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## PROBLEMS FACED BY THE POTATO FARMERS OF BARISAL IRRIGATION PROJECT

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### ABSTRACT

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The purpose of the study was to determine the problems faced by the farmers in potato cultivation and also to explore the relationships between the selected characteristics of the farmers and their problems faced in potato cultivation. The study was conducted in Uzirpur Upazila under Barisal irrigation project. Data were collected from randomly selected 105 farmers from a total population of 421 farmers of Uzirpur Upazila under Barisal irrigation project. A structured interview schedule was used for data collection from November 1 to November 30, 2010. The findings revealed that the majority (70.47 percent) of the farmers faced medium level of problems while 16.2 percent of the farmers faced high level of problem and 13.33 percent of the farmers faced low problem in potato cultivation. By estimation of the Pearson's Product Moment Correlation coefficient it was found that experience in potato cultivation, training exposure, organizational participation, media exposure, cosmopolitanness, knowledge on potato cultivation and innovativeness of the farmers had negative significant relationships with their problem faced in potato cultivation. On the other hand age, education, family size, farm size, potato cultivation area and annual family income had no relationship with their problems faced in potato cultivation. A great majority (86.67%) of the farmers faced medium to high problem in potato cultivation. So, it may be concluded that in the study area, the farmer's problem in potato cultivation should be reduced.

**Key words:** *problem, potato, Barisal irrigation project*

### INTRODUCTION

The potato (*Solanum tuberosum*) is one of the valued members of the *Solanaceae* family of outstanding agricultural importance. In the 20th century potatoes are cultivated worldwide, except in the lowland tropics. Europe (including the Soviet Union) accounts for 90% of the world's potato production (FAO 2008). It is the most important 'vegetable' in the world today. Horticultural crops along a great portion with potato in Bangladesh cover an area of 873 thousand hectares with a total production of 110 lakh metric tons (BBS 2009). After cereals the tubers provide the main source of carbohydrate in the European diet. Secondary uses include the production of starch and dextrose, industrial alcohol by fermentation, and spirits. Potatoes yield 17-21% fresh weight of starch and 0.5-1.2% of pure protein (BBS 2010). However, the present consumption of fruits and vegetables including potato are 253 gram per day per capita, which indicates a poor dietary status in Bangladesh (HIES 2005). Potato is a year-round consumable vegetable of Bangladesh but grown in winter season. It is a very important crop for Bangladeshi farmers. But the farmers of Bangladesh face many kinds of problems in potato cultivation (Rahman 2006). But a very few research works tried out to find out the problems of potato farmers. To lift up the potato production in scientific way by reducing the problems faced by the concerned farmers is at utmost importance. This study was undertaken to assess the extent of problems faced by the potato farmers and describe some selected characteristics (i.e. age, education, family size, farm size, potato cultivation, experience in potato cultivation, training exposure, annual income, organizational participation, media exposure, cosmopolitanness, knowledge on potato cultivation, innovativeness) of the potato farmers and explore the relationship between the selected characteristics of the potato farmers and the problems they faced in potato cultivation.

### MATERIALS AND METHODS

The study was conducted in purposively selected six villages (Dhamura, West Dhamura, Karfa, Jalla, Otra and Mosang) under Uzirpur Upazila of Barisal Irrigation Project of Barisal district by taking randomly two villages from each of the selected three unions of Uzirpur Upazila namely Otra, Shelok and Jalla. From a population of 421 potato farmers of these six selected villages 105 farmers were selected as the sample by using proportionate random sampling technique. However, a reserve list of 25 farmers was also prepared who were supposed to be interviewed only when a respondent in the original sample list was unavailable during data collection. An interview schedule was prepared keeping in view the objectives and variables of the study. Then it was pretested among 10 farmers who were not included in the sample size. Data were collected through face-to-face interview with the farmers during the period from 1<sup>st</sup> November to 30<sup>th</sup> November, 2010. Problem faced by the farmers in potato cultivation was determined by computing a problem score based on selecting 12 problems regarding potato cultivation. The nature of responses of the respondents to each of the 12 problems were high problem, medium problem, low problem and problem not at all, and scores were assigned as 3, 2, 1 and 0 respectively. Finally, problem faced in potato cultivation score of a respondent was measured by adding up the scores of all the responses to all 12 problems. Thus, the possible score of the problem faced in potato cultivation of a

respondent could range from 0 to 36, while ‘0’ indicating no problem and ‘36’ indicating very high problem faced in Potato cultivation. Age of a respondent was measured by counting the years from his birth to the time of interview. Education of a respondent was measured in terms of classes passed by his/her formal education system. Family size was measured on the basis of number of individuals in respondent’s family including himself, his wife, children and other dependents on him. Farm size of the respondent was measured in terms of hectare as the size of his farm on which he continued his farm practices during the period of study using the

following formula:  $Farm\ size = A_1 + A_2 + \frac{1}{2}(A_3 + A_4) + A_5$ , where  $A_1$ = area under homestead,  $A_2$ = area

under own cultivation,  $A_3$ = area given to others on *borga*,  $A_4$ = area taken form others on *borga* and  $A_5$ = area taken form others on lease. Area under potato cultivation of a respondent was measured in terms of hectare which is used only for potato cultivation. Experience in potato cultivation was measured on the basis of years the respondent involved in potato cultivation. Training exposure was measured by the total number of days a respondent received training in his entire life under different agricultural training programs. Annual income was measured in thousand taka on the basis of total yearly earning from agricultural and non-agricultural sources by the respondents himself and other family members. Organizational participation of a respondent was measured by considering the nature and duration of participation in different organizations with the following score: 1 score for 1 year of participation as general member, but not more than 3; score 2 for 1 year of participation as executive member, but not more than 6; score 3 for 1 year of participation as executive officer, but not more than 9. Media exposure score was computed for each respondent on the basis of the extent of his contact with different extension teaching media. Each farmer was asked to mention the nature of contacts with 13 selected media with four alternative responses as regularly, occasionally, seldom, and not at all and scores were assigned to those alternative responses as 3, 2, 1 and 0, respectively. Cosmopolitaness score was computed for each respondent on the basis of logical frequency of visits outside of the represents social system. Each farmer was asked to mention the extents of visits of 6 categories of places with four alternative responses as frequently, occasionally, rarely, and not at all and scores were assigned to those alternative responses as 3, 2, 1 and 0, respectively. The knowledge on potato cultivation of the respondents was measured by computing knowledge scores on potato cultivation for each individual. A scale was used for measuring this knowledge consisting of 15 questions and each question having 2 points. Thus maximum score might be 30 with a minimum possible score of 0. Innovativeness of a respondent was measured by computing an innovativeness score on the basis of the adoption of 7 selected agricultural technologies by the respondents. Adoption rate was assigned by the questions “used within one year of hearing”, “used after one year and before two years of hearing”, “used after two year and before three years of hearing”, and “never used” with scores were assigned to those alternatives responses as 3, 2, 1 and 0, respectively.

**RESULTS AND DISCUSSION**

The score of problems faced by the potato farmers of Barisal irrigation project ranged from 7 to 32, with an average of 18.69 and standard deviation of 5.37, which has been presented in Table 1. Analyzing the problem faced score the respondents were categorized into low problem faced, medium problem faced and high problem faced. The findings indicated that majority of the farmers (70.47 percent) had medium problems on potato cultivation while 16.2 percent having high problems and 13.33 percent fell in the low problem faced category. It is found that about 86.67 percent of farmers faced medium to high problems.

Table 1. Distribution of the farmers according to problem faced in potato cultivation

Categories(scores)	Respondents		Mean	Standard deviation
	Number	Percent		
Low (up to 12)	14	13.33	18.69	5.37
Medium (13-24)	74	70.47		
High (above 24)	17	16.2		
Total	105	100		

**Salient features of the farmers selected characteristics**

The findings of this study showed that 12.38% respondents were young and 73.33% were middle aged (Table 2). In respect of education it was found that only 9.52% of the respondents had no education. The remaining 90.48% had education ranged from primary to above secondary level. The rate of literacy rate in the study area seems to be higher than national literacy rate which is 61.5% (BBS 2012). Highest proportion of respondent (70.47%) had small to medium family size, less cultivation area (84.78%), low to medium potato cultivation experience (77.15%), less training received (80.96%), low participation (86.67%), low media exposure (61.91%) and low to medium knowledge on potato cultivation (87.62%). Overwhelming majority (97.14%) of the respondents had low to medium farm size, low to medium annual family income (95.24%), low to medium cosmopolitaness (97.14%) and low to medium innovativeness (90.48%).

Table 2. Salient features of the selected characteristics of the potato farmers

Characteristics	Range		Categories	Farmers		Mean	SD( $\pm$ )
	Possible	Observed		No.	%		
Age (years)	-	24-51	Young (up to 30)	13	12.38	38.63	6.44
			Middle (31-45)	77	73.33		
			Old aged (>45)	15	14.29		
Education (schooling years)	-	0-14	Illiterate (0)	10	9.52	6.13	3.22
			Primary level (1-5)	38	36.19		
			Secondary (6-10)	49	46.67		
			Higher level (>10)	8	7.62		
Family size (score)	-	4-10	Small (up to 4)	20	19.04	5.88	1.37
			Medium (5-6)	54	51.43		
			Large (above 6)	31	29.53		
Farm size (hectare)	-	0.198-3.6	Small (up to 0.99)	74	70.47	0.98	0.67
			Medium (1-3)	28	26.67		
			Large (above 3)	3	2.86		
Potato cultivation area (hectare)	-	0.12-2.43	Small (up to 0.34)	34	32.39	0.60	0.47
			Medium (0.34-0.9)	55	52.39		
			Large (above 0.9)	16	15.22		
Experience in potato cultivation (years)	-	4-11	Low (up to 5)	15	14.29	7.34	1.68
			Medium (6-8)	66	62.86		
			Large (above 8)	24	22.85		
Training exposure (no. of days)	-	0-21	No training	71	67.63	3.21	5.58
			Low (2-7)	14	13.33		
			Medium (above 7)	20	19.04		
Annual income ('000' taka)	-	45-700	Low (up to 100)	32	30.48	148.59	89.29
			Medium (101-300)	68	64.76		
			High (above 300)	5	4.76		
Organizational participation (score)	0-27	0-14	No participation (0)	5	4.76	4.75	3.48
			Low (1-9)	86	81.91		
			Medium (above 9)	14	13.33		
Media exposure (score)	0-39	2-19	Low (up to 13)	65	61.91	11.08	4.56
			Medium (above 13)	40	38.09		
Cosmopolitaness (score)	0-18	3-14	Low (up to 6)	23	21.91	7.93	2.03
			Medium (7-12)	79	75.23		
			High (above 12)	3	2.86		
Knowledge on potato cultivation (score)	0-30	10-27	Low (up to 18)	8	7.62	21.38	3.41
			Medium (18.1-25)	84	80		
			High (above 25)	13	12.38		
Innovativeness (score)	0-21	12-18	Low (up to 18)	18	17.15	21.01	3.4
			Medium (18.1-25)	77	73.33		
			High (above 25)	10	9.52		

$\pm$ SD= Standard Deviation

Source: Author's estimation

### Relationship between selected characteristics of the farmers and problem faced in potato cultivation

An attempt was made to find out the relationship between the selected characteristics of the farmers and their problems faced in potato cultivation. Co-efficient of correlation results revealed that out of 13 selected characteristics of the respondents, 7 variables (i.e., experience in potato cultivation, training exposure, organizational participation, media exposure, cosmopolitaness, knowledge and innovativeness) had significant negative relationship with their problems faced in potato cultivation. Possible reason might be higher training received, knowledge on potato cultivation, more experience on potato cultivation facilitate individuals to receive more information related to potato cultivation which helps to reduce their problems in potato cultivation. Age, education, family size, farm size, potato cultivation area and annual family income had no significant relationship with their problems faced in potato cultivation.

Table 3. Co-efficient of correlation showing the relationship between selected characteristics and the problems faced by the farmers in potato cultivation

Dependent variable	Independent variable	Computer value "r"	Tabulated value of "r"	
			at 0.05% level	at 0.01% level
Problem faced in potato cultivation	Age	-0.030 <sup>NS</sup>		
	Education	0.044 <sup>NS</sup>		
	Family size	-0.086 <sup>NS</sup>		
	Farm size	-0.043 <sup>NS</sup>		
	Potato cultivation area	-0.068 <sup>NS</sup>		
	Experience in potato cultivation	-0.374 <sup>**</sup>		
	Training exposure	-0.325 <sup>**</sup>	0.192	0.251
	Annual family income	-0.090 <sup>NS</sup>		
	Organizational participation	-0.233 <sup>*</sup>		
	Media exposure	-0.583 <sup>**</sup>		
	Cosmopoliteness	-0.209 <sup>*</sup>		
	Knowledge on potato cultivation	-0.308 <sup>**</sup>		
	Innovativeness	-0.251 <sup>**</sup>		

NS= non-significant

\*correlation is significant at the 0.05 level of probability

\*\*correlation is significant at the 0.01 level of probability

## CONCLUSION

Potato growers experience manifold problems of which major twelve problems are identified for this study. Individual having more experience in potato cultivation, training exposure, organizational participation, media exposure, cosmopoliteness and more knowledge on potato cultivation faced lower problem in potato cultivation. Problems in potato cultivation are interrelated. Attempts should be taken to provide technical support (irrigation, seed, fertilizer etc.) to the potato growers to minimize their problems in cultivation, harvesting and marketing.

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