FARMERS' ATTITUDE TOWARDS JUTE CULTIVATION

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CERTIFICATE

This is to certify that the thesis entitled **"Farmers' Attitude towards Jute Cultivation"** submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree of **Master of Science in Agricultural Extension,** embodies the result of a piece of *bona fide* research work carried out by **Md. Tawhidur Rahman Rabby**, Registration No. **08-02940** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information, received during the course of this investigation has been duly acknowledged.

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MY

BELOVED PARENTS

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ABBREVIATIONS AND ACRONYMS

Ag. Ext. Ed.	=	Agricultural Extension Education
BRAC	=	Bangladesh Rural Advancement Committee
GO	=	Government Organization
NGO	=	Non-Government Organization
DAE	=	Department of Agricultural Extension
HYV	=	High Yielding Variety
BBS	=	Bangladesh Bureau of Statistics
EPB	=	Export Promotion Bureau
BJRI	=	Bangladesh Jute Research Institute
IJSG	=	International Jute Study Group
FY	=	Fiscal year
CV	=	Coefficient of Variation
df	=	Degrees of Freedom
etc.	=	Etcetera
i.e.	=	That is
e.g.	=	Example
et al.	=	And others (at elli)
ha	=	Hectare
MT	=	Metric tons
cm	=	Centimeter
%	=	Percent
r	=	Pearson's Product Moment Correlation Co-efficient
Fig.	=	Figure
AEIS	=	Agricultural Extension and Information System

ABSTRACT

The main objective of this study was to assess the extent of attitude of the farmers towards jute cultivation and to explore the relationship between the selected characteristics of the farmers and their attitude towards jute cultivation. Babuganj upazila under Barisal district was purposively selected for the study. Among six union of the babuganj upazila, Rahamotpur union was selected randomly for this study. There were fifteen village in the union from which five villages were randomly selected for the study. From 1104 farmers of these five selected villages 110 farmers were selected as the sample by using proportionate random sampling method. Data were collected personally through interview schedule during 15th November to 15th December 2013. Attitude of the farmers were determined by using a five point Likert type scale. Pearson's product moment coefficient of correlation (r) was computed to explore the relationships between the selected characteristics of the farmers and their attitude towards jute cultivation. The study revealed that half (50%) of the respondents had favorable attitude towards jute cultivation compared to 48.2% respondents had negative attitude while only 1.8% had neutral attitude towards jute cultivation. Findings revealed that among twelve characteristics age, farm size, jute cultivation area, training received, jute cultivation experience, use of jute cultivation technique, jute cultivation knowledge, annual family income and extension media contact had positive significant relationship with attitude towards jute cultivation while problem faced in jute cultivation had negative significant relationship with attitude towards jute cultivation. Education and credit received had no significant relationship with attitude towards jute cultivation.

CHAPTER 1
INTRODUCTION

1.1General Background

Jute (*Corchorus spp.*) is a natural fiber crop. It places second in the world after cotton in terms of global production, consumption and availability. It is completely biodegradable, recyclable and eco-friendly lingo-cellulose fiber (Kundu, 1951; Mir *et al*., 2008). The fibers of jute are off-white, brown or golden in color and approximately 1 to 4 meter long. The fibers extracted from the stems of jute plant (Rowell and Stout, 2007) which originated in primary and secondary phloem of the stem (Maiti, 1997) and termed as bast fibers (Summerscales *et al*., 2010)

Jute is under the genus of *Corchorus* (family Malvaceae), which is composed of approximately 100 species (Saunders, 2001). Of these, two species (*Corchorus capsularis L.* and *Corchoru olitorius L.)* are widely and commercially cultivated for natural fiber in areas distributed throughout the tropical and sub-tropical regions of the world, particularly in Asia, Africa and Latin America (Kundu, 1951; Edmonds, 1996; Hossain *et al*. 2002).

Jute is a rain-fed crop with little need for fertilizer or pesticides. The production is concentrated in Bangladesh and some parts in India, mainly Bengal. In Bangladesh jute mainly grows in greater Mymensingh and Faridpur, Dhaka, Comilla, Rangpur and jessore. Besides Bangladesh and India, other jute growing countries are China, Nepal, Thailand, Pakistan, Mexico etc.

The jute fiber comes from the stem and ribbon (outer skin) of the jute plant. The fibers are first extracted by retting. The retting process consists of bundling jute stems together and immersing them in low, running water. There are two types of retting: stem and ribbon. After the retting process, stripping begins. Women and children usually do this

job. In the stripping process, non-fibrous matter is scraped off, then the workers dig in and grab the fibers from within the jute stem. India, Pakistan, China are the large buyers of local jute while Britain, Spain, Ivory Coast, Germany and Brazil also import raw jute from Bangladesh.

Jute needs a plain alluvial soil and standing water. The suitable climate for growing jute (warm and wet climate) is offered by the monsoon climate during the monsoon season. Temperatures ranging 20˚ C to 40˚ C and relative humidity of 70%–80% are favorable for successful cultivation. Jute requires 5–8 cm of rainfall weekly with extra needed during the sowing period. Sandy loam or loam soil which can absorb rain water and simultaneously retain moisture is needed to jute growth.

The most common item manufactured from jute fiber is the gunny-bag which is used as packaging materials for keeping and transporting staples such as rice, wheat, pulse, maize, sugar etc. A variety of products such as hessian, rope, floor, coverings, home textiles, agro-textiles, blankets, handicrafts and fashion accessories are also made from jute. Jute stick, a by-product of jute, is generally used as fire wood and it is also being used to make particle board, hard board and duplex-board. In recent years jute has been used for making papers in the paper industry (Mohiuddin *et al*., 2005).

Bangladesh is the second largest jute producer in the world and produces about 42% of the total annual world jute in 2009-2010 (FAO, 2011). Jute is the major cash crop in Bangladesh and earned a significant proportion of foreign exchange every year by exporting raw jute and jute product. In addition, jute has special significance in Bangladesh due to the dependence of the livelihood of millions of small and marginal farming families on its production and marketing (IJSG, 2011). Jute plant helps to maintain and improving soil fertility by adding jute leaves in soil during its growing period. It also decreases weeds and plant diseases in a crop rotation (Kundu, 1951).

The increase and decrease of jute cultivation area is related to relative price of jute and food crops, the prices of raw jute in the previous crop year apart from climatic aberrations in the largely rain-fed areas under cultivation for these crops. Jute in Bangladesh

competes for land with food crops such as paddy and India and also other producing countries because of increasing demand for food grains with increase of population and increasing consumption levels. The cultivable land is diminishing in Bangladesh because of housing and infrastructure projects. Pressure on cultivable land from food crops is going to be one of the biggest limiting factors for future expansion of jute, kenaf and allied fibres.

The statistics of world production of Jute, Kenaf and Allied fibres for the last 10 years shows that it tends to be around 3 million MT a year with the lowest of 2405.95 thousand MT in 2004-05 and highest 3144.91 thousand MT in 2001-02 (FAO, 2011).

Jute in Bangladesh has to face competition with Aus rice as well as synthetic products used in world market as an alternative of jute. Apart from climatic and market factors, non-availability of quality seed at the right time also has adverse effect on fibre production. However, since 2009 the market price of raw jute in the previous season is playing key role in jute production. Production in Bangladesh has gone up to 1080 thousand MT in 2009-10, the highest in the last decade and an increase of 16% from the previous year. World production has also increased in 2009-10 by about 12% from the previous year (2008-09). (Source: Export Promotion Bureau (EPB) Year Book, various years). The increased production is the outcome of higher price of jute in the last two seasons compared to that of rice. Recently synthetic goods are prohibited in some European countries. This has generated quite a deal of enthusiasm among the farmers to grow jute. In the context of the current situation it can be assumed that in view of the previous price trends, farmers in Bangladesh would prefer jute cultivation and as a result jute cultivation area and jute production is likely to increase significantly during the next crop.

Based on the above consideration, the researcher felt necessity to conduct the research on **“Farmers’ Attitude towards Jute Cultivation.”**

1.2 Statement of the problem

Once, Jute was the golden fiber of Bangladesh. It was not only for the rich golden color but also, metaphorically, for jute's valuable contribution to the country's economy. Up to mid-twentieth century, about 80 percent of the world's jute was produced in Bangladesh and it was the country's highest foreign currency earner till early 80s. But, the emergence of petroleum-based synthetic substitutes, which were many times cheaper and convenient to use, quickly took over the market of jute. In 1980-81, jute and jute products jointly earned 68 percent of the country's total foreign exchange; the share came down to 4.5 percent in 2009-2010. (Source: Export Promotion Bureau (EPB) Year Book, various years).

It has now faced severe competition from India due to negligence of our governments to revive the jute production, industrialization and businesses. Jute was cultivated at thousands of acres of land across the country which now fallen significantly due to the price fall of the crop compared to the production cost and closure of the manufacturing units. Experts said Bangladesh has lost its glorious days to India. When the jute industries at the neighboring country are going up Bangladesh's industry is nose diving. Its export market has been shrunk. Now-a-days the farmers do not get adequate price of the jute. On this view and preceding discussions, the researcher undertook the study entitled "Farmers' attitude towards jute cultivation". The purpose of the study was to have an understanding of the attitude of farmers towards jute cultivation. Moreover various characteristics of the farmers are likely to have an influence on the formation and development of their attitude towards jute cultivation, there was a need for ascertaining the relationships of such farmers with their attitude component. Thus, the study aims to find out the answers to the following research questions:

1. To what extent farmers' have attitude toward jute cultivation?
2. What are the characteristics of the farmers?
3. To what extent relationship exist between the selected characteristics of the farmers and their attitude?

1.3. Objectives the Research Work

In order to find proper direction of the present study, following specific objectives were formulated:

1. To determine the attitude of jute growers towards jute cultivation

2. To describe and determine following selected characteristics of the farmers, such as:

   a) Age
   b) Education
   c) Farm size
   d) Jute cultivation area
   e) Training received
   f) Jute cultivation experience
   g) Use of jute cultivation technique
   h) Credit received
   i) Jute cultivation knowledge
   j) Annual family income
   k) Extension media contact
   l) Problem faced by the farmers in jute cultivation

3. To explore the relationship of selected characteristics of the farmers with their attitude towards jute cultivation

1.4 Justification of the study

Bangladesh once enjoyed the monopoly in production and marketing of jute and jute goods in the world market. At present Bangladesh is the second largest producer of jute, India being the largest one. But Bangladesh produces the finest quality of jute due to favorable climate and soil condition. Being a cash crop, jute contributed a significant portion in earning foreign currency. In FY (Fiscal year) 1972-73, jute alone contributed about 90 percent of the total export from Bangladesh at that time which reduced to only 4.5 percent in FY (Fiscal year) 2009-10 (Source: Export Promotion Bureau (EPB) Year

Book, various years). This reduction in export is due to the decrease in jute production. The production of jute has been reduced due to reduction of cultivation area. Most of the cultivation area has been captured by Aus rice due to meet the demand of food for the ever increasing people. Synthetic goods are one of the competitors of jute product due to its cheap price and availability. Moreover farmers are deprived of prices of jute product in local market. For that reason, they lose interest in jute cultivation which is really alarming. In order to save the jute cultivation, Government should take important steps through DAE. Extension services are very much helpful to motivate the farmer to change their attitude towards jute cultivation.

On the basis of the findings of the present study specific recommendation will be made for realistic policy formulation which will help the farmers to change their attitude towards jute cultivation.

1.5 Scope of the study

The findings of the study will particularly, help the researcher to determine the attitude of the farmers' towards jute cultivation. The relationship between the selected characteristics of the farmers and their attitude will also be learned. The findings of the study will be applicable to the study area as well as the other area of the country. Thus, the findings of the study are expected to be useful for the jute growers of the study area as well as the country. The findings will also be helpful to the extension workers in formulating different strategies as suited to different clientele. It is felt that, these findings of the study will be helpful for policy makers and administrators of the country to formulate an appropriate extension approach in this regard. This would also enable to identify the selected factors of the farmers' those affect their attitude towards jute cultivation. The problems facing by the farmers could be minimized after the findings reveal which will help the farmers to change the attitude positively towards jute cultivation.

1.6 Assumptions of the study

An assumption is the supposition that an apparent fact or principle is true in the light of the available evidence (Goode and Hatt, 1952). The researcher had the following assumptions in mind while undertaking this study:

1. The respondents included in the sample were capable of furnishing proper responses to the questions set up in the interview schedule.
2. Views and opinions furnished by the respondents included in the sample were the representative views and opinions of the whole population of the study area.
3. The responses furnished by the respondents were reliable. They expressed the truth about their convictions and awareness.
4. The researcher acted as interviewer was very well adjusted to the social and cultural environment of the study area. Hence, the respondents furnished their correct opinions without any kind of hesitation.
5. The data collected by the researcher were free from bias and they were normally and independently distributed.
6. The items included in the interview schedule for attitude measurement were adequate to reflect the attitude of the farmers towards jute cultivation.

1.7 Limitations of the Study

In order to conduct the research in a meaningful and manageable way, it became necessary to impose some limitations in certain aspects of the study. Considering the time, money, labor and other necessary resources available to the researcher, the following limitations have been observed throughout the study:

1. The study was confined to five villages namely Khanpura, khudrakathi, Lohalia, East rahamatpur and Manikkathi of Rahamatpur union of Babuganj upazila under Barisal district.
2. Characteristics of the farmers were many and varied but only twelve characteristics were selected for investigation in this study.

3. The attitudes of farmers were measured on the basis of their response to the selected statements.
4. The findings could be applicable for the study area and similar situations in physical, socio-economic cultural and geographic conditions only.
5. Finally, for collection of information, the researcher had to depend on the data furnished by the respondents during their interview with him. As none of the farmers kept records of their farming activities, they furnished information to the different questions by recall.

In some cases, the researcher faced unexpected interference from the over interested side talkers while collecting data from target respondents. However, the researcher tried to overcome the problems as Far as possible with sufficient tact and skill.

1.8 Definition of Terms

A concept is an abstract of observed thing; events or phenomenon or in other words, it is a short hand representation of variety of facts (Wilkinson and Bhandarkar, 1977). A researcher needs to know the meaning and contents of every term that he uses. It should clarify the issue as well as explain the fact to the investigator and readers. However, for clarity of understanding, a number of key concepts/terms frequently used throughout the study defined are interpreted as follows:

Age

Age of a respondent defined as the span of his/her life and is operationally measured by the number of years from his/her birth to the time of interviewing.

Education

Education referred to the development of desirable knowledge, skill, attitudes, etc. of an individual through the experiences of reading, writing, observation and related matters

Farm size

Farm size referred to the total area on which a farmer's family carries on farming operations, the area being estimated in terms of full benefit to the farmer's family.

Jute cultivation area

This term referred to the area of the cultivated land either owned by a farmer or cultivated on borga, lease or other means, the jute cultivation area being estimated in terms hectare

Training received

It referred to the total number of days that a respondent had received training from BJRI, NGOs or other organizations under different training programme.

Annual family income

Annual income referred to the total annual earnings of all the family members of a respondent from agriculture, livestock and fisheries and other accessible sources (business, service, daily working etc.).

Knowledge on jute cultivation

Literally knowledge means knowing or what one knows about a subject, fact, person etc. Knowledge on jute cultivation referred to farmers' understanding of the facts, phenomena and methods in different aspects of jute cultivation.

Credit received

Credit received of beneficiaries refers to the degree to which his credit requirement was fulfilled by the amount of credit actually received (whether it was received from institutional or non-institutional sources).

Extension media contact

This term referred to an individual's access to or contact with the different extension media.

Problem

Problem referred to different difficulties faced by the farmers in conducting various farming enterprises

Farmer

The rural man who generally operated different farming enterprises like crops, livestock, fisheries, fruits etc. are referred as farmers in this study.

Farming

Farming may be defined as an activity carried out by household or holding that represent managerial units organized for the economic production of crops, livestock and fishes.

Respondents

People who have answered questions by an interviewer for a social survey. They are the people from whom a social research worker usually gets most data required for his research.

Variable

A general indication in statistical research of characteristic that occurs in a number of individuals, objects, groups etc. and that can take on various values, for example the age of an individual.

Attitude towards jute cultivation

The term attitude towards jute cultivation of an individual was used to refer to his feelings, belief and action tendencies towards the various aspects of jute cultivation i.e. Knowledge + beliefs + action = attitude

CHAPTER 2
REVIEW OF LITERATURE

To carry out the research program review of literature gives the clear and concise direction to the researcher. In this purpose, review of literature relevant to the objectives of this study and also relevant to the farmers' attitude regarding different innovation is discussed. This was mainly concerned with farmers' attitude towards jute cultivation. There was serious dearth of literature with respect to research studies on this aspect. So, the directly related literatures were not readily available for this study. Some researchers addressed various aspects of farmers' role, their opinion and attitude on different innovation regarding extension program and its effect on client group and suggesting strategies for their emancipation from socio-economic deprivation. In this chapter the first section is concerned with concept, competent, formation and measurement of attitude. The second contains the review of previous research findings related to attitude, third section provide the review of the past studies in concerning the relationship between dependent and independent variables. Conceptual framework of the study is cited in the fifth section.

2.1 Review of literature related to concept, components and formation of attitude

2.1.1 Concept of Attitude

Attitude, in social psychology, is a predisposition to classify objects and vents and to react them with some degree of evaluative consistency while attitude logically is a hypothetical constructs (i.e., they are inferred but not objectively observable), they are manifested in conscious experience, verbal reports, gross behavior and physiological symptoms.

The concept of attitude arises from attempt to account for observed regularities in the behavior of individual persons. The quality of one's attitude is judged from the observable, evaluative responses he tends to make (Encyclopedia Britannica, 1960).

Different persons have defined attitude in different ways. Some of these are mentioned below:

Thurstone (1928) defined attitude as the effect for or against a psychological object.

Warren (1934) referred to attitude as a specific mental disposition towards an incoming or arising experience, whereby that experience is modified, or in other words, it is a condition of readiness for a certain type of activity.

Goode (1945) in his Dictionary of Education defined the term attitude as a state of mental and emotional readiness to react to situations, person or things, in harmony with a habitual pattern of response previously conditioned to or associated with these stimuli. Attitude is the by-product of an individual's experience and has their bases in inner urges, acquired habits and environmental influences by which he is surrounded.

Green (1954) distinguished three kinds of attitude universe to represent three different classes of individual responses to sets of social objects. These are : i) verbal attitudes, given in response to question, ii) spontaneous verbal attitude, usually expressed in normal conversation and iii) action attitudes which include both verbal and non-verbal behavior directed towards an object in the referent class.

McGrath (1966) referred to attitude as the learned orientations towards objects, or predisposition to behave in certain ways towards a given objects or a class of objects. An attitude has always in object, person, thing or concept and in may be general or specific.

Doob (1948) stated that attitude affects behavior since an implicit, drive producing response considered socially significant in the individual society. If this definition is broken down typographically into phases and clauses, an attitude implies the following:

1. It is an implicit response
2. It is both (a) anticipatory and (b) mediating reference to patterns of covert responses.
3. It is evoked by (a) a variety of stimulus patterns (b) as a result of previous learning, or of gradients of generalization and discrimination.

4. It is itself a cue and drive producing.
5. It is considered socially significant in the individual's society

According to Alport (1935), an attitude is that disposition to act which is built up by the integration of numerous specific responses of similar type, but which exists as a general neutral set when activated by a specific stimulus; it results in behavior that is more obviously a function of the disposition than of the stimulus. According to him, the chief weakness of the most of the definition lies in their failure to distinguish between attitudes, which are often very general, and habits, which are limited in their scope. However, it is justified to admit that, in spite of existence of disagreements among psychologists, they contributed towards securing greater agreement in future.

2.1.2 Components of attitude

Krech *et al.* (1962) explains attitude as a system of three interrelated components and the authors express as:

"In defining attitude as systems, we are emphasizing the interrelatedness of the three attitude components. When incorporated in a system, these components become mutually interdependent about an object are influenced by his feelings and action tendencies toward that object. And a change in his cognition about the objects will tend to produce changes in his feelings and action tendencies toward it".

According to Triandis (1971), "an attitude is an idea changed with emotion which predisposes a class or actions to a particular class or social situation". This definition suggests that attitude has three components. These components are cognition, affective and behavioral.

a) The cognitive component of attitude consists of the belief of the individual about the objects. This may also be said as understanding, knowledge and conception.
b) The feeling or affective component of an attitude refers to the emotions connected with the object. The object is felt to be pleasing or displeasing; it is liked or it is disliked.

c) The action or behavioral component of an attitude includes all the behavioral readiness associated with the attitude.

The study of Rosenburg and Hovland (1960) in Yale University on communication and attitude represents attitude in the following model:

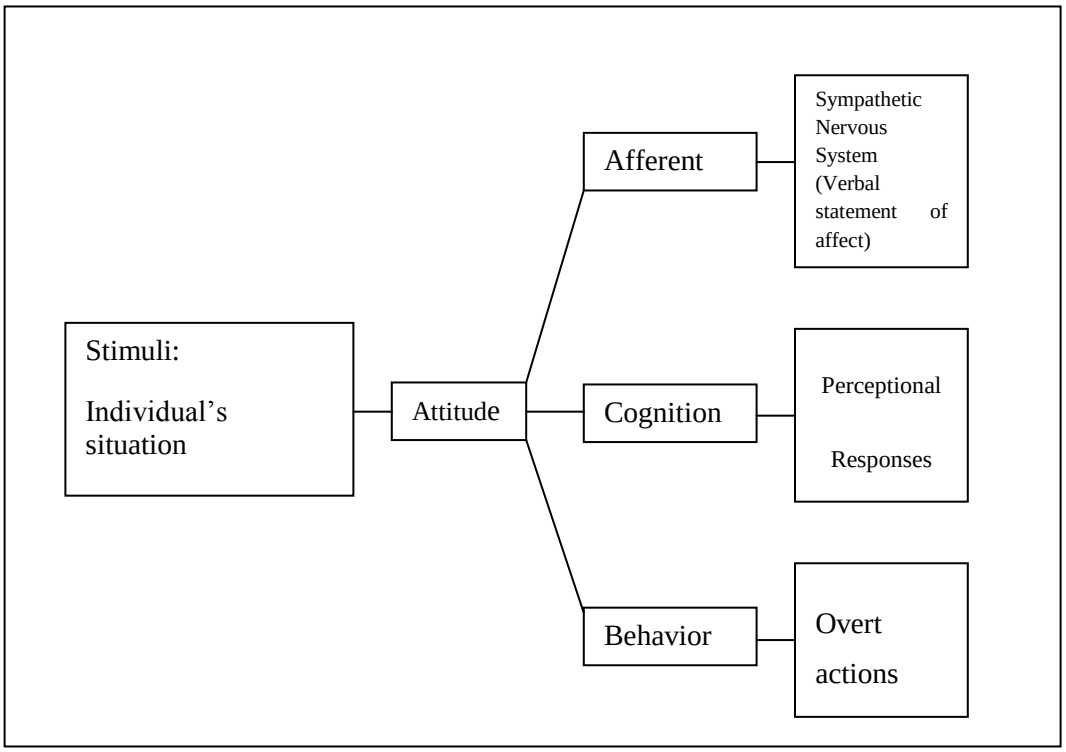

Fig. 2.1 A schematic conception of attitudes

In the Fig. 2.1, the stimuli are grouped in a category that represents the attitude object. The attitude has three aspects and each aspect is measured by a variety of subject responses.

2.1.3 Formation of attitude

In order to predict the behavior of an individual and to have control over his action one should know the process of attitude formation.

The study of Hovland *et al*. (1953) on communication process has included a number of factors that take active part in the development of attitude such as the trustworthiness

sources or communication persuasiveness, whether communication is one sided or mutual etc.

Analysis of attitude formation of Doob (1948) takes into account the following factors:

1. Goal response- the response pattern or patterns which are anticipated.
2. Perception- the drive orienting the individual to play attention to the stimulus pattern evoking the attitude.
3. Afferent- habit strength of the bond between the existing attitudes and the evoking stimulus patterns, including the gradients of generalization discrimination.
4. Efferent- habit strength – the strength of the bond between the existing attitudes and evoked responses including over time.
5. Drive strength of the stimuli.
6. Interaction- the strength of the other attitudes.
7. Social significance- the evaluation in the society of the attitude along with its direction (e.g. positive, negative, neutral etc.)

Rosenburg and Hovland (1960) studied on goals and attitude and found that the individuals in coping with various problems and in trying to satisfy his wants, develops attitudes. He develops favorable attitude toward object that satisfy his wants, final goal object will be favorably evaluated and develops unfavorable attitude towards objects that block the achievement of his final goal.

Individual's physical condition, heredity, environment, knowledge, habits, religious beliefs and psychological motives have also been incorporated as the factors for the creation and development of attitudes (Canfield, 1960). By including these factors actually many of the personality traits were made responsible for attitude construct. From this view point attitude formation and personality development does not differ much. This view was also supported by the study of Smith *et al.* (1956).

2.2 Review of Literature on Attitude towards Different Activities, Objects, Programmes etc.

Tarannum (2013) conducted a study on farmers' attitude towards improved agricultural implements in Jamalpur district. She revealed that (50.08%) respondents had favorable attitude while 41.7% had neutral attitude and only 7.5% had unfavorable attitude. Noor-E-Alam (2010) revealed that almost half (48.57%) of the respondents had moderately favorable attitude while 43.81% had hightly favorable attitude and only 7.62% had low favorable attitude towards 'one house bone farm' program.

Zahan (2008) revealed that 38.1% of thewomen had more positive attitude while 36.2% hadmost positive attitude and 25.7% hadpositive attitude towards livestock rearing.

Bhuiyan (2008) revealed that above half (64%) of the respondents had moderate level attitude while 20% had lowestlevel attitude and 16% had highestlevel attitude towards farmers' information need assessment.

Bhuiyan (2008) revealed that above half (62%) of the respondents had slightly favorable attitude while 23% had slightly unfavorableattitude and only15% had moderately favorable attitude towards organic cultivation of rice.

Islam (2007) revealed that 39% of therespondents had hightly favorable attitude while 37% had favorable attitude and 24% had less favorable attitude towards modern jute cultivation.

Ahaduzzaman (2003) conducted a study in Rangpur district to ascertain the attitude of farmers'towards T. Aman technologies . The study revealed that about three-fifth (59.09%)of the respondents had favorable attitude while 14.55% had slightly favorable attitude and 26.36% had high favorable attitude.

Shehrawat (2002) conducted a study in Haryana state (India) to ascertain the attitude of farmers for diversification in farming system. The study revealed that the cropping pattern was cereal based dominated by rice and wheat crops and less than half of the farmers had favorable attitude towards diversification in farming system. Further

diversification activities were for vegetables (55.00%), dairy (54.65%), flowers (36.78%) and sugarcane (26.07%).

Hursti *et al*. (2002) conducted a study on Swedish Consumers' opinion about gene technology. Out of 316 consumers (participated in an interview study on their opinions on genetic modification) most participants were negative to use of GM in general. About 20 percent of the respondents were willing to accept GM foods for marketing in Sweden and were also willing to buy such products. Almost all respondents state that GM products should be labeled. The respondents were most positive to applications "GM of bacteria for medical purposes (e.g. insulin producing bacteria)" and "Genetic approaches to fighting hereditary diseases".

Sadat (2002) in a study revealed that majority (72%) of the Proshika beneficiaries' possessed highly favorable attitude towards Proshika while 20 percent possessed moderately favorable attitude and only a few possessed unfavorable attitude towards Proshika. For non-beneficiaries, majority of the respondents (32 percent) possessed a moderately favorable attitude while 21.33 percent highly favorable, 6.67 percent possessed neutral, 26.67 percent possessed moderately favorable and 13.33 percent were found having extremely unfavorable attitude towards Proshika.

Haque (2002) revealed that the highest percentage of the rural women had moderate favorable attitude in each of the five selected activities. These were 85 percent in poultry rising, 83 percent in goat rearing, 78 percent in fish cultivation, 72 percent in tree plantation and 70 percent in vegetable cultivation.

Sarker (2002) found that greater majority (62 percent) of the rice growers had moderately unfavorable attitude and 27 percent had favorable attitude toward the use of DAP in rice field. Only 11 percent of them possessed highly favorable attitude towards the use of DAP in rice field.

Ahmed (2002) revealed that majority (74 percent) of the farmers had slightly favorable attitude towards BRRI dhan 29 variety of rice while only 10 percent of the respondents had favorable and 16 percent had highly favorable attitude towards the variety.

Mannan (2001) conducted a study on attitude of Proshika farmers towards the ecological agricultural programme (EAP) and found that majority of the Proshika farmers (57.3 percent) had moderately favorable attitude towards the EAP while 12.7 percent and 30 percent had slightly and highly favorable attitude towards EAP respectively.

Sarker (2001) in his study found that 64 percent farmers showed moderately favorable attitude towards Organic Homestead Gardening Programme (OHGP) of World Vision. Further 20 percent and 16 percent held slightly and highly favorable attitude towards OHGP respectively.

Hussain (2001) conducted a research on farmers' attitude towards jute cultivation technologies. He found that majority (57 percent) of farmers had favorable, 27 percent had highly favorable while only 16 percent had unfavorable attitude towards jute cultivation.

Akanda (2001) found in his study that 66 percent and 22 percent of farmer had moderate and slightly favorable attitude towards Rice-Fish Program of CARE. On the other hand, only 12 percent farmers had highly favorable attitude towards rice-fish program.

Rahman (2001) reported in his study that the highest proportion (49 percent) of Binadhan-6 growers had unfavorable, 25 percent had highly favorable, and 26 percent had favorable attitude towards the cultivation of Binadhan-6.

Suzuki (2000) found that the majority of small holder farmers had positive attitude towards Village Extension Office (VEOs). The factors responsible for small holder farmers' positive attitude towards VEOs were the socio-economic characteristics of the small holder farmers and the kind of relationship that existed between the small holder farmers and the VEOs.

Habib (2000) found that 14 percent and 43 percent of the respondent had favorable and slightly favorable attitude towards the use of agro-chemicals.

Bari (2000) observed that highest proportion (45 percent) of rice growers held moderately unfavorable, 27 percent unfavorable and 28 percent had favorable attitude towards hybrid rice ALOK 6201.

Islam *et al***.** (1998) revealed that 35 percent farmers had medium attitude and the rest 65 percent held high level of attitude towards Binashail. There was none to hold low attitude.

2.3 Review of Past Studies Relating to the Selected Characteristics of Individuals with Their Attitude

Twelve characteristics of the farmers under farmers' attitude towards jute cultivation were selected as independent variables of the study. The researcher made utmost effort to search out studies dealing the relationship of the selected characteristics of the farmers with the attitude towards jute cultivation and found that there was no research work related to farmers' attitude towards jute cultivation only, but a few such relevant works on attitude were done in home and abroad. So, directly no study concerning attitude towards jute cultivation was available. However, some studies showing relationships of the selected characteristics of the farmers and their attitude towards jute cultivation are cited below.

2.3.1 Age and attitude

Tarannum (2013) found that age of the farmers' had positive significant relationship with their attitude towards Improved agricultural implements.

Bhuiyan (2008) found that age of the farmers' had negative significant relationship with their attitude towards organic cultivation of HYV of rice . Ali (2002) found similar result in his study.

Noor-E-Alam (2010) found in his study on farmers attitude towards modern jute cultivation that age had no relationship with attitude. Bhuiyan (2008), Zahan (2008), Islam (2007) and Chowdhury (2003) found similar result in their study.

Sarker (2002) found that age of the World Vision farmers had no significant relationship with their attitude towards organic homestead gardening practices.

Mannan (2001) found that age of the Proshika beneficiaries had positive relationship with their attitude towards ecological agriculture. Singh (1982) obtained similar type of findings in his study.

Hamid (1995) reported that age of the farmers had significantly negative relationship with the awareness on environmental pollution. Similar findings were obtained by Khan (1993), Gogoi and Gogoi (1989) in their respective study.

Kashem (1987) in his study found that there was no relationship between the age and attitude towards community of the farmers.

Wahhab (1975) found significant and negative relationship between age and attitude of the farmers towards use of urea. He also found negative but insignificant relationship between age and attitude towards use of phosphate and potash.

Iqbal (1963) studied farmer's attitudes towards adoption of modern agricultural practices. He reported that elderly farmers had more favorable attitude towards improved and modern agricultural practices as compared to young age groups.

Rogers and Leuthold (1962) found that farmer of younger age had more favorable attitude towards fertilizer practice than the elderly farmers, but these differences was not statistically significant.

Lionberger (1955) reported that elderly farmers seemed to be somewhat less inclined to adopt new farm practices than younger ones. Some studies showed highest adoption at middle age. Young farmers who might desire to make changes in farming were not always in a position to do so because of capital restrictions or because of final decision might rest with the persons who owned the farm.

2.3.2 Education and attitude

Bhuiyan (2008) and Zahan (2008) found a positive significant relationship between education and attitude. Chowdhury (2003)revealed similar result intheir study.

Islam (2007), Noor-E-Alam (2010) and Tarannum (2013) revealed that education of farmers' had no significant relationship with their attitude.

Ali (2002) found that educational qualification of Block supervisors had negative relationship with their attitude towards activities of NGO.

Khan (2002) in a study revealed that education of PROSHIKA beneficiaries hold positive significant relationship with their attitude towards in Social Forestry Programmes.

Shehrawat (2002) reported in his article a significant and positive relationship between education and attitude of farmers towards diversification of farming.

Kashem (1987) found that attitude towards community of the small farmers had significant positive correlation with their education level.

Wahhab (1975) in his study observed that there was positive relationship between education and attitude towards the use of phosphorus and potash fertilizers while the relationship was not significant in case of use of urea fertilizers and their education.

Rogers and Havens (1960) conducted a comparative study of changes in farmers' attitudes towards fertilizers in two counties of Ohio and Miami. The study in both counties indicated that education was a necessary precondition for forming positive attitudes and farmers having higher education tended to adopt farm innovations earlier.

2.3.3 Farm Size and attitude

Tarannum (2013) revealed in his study that farm size of the farmers had no relationship with their attitude towards improved agricultural implements. Hussain (2001), Islam (2007), Zahan (2008), Bhuiyan (2008) and Noor-E-Alam (2010) also found similar result in their study.

Bhuiyan (2008) revealed in his study that farm size of the farmers hadnegative significant relationship with their attitude towards farmers information need assessment.

Chowdhury (2003) found that there was a positive and significant relationship between farm size and attitude of farmers towards crop diversification.

Sadat (2002) found in his study that farm size had positive significant relationship with attitude of both PROSHIKA beneficiaries and non-beneficiaries towards PROSHIKA.

Ali (2002) revealed in his study that farm size had no significant relationship with the attitude of BS towards the activities of NGO. The study of Khan (2002) and Sarker (2002) also revealed similar kind of relationship in their respective studies.

Afrad (2002) also found similar kind of result in their respective studies. Paul (2000), Mannan (2001) and Karim *et al.* (1987) obtained similar findings in their respective studies.

Shehrawat (2002) reported in his article a significant and positive relationship between land holding and attitude of farmers towards diversification of farming.

Rahman (2001) found in his study that farm size of the farmers had no significant relationship with their attitude towards the cultivation of Binadhan-6. Similar findings were obtained Noor (1995), Habib (2000), Nuruzzaman (2001) and Sarker (2001) in their respective studies.

2.3.4 Jute cultivation area and attitude

No literature was found on the relationship between Jute Cultivation Area and attitude towards Jute Cultivation.

2.3.5 Training received and attitude

Bhuiyan (2008) found in his study that farmers' training experience had positive significant relationship with their attitude towards farmers' information need assessment.

Islam (2007) found a significant positive relationship between training received by the farmers' and their attitude towards modern jute cultivation.

Chowdhury (2003) revealed in his study that training exposure had no relationship with attitude towards crop diversification.

Sadat (2002) revealed in his study that training exposure had no relationship with the attitude of both PROSHIKA beneficiaries and non-beneficiaries towards PROSHIKA.

Sarker (2002) reported that training experience of farmers had a positive significant relationship with their attitude towards the activities of BAUEC.

Habib (2000) also revealed in his study that training experience of the BSs had a positive significant relationship with their attitude towards agro-chemicals.

Venugopal (1977) found that there was a significant association between the overall knowledge of Agricultural Extension Officers in respect of rice cultivation and type of training received by them.

Setty (1973) revealed that there was no association between overall knowledge of Gramsebaks about extension program planning and their frequency of in-service training. Similar was the case with their specific knowledge of various aspects of extension program planning.

2.3.6 Jute cultivation experience and attitude

No direct study was found about the relationship between jute cultivation experience and attitude. But another study was found relevant with the above mentioned one showing the relationship between farming experience and attitude are cited below:

Paul (2000) found in his study that there was significant and positive relationship between farming experience and attitude of the farmers towards the use of Urea Super Granule (USG).

Majydyan (1969) found the relationship between farming experience was only related negatively to their perception on effectiveness of the media on message understanding. The relationship between farming experience and perception on effectiveness of the media on message adequateness, applicability and persuasiveness and comprehensive perception on effectiveness of the media in all four message traits were insignificant, but with a negative trend. The significant negative relationship indicates that farmers with relatively longer farming experience had the message of the media as non-understandable.

2.3.7 Use of Jute Cultivation Technique and attitude

No literature was found on the relationship between use of jute cultivation technique and attitude towards jute cultivation.

2.3.8 Credit received and attitude

No study was found related with credit received and attitude. But some other literatures showing the relationship between credit availability and attitude that are more likely credit received and attitude are cited below:

Islam (2007) found in the study of attitude of farmers towards modern jute cultivation that there was positivesignificant relationship between credit availability and attitude.

Bari (2000) found in the study of attitude of farmers towards Hybrid Rice Alok 6201 that there was positive significant relationship between credit received and attitude.

Karim *et al.* (1987) indicated that commercialization, income and credit availability of the farmers had significant and positive relationship with their attitude towards the use of urea.

Haque (1984) conducted a study on the adoption of improved practices in sugarcane in some selected areas of Jessore district and found a significant positive relationship between credit availability and adoption of improved cane cultivation technologies.

Hossain (1981) conducted a study to determine the relationship of selected characteristics of jute farmers with their adoption of improved practices of jute cultivation in suti union of tangail district. He found a significant relationship between credit availability and adoption of improved farm practices.

Rahman (1975) in a study revealed that there exist a substantial positive relationship between the credit availability and adoption of IR-20 by the farmers.

Reddy and Kilvin (1968) from a study concluded that credit availability was not significantly related to adoption of HYV.

Beal and sibley (1967) in their combined study opined that there was a positive correlation between the credit availability and adoption of agricultural technology.

2.3.9 Jute cultivation knowledge and attitude

No literature was found on the relationship between jute cultivation knowledge and attitude towards jute cultivation. But some other literatures showing the relationship between knowledge and attitude that are cited below:

Tarannum (2013) found a positive significant relationship between knowledge and attitude in her study.

Bhuiyan (2008) and Zahan (2008) found a positive significant relationship between knowledge and attitude in their study. Similar kind of result was obtained by Afrad (2002), Siddique (2002), Haque (2002), Sarker (2002), Mannan (2001), Paul (2000), Nuruzzaman (2001) and Ali (1995) in their respective studies.

Sadat (2002) study revealed that agricultural knowledge was positively associate with the attitude of non-beneficiaries towards PROSHIKA but no relationship was found between these two variables in case of PROSHIKA beneficiaries.

Bari (2000) concluded that agricultural knowledge of rice growers had no significant relationship with their attitude towards hybrid rice AALOK 6204.

Sarker (2001) found that the knowledge of the world vision farmers had a significant positive relationship with their attitude towards organic homestead gardening practices. Similar findings were obtained by Ali (1995), Nuruzzaman (2001), Bari (2000), Paul (2000) and Rahman (2001) in their respective studies.

2.3.10 Annual family income and attitude

Tarannum (2013) reported that annual income had no significant relationship with the attitude of farmers towards improved agricultural implements. Bhuiyan (2008) and Siddique (2002) also found similar result in their study.

Noor-E-Alam (2010) found that family income of farmers had positive significant relationship with their attitude towards modern jute cultivation. Chowdhury (2003) and Zahan (2008) also found similar result in their study.

Shehrawat (2002) reported a significant and positive relationship between income of family and attitude of farmers towards diversification of farming.

Habib (2000) observed in his study that income of the BSs has significant negative relationship with their attitude towards agro-chemicals.

Nuruzzaman (2001) observed in his study that there was no significant relationship between family income of the FFS and non-FFS farmers with their attitude on IPM.

Hoque (1993) observed in his study a negative trend but no relationship between the annual income of the cane growers and their use of recommended dose of fertilizer in sugarcane cultivation.

Study of Karim *et al*. (1987) revealed that commercialization, income and credit availability of the farmers had positive relationship with their attitude towards the use of urea.

Muhammad (1974) conducted a study on the adoption of insect control measures in Khamar Union of Rajshahi district. He found a consistent positive trend between income

of the farmers and adoption on insect control measure, though the relationship between the two variables was not statistically significant.

Rahman (1973) reported that income of the farmers was positively related with adoption of improved farm practices in transplanted aman rice cultivation in two selection villages of Mymensingh district.

2.3.11 Extension media contact and attitude

Noor-E-Alam (2010) observed in his study that extension contact had no relationship with attitude. Similar findings were obtained by Zahan (2008), Bari (2000) and Habib (2000) in their study.

Bhuiyan (2008) and Bhuiyan (2008) reported a significant and positive relationship between extension contact and attitude. Shehrawat (2002) also found similar result in his study.

Islam (2007) found in the study of attitude of farmers' towards modern jute cultivation that there was negativesignificant relationship between extension media contact and attitude.

Chowdhury (2003) observed no relationship between extension media contact and attitude of farmers towards crop diversification.

Sadat (2002) reported in his study that extension media contact had significant relationship with PROSHIKA-beneficiaries attitude towards PROSHIKA.

Nuruzzaman (2001) revealed that extension contact of the FFS farmers was positively significant with their attitude on IPM but in case of non-FFS farmers, there was no significant relationship with their attitude on IPM.

Vidyashankar (1997) reported that the media participation had positive relationship with the attitude towards seed production programme of seed growers.

Kaur and Singh (1991) revealed that extension contact and mass media exposure influenced the rural women to form favorable attitude and as a result the rate of adoption of smokeless chula was increased.

Thomas *et al*. (1990) observed that group meetings had significant relationship with the adoption of integrated pest management practices among the cotton growers of Texas.

Ajore (1989) observed in his study that mass media exposure of farmers had a significant relationship with their attitude towards chemical fertilizer. Similar findings were obtained by Verma and Kumar (1991), Noor (1995), Paul (2000), Mannan (2001), Sarker (2001) and Rahman (2001) in their respective studies.

Karim (1973) found that the higher the extension exposure of the farmer, the higher was their adoption behavior in respect of fertilizer.

2.3.12 Problem faced by the farmers in jute cultivation and attitude

Bhuiyan (2008) revealed that Problem faced by the farmers' had negative significant relationship with their attitude towards farmers information need assessment.

Hasan *et al.* (1998) observed that almost two-thirds (64.15%) of the respondents had medium problem confrontation compared to 18.82% who had high problem confrontation and the rest 1.98% had low problem confrontation. It indicates that the BSs who were exposed to higher inputs availability were in low organizational problem confrontation and vice-versa. Those BSs who got inputs facilities and proper assistance from the farmers were able to manage result demonstration successfully than the others.

Muttaleb *et al*. (1998) revealed that among different constraints, high fertilizer costs, high seed coat, lack of quality seed, lack of awareness, lack of knowledge about the technologies and low price of potato at harvest period were as barriers for the adoption of potato cultivation technologies.

Akanda *et al*. (1997) revealed that majority of the farmers (80.95%) had high problem confrontation compared to 16.19% having medium and 2.69% having low problem confrontation. They statistically revealed that education, agricultural knowledge, farm size, annual income, innovativeness and extension media contact of the farmers had significant negative relationship with their problem confrontation regarding plant protection measures in Mukta rice cultivation.

Karim *et al*. (1997) found that majority (64%) of the growers had high problem confrontation, while 32% had medium problem confrontation and only 4 % had low

problem confrontation. Four selected characteristics such as education, agricultural knowledge, annual income and organizational participation of the kakrol growers were negatively related with their problem confrontation.

Talukdar and Pandey (1991) revealed that jute production practices have changed with growing demands of HYV seeds. Planting has shifted to infertile lower lands. Besides jute, other minor fibre crop namely mesta, kenaf and sunhemp were group in the study location. Low market price of jute and high cost of cultivation were considered as the major constraints to jute production.

Rashid and Mahbob (1987) revealed that the highest proportion (46%) of the farmers had high problem confrontation. While about one-third (31%) had medium problem faced and less than one-fourth (23%) had low problem faced. It generally observed that the greater the problem faced by an individual in any work, the less is the progress in that work. It is therefore likely that the problem faced of the farmers will have adverse effect on their progress in farming which leads to change attitude.

2.4 The Conceptual Framework of the Study

The present study tried to focus on determining farmers' attitude towards jute cultivation and their selected characteristics. Attitude of an individual may be influenced and affected by different interacting forces and many characteristics that he possesses. It is not possible to deal with all the characteristics in a single study. Considering the conceptual model of the study has been presented below in Fig. 2.2

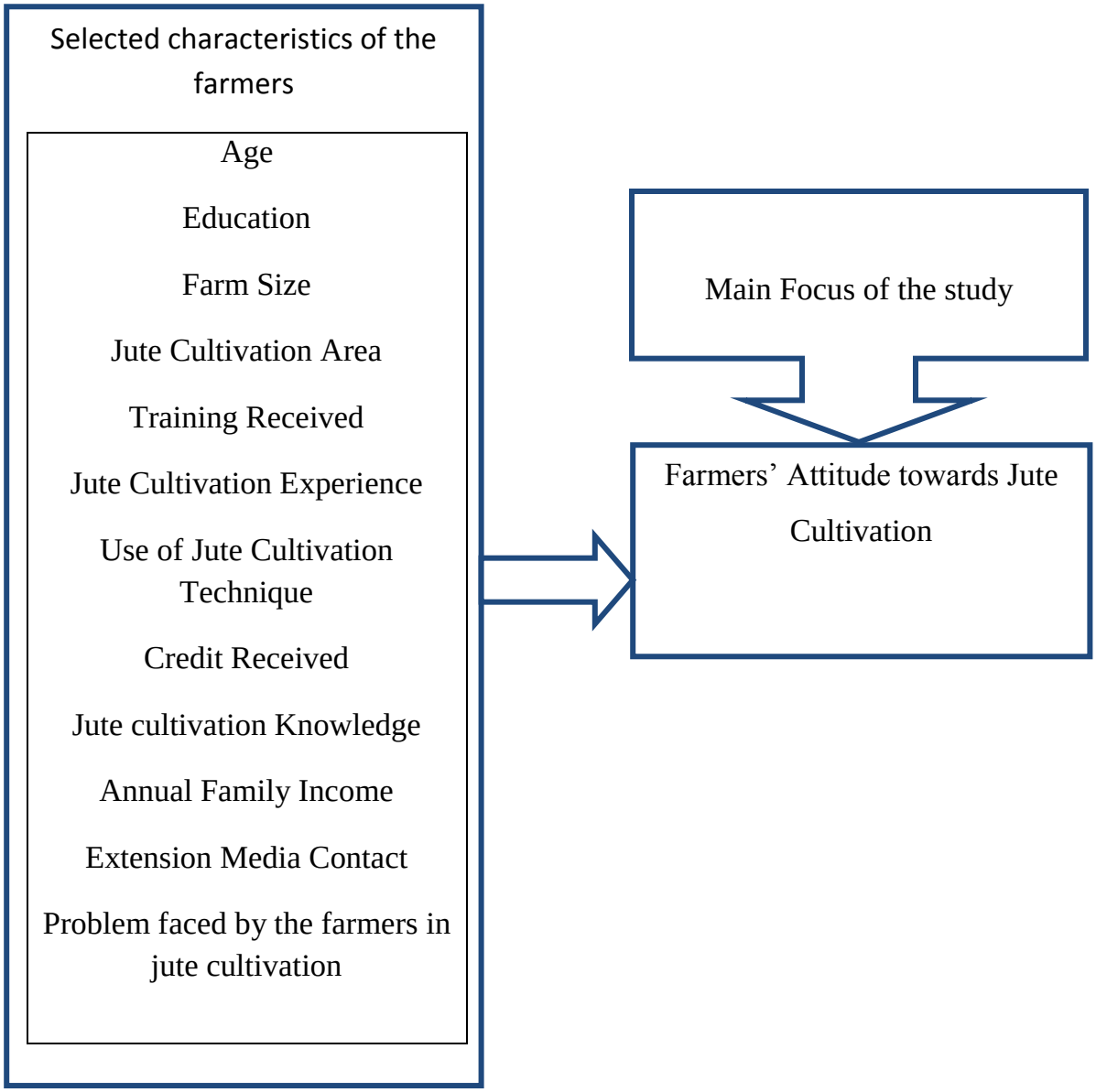

Fig. 2.2 The conceptual framework of the study

CHAPTER 3
METHODOLOGY

Methods and procedures used for collection and analysis of data are very important in any scientific research. It requires a careful consideration before conducting a study. The researcher has great responsibility to clearly describe as to what sorts of research design, methods and procedures he would follow in collecting valid and reliable data and to analyses and interpret those to arrive at correct conclusion. The methods and procedures followed in conducting this study have been discussed in this chapter. Further, the chapter includes the operational format and comparative reflection of some variables used in the study. Also statistical methods and their use have been mentioned in the later section of this Chapter.

3.1 The Locale of the Study

The study was conducted at Rahamatpur union of Babuganj upazila under Barisal district. Out of 15 villages of Rahamatpur union, five were randomly selected as the locale of the study. The selected villages were Khanpura, Khudrakathi, ManikKathi, Lohalia and East Rahamatpur. Selected villages were situated just near the Arialkha River. A map of Barisal district showing the study upazila is presented in Figure 3.1 and Figure 3.2 depicts the particular study area.

3.2 Population and Sampling procedure

All the crop cultivators of Khanpura, Khudrakathi, Manikkathi, Lohalia and East Rahamatpur villages were considered to be the population of the study. An up-to-date list of farmers of these villages was prepared with the help of Sub-Assistant Agriculture Officer (SAAO) of the area. The total number of farmer was 1104 which constituted the population of the study. A randomly selected sample size was drawn at the rate of 10 percent comprising 110 farmers. A reserve list of 10 farmers was also prepared to be

interviewed in time of need. The distribution of the population and sample including the reserve list is shown in Table 3.1

Table 3.1 Distribution of population and sample including reserve list

Name of village	Total no. of population	Sample size	Reserve list size
Khanpura	218	22	2
Khudrakathi	232	23	2
ManikKathi	229	23	2
Lohalia	221	22	2
East Rahamatpur	204	20	2
Total	1104	110	10

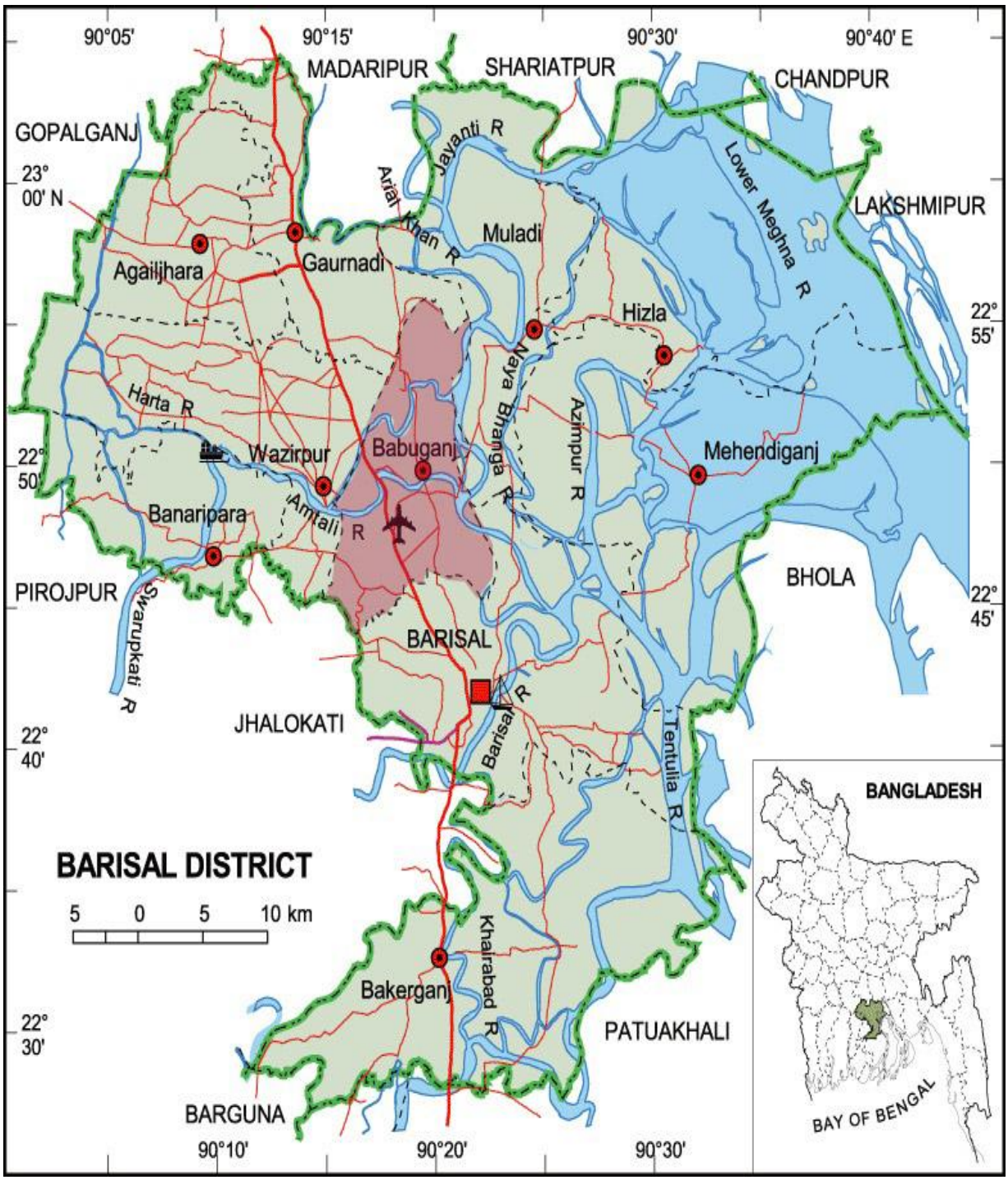

Fig. 3.1 A map of Barisal District showing the study upazila

Fig. 3.2 A map of Babuganj upazila showing the locale of the study

3.3 The Research Instrument

An interview schedule was used as the research instrument in order to collect relevant information from the respondents. The interview schedule was prepared considering the objectives of the study in mind. The questions and statements contained in the schedule were simple, direct and easily understandable by the farmers without giving rise to doubt and misunderstanding in their minds. The schedule contained both opened and closed form of questions adopting the technique for measuring selected characteristics (age, education, farm size, jute cultivation area, training received, jute cultivation experience, use of jute cultivation technique, jute cultivation knowledge, annual family income, extension media contact and problems faced by the farmers in jute cultivation) and their attitude towards jute cultivation. Before finalization the interview schedule a pre-test was run in the study area in actual field situations. The pre-test was helpful to locate faulty questions. Alterations and adjustment were done in the schedule on the basis of experience of the pre-test. During modification of the schedule the researcher incorporated valuable suggestions from his research supervisor and research co-supervisor into it. Finally, the schedule was replicated to 110 keeping in view the total number of the respondents.

3.4 Operationalization of variables

3.4.1 Variable selection

Success of a research to a considerable extent depends on the successful selection of the variables. Irrational, inappropriate and inconsistent selection of variables may lead to misleading and unfruitful results. The researcher keeping all these in mind took adequate care in selecting the variables of the study. Before the onset of the study the researcher visited the study area several times and talked to the crop growing farmers intimately. Moreover, by staying in the study area for some time, he was able to observe the personal, socio-economic, socio-cultural and psychological factors of the farming community which the researcher assumed might have influenced on the behavior pattern of the farmers. Based on this practical knowledge, side by side an extensive literature

review and discussions with supervisory committee, relevant experts and academicians, the researcher selected twelve characteristics of the farmers for this study while attitude of farmers towards jute cultivation was the main focus of the study.

3.4.2 Measurement of variables

3.4.2.1 Selected characteristics of the farmers

The measuring techniques of the selected characteristics of the farmers are discussed below:

Age

The age of the respondents was measured in terms of actual years from his birth to the time of interview on the basis of his statement. A score of one (1) was assigned for each years of age. It is placed in item no. 1 in the interview schedule.

Education

Education of a respondent was measured in terms of years of schooling completed by him. For example if a respondent can sign his name, he was given 0.5; if he went to school for 1 year and passes class one, his education score was given 1 (one). Thus 2 was given for two years of schooling and so on. A respondent who did not go to school and did not know reading and writing was given 0 (zero). This variable is placed in item no. 2 in the interview schedule.

Farm size

The farm size of the respondents was computed in hectares using the following formula:

$$FS = A_1 + A_2 + {}^1/_2 (A_3+A_4) + A_5$$

Where,

FS = Farm size

A_1 = Homestead

A_2 = Own land under own cultivation

A_3 = Own land given to others as half share basis

A_4 = Land taken from others as half share basis

A_5 = Land taken from others as lease

Farm size is shown in item no. 3 in the interview schedule.

Jute cultivation area

Area under jute cultivation of a respondent was measured in terms hectares. Area covered by jute cultivation in the season of collecting data was considered as the area under jute cultivation of a respondent. Item no. 4 of the interview schedule was used to ascertain the area under jute cultivation.

Training received

It was measured by the total number of days a respondent received training on different subject matters in his/her entire life. The number of days of training received was considered as his/her training received score. Item no. 5 of the interview schedule was used to ascertain the training received by the respondent.

Jute cultivation experience

It means the experience that was gained by an individual from direct jute cultivation practice. Jute cultivation experience was measured by the year of involvement in jute cultivation activities. This was expressed in terms of years i.e. a score of one was given for each year of cultivation. Item no. 6 of the interview schedule was used to ascertain jute cultivation experience of the respondent.

Use of jute cultivation technique

In this study, the use of jute cultivation technique score was computed for each respondent on the basis of his use of 15 selected techniques. A four-point rating scale was

developed for this purpose. The scoring technique used for computing the jute cultivation technique score of the respondent is given below:

Extent of technique use	Score assigned
Not at all	0
Rarely	1
Occasionally	2
Frequently	3

Extent of technique use score was determined by summing the scores of all the 15 techniques used included in item no. 7 in the interview schedule. Thus use of jute cultivation technique score could range from 0 to 45, where zero (0) indicated no technique used and 45 indicated highest number of technique used.

Credit received

Credit received of a respondent was measured in terms of the amount of money received by the respondent as loan from different sources. A score of one was given for each thousand taka (Akter, 2003). This variable appears in question no.8 of the interview schedule (Appendix-A).

Jute cultivation knowledge

Jute cultivation knowledge score of a respondent was computed on the basis his responses against 18 selected questions. Jute cultivation knowledge of a respondent was measured by asking questions related to jute cultivation (sowing to harvesting) strategies contained in item number 9 of the interview schedule. It was measured in scores. For correct responses to a question, a respondent could get a total score of 2 while for wrong or no responses to a question he could get 0 (zero). Partial score was assigned for partially correct answers. Thus, the knowledge score of the respondents could range from

0 to 36 where Zero (0) indicating very low knowledge and 36 indicating very high knowledge.

Annual family income

In measuring this variable the total yearly earning of the family members of an individual respondent was measured in Taka. A score of 1 (one) was given for every one thousand taka. Score was given on the basis of their responses to the queries relating to farming and non-farming sources of income as obtained under item no. 10 in the interview schedule.

Extension media contact

In this study, the Extension media contact score was computed for each respondent on the basis of the extent of his contact with 10 selected media as ascertained from his responses to item no. 11 in the interview schedule. A four-point rating scale was developed for this purpose. The scoring technique used for computing the extension media contact score of respondent is given below:

Extent of extension media contact	Score assigned
Not at all	0
Rarely	1
Occasionally	2
Frequently	3

Extension media contact score was determined by summing the scores of all the 10 information sources (extension media) included in item no. 11 in the interview schedule. Thus extension media contact score could range from 0 to 30, where zero (0) indicated no media contact and 30 indicated highest level of media contact.

Problem faced by the farmers in jute cultivation

Problem faced in jute cultivation by the farmers was measured by using of closed form of questions as shown in item 12 of the interview schedule. The farmers were asked to give their opinion on 15 elected problems, which were identified during pre-testing of the questionnaire along with their extent of problem in jute cultivation. A four point scale was used for computing the problem confrontation score of a respondent. The weights were assigned 0 for "not at all" 1 for "low" 2 for 'medium' and 3 for 'high' problem. The weights of responses of all the problems they faced were added together to obtain the problem faced score. Thus the problem faced score of the respondents could range from 0 to 45where 0 (zero) indicating no problem and 45 indicating highest problem.

3.4.2.2 Farmers' attitude towards jute cultivation

An attitude may be defined as predisposition to act towards an object in a certain manner. Attitude of a farmer towards jute cultivation was used to refer to his belief, feelings and action towards the various aspects jute cultivation. It was measured by constituting 12 statements (six positive and six negative). A statement was considered positive if it possessed an idea favorable towards the jute cultivation. On the other hand, a statement was considered negative if it was unfavorable towards jute cultivation. The respondents were asked to express their opinion in the form of "strongly agree" or "agree" or "undecided" or "disagree" or "strongly disagree". A score of 4 was given to "strongly agreed", 3 to "agreed", 2 to "undecided", 1 to "disagreed" and 0 to "strongly disagreed", if the statement was positive. A reverse scoring method was followed in case of statements considered negative. Attitude score of a respondent was determined by summing the scores obtained by him for all the items in the scale. The index scores of respondents could range from 0 to 48 where '0' indicating highest unfavorable and '48' for highest favorable attitude towards jute cultivation.

3.5 Procedure of Data Collection

Data were collected by the researcher himself. The task was accomplished through a field to field visit to the selected respondents using the structured interview schedule. The researcher could realize it very well that the collected data would be of no value if they are not valid. It also acted in the mind of the researcher that people, particularly in a traditional society, might view an outsider with suspicious. This might have unfavorable effect in obtaining valid and pertinent information from the respondents. Having comprehended all these, the researcher had purposively chosen his own birth-place to overcome the difficulties. This made the researcher come closer to the respondents easily as he was not regarded as an outsider in almost all cases. In the case where the respondent was found an unknown individual, the researcher made all possible efforts to establish proper rapport with him. That was not a difficult task for the researcher since he was well-conversant in the local language. Moreover, as an extra care, the researcher kept Sub-Assistant Agriculture Officer (SAAO) of the area with him who assisted him in establishing proper rapport with the respondents. All possible efforts were made by the researcher to explain the purpose of the study to the respondents and their answers were carefully recorded. Whenever any respondent faced difficulty in understanding a question, care was taken to explain the same adequately. Moreover, at the time of data collection, the researcher was also careful about side-talking and tried to avoid that problem tactfully. The entire process of data collection took one month from 15th November to 15th December, 2013.

3.6 Processing of Data

3.6.1 Editing

The collected raw data were examined thoroughly to detect errors and omissions. As a matter of fact the researcher made a careful scrutiny of the completed interview schedules to make sure that they were entered as complete as possible and well arranged to facilitate coding and tabulation. Very minor mistakes were detected by doing this which was corrected promptly.

3.6.2 Coding and tabulation

Having consulted with his research supervisor and co-supervisor the investigator prepared a detailed coding plan. In case of qualitative data, suitable scoring technique was followed by putting proper weight age against each of the traits to transform the data into quantitative forms. These were then tabulated in accordance with the objectives of the study.

3.7 Categorization of Data

Following coding operation, the collected raw data were classified into various categories to facilitate the description selected characteristics of the farmers and their attitude towards jute cultivation. These categories were developed for each of the variables by considering the nature of distribution of the data and extensive literature review. The procedures for categorization have been discussed while describing the variables under consideration in chapter 4.

3.8 Analysis of Data

Analysis was performed using some statistical treatments as described below: Statistical measures such as number, frequency count, percentage, range, mean and standard deviation were used in describing the selected variables. In order to test the formulated hypothesis of the study, Pearson's product-moment correlation co-efficient (r) was used.

3.9 Statement of the hypothesis

As defined by Goode and Hatt (1952) 'A hypothesis is a proposition, which can be put to a test to determine its validity.' It may prove correct or incorrect of a proposition. In any event, however, it leads to an empirical test. In studying relationship between variables, research hypotheses are formulated which state anticipated relationships between variables. However, for statistical test it becomes necessary to formulate null hypothesis. A null hypothesis states that there is no relationship between the variables. If a null hypothesis is rejected on the basis of a statistical test, it is assumed that there is a relationship between the concerned variables.

The following null hypotheses were formulated for this study:

"There is no relationship between each of the selected characteristics of the farmers and their attitude towards jute cultivation."`

CHAPTER 4

RESULTS AND DISCUSSION

In this Chapter, the findings of the study and logical interpretation of the results have been presented according to the objectives of the study. Data obtained from respondents by interview were measured, analyzed, tabulated and statistically treated according to the objectives of the study. The selected characteristics of the respondents and their attitude towards jute cultivation were discussed in this chapter. The tables showed the descriptive statistics of the variables were studied.

4.1 Farmers' attitude towards jute cultivation

Farmers' attitude towards jute cultivation score ranged from 11 to 35 against the possible range of 0 to 48. The average was 23.90 with a standard deviation of 6.79. Based on the observed attitude scores, the farmers were classified into three categories as shown in Table 4.1

Table 4.1 Distribution of the farmers' according to their attitude towards jute cultivation

Categories (Scores)	Farmers		Mean	Standard deviation
	Number (N=110)	Percent		
Negative attitude(below 24)	53	48.2	23.90	6.79
Neutral attitude(exactly 24)	2	1.8		
Favorable attitude(above 24)	55	50		
Total	110	100		

Data contained in Table 4.1 indicated that exactly half (50 per cent) of the respondent had favorable attitude towards jute cultivation as compared to 48.2percent had negative attitude and 1.8percent had neutral attitude towards jute cultivation. Although half of the

respondents had favorable attitude towards jute cultivation but nearly half (48.2%) of the respondents had negative attitude towards jute cultivation. This occurred may be due to their low interest in jute cultivation. Jute has to compete with cereal, pulse and vegetables for land. For more economic benefit most of the farmers replace jute with cereal, pulse and vegetables. For that reason land are not available for jute in season. Credit facilities are also unavailable. Moreover lack of patronization by the concerned organization, lack of training facilities on jute cultivation, high input cost during cultivation season and low market price of jute and jute products are some reasons observed by the researcher for which negative attitude are almost equal to the positive percentage on jute cultivation in the study area. By taking proper strategy to overcome these problems positive attitude can be increased in the study area. Governments' respective organization should come forward to take initiative for overcoming above mentioned hindrance.

4.2 Selected Characteristics of the Respondents

Twelve selected characteristics of the farmers were considered for the present study. Descriptive statistics regarding the twelve characteristics have been presented in Table 4.2.

Table 4.2 Descriptive statistics and salient features of the respondents with their characteristics (N=110)

Characteristics	Measuring unit	Range		Categories	Farmers		Mean	SD
		Possible	Observed		Number (N=110)	Percent (%)		
Age	Years	Unknown	28-70	Young aged (up to 35)	20	18.2	46.91	9.69
				Middle aged (36-50)	51	46.3		
				Old (>50)	39	35.5		
Level of Education	Years of schooling	Unknown	0-10	No education (0)	17	15.5	3.45	2.84
				Can sign only (0.5)	24	21.8		
				Primary (1-5)	43	39.1		
				Secondary (6-10)	26	23.6		
Farm size	Hectare	Unknown	0.03-00.97	Marginal (0.03-0.20)	10	9.1	0.48	0.22
				Small (0.21-0.40)	37	33.6		
				Medium (above 0.40)	63	57.3		
Jute cultivation area	Hectare	Unknown	0.02-.32	Low cultivation area (0.02-0.04)	24	21.8	0.13	0.08
				Medium cultivation area (0.05-0.20)	65	59.1		
				Large cultivation area (above .20)	21	19.1		
Training Received	Scores	Unknown	0-3	No (0)	47	42.7	1.01	0.98
				Low (1-3)	63	57.3		
Jute cultivation Experience	Years	Unknown	5-40	Low (up to 10)	26	23.6	20.88	10.14
				Medium (11-20)	38	34.6		
				High (above20)	46	41.8		
Use of Jute Cultivation Technique	Scores	0-45	10-38	Low (up to 25)	25	22.7	29.55	5.89
				Medium (26-30)	33	30		
				High (above 31)	52	47.3		
Credit received	'000' Tk.	Unknown	0-15	No (0)	37	33.6	3.74	3.46
				Low (15)	73	66.4		

Characteristics	Measuring unit	Range		Categories	Farmers		Mean	SD
		Possible	Observed		Number (N=110)	Percent (%)		
Jute cultivation knowledge	Scores	0-36	22-36	Low (up to 25)	8	7.3	30.65	2.93
				Medium (26-31)	35	31.8		
				High (above 31)	67	60.9		
Annual Family income	'000' Tk.	Unknown	35.8-144	Low (up to100)	99	90	67.39	25.12
				Medium(above 100)	11	10		
Extension media contact	Score	0-30	4-18	Low (up to 10)	46	41.8	10.96	3.40
				Medium (above 10)	64	58.2		
Problem faced by the farmers' in jute cultivation	Score	0-45	10-41	Low (up to 15)	25	22.7	24.98	8.64
				Medium (16-30)	46	41.8		
				High (above 30)	39	35.5		

4.2.1 Age

Age of the respondents ranged from 28-70 years, the mean being 46.91 years, standard deviation 9.69. Based on their age, the respondents were classified into three categories as shown in Table 4.2.Data contained in Table 4.2 indicated that the highest proportion (46.3 percent) of the farmers were in middle age category while 35.5 percent and 18.2 percent belonged to old-aged and young aged categories respectively. However, the data also revealed that 81.8 percent of the respondents of the study area were middle to old aged category.

4.2.2 Education

The educational qualification scores of the respondents ranged from zero (0) to 10 with an average of 3.45, standard deviation of 2.84.Based on their level of education, the

farmers were classified into four categories as shown in Table 4.2.Data in Table 4.2 indicated that majority (39.1 percent) of the farmers had primary level of education, while 23.6 percent had secondary level education. Further, 21.8 percent of the respondents could sign their name only and rest 15.5 percent were illiterate. Thus 62.7 percent of the respondents were educated which varied from primary to secondary. Education develops human mind and it increases the power of observation, analysis, understanding and decision-making.

4.2.3 Farm size

The farm size of the respondents ranged from 0.03 to 0.97 hectare with a mean of 0.48 and standard deviation of 0.22. The respondents were classified into three categories and presented in Table 4.2.Data presented in Table 4.2 indicate that highest proportion (57.3 percent) of the farmers had medium farm size compared to 9.1 percent and 33.6 percent with marginal and small farm size respectively. But there were no large farmer among the respondents of the study area. The findings revealed that most of the respondents (90.9 percent) had either medium or small farm size.

4.2.4 Jute cultivation area

Area under jute cultivation of the respondents varied from 0.02 to 0.32 hectares with a mean of 0.13 and standard deviation of 0.08. On the basis of the area under jute cultivation the respondents were classified into three categories as shown in Table 4.2.Data shown in the Table 4.2 revealed that more than half of the total respondents (59.1 percent) allotted medium cultivation area for jute cultivation followed by low cultivation area (21.8 percent) and large cultivation area (19.1 percent).

4.2.5 Training Received

Training received scores of the respondents ranged from zero (0) to 3, the mean being 1.01 and standard deviation of 0.98. Based on the training received scores, the farmers were grouped into two categories (Table 4.2). The data indicated that majority (57.3

percent) had low training experience compared to 42.7 percent, had no training experience. No farmer of the study area received high training.

4.2.6 Jute cultivation experience

The jute cultivation experience scores of the respondents ranged from 5-40 years with a mean of 20.88 and standard deviation of 10.14. On the basis of jute cultivation experience, the respondents were classified into three categories as shown in Table 4.2.Data presented in Table 4.2 revealed that majority (41.8percent) of respondents had high experience compared to (34.6 percent) of medium experience while 23.6 had low experience. Data shown in Table 4.2 indicates that 76.4 percent of the respondents had medium to high experience on jute cultivation.

4.2.7 Use of jute cultivation technique

Use of jute cultivation technique scores of respondents could range from 0 to 45. But the observed knowledge score of the respondents ranged from 10 to 38 with average 29.55 and standard deviation of 5.89. Based on their use of jute cultivation technique scores, the respondents were classified into three categories as shown in Table 4.2. Data presented in the Table 4.2 indicated that 47.3 percent of the respondents were belonged to higher category compared to 30 percent in the medium category whereas 22.7 percent in the lower category user of jute cultivation techniques. It revealed that 77.3 percent of the respondents had fallen in medium to high category user of jute cultivation techniques.

4.2.8 Credit received

The credit received scores of the respondents ranged from 0 to 15 thousand taka with a mean of 3.74 and standard deviation of 3.46. On the basis of credit received, the respondents were classified into two categories as shown in Table 4.2.Data shown in Table 4.2 revealed that nearly two-thirds (66.4 percent) of respondents had received low credit compared to 33.6 percent had received no credit.

4.2.9 Jute cultivation Knowledge

The jute cultivation knowledge scores of respondents could range from 0 to 36. But the observed knowledge score of the respondents ranged 22 to 36 with an average of 30.65 and standard deviation of 2.93. Based on their jute cultivation knowledge scores, the respondents were classified into three categories as shown in Table 4.2. Data presented in the Table 4.2 indicated that 60.9 percent of the respondents had high knowledge compared to 31.8 percent of the respondents had medium knowledge on jute cultivation. Only 7.3 percent had low knowledge on jute cultivation.

4.2.10 Annual family income

The annual income of the respondents ranged from 35.8 to 144 thousand taka with a mean of 67.39 and standard deviation of 25.11. On the basis of annual income, the respondents were classified into two categories as shown in Table 4.2. Data shown in Table 4.2 revealed that majority (90.0 percent) of respondents had low annual income compared to 10.0 percent had medium annual income.

4.2.11 Extension media contact

Observed extension contact score of the respondents ranged from 4 to 18 against the possible range of 0 to 30. The mean of extension contact score was 24.98 with a standard deviation of 3.40. Based on the extension contact score, the respondents were classified into two categories as shown in Table 4.2.Data presented in Table 4.2 indicate that the highest proportion (58.2 percent) of respondents had medium extension contact, while 41.8 percent had low extension contact. The finding of this study indicated that the farmers in the study area had low to medium extension contact. It could be concluded that extension agent or media of the study area were not available to the respondents.

4.2.12 Problem faced by the farmers in jute cultivation

Problem faced sores of the respondents ranged from 10 to 41 against the possible score of 0 to 45 with a mean of 24.98 and the standard deviation of 8.64. The respondents were classified into three categories on the basis of their problems faced. Data in Table 4.2

revealed that the highest proportion (41.8 percent) of the farmers had medium problem compared to 35.5 percent had high problem while only 22.7 percent had low problem in jute cultivation. This finding again revealed that most of the respondents faced medium to high problem in jute cultivation.

4.3 Relationship between the selected characteristics of the farmers with their attitude towards jute cultivation

This section deals with the relationship between each of the twelve selected characteristics of the farmers and their attitude towards jute cultivation. The selected characteristics were: age, education, farm size, Jute cultivation area, training received, Jute cultivation experience, use of jute cultivation technique, credit received, jute cultivation knowledge, annual family income, extension media contact and problem faced by the farmers in jute cultivation. To explore the relationships between each of the selected characteristics and their attitude towards jute cultivation Pearson's Product Moment co-efficient of correlation (r) has been used. The relationships of each the selected characteristics of the respondents with their attitude have been showed in Table 4.3. However, a correlation matrix for all variables has been presented in Appendix-B.

Table 4.3 Computed co-efficient of correlation (r) between farmers' characteristics and their attitude towards jute cultivation (N=110)

Farmers characteristics	Values of 'r' with 108 df	Table value of 'r' of 108 degrees of freedom	
		0.05	0.01
Age	0.278 **	0.188	0.246
Education	0.052 NS		
Farm size	0.624**		
Jute cultivation area	0.704 **		
Training received	0.597 **		
Jute cultivation experience	0.433 **		
Use of jute cultivation technique	0.575 **		
Credit received	0.153 NS		
Jute cultivation knowledge	0.558 **		
Annual family income	0.578 **		
Extension media contact	0.694 **		
Problem faced by the farmers in jute cultivation	-0.714**		

NSNot Significant
*Correlation is significant at 0.05 level of probability
**Correlation is significant at 0.01 level of probability

4.3.1 Relationship between age and attitude towards jute cultivation

The relationship between age of the farmers and their attitude towards jute cultivation was examined by testing the following null hypothesis: *"There is no relationship between age of the farmers and their attitude towards jute cultivation."* The computed value of 'r' (0.278) was found larger than that of the tabulated value (r = 0.246) with 108 degrees of freedom at 0.01 level of probability as shown in Table 4.3. Thus the concerned null hypothesis was rejected. The relationship between the two concerned variables also showed positive trend Therefore, it was concluded that there was positive significant relationship between age of the farmers and their attitude towards jute cultivation. This means the higher the age of the farmer the favorable their attitude toward jute cultivation. Wahhab (1975) found significant relationship between age and attitude of the farmers towards use of urea.

4.3.2 Relationship between education and attitude

The relationship between education of the farmers and their attitude towards jute cultivation was examined by testing the following null hypothesis. *"There is no relationship between education of the farmers and their attitude towards jute cultivation."* The computed value of 'r' = (0.188) was smaller than the tabulated value (r = 0.246) with 108 degrees of freedom at 0.05 level of probability as shown in Table 4.3. Based on the above findings, the null hypothesis was accepted and it was therefore, concluded that farmers' education had no significant relationship with their attitude towards jute cultivation. So, one can say that education and attitude towards jute cultivation were not associated, they were independent.

4.3.3 Relationship between farm size and attitude

The relationship between farm size of the farmers and their attitude towards jute cultivation was examined by testing null hypothesis: *"There is no relationship between farm size of the farmers and their attitude towards jute cultivation."* The computed value of 'r' (0.624) was found greater than the table value (r = 0.246) with 108 degrees of freedom at 0.01 level of probability as shown in Table 4.3. The relationship between the

two concerned variables also showed positive trend. Hence, the concerned null hypothesis was rejected. The findings indicate that farm size of the farmers had a positive significant relationship with their attitude towards jute cultivation. This implies that farmers with larger farm size had higher favorable attitude towards jute cultivation. Chowdhury (2003) and Shehrawat (2002) also found that there is a positive significant relationship between farm size and attitude.

4.3.4 Relationship between jute cultivation area and attitude

The relationship between the farmer's jute cultivation area and their attitude towards jute cultivation was studied by testing the following null hypothesis: *"There is no relationship between jute cultivation area of the farmers and their attitude towards jute cultivation."* The computed value of 'r' (0.704) was greater than the tabulated value of 'r' (r = 0.246) with 108 degrees of freedom at 0.01 level of probability as shown in Table 4.3. The relationship between the two concerned variables also showed positive trend. Hence the concerned null hypothesis was rejected. The findings indicate that jute cultivation area had positive significant relationship with their attitude towards jute cultivation. Hence, one can say that larger the jute cultivation area higher their favorable attitude towards jute cultivation.

4.3.5 Relationship between training received and attitude

The relationship between training received of the farmers and their attitude towards jute cultivation was examined by testing the following null hypothesis: *"There is no relationship between training received of the farmers and their attitude towards jute cultivation."* The computed value of 'r' (0.597) was larger than the tabulated value (r = 0.246) with 108 degrees of freedom at 0.01 level probability as shown in table 4.3. The relationship between two concerned variables also showed a positive trend. Therefore, the concerned null hypothesis was rejected. Hence, there is a positive significant relationship between training received and attitude towards jute cultivation. The result indicates that the higher the training received the higher the attitude towards jute

cultivation. Venugopal (1977), Habib (2000) and Sarker (2002) also found positive and significant relationship between training received and attitude.

4.3.6 Relationship between jute cultivation experience and attitude

The relationship between jute cultivation experience of the farmers and their attitude towards jute cultivation was examined by testing the following null hypothesis: *"There is no relationship between jute cultivation experience of the farmers and their attitude towards jute cultivation."* The calculated value of 'r' (0.433) was greater than the tabulated value (r = 0.246) with 108 degrees of freedom at 0.01 level of probability as shown in the Table 4.3. The relationship between the two concerned variables also showed positive trend. Therefore, the concerned null hypothesis was rejected. Hence, there is a positive significant relationship between jute cultivation experience and attitude towards jute cultivation. The result indicates that the higher the jute cultivation experience, the higher the attitude towards jute cultivation. Paul (2000) also found similar result in his study.

4.3.7 Relationship between use of jute cultivation technique and attitude

The relationship between use of jute cultivation technique by the farmers and their attitude towards jute cultivation was examined by testing the following null hypothesis: *"There is no relationship between use of jute cultivation technique by the farmers and their attitude towards jute cultivation."* The computed value of 'r' (0.575) was greater than the tabulated value (r = 0.246) with 108 degrees of freedom at 0.01 level of probability as shown in Table 4.3. Thus the null hypothesis could be rejected. It was concluded that there was positive significant relationship between use of jute cultivation technique and their attitude towards jute cultivation.

4.3.8 Relationship between credit received and attitude

The relationship between credit received by the farmers and their attitude towards jute cultivation was examined by testing the following null hypothesis: *"There is no relationship between credit received by the farmers and their attitude towards jute*

cultivation." The computed value of 'r' (0.153) was smaller than the tabulated value (r = 0.188) with 108 degrees of freedom at 0.05 level of probability as shown in Table 4.3. Thus the null hypothesis was accepted. It was concluded that there was no significant relationship between credit received and their attitude towards jute cultivation.

4.3.9 Relationship between jute cultivation knowledge and attitude

The relationship between the farmers' jute cultivation knowledge and their attitude towards jute cultivation was examined by testing the following null hypothesis: *"There is no relationship between jute cultivation knowledge of the farmers and their attitude towards jute cultivation."* The computed value of 'r' (0.558) was larger than the tabulated value (r = 0.246) with 108 degrees of freedom at 0.01 level of probability as shown in Table 4.3. The relationship between two concerned variables also showed positive trend. Based on the above findings, the null hypothesis was rejected. It was concluded that jute cultivation knowledge of the farmers had a positive significant relationship with their attitude towards jute cultivation. This indicated that the higher the knowledge of farmers higher the level of their attitude towards jute cultivation. Ali (1995),Bari (2000), Paul (2000), Sarker (2001), Nuruzzaman (2001) and Rahman (2001) also found positive and significant relationship between knowledge and attitude.

4.3.10 Relationship between annual family income and attitude

The relationship between annual family income of the farmers and their attitude towards jute cultivation was measured by testing the following null hypothesis: *"There is no relationship between annual family income of the farmers and their attitude towards jute cultivation."* The computed value of 'r' (0.578) was found greater than the tabulated value of 'r' (0.246) with 108 degrees of freedom at 0.01 level of probability as shown in Table 4.3. The relationship between the concerned variables showed a positive trend. Hence, the null hypothesis was rejected. The findings indicate that annual family income of the farmers had a positive significant relationship with their attitude towards jute cultivation. It implies that higher annual family income of the respondents had higher attitude towards jute cultivation. Karim *et al*. (1987), Shehrawat (2002) and Chowdhury (2003)

also found positive and significant relationship between annual family income and attitude.

4.3.11 Relationship between extension media contact and attitude

The relationship between extension media contact and their attitude towards jute cultivation was examined by testing the concerned null hypothesis:*"There is no relationship between extension media contact of the farmers and their attitude towards jute cultivation."* The computed value of 'r' (0.694) was larger than the tabulated value (r = 0.246) with 108 degrees of freedom at 0.01 level of probability as shown in Table 4.3. This led to the observation regarding the relationship that the null hypothesis was rejected and hence it can be concluded that extension media contact of the farmers had positive significant relationship with their attitude towards jute cultivation. So, the farmers who had more extension contact had favorable attitude towards jute cultivation. Karim (1973), Ajore (1989), Verma and Kumar (1991), Noor (1995), Paul (2000), Mannan (2001), Sarker (2001) and Rahman (2001) also found positive and significant relationship between extension media contact and attitude.

4.3.12 Relationship between problem faced by farmers in jute cultivation and attitude

The relationship between problem faced by farmers in jute cultivation and their attitude towards jute cultivation was examined by testing the following null hypothesis: *"There is no relationship between problem faced by farmers in jute cultivation and their attitude towards jute cultivation."* The computed value of 'r' (-0.714) was greater than the tabulated value (r = 0.246) with 108 degrees of freedom at 0.01 level of probability as shown in Table 4.3. Thus the null hypothesis could be rejected. The relationship between the two concerned variables also showed negative trend. It was concluded that there was significant negative relationship between problem faced by farmers in jute cultivation and their attitude towards jute cultivation. Thus, one can say that higher the problem faced by the farmers in jute cultivation lower the attitude towards jute cultivation.

CHAPTER 5
SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

This chapter presents summary of findings, conclusion and recommendations of the study.

5.1 Summary of Findings: The major findings of the study are summarized below:

5.1.1 Characteristics of the farmers

Age: Majority (46.3 percent) of the farmers was middle aged, 35.5 percent were old and 18.2 percent were young.

Education: The highest proportion 39.1 percent of the farmers had primary level education, compared to 23.6 percent had secondary levels education whereas 21.8 percent could sign only and 15.5 percent had no education.

Farm size: Among the respondents 57.3 percent had medium farm size compared to 33.6 percent had small farm size and 9.1 percent had marginal farm size while none of the farmers had large farm size.

Jute cultivation area: Among the respondents 59.1 percent had medium cultivation area compared to 21.8 percent had low cultivation area and 19.1 percent had large cultivation area.

Training received: Among the respondents 57.3 percent had low training compared to 42.7 percent had no training.

Jute cultivation experience: Among the respondents 41.8 percent had high experience compared to 34.6 percent had medium experience while 23.6 percent had low experience.

Use of jute cultivation technique: Among the respondents 47.3 percent belong to higher category compared to 30.0 percent belong to medium category while 22.7 percent belong to lower category.

Credit received: Among the respondents 66.4 percent had received low credit while 33.6 percent had taken no credit.

Jute cultivation knowledge: Among the respondents 60.9 percent had high jute cultivation knowledge, 31.8 percent had medium and 7.3 percent had low jute cultivation knowledge.

Annual family income: Among the respondents 90.0 percent had low income while 10.0 percent had medium income.

Extension media contact: Among the respondents 58.2 percent had medium extension while 41.8 percent had low extension media contact.

Problem faced by the farmers in jute cultivation: The highest proportion 41.8 percent of the respondents had faced medium problem as compared to 35.5 percent had faced high problem while 22.7 percent had had faced low problem.

5.1.2 Findings of hypothesis testing

Age, farm size, jute cultivation area, training received, jute cultivation experience, use of jute cultivation technique, jute cultivation knowledge, annual family income and extension media contact of the farmers had positive significant relationship with their attitude towards jute cultivation while education and credit received had no significant relationship with their attitude towards jute cultivation. Problem faced by the farmers in jute cultivation had negative significant relationship with their attitude of the farmers towards jute cultivation.

5.2 Conclusions

Findings of the study and the logical interpretations of their meanings in the light of other relevant facts prompted the researcher to draw the following conclusions:

- The findings of the study revealed that exactly half (50%) of the respondents had favorable attitude while 1.8% had neutral attitude and 48.2% had negative attitude towards jute cultivation. This means that almost rest of the respondents were lacking of proper decision by various known and unknown factors to cultivate jute.
- Age of the respondents had significant positive relationship with their attitude towards jute cultivation. The majority (81.8%) of the respondents in the study area were middle to old aged. This leads to the conclusion that the middle to old aged farmer had more favorable attitude towards jute cultivation in the study area.
- Farm size of the respondents had significant positive relationship with their attitude towards jute cultivation. This leads to the conclusion that the respondents belong medium to large farm size holder had more favorable attitude towards jute cultivation.
- Jute cultivation area of the respondents had significant positive relationship with their attitude towards jute cultivation. This leads to the conclusion that the respondents having medium to large area under jute cultivation show more favorable attitude towards jute cultivation.
- Training received of the respondents had significant positive relationship with their attitude towards jute cultivation. This leads to the conclusion that the respondents having training on jute cultivation show more favorable attitudes towards jute cultivation.
- Jute cultivation experience of the respondents had significant positive relationship with their attitude towards jute cultivation. This leads to the conclusion that the experienced farmers are more eager to jute cultivation.
- Use of jute cultivation technique of the respondents had significant positive relationship with their attitude towards jute cultivation. This leads to the

conclusion that respondents belonged to medium to high user of jute cultivation techniques had more favorable attitude towards jute cultivation.

- Jute cultivation knowledge of the respondent in the study area had significant positive relationship with their attitude towards jute cultivation. This leads to the conclusion that respondents having higher knowledge on jute cultivation show more favorable attitude towards jute cultivation.
- Annual family income of the respondent in the study area had significant positive relationship with their attitude towards jute cultivation. This leads to the conclusion that the respondents having more annual family income show more favorable attitude towards jute cultivation.
- Extension media contact had significant relationship with their attitude towards jute cultivation. This leads to the conclusion that the respondents having more contact with extension media show more favorable attitude towards jute cultivation.
- Problems faced by the respondents had negative significant relationship with their attitude towards jute cultivation. Regarding overall problem facing in jute cultivation more than three-fourths (77.3%) farmers faced medium to high problem. It may be concluded that higher the problem faced by the farmers lowered the favorable attitude towards jute cultivation.

5.3 Recommendations

5.3.1 Recommendations for policy implications

- Almost half (48.2%) of the respondents showed negative attitude towards jute cultivation. So, it is recommended that the GOs and NGOs should take necessary steps to increase positive attitude towards jute cultivation. Otherwise, the production will decrease which will lead to the loss of foreign currency.
- The majority (81.8%) of the respondents in the study area were middle to old aged. These farmers' should be given preferences by the GOs' to retain their favorable attitude towards jute cultivation.

- Farmers' having medium to large size farm as well as jute cultivation area had more favorable attitude towards jute cultivation so they should be given priority during conducting any programme related to jute.
- Farmers' with medium to high experience and knowledge in jute cultivation should be brought under jute cultivation programme which will help other farmers having low or no experience and knowledge in jute cultivation.
- Extension contact was not sufficient in the study area. DAE and other NGOs should come forward to overcome this situation.
- Training received of the farmers belonged to no to low category and it had significant relationship with attitude towards jute cultivation. So, extension services should provide adequate training to the farmers for changing their attitude towards jute cultivation.
- More than three-fourths (77.3%) respondents faced medium to high problem. To overcome the problem effective measures should be taken by the extension providers those will be helpful for the farmers to make positive attitude towards jute cultivation.

5.3.2 Recommendations for further research

- This study was conducted only in five villages of Babuganj upazila under Barisal district. It is essential to make scope for further study in other places to justify the findings of the present study.
- The investigation explored the relationship of the 12 selected characteristics of the respondents with their attitude towards jute cultivation. Further research may be conducted to explore relationships of other characteristics of the respondents with their attitude towards jute cultivation.
- This study was conducted only on attitude towards jute cultivation. Similar study may be undertaken on the attitude towards other crops of Bangladesh.
- Further research may be conducted with farmer's problem confrontation in jute cultivation.

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Appendix-A

(English version of interview schedule)

DEPARTMENT OF AGRICULTURAL EXTENSION AND INFORMATION SYSTEM

SHER-E-BANGLA AGRICULTURAL UNIVERSITY

DHAKA-1207

An interview schedule for a research study entitled

"Farmers' Attitude towards Jute Cultivation"

Serial No…….

Respondent Name:

Village:

Union:

Upazila:

Please answer the following questions

1.What is your present age?

.....Years

2. What is the level of your education?

a) Illiterate: b) Can sign only c) Have passed class……

3. Please mention your farm size:

Sl. No.	Types of land	Land area	
		Local Unit	Hectares
1	Homestead area		
2	Own land under own cultivation		
3	Own land given to others as half share basis		
4	Land taken from others as half share basis		
5	Land taken as lease from others		
Total land area			

4. Mention the area of this year that you have used for jute cultivation:

Local unit: ……. Hectares: ……

5. Have you participated in any training program on jute cultivation? Yes……../No……/If yes, furnish the following information:

Sl. No.	Name of training course	Organization	Day (s)
1			
2			
3			

6. How many years you are engaged in Jute cultivation?

.....Years

7. Mention the degree of use of the following techniques by you:

Sl. No.	Name of technique	Extent of use			
		Frequently	**Occasionally**	**Rarely**	**Not at all**
1.	Recommended jute varieties				
2.	Use of certified seed				
3.	Seed treatment with chemicals				
4.	Fine tilt plough				
5.	Laddering				
6.	Racking				
7.	Organic matter application				
8.	Recommended doses of fertilizer				
9.	Using power tiller				
10.	Early sowing				
11.	Late sowing				
12.	Broadcasting				
13.	Intercultural operation				
14.	Use of IPM practice				
15.	Traditional retting process				

8. Had you taken any credit last year?

Yes…….No……

If yes, then Please mention sources of credit with its amount

Sl. No.	Name of sources	Amount of credit (taka)
1	Bank	
2	Relatives/Friends	
3	Neighbor	
4	NGOs	
5	Money lenders	
Total		

9. Please answer the following questions:

Sl. No.	Questions	Full Marks	Marks obtained
1.	Which land is suitable for jute Cultivation?	2	
2.	What is the suitable time for deshi pat Cultivation?	2	
3.	What is the suitable time for tossa pat Cultivation?	2	
4.	What is the seed rate/ha for deshi pat Cultivation?	2	
5.	What is the seed rate/ha for tossa pat Cultivation?	2	
6.	Please mention two varieties of both deshi & tosa pat.	2	
7.	Please mention the fertilizer doses for jute Cultivation	2	
8.	Mention how many times irrigation is necessary in jute field.	2	
9.	Mention two diseases of jute.	2	
10.	Mention the symptom of anthracnose of jute disease	2	
11.	Mention the symptom of black band of jute disease	2	
12.	How do you control anthracnose & black band of jute diseases?	2	
13.	Mention two harmful insects of jute	2	
14.	Mention the symptom of jute hairy caterpillar infestation	2	
15.	How do you control jute hairy caterpillar ?	2	
16.	What is the main weed of jute field	2	
17.	Please mention the best fiber producing variety	2	
18.	Mention the harvesting time of both deshi&tossa pat	2	

10. Please state the income of your family during last year:

Source of income		Total price (taka)
i. Agricultural income	Field crops	
	Rice	
	Jute	
	Wheat	
	Pulse	
	Others	
	Vegetables	
	Fruits	
ii. Income from livestock and fisheries	Livestock	
	Poultry	
	Fisheries	
iii. Non-agricultural source	Service	
	Business	
	Others	
Total: (i+ii+iii)		

11. Please indicate the extent of contact in following sources:

Sl No.	Name of information sources	Extent of contact			
		Frequently	**Occasionally**	**Rarely**	**Not at all**
1.	Model farmers	4 or more times/month	2-3 times/month	At least once a month	
2.	Input dealer	3 or more times/month	1-2 times/month	At least once a year	
3.	NGO worker	3 or more times/month	1-2 times/month	1-5 times/years	
4.	Sub Assistant Agricultural Officer (SAAO)	4 or more times/month	2-3 times/month	1 time/months	
5.	Scientific officer of BJRI	2 or more times/month	At least 1 time/month	1-5 times/years	
6.	Participation in group meeting	3 or more times/month	1-2 times/month	At least once a year	
7.	Listening agricultural program on radio	4-7 days/week	1-3 days/week	1-3 days/month	
8.	Watching agricultural program on TV	4-7 days/week	1-3 days/week	1-3 days/month	
9.	Reading printed materials like leaflet, bulletin	1 piece/month	3-5 pieces/year	1-2 pieces/year	
10	Watching agricultural posters advertisements in newspaper	1 piece/month	3-5 pieces/year	1-2 pieces/year	

12. Please mention the extent of problem faced for jute cultivation:

Sl. No.	Problems	Extent of Problem			
		High	Medium	Low	Not at all
1.	lack of quality seeds				
2.	High Price of seed				
3.	High price of fertilizer				
4.	Non-availability of credit in time				
5.	Lack of training on jute cultivation				
6.	Lack of marketing facilities				
7.	Lack of proper knowledge in seed storage at farmers' level				
8.	Lack of advice in proper time				
9.	Unavailability of pesticides in time				
10.	Low market price of jute product				
11.	High cost of irrigation				
12.	lack of co-operation from extension providers				
13.	lack of knowledge on using balanced fertilizers for jute cultivation				
14.	Lack of land				
15.	Shortage of water sources for jute retting				

13. Please indicate your opinion against each of the following statements:

Sl.	Statements	SA	A	UD	D	SD
1. (-)	Jute Cultivation is a very difficult work					
2. (+)	Jute Cultivation is profitable					
3. (+)	The socio-economic conditions of the villagers are improving by jute Cultivation					
4. (-)	Water is polluted by jute Cultivation					
5. (-)	The environmental balance is being degraded by jute Cultivation					
6. (+)	Jute Cultivation is more profitable than rice cultivation					
7. (-)	Pest attack in jute Cultivation is high					
8. (-)	Post harvest processing of jute Cultivation is difficult					
9. (+)	Now a days jute stick is as valuable as jute fiber					
10.(+)	Demand of jute product s are increasing					
11.(+)	Jute products are eco-friendly					
12.(-)	Jute marketing is difficult					

SA = Strongly Agree; A = Agree; UD = Undecided; D = Disagree and SD = Strongly Disagree

Thanks for your co-operation

_____

Signature of the interviewer with Date

Appendix - B

Correlation matrix showing intercorrelations among the variables

Variables	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	X_{13}
X_1	1.000												
X_2	-0.187	1.000											
X_3	0.250**	0.213*	1.000										
X_4	0.171	0.124	0.734**	1.000									
X_5	0.206*	0.301**	0.639**	0..730**	1.000								
X_6	0.883**	-0.203*	0.339**	0.344**	0.354**	1.000							
X_7	0.155	0.164	0.567**	0.685**	0.679**	0.333**	1.000						
X_8	0.021	-0.202*	0.153	0.174	-0.017	0.019	0.177	1.000					
X_9	0.623**	-0.030	0.405**	0.470**	0.470**	0.694**	0.497**	0.099	1.000				
X_{10}	0.309**	0.173	0.775**	0.689**	0.607**	0.366**	0.533**	0.229*	0.536**	1.000			
X_{11}	0.208*	0.207*	0.684**	0.654**	0.662**	0.333**	0.678**	0.183	0.455**	0.628**	1.000		
X_{12}	-0.351**	-0.231*	-0.748**	-0.751**	-0.783**	-0.456**	-0.666**	-0.036	-0.576**	-0.735**	-0.792**	1.000	
X_{13}	0.278**	0.052	0.624**	0.704**	0.597**	0.433**	-0.575**	0.314*	0.558**	0.578**	0.694**	-0.714**	1.000

* = Correlation is significant at 0.05 level of probability
** = Correlation is significant at 0.01 level of probability
Table value of 'r' at 0.01 = 0.246 with 108 df

X_1 = Age
X_2 =Level of education
X_3 = Farm size
X_4 = Jute cultivation area
X_5 = Training received
X_6 = Jute cultivation experience
X_7 = Use of jute cultivation technique
X_8 = Credit received
X_9 = Knowledge on jute cultivation
X_{10} = Annual family income
X_{11} = Extension media contact
X_{12} = Problems faced by the farmers' in jute cultivation
X_{13} = Attitude towards jute cultivation