Bangladesh Journal of Extension Education *ISSN 1011-3916*
Volume 18, No.1&2, 2006:67-72 *Research Article*

Farmers' Knowledge of Improved Practice in Soybean Cultivation

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Abstract

The purpose of the study was to determine the farmers' knowledge of improved practices in soybean cultivation. One hundred and ten growers were selected randomly from a total of 1100 growers from ten villages under three Unions of Sadar upazila of Noakhali district. An interview schedule was used for collection of data during 20 July to 30 August 2006. The finding indicates that highest proportion (56.36%) of the growers had low knowledge compared to 38.18% medium knowledge, 5.46% high knowledge of improved practices in soybean cultivation. Level of education, family size, annual family income, and cosmopoliteness had positive and significant relationships with their knowledge of improved practices in soybean cultivation On the other hand; age, farm size, extension media contact, and innovativeness had no relationships with the same regard. The knowledge of improved practices was mostly hindered due to less irrigation facilities, high input cost, non availability of credit, less scope for consuming as food, lack of technical information, non availability of land for soybean cultivation, less scope of marketing, less market price of soybean *etc.*

Keywords: *Knowledge, farmers and improved practice*

Introduction

There are so many types of crops are cultivated in Bangladesh as because of agricultural country. However, Oilseed crops are the important crop not only in Bangladesh but also in the world. Soybean (*Glycine max*) ranks first as an oilseed crop of the world. It has a tremendous value in agriculture as a good source of high quality plant protein and vegetable oils in one hand and nitrogen fixing ability on the other. It is quite wide spread in different region of the world and grows well from the tropics to the temperate zones. This crop is grown throughout the world with greater production in the United States, Brazil, and Peoples Republic of China, Mexico, Indonesia and Argentina. Soybean was first introduced in Bangladesh around 1942, it was not well known to Bangladesh growers before independence. In 1972/73 the Mennonite Central Committee (MCC) began research and extension work on soybean primarily as a Rabi crop. At the preliminary stage, soybean cultivation has extended in the

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districts of Noakhali, Lakhipur, Comilla as well as in the neighbouring areas of these districts. Soybean has occupied the top position in terms of oil source in the world and has been placed second in order as consumable oil in Bangladesh. Soybean is generally cultivated during rabi season in Bangladesh. According to the planning commission of the peoples republic of Bangladesh, about 182, 000 tons of edible oil are necessary for every year while the indigenous production is only 54,990 tons (Rahman, 1982). The soybean seeds contain 20.9% carbohydrate and a good amount of other nutrients like calcium, phosphorus, iron, vitamins etc. Soybean contains 4.2% protein, 19.5% fat, 20.9% carbohydrate and a good amount of other nutrients like calcium, phosphorus, iron, vitamins etc. (Gopalan *et al*., 1971). Soybean belongs to the family leguminosae and subfamily papilionaceae. With well adapted cultivars, soybean can be cultivated throughout the year in Bangladesh (Haque, 1976; Kaleque and Siddique, 1982). The production of soybean in the country has been steadily decreased due to lack of native *rhizobia*, lack of suitable varieties, good management practices in addition to extraction of oils. To meet the situation, it is necessary to boost up the production through extraction, *rhizobial inoculum* and suitable varieties. As Bangladeshi farmers are not well literate, they do not able to produce soybean in scientific way. Therefore, it is necessary to increase farmers' knowledge for practicing modern technologies in soybean cultivation. From this point of view, researcher undertook the following objectives: i) to determine farmers' knowledge of improved practices in soybean cultivation, ii) to explore the relationship between the selected characteristics of farmers and their knowledge and iii) to identify the problems confrontation of improved practices in soybean cultivation.

Methodology

The study was conducted in ten villages under three Unions of Sadar Upazila of Noakhali district. All the soybean growers of the selected villages constituted the population of the study. A list of the growers of these villages was prepared with the help of local Sub-Assistant Agricultural Officer (SAAO) of the concerned area. The number of soybean growers in the specified villages was found 1100. Out of them 10% of the population were selected following random sampling method. Thus, 110 soybean growers were considered as the sample of the study.

In order to collect relevant information for the study, an interview schedule was prepared carefully keeping the objectives of the study in mind. Knowledge of a respondent was measured by asking 20 questions related to improved practices in soybean cultivation. It was measured in score. A score of 2 was assigned for each correct answer, 1 for partially correct answer and 0 (zero) for the wrong answer. However, for correct response to all the questions, a respondent can get a total score of 40, while for wrong response to all the questions he can get '0' (zero), '0' indicating no knowledge and 40 indicating high knowledge of improved practices in soybean cultivation.

Findings and Discussion

Farmers' knowledge of improved practices in soybean cultivation

Knowledge of a farmer is the foundation of his farming business. Farmers' knowledge of improved practices in soybean cultivation varied from 12 to 32 against a possible range of 0 to 40. The average knowledge score was found to be 20.39 and standard deviation was 3.61. Based on the observed overall knowledge score, the respondents were classified into three categories as shown in Table 1.

Table 1. Categorization of farmers according to knowledge of improved practice in soybean cultivation

Categories	Respondents		Mean	Standard deviation
	Frequency	Percentage		
Low (up to 18)	62	56.36		
Medium (19-25)	42	38.18	20.39	3.61
High (above 25)	6	5.46		

Data presented in Table 1 shows that the highest proportion (56.36%) of the growers had low knowledge compared to 38.18% had medium knowledge, 5.46% had high knowledge. Growers who receive high level of education but less involvement in farming might possess lower agricultural knowledge than the growers who are actively involved in farming for a long period of time.

Selected characteristics of the soybean growers

The selected characteristics included their age, education, family size, farm size, annual income, extension contact, cosmopoliteness and innovativeness. These characteristics of the growers have been presented in tabular form. Distribution of the growers according to their different selected characteristics has been shown in Table 2.

Relationship between dependent and independent variables

The purpose of this section is to explore the relationship of the selected characteristics of the growers with their knowledge of improved practices in soybean cultivation. Results of the test of correlation co-efficient between the selected characteristics and knowledge are shown in the Table 3. The Table 3 showed that farmers' level of education, family size, annual family income, and Cosmopoliteness had positive and significant relationship with their knowledge of improved practices in soybean cultivation. On the other hand, age, farm size, extension media contact, and innovativeness had no relationship with the same regard. Education and extension media contact both are key factors for influencing the farmers' knowledge of improved practices in soybean cultivation.

Table 2. Salient features of individual characteristics of soybean growers

Characteristics (Measuring units)	Range		Respondents			Mean	SD
	Possible	Observed	Categories	No.	%		
Age (year)	-	18-71	Young (≤35)	48	43.64	40.54	11.82
			Middle-aged (36-50)	38	34.54		
			Old (>50)	24	21.82		
Education (year of schooling)	-	0-12	Illiterate (0)	10	9.09	5.49	4.17
			Can sign only (0.5)	14	12.72		
			Primary (1-5)	42	38.19		
			Secondary (6-10)	27	24.55		
			Above secondary (>10)	17	15.45		
Family size (number)	-	3-12	Small (≤4)	7	6.36	7.35	1.96
			Medium (5-7)	54	49.09		
			Large (>7)	49	44.55		
Farm size (ha)	-	0.85-4.25	Small (≤0.21-1)	16	14.55	1.98	0.86
			Medium (1.01-3)	73	66.36		
			Large (>3)	21	19.09		
Annual income ('000' Tk.)	-	20-322	Low (≤70)	51	46.04	78.70	49.50
			Medium (71-120)	43	39.01		
			High (>120)	16	14.05		
Extension contact (score)	0-36	1-25	Low (≤7)	45	40.92	10.80	6.61
			Medium (8-14)	49	44.54		
			High (>14)	16	14.54		
Cosmopoliteness (score)	0-18	4-17	Low (≤10)	48	43.64	10.98	3.23
			Medium (11-15)	53	48.18		
			High (>15)	9	8.18		
Innovativeness (score)	0-32	8-19	Low (≤8)	5	4.55	14.00	3.07
			Medium (9-15)	68	61.81		
			High (>15)	37	33.64		

Table 3. Relationship between dependent and independent variables

Independent variables	'r' values
Age	-0.109
Education	0.418**
Family size	0.195*
Farm size	0.057
Annual income	0.245**
Extension contact	0.065
Cosmopoliteness	0.199*
Innovativeness	-0.042

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

Rank order of problem confrontation by the soybean growers

The soybean growers were asked to mention the specific problems concerned by them in soybean cultivation. The problems identified by the soybean growers are listed below according to their importance in the Table 4. Data presented in Table 4 indicates that the knowledge of improved practices was mostly hindered due to less irrigation facilities, high input cost (seed, fertilizer, pesticide), non availability of credit, less scope for consuming

as food, lack of technical information, non availability of land for soybean cultivation, less scope of marketing, less market price of soybean, threshing problem, non availability of hybrid seed, lack of training regarding control measures of pests and less damage caused by the man and animals etc. in soybean cultivation.

Table 4. Rank order of problem confrontation

Problems	Extent of hindrance				Computed score	Rank order
	Very much	Much	Little	Not at all		
Less irrigation facilities	85	15	10	0	295	1
High input cost	76	30	4	0	292	2
Non availability of credit	70	32	6	2	280	3
Less scope for consuming as food	65	31	14	0	271	4
Lack of technical information	64	32	10	4	266	5
Non availability of land for soybean cultivation	58	28	24	0	254	6
Less scope of marketing	55	34	17	4	246	7
Less market price of soybean	52	32	22	4	242	8
Threshing problem	42	30	28	10	214	9
Non availability of hybrid seed	32	40	32	6	208	10
Lack of training regarding control measures of pests	28	34	48	0	200	11
Less damage caused by the man and animals etc. in soybean	20	40	50	0	190	12

Conclusion

Knowledge in soybean cultivation of the growers was not satisfactory level. GOs and NGOs should take initiative for providing education, training, group discussion, motivational tour *etc.* Findings of the study revealed that level of education, family size, annual family income, and Cosmopoliteness had positive and significant relationship with their knowledge of improved practices in soybean cultivation. On the other hand, age, farm size, extension media contact, and innovativeness had no relationship with the same regard. Through agricultural knowledge, an individual grower becomes aware of the recent information on various aspects of improved practices in soybean cultivation. Consequently, they become motivated to adopt the improved practices in soybean cultivation. Unless arrangements are made for increasing the agricultural knowledge of the soybean growers, their adoption of improved practices in soybean cultivation would be hampered.

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