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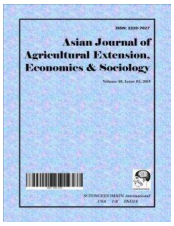

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Information Needs of the Female Farmers in Agricultural Activities

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Authors' contributions

This work was carried out in collaboration between all authors. Author SH designed the study, wrote the protocol, designed the conceptual framework of the study, and supervised the research work; Authors MRK and ST managed the literature searches, conducted field survey and collected data; Authors MRAFS and NM performed the statistical analysis, and wrote the first draft of the manuscript. Authors MRK and ST assisted in writing draft report. Author SH finalized the draft report. All authors read and approved the final manuscript.

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ABSTRACT

The purposes of this study was to determine the selected characteristics of the female farmers, to determine the information needs of the female farmers in practicing agriculture and to explore the relationship between information need and selected characteristics of the female farmers. Data were collected using interview schedule from a sample of 50 farmers out of 100 farmers of target group and 50 farmers out of 100 farmers of control group selected random sampling procedure from the beneficiaries of PROTIC project of Dimala upazila under Nilphamari district. Besides the usual descriptive statistical parameter, Pearson's Product Moment Correlation Coefficient (r) was used for the statistical analysis. The information needs were determined on 20 selected agricultural activities related information. It was revealed that the highest information needs was observed on 'pesticides name' in target groups. Lowest information needs was observed on 'pond preparation'. In case of

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control groups the highest information needs was observed on pesticides name' while lowest information needs was observed on 'water quality management' among the selected information of practicing agricultural activities. In target groups majority of the respondents (74 percent) mentioned medium information needs while 14 percent low and 12 percent high information needs. Among the control groups 62 percent farmers opined medium information needs while 16 percent mentioned about low information needs and 22 percent showed high information needs for practicing agricultural activities. In response to target groups it was observed that extension media contact and agricultural knowledge, annual income and aspiration while in response to control group farmers' agricultural knowledge and aspiration are positively and age was negatively correlated with information needs of female farmers in practicing agriculture.

Keywords: Information; agricultural activities; needs and female farmers'.

1. INTRODUCTION

Women constitute almost half of the total population of the country. But it is a matter of regret that rural women are economically dependent and vulnerable, educationally backward as well as politically and socially disadvantaged. Though, women are playing very important role in both at home and outside but still disparities exist between men and women in education, health, employment and income opportunities, control over assets, personal security and participation in the political process. The success of a country depends on the status and improvement of its women [1].

Economic independence is one of the means to empower the women. The existence of women in a state of economic, political, social and knowledge disempowerment is known to be a major hindrance to economic development. Income is the most important factor for human well-being as well as the living standard, health status, social and political power [2]. Therefore, many rural women are presently engaged in agricultural activities for improving their livelihood. But, their potential is often unrealized [3]. They are disadvantaged in terms of education, independence, controlling their own assets, and household decision making [4].

Bangladesh is a patriarchal society where men holds the sovereign power to control households and society as a whole and women are frequently secluded in their home. Women are ascribed as being by lower status compared to men and poverty is higher among women than men [5]. In Bangladesh, about 80% people live in rural areas and they are directly or indirectly dependent on agriculture, which is the mainstay of its economy. While comparing the female and male labor force in agriculture, it was observed that 44% more females are involved in this sector than males [6]. Sultana [7] researched the socio cultural dimensions of women's inequity in rural society. These women contribute to agricultural production in a diversified ways.

Women are the key operators of household activities. Women activities played a significant role in agricultural development in the allied fields including crop production, livestock production, horticulture, post-harvest operations, agro-social forestry and fisheries [8]. The activities of women are mainly restricted within the household more particularly in taking care of children and other family members, preparing and serving food to members of the household and maintaining houses. An estimated two-thirds of poor livestock keepers, totaling approximately 400 million people, are women [9]. Women make essential contributions to the agricultural and rural economies in all developing countries. Their roles vary considerably between and within regions and are changing rapidly in many parts of the world, where economic and social forces are transforming the agricultural sector.

Due to lack of adequate information, knowledge and skill towards practicing agriculture farmers are not able to maximize their productivity. As technology is continuously changing, many skills are needed for using of these techniques by the farmers and other concerned in increasing production. For this reason it is necessary to make available specific information to acquire necessary knowledge and skills in different aspects agriculture. Skilled farmers were able to ensure more crop production. So, adequate information is essential for farmers in practicing agriculture.

Keeping in view of the above circumstances, the present study was undertaken with the following objectives:

- To describe selected characteristics of the female farmers.
- To determine the information needs of the female farmers in practicing agriculture.
- To explore the relationship between information need and selected characteristics of the female farmers.

2. METHODOLOGY

2.1 Locale of the Study

Dimla upazila under Nilphamari district was selected as the study area for the survey. Dimla upazila was selected purposively as the respondents under this survey are the beneficiaries (animator) of PROTIC project which is implemented in this upazila. Among all the unions of Dimla upazila Tepa Kharibari union and Dakkhin Kharibari as controlled village & Uttar Kharibari as experimental village under this union was also selected purposively for conducting the survey for the same reason.

2.2 Population and Sample

The beneficiaries (animator) of PROTIC project of Dimla upazila under Nilphamari district were the population of the study. The list of all 100 female farmers were collected from concerned development partner NGO named Pollisree. Out of them, a sample of 50 farmers of (50 percent) target group was selected by simple random sampling method. The research also concerned with the control groups who are not under direct supervision of PROTIC project. A list of 100 women of control group was also collected. From the population 50 women (50 percent) were selected as the sample of the study. Simultaneously, a reserve list of 10 farmers from each group in case of unavailability of sampled female farmers.

Population	Sample size	Sample (percent)	Reserve list
100(Target group)	50	50	10
100(Control group	50	50	10

*Where N=100, n=50, Sampling factor=n/N*100*

2.3 Research Design of the Study

Designing the research for the present study was taken in a scientific manner. Firstly, different research themes are collected and analyzed followed by research problem formulation. Reviews were studied to select appropriate variables and preparation of questionnaire. Pretesting of the interview schedule was done before final data collection. Finally data were collected, analyzed and report was prepared.

2.4 Measurement of Independent Variables

In any scientific research, the selection and measurement of variables constitutes a significant task. The independent variables were age, education, family size, farm size, annual income, training received, extension media contact, agricultural knowledge and aspiration. Proper statistical scale and scores were used for measurement of these variables.

2.5 Measurement of Information Needs of Female Farmers

During pre-test of the questionnaire, female farmer's information need was identified and an item was listed. The 20 most frequently mentioned information need items were selected to include in the interview schedule of the final version. During interview the farmers were asked to give opinion on 20 selected items along with their extent of perceived need. A 4-point rating scale was used for computing the extent of information need of a farmer which was assigned as 'high', 'medium', 'low', and 'not at all' weighting the score as 3, 2, 1 and 0 respectively.

The weight of responses of each items for all the respondents were summated together to obtain information needs scores. So, total score of each respondent for this variable could range from 0 to 60, where 0 indicated "no information needs" and 20 indicated "high information needs" for the female farmers in practicing agriculture.

For making comparative analysis of 20 selected agricultural activities related information an overall Information Needs Index (INI) was calculated. INI was calculated by adopting the following formula

$$INI = P_n \times 0 + P_l \times 1 + P_m\, 2 + P_h \times 3$$

Where,

INI = Information Needs Index
P_n = Percentage of farmers for 'no' information needs
P_l = Percentage of farmers for 'low' information needs
P_m = Percentage of farmers for 'medium' information needs
P_h = Percentage of farmers for 'high' information needs

Thus, the possible value of INI could range from 0 to 300, where 0 indicated no information needs and 300 indicated high information needs of the farmers.

2.6 Statistical Analysis

Various descriptive statistical measures such as frequency, number, percentage and rank order was used for categorization and describing the variables and also inferential statistics like correlation coefficient was also followed for analyzing the data.

3. RESULTS AND DISCUSSION

3.1 Selected Characteristics of the Female Farmers

3.1.1 Age

In target group the highest proportion of farmers (92 percent) were young aged and only 8 percent were middle aged. 62 percent farmers of control group were young while 16 percent were middle and 22 percent were old aged.

3.1.2 Education

Data contained in Table 2 reveals that in case of target group farmers half (50 percent) of the respondents completed secondary education while 30 % can sign only, 14 primary education and 6 percent completed above secondary level of education. In case of control group majority of the respondents (40 percent) completed primary education while 20 percent were illiterate, 30 percent can sign only, 4 percent secondary education and 2 percent completed above secondary level of education.

3.1.3 Family size

Most of the target group farmers (72 percent) were belongs to medium family size while 20 percent had small and 8 percent large family size. Majority of the control group farmers (60 percent) also had medium family while 30 percent had small and 10 percent had large family size.

3.1.4 Farm size

Data presented in Table 4 show that among the target group farmers more than half (60 percent) of the respondents were marginal farm sized, 12 percent were landless, 26 percent had small farm size and 2 percent had medium farm size. Among the control group farmers 46 % had marginal farm sized, 20 percent were landless, 18 percent had small farm size, 8 percent had medium farm size and 8 percent had large farm.

3.1.5 Annual income

Data furnished in Table 5 indicate that among the target groups farmers majority (66 percent) of the farmers had medium income compared to 18 percent under low and only 16 percent under high income group. On the other hand, in case of control groups majority (68 percent) of the farmers had medium income compared to 16 percent under low and only 16 percent under high income group.

Table 1. Distribution of the respondents according to age

Categories (Years)	Farmers number and (percentage)		Range		Mean and (SD)	
	Target	Control	Target	Control	Target	Control
Young (up to 35)	46 (92)	31 (62)	17-45	16-67	26.80	36.32
Middle aged (36-50)	4 (8)	8 (16)			(6.51)	(15.68)
Old (over 50)	0 (0)	11 (22)				
Total=	50 (100)	50 (100)				

Table 2. Distribution of the respondents according to education

Categories (year of schooling)	Farmers number and (percentage)		Range		Mean and (SD)	
	Target	Control	Target	Control	Target	Control
Illiterate (0)	0 (0)	10 (20)	0.5-17	0-15	7.14	7.86
Can sign only (0.5)	15 (30)	15 (30)			(3.88)	(10.00)
Primary level (1-5)	7 (14)	20 (40)				
Secondary level (6-10)	25 (50)	4 (8)				
Above secondary level (>10)	3 (6)	1 (2)				
Total=	50 (100)	50 (100)				

Table 3. Distribution of the respondents according to family size

Categories (No. of member)	Farmers number and (percentage)		Range		Mean and (SD)	
	Target	Control	Target	Control	Target	Control
Small (≤3)	10 (20)	15 (30)	2-8	1-8	4.86	4.11
Medium (4-6)	36 (72)	30 (60)			(1.57)	(1.56)
Large (>6)	4 (8)	5 (10)				
Total=	50 (100)	50 (100)				

Table 4. Distribution of the respondents according to farm size

Categories (ha)	Farmers number and (percentage)		Range		Mean and (SD)	
	Target	Control	Target	Control	Target	Control
Landless (Up to 0.02)	6 (12)	10 (20)	0-3.0	0-5.5	0.57	0.63
Marginal (0.02-0.2)	30 (60)	23 (46)			(1.17)	(1.44)
Small (0.21-1.0)	13 (26)	9 (18)				
Medium (1.01-3.0)	1 (2)	4 (8)				
Large(above 3)	0 (0)	4 (8)				
Total	50 (100)	50 (100)				

Table 5. Distribution of the respondents according to their annual income

Categories (thousand taka)	Farmers number and (%)	Categories (thousand taka)	Farmers number and (%)	Range		Mean and (SD)	
	Target		Control	Target	Control	Target	Control
Low (≤29)	9 (18)	Low (≤12)	8 (16)	3-220	0-178	82.23 (53.40)	55.33 (43.76)
Medium (30-135)	33 (66)	Medium (13-98)	34 (68)				
High (>135)	8 (16)	High (>98)	8 (16)				
Total=	50 (100)	Total=	50 (100)				

3.1.6 Training received

Data furnished in Table 6 indicate that among the target groups farmers majority (58 percent) of the farmers received short term training compared to 20 percent received medium training and 22 percent received long term training. On the other hand, in case of control groups majority (78 percent) of the farmers received short term training compared to 10 percent received medium training and 12 percent received long term training.

3.1.7 Extension media contact

Data presented in Table 7 shows that majority (60 percent) of the farmers had medium extension media contact, 30 percent had low extension media contact and 10 percent had high extension media contact (Target group). Similarly it was also revealed that majority (56 percent) of the farmers had medium extension media contact, 26 percent had low extension media contact and 18 percent had high extension media contact (control group).

3.1.8 Agricultural knowledge

Majority (52 percent) of the farmers had excellent agricultural knowledge while 22 percent had poor agricultural knowledge and 26 percent had moderate agricultural knowledge (Target group). Similarly it was also revealed that majority (56 percent) of the farmers had moderate agricultural knowledge, while 12 percent had poor agricultural knowledge and 32 percent had excellent agricultural knowledge (control group).

3.1.9 Aspiration

The highest proportion of target group farmers (58 percent) had medium aspiration, 30 percent of the respondents had low and 12 percent of the respondents had high aspiration respectively. In case of control group farmers the highest proportion (52 percent) had medium aspiration,

28 percent of the respondents had low and 20 percent of the respondents had high aspiration respectively.

3.2 Information Needs of the Farmers

Information needs of the female farmers in practicing agriculture were one of the main focuses of the present research work. Twenty-seven (27) parameters of information needs were selected to measure the extent of information needs of the female farmers in practicing agriculture. The findings have been interpreted in the following subsections.

The data revealed that the highest information needs was observed on 'pesticides name' in target groups. Lowest information needs was observed on 'pond preparation'. In case of control groups the highest information needs was observed on pesticides name' while lowest information needs was observed on 'water quality management' among the selected information of practicing agriculture.

Table 6. Distribution of the respondents according to their training received

Categories (days)	Farmers number and (percentage)		Range		Mean and (SD)	
	Target	Control	Target	Control	Target	Control
Short (≤3)	29 (58)	39 (78)	0-60	0-50	9.02	4.28
Medium (4-7)	10 (20)	5 (10)			(14.15)	(9.66)
Long (>7)	11 (22)	6 (12)				
Total=	50 (100)	50 (100)				

Table 7. Distribution of the respondents according to their extension media contact

Categories (score)	Farmers number and (%)	Categories (score)	Farmers number and (%)	Range		Mean and (SD)	
	Target		Control	Target	Control	Target	Control
Low (≤3)	15 (30)	Low (≤2)	13 (26)	0-24	0-16	9.3	6.08
Medium (4-15)	30 (60)	Medium (3-11)	28 (56)			(6.58)	(4.64)
High (>15)	5 (10)	High (>11)	9 (18)				
Total=	50 (100)	Total=	50 (100)				

Table 8. Distribution of the respondents according to their agricultural knowledge

Categories (score)	Farmers' number and (%)	Categories (score)	Farmers' number and (%)	Range		Mean and (SD)	
	Target		Control	Target	Control	Target	Control
Poor (≤10)	11 (22)	Poor (≤7)	6 (12)	3-25	0-24	15.36	12.98
Moderate (10-20)	13 (26)	Moderate (8-17)	28 (56)	(0-25)	(0-25)	(5.32)	(5.60)
Excellent (>20)	26 (52)	Excellent (>17)	16 (32)				
Total=	50 (100)	Total=	50 (100)				

Table 9. Distribution of the respondents according to their aspiration

Categories (score)	Farmers' number and (%)	Categories (score)	Farmers' number and (%)	Range		Mean and (SD)	
	Target		Control	Target	Control	Target	Control
Low (≤18)	15 (30)	Low (≤14)	14 (28)	10-30 (6-36)	0-27 (6-36)	22.18 (4.06)	20.32 (6.53)
Medium (18-26)	29 (58)	Medium (14-26)	26 (52)				
High (>26)	6 (12)	High (>26)	10 (20)				
Total	50 (100)	Total	50 (100)				

Table 10. Distribution of the respondents according to information needs

Sl. No	Information Items	Percentage of farmers (Target)				INI	RO	Percentage of farmers (control)				INI	RO
		No	Low	Medium	High			No	Low	Medium	High		
A. Crop production													
1.	Soil fertility management	20	14	26	40	186	7	42	10	36	12	118	14
2.	Land preparation	26	14	34	26	160	15	34	18	32	16	130	12
3.	Seed Collection	20	10	38	32	182	9	24	22	40	14	144	9
4.	Seed preservation	22	12	34	32	176	11	26	26	26	22	144	8
5.	Crop variety	22	8	42	28	176	10	24	18	40	18	152	7
6.	Planting time	30	6	50	14	148	17	30	10	38	22	152	6
7.	Planting method	28	12	46	14	146	18	34	16	34	16	132	11
8.	Fertilizer application	18	12	24	46	198	4	38	26	24	12	110	16
B. Crop protection													
1.	Pesticides name	18	4	22	56	216	1	30	8	6	56	188	1
2.	Doses and time of application of pesticides	20	4	26	50	206	3	30	10	34	26	156	5
3.	Identification and control measures of diseases	16	12	22	50	206	2	26	8	28	38	178	2
4.	Techniques of using insecticides/pesticides	28	6	18	48	186	6	26	10	38	26	164	4
C. Crop harvesting													
1.	Identification of maturity symptoms	46	20	18	16	104	21	40	34	18	8	94	19
2.	Harvesting time	50	20	22	8	88	22	48	30	18	4	78	21
3.	Harvesting method	36	14	38	12	126	20	54	26	18	2	68	22
D. Livestock and poultry													
1.	Breed selection	38	8	32	22	138	19	56	12	22	10	86	20
2.	Cowshed construction	30	12	20	38	166	14	54	8	24	14	98	18
3.	Treatment of diseases	18	22	14	46	188	5	36	2	16	46	172	3
4.	Feeding for beef fattening	30	8	20	42	174	12	42	4	28	26	138	10
5.	Rearing method of poultry	40	6	12	42	156	16	50	2	22	26	124	13

Sl. No	Information Items	Percentage of farmers (Target)				INI	RO	Percentage of farmers (control)				INI	RO
		No	Low	Medium	High			No	Low	Medium	High		
E. Fisheries													
1.	Pond preparation	78	4	16	2	42	27	84	2	12	2	32	23
2.	Water quality management	70	8	18	4	56	23	90	2	8	0	18	27
3.	Release of fingerlings	78	6	12	4	42	26	92	0	0	8	24	26
4.	Feeding of fish	78	6	10	6	44	25	92	0	0	8	24	25
5.	Fish harvesting	80	4	8	8	44	24	92	0	0	8	24	24
E. Market information													
1.	Price of products	28	10	28	34	168	13	58	2	16	24	106	17
2.	Price of inputs	30	4	18	48	184	8	56	2	12	30	116	15

INI= Information needs Index, RO= Rank order

Table 11. Distribution of female farmers according to their overall information needs

Categories (score)	Farmers number and (percentage)	Categories (score)	Farmers number and (percentage)	Range		Mean and (SD)	
	Target		Control	Target	Control	Target	Control
Low (≤23)	7 (14)	Low (≤12)	8 (16)	0-72 (0-81)	0-55 (0-81)	39.06 (16.45)	29.62 (17.34)
Medium (23-55)	37 (74)	Medium (13-46)	31 (62)				
High (>55)	6 (12)	High (>46)	11 (22)				
Total=	50 (100)	Total=	50 (100)				

Table 12. Relationships between the dependent and independent variables

Dependent variable	Independent variables	Computed values of 'r' with 48 d.f.	Computed values of 'r' with 48 d.f.
		Target group	Control group
Information needs of female farmers in practicing agriculture	Age	-0.001	-0.323*
	Education	0.205	0.149
	Family size	0.044	0.222
	Farm Size	0.058	0.031
	Annual income	0.286*	0.034
	Training received	0.186	0.001
	Extension media contact	0.442**	0.275
	Agricultural knowledge	0.424**	0.317**
	Aspiration	0.350*	0.424**

**, significant at 5 percent level of significance and **, significant at 1 percent level of significance*

3.2.1 Overall information needs in practicing agriculture

The total score of information needs could range from 0 to 81. The observed information needs scores ranged from 0 to 72 with an average of 39.06 and standard deviation of 16.45 (In case of target groups). In case of control groups the observed information needs scores ranged from 0 to 55 with an average of 29.62 and standard deviation of 17.34. Based on their information needs scores the respondents were classified into three categories as shown in Table 11.

3.3 Relationships between the Selected Characteristics of the Farmers and their Information Needs

Relationships between nine independent variables with the information needs as found by correlation test are described in this section. The computed co-efficient of correlation (r) between the independent and dependent variable (Table 12).

Correlation test was done in both target group and control group farmers to reveal the characters related with the information needs. In response to target groups it was observed that extension media contact and agricultural knowledge are correlated at 1 percent level of significance with information needs of female farmers in practicing agriculture. The research also revealed that annual income and aspiration are correlated at 5 percent level of significance with information needs of female farmers in practicing agriculture whereas age is negatively correlated and education, family size, farm size and training received are not significantly correlated with information needs of female farmers in practicing agriculture.

In response to control group farmers it was observed that agricultural knowledge and aspiration are positively and age was negatively correlated at 1 percent level of significance with information needs of female farmers in practicing agriculture. The research also revealed that education, family size, farm size, annual income, training received anpd extension media contact are not statistically correlated with information needs of female farmers in practicing agriculture.

4. CONCLUSION

Based on the findings and discussion the following conclusions were drawn:

1. Both target and control group farmers showed medium information needs in

2. practicing agriculture. 74 percent of the target group farmers had medium information needs whereas 62 percent of control group farmers showed medium needs of information.
3. The highest information needs was observed on 'pesticides name' in both target and control groups and lowest information needs was observed on 'pond preparation' in target group and 'water quality management' in control group among the selected information of practicing agriculture.
4. Target group farmers are more educated than control group farmers. So, they can more easily adopt the new innovation which will be helpful for their agricultural development.
5. Target group farmers had more extension media contact than control groups.
6. In target group's extension media contact, agricultural knowledge, annual income and aspiration are correlated with information needs of female farmers in practicing agriculture whereas in control groups agricultural knowledge and aspiration are positively and age was negatively correlated with information needs of female farmers in practicing agriculture.

RECOMMENDATIONS

Based on the conclusion the following recommendations can be drawn:

1. Farmers strongly opined that they have need regarding pesticide names. So, the concerned agencies should take steps on dissemination of proper knowledge regarding their needs.
2. In the present study, most of the farmers were found to have medium knowledge on agriculture. Therefore, concerned agencies should undertake effective program for the farmers of the study area in order to enhance their agricultural knowledge.
3. In view of strong relationship between extension media contact of the farmers with practicing agriculture, it is recommended that there should be effective program in the study area for providing adequate functional demonstration program for the farmers to increase their contact with agricultural information sources.
4. Research should be undertaken particularly to identify the further factors causing hindrance to expected level of practicing agriculture and to explore the potentialities of the farmers to overcome the hindrances.
5. More training sessions need to be organized by different government and non-government organizations to increase the knowledge and awareness of the farmers in practicing agriculture.

CONSENT

As per international standard or university standard written consent has been collected and preserved by the author(s) from the participants.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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