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FACTORS AFFECTING PROBLEMS FACED BY THE FARMERS IN SUGARCANE CULTIVATION

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ABSTRACT

Karim SMR, Pal SK, Haque ME, Rahman MH, Kamruzzaman M (2016) Factors affecting problems faced by the farmers in sugarcane cultivation. *J. Innov. Dev. Strategy*. 10(1), 1-5.

This study aimed at analyzing the factors affecting the problems in sugarcane cultivation by the farmers in Joypurhat Sugar Mills area. The socio-economic characteristics of the farmers were also identified and relationship between the selected characteristics of the farmers and their problems in cultivating sugarcane were determined. Data for this study were collected by a pre-structured and pre-tested questionnaire during the period of February to June 2013. The findings have shown that majority (57%) of the farmers were middle aged (31 to 50 years) and about (61%) had secondary level of education (class 6 to 10). Sixty two percent of the sugarcane farmers had medium sugarcane cultivating area (2.1 to 7.0 acres), with (72%) respondent's moderate income (41,000 to 120,000 Tk) from sugarcane. Majority (63%) of the farmers had faced moderate problems, while (11%) faced low and (26%) faced serious problems in sugarcane cultivation. Correlation analysis indicates that among 15 selected characteristics of the sugarcane farmers, education level, farming experience, credit and input availability, extension media contract, training exposure and sugarcane cultivation knowledge had significant negative relationship with their problems faced in sugarcane cultivation. Thus, it can be concluded that the farmers had above mentioned attributes faced fewer problems in cultivation of sugarcane. Age, farm and family size, sugarcane cultivation area, income from sugarcane, organizational participation and innovativeness had no significant relationship.

Key words: socio-economic, characteristics, sugarcane, problems

INTRODUCTION

Sugarcane, one of the major cash crops of Bangladesh is cultivated in the tropical and subtropical regions of the world. It is not only the major cash crop but also an important food and industrial crop. Although it is grown throughout Bangladesh, its commercial cultivation for industrial supply is mostly concentrated in the northern west districts. Sugarcane covers over 2 percent of the total cultivable land. More than 0.6 million farm families are dependent on sugarcane cultivation for their subsistence. Currently on average sugarcane is grown on 0.16 million hectare of land of which almost one half of area is located in the sugar mills zone (Rahman *et al.* 2013). Most of the Sugar Mills of Bangladesh are located in the North-Western zones of the country where concentration of sugarcane cultivation is higher. Joypurhat Sugar Mills was established in 1963 and it has the largest daily production capacity. The crushing capacity of Joypurhat Sugar Mills is 2000 ton/day (BBS 2012). This is the highest crushing capacity among the other 14 Sugar Mills of the country. But it has not enough raw materials for crushing a medium length of period. This is only for the low production of cane in that area. So, it is the first priority to identify the factors associated with the low production and constrains in cane cultivation of this area. The socio-economic characteristics of the respondents are important factors in cultivation of sugarcane in an area. The socio-economic attributes may explain why farmers are not obtained actual yield and what problems they face in cane cultivation. The socio-economic characteristics are farmer's age, level of education, farm and family size, sugarcane cultivation area, annual income, income from sugarcane, farming experience, credit and input availability, organizational participation, innovativeness, extension media contract, training exposure and sugarcane cultivation knowledge. These factors influence farmers in cultivation of sugarcane and problem faced in production. Considering the above facts, the researchers undertook this research and formulated the following objectives: (i) to describe the selected characteristics of the sugarcane cultivating farmers; (ii) to explore the relationship between the selected characteristics of the farmers and their problem faced in sugarcane cultivation.

MATERIALS AND METHODS

Ten sugarcane farmers were selected from each sub zone (10 subzones in Joypurhat Sugar Mills) following proportionately random sampling techniques representing small, medium and large farmers. Problem faced by the farmers in sugarcane cultivation was the focus variables of the study. Researcher used a 4-point rating scale for measuring problem faced score. The farmers were asked to give their responses against sixteen selected problematic items which they faced for cultivating sugarcane. The weights assigned for each response were: 3 for face serious problem, 2 for face moderate problem, 1 for face low problem and 0 for face no problem.

Coefficient of correlation was computed in order to explore the relationship between the selected characteristics of the farmers and their problem faced in sugarcane cultivation. The selected characteristics constituted the independent variables and problem faced in sugarcane cultivation by the farmers constituted the dependent variable. In order to determine the relationship between fifteen selected characteristics (independent variables) of the farmers *viz.* age, education, family size, farm size, sugarcane cultivation area, annual family income, income from sugarcane, farming experience, credit availability, input availability, organizational participation,

extension media contact, innovativeness, training exposure, sugarcane cultivation knowledge and the dependent variable i.e., problem faced by the farmers in sugarcane cultivation. Pearson's product moment co-efficient of correlation (r) was used to ascertain the relationships between the selected characteristics of the sugarcane cultivating farmers and their problem faced in cultivation of sugarcane. Five percent level of significance was used as the basis for rejection of any null hypothesis. The collected data were compiled, tabulated and analyzed in accordance with the objectives of the study. The SPSS computer program (Statistical Package for Social Sciences) was used to perform data analysis. Descriptive statistical measures such as range, mean, number and percentage distribution, standard deviation were used to describe and interpret the data.

RESULTS AND DISCUSSION

Characteristics of the sugarcane farmers

The fifteen selected characteristics of the sugarcane farmers related to socio-economic background of the study were considered. Descriptive statistics of the individual characteristics of the respondent are presented in Table 1. Major proportion (57%) of the farmers fell in middle aged category compared to young (12%) and (31%) old aged categories. About (61%) of the farmers fell under the category of secondary education compared to (8%) with no education, about (17%) having primary education and (14%) with above secondary education. About half (48%) of the respondents' families were found to be medium sized where (29%) and (23%) were small and large sized respectively. More than fifty percent (57%) respondents had medium farm size while (19%) small and (24%) had large farm size. In sugarcane cultivation area about (62%) farmers cultivate medium area (2.1 to 7.0) acres of land. About (56%) of the respondents had medium annual family income while (12%) low and (32%) having high annual family income. Near about half (49%) of the respondents had medium farming experience while (28%) low and (23%) having high sugarcane farming experience.

About (41%) of the farmers fell under the category of high credit availability compared to (12%) with no credit, about (20%) less and (27%) with medium credit availability. More than three-fourth (76%) of the farmers having medium input availability compared to (17%) having high and (7%) low input availability. About (15%) of the farmers had no organizational participation compared to (45%) little, (26%) medium and (14%) high participation. More than three-fourth (77%) of the respondent had low to medium extension contact. Four fifth (80%) of the respondents had medium to high innovativeness. About (47%) of the respondent had no training experience compared to (35%) low, medium (17%) and (1%) having high training experience. The findings again revealed that an overwhelming majority (82%) of the farmers had no to low training experience. So, there is enough scope to work in this characteristic to increase training program to minimize problem in cultivation of sugarcane that are statistically significant. About three fourth (74%) of the respondents had medium level of knowledge about cultivation of sugarcane.

Table 1. Salient features of the selected characteristics of the sugarcane farmers

SL No.	Characteristics	Ranges Observed	Categories	Respondents		Mean	SD
				No.	%		
1	Age (years)	24 to 67	Young aged (up to 30)	12	12	42.15	10.74
			Middle aged (31-50)	57	57		
			Old aged (> 50)	31	31		
2	Level of education (year of schooling)	0 to 16	No education (0 or 0.5)	08	08	9.54	4.96
			Primary education (1-5)	17	17		
			Secondary education (6-10)	61	61		
			Above secondary (>10)	14	14		
3	Family size (number)	3 to 12	Small family (up to 4)	29	29	5.66	2.35
			Medium family (5 -8)	48	48		
			Large family (>8)	23	23		
4	Farm size (hectare)	0.3 to 7.4	Small farm (0.21 -1.0)	19	19	1.50	0.89
			Medium farm (1.01-3.0)	57	57		
			Large farm (>3.0)	24	24		
5	Sugarcane cultivation area (acres)	2 to 24	Small area (up to 2.0)	20	20	5.36	0.81
			Medium area (2.1 -7.0)	62	62		
			Large area (> 7.0)	18	18		
6	Annual family income ('000' Taka)	42 to 1183	Low income (up to 50)	12	12	193.72	85.36
			Medium income (50.1-200)	56	56		
			Large income (>200)	32	32		

Contd.							
7	Income from sugarcane ('000' Taka)	30 to 625	Minimum income (up to 40)	09	09	100.57	81.54
			Moderate income (41-120)	72	72		
			Maximum income (>120)	21	21		
8	Farming Experience (years)	2 to 50	Less experience (up to 10)	28	28	27.32	0.96
			Medium experience (11-30)	49	49		
			High experience (>30)	23	23		
9	Credit availability (%)	0 to 100	No credit (0)	12	12	65.46	39.65
			Less credit (up to 33)	20	20		
			Medium credit (34-66)	27	27		
			High credit (>66)	41	41		
10	Input availability (scores)	4 to 13	Low availability (up to 5)	07	07	8.66	1.72
			Medium availability (6-10)	76	76		
			High availability (>10)	17	17		
11	Organizational participation (scores)	0 to 27	No participation (0)	15	15	10.37	4.68
			Little participation (1-10)	45	45		
			Medium participation(11-20)	26	26		
			High participation (>20)	14	16		
12	Extension media contact (scores)	9 to 32	Low contact (up to 15)	32	32	18.90	6.32
			Medium contact (16-25)	45	45		
			High contact (>25)	23	23		
13	Innovativeness (scores)	7 to 35	Low (up to 15)	20	20	22.74	5.29
			Medium (16-30)	63	63		
			High (>30)	17	17		
14	Training exposure (days)	0 to 100	No training (0)	47	47	9.52	11.43
			Low training (1-25)	35	35		
			Medium training (26-50)	17	17		
			High training (>50)	01	01		
15	Sugarcane cultivation knowledge (scores)	15 to 46	Less knowledge (up to 20)	10	10	35.85	4.90
			Medium knowledge (21-40)	74	74		
			High knowledge (>40)	16	16		

Data presented in figure 1 indicated that all the respondents of the study area faced little to serious problem in sugarcane cultivation. The majority (63%) of the farmers faced moderate problem while 26 percent of the farmers faced serious problem. Comparatively few farmers (11%) faced little problem in sugarcane cultivation. The findings again revealed that an overwhelming majority (89%) of the farmers faced moderate to serious problem.

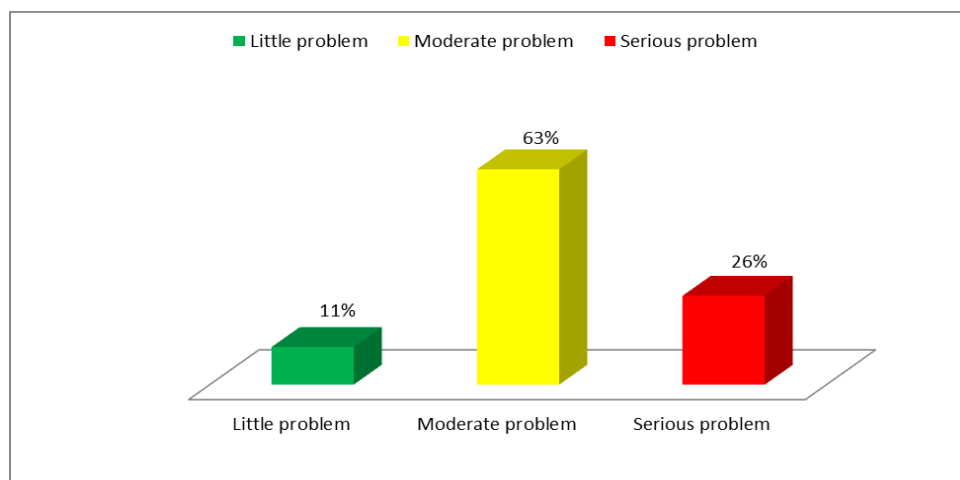


Fig. 1. Categories of the respondent according to their problem faced in sugarcane cultivation

Relationship between the selected socio-economic characteristics of the farmers and their problem faced in sugarcane cultivation

The summary of the results of the Co-efficient of Correlation indicating the relationship between the selected characteristics of the farmers and their problem faced in sugarcane cultivation are shown in Table 2.

From the table we may conclude that farmers' education, farming experience, credit and input availability, extension media contract, training exposure and sugarcane cultivation knowledge had significant negative relationship with their problem faced in sugarcane cultivation. Thus, it can be concluded that the farmers had the higher extent of the above mentioned attributes, faced fewer problems in cultivation of sugarcane. Age, farm and family size, sugarcane cultivation area, income from sugarcane, organizational participation and innovativeness had no significant relationship with their problem faced in sugarcane cultivation.

Table 2. Results of co-efficient of correlation showing relationship between the selected characteristics of the farmers and their problem faced in sugarcane cultivation

Dependent variable	Independent variables	Observed co-relation co-efficient(r) value with 98 d.f	Table value	
			at 0.05 level	at 0.01 level
Problem faced by the farmers in sugarcane cultivation	Age	0.034 ^{NS}	0.196	0.256
	Education	-0.298**		
	Family size	0.045 ^{NS}		
	Farm size	0.067 ^{NS}		
	Sugarcane cultivation area	0.156 ^{NS}		
	Annual family income	0.226**		
	Income from sugarcane	0.173 ^{NS}		
	Farming experience	-0.142*		
	Credit availability	-0.169*		
	Input availability	-0.287**		
	Organizational participation	-0.190 ^{NS}		
	Extension media contact	-0.226*		
	Innovativeness	0.008 ^{NS}		
	Training exposure	-0.265*		
Sugarcane cultivation knowledge	-0.243**			

NS = Not significant

* = Significant at 0.05 level of probability

** = Significant at 0.01 level of probability

Education of the respondents enhances outlook to gain knowledge on different aspects of cultivation of sugarcane as well as it increases the capability of farmers to observe and understand a critical situation. So, the findings indicate that education level of the farmers had significant negative relation with their problem faced in sugarcane cultivation, i.e. the farmers with higher level of education faced lower problems. Rahman (2011), Hossain and Miah (2011) and Karim (2009) found similar relationship between the concerned variables. Experience enables the farmers to understand the farming situations and different farm related problems and the findings may be due to that the farmers having more experience in farming could be more aware about different aspects of sugarcane cultivation. Islam *et al.* (2013) found similar result in their study. Inputs availability is an important factor to cultivate of a crop. In sugarcane cultivation it is also a major problem. In this study input availability had significant negative relationship with problems in sugarcane cultivation. Rahman *et al.* (2011) found similar result in their study. Extension media contact had significant negative relationship with their problem faced. The findings may be due to that the farmers who communicate regularly with information sources got more information about their sugarcane cultivation related problems. Islam *et al.* (2013), Rahman (2011), Hossain and Miah (2011) and Karim (2009) also reported similarity in the findings. Training exposure enables farmers to critically manage their farming activities and thus the findings indicate significant negative relationship between training exposure and problems in sugarcane cultivation. Islam *et al.* (2013), Rahman (2011) and Nahid (2005) found similar findings in their respective studies. The findings also indicate that the farmers having higher knowledge on sugarcane cultivation indicated low problem associated with cultivation. Islam *et al.* (2013), Rahman (2011), Hossain and Miah (2011) and Karim (2009) found the similar relationship in their respective researches.

CONCLUSION

In Bangladesh sugarcane is the important food-cum-cash-cum industrial crop. The socio-economic characteristics of the farmers are important factors in cultivation and production of sugarcane. It is found that majority of the farmers (89%) faced moderate to serious problems in cultivating of sugarcane in Joypurhat sugar mills area. The findings lead to conclusion that it would have negative impact on the farmers in their sugarcane farming. The findings also indicate that level of education, farming experience, credit and input availability, extension media contract, training exposure and sugarcane cultivation knowledge are significantly and negatively correlated with problem faced in sugarcane farming. So, it can be concluded that the farmers of the study area face significant problem in cultivation of sugarcane. Therefore, it may be concluded that necessary

steps should be taken by the researchers and mills authority to minimize the problems of sugarcane cultivation for better production which will ultimately uplifting their situation.

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