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Participation of Male and Female Conventional Farmers in Farming Activities

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Abstract

The main objectives of this research were to determine the extent of participation of conventional farmers (male and female) in farming activities and to explore the relationships between selected characteristics of farmers and their extent of participation. Data were collected through using interview schedule during July to October 2006 from randomly selected 50 farmers (25 male and 25 female) from a total of 128 households. Data revealed that most of the male and female conventional farmers had medium participation in farming activities and male farmers had significantly higher participation than female farmers. Among eleven characteristics of farmers, farm size, social cooperation, access to community facilities and knowledge on organic farming showed significant positive relationship with their extent of participation in farming activities, while age, education, family size, annual family income, organizational affiliation, perception of organic farming and exposure to farming information did not show any significant relationship with their extent of participation. 'Lack of training', 'higher prevalence of insect pests and diseases in organic farm crops' and 'livestock rearing seen as additional burden' were the most important problems for participation in organic farming practices.

Keywords: *Participation, conventional farmers, organic farming, farming activities*

Introduction

Bangladesh being an agricultural country, where vast majority of people depend directly upon their own farm production for survival. The agrarian nature of livelihood is reflected by the activities of farmers living in rural areas of Bangladesh. Among the farmers almost all are engaged in conventional farming rather than organic farming practices (Banglapedia, 2004). Since there is almost no opportunity to increase the agricultural land, rather it is being decreased day by day. Therefore, functional participation of the farmers in farming activities can uplift the conditions in the sector of crop production.

Participation of both male and female farmers in farming activities is crucially important. The male members of agricultural households are involved in field activities while the female members undertake tasks like seed preservation, threshing and drying,

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and boiling and drying of paddy. Research studies show that besides their regular household work, 43% of women are involved in activities related to agriculture, and almost 15% undertake agriculture as their second occupation (Shelly and Costa, nd.). Women had a larger contribution to the country's economy but their contribution was not considered objectively (Sattar, 1979). Findings of the study revealed that women participation in the post harvest operations, vegetable cultivation, fruit culture, livestock care, etc. had great contribution to the family income.

The Bangladeshi farmers participate in various farming activities essential to their livelihoods. Participation between male and female farmers varies greatly with various characteristics of the farmers like location, age, educational status, income etc. In general, male farmers participate in field activities whereas female farmers participate in household activities of farming. But for fruitful farming activities, both of them have to be dispersed into the general activities of one another to cooperate each other. However, male and female farmers are working together in various farming activities. Yet the information regarding participation of male and female farmers in farming activities have not sufficiently been documented. Moreover, gender sensitive interventions are required to uplift the life styles of rural females who are traditionally being neglected despite of their multidimensional activities either in the household or in the filed level. Thus, it has come into consideration that the extent of participation of male and female farmers in different farming activities needs to be explored. Keeping these facts in mind the present research has been undertaken to fulfill the following objectives:

- To determine the extent of participation of male and female conventional farmers in farming activities
- To explore the relationship between selected characteristics of conventional farmers with their extent of participation in farming activities
- To find out the problems of conventional farmers for the participation in organic farming practices

Methodology

The study area was located in Delduar Sadar union of Delduar upazila under Tangail district. Jalalia village was purposively selected from Delduar Sadar union for collecting data from conventional farmers. Because it was observed that the main occupation of the inhabitants of this village was farming but handloom was the main occupation of the inhabitants of other villages of this union. The selected village had a total of 128 households from which only 50 households were randomly selected. Thus, the sample comprised of 39% of the total households. From each of the households either husband (as male respondent) or wife (as female respondent) was randomly selected to have 25 male and 25 female respondents.

Selected eleven characteristics namely farmer's age, education, family size, farm size, annual family income, organizational affiliation, social cooperation, access to community facilities, knowledge on organic farming, perception of organic farming and exposure to farming information were

considered as independent variables. These were measured employing prevailing standard methods. The dependent variable of this study was 'participation in farming activities'. To measure the extent of participation in farming activities three dimensions of participation namely (i) frequency of performance, (ii) part of work done, and (iii) control over decision were used. The first dimension included involvement, the second ensured action, and the last dimension covered the psychological aspect of participation. Each of the dimensions was quantified separately for male and female with four-point rating scale against eight broad categories each of which included five sub-categories of farming activities. Finally, Participation Index (PI) has been used to determine the extent of participation, which was defined as the ratio of 'actual participation' to 'possible participation' in farming activities expressed as percentage. The Participation Index (PI) can mathematically be expressed as follows:

$$PI = \frac{1}{3} \times \left(\frac{f_a}{f_p} + \frac{w_a}{w_p} + \frac{d_a}{d_p} \right) \times 100$$

Where,

PI = Participation Index
f_a = Actual frequency of performance
f_p = Possible frequency of performance
w_a = Actual part of work done
w_p = Possible part of work done
d_a = Actual control over decision
d_p = Possible control over decision

In this way, PI could vary from 0 to 100 where 0 indicated no participation and 100 indicated full participation in farming activities by the farmers.

To measure problem confrontation in participation in organic farming practices by the farmers, Scored Causal Diagrams (SCDs) of Participatory Farm Management (PFM) were used (Galpin *et al.*, 2000). SCDs were used to examine in detail the causes and effects of problems and to identify the 'root' causes which need to be addressed, and to analyze the relative importance of the problems and prioritize them. Finally, possible solutions of the 'root' causes were traced back on the diagram. A structured interview schedule was used for collection of relevant data for the study. Data were collected with two visits during July and October 2006.

Findings and Discussion

Participation in farming activities by conventional farmers

Participation Index (PI) of the farmers has been presented in Table 1, which showed that almost all of the farmers had medium participation in farming activities. The result indicated that none had low participation in farming activities since at least subsistence type of agriculture is necessary to run the livelihood. Negligible number of the farmers had high participation in farming activities, which expressed the diversified farming activities of the people of the study area. It indicates that they were dependent not only on agriculture but also on some non-farming activities like handloom, business, remittance, etc.

Table 1. Distribution of the farmers according to Participation Index (PI)

PI range (%)		Respondents		Mean	St. Dev.
Possible	Observed	Categories	%		
0-100	39.58-67.36	Low (<33)	0	55.41	6.15
		Medium (33-66)	98		
		High (>66)	2		

Participation in farming activities by male and female farmers

Extent of participation in farming activities of male partners of conventional farm families has been shown in Table 2. Data revealed that 68% of the male and 92% of the female farmers had medium participation in farming activities. The average participation of female farmers was lower than that of males, which was statistically significant. It was a common situation of conventional farm families because women were confined within indoor activities but men took the responsibility of both indoor and outdoor farming activities.

Table 2. Distribution of male and female farmers in farming activities according to PI

Partner	PI range (%)		Respondents		Mean	St. Dev.	t value with 48 d.f.
	Possible	Observed	Categories	%			
Male	0-83.33	22.78-43.19	Low (<16)	0	31.07	4.97	6.82**
			Medium (16-33)	68			
			High (>33)	32			
Female	0-83.33	13.61-34.44	Low (<16)	6	24.34	4.89	
			Medium (16-33)	92			
			High (>33)	2			

*** t value is significant at 1% level of probability*

Comparative participation in eight farming activities

As stated earlier eight farming activities were considered to determine the extent of participation in farming activities. The computed extent of participation and concerned rank order have been presented in Table 3. Result showed that the average participation in marketing and economic activity by male farmers was the highest followed by participation in cultural practices and pest management which are mainly outdoor activities. Participation in poultry rearing by male farmers placed in the last position. In case of female farmers, participation was the highest in post-harvest operation followed by seed preservation and poultry rearing, which are homestead activities. They participated lowest in cultural practices, which was ranked in the eighth position.

Thus, the total participation of conventional farmers was the highest in marketing and

economic activity while post-harvest operation and cultural practices were second and third and the lowest participation was observed in soil fertility management. It proved that conventional farmers did not take care of their land regarding soil fertility and productivity.

Table 3. Ranking of farming activities based on Participation Index of conventional farmers

Sl. No.	Selected farming activities	PIM (%)	R	PIF (%)	R	PI (%)	R
1	Soil fertility management	31.04	4	5.71	6	36.76	8
2	Cultural practices	64.24	2	3.76	8	68.00	3
3	Pest management	33.73	3	4.44	7	38.18	7
4	Post-harvest operation	14.82	7	57.18	1	72.00	2
5	Seed preservation	15.80	6	47.47	2	63.27	4
6	Livestock production	16.98	5	23.67	4	40.64	5
7	Poultry rearing	1.96	8	38.47	3	40.42	6
8	Marketing and economic activity	69.98	1	14.02	5	84.00	1

PI = Participation Index of all farmers
PIM = Participation Index of male farmers
PIF = Participation Index of female farmers
R = Rank order

Relationships between characteristics of farmers and participation

The relationship between the dependent and independent variables has been presented in Table 4. Among eleven selected characteristics of the farmers, age was not significantly correlated with their participation in farming activities. Khatun (2004) also found similar relationship in her study. It was so because of necessity of farming activities for all categories of farmers. Level of education and family size of the respondents did not have significant relationships with their participation in farming activities, since farmers participate in various farming activities irrespective of their level of education and family size. The findings were supported by Aktaruzzaman (2006). There was significant positive relationship between farm size of the farmers and their participation in farming activities. The result was quite logical because more farm size facilitated them to participate in farming activities. Rashid (2006) found similar findings. Annual family income was not significantly correlated with the participation of farmers in farming activities. It was also observed by Aktaruzzaman (2006). The farmers of the study area were involved in mosque committee, club, *tati somiti* etc. which did not deal with farming activities and hence organizational affiliation of the farmers did not have influence on their participation in farming activities. Social cooperation had significant positive relationship with participation of farmers in farming activities as also found by

Aktaruzzaman (2006). It was so because cooperation from family members, neighbors, relatives, etc. helped them to continue farming activities even in the scarcity of farming inputs. Farmers' participation in farming activities were increased with the increase of access to community facilities like marketing of farm produces, availability of seeds, fertilizers, pesticides, irrigation water, etc. because these were directly influential to the farming activities. Knowledge of the farmers on organic farming has created an opportunity for them to have exposure on additional farming practices.

Table 4. Relationship between the dependent and independent variables

Independent variables	'r' values
Age	-0.120
Education	0.115
Family size	0.065
Farm size	0.444**
Annual family income	0.239
Organizational affiliation	0.054
Social cooperation	0.575**
Access to community facilities	0.573**
Knowledge on organic farming	0.304*
Perception of organic farming	0.252
Exposure to farming information	0.218

** Significant at 5% level of probability*
*** Significant at 1% level of probability*

Accordingly knowledge on organic farming showed positive significant relationship with their participation in farming activities. Perception of organic farming was not significantly related with participation, because level of perception of organic farming of the respondents was more or less homogenous. Finally, exposure to farming information did not have significant relationship with the extent of participation in farming activities by the farmers. Amin (2004) also found similar relationship in his study. Most of the respondents have low exposure to farming information and hence this variable could not significantly influence the participation of the farmers in farming activities.

Problem confrontation in participating organic farming practices

Constraints faced by the farmers in participating organic farming activities were measured with Scored Causal Diagrams (SCDs). Two SCDs were prepared by two groups of respondents: (i) male farmers (Figure 1) and (ii) female farmers (Figure 2). In the figures, bold-faced ellipse has been used for end problem, normal ellipse for intermediary problem, rectangles for root causes and the arrows for showing the causal relationship between problems. Number in the parenthesis indicates the scores of the concerned problems.

It was interesting to note that both of the male and female farmers agreed on 'lack of training' as a root cause of low participation in organic farming. Some male farmers opined that 'no fertilizer application' was a root cause of low participation in organic farming because they were not aware of that compost and manure could also supply nutrients to the crops. This happened due to lack of information and training on organic farming. However, ranking of the 'root' causes of the 'end' problem 'low participation in organic farming' has been presented in Table 5. Ranking was done based on the total score assigned by the two groups independently to each of the 'root' causes.

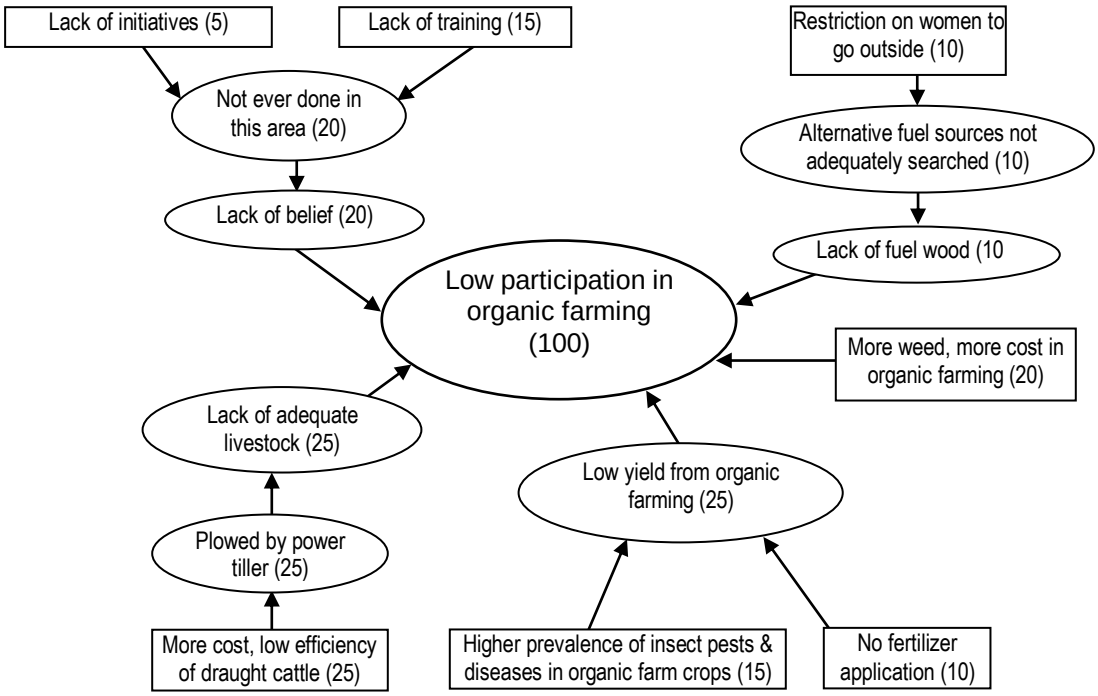

Figure 1. Scored Causal Diagrams (SCDs) prepared by male farmers

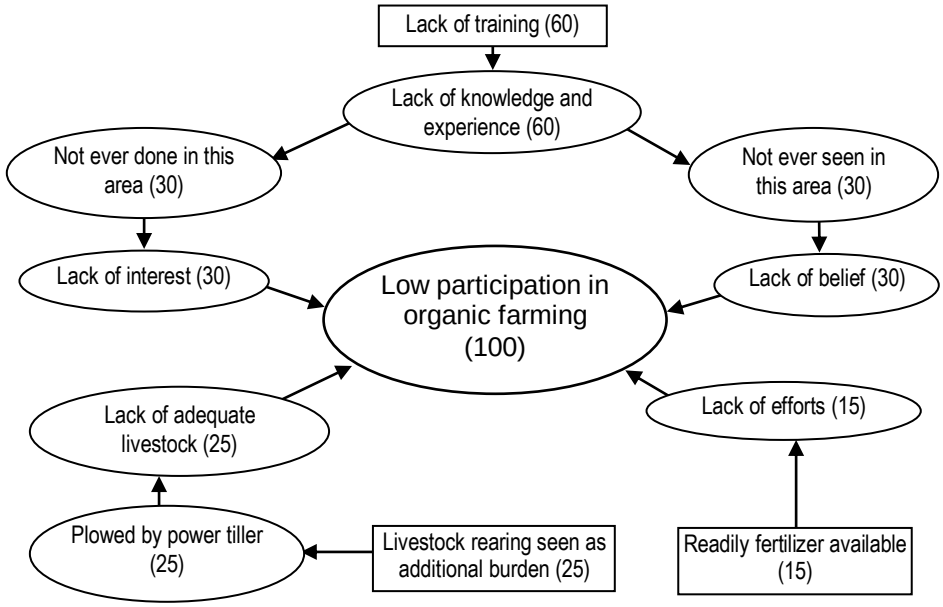

Figure 2. Scored Causal Diagrams (SCDs) prepared by female farmers

Table 5. Ranking of 'root' causes based on total score assigned to each of the 'root' causes

'Root' causes	Score	Ranking order
Lack of training	75	1
Higher prevalence of insect pests and diseases in organic farm crops	15	2
Livestock rearing seen as additional burden	25	3
More cost, low efficiency of draught cattle	25	4
More weed, more cost in organic farming	20	5
Readily fertilizer available	15	6
Restriction on women to go outside	10	7
No fertilizer application	10	8
Lack of initiatives	5	9

Possible solutions to the 'root' causes

Participants of two groups engaged in the preparation of SCDs were requested to mention possible solutions to the 'root' causes of low participation in organic farming. They put forwarded the following suggestions:

- Arrangement of special training programs on organic farming separately for the male and female farmers.
- Encouragement of the application of organic matters like cowdung, ash etc. to the field through different communication media like television, radio, newspaper etc.
- Arrangement of awareness campaign for the farmers about harmful effects of chemical pesticides and fertilizers to the soil, environment and health.
- Provision of micro-credit facilities to the farmers on livestock rearing and taking initiatives to disseminate organic farming technologies by government / non-government organizations.
- Dissemination of Indigenous Technical Knowledge (ITK) for effective control of weeds, insect pests and diseases of crops with locally available material.

Conclusion

The findings of the study demonstrated that there was further scope to increase participation of male and female farmers in farming activities and potential scope to disperse their responsibilities towards helping each other regarding farming activities. Participation in farming activities by the farmers was influenced by their farm size, social cooperation, access to community facilities and knowledge on organic farming. In order the keep these determinants favorable for farming activities extension services should be strengthened. Micro-credit facilities on livestock and other income generating activities (IGAs) should be created for the farmers having low income. Most importantly, the helping attitude among males and females as well as other social

groups should be encouraged through awareness campaign. Initiatives should be taken by different organizations to increase the community facilities like marketing of farm products, availability of farm inputs, irrigation water etc. Department of Agricultural Extension (DAE) and other concerned government and non-government organizations should realize the existing problems of the farmers and should take necessary steps like demonstrations, workshops and other educational programs etc. specially designed for the farmers to overcome the problems through changing their knowledge and perception to the desired levels.

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