-1,50,000	36	59.0				
	High	$> 1,50,000$	11	18.0				
Training (numbers)	No	0	32	52.5	0.75	0.92	3	0
	One	1	15	24.6				
	Two	2	11	18.0				
	Three	3	3	4.9				
Farming experience (years)	Low Experience $< (\bar{x} - SD)$	< 7.25	11	18.0	15.49	8.16	35	4
	Medium Experience $(\bar{x} - SD) - (\bar{x} + SD)$	7.25-23.57	38	62.3				
	High Experience $> (\bar{x} + SD)$	> 23.57	12	19.7				
Organic farming experience (years)	Low Experience $< (\bar{x} - SD)$	< 2.07	13	21.3	3.39	1.31	6	0
	Medium Experience $(\bar{x} - SD) - (\bar{x} + SD)$	2.07-4.7	35	57.4				
	High Experience $> (\bar{x} + SD)$	> 4.7	13	21.3				
Organizational participation (score)	No	0	25	41.0	1.42	0.49	2	0
	Low	< 8	35	57.4				
	Medium	9-16	1	1.6				
	High	> 17	0	0				
Cosmopolitanism (score)	No	0	0	0	6.26	1.56	11	3
	Low	< 5	20	32.8				
	Medium	6-10	39	63.9				
	High	> 10	2	3.3				
Extension contact (score)	Low	< 13	25	41.0	14.04	2.51	26	8
	Medium	14-26	25	57.4				
	High	> 26	1	1.6				
Agricultural knowledge (score)	Low	< 7	39	63.9	7.47	1.96	16	5
	Medium	8-14	21	34.5				
	High	> 15	1	1.6				

Table 2. Distribution of respondents according to their score of problem confrontation

Categories	Score	Respondents (N=61)		Mean (\bar{x})	SD	Max.	Min.
		Number	Percentage				
Low problem confrontation	≤24	0	0	15.229	4.32	55	35
Medium Problem confrontation	25-48	43	70.5				
High Problem confrontation	>48	18	29.5				
Total		61	100				

Table 3. Comparison among the 24 selected problems based on Problem Confrontation Index (PCI)

Sl. No.	Types of problem	Extent of problem				PCI Score	Severity (%)	Rank
		High Severe (3)	Moderately severe(2)	Less severe (1)	Not at all (0)			
A Manures and Fertilizer related								
1.	Shortage of organic matter in the field	6	17	15	23	57	31.1	16th
2.	Don't know how to use balanced fertilizer	15	25	15	6	110	60.10	10th
3.	Lack of own poultry and livestock	38	18	5	0	155	84.69	2nd
4.	High price of organic fertilizer in season	0	3	25	33	31	16.93	21th
5.	Low effectiveness of organic fertilizer	35	15	11	0	146		4th
B Agricultural Credit Related								
6.	Lack of credit in time	3	7	20	31	43	23.49	18th
7.	High interest rate of agriculture credit	0	5	23	33	33	18.03	20th
8.	Inadequate supply of agricultural credit	0	7	25	29	39	21.31	19th
C Marketing facilities Related								
9.	Lack of communication facilities	0	1	25	35	27	14.75	22th
10.	Consumer negative attitude	25	25	8	3	133	72.67	8th
11.	Absence of local market	12	17	12	20	82	44.80	12th
12.	Lack of storage facility of organic product	20	30	4	7	124	67.75	9th
13.	Syndicate system of local businessman	7	6	18	31	51	27.86	17th
D Adaptation of organic farming								
14.	Lack of knowledge of organic farming	40	21	0	0	162	88.52	1st
15.	High amount of production cost	3	10	30	18	59	32.24	15th
16.	Lack of training facilities about organic farming	30	25	3	3	143	78.14	6th
17.	Lack of skill in proper technology	5	10	30	16	65	35.51	14th
E Land Related								
18.	Lack of fallow land for rearing poultry and livestock	32	20	9	0	145	79.23	5th
19.	Low accessibility of land due to share cropping	0	0	14	47	14	7.65	24 th
20.	Lack of timely drainage water	0	0	18	43	18	9.83	23th
F Production Related								
21.	Low shelf life	30	20	7	4	137	74.8	7th
22.	Less lucrative product	10	20	15	16	85	46.4	11th
23.	Very less production per unit area	35	20	6	0	151	82.51	3 rd
24.	Risk of total crop failure	9	12	25	7	76	41.53	13th

Table 4. Relationship between the selected characteristics of the Farmers and their problem confrontation in organic farming (significant at 0.05 level of probability)

Personal characteristics	Focus Variable	Coefficient of Correlation (ρ)
Age		0.075
Education		-0.238*
Family Size		0.091
Farm Size		0.010
Annual Family Income		-0.112
Organic Farming Training Exposure	Problem	0.145
Experience in Farming	Confrontation in	0.037
Experience in Organic Farming	Organic Farming	0.066
Organizational Participation		0.131
Cosmopolitanism		-0.126
Extension Contact		-0.271*
Organic Farming knowledge		0.089

Relationship between the selected characteristics and problem confrontation

In order to ascertain the relationship between the selected characteristics of the respondents and problem confrontation in organic farming, Spearman's Rank Order Correlation Coefficient " ρ " was computed. Results of correlation are shown in Table 4. Among the twelve selected characteristics of the respondents, only educational qualification and extension media exposure of the respondents showed a negative and significant relationship and the computed " ρ " value were -0.238* and -0.271* respectively. Based on the findings, it could be concluded that educational qualification of the farmers had significant contribution in the problem encountering in organic farming. It means that the higher is educational qualification the higher is the ability of the respondents to mitigate the problems in organic farming. Besides, it might also be concluded that the farmers having higher extension contact were likely to have lower level of problem confrontation in organic farming.

CONCLUSION

The findings of the study indicate that all of the respondents were in medium to high problem confrontation category in organic farming practice. 'Lack of knowledge of organic farming' ranked 1st, 'lack of own poultry and livestock' ranked 2nd and 'very less production per unit area' ranked 3rd position in confrontation magnitude. Among the twelve selected characteristics of the respondents, only educational qualification and extension media exposure of the respondents showed a negative and significant relationship, i.e., the higher is educational qualification the higher is the ability of the respondents to mitigate the problems in organic farming and the farmers having higher extension contact were likely to have lower level of problem confrontation in organic farming.

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