

**FARMERS' SATISFACTION TOWARDS CULTIVATION OF  
SELECTED HYV AMAN RICE**

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**FARMERS' SATISFACTION TOWARDS CULTIVATION OF SELECTED  
HYV AMAN RICE**

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## CERTIFICATE

This is to certify that the thesis entitled, “*FARMERS’ SATISFACTION TOWARDS CULTIVATION OF SELECTED HYV AMAN RICE*” submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, in the partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE (MS) in AGRICULTURAL EXTENSION** embodies the result of a piece of *bonafide* research work carried out by **PATHAN MOUSUMI AFROZE**, Registration No.**14-06303** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that such help or source of information, as has been availed during the course of this investigation has been duly acknowledged and style of this thesis have been approved and recommended for submission.

Dated- December 2015  
Dhaka, Bangladesh

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## ABBREVIATIONS AND ACRONYMS

|               |   |                                      |
|---------------|---|--------------------------------------|
| BBS           | : | Bangladesh Bureau of Statistics      |
| <i>et al.</i> | : | et alii (and others) / Checklit      |
| FAO           | : | Food and Agriculture Organization    |
| <i>i.e.</i>   | : | That is                              |
| DAE           | : | Department of Agricultural Extension |
| Tk.           | : | Taka                                 |
| MT            | : | Metric Ton                           |
| Ha            | : | hectare                              |
| Df            | : | Degrees of Freedom                   |
| Viz.          | : | Namely                               |

## **ABSTRACT**

The main objective of this study was to determine and describe the farmers' satisfaction towards cultivation of selected HYV Aman rice. Data were collected from 103 farmers of five villages of Gazipur sadar upazilla under Gazipur district who cultivated BRRI dhan 49 and BRRI dhan 34 by using a structured interview schedule. Appropriate scales were developed in order to measure the concerned variables. A statistical software package named SPSS was used to analyze the data and Karl Pearson Product Moment Correlation Coefficient was used to test the relationship between the independent and dependent variables. Farmers' satisfaction is the most crucial issues whether they cultivate recommended variety or not. Researcher has tried to measure the farmers' satisfaction towards cultivation of BRRI dhan 49 and BRRI dhan 34. Researcher found that there were no sharp differences with regard to satisfaction towards cultivation of BRRI dhan 49 and BRRI dhan 34. That's why; farmers were equally satisfied with the relative advantages of both the cultivars. The findings also revealed that level of education, farm size, organization participation, extension media contact, cosmopolitaness and knowledge on rice cultivation had positive significant relationship on farmers' satisfaction towards cultivation of selected HYV Aman rice. But, age, family size and annual income had no relationship with farmers' satisfaction towards cultivation of selected HYV Aman rice.

## **Chapter-01**

### **INTRODUCTION**

#### **1.1. General Background:**

Agriculture is the largest livelihood provider in Bangladesh and other third world countries. It contributes 18.6% of country's GDP and 45% of total labor force (BBS-2010). Agriculture faces many challenges due to land, water and other natural resource scarcity. The current population growth, urbanization and demand for food grains have been increasing. Population growth and land loss are main problems now a days. However, land, water and natural resources are limited and they will be relatively scarce in future. Technological innovation in agriculture plays an important role for ensuring food security, employment generation, poverty alleviation, human resource development etc.

Rice is the staple food of Bangladesh. There are about 9 million hectares of crop lands in Bangladesh out of which more than 75 per cent solely occupied by rice. At present Bangladesh has achieved 4<sup>th</sup> position among the rice producing countries of the world. According to Bureau of statistics, the production in 2014-15 fiscal years is 383.49 lac MT. Among this, Aus production is 23.28 lac MT, Aman production is 131.90 lac MT and Boro production is 189.77 lac MT (BBS-2014).

During last 43 years, Rice production has increased more than three times or more where population has increased 2 times or more. In 1970, population of our country was 71.32 million and yield of rice was 1.05 t/ha. In, 2012-13, the population has increased to 150 million and yield of clean rice has reached to 4.32 t/ha. This is possible due to adoption of modern rice varieties. The rate of population in 2011 was 1.37% and the growth rate of rice production in 2011 was 4.9 % (BBS-2014). Historically speaking, soil fertility, availability of water, conducive climate and seasons, biodiversity,

food habit, political commitment and many other factors are associated with ricecultivation. Rice being the staple food in Bangladesh, government encourages scientists to develop rice varieties combating concerned rice production problems. The mention worthy problems of rice is insect, diseases, scarcity of water, poor yield, flood, drought etc. So, scientists of Bangladesh Rice Research institutes and Bangladesh Institute of Nuclear Agriculture so far developed near about 90 HYV and Modern rice varieties aiming to address the aforesaid problems. Now, farmers get the varieties of disease resistant, insect resistance, short life cycle, less water requirement, good taste and high yield etc. Continuously, the development of one rice variety is superseding the other variety.

Scientists develop rice varieties and farmers adopt them. Before adoption of any rice variety farmers count its relative advantages. Farmers are natural scientists before full adoption of any variety. They give trial. If they find the result of the trial is satisfactory then they will adopt. Moreover, they are not satisfied with the relative advantages of all rice varieties equally, they have special achievement and do not adopt all on a sudden. They observe the varietal behavior through adaptive research, multilocation testing and trial given by themselves.

Aman is one of the main crops in Bangladesh. The production of Aman depends on the weather condition of the country and farmers usually cultivate Aman in their land. It is the second largest rice crop in the country in respect to the volume of production while Boro tops the production. But, area coverage of Aman is the largest as a single crop and Boro remains the second. Aman and Boro rice production from 2007-2008 fiscal years to 2014-2015 fiscal years are shown in table 1.1

**Table 1.1 The statistics of Aman and Boro rice production from 2007-2008 fiscal years to 2014-2015 fiscal years. (BBS-2016)**

| Rice yield (MT) | 07-08  | 08-09  | 09-10  | 10-11  | 11-12  | 12-13  | 13-14  | 14-15  |
|-----------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Aman (MT)       | 110.06 | 122.2  | 126.6  | 127.9  | 127.9  | 128.9  | 130.2  | 131.90 |
| Boro (MT)       | 116.77 | 182.87 | 185.25 | 186.17 | 187.59 | 187.78 | 190.07 | 191.92 |

Table 1.1 shows that, Aman and Boro production are increasing day by day instead of shrinkage of cultivable land. It may be possible for invention of some recommended varieties. Due to the farmers' satisfaction, in Boro season, BRRI dhan 28 and BRRI dhan 29 have become highly popular among them. On the other hand, in the Aman season, no particular varieties seem very much popular among the farmers. Due to this, Aman production is comparatively low than Boro instead of it having enough land, water and other weather conditions.

There are more than 30 modern Aman rice varieties being cultivated all over the country. In Gazipur sadar upazilla of Gazipur district, farmers used to cultivate Brisail, Dulabhog, Pragati and Mukta (BR, BR5, BR10 and BR11) in the decade of '80s. For many reasons, farmers discontinued their adoption. However, they cultivate now BRRI dhan 34 and BRRI dhan 49. These two varieties were developed in 1997 and 2008 respectively by the scientists of Bangladesh Rice Research Institute. These varieties bear different characters. Researcher of this is keenly interested to study the extent of satisfaction of the farmers towards the above mentioned Aman rice varieties.

## **1.2. Statement of the Problem**

Farmers' satisfaction is crucial for sustaining adoption of agricultural innovations. It is assumed that notable improvements can take place in Aman rice production if we can measure the satisfaction level of the farmers and take necessary measures accordingly to enhance their satisfaction.

To disseminate selected HYV Aman rice among the farmers, it is necessary to have a clear understanding of farmers' present level of satisfaction towards recommended Aman rice varieties. An understanding of the relationship of farmers' satisfaction behavior with their selected characteristics as well as satisfaction aspects of respondents will be helpful to the planners and extension workers.

Considering the above needs, the researcher undertook the present study entitled, "Farmers' satisfaction towards cultivation of selected HYV Aman Rice." For conducting the research in a planned and appropriate way, the researcher put forwarded the following research questions:

- a) What is the extent of satisfaction of the farmers towards cultivation of selected HYV Aman rice?
- b) What are the selected characteristics of HYV Aman farmers?
- c) What relationship exists between the farmers' satisfaction towards cultivation of selected HYV Aman and their selected characteristics?

### **1.3. Specific Objectives**

Keeping in view the questions stated above, the following specific objectives were formulated for giving proper direction to the study

- i) To determine and compare the extent of farmers' satisfaction towards cultivation of selected HYV Aman rice ;
- ii) To describe the following selected characteristics of the HYV Aman farmers :
  - Age
  - Level of education
  - Family size
  - Farm size
  - Annual income
  - Organizational participation
  - Extension media contact
  - Cosmopolitaness
  - Knowledge on HYV Aman rice cultivation; and
- iii) To explore the relationship between the selected characteristics of the HYV Aman farmers with their satisfaction towards cultivation of selected HYV Aman rice



#### **1.4 Justification of the Study**

In Bangladesh, food demand is a long lasting problem. To ensure adequate food supply, it is necessary to increase food production using selected recommended varieties. Intensification in agriculture can minimize food shortage and maximize food production. Thus, self sufficiency in food production can be possible.

Bangladesh rice research institute has developed a good number of HYV Aman rice but so far farmers have satisfied few of them. Yield, taste, marketability, insect resistance, disease resistance, irrigation requirement, fertilizer requirement and lodging resistance are responsible for varying their satisfaction. At present, per hectare yield of local variety is very low but per hectare yield of HYV is comparatively higher than that of local variety due to its high tillering capacity. In the study area, farmers have started cultivating of BRRI dhan 34 variety instead of the local variety “Kaligira” and BRRI dhan 49 variety instead of the local variety “Najirsail”. It is obviously true that farmers’ satisfaction plays key role in increasing production. At present, there is a lack of adequate understanding about which characteristics of the farmers influence their satisfaction towards cultivation of selected HYV Aman production. These facts indicate the need for investigation to ascertain the relationships of the characteristics of the Aman farmers with their satisfaction towards cultivation of selected HYV Aman rice. Findings of this study will therefore be helpful to the planners and extension workers in planning and execution of programmes for enhancing the yield as well as production of the crops.

### **1.5. Assumption of the Study**

An assumption is the supposition that an apparent fact or principle is true in light of the available evidence (Goode and Hatt, 1952). An assumption is taken as a fact or belief to be true without proof. In this study, the researcher had the following assumptions in mind while carrying out this study:

1. The respondents included in the sample were competent to furnish proper responses to the items included in the interview schedule.
2. The researcher was well adapted with the study area and their social activities.
3. The responses furnished by the respondents were reliable.
4. The sample drawn was representative of the whole population of the study.
5. The findings of the study would be useful for researching, planning and execution of the programmes in connection with developing and disseminating of new varieties and existing HYV Aman rice among the farmers.

### **1.6. Limitation of the Study**

Considering the time, money and other necessary resources available to make the study manageable and meaningful, it was necessary to consider the following limitations:

1. The study was confined mainly to farmers' satisfaction towards cultivation of selected HYV Aman.
2. The study was confined in only five villages of Gazipur sadar upazilla of Gazipur district.
3. The characteristics of the HYV Aman farmers were many and varied but only nine characteristics were selected for investigation of this study.
4. Population of the study included only the selected HYV Aman cultivators among the farm families.
5. Facts and figures were collected by the investigator applied to the present situation in the selected area.

## **1.6. Definition of the Terms**

Certain terms used throughout the study are defined below for clarity of understanding.

### **Satisfaction**

In this study, satisfaction means preference of T.Aman varieties by the respondents. Those were being cultivated in the study area. Belch and Landon (1977) defined consumer satisfaction as a state of mind in which the consumer's needs, wants, and expectations throughout the product of service life have been met or exceeded, resulting in future repurchase and loyalty.

### **HYV rice**

HYV rice is one kind of rice variety developed in research institutes which gives high yield in comparison to local varieties, which is capable to resist disease and insects, it is an improved variety.

### **Farmers**

It refers to those who cultivate different varieties of various crops.

### **Inputs**

Inputs refer to some essential elements like seed, irrigation water, fertilizer, insecticide, agriculture tools, credit etc. which is useful in farming.

### **Practices**

Practices refer to the combination of knowledge, input and management practices, which are used together with productive resources to gain a desired output.

### **Respondents**

The persons, who answered questions through an interview procedure in a face to face situation for a social survey, are considered to be the respondents. They are the persons from whom a social research worker usually gets most data required for his research work.

**Variable**

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

**Age**

Age of a respondent is defined as the period of time in actual years from his birth to the time of interviewing.

**Level of education**

Level of education is defined as the formal education received up to a certain level from an educational institute (e.g. School, college and university) at the time of interview. Level of education was measured in terms of actual years of successful schooling.

**Family size**

Family size refers to the total number of individuals directly dependent upon the respondent farmers for fooding, clothing, and education and for other socio-economic demands. They usually live in the same home and share same kitchen. Family members include respondent himself, his wife, children, brothers, sisters and parents.

**Farm size**

Farm size refers to the area of land possessed by a farmer through different land tenure system such as own land under own cultivation, land given other as barga, land taken from other as barga, land given as lease, land taken as lease etc. Farm size is expressed in terms of hectares.

**Annual income**

Annual income of a respondent refers to the total earnings receipt from business, land, job and investment etc. during the last fiscal year. It is expressed in Taka.

### **Organizational participation**

Organizational participation is referred to the degree to which farmers take part in different social organization either as an ordinary member, executive committee member or executive officer within a specific period of time.

### **Extension media contact**

The term extension media contact refers to one's exposure to influence of different extension media such as interpersonal channels and mass media channels etc.

### **Cosmopolitanness**

It refers to the orientation or exposure or involvement of an individual respondent external to his or her own social system.

### **Agricultural Knowledge**

It is the extent of basic understanding of the farmers in different aspects of agricultural subject matters i.e. crops, livestock, fisheries, agro-forestry, soil, seed, fertilizer, insects and disease of crops, high yielding variety etc. Agricultural Knowledge of a respondent was measured by counting agricultural knowledge score.

## **CHAPTER-2**

### **REVIEW OF LITERATURE**

The purpose of this Chapter is to review of literature having relevance to the present study. The researcher made an elaborate search of available literature for the above purpose. But there is no enough dealing with the relationship of the characteristics of HYV Aman farmers and their satisfaction towards cultivation of selected HYV Aman. Therefore, the findings of such studies related to the satisfaction towards cultivation of selected HYV Aman and other partial studies have been reviewed in this Chapter. This Chapter is divided into three sections; the first section deals with Concept of satisfaction, the second section deals with Past research findings relating to respondents' satisfaction, the third section deals with the Conceptual framework of the study

#### **2.1 Concept of Satisfaction**

Satisfaction is the result of interaction between the consumer's pre-purchase expectations and post purchase evaluation (ChoongLyong Ha 1998). Belch and Landon(1977) gave a more current approach. He defined consumer satisfaction as a state of mind in which the consumer's needs, wants, and expectations throughout the product of service life have been met or exceeded, resulting in future repurchase and loyalty. Some researchers support the idea that satisfaction can be measured from a perspective of performance evaluations, making the inclusion of the disconfirmation process needless. Furthermore, satisfaction is not only consists of cognitive element but have to include emotional element in determining consumers' satisfaction. Satisfaction can be interpreted in a various ways. Some of them are described below:

1. The act of satisfying or state of being satisfied.
2. A fulfillment of a need or desire.
3. The pleasure obtained from such fulfillment.

4. A source of fulfillment.
5. The contentment one feels when one has fulfilled a desire, need, or expectation.
6. Compensation for a wrong.

The consumer behavior literature has traditionally suggested that consumer satisfaction is a relative concept, and is always judged in relation to a standard (Olander, 1977). Consequently, in the course of its development, a number of different competing theories based on various standards have been postulated for explaining customer satisfaction. The theories include the **Expectancy-Disconfirmation Paradigm (EDP)**, the **Value-Precept Theory**, the **Attribution Theory**, the **Equity Theory**, the **Comparison Level Theory**, the **Evaluation Congruity Theory**, the **Person-Situation-Fitmodel**, the **Performance-Importance model**, the **Dissonance**, and the **Contrast Theory**.

#### **The Expectancy Disconfirmation Paradigm**

Drawing on the shortcomings of the above early theories of consumer satisfaction, Olander (1977) proposed the **Expectancy-Disconfirmation Paradigm (EDP)** as the most promising theoretical framework for the assessment of customer satisfaction. The model implies that consumers purchase goods and services with pre-purchase expectations about the anticipated performance. The expectation level then becomes a standard against which the product is judged. That is, once the product or service has been used, outcomes are compared against expectations. If the outcome matches the expectation confirmation occurs. Disconfirmation occurs where there is a difference between expectations and outcomes.

#### **The Value Percept Theory**

Similar to LaTour and Peat's argument, Westbrook and Reilly (1983) argue that the Expectancy-Disconfirmation paradigm may not be the most appropriate model to explain customer satisfaction, as customer

satisfaction/dissatisfaction is more likely to be determined by comparative standards other than expectations. They proposed a Value-Percept Disparity theory, as an alternative to the Expectation-Disconfirmation paradigm. Criticizing the predictive expectations used as a comparison standard in the traditional Disconfirmation paradigm, Westbrook and Reilly argue that what is expected from a product may or may not correspond to what is desired or valued in a product.

### **The Attribution Theory**

Research of the **Attribution Theory** is primarily developed from the Weiner, Frieze and Kukla's (1971) work. It is important to note that the Attribution theory has been mostly used in dissatisfaction/ complaining behavior models than in satisfaction models *per se*. According to this model, consumers are regarded as rational processors of information who seek out reasons to explain why a purchase outcome, for example dissatisfaction, has occurred (Folkes, 1984).

### **The Equity Theory**

According to the **Equity Theory**, satisfaction exists when consumers perceive their output/input ratio as being fair (Swan & Oliver, 1989). Equity models are derived from the Equity Theory (Adams, 1963), and are based on the notion of input-output ratio, which plays a key role in satisfaction (Swan & Oliver, 1989).

### **The Comparison Level Theory**

In contrast to the Expectancy-Disconfirmation paradigm which uses predictive or situationally-produced expectations as the comparison standard, the Comparison Level Theory argues that there are more than one basic determinants of comparison level for a product: (1) consumers' prior experiences with similar products, (2) situationally produced expectations (those created through advertising and promotional efforts), and (3) the experience of other consumers who serve as referent persons.



### **The Evaluative Congruity Theory**

According to Sirgy's (1984) **Evaluative Congruity Model** (or the Social Cognition Model), satisfaction is a function of evaluative congruity, which is a cognitive matching process in which a perception is compared to an evoked referent cognition in order to evaluate a stimulus or action.

### **The Person-Situation-Fit Concept**

It has been also noted that tourist satisfaction can be explained by the **Person-Situation Fit** concept (Pearce & Moscardo, 1984). This concept argues that people deliberately seek situations, which they feel match their personalities and orientations.

### **The Importance- Performance Model**

This implies that customers' satisfaction levels are related to the strength of their beliefs regarding attribute importance multiplied by how well these attributes meet their expectations (Barsky, 1992) (a modified version of EDP to measure customer satisfaction).

### **The Dissonance Theory**

The **Dissonance Theory** suggests that a person who expected a high-value product and received a low-value product would recognize the disparity and experience a cognitive dissonance (Cardozzo, 1965). That is, the disconfirmed expectations create a state of dissonance or a psychological discomfort (Yi, 1990).

### **The Contrast Theory**

The **Contrast Theory** suggests the opposite of the Dissonance Theory. According to this theory, when actual product performance falls short of consumer's expectations about the product, the contrast between the expectation and outcome will cause the consumer to exaggerate the disparity (Yi, 1990).

## **2.2 Past research findings relating to respondents' satisfaction**

This section presents a review of previous studies relating the respondents' satisfaction towards different aspects.

Howard and Sheth (1969) define satisfaction as, "The buyer's cognitive state of being adequately or inadequately rewarded for the sacrifices he has undergone".

According to Westbrook and Reilly (1983) define satisfaction as, customer satisfaction is "an emotional response to the experiences provided by, associated with particular 32 products or services purchased, retail outlets, or even molar patterns of behaviour such as shopping and buyer behaviour, as well as the overall market place" .

Oliver (1981) put forward a definition as, "the summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumers' prior feelings about the consumption experience".

The definition offered by Hunt (1977) is "an evaluation rendered that the (consumption) experience was at least as good as it was supposed to be".

Customer/consumer satisfaction is "an evaluation that the chosen alternative is consistent with prior beliefs with respect to that alternative" – Definition by Engel and Blackwell (1982).

Tse and Wilton (1988) define as, "the consumer's response to the evaluation of the perceived discrepancy between prior expectations (or some other norm of performance) and the actual performance of the product/service as perceived after its consumption".

Berry and Parasuraman (1991) argue that since customers' satisfaction is influenced by the availability of customer services, the provision of quality customer service has become a major concern of all businesses. Customer satisfaction is typically defined as a post consumption evaluative judgment concerning a specific product or service. It is the result of an evaluative

process that contrasts pre-purchase expectations with perceptions of performance during and after the consumption experience.

Oliver (1981) defines customer satisfaction as a customer's emotional response to the use of a product or service.

Anton (1996) offers more elaboration: "customer satisfaction as a state of mind in which the customer's needs, wants and expectations throughout the product or service life have been met or exceeded, resulting in subsequent repurchase and loyalty".

Merchant Account Glossary points out that, "Customer satisfaction is an ambiguous and abstract concept and the actual manifestation of the state of satisfaction will vary from person to person and produce/service to produce/service."

Schiffman and Kanuk (2004) defines customer satisfaction as "The individual's perception of the performance of the product or service in relation to his or her expectations".

Woodruff and Gardian (1996) define "Satisfaction, then, is the evaluation or feeling that results from the disconfirmation process. It is not the comparison itself (i.e., the disconfirmation process), but it is the customer's response to the comparison. Satisfaction has an emotional component."

According to Hung (1977), "... satisfaction is a kind of stepping away from an experience and evaluating it ... One could have a pleasurable experience that caused dissatisfaction because even though it was pleasurable, it wasn't as pleasurable as it was supposed to be. So satisfaction / dissatisfaction isn't an emotion, it's the evaluation of the emotion".

Oliver (1977) defines "Satisfaction is the consumer's fulfillment response. It is a judgment that a product or service feature, or the product of service itself, provided (or is providing) a pleasurable level of consumption-related fulfillment, including levels of under- or over-fulfillment".

Some of the definitions available from web are compiled below: “Customer satisfaction, a business term, is a measure of how products and services supplied by a company meet or surpass customer expectation”.

“Customer satisfaction is an ambiguous and abstract concept and the actual manifestation of the state of satisfaction will vary from person to person and product/service to product/service”.

“Comparison of expectations versus perception of experience”. “A customer’s perception of the degree to which their requirements have been fulfilled.”

According to Business Dictionary, customer satisfaction is, “Degree of satisfaction provided by the goods or services of a firm as measured by the number of repeat customers.” These definitions suggest that an evaluative process is an important element underlying customer satisfaction.

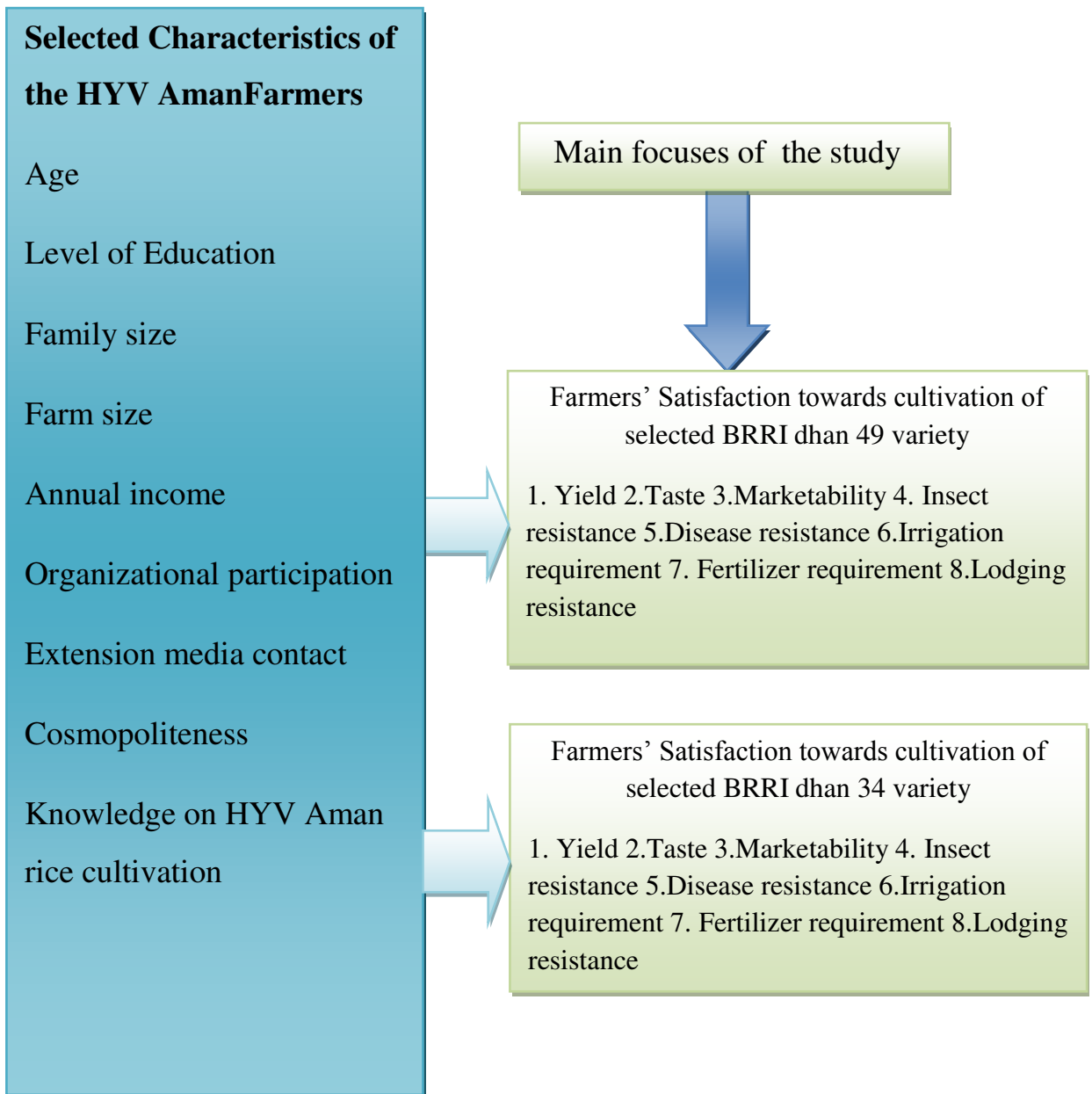
Research conducted by Vanderberg and Lance (1992) during which they surveyed 100 professionals in the information services for five months showed a strong relations between job satisfaction and employee loyalty. Their research proved that the higher the degree of job satisfaction the higher is the level of employee loyalty.

Even though the effects are modest the fact that job satisfaction contributes to decreasing the level of employee absenteeism remains. So satisfaction is worth paying attention to, especially since it is potentially under your control – unlike some of the other causes of absenteeism (e.g. illness, accidents). But as we said circumstances can alter this equation. As a manager you could be implicitly encouraging absenteeism by enforcing company policies. If people are paid for sick days, and if they must be “used or lost” this is pretty strong encouragement for employees to be absent. In other words, you’ve helped create a culture of absenteeism that can overcome the “satisfaction” effect. (Sweney and McFarlin, 2005) When satisfaction is high, absenteeism tends to be low; when satisfaction is low,

absenteeism tends to be high. However as with the other relationships with satisfaction, there are moderating variables such as the degree to which people feel their jobs are important. Additionally, it is important to remember that while high job satisfaction will not necessarily result in low absenteeism, low job satisfaction is likely to bring about high absenteeism.

### **2.3 The Conceptual Framework of the Study**

The present study tried to focus on determining farmers' satisfaction towards cultivation of selected Aman high yielding varieties and their selected characteristics. Satisfaction 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 facts, conceptual model of the study has been presented below in Figure 2



**Figure-2 Conceptual model of the study**

## **CHAPTER-3**

### **METHODOLOGY**

Methodology refers to the methods and procedure of any scientific research. This is very important for empirical investigations; it requires very careful consideration in setting objectives of the research and selection of variables to be studied. The main aspects of methodology considered here are: (i) selection of locale of the study (ii) population and sampling design (iii) the research instrument and its preparation (iv) data collection (v) variables of the study and their measurement (vi) data coding and tabulation.

#### **3.1 Locale of the Study**

The study was conducted in five villages namely Dhirasrom, Vhararul, Dhakkhinkhan, Pakerdeshi and Adabori of Gazipur Sadar upazilla of Gazipur district. A map of Bangladesh showing the gazipur district is presented in figure 3.1 and a map of gazipur sadar upazilla under gazipur district showing the study area is presented in figure 3.2



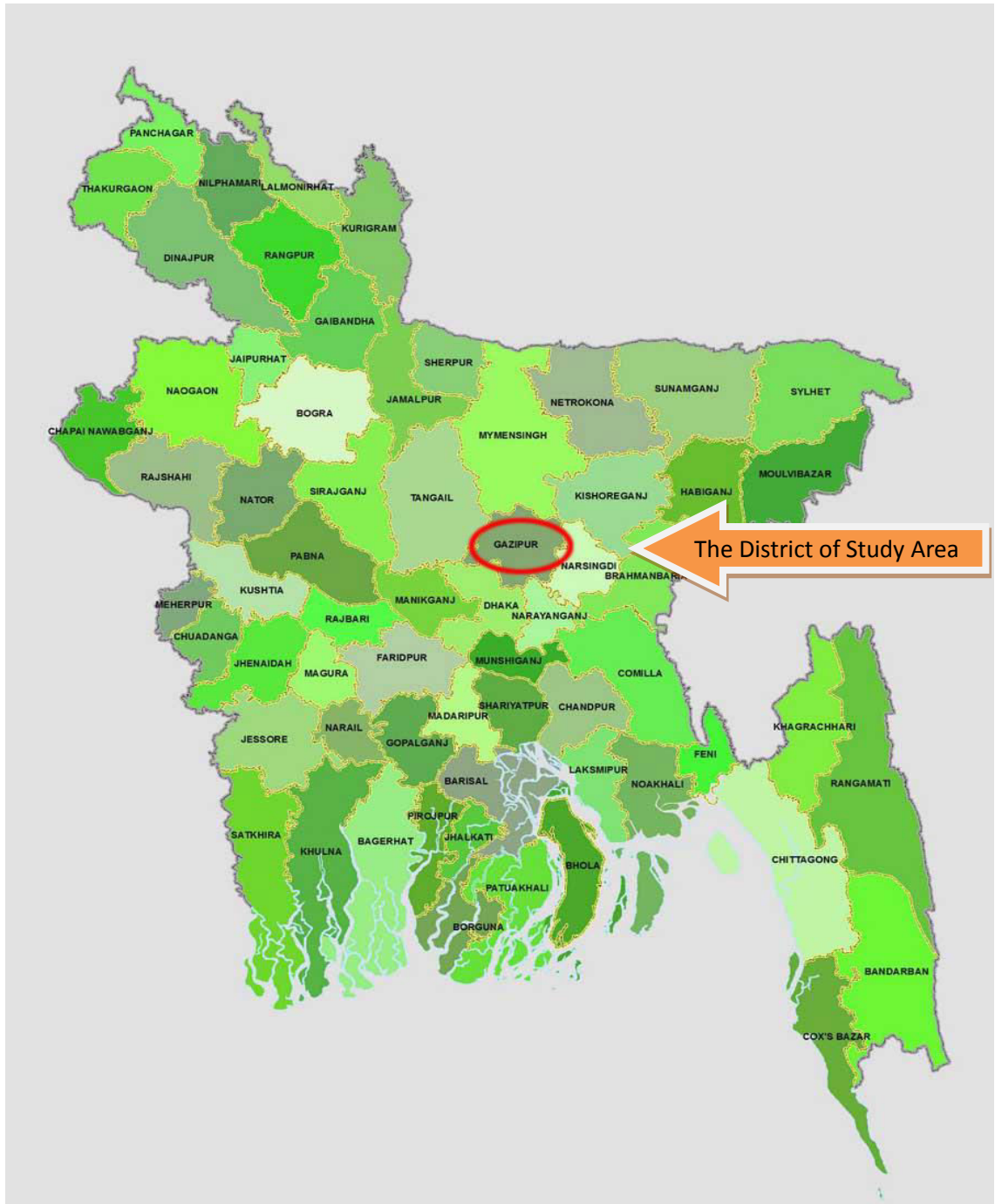


Figure3.1Map of Bangladesh showing Gazipur District



Figure 3.2 Map of Gazipur Sadar upazilla under Gazipur district showing the study area

### 3.2. Population and Sampling Design

The researcher herself with the help of local leaders and concerned Sub Assistant Agricultural Officer prepared an updated list of HYV Aman farmers. The total numbers of farm families in these villages were 874, which constituted the population of the study. Sample size was determined by using Yamane's (1967) formula as follows:

$$n = \frac{z^2 P (1-P)N}{Z^2 P (1-P) + Ne^2}$$

Where,

n = sample size

N= population size = 874

e = the level of precision = 9%

z= the value of the standard normal variable given the chosen confidence level (e.g. z = 1.96 with a confidence level of 95%) and

p= (the proportion or degree of variability) = 50%

So, the sample size (n) is 103 for this study

One hundred and three respondents were selected randomly from each five villages among the population in the study area following proportionate random sampling technique. Number of Aman farmers included in the reserve list was 10. The reserve lists were used only when a respondent in the original list was not available. The distribution of the sample farmers and those in the reserve list from the villages is shown in Table 3.1

**Table 3.1 Distribution of the population and sample of study including reserve list**

| SL. NO. | Name of villages | Population | Sample | Reserve list |
|---------|------------------|------------|--------|--------------|
| 1.      | Dhirarsrom       | 409        | 48     | 3            |
| 2.      | Vhararul         | 129        | 15     | 2            |
| 3.      | Dhakkhinkhan     | 124        | 15     | 2            |
| 4.      | Adabori          | 81         | 10     | 1            |
| 5.      | Pakerdeshi       | 131        | 15     | 2            |
| Total   |                  | 874        | 103    | 10           |

### **3.3 The Research Instrument and its Preparation**

An interview schedule was prepared for collection of data from the respondents keeping the objectives of the study in mind. The questions and statements contained in the schedule were simple, direct and easily understandable by the farmers. Simple and direct questions, different scales, closed and open form questions were included in the interview schedule to obtain necessary information. Appropriate scales were also developed to operationalize farmers' satisfaction towards cultivation of selected HYV Aman. The interview schedule was prepared both in Bengali and English version and was pretested within 10 selected HYV Aman farmers. This pretested schedule facilitated the researcher to examine the suitability of different questions and statement in general.

On the basis of pretest result, corrections, modifications and adjustment were done in the interview schedule. The interview schedule may be seen at **Appendix-A.**

### **3.4 Data Collecting Procedure**

Data were collected personally by the researcher himself by interviewing the sample of 103 selected HYV Aman farmers with the help of interview schedule.

The researchers made all possible efforts to explain the purpose of the study to the farmers. Rapport was established with the farmers prior to interview and objectives were clearly explained by using local language as far as possible. As a result, the respondent did not hesitate to furnish proper responses to the questions and statements, which were collected during the period from 20 September to 20 October, 2016. The researchers, sought the help from the local leaders and Sub-Assistant Agriculture Officers for this purpose. Excellent co-operation was obtained from the respondents, the concerned local leaders and the Sub-Assistant Agriculture officers.

### **3.5 Selection of Dependent and Independent Variables**

In a descriptive social research, selection and measurement of the variable is an important task. A variable is any characteristic which can assume varying or different values in successive individual cases (Ezekiel and Fox, 1953). An organized research usually contains at least two identical elements viz. independent and dependent variable.

Farmers' satisfaction towards cultivation of BRR1 dhan 49 and BRR1 dhan 34 variety were the main focuses of this study and it were considered as the dependent variables. The researcher selected nine independent variables. These 9 independent variables were selected characteristics of the farmers namely age, level of education, family size, farm size, annual income, organizational participation, extension media contact, cosmopolitaness and knowledge on HYV Aman rice cultivation .

## **3.6 Measurement of variables**

### **3.6.1 Measurement of independent variables**

The procedures for measuring independent variables are presented below:

#### **3.6.1.1 Age**

The age of a respondent was measured by counting the period of time from his/her birth to the time of interview on the basis of response of the respondent and was expressed in terms of years.

#### **3.6.1.2 Level of education**

Education of a respondent was measured on the basis of his ability to read and write or received formal education up to a certain standard. It was expressed in terms of year of schooling. One score was given for passing each level in the educational institution. For example, if the respondent passed the final examination of HSC class, his educational score was given as 12. Similarly if the respondents passed the final examination of class X, his educational score was given as 10. If the respondents did not know how to read and write, his educational score was given as zero. A score of 0.5 was given to a respondent who could sign his name only.

#### **3.6.1.3 Family size**

Family size of a respondent was measured in terms of actual number of dependent members in his family (including himself, his wife, sons, daughters and other dependent member of his family) during interview. Family size was measured by assigning a score of one (1) for each member of the family who jointly lived and ate together. For example if a respondent had five members in his family then his score was 5.

#### **3.6. 1.4 Farm size**

Farm land is the most important capital of a farmer and the farm size can influence on many personal characteristics of a farmer. Farm size of the farmer was measured by the land area possessed by him.

Data obtained in response to questions under item No. 3 of the interview schedule (Appendix-A) formed the basis for determining the farm size of the respondent. Farm size was computed by using the following formula:

$$\text{Farm size} = a + b + \frac{1}{2}(c + d) + e$$

Where,

a=Homestead area including garden, pond and fallow land

b=Own land under own cultivation

c=Land taken from others as share cropping

d=Land given to others as share cropping

e=Land taken from others on lease

Actual size of the farm was considered as the score of the farm size. For example, if any respondents had a farm of 0.02 ha, then his score was 0.02.

### **3.6.1.5 Annual income**

Income of a respondent was measured in term of taka. Family income of a respondent was computed on the basis of total yearly earning from agriculture and other sources (service, business, day labor etc.) by the respondent himself/herself and other family members. The value of all agricultural crops, livestock, Poultry, egg, fisheries, fruits, vegetables etc. were taken into consideration. The income score was assigned as one (1)

For each one thousand taka of income. If a farmer had annual income of Tk 20,000her/his income score was assigned as 20.

### **3.6.1.6 Organizational participation**

Organizational participation of a respondent was measured on the basis of the nature of his/her participation in different organizations. Following scores were assigned for nature of participation:

| <b>Nature of participation</b>     | <b>Scores assigned</b> |
|------------------------------------|------------------------|
| No participation                   | 0                      |
| Participation as general member    | 1                      |
| Participation as executive member  | 2                      |
| Participation as executive officer | 3                      |

### **3.6.1.7 Extension media contact**

Extension media contact referred to the exposure or contact of the farmers with 14 selected information sources. The extension media contact of a respondent was measured on the basis of nature of contact with 14 selected information sources by taking 7 individual, 4 group and 3 mass contact media. The respondents were asked to response to five alternative nature of contact, namely, regularly, often, occasionally, rarely and not at all contact. Logical frequencies were considered for each of the five alternative responses and scores were assigned for these five alternative responses as follows:

| <b>Nature of Contact</b> | <b>Scores assigned</b> |
|--------------------------|------------------------|
| Regularly                | 4                      |
| Often                    | 3                      |
| Occasionally             | 2                      |
| Rarely                   | 1                      |
| Not at all               | 0                      |

Thus, the possible score of extension media contact score of the respondents could range from 0 to 56, while 0 indicated no extension contact and 56 indicated very high extension media contact.



### **3.6.1.8 Cosmopolitaness**

Cosmopolitaness of a respondent was measured by computing a cosmopolitaness score. The cosmopolitaness score was assigned on the basis of place and frequency of his/her visit external to and outside of his own social system. Cosmopolitaness score was computed based on 8 places in the following manner:

| <b>Frequency of visit</b> | <b>Scores assigned</b> |
|---------------------------|------------------------|
| Regularly                 | 3                      |
| Occasionally              | 2                      |
| Not at all                | 1                      |
| Rarely                    | 0                      |

Cosmopolitaness score of a respondent could range from 0 to 24 where 0 indicated no cosmopolitaness and 24 indicated maximum cosmopolitaness.

### **3.6.1.9 Knowledge on HYV Aman rice cultivation**

Knowledge on rice cultivation score of a respondent was measured by asking him/her 22 questions on different aspect of rice cultivation. A score 2 was assigned to each correct question so an individual could get 2 for correct answer and 0 for no or wrong answer to each question. Partial score were assigned for partial correct answer. Thus, the rice cultivation knowledge of the respondents could range from 0 to 44, where 0 indicating poor knowledge and 44 indicating high knowledge on rice cultivation.

### **3.6.2 Measurement of dependent variables**

During pretest, the researcher visited the study area. She had an inventory of T. Aman varieties that were being cultivated in the region. She found that BRR1 dhan 34 and BRR1 dhan 49 were preferable among most of the farmers. Total respondents of the study were 103. During interview, it was found that all the 103 respondents cultivated BRR1 dhan 49 and out of these sample, 44 respondents cultivated BRR1 dhan 34. They cultivated no other

varieties. So, Satisfaction of farmers towards cultivation of BRR1 dhan 49 and Satisfaction of farmers towards cultivation of BRR1 dhan 34 were two dependent variables of the study. That's why, researcher measured satisfaction of these two varieties. It was measured by constructing a scale of 8 selected aspects of each satisfaction. Each HYV Aman rice farmer was asked to indicate the extent of satisfaction of him/her towards 8 selected items. By indicating one of the five alternative responses such as very high, high, medium, low and very low satisfaction and weights were assigned to these responses as 5,4, 3, 2 and 1 respectively. Score of satisfaction towards HYV Aman rice cultivation of a respondent was computed by adding all the scores obtained by those responses from all the 8 satisfaction items. So the satisfaction score of the respondents ranged from 8 to 40 for each variety where 8 indicating very low satisfaction and 40 indicating highest satisfaction in rice cultivation. To compare among different aspects of the satisfactions, Satisfaction Index (SI) was measured as follows:

$$SI = (S_{vh} \times 5) + (S_h \times 4) + (S_m \times 3) + (S_l \times 2) + (S_{vl} \times 1)$$

Where,

**SI** = Satisfaction Index

**S<sub>vh</sub>** = Number of respondents had very high satisfaction

**S<sub>h</sub>** = Number of respondents had high satisfaction

**S<sub>m</sub>** = Number of respondents had medium satisfaction

**S<sub>l</sub>** = Number of respondents had low satisfaction

**S<sub>vl</sub>** = Number of respondents had very low satisfaction

### **3.7 Statement of the Hypotheses**

As defined by Goode and Hatt (1952) a hypothesis is “ a proposition which can be put to test to determine its validity. It may seem contrary to, or in accord with common sense. It may prove to be correct or incorrect. In any event, however, it leads to an empirical test.”

### **3.7.1 Research hypotheses**

In the light of the objectives of the study and variables selected, the following research hypotheses were formulated to test them. The research hypotheses were stated in positive form, the hypotheses were as follows:

*“Each of the selected characteristics of the farmers had relationship to their satisfaction towards cultivation of selected HYV Amanvarieties.”*

### **3.7.2 Null hypotheses**

In order to conduct statistical tests, the research hypotheses were converted to null form. Hence, the null hypotheses were as follows:

*“Each of the selected characteristics of the farmers had no relationship to their satisfaction towards cultivation of selected HYV Aman varieties”*

## **3.8 Data Processing**

### **3.8.1 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 schedule to make sure that necessary data were entered as complete as possible and well arranged to facilitate coding and tabulation. Very minor mistakes were detected by doing this, which were corrected promptly.

### **3.8.2 Coding and tabulation**

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

### **3.8.3 Categorization of data**

Following coding operation, the collected raw data as well as the respondents were classified into various categories to facilitate the

description of the independent and dependent variables. 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 IV.

### **3.9 Statistical Analysis**

Data collected were coded, compiled, tabulated and analyzed in accordance with the objectives of the study. The statistical measures such as range, mean, standard deviation, percentage etc were used for describing both the independent and dependent variables. Tables were also used in presenting data for clarity of understanding. To find out the relationship of selected characteristics of the HYVAmanfarmers with each of their satisfaction towards cultivation of selected HYV Aman, Pearson's Product Moment Co-efficient of Correlation was used. Five percent (0.05) level of probability was used as the basis for rejection of a null hypothesis throughout the study. Co-efficient values significant at 0.05 level is indicated by one asterisk (\*), and that at 0.01 level by two asterisks (\*\*).

## **CHAPTER-4**

### **RESULTS AND DISCUSSION**

Purpose of this Chapter is to describe the findings of the study. The study investigated farmers' satisfaction towards cultivation of selected HYV Aman rice. In accordance with the objectives of the study, presentation of the findings has been made in three sections.

Section 1: Farmers' Satisfaction towards Cultivation of Selected HYV Aman Rice

Section 2: Selected Characteristics of the HYV Aman Farmers

Section 3: Relationship between the Selected Characteristics of the HYV Aman farmers and their satisfaction towards cultivation of selected HYV Aman rice

#### **4.1 Farmers' Satisfaction towards Cultivation of Selected HYV Aman Rice**

Farmers' satisfaction towards cultivation of selected HYV Aman Rice was one of the main focuses of this study. The scores of satisfaction in BRRIdhan 49 and BRRIdhan 34 cultivation of the respondents ranged from 19 to 29 and 18 to 30 respectively against the possible score of 8 to 40 with an average of 24.71 and 23.36. Based on the observed scores of satisfaction in BRRIdhan 49 and BRRIdhan 34 cultivation, the respondents were classified into the three categories i.e. low satisfaction, medium satisfaction and high satisfaction. The distribution has been shown in table 4.1

**Table 4.1 Distribution of the respondents according to their satisfaction towards cultivation of BRRI Dhan 49 and BRRI Dhan 34**

| Category                       | BRRI dhan 49 Farmer |       | Mean  | Sd. Dev | BRRI dhan 34 Farmer |       | Mean  | Sd. Dev. |
|--------------------------------|---------------------|-------|-------|---------|---------------------|-------|-------|----------|
|                                | No                  | %     |       |         | No                  | %     |       |          |
| Low satisfaction (18-21)       | 7                   | 6.80  | 24.71 | 2.49    | 6                   | 11.80 | 23.36 | 2.93     |
| Medium satisfaction (22 to 25) | 57                  | 55.30 |       |         | 30                  | 58.80 |       |          |
| High satisfaction (>25)        | 39                  | 37.90 |       |         | 8                   | 15.70 |       |          |
| Total                          | 103                 | 100   |       |         | 44                  | 86.30 |       |          |

Data contained in the table 4.1 reveals that three categories of farmers' satisfaction towards cultivation of BRRI dhan 49 and BRRI dhan 34 are closed to each other. However, a major portion of the respondents (55.30%) were medium satisfied with BRRI dhan 49 cultivation compared to high satisfaction (37.90%) and low satisfaction (6.80%). Otherwise, a major portion of the respondents (58.80%) were medium satisfied with BRRI dhan 34 cultivation compared to high satisfactions (15.70%) and low satisfaction (11.80%). Data also reveals that majority of the BRRI dhan 49 growers(93.20%) and the BRRI dhan 34 growers (74.50%) were satisfied ranged from medium satisfaction to high satisfaction. Insect resistance, disease resistance, lodging resistance and fertilizer requirement are responsible for varying their extent of satisfaction. To reduce the variation of their satisfaction level, it is required maximize or minimize these factors.

#### 4.1.1 Rank order of different aspects of satisfaction towards cultivation of selected HYV Aman

To get the rank order of satisfaction by the BRRRI dhan 49 and BRRRI dhan34 farmers towards different aspects of satisfaction, a satisfaction index had been developed by summation of scores put by the respondents against each aspect of satisfaction. The selected 8 aspects of satisfaction concluded by the respondents which were arranged in rank order according to their descending order of Satisfaction index (SI) as shown in table 4.2

**Table 4.2 Rank order showing different aspects of farmers' satisfaction towards cultivation of BRRRI dhan 49 and BRRRI dhan 34**

| Aspects of satisfaction | BRRRI dhan 49 farmers   |            | BRRRI dhan 34 farmers  |            |
|-------------------------|-------------------------|------------|------------------------|------------|
|                         | Satisfaction Index( SI) | Rank order | Satisfaction index(SI) | Rank order |
| Yield                   | 414                     | 3          | 159                    | 3          |
| Taste                   | 419                     | 2          | 182                    | 1          |
| Marketability           | 422                     | 1          | 168                    | 2          |
| Insect resistance       | 309                     | 5          | 132                    | 5          |
| Disease resistance      | 304                     | 6          | 123                    | 6          |
| Irrigation Requirement  | 132                     | 8          | 59                     | 8          |
| Fertilizer Requirement  | 234                     | 7          | 79                     | 7          |
| Lodging resistance      | 340                     | 4          | 142                    | 4          |

N=103 and 44

On the basis of SI, it was observed that “Marketability of BRR I dhan 49” ranked first followed by “Taste”, “Yield”, “Lodging resistance”, “Insect resistance”, “Disease resistance”, “Fertilizer requirement” and “Irrigation requirement”. Otherwise, On the basis of SI, it was observed that “Taste of BRR I dhan 34” ranked first followed by “Marketability”, “Yield”, “Lodging resistance”, “Insect resistance”, “Disease resistance”, “Fertilizer requirement” and “Irrigation requirement”. Rank order of these two varieties also reveal that there is no sharp difference between BRR I dhan 49 and BRR I dhan 34 in case of their yield, insect resistance, disease resistance, lodging resistance, irrigation requirement and fertilizer requirement. This is due to these two varieties are cultivated in same ecological condition. So, their environmental and biological conveniences are almost same. Yield stood 3<sup>rd</sup> position in case of both varieties. Yield was comparatively low in this year. The invasion of brown plant hopper and sheath blight disease were severe in their critical stages i.e. tillering and flowering stages. That resulted lodging and yield loss in the crop field. In study area, rainfall was adequate in this year. As a result, no extra irrigation was required in cropping season of BRR I dhan 49 and BRR I dhan 34. So, irrigation requirement ranked 8<sup>th</sup> position in case of both varieties. Marketability stood 1<sup>st</sup> position in case of BRR I dhan 49 but stood 2<sup>nd</sup> position in case of BRR I dhan 34. This indicates BRR I dhan 49 had more demand in local market than BRR I dhan 34. Again, taste stood in 1<sup>st</sup> position in BRR I dhan 34 but 2<sup>nd</sup> position in BRR I dhan 49. This is due to BRR I dhan 34 is an aromatic variety and more fine textured than BRR I 49 variety. For this reason, BRR I dhan 34 is more delicious to the respondents.



## 4.2 Selected Characteristics of the HYV Aman farmers

This section deals with the characteristics of HYV Aman farmers which were assumed to be associated with the aspects of satisfaction in cultivation of those selected Aman high yielding varieties. In this section nine characteristics were determined and discussed. The selected characteristics of the farmers were; age, level of education, family size, farm size, annual income, organizational participation, extension media contact, cosmopolitaness and knowledge on HYV Aman rice cultivation. Measuring unit, range, mean and standard deviations of those characteristics were described in this section. Table 4.3 provides a summary profile of aman growers' characteristics.

**Table 4.3 Characteristics profile of the HYV Aman farmers**

| SL NO. | Characteristics (with measuring unit)        | Range    |           | Mean  | Standard deviation |
|--------|--|----------|-----------|-------|--------------------|
|        |  | Possible | Observed  |       |                    |
| 01.    | Age (years)                                  | Unknown  | 29-60     | 45.29 | 9.61               |
| 02.    | Level of education (schooling years)         | Unknown  | 0-12      | 8.07  | 3.86               |
| 03.    | Family size (number of members)              | Unknown  | 4-8       | 5.92  | 1.49               |
| 04.    | Farm size (hectare)                          | Unknown  | 0.20-1.11 | 0.58  | 0.28               |
| 05.    | Annual family income ("000" Taka)            | Unknown  | 50-180    | 84.22 | 19.29              |
| 06.    | Organization participation(score)            | 0-27     | 0-10      | 5.87  | 2.76               |
| 07.    | Extension media contact (score)              | 0-56     | 16-38     | 25.17 | 7.57               |
| 08.    | Cosmopolitaness (score)                      | 0-24     | 8-18      | 10.97 | 2.73               |
| 09.    | Knowledge on BRRIdhan 49 cultivation (score) | 0-44     | 25-41     | 34.33 | 4.18               |

#### 4.2.1 Age

Age score of the respondents varied from 29 to 60, the average being 45.29 years with the standard deviation of 9.61. According to their age, the respondents were classified into three categories as “young aged” (up to 35 years), “middle aged” (36- 50 years) and “old aged” (above 50 years). The distribution of the farmers according to their age has been shown in table 4.4

**Table 4.4 Distribution of the respondents according to their age**

| Category                       | Respondents |         | Mean  | Standard deviation |
|--------------------------------|-------------|---------|-------|--------------------|
|                                | Number      | Percent |       |                    |
| Young aged<br>(up to 35 years) | 21          | 20.40   | 45.29 | 9.61               |
| Middle aged<br>(36-50 years)   | 48          | 46.50   |       |                    |
| Old aged<br>(Above 50 years)   | 34          | 33.10   |       |                    |
| Total                          | 103         | 100     |       |                    |

Data presented in table 4.4 indicate that a major portion of the respondents (46.29%) were middle aged as compared to 33.10 percent being old and 20.40 percent old. Findings again revealed that an over-whelming majority (79.60 %) of the respondents were middle aged to old aged.

Therefore, it could be said that decision regarding the farming practices in the study area were expected to be considerably influenced by the middle aged and old farmers.

#### 4.2.2 Level of education

The score of education level of the respondents ranged from 0-12 in accordance with year of schooling. The average education score of the respondents was 8.07 with a standard deviation of 3.86. On the basis of their level of education, the farmers were classified into four categories as No education (0), Primary education (1-5), Secondary education (6-10), above secondary education (>10) has been shown in table 4.5

**Table 4.5 Distribution of the respondents according to their level of education**

| Category                        | Respondents |         | Mean | Standard deviation |
|---------------------------------|-------------|---------|------|--------------------|
|                                 | Number      | Percent |      |                    |
| No education (0)                | 9           | 8.70    | 8.07 | 3.86               |
| Primary education (1-5)         | 13          | 12.70   |      |                    |
| Secondary education (6-10)      | 44          | 42.70   |      |                    |
| Above secondary education (>10) | 37          | 35.9    |      |                    |
| Total                           | 103         | 100     |      |                    |

Data shown in the Table 4.5 indicates that 8.70 percent of the farmers had no education while 12.70 percent had primary level of education compared to 42.70 percent secondary level of education and 35.9 percent had above secondary level of education.

The findings of this study, indicates that 35.9 percent of the farmers were above secondary education. The respondents of the study area are more educated than average literacy rate. Educated persons are supposed to be more concerned with the all aspects of satisfaction of rice cultivation.

Education helps the farmers to face the adverse condition and adjust with unfavorable condition through reading leaflets, booklets, books and other printed materials. Hence, it is expected that education is one of the important factors in rice cultivation. Comparatively, educated person is more responsive to the technology and new innovation. These, findings are in line with kausar (2006)

### 4.2.3 Family size

The number of family members of the respondents ranged from 4 to 10 with an average of 5.92 and standard deviation of 1.49. Based on the family size the respondents were classified into three categories as small (up to 4 members), medium (5 to 7 members) and large family (8 and above) has been shown in table 4.6

**Table 4.6 Distribution of the respondents according to their family size**

| Category                          | Respondents |         | Mean | Standard deviation |
|-----------------------------------|-------------|---------|------|--------------------|
|                                   | Number      | Percent |      |                    |
| Small family<br>(up to 4 members) | 25          | 24.30   | 5.92 | 1.49               |
| Medium family<br>(5-7 members)    | 57          | 55.40   |      |                    |
| Large family<br>(8 and above)     | 21          | 20.30   |      |                    |
| Total                             | 103         | 100     |      |                    |

Data furnished in the Table 4.6 indicate that the highest proportion (55.40%) of the respondents had medium family size consisting of 5 to 7 members, while 24.30% of the respondents belonged to the category of small family compared to 20.30% of them having large family size.

The findings from table 4.6 indicated that average family size of the study area was greater than the national average which is 4.85(BBS, 2014).The

average family size of the study area is found to be near about national average. In Bangladesh, family size consists of husband, wife, their children and their parents. They influence each other to be satisfied towards promising innovation.

#### 4.2.4 Farm size

Farm size of the respondents ranged from 0.2 hectare to 1.11 hectares with the mean of 0.58 and standard deviation of 0.28. On the basis of their farm size, the farmers were classified into two categories as Small farm size (0.2-<1.0) and medium farm size (1.0-3.0) followed by DAE (1999) has been shown in table 4.7

**Table 4.7 Distribution of the respondents according to their farm size**

| Category                           | Respondents |         | Mean | Standard deviation |
|------------------------------------|-------------|---------|------|--------------------|
|                                    | Number      | Percent |      |                    |
| Small farm size<br>(0.2 - <1.0 ha) | 91          | 88.30   | 0.58 | 0.28               |
| Medium farm<br>size(1.0-3.0)       | 21          | 11.70   |      |                    |
| Total                              | 103         | 100     |      |                    |

Data presented in the Table 4.7 demonstrate that about 88.3 percent of the farmers had small farm compared to 11.60 percent having medium farm. The average farm size of Bangladesh is 0.81 ha which is greater than the farm size of study area.

The table also reveals that there is no landless, marginal and large farm in the study area. In Bangladesh most of the farmers live on below a subsistence level and this is one of the vital reasons for not belonging large farm. From the small and medium farm farmers can grow

main crop round the year and they cultivate crop challenging the existing problems and social issues.

#### 4.2.5 Annual income

The score of annual income of the respondents ranged from 50 to 180 thousand taka. The mean was 84.22 thousand and standard deviation was 19.29. On the basis of annual family income, the respondents were categorized into three groups as Low income (up to 74000), Medium income (75000-95000) and High income (Above 95000) has been shown in table 4.8

**Table 4.8 Distribution of the respondents according to their annual income**

| Category                         | Respondents |         | Mean  | Standard deviation |
|----------------------------------|-------------|---------|-------|--------------------|
|                                  | Number      | Percent |       |                    |
| Low income<br>( < 75000tk)       | 33          | 32.10   | 84.22 | 19.29              |
| Medium income<br>(75000-95000tk) | 41          | 39.80   |       |                    |
| High income<br>( > 95000 tk)     | 29          | 28.10   |       |                    |
| Total                            | 103         | 100     |       |                    |

Data shown in Table 4.8 reveal that the highest proportion (39.8 0%) of the respondents had medium family income while 32.10 and 28.10 percent of the respondents had low and high annual family income respectively.

The higher income increases the risk taking capacity of the farmers' HYV aman rice production. It is therefore, likely that a considerable portion of farmers may face difficulty in a HYV aman cultivation.

#### 4.2.6 Organizational participation

Organizational participation scores of the respondents were computed on the basis of the extent of participation in different organizations. Organizational participation of the respondents ranged from 0 to 10. The average was 5.87 with a standard deviation 2.76. On the basis of organizational participation, the farmers were classified into three categories: “no participation” (0), “Very low participation” (1-5), and “low participation” (6-10) has been shown in table 4.9

**Table 4.9 Distribution of the respondents according to their organizational participation**

| Category                          | Respondents |         | Mean | Standard Deviation |
|-----------------------------------|-------------|---------|------|--------------------|
|                                   | Number      | Percent |      |                    |
| No participation(0)               | 11          | 10.6    | 5.90 | 2.90               |
| Very Low participation<br>(1to 5) | 25          | 24.3    |      |                    |
| Low participation<br>(6 to10)     | 67          | 65.1    |      |                    |
| Total                             | 103         | 100     |      |                    |

Data presented in the Table 4.9 show that the about two third (65.1%) of the respondents had low participation in organizations. The remaining one third had either no participation or very low participation. For the sake of socio economic development people’s participation is necessary in their local groups, committees and organizations which can help their in decision making, social empowerment and so on. Unfortunately, in the study area the social participation was not found up to mark. So, GO and NGO should come forward for the socio-economic development of the study area.

#### 4.2.7 Extension media contact

The scores of the farmers regarding extension media contact ranged from 16 to 38 with a mean of 25.2 and standard deviation of 7.60. On the basis of their extension contact scores, the farmers were classified into three categories as Low contact (< 18), Medium contact (18 to 33) and High contact (> 33) has been shown in table 4.10

**Table 4.10 Distribution of the respondents according to their extension media contact**

| Category                 | Respondents |         | Mean  | Standard Deviation |
|--------------------------|-------------|---------|-------|--------------------|
|                          | Number      | Percent |       |                    |
| Low contact(<18)         | 23          | 22.3    | 25.20 | 7.60               |
| Medium contact (18 to33) | 58          | 56.4    |       |                    |
| High contact (>33)       | 22          | 21.3    |       |                    |
| Total                    | 103         | 100     |       |                    |

Data presented in the table 4.10 indicate that more than one half (56.40%) of the farmers had medium extension media contact as compared to 22.30 percent having low extension media contact and 21.3 percent had high extension media contact. Thus, an overwhelming majority (78.70%) of the farmers had medium to high extension media contact. Generally people having high extension media contact assume that they have more information regarding HYV aman cultivation. More extension media contact make the people acquainted with new technologies and information. In the study area it is noticed that farmers had high proportion of medium extension media contact. That means they are moderately acquainted with HYV aman cultivation information.



#### 4.2.8 Cosmopolitaness

The scores of the cosmopolitaness ranged from 8 to 18 with a mean 10.97 and standard deviation 2.73. On the basis of their cosmopolitaness scores, the farmers were classified into three categories as low (up to 8), medium (9 to 14) and high (>14) has been shown in table 4.11

**Table 4.11 Distribution of the respondents according to their cosmopolitaness**

| Category         | Respondents |         | Mean | Standard Deviation |
|------------------|-------------|---------|------|--------------------|
|                  | Number      | Percent |      |                    |
| Low( up to 8)    | 30          | 29.1    | 10.9 | 2.7                |
| Medium( 9 to 14) | 60          | 58.2    |      |                    |
| High (>14)       | 13          | 12.7    |      |                    |
| Total            | 103         | 100     |      |                    |

Data presented in the Table 4.11 show that the highest proportion (58.20%) of the farmers had medium cosmopolitaness as compared to 29.10 percent having low cosmopolitaness and 12.70 percent having high cosmopolitaness. Thus, most (87.30%) of the farmers had low to medium cosmopolitaness. In study area, it is found that most of the farmers go outside of village for non agriculture purpose. For this reason, cosmopolitaness score is found meager.

#### 4.2.9 Knowledge on HYV Aman rice cultivation

Knowledge on HYV aman cultivation score of the respondents ranged from 25 to 41 having an average of 34.33 and standard deviation of 3.63. On the basis of knowledge scores, the respondents were classified into three categories namely, “medium knowledge” and “high knowledge”. The distribution of the respondents according to their knowledge on HYV Aman cultivation is given in Table 4.12

**Table 4.12 Distribution of the respondents according to their knowledge on HYV Aman rice cultivation**

| Category                    | Respondents |         | Mean | Standard Deviation |
|-----------------------------|-------------|---------|------|--------------------|
|                             | Number      | Percent |      |                    |
| Medium Knowledge(25 to <33) | 35          | 33.9    | 34.3 | 3.6                |
| High Knowledge (>33)        | 68          | 65.9    |      |                    |
| Total                       | 103         | 100     |      |                    |

Data of Table 4.12 show that 65.9 percent of the respondents felt in high knowledge category followed by 33.90 percent in medium knowledge category . Thus in general, the rice cultivation knowledge level of the farmers of the study area was satisfactory.

As farmers have high knowledge on cultivation of HYV Aman, they are able to properly manage their field to get optimum yield.

#### **4.3 Relationship between the Selected Characteristics of the HYV Aman Rice Farmers and their satisfaction towards cultivation of selected HYV aman rice**

The purpose of this section is to examine the relationship of 9 selected characteristics of the HYV Aman farmers with their satisfaction towards cultivation of BRR1 dhan 49 and BRR1 dhan 34. The 9 characteristics of the farmers included: age, level of education, family size, farm size, annual income, organization participation , extension media contact, cosmopolitaness and knowledge on HYV Aman rice cultivation. Each of the characteristics constituted the independent variables, while farmers' satisfaction towards cultivation of selected HYV Aman rice was the dependent variable. To explore the relationships between the selected individual characteristics of the farmers and their satisfaction towards cultivation of two HYV aman rice , Pearson's product moment

co-efficient of correlation ( $r$ ) has been used. Five percent level of probability and one percent level of probability were used as the basis for rejection of a null hypothesis. The computed values of “ $r$ ” were compared with relevant tabulated values for 101 degrees of freedom and 42 degrees of freedom at the designated level of probability in order to determine whether the relationships between the concerned variables were significant or not.

The summary of the results of the correlation analysis has been presented in Table 4.13 showing the relationship between 9 characteristics of the farmers and their satisfaction towards cultivation of selected BRRI dhan 34 and BRRI dhan 49.

**Table 4.13 Co-efficient of correlation showing relationship between selected characteristics of the HYV Aman farmers and their satisfaction towards cultivation of BRRi dhan 49 and BRRi dhan 34 (n= 103 with df 101 and n= 44 with df 42)**

| Independent variable         | Computed value of “r” |                      | Tabulated value of “r” for 101 df |              | Tabulated value “r” of “r” for 42 df |              |
|------------------------------|-----------------------|----------------------|-----------------------------------|--------------|--------------------------------------|--------------|
|                              | BRRi dhan49           | BRRi dhan 34         | at .05 level                      | at .01 level | at .05 level                         | at .01 level |
| 1.Age                        | -0.090 <sup>NS</sup>  | -0.239 <sup>NS</sup> | 0.194                             | 0.253        | 0.297                                | 0.384        |
| 2.Level of Education         | 0.246*                | 0.310*               |                                   |              |                                      |              |
| 3.Family size                | -0.086 <sup>NS</sup>  | -0.025 <sup>NS</sup> |                                   |              |                                      |              |
| 4.Farm size                  | 0.306**               | 0.380*               |                                   |              |                                      |              |
| 5.Annual income              | - 0.125 <sup>NS</sup> | -0.245 <sup>NS</sup> |                                   |              |                                      |              |
| 6.Organization participation | 0.270**               | 0.351*               |                                   |              |                                      |              |
| 7.Extension media contact    | 0.275**               | 0.365*               |                                   |              |                                      |              |
| 8.Cosmopolitaness            | 0.435**               | 0.410**              |                                   |              |                                      |              |
| 9.Knowledge                  | 0.248*                | 0.379*               |                                   |              |                                      |              |

<sup>NS</sup>Not significant

\* Significant at 0.05 level of probability

\* Significant at 0.01 level of probability

### **4.3.1 Relationship between selected characteristics of the HYV Aman farmers and their satisfaction towards cultivation of selected BRRI dhan 49 and BRRI dhan 34**

Relationship between each of nine independent variables and satisfaction of farmers towards cultivation of BRRI dhan 49 and BRRI dhan 34 was determined by Pearson Product Moment Correlation Coefficient. The coefficient of correlation between concerned variables was presented in table 4.13. Based on the findings on the table of 9 selected characteristics of the respondents, 6 namely level of education, farm size; organization participation, extension media contact and cosmopolitaness had significant positive relationship with their satisfaction towards cultivation of BRRI dhan 49 and BRRI dhan 34. On the other hand, age, family size and annual income had no relationship with farmers' satisfaction towards cultivation of both HYV Aman rice .

Education had positive significant relationship with satisfaction towards cultivation of BRRI dhan 49 and BRRI dhan 34. Education helps the farmers to develop proper attitude and correct perception to decrease knowledge gap about production technology of crops. An educated man is more responsive to the technology and new innovation. She or he can easily contact with various extension agent and frequent contact with other information sources which make them able to acquire adequate accurate information. Such, condition indicates the need for improving literacy level among the farmers for improving the knowledge on rice production.

Farm size had positive and significant relationship with farmers' satisfaction towards cultivation of BRRI dhan 49 and BRRI dhan 34. Farm size of a respondent plays a vital role in satisfaction towards HYV aman variety. Farmers having large farm size increase their triability of new variety in their crop field. Otherwise, small and marginal farm size decrease farmers' such willing for their limited resources.

Organizational participation had positive and significant relationship with farmers' satisfaction towards cultivation of BRR1 dhan 49 and BRR1 dhan 34. More organizational participation develops extrovert mentality and establishes coordination capability to cause more mass media.

Extension media contact had positive and significant relationship with farmers' satisfaction towards cultivation of BRR1 dhan 49 and BRR1 dhan 34. The extension contacts strengthened the base of their knowledge. The knowledge acts as motivator towards satisfaction of new technologies.

Cosmopolitanism had positive and significant relationship with farmers' satisfaction towards cultivation of BRR1 dhan 49 and BRR1 dhan 34. Cosmopolite farmers are more educated, more innovative and more venturesome and more communicative. So, cosmopolitanism might have favorable effect on satisfaction.

Knowledge had positive and significant relationship with farmers' satisfaction towards cultivation of BRR1 dhan 49 and BRR1 dhan 34 variety. This indicates that higher the knowledge of farmers higher the satisfaction towards HYV aman variety and vice versa. It is quite logical that knowledgeable farmers are more successful cultivating HYV variety.

For an example, which insecticide or fertilizer has to be used in crop field is common for illiterate and knowledgeable farmers. But, an illiterate farmer does not perceive the recommended dose of fertilizer or about Integrated pest management. As a result, with same variety a knowledgeable person would be satisfied but illiterate farmer would not be satisfied. So, knowledge gap is crucial for varying the satisfaction level of farmers.

## CHAPTER-5

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Summary of Findings

##### 5.1.1 Farmers' satisfaction towards cultivation of selected HYV aman rice

Farmers' satisfaction towards cultivation of selected Aman high yielding varieties was one of the main focuses of this study. The scores of satisfaction in BRR I dhan 49 and BRR I dhan 34 cultivation of the respondents ranged from 19 to 29 and 18 to 30 respectively against the possible score 8 to 40 with an average of 24.71 and 23.36. A major portion of the respondents (55.30%) were medium satisfied with BRR I dhan 49 cultivation compared to high satisfaction (37.90%) and low satisfaction (6.80%). Otherwise, a major portion of the respondents (58.80%) were medium satisfied with BRR I dhan 34 compared to high satisfaction (15.70%) and low satisfaction (11.80%).

On the basis of SI, it was observed that "Marketability of BRR I dhan 49" ranked first followed by "Taste of BRR I dhan 49", "Yield of BRR I dhan 49", "Lodging resistance of BRR I dhan 49", "Insect resistance of BRR I dhan 49", "Disease resistance of BRR I dhan 49", "Fertilizer requirement of BRR I dhan 49" and "Irrigation requirement of BRR I dhan 49". Otherwise, On the basis of SI, it was observed that "Taste of BRR I dhan 34" ranked first followed by "Marketability of BRR I dhan 34", "Yield of BRR I dhan 34", "Lodging resistance of BRR I dhan 34", "Insect resistance of BRR I dhan 34", "Disease resistance of BRR I dhan 34" "Fertilizer requirement of BRR I dhan 34" and "Irrigation requirement of BRR I dhan 34".

### **5.1.2 Selected characteristics of the HYV aman farmers**

Findings in respect of the 9 selected characteristics of the farmers are summarized below :

**Age:** Age of the farmers ranged from 29 to 60 years with the average of 45.29. Most (48) of the respondent farmers was middle aged.

**Level of Education:** Education of the respondent farmers ranged from 0 to 12 years of schooling with the average of 8.07. 78.6 percent of the respondent farmers had secondary level to higher secondary level of education.

**Family size:** Family size of the respondents ranged from 4 to 8 members with a mean of 5.92. The highest proportion (59.80 percent) of the farmers had medium family size, while 24.30 percent had small family size and 20.30 percent had large family size.

**Farm size:** Farm size of the respondents ranged from 0.20-1.11 hectare with a mean of 0.58 ha. Majority( 88.30%) of the farmers had small farm compared to 11.60 percent having medium farm.

**Annual income:** Annual Family income of the respondent farmers ranged from 50-180 thousand taka with the mean of Tk. 84.22 thousand. the highest proportion (39.8 0%) of the respondents had medium family income while 32.10 and 28.10 percent of the respondents had low and high annual family income respectively.

**Organizational participation:** Organization participation score of the farmers ranged from 0 to 10 with an average of 5.87. The highest proportion (65.1percent) of the respondents had low participation in organizations.



**Extension media contact :** The score of the farmers regarding extension media contact ranged from 16-38 against the possible range of 0-56 with a mean of 25.16 . An overwhelming majority of the farmers had (78.70%) of the farmers had low to medium extension media contact.

**Cosmopolitaness:** The score of the farmers regarding cosmopolitaness ranged from 8 to 18 against the possible range of 0-24 with a mean of 10.97. A great majority (87.30%) of the farmers had low to medium cosmopolitaness.

**Knowledge on rice cultivation:** Rice cultivation scores of the farmers ranged from 25-41 against the possible range of 0-44 with a mean of 34.30. The highest proportion (65.9 percent) of the farmers had high knowledge, while 33.90 percent had medium knowledge.

### **5.1.3 Relationship between the selected characteristics of the HYV aman farmers with their satisfaction towards cultivation of BRRIdhan49 and BRRIdhan 34**

Pearson product moment correlation analysis revealed that level of education, farm size, organization participation, extension media contact , cosmopolitaness, knowledge on rice cultivation of the farmers had positive significant relationship with their satisfaction towards cultivation of BRRIdhan 49 variety and BRRIdhan 34 variety. Other variables namely age, family size and annual income cultivation had no significant relationship with their satisfaction towards cultivation of those HYV aman varieties.

## 5.2 Conclusions

Findings of the present study ensouled the researcher to draw the following conclusions :

1. A very great majority of the farmers are medium satisfied in case both BRRI dhan 49 and BRRI dhan 34 cultivation. From this fact, it may be concluded that relative advantage of yield, taste, marketability, insect resistance, disease resistance, irrigation requirement, fertilizer requirement and lodging resistance are responsible for varying their extent of satisfaction.
2. An overwhelming majority (78.60%) of the farmers had secondary to above secondary level of education while there was a positive significant relationship between education and satisfaction of farmers. The respondents of the study area were found to be more educated than average literacy rate. Educated person are supposed to be more concerned with the all aspects of satisfaction of rice cultivation.
3. The average farm size of Bangladesh is 0.81 ha which is greater than this study. The farmers of the study area hold small farm size but they had vast experience of all types of cultivation including rice. So, they were well known with existing rice varieties and know about the extent of satisfaction of these varieties. However, they showed more satisfaction in BRRI dhan 34 and BRRI dhan 49.
4. A great majority (65.10%) of the farmers had low participation while there was positive significant relationship between organization participation and satisfaction of farmers. Unfortunately, in the study area the social participation was not found up to mark.
5. Extension media contact increases the agricultural knowledge of the farmers. That is, more media contact more agricultural knowledge and more agricultural production. The population of the study area

had more contact with agricultural personnels, seed and fertilizer dealers and model farmers which motivated them to cultivate improved rice varieties like BRRI dhan 34 and BRRI dhan 49. In the long run, they were satisfied with production and other relative advantages of these varieties.

6. Gazipur is an advanced area of Dhaka division. People are also more educated and cosmopolite. Agriculture is their main profession. In response to their professional needs, they visit many places and persons to collect technological information. They frequently visit BRRI, BARI, local DAE office, Upazilla agricultural office, Agricultural fair etc. These result satisfactions of the people with the production of BRRI dhan 49 and BRRI dhan 34.
  
7. The knowledge on rice cultivation of the people of the study area was satisfactory. They were able to manage their rice field properly and got optimum yield. The farmers had sufficient knowledge on fertilizer application, irrigation, insect and disease control and other intercultural operations. As a result, they were able to manage their rice field properly and harvested good yield.

### **5.3.1 Recommendations**

On the basis of experience, observation and conclusions drawn from the findings of the study, the following recommendations were made:

1. To mention farmers' satisfaction, it is recommended that, DAE should come forward to create more satisfaction among the farmers about rice cultivation especially BRRI dhan 34 and BRRI dhan 49. Sometimes, it was observed that some varieties initially were disease and insect resistant but later they became susceptible. In this case, DAE should train them about IPM practices to ensure sustainable yield.

3. A great majority (65.10%) of the farmers had low participation while there was positive significant relationship between organization participation and satisfaction of farmers. It is, therefore, recommended that GO and NGO should take appropriate and suitable steps so that the HYV farmers can come in contact with different organization.
4. A high proportion (56.40%) of the farmers had medium extension media contact while there was positive significant relationship between extension media contact and satisfaction of farmers. It is, therefore, recommended that extension personnel should take appropriate and suitable steps so that the maize farmers can come in contact with different media.
5. A great majority (58.20%) of the farmers had low cosmopolitanism while there was positive significant relationship between cosmopolitanism and satisfaction of farmers. It is, therefore, recommended that extension workers should identify the cosmopolite farmers and utilize them in extension programs for encouraging adoption of improved rice cultivation technologies.

### **5.3.2 Recommendations for further study**

A small and limited research work cannot provide unique and universal information related to actual impact of improving socio-economic status of the farmers. Further studies should be undertaken on related matters. On the basis of scope and limitations of the present study and observations made by the researcher, the following recommendations are made for further study:

- i. The study was conducted in Gazipur Sadar Upazila under Gazipur District. Similar studies should be conducted in other parts of the country to get a clear picture of the whole country which will be helpful for effective policy formulation.
- ii. It is difficult to explore all the satisfaction aspects of the farmers in rice cultivation. Measurement of satisfaction of the farmers is not free from

questions. More reliable measurement of the concerned variable is necessary for further study.

iii. The present study was undertaken to explore relationships of nine selected characteristics of the farmers with their satisfaction towards rice cultivation. Therefore, it could be recommended that further studies should be designed considering other agricultural and non-agricultural activities and other characteristics of the farmers that might affect satisfaction of farmers towards rice cultivation.

iv. In the present study age, , family size, and annual family income had no significant relationship with their satisfaction towards rice cultivation. In this connection, further verification is necessary.

v. Research should be undertaken on the effectiveness of agricultural extension services and other related organizations to identify farmers' satisfaction towards HYV aman cultivation.

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## APPENDIX-A

### English version of the interview

Department of Agricultural Extension and Information System

Sher-e-Bangle Agricultural University Dhaka-1207

### An interview schedule on

### FARMERS' SATISFACTION TOWARDS CULTIVATION OF SELECTED HYV AMAN RICE

Name of the respondent.....SL No.....

Father's name.....Date.....

Village.....

Union.....

Upazilla.....

District.....

Please answer the following questions. Your information must be kept secret and only used for the research purpose.

#### 1. Age

How old are you?.....years

#### 2. Level of education

Mention your education level.

a) Cannot read and write (.....)

b) Can sign only (.....)

c) I read up to class (.....)

### 3. Family size

How many members are there in your family including you?

.....persons

### 4. Farm size:

Please mention your farm size. ....local unit( ).....hac.....

### 5. Annual income

Please describe your annual income from the following sources of income.

#### a)Agriculture:

| SL. NO.               | Name of The Crop             | Total Production | Price/unit (Tk) | Total price (Tk) |
|-----------------------|------------------------------|------------------|-----------------|------------------|
| <b>1. Crops</b>       |                              |                  |                 |                  |
| 1.                    | Rice                         |                  |                 |                  |
| 2.                    | Wheat                        |                  |                 |                  |
| 3.                    | Jute                         |                  |                 |                  |
| 4.                    | Maize                        |                  |                 |                  |
| 5.                    | Potato                       |                  |                 |                  |
| 6.                    | Vegetables                   |                  |                 |                  |
| <b>2. Fruits</b>      |                              |                  |                 |                  |
| 1.                    | Banana                       |                  |                 |                  |
| 2.                    | Mango                        |                  |                 |                  |
| 3.                    | Jackfruit                    |                  |                 |                  |
| <b>3. Livestock</b>   |                              |                  |                 |                  |
| 1.                    | Milk product                 |                  |                 |                  |
| 2.                    | Cow dung                     |                  |                 |                  |
| 3.                    | Goat rearing                 |                  |                 |                  |
| 4.                    | Poultry rearing (chick+duck) |                  |                 |                  |
| 5.                    | Eggs                         |                  |                 |                  |
| <b>4.Fish Culture</b> |                              |                  |                 |                  |

**b ) Non Agriculture:**

| Name of the non-agriculture wages | Taka/month | Taka/ Year |
|-----------------------------------|------------|------------|
| Labor                             |            |            |
| Van/ Rickshaw                     |            |            |
| Small business                    |            |            |
| Service                           |            |            |
| Total                             |            |            |

Total annual family income = a(1+2+3+4 ) +b.....Tk

**6. Organizational participation**

Please mention your mode of participation of the following organization. Give tick mark in right space or allude the year.

| Sl. No | Name of organization     | Frequency of participation |                |                  |                   |
|--------|--------------------------|----------------------------|----------------|------------------|-------------------|
|        |                          | No participation           | General member | Executive member | Executive Officer |
| 1.     | Eidgah committee         |                            |                |                  |                   |
| 2.     | School committee         |                            |                |                  |                   |
| 3.     | Mosque/Temple committee  |                            |                |                  |                   |
| 4.     | Bazar committee          |                            |                |                  |                   |
| 5.     | Co-operative society     |                            |                |                  |                   |
| 6.     | NGO organized society    |                            |                |                  |                   |
| 7.     | Deep tube well committee |                            |                |                  |                   |
| 8.     | Union Parishad committee |                            |                |                  |                   |
| 9.     | GO organized society     |                            |                |                  |                   |

## 7. Extension media contact

Please mention the frequency of contact with the extension media. Putting tick mark against the appropriate extent of contact.

| Sl no                  | Communication media           | Extent of Communication            |  |                                 |                                 |                                  |
|------------------------|-------------------------------|------------------------------------|--|---------------------------------|---------------------------------|----------------------------------|
|                        |                               | Regularly                          | Often                                  | Occasionally                    | Rarely                          | Not at all                       |
| Personal media contact |                               |                                    |  |                                 |                                 |                                  |
| 1.                     | SAAO                          | >6times/<br>/Crop<br>season<br>( ) | 5-6<br>times/<br>Crop<br>season<br>( ) | 3-4times/<br>Crop season<br>( ) | 1-2 times/<br>Crop<br>season( ) | 0times/<br>Crop<br>season<br>( ) |
| 2.                     | Agril. extension officer      | >6<br>times/<br>year( )            | 5-6<br>times/<br>year( )               | 3-4times/<br>year( )            | 1-2 times/<br>year( )           | 0( )                             |
| 3.                     | Upazilla Agricultural Officer | >3times<br>/year<br>( )            | 3 times/<br>year( )                    | 2 times/<br>year( )             | 1 times/<br>year                | 0( )                             |
| 4.                     | Model farmer                  | >6times<br>/month<br>( )           | 5-6<br>times/<br>month( )              | 3-4times/<br>month( )           | 1-2 times/<br>month( )          | 0( )                             |
| 5.                     | Neighbour                     | >6times<br>/month<br>( )           | 5-6<br>times/<br>month( )              | 3-4times/<br>month( )           | 1-2 times/<br>month( )          | 0( )                             |
| 6.                     | Seed/Fertilizer dealer        | >1 time/<br>month<br>( )           | 1 time/<br>month( )                    | 1time/3<br>months<br>( )        | 1time/<br>6months<br>( )        | 0( )                             |
| 7.                     | Upazilla livestock officer    | 6-7<br>times/<br>year( )           | 5-6<br>times/<br>year( )               | 3-4times/<br>year( )            | 1-2 times/<br>year( )           | 0( )                             |

### Group Media contact

|     |  |                             |                                  |                                  |                            |          |
|-----|--|-----------------------------|----------------------------------|----------------------------------|----------------------------|----------|
| 9.  | Group discussion                           | >6times/<br>year()          | 5-6<br>times/<br>year()          | 3-4<br>times/<br>year()          | 1-2<br>times/<br>year()    | 0<br>( ) |
| 10. | Field day                                  | >3times/<br>year()          | 3times/<br>year()                | 2 times/<br>year()               | 1 time/<br>year            | 0<br>( ) |
| 11. | Result demonstration                       | >3 time/<br>lifetime<br>( ) | 3 time/<br>lifetime<br>( )       | 2time/<br>lifetime<br>( )        | 1 time/<br>lifetime<br>( ) | 0<br>( ) |
| 12. | Participation in agril.<br>training course | >4times/<br>lifetme<br>( )  | 3-4<br>times/<br>lifetime<br>( ) | 2-3<br>times/<br>lifetime<br>( ) | 1time/<br>lifetime<br>( )  | 0<br>( ) |

### Mass Media contact

|     |             |                    |                         |                       |                       |      |
|-----|-------------|--------------------|-------------------------|-----------------------|-----------------------|------|
| 13. | Daily paper | >6times/<br>week() | 5-6 times/<br>week()    | 3-4 times/<br>week()  | 1-2 times/<br>week()  | 0( ) |
| 14. | Radio       | >6times/<br>week() | 5-6 times/<br>week ( )  | 3-4 times/<br>week()  | 1-2 times/<br>week()  | 0( ) |
| 15. | Television  | >6times/<br>week   | 5-6<br>times/<br>week() | 3-4 times/<br>week( ) | 1-2 times/<br>week( ) | 0( ) |

## 8. Cosmopolitaness

Please indicate of use regarding the following technologies

| Place of visit  | Nature of visit |                 |                 |                | Purpose of visit             |
|---|-----------------|-----------------|-----------------|----------------|------------------------------|
|   | Regularly       | Occasionally    | Rarely          | Not at all     | Agriculture /Non agriculture |
| i. Visit of market /familiar home outside of your own village | ≥7 times/month  | 4-6 times/month | 1-3 times/month | 0 times/month  |                              |
| ii. Visit of relatives/friends                                | ≥5 times/month  | 3-4 times/month | 1-2 times/month | 0 times/month  |                              |
| iii. Visit to upazillasadar                                   | ≥5 times/month  | 3-4 times/month | 1-2 times/month | 0 times/month  |                              |
| iv. Visit to other upazillasadar                              | ≥5 times/year   | 3-4 times /year | 1-2 times/year  | 0 times/year   |                              |
| v. Visit to upazilla agricultural officer                     | ≥4 times/year   | 2-3 times /year | Once/year       | 0 times/year   |                              |
| vi. Visit to upazilla /district agricultural fair             | ≥5 year         | 1time /2year    | 1time/3-4 year  | 1 time ≥5 year |                              |
| vii. Visit to HYV demonstration plots                         | ≥5 year         | 1time /2year    | 1time/3-4 year  | 1 time ≥5 year |                              |
| viii. Attend in meeting organized by UAO/AEO/SAAO             | ≥5 year         | 1time /2year    | 1time/3-4 year  | 1 time ≥5 year |                              |



## 9. Knowledge on HYV Aman rice cultivation:

| SL. NO. | Questions   | Assigned score | Obtained score |
|---------|---|----------------|----------------|
| 01.     | Name Six HYV varieties of Aman rice   | 2              |                |
| 02.     | What is the sowing time of Aman rice?<br>( July to October)   | 2              |                |
| 03.     | What is the recommended seed rate for Aman cultivation?(75-100 kg/ha)   | 2              |                |
| 04.     | What is the transplanting time for Aman rice?( 15 to 30 days after sowing)  | 2              |                |
| 05.     | What is the appropriate seedling age for transplanting aman?<br>(25 to 40 day)  | 2              |                |
| 06.     | What is the recommended dose of Urea and how many times Urea should apply in Aman cultivation?( 130 kg/ha and 3times)     | 2              |                |
| 07.     | What is the recommended dose of T.S.P and When T.S.P should apply in Aman cultivation?(100 kg/ha and at last tillage)     | 2              |                |
| 08.     | What is the recommended dose of MOP and When MOP should apply in Aman cultivation?(70 kg/ha and at last tillage)          | 2              |                |
| 09.     | What is the recommended dose of Gypsum and When Gypsum should apply in Aman cultivation?(60kg/ha and at last tillage)     | 2              |                |
| 10.     | What is the recommended dose of ZnSo4 and When ZnSO4 should apply in Aman cultivation?(10kg/ha and at last tillage)       | 2              |                |
| 11.     | What is the recommended spacing in Aman cultivation?( Line to Line distance is 25 cm and plant to plant distance is 15cm) | 2              |                |
| 12.     | What is the deficiency symptom of Urea?<br>(Yellowing of leaf)  | 2              |                |
| 13.     | What is the deficiency symptom of MOP?<br>(Necrotic Area)   | 2              |                |
| 14.     | What is the deficiency symptom of S?<br>(Red and Violet spot)   | 2              |                |
| 15.     | What is the deficiency symptom of Zn?<br>(Shortening of leaf)   | 2              |                |
| 16.     | Which insecticide is used against Stemborer of Rice(Fluvendiamide or Chlorantraniliprol)                                  | 2              |                |
| 17.     | Which insecticide is used against Rice Bug?(Malathion or Carbaril)  | 2              |                |
| 18.     | Which insecticide is used against Ricehispa?(Diazinon or Phenthion)   | 2              |                |
| 19.     | Which pesticide is used against Ufra disease of Rice?(Furadan - 5G or Curater-5G)   | 2              |                |
| 20.     | Which fungicide is used against brown spot of rice?(Carbendazim)  | 2              |                |
| 21.     | Which fungicide is used against bakanae disease of rice?(Carbendazim)   | 2              |                |
| 22      | State two methods of controlling rat in rice field(Trap, toxic medicine -Fostoxin )                                       | 2              |                |
|         | Total   | 44             |                |

**10. Satisfaction of farmers towards cultivation of Selected HYV Aman rice**

**10 (a) Satisfaction of farmers towards cultivation of BRRI dhan 34**

| SL. NO. | NAME OF VARIETY | ASPECT OF SATISFACTION   | EXTENT OF SATISFACTION |      |        |     |          |
|---------|-----------------|--------------------------|------------------------|------|--------|-----|----------|
|         |                 |                          | Very High              | High | Medium | Low | Very Low |
| 1.      | BRRI 34         | 1.Yield                  |                        |      |        |     |          |
|         |                 | 2.Taste                  |                        |      |        |     |          |
|         |                 | 3.Marketability          |                        |      |        |     |          |
|         |                 | 4.Insect resistance      |                        |      |        |     |          |
|         |                 | 5.Disease resistance     |                        |      |        |     |          |
|         |                 | 6.Irrigation requirement |                        |      |        |     |          |
|         |                 | 7.Fertilizer requirement |                        |      |        |     |          |
|         |                 | 8.Lodging resistance     |                        |      |        |     |          |

**10(b) Satisfaction of farmers towards cultivation of  
BRRI dhan 49**

| SL. NO. | NAME OF VARIETY | ASPECT OF SATISFACTION   | EXTENT OF SATISFACTION |      |        |     |          |
|---------|-----------------|--------------------------|------------------------|------|--------|-----|----------|
|         |                 |                          | Very High              | High | Medium | Low | Very Low |
| 2.      | BRRI-49         | 1.Yield                  |                        |      |        |     |          |
|         |                 | 2.Taste                  |                        |      |        |     |          |
|         |                 | 3.Marketability          |                        |      |        |     |          |
|         |                 | 4.Insect resistance      |                        |      |        |     |          |
|         |                 | 5.Disease resistance     |                        |      |        |     |          |
|         |                 | 6.Irrigation requirement |                        |      |        |     |          |
|         |                 | 7.Fertilizer requirement |                        |      |        |     |          |
|         |                 | 8.Lodging resistance     |                        |      |        |     |          |

Signature of the respondent

Date.....

Signature of the interviewer

Date.....

**Appendix –B**  
**Correlation matrix among the variables of the study (N=103)**

|                | X <sub>1</sub> | X <sub>2</sub> | X <sub>3</sub> | X <sub>4</sub> | X <sub>5</sub> | X <sub>6</sub> | X <sub>7</sub> | X <sub>8</sub> | X <sub>9</sub> | Y |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---|
| X <sub>1</sub> | -              |                |                |                |                |                |                |                |                |   |
| X <sub>2</sub> | 0.125          | -              |                |                |                |                |                |                |                |   |
| X <sub>3</sub> | 0.172          | 0.040          | -              |                |                |                |                |                |                |   |
| X <sub>4</sub> | 0.153          | 0.090          | 0.119          | -              |                |                |                |                |                |   |
| X <sub>5</sub> | -0.049         | -0.090         | 0.186          | 0.087          | -              |                |                |                |                |   |
| X <sub>6</sub> | 0.143          | 0.218*         | 0.038          | 0.209*         | 0.122          | -              |                |                |                |   |
| X <sub>7</sub> | 0.279**        | 0.083          | -0.043         | 0.222*         | 0.043          | 0.026          | -              |                |                |   |
| X <sub>8</sub> | 0.074          | 0.361**        | -0.078         | .327**         | -0.127         | 0.300**        | 0.011          | -              |                |   |
| X <sub>9</sub> | -0.004         | 0.178          | 0.001          | 0.211*         | 0.009          | 0.188          | 0.275**        | 0.116          | -              |   |
| Y              | -0.090         | 0.246*         | -0.086         | .306**         | -.125          | -.270**        | -.275**        | .435**         | -.248**        | - |

\* Correlation is significant at 0.05 levels

\*\* Correlation is significant at 0.01 levels

X<sub>1</sub>=Age

X<sub>2</sub>=Level of education

X<sub>3</sub>= Family size

X<sub>4</sub>= Farm size

X<sub>5</sub>= Annual income

X<sub>6</sub>= Organizational participation

X<sub>7</sub>= Extension media contact

X<sub>8</sub>= Cosmopolitaness

Y = Farmers' Satisfaction towards Cultivation of BRR1 dhan 49 variety.

**Appendix –C**  
**Correlation matrix among the variables of the study (N=44)**

|                | X <sub>1</sub> | X <sub>2</sub> | X <sub>3</sub> | X <sub>4</sub> | X <sub>5</sub> | X <sub>6</sub> | X <sub>7</sub> | X <sub>8</sub> | X <sub>9</sub> | Y |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---|
| X <sub>1</sub> | -              |                |                |                |                |                |                |                |                |   |
| X <sub>2</sub> | 0.062          | -              |                |                |                |                |                |                |                |   |
| X <sub>3</sub> | 0.325*         | 0.120          | -              |                |                |                |                |                |                |   |
| X <sub>4</sub> | 0.226          | 0.379*         | -.025          | -              |                |                |                |                |                |   |
| X <sub>5</sub> | 0.175          | -0.136         | 0.007          | 0.056          | -              |                |                |                |                |   |
| X <sub>6</sub> | 0.264          | 0.522**        | 0.180          | .460**         | 0.122          | -              |                |                |                |   |
| X <sub>7</sub> | 0.052          | 0.033          | -0.057         | .409**         | 0.265          | 0.147          | -              |                |                |   |
| X <sub>8</sub> | 0.275          | 0.438**        | -0.127         | .331*          | -.103          | 0.410**        | 0.280          | -              |                |   |
| X <sub>9</sub> | -0.299*        | 0.149          | -.158          | 0.162          | -.051          | 0.299          | 0.100          | 0.347*         | -              |   |
| Y              | -0.239         | 0.310*         | -0.025         | .380*          | -.245          | .351*          | .365**         | .410**         | .379*          | - |

\* Correlation is significant at 0.05 levels

\*\* Correlation is significant at 0.01 levels

X<sub>1</sub>=Age

X<sub>2</sub>=Level of education

X<sub>3</sub>= Family size

X<sub>4</sub>= Farm size

X<sub>5</sub>= Annual income

X<sub>6</sub>= Organizational participation

X<sub>7</sub>= Extension media contact

X<sub>8</sub>= Cosmopolitaness

Y = Farmers' Satisfaction towards Cultivation of BRR1 Dhan 34 variety