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The Attitude of Farmers Towards Modern Jute Cultivation Technologies: The Case of Rajshahi, Bangladesh

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Abstract

The research aimed to identify farmers' attitudes about contemporary jute farming technology and investigate the connections between a few key jute grower traits and those attitudes. The research was conducted in randomly selected five unions of Paba Upazila (sub-district of Rajshahi district), Bangladesh . Personal information was gathered via face-to-face structurally scheduled interviews between 10 January to March 12, 2021. According to the data, most farmers (40.04 %) had a very favourable attitude, while 42.82% and 17.14% had a favourable and less favourable attitude, respectively. Furthermore, the Pearson correlation coefficient analysis results revealed education, training, innovativeness and extension media contact are positively significant to their attitude towards modern technology. Therefore, a higher level of education, training, knowledge and innovativeness increase the attitude toward modern technology use. On the other hand, there was no correlation between the attitude toward modern jute cultivation technology of the jute producers and their age, farm size, annual family income, and agricultural knowledge.

Keywords: Agricultural Extension, Attitude, Bangladesh and Socio-economic Development.

Introduction

Bangladesh is the second-largest jute producer in the world, producing an estimated 1.6 million tons of jute annually (FAO, 2019.). Currently, Bangladesh has between 220 and 245 private jute mills in operation. Twenty-five public jute mills are now being leased to the private sector out of this group. In addition, around 700 diverse jute manufacturers in the nation employ 50,000–100,000 people (BIDA, 2022).
1.16 million tons of raw jute are typically domestically used yearly (BJSA). With an average annual export of over USD 1 billion, Bangladesh is also the world's largest exporter of jute and items made from it. The second-largest jute-producing nation in the world in Bangladesh. Jute is still regarded as a cash crop in Bangladesh, even though its proportion of global output has decreased (Islam & Ali, 2017), as is the case in other nations such as India, China, Nepal, Thailand, Pakistan, Mexico, and others (IJO, 2007).
Jute is now up against the competition on both the internal and external fronts. Within Australia, jute's primary rival is paddy. On the other hand, its principal external rival is merchandise and fibres made of synthetic materials. As a result, the amount of jute commerce has already decreased due to the demand for it on the global market. Jute alone accounted for the most considerable portion of all export revenue before independence; as a result, the average area was 900 thousand hectares or around 10% of all arable land.
The crop is gaining prominence and relevance due to increased awareness of environmental degradation worldwide. Jute is a plant

species used for the same purpose and is an annually renewable natural energy source that is both expensive and environmentally favourable, notably in the textile and paper sectors (Crini,et al. 2020). People are increasingly worried about environmental degradation and choose to use natural items over synthetic, non-biodegradable, manufactured alternatives—consequently, diversity of different jute species.

Compared to other sectors of the Bangladeshi industry, jute continues to be mostly ignored. Since its output depends on its national and worldwide marketing strategy, this neglect is terrible. As a result, the amount of land used to grow jute and the demand for raw jute fibre have significantly decreased. Agriculture specialists attest that the extension service must begin a nationwide campaign at a cheap cost per hectare to boost quality and productivity. Perhaps widespread acceptance of more advanced technology is the only way to make this happen. Improved seed, line sowing, ribbon retting, suitable soil preparation, and effective weeding technologies are all mentioned. This research was carried out to examine the link between certain chosen features of the farmers and their attitude towards current technologies, as well as to define the degree of the attitude of jute growers towards the employment of new jute farming methods.

Methodology
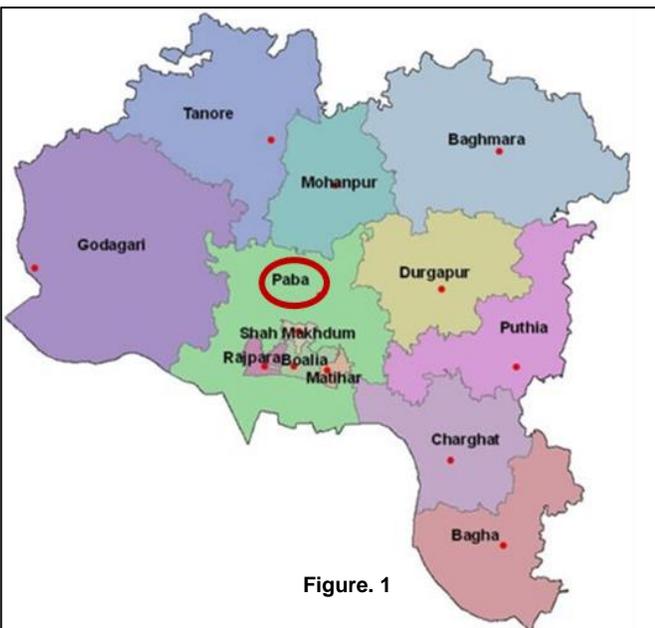
Figure. 1
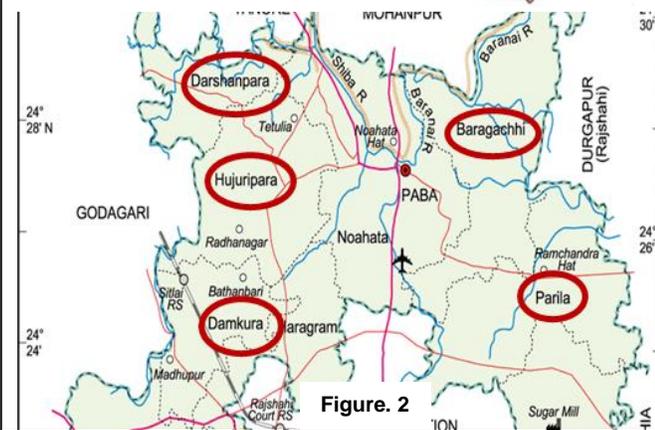
Figure. 2

Figure 1 & Figure 2. The red circles show the study areas.

The study's location, randomly selected five unions of Paba *Upazila* (sub-district), Rajshahi district, Bangladesh, was purposefully chosen. Five unions were randomly selected from purposely selected Paba Upazila of Rajshahi district.

The study's participants were all of the jute producers in the chosen communities. A list of 700 jute producers was created, and from that list, 70 were chosen at random at a 10% rate to form the sample size. Additionally, a reserve list of 7 farmers was created, one by one.

The jute producers were contacted directly to gather information between 10 January to March 12, 2021. The Likert (1932) type scale was used to examine attitudes regarding modern jute farming technology, with the allotted scores being slightly adjusted. The responders were given twelve statements on different current technology topics. The number of positive and negative remarks was five, with five being both. Then, according to a scale of 0-4 for the positive items and vice versa for the negative items, the respondents were asked to indicate whether they strongly agreed, agreed, were undecided, disagreed, or strongly disagreed with each of the statements. Thus, the respondents' ratings might vary from 0 to 48, with 0 indicating a less favourable attitude toward current technology and 48 denoting the opposite.

Table 1. Categories of the extent of the attitude of the farmers towards modern jute cultivation technologies

Categories	Jute growers		Mean	SD (±)
	Number	Per cent	33.02	5.36
Less favourable (0-25)	12	17.14		
Favourable (26-30)	30	42.82		
Highly favourable (Above 31)	28	40.04		
Total	**70**	**100**		

A respondent's age was calculated by adding the years since birth and the interview date. A respondent's education was evaluated based on the courses they completed in their formal education system. The respondent's farm size, or the area he conducted his farming operations during the research period, was quantified in terms of hectares. The amount of short-term agricultural training a respondent has gotten up to the day of the interview was counted as training. The respondents' level of cultivation knowledge was assessed by calculating knowledge scores on jute cultivation for each respondent. A scale wall that is used to assess this knowledge and consists of 10 questions with a 4-point score might have a maximum score of 40 and a minimum score of 0. By calculating an innovativeness score based on the respondents' adoption of six chosen agricultural technology, the innovativeness of each respondent was determined. In order to determine the adoption rate, the following questions were used: "Used within one year of hearing," "Used after one year and before two years of hearing," "Used after two years and before three years of hearing," "Used after three years and before four years of hearing," and "Never used." These questions received scores of 4, 3, 2, 1 and 0 for their respective alternatives. A respondent's total yearly earnings from both agricultural and non-agricultural sources were used to calculate their family's annual income in taka. Each respondent's extension media contact score was calculated based on how often he interacted with various extension teaching media. Each jute farmer was asked to describe the kind of connections they had with sixteen different media outlets. There were five possible answers: "often," "frequently," "sometimes," "rarely," and

Table 2. Salient features of the farmers selected characteristics

Characteristics	Range		Categories	Farmers		Mean	SD
	Possible	Observed		No.	%		(±)
Age (in years)	-	24-75	Young (up to 36)	35	50.00	36.11	5.25
			Middle (37-55)	25	35.71		
			Old (above 55)	10	14.29		
Education (year of schooling year)	-	0-14	No education (0)	15	21.43	5.66	2.12
			Primary (1-5)	25	35.71		
			Secondary (6-10)	18	25.71		
			Above secondary (>10)	12	17.14		
Farm Size in Hectare	-	0.2-2.5	Landless (up to 0.002)	0	0.00	0.51	0.36
			Marginal (0.02-0.2)	4	5.71		
			Small (between 0.2-1.0)	26	37.14		
			Medium (1.01-3.0)	34	48.57		
			Large (above 3.0)	6	8.57		
Annual Family income (in thousand tk.)	-	120-345	Low income (up to 54)	11	15.71	68.47	14.01
			Medium income (55-82)	53	75.71		
			High income(>83)	6	8.57		
Training Received (in das) (in no. of days)	-	0-28	Less training (0-3)	45	64.29	1.88	0.563
			Medium Training (4-12)	15	21.43		
			High training (>12)	8	11.43		
Knowledge on cultivation	0-40	12-40	Low knowledge	10	14.29	25.66	8.10
			Medium knowledge	18	25.71		
			High knowledge	42	60.00		
Innovativeness Scale sore	0-40	12-35	Low (0-10)	15	21.43	20.6	8.65
			Medium (11-25)	25	35.71		
			High (>25)	30	42.86		
Extension media contact (Scale score)	0-48	15-42	Low (0-15)	12	17.14	32.25	14.5

"not at all." These alternate answers received scores of 4, 3, 2, 1 and 0, respectively.

Result and Discussion

Table 1 reflects the attitude of the farmers in modern jute cultivation; from the findings, most of the farmers show a positive attitude towards modern technology use in jute cultivation.

Table 3. Co-efficient of correlation between selected characteristics of the jute growers and their attitude toward modern jute cultivation technologies

Dependent Variable	Independent variables	Value of correlation co-efficient (r)	Tabulated "r" values with 68 df (N-2)	
			0.05 level	0.01 level
Farmers' attitude toward modern jute cultivation technology	Age	0.041[NS]	0.2356	0.3074
	Education	0.240*		
	Farm Size	-0.80[NS]		
	Annual Family Income	0.144[NS]		
	Total Crop Production	0.170[NS]		
	Training	0.656**		
	Knowledge on agriculture	-0.114[NS]		
	Innovativeness	0.021*		
	Extension media contact	0.826**		

** Correlation is significant at 1% level of probability, * Correlation is significant at 5% level of probability, NS= Non significant, DF= Degree of freedom

Table 2 reflects that most of the farmers are a young age. The majority of the farmers obtained primary-level education. The farm size of the farmers was a mostly small category.

Annual family income is primarily medium. The majority of the farmers did not receive any training. Knowledge is high mainly, innovativeness and extension media contact were mostly medium Table 3 represents the relation between the respondents' socio-demographic characteristics and their attitude towards modern jute cultivation technologies. From our findings, education, training, innovativeness and extension media contact are positively significant to their attitude towards modern technology. Therefore, a higher level of education, training, knowledge and innovativeness increase the attitude towards modern technology use.

Conclusion

The survey found that more than 80% of the jute producers had a favourable to very favourable attitude toward modern technology based on data analysis and logical interpretation. Based on our findings, education, training, innovativeness and extension media contact are positively significant to their attitude towards modern technology, which means a higher level of education, training, extension media contact and innovativeness increase the attitude towards modern technology use. Therefore, the government should take the necessary step to enhance farmers' education, training, innovativeness and extension media contact.

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