Ann. Bangladesh Agric. (2021) 25 (2) : 61-75
www.doi.org/10.3329/aba.v25i2.62413

ISSN 1025-482X (Print)
2521-5477 (Online)

ATTITUDE OF *HAOR* FARMERS' TOWARDS EXTENSION SERVICES

S. Das[1], M. E. Haque[1], M. Rokonuzaman[1]*, S. Saha[1] and S. R. Saha[2]

Abstract

The study was to determine *haor* farmers' attitude towards extension services provided by extension agents in *haor* area. The study was conducted in Austagram upazila under Kishoregonj district during June to August 2018. Data were collected randomly from 150 *haor* farmers through face to face interview using an interview schedule. Majority (62%) of the respondents had moderately favorable attitude towards extension service provided by extension agent followed by 26 percent had slightly favorable attitude and only 12 percent showed highly favorable attitude. Extension agents provided enough motivational tour, rice production based training and demonstration effectively. Majority (78%) of the respondents strongly agreed with that 'Teaching tools (Leaflet, Poster, Demonstration) used by extension agent are very effective.' The farmers were acutely aware of the benefits and profitability of the extension services. However, 46 percent of the respondents strongly agreed with that 'Resource-rich farmers get more benefit of extension services than others'. The selected characteristics like, annual income (χ^2 value=11.61*), training exposure (χ^2 value=15.65*), education level (χ^2 value=12.97*) and living distance from upazila headquarter (χ^2 value=10.64*) had significant associations with their attitude towards extension services provided by extension agent. The further extension services suggested by the farmer were i) set up local extension office in their union, ii) arranging training based on their problem, iii) make available low cost combine harvester, seed sowing machine and other necessary agricultural equipment's, iv) extending communication equally for all categories of farmers' and v) increase number of demonstrations on new high yielding rice varieties.

Keywords: Attitude, farmer, *haor* area, extension services, extension agents.

Introduction

Bangladesh is an agro-based country and agriculture accounts for 14.42% of country's GDP and source of employment of 44.4% of its people ((Islam, 2021; Shampa, 2019; Labor Force Survey, 2010). Approximately 85% of the country's population residing in rural regions and is involved in agriculture, either directly or indirectly (World Bank, 2015). The people of *haor* areas of Bangladesh also dependent on agriculture for their livelihood (Dey *et al.*, 2021). Flood-prone areas as well as other low-lying terrain that are submerged with water for many months each year are referred to as haor (Das, 2016). A haor is a wetland environment in Bangladesh's Sylhet and north-eastern basins that is physically a shallow dip in the shape of a bowl or saucer,

[1]Department of Agricultural Extension and Rural Development, [2]Department of Agroforestry and Environment, Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur 1706, Bangladesh.
*Corresponding author: rokon@bsmrau.edu.bd

also known as a backswamp (Islam, 2021; Sadeque, 2019). It is used to describe a unique geographical area in Bangladesh that has brought a wonderful diversity to the country's natural landscape in the country's north-eastern region, covering 858,460 hectare of land (MOWR, 2012).

The huge marshy land consists of several districts though none of these districts is completely marshy. This wetland covers parts of Netrakona, Kishoreganj, Sunamganj, Habiganj, Brahmanbaria Moulvibazar and Sylhet district (*Haor* Task Force Report, 2010). The prominent *haors* in Bangladesh are the Hakaloki *haor*, Shunir *haor*, Dakhar *haor*, Tanguyar *haor*, Gungiajuri *haor*, Mukhar *haor*, Kaowadighir *haor* etc. These wetlands have unique geographical characteristics, significantly different from rest of the country. During rainy season the aggregate wetland looks like a sea, full of water to every horizon. As all lands merge into water, any kind of crop cultivation or grazing is beyond imagination during this period. Fishing becomes the most typical economic job as well as several businesses like grocery and boating.

The total agricultural area in the seven haor districts is approximately 1.26 million hectares, with 0.68 million hectares under haor (Huda, 2014). Since haor is flooded (5-10 m) between late May to October, when Boro rice covers over 80% of the region, while T. Aman (wet season rice, cropping period generally June-July to October-November) production covers just about 10% of the area (Karim, 2013). It is worth noting that the haor regions produce 18% of the country's rice production (Huq *et al.*, 2012). Rice-based farming is mostly practiced in the Haor basin, with maize, mustard, and vegetables being planted to a lesser level during the Rabi season.

The Department of Agriculture Extension (DAE) is the leading public extension agency in the country, responsible for every aspect of rural agricultural extension services. DAE's main responsibilities include transferring technology generated at the research station as well as providing education, training, and motivation (Arifullah *et al.*, 2014). In the *haor* basin, extension agent provided different types of agricultural service in *haor* area based on farmers problems, such as different teaching methods (leaflet, poster, demonstration), different types of training, motivational tour, field day, field trip etc. When extension agent provided service, farmers' showing different types of attitudes towards extension service (Ahmed, 2016). Sometimes farmers faced problem when they receive extension service such as provided information is not enough to meet the needs of the farmers, extension agent do not communicated frequently and only resource-rich farmers get the benefit of extension services (Zakir, 2014). With this end in view, the present study was conducted to assess the *Haor* farmers' attitude towards extension services provided by the local extension agent.

Most of the people of the study area (Austagram Upazila, Kishoregonj) depends on agriculture for their livelihood. Agriculture knowledge and information system are very much interred-dependable to each other. For improving rural livelihood of the

farmers development of technology is not the major problem, but the major problem is to disseminate knowledge and information through proper channel and media in time. For dissemination of knowledge and information about farming, local extension agent are providing intensive extension activities, demonstrations and training programs. The major focus of the proposed study was to identify farmers' attitude towards extension services offered by the local extension agent. The specific objectives were to i) outline some of the socioeconomic characteristics of the farmers in the haor areas, ii) determine the farmers' attitude towards extension services provided by local extension agent, and iii) to explore the association between socio-economic characteristics of farmer and their attitude towards extension services.

Methodology

The Department of Agriculture Extension (DAE) is the largest public sector extension agency in the country and is responsible for all aspects of agricultural extension services in the rural area. The main function of DAE is to transfer of technologies evolved in the research station along with education, training and motivation. In the *haor* basin, extension agent provided different types of agricultural service based on farmers problems, such as different teaching methods (leaflet, poster, demonstration), different types of training, motivational tour, field day, field trip etc. Since, the main purpose of the study was to determine farmers' attitude towards extension service provided by local extension agents the data were collected through face to face interview by the researchers using an interview schedule.

The unit of analysis is the most elementary part of the phenomenon to be studied. It influences the research design, data collection and data analysis decisions. *Haor* farmers of the selected area were the main unit of analysis of the present study.

The study was conducted at Austagram upazila of Kishoregonj district where farmers received extension services provided by local extension agent. The locale of the study was selected on the basis of major *haor* area. The maps of Kishoregonj district and Austagram upazila of Kishoregonj district showing the study area have been presented in Figure 1 and 2, respectively.

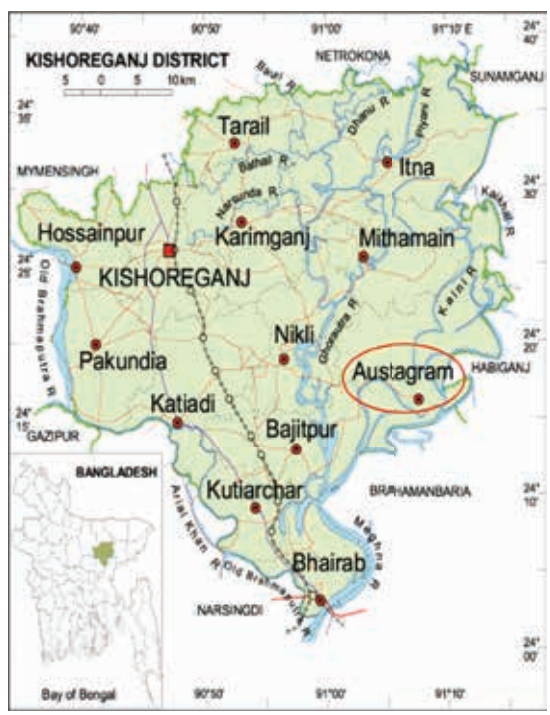

Fig. 1. Map of Kishoregonj district showing the study Upazila.

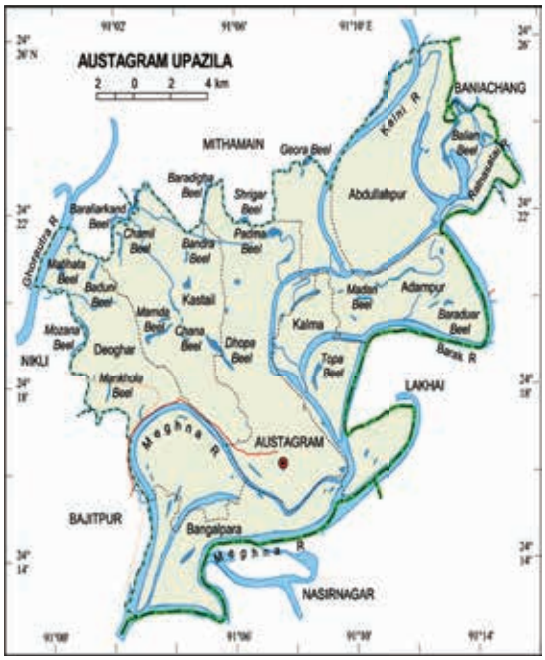

Fig. 2. Map of Austagram Upazila of Kishoregonj district showing the study area.

Three unions out of eight unions of Austogram Upazila were selected randomly. The total numbers of household in selected three unions were 1500 which constituted the population of the study. Out of this population a number of 150 respondents were selected as sample following proportionate random sampling technique (Haque, 2010; Burger and Silima, 2006; Bowling and Ebrahim, 2005) (Table 1).

Systematic field work is an enroll aspect of socio-economic survey research. In this context, in depth survey and necessary efforts were given to make the field work successful and realistic data were collected by the researcher himself from 10th June to 22th August in 2018. The researcher took utmost care to establish rapport with the respondents, so that they did not feel hesitant or hostile to furnish proper responses to the questions of the interview schedule. The questions were explained and clarified whenever any respondent feel difficulty in understanding them properly.

Measurement of variables

Measurement of the dependent variable

Farmers' attitude towards extension service provided by local extension agent was the dependent variable of the study. In total 22 statements (positive and negative) on various aspects of extension services provided by local extension agent were included in the interview schedule to determine attitude of the respondent. For convenient the positive and negative statements were arranged randomly in the schedule. A 5 point Likert type scale namely 'strongly agree', 'agree', 'undecided', 'disagree' and 'strongly disagree' with a corresponding score of 5, 4, 3, 2, and 1

Table1. Distribution of the sample respondents in three unions of Austagram upazila

Upazila	Union	Population (household head)	Sample	Reserve
Austagram	Austagram sadar	528	53	4
	Kalma	482	48	3
	Adampur	490	49	3
Total		1500	150	10

respectively for the positive statements and the scoring was reversed for the negative statements was used (Rhodes *et al*., 2010). The respondent farmers were asked to indicate his attitude regarding a statement by selecting the appropriate option. The attitude score of a respondent was computed by summing the scores for his responses to all the statements.

Measurement of independent variables

The selected characteristics of the farmers were age, education, family size, farming experience, farm size, annual income, organizational participation, extension media contact and training experience. The standard measurement procedures were followed to measure the independent variable.

Results and Discussion

Sociodemographic characteristics of the respondents

Distribution of the respondent farmers according to their selected socio-economic characteristics are presented in Table 2 with mean score of the respondents. Data displayed in Table 2 indicate that the middle-aged constituted the highest proportion (52%) of the respondents, followed by the old and young aged category with an average of 47.98 years.

Farmers' Attitude towards Extension Service

Farmers' attitude towards extension service provided by local extension agent was the main focus of the study. Based on the observed attitude score, the respondents were classified into three categories; slightly favorable attitude (less than 44), moderately favorable attitude (44-88), and highly favorable attitude (greater than 88) according to Arifullah *et al*. (2014) and shown in Table 3.

Austagram upazila extension agent provided by total numbers of 525 trainings, 110 demonstration programs, 10 motivational tours, 15 field days, one agri-fair and others internal programs in 2017 for the farmers. From this data, it was observed that Austagram upazila extension office gave more emphasis on training and demonstration program because it was more effective in farmers' level. Farmers also suggested to arrange training based on farmers problem. Motivational tour helps in decision making and planning for farming but less numbers of motivational tours were offered by local extension agent at Austagram upazila that must be increased (Table 3).

Data in Table 4 shows that the highest proportion (62%) of the respondents had moderately favorable attitude followed by 26 percent had slightly favorable attitude towards extension service provided by local extension agents. Ahmed (2016) and Arifullah *et al.* (2014) in their studies also found that majority of the farmers had moderate favorable attitude towards extension activities.

As mentioned in Table 4, so many training and demonstration programs were conducted by local extension services which may lead to favorable attitude of the farmer.

AI: Attitude Index; SA: Strongly Agreed; A: Agreed; UD: Undecided; D: Disagreed; SD: Strongly Disagreed

In the *haor* area, rice is the most dominant crop. The farmers are cultivating rice for a long time. Agriculture in *haor* area is mostly rice

Table 2. Sociodemographic characteristics of the respondents

Characteristics	Categories	Respondents (%)	Mean
Age	Young (up to 35 years)	14	47.98
	Middle age (36-50 years)	52	
	Old (>50 years)	34	
Education	No education	12	-
	Can sign only	34	
	Primary education	18	
	Secondary education	22	
	Above secondary education	14	
Household size	Small household (2-4)	8	6.74
	Medium household (5-6)	44	
	Large household >6	48	
Farming experience	Low experience (up to 7 years)	12	18.58
	Medium experience (8-15 years)	34	
	High experience (>15 years)	54	
Farm size	Small farmers (up to 0.99 ha)	12	2.47
	Medium farmers (1-3 ha)	62	
	Large farmers (>3 ha)	26	
Annual family income	Low income (<90000Tk*)	50	109,980
	Medium income (90000-144000Tk)	18	
	High income(>144000Tk)	32	
Extension media contact	Low media contact (up to 10)	30	14.8
	Medium media contact (11-20)	44	
	High media contact (> 20)	26	
Training exposures	No training (0)	30	-
	Short duration training (1-7 days)	36	
	Medium duration training (7-10 days)	12	
	Long duration training (>10 days)	22	
Organizational participation	No participation	38	-
	Participation	62	

Note: *1US$ = BDT 86.16.

A significant portion of them (34%) can sign only followed by secondary and primary education. The majority of them (92%) possessed medium to large household. Nearly half of the respondents (48%) had high farming experience while a large portion of them had (62%) medium farm size. The highest proportion (47.5%) of the respondents belonged to < BDT 90000 income category, the average being BDT 109,980, and it was lower than the national average (BDT 159096) (HIES, 2016). Most percentage of them (44%) maintained medium contact with extension agents. The highest proportion of them (70%) received different types of training and engaged in organization (62%).

Table 3. Extension service provided by local extension agent at Austagram upazila in 2017

Sl. No.	Name of program	Program no.
	Training	
1	Training from nutrition project	445
2	Training on rice and wheat seed production, conservation and distribution in farmers' level	30
3	Training on pulses and oilseed seed production, conservation and distribution in farmers' level	5
4	Training on maize cultivation	40
5	Training on potato cultivation	5
	Total	525
	Demonstration	
1	Demonstration program on food and nutrition security by integrated farming development	29
2	Demonstration program on rice (boro) seed production, conservation and distribution in farmer's level	30
3	Demonstration program on pulses and oilseed seed production, conservation and distribution in farmer's level	5
4	Demonstration program on maize cultivation	40
5	Demonstration program on potato cultivation	5
	Total	110
	Field day	15
	Motivational tour	10
	Agri-fair	1

Table 4. Distribution of the respondents according to their overall attitude towards extension service

Categories	Farmers		Mean
	Number	Percent	
Slightly favorable attitude (66-80)	39	26	85.5
Moderately favorable attitude(81-90)	93	62	
Highly favorable attitude(>91)	18	12	
Total	150	100	

based. So, in the present study the researcher had special attention about farmers' attitude towards rice related extension services. In this connection, eight statements were used. Farmers' responses on those statements are shown in Table 4. Based on Attitude Index (AI) the statements are ranked and of them "Motivational tour helps to decision making and planning of rice production" ranked 1st (AI = 603) followed by "Local extension agent provided enough training on rice production" ranked 2nd (AI=606) and "Enough demonstration program provided by local extension agent for adoption of new technologies of rice" ranked 3rd (AI=588). So, it can be said that local extension agents provided enough motivational tour, rice production-based training and demonstration effectively.

Based on farmers' response, the selected statements of extension services were ranked and presented in Table 6. According to the Attitude Index (AI) the statements "using teaching methods (leaflet, poster, demonstration) by local extension agent are very effective" ranked first (AI=609). It indicated that teaching methods used by local extension agents were effective for solving farmers' problems. According to AI "Local extension agent have sufficient quality to provide extension services" ranked 2nd (AI=600), "Extension services provided by local extension agent are practical for solving farmers' problem" ranked 3rd (AI=595) and so on. The above positive statements indicate that the farmers were acutely aware of the beneficial effect of the extension services, its profitability and advantages.

Table 5. Rank order of extension service related to rice provided by local extension agents

Sl. no.	Statements	No. of responses (N=150)					AI	Rank
		SA	A	UD	D	SD		
1.	Motivational tour helps to decision making and planning of rice production	45	72	24	9	0	603	1st
2.	Local extension agent provided enough training on rice production	54	57	30	9	0	606	2nd
3.	Enough demonstration program provided by local extension agent for adoption of new technologies of rice	42	60	42	6	0	588	3rd
4.	Local extension agent given enough information in time of varity selection of rice	30	45	57	18	3	540	4th
5.	Given available extension services about transplanting of rice seedling in final field	33	42	54	18	3	534	5th
6.	Local extension agent provided sufficient information about insects and pest management	18	63	51	18	0	531	6th
7.	Extension services provided by local extension agent about harvesting and threshing of new technologies of rice	21	57	48	12	12	513	7th
8.	Adequate extension services is found in time of final field preparation of rice	30	21	51	42	6	477	8th

Table 6. Rank order of favorable statements of extension service provided by local extension agent

Sl. no.	Statements	Responses (N=150)					AI	Rank
		SA	A	UD	D	SD		
1.	Using teaching methods (leaflet, poster, demonstration) by local extension agent are very effective	72	45	15	18	0	621	1st
2.	Local extension agent have sufficient quality to provide extension services	42	72	30	6	0	600	2nd
3.	Extension services provided by local extension agent are practical for solving farmers' problem	57	41	30	22	0	583	3rd
4.	Extension services provided by local extension agent provide agricultural possible solutions to the farmers' problems	36	66	27	21	0	567	4th
5.	Local extension agent communicated frequently	36	66	27	12	9	558	5th
6.	Extension services provided by local extension agent help in improving farmers' income	33	63	24	21	9	540	6th
7.	It is possible to get local extension agent advice in time of information need	24	72	39	9	6	549	7th
8.	Extension services provided by local extension agent assist the farmers in planning and decision making in his agricultural activities	24	42	57	15	12	501	8th
9.	Can successfully demonstrate improved technologies to farmers	27	39	51	18	15	495	9th
10.	Local extension agent motivated farmers to adopt new technology	24	51	33	21	21	486	10th

Note: AI: Attitude Index; SA: Strongly Agreed; A: Agreed; UD: Undecided; D: Disagreed; SD: Strongly Disagreed.

Based on farmers' response, the selected four unfavorable statements of extension services were ranked and presented in Table 7. According to the Attitude Index (AI) the statements "Resource-rich farmers get more benefit of extension services than others" ranked first. It indicated that local extension agents did not equally contact with resource rich and poor farmers. Hence, for effective extension services in *haor* area local extension agents need to provide information equally for all categories of farmers. According to AI "Facilities of extension services provided by local extension agent are not enough to meet the information needs of the farmers" ranked 2nd, "Extension services provided by Local Extension Agent seem to be the same from year to year" ranked 3rd and "Extension service of Local Extension Agent are not credible for Agricultural information ranked 4th. But in

Table 7. Rank order of unfavorable statements of extension services provided by local extension agent

Sl. no.	Statements	No. of responses (N=150)					AI	Rank
		SA	A	UD	D	SD		
1.	Resource-rich farmers get more benefit of extension services than others	39	30	18	21	42	453	1st
2.	Facilities of extension services provided by local extension agent are not enough to meet the information needs of the farmers	0	27	63	24	36	381	2nd
3.	Extension services provided by local extension agent seem to be same from year to year	6	21	47	41	35	372	3rd
4.	Extension service of local extension agent are not credible for agricultural information	0	18	57	48	27	366	4th

Note: AI: Attitude Index; SA: Strongly Agreed; A: Agreed; UD: Undecided; D: Disagreed; SD: Strongly Disagreed.

all cases majority of the respondents disagree and strongly disagree with the statements. That is local extension agents are credible to some extent and provided need based modern scientific information for the farmers.

Relationships between selected farmer attributes and their attitude toward extension services

Data represented in Table 8 indicated that, 18 respondent's highly favorable attitude towards extension services provided by local extension agents. Among them, majority (55%) of them under high income category but none of them under low income category. On the other hand, 39 respondents' showed slightly favorable attitude towards extension services majority of them (76.92%) under low income category where only 17.94 percent were under high income category. Hence, it can be said that higher income category respondents had more favorable attitude than lower income category. The *Chi-square* value (11.61*) revealed that there have significant positive association between annual income of the respondents and their attitude towards extension services provided by local extension agents. Arifullah *et al*. (2014) found similar results in their study. The reason behind it might that extension agent communicated more with rich farmers compare to poor farmers.

Results presented in Table 9, showed that 39 respondents out of 150 respondents had slightly favorable attitude towards extension services provided by local extension agents where majority (53.84%) of them had no agricultural training followed by 23.07 percent who had short training but only 7.69 percent had long duration training. On the other hand, 18 respondent's had highly favorable attitude towards extension services of which majority (66.66%) had long duration training followed by 22.22 percent under medium

Table 8. Association between annual income of the respondent and their attitude

Annual income	Attitude towards extension service			Total	Chi-square value
	Slightly favorable	Moderately favorable	Highly favorable		
Low	30 (76.92)	45 (48.38)	0	75	11.61*
Medium	2 (5.12)	18 (19.35)	8 (45)	26	
High	9 (17.94)	30 (32.25)	10 (55)	49	
Total	39	93	18	150	

Table 9. Association between training exposure of the respondents and their attitude

Training	Attitude towards extension services			total	Chi-square value
	Slightly favorable	Moderately favorable	Highly favorable		
No training	21 (53.84)	24 (25.80)	0	45	15.65*
Short duration training	9 (23.07)	42 (45.16)	2 (11.11)	53	
Medium duration training	6 (15.38)	9 (9.67)	4 (22.22)	19	
Long duration training	3 (7.69)	18 (19.35)	12 (66.66)	33	
Total	39	93	18	150	

duration training but none of them fall under no training category. So, it concluded that respondent with long duration training category possessed highly favorable attitude and no training category possessed slightly favorable attitude towards extension services provided by local extension agents. The *Chi-square* value (15.65*) shown in Table 8 also revealed that there had significant positive association between training exposure of the respondent and their attitude. Hence, it can be concluded that with the increasing of training experience of the farmers their attitude towards extension services provided by local extension agents will be highly favorable. Ahmed (2016), Rahman (2015) and Samad (2010) observed similar findings in their respective studies. The farmers who had high exposure on different agricultural training might be benefited by updating their modern and scientific knowledge. Moreover, they may have high and intimate communication opportunity with extension agent which led to form highly favorable attitude.

Living distance from upazila headquarter of majority (44.44%) of the respondent who had highly favorable attitude found high compared to 38.88 percent had medium and 16.33 percent had short living distance. But who had slightly favorable attitude, majority (46.15%) of them lived in long distance from upazila headquarter followed by 30.76 percent medium distance and only 23.03 percent in short distance (Table 10). So, it may be concluded that farmers who lived in long distance from upazila headquarter had slightly favorable attitude towards extension

Table 10. Association between living distance of the respondent from upazila headquarter and their attitude

Distance	Attitude towards extension service			Total	Chi-square value
	Slightly favorable	Moderately favorable	Highly favorable		
Short distance (<2 km)	9 (23.07)	60 (64.51)	8 (44.44)	77	10.64*
Medium distance (2-5 km)	12 (30.76)	24 (25.80)	7 (38.88)	43	
Long distance (>5 km)	18 (46.15)	9 (9.67)	3 (16.33)	30	
Total	39	93	18	150	

services and who lived nearby the upazila headquarter had highly favorable attitude towards extension services. The *Chi-square* value (10.64*) also indicated a significant but negative association between them. It may be concluded that farmers who lived nearby the upazila had highly favorable attitude compared to those who lived in long distance from upazila headquarter. In the *haor* area communication facilities are not so good. So, it may be difficult for the extension agents to maintain frequent contact with the farmers who lived long distance. For this, majority of them possessed slightly favorable attitude towards local extension agents.

The farmers' educational level showed a strong positive relationship with their attitude toward extension services offered by local extension agents, according to Table 11. Data also revealed that among the respondents who had highly favorable attitude, most of them (83.33%) had secondary and above level of education compared to only 16.66 percent can sign only (table 10). On the contrary, respondents who had an a little positive mindset, majority (53.84%) of them can sign but only 23.07 percent had secondary level education. The computed *Chi-square* value (12.97*) indicated significant positive association. It can be concluded that educated farmers possessed highly favorable attitude compared to farmers who had no and less education. Arifullah *et al*. (2014) observed similar findings in their respective studies.

Extension services needed by the farmers

The respondent farmers were asked openly to indicate which further extension services they need. In all five major suggestions were identified which are presented in Table 12.

Findings indicated that about 78 percent farmers suggested for 'set up local extension office' in their union. It will facilitate them easy communication with extension personnel and can get possible solution about their problems. Also build up a good relationship among farmers and local extension agent which help to increase positive attitude towards extension services. Fifty six percent respondents wanted for arranging training based on their problem. Training can enhance farmers' knowledge about modern and update technologies. Make available low-cost combine harvester, seed sowing machine and other necessary agricultural equipment's are the present days needs of the farmer to save time and reduce labor cost. "Extending communication equally for all categories of farmers" and

Table 11. Association between education of the respondent and their attitude

Education level	Attitude towards extension service			Total	Chi-square value
	Slightly favorable	Moderately favorable	Highly favorable		
No education	3 (7.69)	15 (16.12)	0	18	12.97*
Can sign only	21 (53.84)	27 (29.03)	3 (16.66)	51	
Primary level	6 (15.38)	21 (22.58)	0	27	
Secondary level	9 (23.07)	18 (19.35)	6 (33.33)	33	
Above secondary	0	12 (12.90)	9 (50)	21	
Total	39	93	18	150	

Table 12. Distribution of extension services needed by the *haor* farmers

Sl. No.	Name of services	Percent (%)	Rank
1.	Set up office of local extension agent at union/ village level	78	1st
2.	Arrange training program based on farmer's problem	56	2nd
3.	Make available low-cost combine harvester, seed sowing machine etc	47	3rd
4.	Extending communication equally for all categories of farmers	38	4th
5.	Increase number of demonstrations on new high yielding rice variety	34	5th

"Increase number of demonstration on new high yielding rice variety" are also important extension activities wanted by *haor* area farmers.

Conclusion

Around four-fifths of the respondents (74.0%) had a moderately good or extremely favorable opinion toward agricultural extension provided by local extension agents. In the study area local extension agents arranged number of training and demonstration programs which may lead to form favorable attitude of the farmer. Based on farmers' opinion local extension agents were found credible to some extent and provided need based modern scientific information for the farmers. However, resource-rich farmers got more benefit of extension services than others. Hence, for effective extension services in *haor* area local extension agent need to provide information equally for all categories of farmers. A significant positive association was found between training exposures of the farmer and their attitude towards extension services provided by local extension agent. So, it may be concluded that training might have contribution to disseminate new technology as well as formation of favorable attitude towards extension services provided by local extension

agent. Farmers' educational attainment and annual income had strong positive correlations with their attitudes regarding extension services offered by local extension agents. It may be concluded that with the increase of educational level and annual income of the farmers their attitude towards extension will be increased. So, while selecting farmers for training and demonstration programs extension agent should consider these two characteristics. The present need of extension services suggested by the farmer were 'set up local extension office in their union', 'arranging training based on their problem', 'make available low cost combine harvester, seed sowing machine and other necessary agricultural equipment', 'extending communication equally for all categories of farmers' and 'increase number of demonstration on new high yielding rice variety'.

References

Ahmed, M. A. 2016. Attitude of Farmers' towards extension activities in a Selected Area of Habigonj District. MS Thesis. Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Arifullah, M., A. Zahan, M. M. Rana, M. Adil and S. Shamsunnaher. 2014. Attitude of the rural elite farmers towards extension activities performed by personnel of Department of Agricultural Extension. *Agricults.* 12(1): 96-102.

Bowling, A. and S. Ebrahim. 2005. Quantitative social science: the survey. Handbook of health research methods: Investigation, measurement and analysis. Open University Press. McGraw-Hill Education, Berkshire, England, Pp.190-214.

Burger, A. and T. Silima. 2006. Sampling and sampling design. *J. Pub. Admin.* 4(13): 656-668.

Das, T. K. 2016. Fighting Floods for Survival: Experiences of Suffering People in Bangladesh. In *Environmental Geography of South Asia.* Springer, Tokyo, Pp. 335-351.

Dey, N. C., M. Parvez and M. R. Islam. 2021. A study on the impact of the 2017 early monsoon flash flood: potential measures to safeguard livelihoods from extreme climate events in the haor area of Bangladesh. *Int. J. Dis. Ris. Redu.* 59: 102247.

Haor Task Report. 2010. Ministry in Planning, Government of the Peoples' Republic of Bangladesh, Dhaka 15 P.

Haque, M. 2010. Sampling methods in social research. *Glob. Res. Method.* 8(5): 1-6.

HIES. 2016. Household Income and Expenditure Survey. Bangladesh Bureau of Statistics.

Huda, M. K. 2014. Experience with Modern and Hybrid Rice Varieties in *Haor* Ecosystem: Emerging Technologies for Sustainable Rice Production, Bangladesh Rice Research Institute. Gazipur 1701, Pp. 19-21.

Huq, S., A. K. M. A. Rahman, S. M. I. Ali, P. Moeller and P. Gnoyke. 2012. Proceedings on National Conference, Community Based Adaptation to Climate Change in Bangladesh, Bangladesh Centre for Advanced Studies (BCAS), Dhaka, Bangladesh.

Islam, M. R. A. 2021. Critical analysis of foreign direct investment (FDI) in Bangladesh: An econometric study. *IOSR J. Econ. Finan.* 12(2): 35-52.

Islam, T. 2021. Performance of ecological revetment in Haor areas of Bangladesh.

URI: http://lib.buet.ac.bd:8080/xmlui/handle/123456789/5706.

Karim, M. M. 2013. Crop Diversification and Intensification in a Village of Dingaputa Haor. MS Thesis. Department of Agronomy, Bangladesh Agricultural University, Mymensingh.

Labour Force Survey. 2010. Bangladesh Bureau of Statistics, Statistics Division, Ministry of Planning, 228 P.

MOWR. 2012. Master Plan of Haor Area. Summary Report, Ministry of Water Resources, Government of Peoples' Republic of Bangladesh, Vol. 1, Pp. 1-71.

Rahman, M. A. 2015. Attitude of haor farmers' towards hybrid variety of rice in a selected Area of Bangladesh. MS Thesis. Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Rhodes, R. E., D. Hunt Matheson and R. Mark. 2010. Evaluation of social cognitive scaling response options in the physical activity domain. *Meas. Physi. Edu. Exer. Sci.* 14(3): 137-150.

Sadeque, A. Z. M. 2019. Indigenous Flood Coping Strategies towards Livelihoods: A Study in Haor Area of North-East Bangladesh. Doctoral dissertation. University of Dhaka.

Samad, M. A. 2010. Farmers' Attitude towards Aerobic Rice Cultivation. MS Thesis. Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Shampa, F. R. 2019. Internal control systems in the agricultural banking sector of Bangladesh. Doctoral dissertation. University of Dhaka.

World Bank. 2015. Revitalizing the Agricultural Technology System in Bangladesh: Bangladesh Development Series Paper-7. The World Bank Office, Dhaka, Pp. 45-49.

Zakir. 2014. Farmers' attitude towards extension service provided by local extension agent for fisheries. MS Thesis. Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.