FARMERS' COMMUNICATION BEHAVIOUR IN RECEIVING INFORMATION ON IMPROVED RICE PRODUCTION TECHNOLOGIES

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CERTIFICATE

This is to certify that thesis entitled, "Farmers' Communication Behaviour in Receiving Information on Improved Rice Production Technologies " submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka in partial fulfillment of the requirements for the degree of MASTER OF SCIENCE in AGRICULTURAL EXTENSION AND INFORMATION SYSTEM, embodies the result of a piece of bonafide research work carried out by Kh. Zulfikar Hossain, Registration No. 00176 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 of during the course of this investigation has been duly acknowledged by him.

Dated:

Place: Dhaka, Bangladesh

(Md. Rafiquel Islam)

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ABSTRACT

The main purpose of the study was to explore the farmers' communication behaviour in receiving information on improved rice production technologies and to determine the relationships between farmers' personal characteristics and their communication behavior. Data were collected from 120 randomly selected respondents of the two selected villages of Barkhada Union under Kushtia sadar Upazla of Kushtia District. Data were collected by using an interview schedule from the farmers during 1 to 30 March, 2006. Five rice production technologies and 18 communication media were considered for measuring the communication behavior. Co-efficient of correlation was used to explore the relationship between the concerned variables.

According to media use index, the first five media recognized most important among the 18 communication media were progressive farmer (1220), neighbours (1218), friends (1064), sub assistant agriculture officer (924) and group discussion (694) in receiving information on rice cultivation. However, the last five communication media were NGO workers (51), agricultural fair (82), newspaper (113), television (199) and method demonstration (227). Among five technologies of rice cultivation, the highest extent of communication media was used for pest management practices for which media use index was 2825 and it was followed by recommended fertilizer dose (2284), modern varieties (1601), recommended seed rate (1289) and recommended irrigation (1171).

The range of extent of use of communication media by a farmer was 22 to 135 with a mean of 76.42. On the basis of use of communication media, farmers were classified into three categories where 66.67 percent were occasional and 33.33 percent were frequent users. None of the rice growers was found to be regular user of communication media.

Education, cosmopoliteness, innovativeness, attitude towards agricultural technology and agricultural knowledge had significant positive relationship with the communication behaviour of the farmers However, age of the respondents had significant negative relationship while, family size, farm size, annual income, organizational participation and problem confrontation of the farmers had no relationship with their communication behaviour.

CHAPTER 1

INTRODUCTION

1.1 General background

Rice is the staple food crop in Bangladesh. More than 75.35 percent of cultivable land is under rice cultivation and the country produced 25086 thousand m.tons rice in the year 2000-2001 with an average yield of 2.32 tons/ha (B.B.S. 2001). Perhaps agricultural productivity of Bangladesh is one of the lowest in the world. As population is being increased alarmingly with annual growth rate of 1.47 (B.B.S 2001) it demands a corresponding increased yield of rice production. Intensive care and use of improved agricultural technologies by the farmers are the key issues for increasing and maximizing rice production. But most of the farmers have not yet adopted improved agricultural technologies though suitable technologies are available. One may quite logically assume that the messages of improved technologies have not yet been properly conveyed to the farmers. It may also happen that the technologies that have been developed do not reach to the bonafide users effectively for their application.

The farmers usually are exposed to various forms of communication media to collect necessary information. Different research studies showed that farmers prefer interpersonal information sources, group approach and mass media to receive information. Miah and Halim (1992) found that the small farmers preferred interpersonal communication sources to get their necessary information, the medium farmers preferred individual and group media while the rich farmers preferred individual, group and mass media sources of information.

In Bangladesh, rice is grown in three seasons viz. Aus, Aman and Boro. Weather, climate and soil of Bangladesh are very suitable for rice cultivation but due to lack of use of appropriate practices, farmers are not able to raise potential high yields. Important information at the right time related to rice production is the key factor for the farmers in adopting improved technologies. So, knowing of communication behaviours of farmers is essential for transferring improved technologies.

1.2 Statement of the problem

Average yield of rice in Bangladesh is 2.32 ton/ha (BBS, 2001) while average yield of rice in China was 6.34 ton/ha in 1999 (Rice Production, Vol. 16, May 2002). So, there is great scope to increase rice yield in Bangladesh. Rapid population expansion followed by shrinkage of cultivable land necessitates increased yield of rice to keep pace with growing demand for rice. In order to achieve that end and for diffusing appropriate practices among the farmers, it is inevitable to know the communication behaviour of the farmers in a farming community.

In view of the above discussion, the researcher was interested to undertake this piece of research entitled, "Farmers' communication behaviour in receiving information on improved rice production technologies". The researcher attempted the present study to seek answer to the following research questions:

i. What is the communication behaviour of the farmers towards improved rice production technologies?

ii. Which characteristics are related to the communication behaviour of the farmers?

1.3 Objectives of the study

Objectives help any researcher to get into the right track. Meaningful, clear-cut and achievable are the key factors in all kinds of objective. The present research work was conducted with the following specific objectives.

1. To determine and describe the extent of use of communication media by the farmers in receiving information on selected improved rice production technologies.
2. To determine and describe the selected individual characteristics of the farmers. The selected individual characteristics were:
   i) Age
   ii) Education
   iii) Family size
   iv) Farm size
   v) Annual income
   vi) Organizational participation
   vii) Cosmopoliteness
   viii) Innovativeness
   ix) Attitude towards agricultural technology
   x) Problem confrontation
   xi) Agricultural knowledge
3. To determine the relationship between the individual characteristics of the farmers with their communication behaviour in receiving information on improved rice production technologies.

1.4 Justification of the study

Contact with information is a pre-condition to receive information and the use of technology in real situation (Kashem and Halim, 1991). For agricultural development, technology generation, diffusion and its adoption are very important. But very few researches have so far been conducted for studying the communication behaviour of the farmers in Bangladesh though a considerable study have been conducted in other countries. Findings of the present study will, therefore, add new dimensions to the body of existing knowledge.

1.5 Assumptions of the study

An assumption is "the supposition that an apparent fact on principle is true in light of available evidence" (Goode and Hatt, 1983). The following assumptions were made in conducting the study:

i) The respondents included in the sample of the study were able to provide their opinions and were competent enough to satisfy the queries.

ii) The information furnished by the respondents was reliable.

iii) The communication media included in the study were known to the respondents.

iv) The collected data from the respondents were free from bias.

v) Views and opinions furnished by the respondents included in the sample were the representative views and opinions of the whole population of the area concerned.

vi) The findings of the study are expected to be useful for planning and execution of various programmes in connection with the use of communication media and in the process of transferring rice production technologies.

1.6 Hypothesis of the study

Hypothesis may be broadly divided into two categories, namely, research hypothesis and null hypothesis. However, for the present study the hypothesis were formulated in null form.

The following null hypothesis was formulated to explore the relationship between the selected characteristics of the farmers with their communication behaviour in receiving information on improved rice production technologies.

"*There are no relationships of 11 selected characteristics of the farmers with their communication* behaviour in receiving information on improved rice production technologies."

1.7 Limitations of the study

The study was undertaken in order to have an understanding about the communication behaviour of the farmers in receiving information on rice cultivation. But considering the time and money, the study was conducted with the following limitations:

i) The study was confined to Barkhada union of Kushtia sadar upazila of Kushtia District. The Barkhada union consisted of 12 villages. Among 12 villages, only two villages were selected purposefully for this study.

ii) Farmers use communication media in receiving information on different aspects of agriculture such as crops, livestock, fisheries and also for many other purposes but this study was confined only to information media which were used for rice cultivation only by the farmers.

iii) The characteristics of the farmers are many and varied. But only 11 (eleven) characteristics were selected for investigation in the study.

iv) Population of the study was limited to the rice growers only.

v) Landless and non-rice grower families were excluded from the study.

vi) There are many communication media from where farmers can receive information for their farming business. But only eighteen communication media were selected for the study.

vii) There are many technologies involved in rice cultivation. But only five selected technologies were undertaken.

viii) Data collected by the investigator applied to the situation prevailing during March 2006 only.

1.8 Definition of terms

Different terms used throughout the study are defined and interpreted below for clarity of understanding:

Age

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

Agricultural knowledge

It was the extent of basic understanding of the farmers in different aspects of agricultural subject matters.

Annual income

Annual income referred to the total earnings of a respondent and others members of his family from agriculture and other sources (service, business etc) during a year.

Attitude towards agricultural technology

Attitude is an enduring tendency to perceive or act towards persons or situations in a particular way. Attitude towards technology means one's feeling and actions towards the agricultural technology. It was organized by developing an attitude scale, following Likert method of summated rating.

Communication media

The term communication media refers to the channels through which various information are diffused to the rice growers about different aspects of rice cultivation. However some literature shows that the term communication media have been used as information sources.

Cosmopoliteness

Cosmopoliteness is the degree to which an individual's orientation is external to his own social system.

Education

Education was defined as the formal education of a farmer. It was operationalized by the number of years spent to acquire formal education.

Family size

The term family size refers to the number of the members in a farm family.

Farm size

The term was used to refer to the cultivated area either owned by a farmer or cultivated on borga, lease or other means. Farm size was measured in terms of hectares.

Innovativeness

The term innovativeness referred to the degree to which an individual is relatively earlier in adopting new ideas than the other members of a social system (Rogers 1983). Innovativeness of a respondent was measured on the basis of adoption of ten technologies particularly in terms of time.

Organizational participation

Organizational participation of a farmer referred to his taking part in different social organization either as an ordinary member, executive committee member or executive officer within a specified period of time.

Problem confrontation

It refers to the extent of problem faced by the farmers in rice cultivation. The possible problems faced by the farmer were mainly collected from previous researches particularly in respect of modern varieties, recommended seed rate, recommended irrigation, recommended fertilizer dose and pest management.

Communication behaviour

Communication behaviour is a broad term encompassing the ways individuals articulate their information needs, seek, evaluate, select, and use information. In other words, communication behaviour is purposive in nature and is a consequence of a need to satisfy some goal. Here communication behaviour specifically refers to the farmers' extent of use of communication media in receiving information on improved rice production technologies.

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this Chapter is to present the reviews of researches related to the investigation. The reviews are conveniently presented based on the major objectives of the study. This chapter is divided into two sections. The first section deals with the findings on the extent of uses of communication media by the farmers, and the second section is devoted to a discussion on the findings of studies exploring relationships between the selected characteristics of the farmers and their communication behaviour.

2.1 Extent of use of communication media by the farmers

Rahman (1974) indicated in his study that the percentages of farmers using the information sources were as follows :

Extension agent 99; friends and neighbours 68. model farmer 52; office call 52; thana training and development center 35; farm and home visit 43; publication 35; radio 21; newspaper 13; demonstration 8; and Krishikatha 5.

Narayan (1978) observed that the most important sources used by pea farmers in the knowledge, persuasion and decision stages were neighbours and relatives while adopting varieties. Neighbours, relatives, radio, higher-level extension staff and village level workers were the sources of information in the knowledge stage of fertilizer use.

Orojobi (1980) found in a study that the private sources of agricultural information of Nigerian farmers were friends, other farmers, local leaders, traditional meeting, extension agents, radio, demonstrations, television, agricultural shows and printed materials.

Roy (1981) conducted a study on communication behaviour of small income farmers in receiving information on the use of balanced dose of fertilizer for transplanted aman cultivation in Agri-varsity extension project area. He found that the discussion with friends and neighbours received the largest number of score as 136, radio came next with 104 scores. Attending agricultural exhibition by the respondents secured the third position. Lecture at the field training spot also played an important role in the use of balanced dose of fertilizer having a score of 58. He also observed that office call, method demonstration, farm and home visit, poster, result demonstration and group meeting etc. were used significantly by the small income farmers of the entire study area which motivated in using the balanced dose of fertilizer to a great extent.

Patil, et al (1984) found in a study that contact farmers received information on improved agricultural technology from neighbour farmers (59.18 percent), progressive farmers (56.12 percent), village extension worker (91.84 percent), agricultural officer (31.63 percent), group discussion (16.33 percent) demonstrations (14.28 percent) radio (88.77 percent) and newspaper (60.20 percent).

The study also indicated that the non-contact farmers received information on improved agricultural technologies from neighbour farmer (67.71 percent), progressive farmers (66.67 percent), contact farmer (45.87 percent), village extension workers (39.58 percent), demonstrations (5.20 percent), group discussion (4.16 percent) radio (84.36 percent) and newspaper (51.04 percent).

Allen (1985) found in a study that a greater proportion of farm wives used interpersonal information sources, such as family, friends and neighbours whereas a greater proportion of farm husbands used interpersonal extension, research based personnel information sources.

Bhagat and Mathur (1985) found in a study that mass media like radio (86.6 percent), newspaper (40.2 percent) and television (30.3 percent) were utilized by the farm women in Delhi Territory.

Nataraju and Channegowda (1985) found in a study that respondents used radio (54.0 percent), newspaper (46.0 percent). neighbours (23.3 percent), demonstrations (10.6 percent) and group meetings (6.0 percent) in receiving information on improved dairy management practices.

Samanta (1986) in study in India found that demonstration was the best credible source of information by the farmers followed by scientists, Block supervisor, progressive farmers, television, radio and printed materials.

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Van den Ban (1987) observed that Dutch farmers received a large proportion of their information about new developments in agricultural research first through their farm magazines. He also observed that radio and television did not play a much bigger role in agricultural extension. The reason was that only 5 percent of the labour forces worked in agriculture and farmers showed very diverse interests because of their specialization.

Kayamuddin (1988) in an experiment found that the demonstration method was the best method of communicating information on crops.

King and Bembridge (1988) found in a study in South Africa that opinion leaders considered the fellow farmers as the most reliable sources for obtaining information.

Bhuiyan (1988) observed that when single communication medium was considered irrespective of categories, it was found that the highest proportion of citations in all stages of adoption process was neighbours, friends, and relatives. This medium received 73, 64, 84, 75 and 43 citations in awareness, interest, evaluation, trial and adoption stages respectively. Agricultural radio programme ranked third and result demonstration ranked fourth and contact farmer ranked fifth in respect of citations of individual medium in the five stages of adoption process.

Kashem and Jones (1988) observed that small farmers had highest contact with individual sources and the lowest contact with group contacts. They had comparatively higher percentages of contact with mass media except for those that needed literacy. Among individual contacts, small farmers had the highest contacts with the ideal farmers, seed and fertilizer dealers and relatively little contact with the local extension workers, i.e., Sub Assistant Agriculture Officers.

Kashem and Halim (1991) in a study found that the highest proportion of the farmers (34.89%) used interpersonal contact media in the adoption of modern rice technologies. Almost equal proportion (32.52) of farmers had individual contacts. This was followed by mass contact method. Farmers very often discuss or seek advice from their friends, relatives, neighbors and different input dealers regarding the use of modern practices in rice cultivation.

Khan and Paracha (1994) conducted a study in two villages in Pakistan, one innovative and other non-innovative, among the farmers of a cotton producing district, and reported that the main channel of communication were mass media and interpersonal communication. The mass media were centrally organized and included radio, television and newspapers.

Galindo (1994) in his study in Mexico on communication media used by the farmers revealed that television and radio were the most widely used communication media, and talks, demonstration and training courses were the preferred media for receiving information.

Islam (1996) in his study found that the highest proportion of the respondents (44.55%) belonged to medium media exposure category and 38.18% belonged to low exposure and 17.27% belonged to high exposure group. He also found that among 15 media, radio ranked in 6, television 7, fair 8, agricultural publication 15, and the rank 1-5 was for different individual media.

Khan (1996) conducted a study on the use of information sources by the poor farmers and concluded that 75% of the respondents had medium use of various information sources for receiving agricultural information.

Halim and Miah (1996) conducted a study and found that the women of modern villages with higher socio-economic status used more cosmopolite media of information rather than localite media. Cosmopolite media included radio, television, extension agents etc. Among the mass media, they used radio and television as vital source of information. Radio was very frequently (69.7%) used by all categories of farmwomen, while TV was used by less number of women (26.9%)

Wabhitkar et al. (1998) reported that contact with extension agencies and mass media exposure were found to be significantly related to adoption.

Egbule and Njoku (2001) in their study on mass media for adult education in Nigeria found that mass media performed poorly in disseminating requisite agricultural information to farmers.

Nuruzzaman (2003) in his study revealed that 79.43 percent of the respondents had medium use, 9.34 percent had low use and only 11.21 percent had high use of mass media. Preference of mass media varied for different technologies. Television was found to be the first preference followed by radio, agricultural fair, folk song and poster respectively by the farmers.

Anisuzzaman (2003) in his study concluded that neighbours, friends and relatives were used by 13.64, 15.60 and 16.01 percent of the farmers for getting information about recommended variety of rice, recommended dose of fertilizer and plant protection measures respectively. Radio was used as a powerful medium for getting information. Progressive farmers and contact farmers were found as frequently used communication media. TV, result demonstration and printed materials were also used as important media for communication of agricultural information. But the least used media were newspaper and field tour.

Alam (2004) in his study found that neighbour, friends, relatives, progressive farmers and Sub Assistant Agriculture Officer were the first five communication media used by the farmers in receiving information on winter vegetable cultivation whereas the last five media were NGO workers, newspaper, agricultural fair, upazila level agriculture officers and television respectively.

2.2 Relationship between selected characteristics of the farmers and their communication behaviour

2.2.1 Age

Bhuiyan (1988) found in his study that age of the farmers had significant negative correlation with their use of communication media.

Uddin (1993) in his study concluded that there was no relationship between age of the sugarcane growers and their reception of information on intercropping in sugarcane cultivation.

Galindo (1994) found that the exposure to the communication media was closely related with the age of the farmers.

Islam (1995) found that the age of the farmers had a negative and significant correlation with their use of communication media.

Khan (1996) concluded that age of farmers had negative and insignificant effect on the use of information sources.

Nuruzzaman (2003) in his study found that age of the farmers had negative and significant relationship with their use of mass media in receiving agricultural information.

Annisuzzaman (2003) concluded that age of the respondent had no significant relationship with their use of communication media for adoption of improved rice production technology.

2.2.2 Education

Kahsem and Jones (1988) found in their study that education of the small farmers had significant positive correlation with their information sources.

Islam (1995) found that education of the farmers had positive and highly significant relationship with their use of communication media.

Sarker (1995) in his study concluded that education of the farmers had positive significant relationship with their use of communication media.

Nuruzzaman (2003) in his study found that education of the farmers had positive and highly significant relationship with their use of mass media in receiving agricultural information.

Annisuzzaman (2003) in his study concluded that the education of the respondents had significant positive relationship with their use of communication media.

2.2.3 Family size

Sarker (1995) found that family of the small farmers had no significant relationship with their use of communication media.

Islam (1998) found that family size of the farmers had no significant relationship with their use of communication media.

Anisuzzaman (2003) concluded that the family size of the farmers had no significant relationship with their use of communication media.

Alam (2004) in his study concluded that family size of the farmers had no significant relationship with their use of communication media.

2.2.4 Farm size

Chakraborty (1992) in his study concluded that there was a negative relationship between the farm size and the use of communication media by the farmers.

Sarker (1995) in his study concluded that farm size of the respondents had a positive and significant relationship with their use of communication media.

Islam (1995) found that farm size of the farmers had a positive and significant relationship with their use of communication media.

Nuruzzaman (2003) in his study concluded that there was no relationship between farm size of the farmers and their use of mass media in receiving agricultural information.

Alam (2004) in his study concluded that farm size of the farmers had no significant relationship with their use of communication media.

2.2.5 Annual income

Uddin (1993) reported that there was strong and highly significant relationship between income of the sugarcane growers and their reception of information.

Ali (1995) revealed that annual income had significant positive relationship with their attitude towards working in group.

Hossain (1996) found that income of the farmers had positive and significant relationship with their use of television as agricultural information medium.

Nuruzzaman (2003) revealed that there was no relationship between annual income of the farmers and their use of mass media in receiving agricultural information.

Annisuzzaman (2003) concluded that the annual income of the farmers had no significant relationship with their use of communication media.

2.2.6 Organizational participation

Buiyan (1988) in a study found that organizational participation of the farmers had no significant effect on the use of communication media.

Rahman (1991) found that organizational participation and credibility of Sub Assistant Agriculture Officers showed insignificant relationship.

Islam (1995) in his study on wheat growers found that organizational participation of the farmers had positive and significant relationship with their use of communication media.

Nuruzzaman (2003) in his study found that organizational participation of the farmers had positive and highly significant relationship with their use of mass media in receiving agricultural information.

Alam (2004) in his study concluded that organizational participation of the farmers had no significant relationship with their use of communication media.

2.2.7 Cosmopoliteness

Kadam and Sabale (1983) observed in a study that cosmopoliteness of the farmers were significantly associated with the extent of use of communication media.

Bhuiyan (1988) in a study observed that the relationship between cosmopoliteness and the use of communication media was not significant,

Nuruzzaman (2003) in his study found that cosmopoliteness of the farmers had positive and highly significant relationship with their use of mass media in receiving agricultural information.

Annisuzzaman (2003) concluded that the cosmopoliteness of the respondents had significant positive relationship with their use of communication media.

2.2.8 Innovativeness

Uddin (1993) reported that there was a highly significant relationship between innovativeness of the sugarcane growers and their reception of information on planting method.

Islam (1995) found that innovativeness of the farmers had positive and highly significant relation with their use of communication media.

Hossain (1996) found that innovativeness of the farmers had positive and significant relationship with their use of television as an agricultural information medium.

Khan (1996) concluded that there was no signification relationship between innovativeness and use of information by the resource poor farmers.

2.2.9 Attitude towards agricultural technology

Nuruzzaman (2003) in his study found that there was no relationship between attitude towards technology and their use of mass media in receiving agricultural information.

Alam (2004) in his study concluded that attitude towards agricultural technology of the farmers had highly significant relationship with their use of communication media.

2.2.10 Agricultural knowledge

Kahsem and Jones (1988) found in their study that agricultural knowledge of the small farmers rendered significant positive correlation with their use of information sources.

Kashem and Halim (1991) showed that the use of communication media in adoption of modern rice technologies had significant positive correlation with agricultural knowledge.

Islam (1995) in his study observed that agricultural knowledge of the farmers had positive and highly significant relationship with their use of communication media.

Sarker (1995) found a highly significant and positive relationship between agricultural knowledge of the farmers and their use of communication media.

Khan (1996) found that there was a highly significant and strongly positive relationship between agricultural knowledge of the farmers and their use of information sources.

গ্রন্থাগার

Conceptual framework of the study

Farmers' communication behaviour was the dependent variable of the study, whereas eleven selected characteristics of the farmers were the independent variables. Both these issues are interrelated and might exert influence on improved rice production technologies. Figure 2.1 represent the conceptual framework of the study.

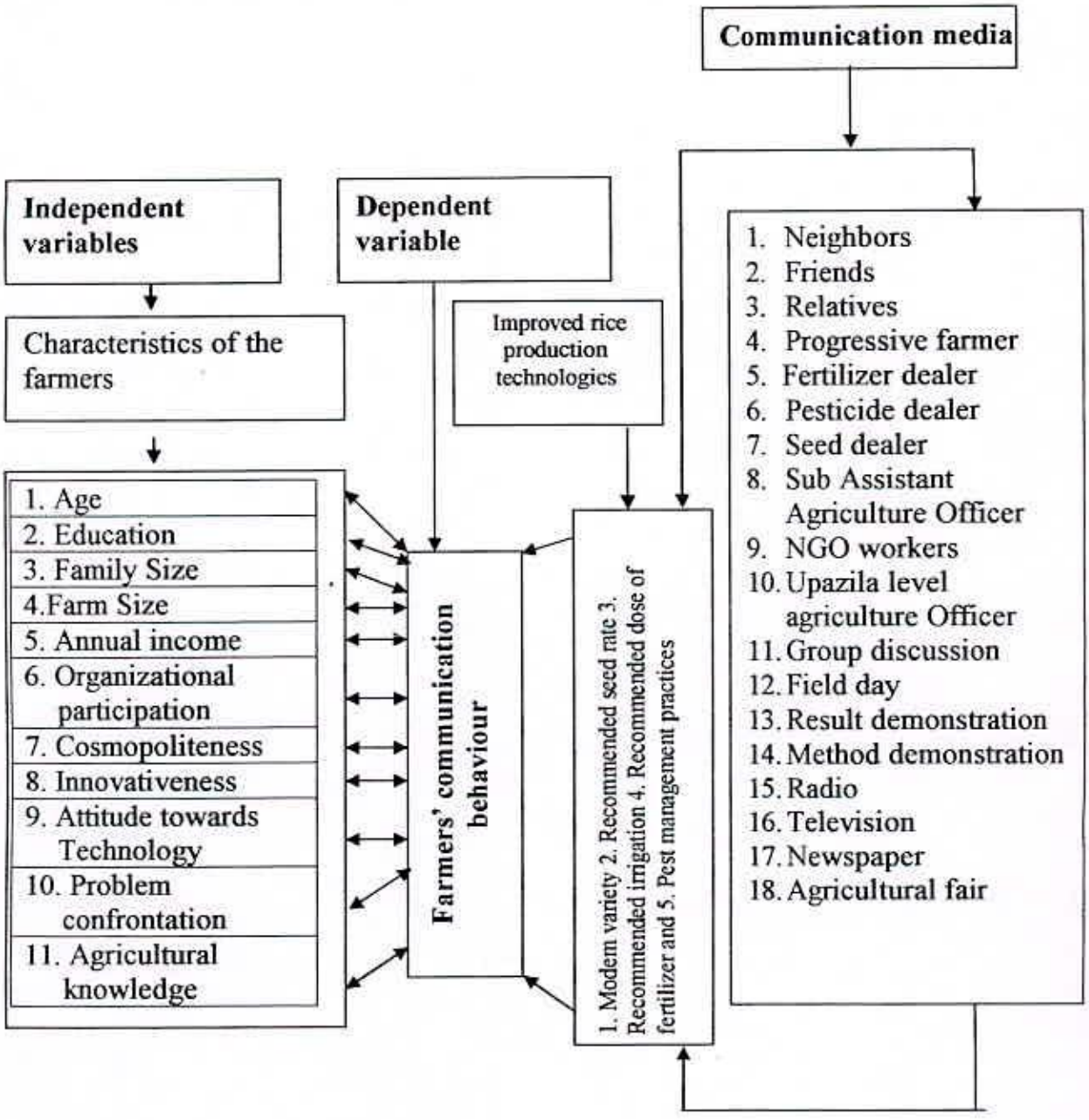

Figure 2.1 The conceptual framework of the study

CHAPTER 3

METHODOLOGY

Methodology deserves a very careful consideration in a scientific research. Methodology of any study should be such as to enable the researcher to collect valid and reliable information to analyze the same properly and to arrive at appropriate decisions. Methods and procedures followed in conducting this study had been discussed in this chapter.

3.1 Locale of the study

Jugia and Baradi villages in Barkhada union of Kushtia sadar Upazila of Kushtia District were purposively selected because these were intensive rice growing areas. These two villages constituted the locale of the study.

3.2 Population and sample of the study

The researcher himself with the help of local leaders and concerned Sub Assistant Agriculture Officer prepared an updated list of all the rice growers of the selected villages. The total numbers of farm families in these villages were 600, which constituted the population of the study. Twenty percent of the rice growers from the population were selected from each of the village by using a table of random number, which gave 120 rice growers. A reserve list of 12 farmers was also prepared. Farmers in the reserve list were used only when a respondent in the original list was not available. The distribution of the sample farmers and those in the reserved list from the selected villages is shown in Table 3.1

Table 3.1. Distribution of the farmers according to population and sample size

Name of Village	population of rice growers	Number of rice growers included in the sample	Number of rice growers included in the reserve list
Jugia	360	72	8
Baradi	240	48	4
Total	600	120	12

3.3 Instrument for Data Collection

A previously structured interview schedule was used as data gathering instrument keeping in view the objectives of the study. The schedule was prepared in Bengali for clear understanding of the respondents.

It may be recalled that the schedules were pre-tested in actual field situations before using the same for final data collection among 15 respondents of the study area. Necessary corrections, modifications and additions were made in the interview schedule on the basis of results of pre-test. The interview schedule was then printed in its final forms. A copy of the interview schedule in English version has been furnished in Appendix-A.

3.4 Collection of Data

The researcher himself collected data from the sample farmers through the personal interview schedule during March 01 to March 30, 2006. Before starting collection of data, the researcher met the respective Upazlila Agriculture Officer (UAO), Agriculture Extension Officer (AEO) and the concerned Sub Assistant Agriculture Officer (BS). The researcher also discussed the objectives of the present study with the respondents so that they did not feel hesitate at the time of interview. However, if any

respondent failed to understand any question, the researcher took necessary care to explain the issue as far as possible. After completion of the interview, it was checked and editing was done in case of necessity. The researcher did not face any major problem in collecting data. Excellent co-operation and co-ordination were extended by the respondents and other concerned persons at the time of data collection.

29/03/07

3.5 Variables of the study

In the present study, the respondents' selected characteristics viz age, education, family size, farm size, annual income, organizational participation, cosmopoliteness, innovativeness, attitude towards technology, problem confrontation and agricultural knowledge were independent variables and farmers' communication behaviour in receiving information on improved rice production technologies constituted dependent variable.

A-5

3.6 Measurement of Variable

3.6.1 Measurement of independent variables

3.6.1.1 Age

Age of a respondent was measured in terms of actual years from his birth to the time of interview. A score of one (1) was assigned for each year of age. It was measured in complete years as reported by a respondent

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3.6.1.2 Education

Education of a respondent was measured in terms of years of schooling completed by an individual in educational institute. If a respondent did not know how to read and write his literacy was taken as zero (0). A score of 0.5 was given to that respondent who could sign his name only. Besides a respondent got actual score of one for every year of schooling i.e. 1 for class one, 2 for class two and so on.

3.6.1.3 Family size

Family size was estimated by computing the total number of members of a respondent's family, who jointly lived and ate together. A score of 1 was assigned to each member of the family and 2 for two members and so on.

3.6.1.4 Farm size

Farm size may be measured in two ways: a) farm size by operation and b) farm size by benefit. Farm size in this study has been measured on the basis of farm size by benefit. Thus the farm size of a respondent was computed in hectares using the following benefit formula:

$$FS= A_1 + A_2 + \frac{1}{2}(A_3 + A_4 + A_5 + A_6)$$

Where,

FS=Farm size

A_1=Homestead (Including pond)

A_2= Own land and own cultivation

A_3= Area given by a respondent to others for cultivation on borga system

A_4= Area taken by a respondent from others for cultivation on borga system

A_5= Area taken on lease by a respondent from others

A_6= Area given by a respondent to others for cultivation on lease

3.6.1.5 Annual income

All the earning of a respondent crops and others were added to determine his gross annual income. The income was measured in Taka by multiplying the quantity of those crops with its prevailing market price per unit quantity. In case of business or service, their monthly income was multiplied by twelve to determine annual income. However, unit score of (1) was taken for every Tk. 1000/- of annual income.

3.6.1.6 Organizational participation

Organizational participation of a respondent was measured on the basis of status of his participation in different organizations during the time of interviewing. Participation status score was computed in the following manner.

Nature of participation	Score assigned
Not involved	0
Participation as ordinary member	1
Participation as executive committee member	2
Participation as executive committee Officer (President, Secretary, etc.)	3

Organizational participation score of a respondent was obtained by multiplying the score of his participation status with the corresponding organizations and then added together.

Therefore, the total score of organizational participation was computed in the following way:

Organizational participation score = $\sum O_1 \times 1 + \sum O_2 \times 2 + \sum O_3 \times 3$.

Where,

0_1 =Total number of organization participated as ordinary member.

0_2 = Total number of organization participated as executive committee member.

0_3 = Total number of organization participated as president/secretary in executive committee.

3.61.7 Cosmopoliteness

Cosmopoliteness of a respondent was measured by computing a cosmopoliteness score. The cosmopoliteness score was assigned on the basis of place and frequency of his visit external to and outside his own social system. Comopliteness score was computed based on eight places namely, relatives' and friends' home, own union parishad, own upazila sadar, other upazila sadar, own district sadar, other district sadar, regional agricultural research institute and capital city in the following manner:

Places of visit	Assigned score
1. Relatives' and friends' home	0 = Not once per month 1 = 1-4 times per month 2 = 5-9 times per month 3 = 10 or more times per month
2. Own union parishad	0 = Not once per month 1 = 1 time per month 2 = 2-3 times per month 3 = 4 or more times per month
3. Own upazila sadar	0 = Not once per year 1 = 1-4 times per year 2 = 5-9 times per year 3 = 10 or more times per year
4. Other upazila sadar	0 = Not once per year 1 = 1-3 times per year 2 = 4-7 times per year 3 = 8 or more times per year
5. Own district sadar	0 = Not once per year 1 = 1-2 times per year 2 = 3-5 times per year 3 = 6 or more times per year
6. Other district sadar	0 = Not once per year 1 = 1 time per year 2 = 2 times per year 3 = 3 or more times per year
7. Regional agricultural research institute	0 = Not once per year 1 = 1 time per year 2 = 2 times per year 3 = 3 or more times per year
8. Capital city	0 = Not once per year 1 = 1 time per 5 years 2 = 1 time per3 years 3 = 4 time per year

3.61.8 Innovativeness

Innovativeness of the respondent was measured on the basis of their adoption of ten new technologies related to agriculture and others. Score was assigned on the basis of earliness in the use of a practice by a respondent. Five-point scale was used for computing the innovativeness score as follows:

Score	Duration of time (in years)
4	For adoption of technologies within 1 year after hearing by the respondent
3	For adoption of technologies within 1-2 year after hearing by the respondent
2	For adoption of technologies within 2-3 year after hearing by the respondent
1	For adoption of technologies within 3-4 year after hearing by the respondent
0	For non adoption of technologies

3.6.1.9 Attitude towards agricultural technology

Attitude towards technology of a respondent referred to his feelings, belief, and action tendency towards the various improved technologies. The Likert-type scale was used to determine the attitudes towards agricultural technology. The scale contained ten statements out of which 5 statements were positive and 5 statements were negative. These positive and negative statements were arranged alternatively. A statement was considered positive only when it reflected the idea of favorableness towards the modern technologies. The respondents were asked to express the opinion in the form of strongly agree, agree, no opinion, disagree and strongly disagree. Scores of 5, 4, 3, 2 and 1 were assigned respectively in the case of strongly agree,

agree, no opinion, disagree and strongly disagree for a positive statement. On the other hand, for a negative statement reverse scoring method was followed. Hence attitude towards technology of a respondent was determined by summing up the scores obtained by him for all the statements in the scale. The possible attitude towards technology scores of the respondents could range from 10 to 50, where 10 indicating very unfavorable attitude and 50 indicating highly favorable attitude.

3.6.1.10 Problems confrontation in rice production

The extent of problem faced by the farmers in rice cultivation was another independent variable in this study. It was measured on different aspect of rice cultivation. The possible problems faced by the respondents were collected from literatures, which were modern varieties, recommended seed rate, recommended irrigation, recommended fertilizer dose and pest management practices of the study area prior to preparation of the interview schedule. Numerical values assigned to the scale were 3, 2, 1 and 0 for the answer of very high, high, medium and not at all respectively. Then problems confrontation score of a respondent was determined by summing up his response to all the items.

3.6.1.11 Agricultural knowledge

Agricultural knowledge score of a respondent was measured by asking him 20 questions on different aspects of agriculture. The total marks for all the questions were 100. If a respondent was able to give a correct answer to the question, he could get full credit for that particular question. Accordingly, a respondent could get zero for wrong answer, and partial credit was given from partial correctness of reply to a question. The total score obtained by a respondent was taken as his agricultural knowledge.

3.6.2 Measurement of dependent variable

Communication behaviour was the dependent variable of the study. Eighteen communication media of different nature were selected to measure the communication behaviour of the farmers. Extent of use of each communication medium was measured on a 4-point rating scale of 0 to 3 as follows:

Communication media	Assigned Score for communication exposure
Neighbours, Friends	0 = Not even once per week 1 = 1 times per week 2 = 2-3 times per week 3 = 4 or more times per week
Relatives, Ideal farmer, Fertilizer dealer, Pesticide dealer, Seed dealer	0 = Not even once per month 1 = 1-2 time per month 2 = 3-4 times per month 3 = 5 or more times per month
Sub Assistant Agriculture Officer, NGO worker	0 = Not even once per month 1 = 1 times per month 2 = 2-3 times per month 3 = 4 or more times per month
Upazila leveled Agriculture Officer, Group discussion	0 = Not even once per year 1 = 1-2 times per year 2 = 3-4 times per year 3 = 5 or more times per year
Field day, Result demonstration, Method demonstration	0 = Not even once per year 1 = 1 times per two year 2 = 1 times per year 3 = 2 or more times per year
Radio	0 = Not even once per month 1 = 1-4 time per month 2 = 5-9 times per month 3 = 10 or more times per month
Television	0 = Not even once per month 1 = 1 time per month 2 = 2-3 times per month 3 = 4 or more times per month
Daily Newspaper	0 = Not even once per month 1 = 1-2 time per month 2 = 3-6 time per month 3 = 7 or more times per month
Agricultural fair	0 = Not even once per year 1 = 1 time per 5 year 2 = 1 time per 2 year 3 = 1 time per year

According to the instrument (Appendix-A, item no. 12) used for measuring extent of use of communication media, the range of scores of the individual farmer for a particular rice technology could range from 0 to 54 and that for five cultivation technologies could range from 0 to 270. Thus the range of total score of the extent of use of communication media of an individual farmer could range from 0 to 270.

To identify the important medium or the important technology, a media use index (MUI) was calculated. A total of 120 respondents gave their opinion on a 4 point (0-3) rating scale, for a particular technology. Thus media use index of a particular medium for a single technology could range from 0 to 360. However, the media use index of a medium for five technologies would range from 0 to 1800. On the other hand, media use index of a technology would range from 0 to 6480 [120 respondents × 18 media × (0-3) rating scale].

3.7 Categorization

For describing the various independent and dependent variables, the respondents were classified into several categories in respect of each variable. These categories were developed by considering the nature of distribution of data and general understanding prevailing in the social system. The procedure for categorization of data in respect of different variables will be elaborately discussed while describing those variables in Chapter 4.

3.8 Methods of Data Analysis

The collected data were compiled, tabulated, coded and analyzed in accordance with the objectives of the study. The statistical measures such as number and percentage distribution, range, mean, standard deviation and rank order were used for describing the variables of the study. To find out the relationships between use of communication media and the selected characteristics of the farmers, the Pearson's Product Moment Correlation co-efficient (r) was computed. Correlation matrix was also computed to determine the inter-relationships among the variables. If the computed value of co-efficient of correlation 'r' was equal to or greater than the table value of co-efficient at designated level of significance for the relevant degree of freedom, the null hypothesis was rejected and it was concluded that there was significant relationship between the concerned variables. However, when the computed value of co-efficient of correlation was found to be smaller than the tabulated value at the designated level of significance for the relevant degree of freedom, it was concluded that the null hypothesis could not be rejected and hence there was no relationship between the concerned variables.

CHAPTER 4
RESULTS AND DISCUSSION

A sequential and detailed discussion on the findings of the study has been presented in this Chapter. The Chapter is divided into three sections. In the first section, independent variables i.e. characteristics of the respondents have been discussed. The second section dealt with dependent variable (communication behaviour of the farmers in receiving information on improved rice production technologies) and finally, the relationship between the dependent and independent variables have been discussed in the third section.

4.1 Characteristics of the Farmers

Eleven characteristics of the farmers were selected to describe and to find out their relationships with their communication behaviour in receiving information on rice cultivation. These selected characteristics were age, education, family size, farm size, annual income, organizational participation, cosmopoliteness, innovativeness, attitude towards agricultural technology, problem confrontation and agricultural knowledge. The salient features of the eleven characteristics of the farmers, each of which constituted an independent variable, are presented in Table 4.1.

4.1.1 Age

The age of the sample farmers ranged from 22 to 68 years with an average of 38.86 and standard deviation of 10.58. The respondents were classified into three categories on the basis of their age (Table 4.1). The data indicate that the highest proportion (45.83 percent) of the respondents were middle aged compared to 40 percent being young and 14.17 percent old aged.

4.1.2 Education

Education of the respondents was measured by following the procedure as discussed earlier in Chapter 3. The education ranged from 0-14, with an average of 4.30 and standard deviation of 4.16. Based on their education score farmers were classified into four categories as shown in Table 4.1. It is evident from the Table that 39.17 percent of the respondents had no education, 25.83 percent comprised of primary education, 27.5 percent comprised secondary education and 7.50 percent had above secondary education.

4.1.3 Family size

The family size of the respondents under this study ranged from 2-12, with an average of 5.23 and standard deviation of 1.93. Table 4.1 indicates that majority (46.67 percent) of the respondents fell into medium family size category followed by 40.83 percent of small family and 12.50 percent with large family.

Table 4.1 The characteristics profile of the sample farmers

Characteristics	Probable range	Observed range	Category	Number (N=120)	Percent	Mean	SD
Age (Years)	Unkown	22-68	Yonge aged (upto 35)	48	40	38.86	10.58
			Middle aged (36-50)	55	45.83		
			Old aged (≥51)	17	14.17		
Education (Year of schooling)	Unkown	0-14	No education (0 or 0.5)	47	39.17	4.30	4.16
			Primary education (1-5)	31	25.83		
			Secondary education (6-10)	33	27.50		
			Above secondary education (>10)	9	7.5		
Family size (Number)	Unkown	2-12	Small family (2-4)	49	40.83	5.23	1.93
			Medium family (5-7)	56	46.67		
			Large family (>7)	15	12.50		
Farm size (Hectare)	Unkown	0.18-3.00	Marginal farm (upto 0.2 ha)	2	1.67	0.87	0.54
			Small farm (0.21-1.00 ha)	98	81.66		
			Medium farm (1.01-3.0 ha)	20	16.67		
			Large farm size (>3.0 ha)	0	0		
Annual income (.000 Tk.)	Unkown	18-210	Low income (<100)	100	83.33	62.40	35.91
			Medium income (100-150)	16	13.33		
			High income (> 150)	4	3.33		
Organizational participation (rated score)	0-30	0-22	No participation (0)	47	39.17	2.53	3.53
			Low participation (1-2)	30	25.00		
			Medium participation (3-4)	17	14.16		
			High participation (> 4)	26	21.67		
Cosmopliteness (Rated score)	0-24	4-20	Low cosmopoliteness (< 8)	30	25	10.97	4.40
			Medium cosmopoliteness (8-16)	72	60		
			High cosmopoliteness (>16)	18	15		
Innovativeness (Rated score)	0-40	8-40	Low innovativeness (< 21)	49	40.83	21.26	7.91
			Medium innovativeness (21-26)	36	30.00		
			High innovativeness (>26)	35	29.17		
Attitude towards technology (rated score)	10-50	38-50	Favourable attitude (46-50)	36	30	42.44	3.67
			Moderate favourable attitude (40-45)	57	47.50		
			Low favourable attitude (≤39)	27	22.50		
Problem conformation (rated score)	0-15	1-7	Low confrontation (upto 2)	50	41.67	2.84	1.58
			Medium confrontation (3-5)	63	52.50		
			High confrontation (>5)	7	5..83		
Agricultural Knowledge (rated score)	0-100	51-95	Low agricultural knowledge (<59)	29	24.17	70.06	11.29
			Medium agricultural knowledge (60-79)	62	51.67		
			High agricultural knowledge (≥80)	29	24.16		

4.1.4 Farm size

Farm size varied from 0.18-3.00 hectares with an average of 0.87 hectares and standard deviation was 0.54. Based on their farm size the farmers were classified into four categories that were shown in Table 4.1. The data in the table revealed that the majority of the respondent (81.66 percent) had small farm, 16.67 percent has medium farm, 1.67 percent had marginal and 0 percent had large farm.

4.1.5 Annual income

The annual income of the farmers ranged between 18-210 thousands, the average being 62.40 thousands and standard deviation 35.91. On the basis of income of farmers, they were classified into three categories. The categories and distribution of the respondents were shown in Table 4.1.

The data in the table showed that 81.66 percent of the farmers had low annual income, 13.33 percent of the respondents had medium income, and 3.33 percent had high income.

4.1.6 Organizational participation

The computed score of the organizational participation of the respondents ranged from 0 to 22, with an average of 2.53 and standard deviation being 3.53. On the basis of individual organizational participation score, the respondents were classified into four categories as shown in Table 4.1.

Data in the table indicate that 39.17 percent of the respondents had no participation in any organization, 25 percent had low participation, 14.16 percent had medium, and 21.67 percent had high organizational participation. The farmers with more organizational participation scores are expected to use more communication media in receiving information on rice cultivation.

4.1.7 Cosmopoliteness

Cosmopoliteness scores of the respondent ranged from 4-20 against the possible score of 0 to 24. The average cosmopoliteness score was 10.97 and standard deviation 4.40. Based on their cosmopoliteness scores, the farmers were classified into three categories. Data furnished in Table 4.1 revealed that highest proportion (60 percent) of the respondents had medium cosmopliteness compared to 25 percent having low cosmopliteness and 15 percent having high cosmopliteness. It is therefore; likely that cosmopliteness might have favorable effect on the use of communication media in receiving information on rice cultivation.

4.1.8 Innovativeness

Innovativeness score of the respondents ranged from 8 to 40, against the possible scores 0 to 40, with an average of 21.26 and standard deviation of 7.91. The respondents were classified into three categories on the basis of their innovativeness score. The categories and distribution of the respondent were shown in Table 4.1. Analysis of data revealed that 40.83 percent of the respondents had low innovativeness, 30 percent of the respondent had medium innovativeness and 29.17 percent of the respondent had high innovativeness.

4.1.9 Attitude towards agricultural technology

Attitude towards agricultural technology score of the farmers ranged from 38 to 50 against the possible range of 10 to 50. The farmers were classified into three categories based on their obtained scores considering mean and standard deviation 42.44 and 3.67 respectively. The categories and distribution of the farmers in this regard are shown in Table 4.1.

The data represented in the Table 4.1 show that higher proportion of the respondents (47.50 percent) had moderately favourable, 30 percent had favourable and 22.50 percent had low favourable attitude towards technology. It implies that most of the farmers were aware of modern technology.

1.1.10 Problem confrontation

Problem confrontation score of the farmers ranged from 1-7 against the possible score of 0 to 15. The farmers were classified into three categories based on their obtained scores considering mean and standard deviation 2.84 and 1.58 respectively. The categories and distribution of the farmers in this regard were shown in Table 4.1.

The data presented in Table 4.1 show that highest proportion of the respondent (52.50%) faced medium confrontation, 41.67 percent of the farmers faced low and 5.83 percent of the farmers faced high confrontation on rice cultivation.

4.1.11 Agricultural knowledge

Agricultural knowledge scores of the farmers ranged from 51 to 95, against the possible range from 0 to 100. The average score about agricultural knowledge of the farmers were 70.06 and standard deviation 11.29. Based on agricultural knowledge scores, the farmers were classified into three categories that were shown in Table 4.1. Analysis of data indicated that about half of the respondents (52.50 percent) had medium agricultural knowledge and 24.17 percent had low and 24.16 percent had high agricultural knowledge. In general, the level of agricultural knowledge of the respondents was good.

4.2 Communication behaviour

Farmers use communication media to get information related to agriculture. The present study was carried out to explore the communication behaviour of the farmers in receiving information about rice cultivation. For this the extent of use of communication media was determined in two steps. First of all, the technologies of rice cultivation were identified and extent of use of 18 communication media for each of these technologies was determined using media use index (MUI). Secondly, the extent of use of 18 communication media for each of these technologies were cumulated which were expressed as the extent of use of communication media on rice cultivation. The results of the first phase, i.e. the communication media use index for five technologies of rice cultivation are presented in Table 4.2.

Table 4.2 Communication media used by the farmers in receiving information on five rice production technologies

Sl. No.	Communication media	Modern varieties		Recommended seed rate		Recommended irrigation		Recommended fertilizer dose		Pest management	
		Score (MUI)	Rank order	Score (MUI)	Rank order	Score (MUI)	Rank order	Score (MUI)	Rank order	Score (MUI)	Rank order
1	Neighbors	186	4	202	1	196	1	294	1	340	1
2	Friends	153	5	165	3	173	3	263	3	310	3
3	Relatives	92	8	87	7	59	7	192	5	190	7
4	Progressive Farmer	214	1	198	2	186	2	287	2	335	2
5	Fertilizer dealer	32	12	20	14	12	14	192	5	250	6
6	Pesticide dealer	18	13	13	17	10	15	130	7	293	4
7	Seed dealer	198	3	135	4	8	16	64	11	160	9
8	Sub Assistant Agriculture Officer	203	2	92	5	135	4	210	4	284	5
9	NGO Worker	6	16	0	18	0	18	10	17	35	17
10	Upazila level officer	32	12	17	15	17	12	49	14	120	10
11	Group discussion	132	6	88	6	132	5	157	6	185	8
12	Field day	113	7	86	8	89	6	115	8	48	13
13	Result demonstration	62	10	54	9	33	10	84	9	40	15
14	Method demonstration	32	12	32	11	46	8	78	10	39	16
15	Radio	65	9	39	10	34	9	62	12	64	11
16	Television	39	11	24	12	22	11	61	13	53	12
17	Newspaper	14	14	15	16	14	13	24	15	46	14
18	Agricultural Fair	10	15	22	13	5	17	12	16	33	18

The findings of this Table are illustrated in subsequent sections.

4.2.1 Extent of use of communication media on each of the five technologies of rice cultivation

Rice cultivation technologies were classified into five groups, such as modern varieties, recommended seed rate, recommended irrigation, recommended dose of fertilizer and pest management practices. A communication media use index for each of these technologies could range from 0 to 360. The actual scores of MUI and rank order of 5 production technologies are illustrated below.

4.2.1.1 Communication media used for modern varieties of rice

Form Table 4.2, it is evident that the highest media use index for modern varieties was 214 and the lowest was 6. Progressive farmers were used as the communication media to the highest extent (214) and it was closely followed by Sub Assistant Agriculture Officer (203), seed dealer (198) neighbours (186) and friends(153). NGO workers were used as the communication media to the lowest extent (6). The findings indicate that the most relevant and reliable media were used at highest extent, and the non-relevant sources were used at low extent. This means that contact depends mainly on relevancy of sources.

4.2.1.2 Communication media used for recommended seed rate of rice cultivation

Table 4.2 shows that the highest media use index for recommended seed rate was 202 and the lowest was 0. Neighbours were used as the communication media to the highest extent (202) and it was closely followed by progressive farmer (198), friends (165), seed dealer (135) and Sub Assistant Agriculture Officer (92). The media use index (MUI) for result demonstration (54), radio (39), method demonstration (32), television (24), agricultural fair (22), fertilizer dealer (20), upazila level agriculture officers (17), news paper (15), pesticide dealer (13) and NGO workers (0) were very low. In this case, the relevant communication sources were mostly used by the farmers and the irrelevant ones were used to the least extent.

4.2.1.3 Communication media used for recommended irrigation in rice cultivation.

As presented in Table 4.2 the highest media use index was 196 and the lowest was 0. Neighbours were used as the communication media to the highest extent (196) and it was closely followed by progressive farmer (186), friends (173), Sub Assistant Agriculture Officer (135) and group discussion (132). However, the media use index (MUI) was very low for result demonstration (33), radio (34), television (22), Upazila level agriculture officers (17), news paper (14), fertilizer dealer (12), pesticide dealer (10), seed dealer (8) and NGO workers (0) concerning irrigation practice in rice cultivation.

4.2.1.4 Communication media used for recommended dose of fertilizer in rice cultivation

Table 4.2 indicates that the highest media use index for recommended fertilizer dose was 294 and the lowest was 10. Neighbours were used as the communication media to the highest extent (294) and it was closely followed by progressive farmer (287), friends (263), Sub Assistant Agriculture Officer (210), relatives (192), fertilizer dealer (192) and group discussion (157). The media use index (MUI) was very low in result demonstration (84), method demonstration (78), seed dealer (64), radio (62), television (61), upazila level agriculture officers (49), newspaper (24), agricultural fair (12) and NGO workers (10). These findings revealed that farmers have not good knowledge on fertilizer use and for that reason they keep contact with information sources for this type of technology.

4.2.1.5 Communication media used for pest management practices in rice cultivation

Data in Table 4.2 indicate that the highest media use index (MUI) was 340 and the lowest was 33 for pest management practices in rice cultivation. Neighbours were used as the communication media to the highest extent (340) and it was closely followed by progressive farmer (335), friends (310), pesticide dealer (293) , Sub Assistant Agriculture Officer (284), fertilizer dealer (250),, relatives (190) and group discussion (185). A very low media use index (MUI) was observed for radio (64), television (53), field day (48), newspaper (46), result demonstration (40), method demonstration (39), NGO workers (35) and agricultural fair (33). Pesticide dealers and Sub Assistant Agriculture Officer came forward for pest management practice, however neighbours and progressive farmers remained the two most reliable and available sources to the farmers.

Extent of use of communication media by the farmers in receiving information has so far been presented and discussed on individual technology level. Now it has been combinedly presented in Table 4.3. The 18 communication media have been arranged in rank order in Table 4.3 on the basis of their combined media use index in all the technologies of rice cultivation. Computed combined media use index (CMUI) could range from 0 to 1800, however the observed MUI ranged from 51 to 1220.

Table 4.3 Rank order of the communication media used by the farmers in receiving information on all the rice production technologies

Sl. No.	Communication Media	Combined media use index (CMUI)	Rank order
1	Neighbors	1218	2
2	Friends	1064	3
3	Relatives	620	6
4	Progressive Farmer	1220	1
5	Fertilizer dealer	506	8
6	Pesticide dealer	464	9
7	Seed dealer	565	7
8	Sub Assistant Agriculture Officer	924	4
9	NGO Worker	51	18
10	Upazila level agriculture officer	235	13
11	Group discussion	694	5
12	Field day	451	10
13	Result demonstration	273	11
14	Method demonstration	227	14
15	Radio	264	12
16	Television	199	15
17	Newspaper	113	16
18	Agricultural Fair	82	17

Data in Table 4.3 indicate that the progressive farmers were used as the communication media to the highest extent (1220) and it was closely followed by the neihgbours (1218), friends (1064), Sub Assistant Agriculture Officer (924), relatives (620), newspaper (113), agricultural fair (82) and NGO workers (51) were used relatively to a lower extent. The findings of Table 4.3 prompted to conclude that farmers use the most easily available and most reliable sources of information. Reliability may be the most important factor in selecting information media for contact. However, cost in respect of time, money and energy is also an important factor. Economics of information acquisition dictate a person whether he will contact with a source or not. And for that reason the farmers used media like neighbours, progressive farmers, friends, Sub Assistant Agriculture Officer and relatives so frequently.

4.2.2 Percentage distribution of the farmers according to their use of communication media

Extent of use of communication media was studied on the basis of how many respondents contacted with each of these media disregarding their frequency of contact, which could range from 0 to 600. Data with such contact with rank order of frequency have been presented in Table 4.4, which indicate that ideal farmers, neighbours, friends and Sub Assistant Agriculture Officer were the first four information media used in rice cultivation. All these sources were localite media. Farmers get in touch with localite media more than of cosmopolite media. When the intensity of use is considered, the more credible media came ahead and farmers tended to select these media slightly disregarding the cost or distance.

Table 4.4 Rank order of the communication media used by the farmers in receiving information on all the technologies of rice cultivation (according to farmers' percentage)

Communication Media	Total number of the farmers	Percentage of the farmers	Rank order
1. Neighbors	589	98.17	2
2. Friends	523	87.16	3
3. Relatives	435	72.50	5
4. Progressive Farmer	592	98.67	1
5. Fertilizer dealer	367	61.17	8
6. Pesticide dealer	312	52.00	9
7. Seed dealer	392	65.33	7
8. Sub Assistant Agriculture Officer	509	84.83	4
9. NGO Worker	40	6.67	17
10. Upazila level agriculture officer	183	30.50	13
11. Group discussion	428	71.33	6
12. Field day	301	50.16	10
13. Result demonstration	213	35.50	11
14. Method demonstration	172	28.66	14
15. Radio	196	32.67	12
16. Television	150	25.00	15
17. Newspaper	63	10.50	16
18.Agricultural Fair	39	6.50	18

4.2.3 Communication media used combinedly for different rice cultivation technologies

Extent of use of communication media in receiving information on all rice cultivation technologies such as modern variety, recommended seed rate, recommended irrigation, recommended dose of fertilizer and pest management practices of rice cultivation have been studied. Communication media use index has been calculated for each of these technologies, which could range from 0 to 6480, but the observed MUI ranged from 1171 to 2825. Based on these MUI, the technologies were ranked and presented in Table 4.5. On the basis of computed MUI, it was observed that the highest extent of media were used for pest management practices (2825) and it was followed by recommended fertilizer (2284), modern varieties (1601), recommended seed rate (1289) and recommended irrigation (1171).

Farmers want to get more yields from his limited land but disease and insect-pest often causes serious damage to their crops. In order to minimize the loss, they use communication media to get information about these. High cropping intensity is aggravating soil fertility in Bangladesh. New nutrient deficiency symptoms are being found and this is why farmers need to contact information sources. However, for irrigation and seed rate, there is little new information and for that reason farmers do not contact with information sources so frequently.

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Table 4.5 Communication media use index for five rice cultivation technologies

Sl. No.	Name of the technologies	Media use index (MUI)	Rank order
1	Modern variety	1601	3
2	Recommended seed rate	1289	4
3	Recommended irrigation	1171	5
4	Recommended fertilizer dose	2284	2
5	Pest management practices	2825	1

4.2.4 Distribution of the farmers according to their media use index (MUI)

The communication media use index for each respondent was calculated which could range from 0 to 270. However, the observed range was 22 to 135 with a mean of 76.42. The farmers under study were classified into three categories on the basis of their use of communication media as shown in Table 4.6. Data presented in the table indicated that highest proportions of the farmers (66.67 percent) were occasional users of communication media and 33.33 percent of the farmers were frequent users of communication media. However, none was found as a regular user of communication media in receiving information on rice cultivation.

Table 4.6 Categorization of rice growers on the basis of their media use index

Dependent variable	Possible range	Observed rage	Categories	Number	Percent	Mean	SD
Extent of use of Communication media in receiving information on rice cultivation	0-270	22-135	Occasional user (0-90)	80	66.67	76.42	26.06
			Frequent user (91-180)	40	33.33		
			Regular user (181-270)	0	0		
Total				120	100		

4.3 Relationship between individual characteristics of the farmers and their communication behaviour

As mentioned earlier, the eleven selected characteristics of the farmers were the independent variables of the study. The variables were age, education, family size, farm size, annual income, organizational participation, cosmopoliteness, innovativeness, attitude towards technology, problem confrontation and agricultural knowledge. Each of the characteristics of the farmers constituted independent variables, while the extent to which individuals use communication media were calculated for every person that made communication behaviour constituted the dependent variable.

The purpose of this section is to examine the relationship of each of the independent variables with the dependent variable. Co-efficient of correlation 'r' was computed to determine the relationships between any two variable concerned (Table 4.7)

Table 4.7 Co-efficient of correlation between selected characteristics of the farmers and their communication behaviour

Dependent variable	Independent variables	Values of 'r' with 118 df	Tabulated value of r	
			0.05 level	0.01 level
Farmers' communication behaviour in receiving information on improved rice production technologies	Age	-0.551**	0.176	0.230
	Education	0.530**		
	Family size	0.091^{NS}		
	Farm size	0.152^{NS}		
	Annual income	0.074^{NS}		
	Organizational participation	0.030^{NS}		
	Cosmopoliteness	0.273**		
	Innovativeness	0.301**		
	Attitude towards technology	0.735**		
	problem confrontation	0.016^{NS}		
	Agricultural knowledge	0.642**		

* = Correlation is significant at 0.05 level of probability

** = Correlation is significant at 0.01 level of probability

$^{NS=}$ Not significant.

4.3.1 Age and communication behaviour

Table 4.7 reveals that the concerned value of 'r' was found to be –0.551, which leads to a significant relationship between the concerned variables that shows a negatively significant relationship between age of the farmers and their communication behaviour. Thus the null hypothesis was rejected which implied that with increase in the age of the farmers, their use of communication media is decreased. This means that the more the age of the farmers the less is their use of communication media.

4.3.2 Education and communication behaviour

The computed value of 'r' (0.530) was higher than the table value (0.230) at 0.01 level of probability. So a positive significant relationship was found between the two variables.

Based on these, the null hypothesis was rejected which implied that the education of the respondent had positive relationship with their use of communication media in receiving information on rice cultivation. This means that the more the education of the respondents the more will be their use of communication media in receiving information on improved rice production technologies.

4.3.3 Family size and communication behaviour

The computed 'r' value (0.091) in Table 4.7 shows an insignificant relationship between the concerned variables. Thus, the null hypothesis could not be rejected. So, it may be concluded that family size of the respondent had no relationship with their use of communication media. This indicates that the family size of the respondent and their use of communication media in receiving information on improved rice production technologies are independent to each other.

4.3.4 Farm size and communication behaviour

The computed 'r' (0.152) value from the table shows an insignificant relationship between the concerned variables. So the null hypothesis could not be rejected. Thus, it may be concluded that the farm size of the farmers had no relationship with their communication behaviour in receiving information on improved rice production technologies.

4.3.5 Annual income and communication behaviour

The calculated value of 'r' (0.074) in the Table 4.7 shows that an insignificant relationship between the annual income and communication behaviour of the respondents. So the null hypothesis could not be rejected. This means that annual income of the respondents and their communication behaviour in receiving information on improved rice production technologies are independent to each other.

4.3.6 Organizational participation and communication behaviour

The calculated value of 'r' (0.030) in the Table 4.7 shows an insignificant relationship between organizational participation and use of communication media in receiving information on improved rice production technologies.

So the null hypothesis could not be rejected. This means that organizational participation of the farmers and their communication behaviour are independent to each other.

4.3.7 Cosmopoliteness and communication behaviour

The observed value of 'r' (0.273) shows a positive and significant relationship between cosmopoliteness of the farmers and their communication behaviour in receiving information on improved rice production technologies. The statistical analysis implies that with the increase of cosmopoliteness, the use of communication media is also increased.

4.3.8 Innovativeness and communication behaviour

The observed value of 'r' (0.301) shows a positive and significant relationship between innovativeness of the farmers and their use of communication media, which implies that with the increase of innovativeness, the use of communication media is also increased.

4.3.9 Attitude towards agricultural technology and communication behaviour

The observed value of 'r' (0.735) shows a positive and highly significant relationship between attitude towards technology of the farmers and their communication behaviour in receiving information on improved rice production technology.

The statistical analysis implies that with the increase of attitude towards technology the use of communication media is also increased.

4.3.10 Problem confrontation and communication behaviour

The computed 'r' value (0.016) in the Table 4.7 shows an insignificant relationship between the concerned variables. Thus, the null hypothesis could not be rejected. It may be concluded that problem confrontation of the respondent had no relationship with their use of communication media. This indicates that the problem confrontation of the respondent and their use of communication media in receiving information on improved rice production technologies are independent to each other.

4.3.11 Agricultural knowledge and communication behaviour

The observed value of 'r' (0.642) shows a positive and highly significant relationship between agricultural knowledge of the farmers and their communication behaviour. The statistical analysis implies that with the increase of agricultural knowledge, the use of communication media by the farmers is also increased.

CHAPTER 5
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of findings

The findings of the study and interpretation of the results have been presented elaborately in Chapter 4. The findings of the study are summarized below.

5.1.1 Characteristics of the farmers

Age:

Age of the farmers ranged from 22 to 68 years, with an average of 38.86. Among 120 respondents, 45.83 percent were middle aged, 14.17 percent were old and 40.00 percent were young aged.

Education:

Education scores of the farmers ranged from 0 to 14, with an average of 4.30. The highest proportion (39.17 percent) had no education, 25.83 percent had primary education, 27.50 percent secondary education and 7.50 percent had above secondary education.

Family size:

Family size of the respondents ranged from 2 to 12. The average family size of the respondents was 4.30. The highest proportion (46.67) of the respondents had medium families compared to 40.83 percent had small families and 12.50 percent had large families.

Farm size:

The farm size scores of the respondents ranged from 0.18 hectares to 3.00 hectares with an average of 0.87 hectares. Among the respondents, 1.67 percent had marginal farm size, 81.66 percent had small farm size, 16.67 had medium and 0 percent had large farm size.

Annual income:

The annual income of the farmers ranged from Tk. 18000 to 210000, the average being Tk. 62400. Among the respondents, 83.33 percent had low, 13.33 percent had medium and 3.33 percent had high annual income.

Organizational Participation

Organizational participation scores of the respondents ranged from 0 to 22, the average being 2.53. About 39.17 percent of the respondents had no organizational participation, 25 percent had low, 14.16 had medium and 2167 percent had high organizational participation.

Cosmopoliteness :

The cosmopoliteness scores of the farmers ranged from 4 to 20, the average being 10.97. The highest proportion (60 percent of the farmers) had medium cosmopoliteness compared to 25 percent had low and only 15 percent had high cosmopolieness.

Innovativeness:

Innovativeness scores of the farmers ranged from 8 to 40 against possible scores of 0 to 40, with an average of 21.26. Majority (40.83 percent) of the respondent were low innovative, compared to 30 percent had medium and 29.17 percent had high innovativeness.

Attitude towards agricultural technology:

Attitude towards technologies scores ranged from 38 to 50, the average being 42.44 with standard deviation of 3.67. About 30 percent of the respondents had favorable attitude compared to 47.5 percent had moderately favorable and only 22.5 percent of the respondents had unfavorable attitude towards agricultural technology.

Problem confrontation:

Problem confrontation score of the farmers ranged from 1 to 7 against the possible score of 0 to 15 with an average of 2.84. Majority (52.50 percent) of the farmers faced medium problem confrontation compared to 41.67 percent had low and only 5.83 percent had high problem confrontation.

Agricultural knowledge:

Agricultural knowledge of the respondent ranged from 51 to 95 against the possible score of 0 to 100, the average being 70.06. Among the respondents, 51.67 percent had medium agricultural knowledge, 24.17 percent had low and 24.16 percent had high agricultural knowledge.

5.1.2 Test of hypothesis

The null hypotheses were tested to examine the relationship of eleven selected characteristics of the farmers with their communication behaviour in receiving information on improved rice production technologies. The results of hypothesis testing are briefly presented below:

Age and communication behaviour :

Age of the farmers had negative and significant relationship with their communication behaviour in receiving information on improved rice production technologies.

Education and communication behaviour :

Education of the farmers had positive and significant relationship with their communication behaviour in receiving information on improved rice production technologies.

Family size and communication behaviour :

There was no relationship between family size of the farmers and their communication behaviour in receiving information on improved rice production technologies.

Farm size and communication behaviour :

There was no relationship between farm size of the farmers and their communication behaviour in receiving information on improved rice production technologies.

Annual income and communication behaviour :

There was no relationship between annual income of the farmers and their communication behaviour in receiving information on improved rice production technologies.

Organizational participation and communication behaviour :

There was no relationship between organizational participation of the farmers and their communication behaviour in receiving information on improved rice production technologies.

Cosmopoliteness and communication behaviour :

Cosmopoliteness of the farmers had positive significant relationship with their communication behaviour in receiving information on improved rice production technologies.

Innovativeness and communication behaviour :

Innovativeness of the farmers had positive significant relationship with their communication behaviour in receiving information on improved rice production technologies.

Atttitude towards agricultural technology and communication behaviour :

There was positive and highly significant relationship between attitude towards agricultural technology and their communication behaviour in receiving information on improved rice production technologies.

Problem confrontation and communication behaviour :

There was no relationship between problem confrontation of the farmers and their communication behaviour in receiving information on improved rice production technologies.

Agricultural knowledge and communication behaviour :

Agricultural knowledge of the respondents had a positive and significant relationship with their communication behaviour in receiving information on improved rice production technologies.

5.2 Conclusions

Based on the findings of the study, the following conclusions were made:

1. Neighbours, friends, relatives, progressive farmer, Sub Assistant Agriculture Officer and input dealers were used as communication media more by the farmers in receiving information on improved rice production technologies. This indicates that individual contact still plays a dominant role as communication media of the farmers.

2. Group contact such as group discussion, field day, result demonstration and method demonstration were also used by the farmers at a considerable extent. This was probably because group contacts can maintain inter-personal and face-to-face contact, which are considered important by the rural farmers.

3. Among the mass contact media, radio was used by the farmers at a considerable extent but less proportion of the farmers used television and newspaper. This may probably because radio is more available at a cheaper price. More price of TV, lack of electrification and education might limit greater use of TV and newspaper.

4. The study indicated that age of the farmers had significant but negative relationship with their communication behavior. This means that with more age of the farmers, there was less use of their communication media.

5. Education is a desirable quality to acquire knowledge and skills of a person, which in turn contributes to change individual behaviour, attitude and practice in a desirable way. The statistical analysis showed a significant positive relationship between education of the farmers and their use of communication media . Therefore, it may be concluded that education plays an important role for using of communication media in receiving information on improved rice production technologies.

6. Cosmopolite people come in contact with the new people and new ideas through traveling outside their own social system. Cosmopoliteness, therefore, helps an individual to collect new ideas and information. In this study cosmopoliteness of the respondents had a positive significant relationship with their use of communication media. It implies that with the increase of cosmopoliteness, their use of communication media is also increased.

7. Innovativeness of the farmers is of course, a desirable quality. An innovative farmer is also progressive in mind and can take risk in adopting an innovation. Innovativeness of the farmers was found to have significant correlation with their use of communication media. This means that the more use of communication media by the farmers, the more was their innovativeness.

8. The farmers having more agricultural knowledge induce them to receive more agricultural information. Knowledge is power. It helps an individual to increase his understanding and awareness on different aspects of agricultural information. A positive relationship between agricultural knowledge of the farmers and their use of communication media leads to the conclusion that with greater exposure of communication media, there was increasing agricultural knowledge and vice-versa.

9. Family size, farm size, annual income, organizational participation and problem confrontation of the farmers had no significant relationship with their communication behaviour in receiving information on improved rice production technologies. This indicates that use of communication media and the above characteristics of the farmers are independent to each other.

5.3 Recommendations

5.3.1 Recommendations for policy implication

On the basis of the findings and conclusion of the study the following recommendations were made:

1. The findings lead to suggest that attempt should be made by the policy makers and concerned authorities to locate and identify the person in the community to whom farmers have confidence and train them so that they can offer better advises to the fellow friends, relatives and neighbours. Seed dealers, fertilizer dealers and pesticide dealers play a very important role in providing technical advices to farmers in rural areas. Any arrangement for increasing the knowledge level of these dealers would be an important step towards transferring improved rice production technologies to farmers. Therefore, arrangements should be made to organize training programs on rice technologies for different types of input dealers to whom farmers very often seek technical advice.

2. The frontline extension workers i.e. Sub Assistant Agriculture Officers are the key personnel who have direct contact with the farmers for providing technical advice according to their capacity. In order to make these frontline extension workers more useful to the farmers, arrangement will have to be made (i) to train them on technical matters of various technology, and (ii) to increase their physical facilities, such as transport, office and residential accommodation.

3. The progressive farmers are playing a vital role in communicating information to the farmers. This necessitates updating the knowledge of progressive farmers with proper training to make them more useful in diffusion of innovation.

4. Method demonstration followed by result demonstration should be strengthened in disseminating innovative information as it creates more confidence among the farmers through practical observation.

5. Radio and television are very important communication media in transferring modern agricultural technology to the farmers although high price of TV is a barrier for its wider use. It is necessary to design, formulate and display more and more production oriented programmes in radio and television in such a fashion that farmers can enjoy the programmes as well as can learn many technical aspect of modern agricultural technology. Attempts should therefore, be made by the concerned authorities to use and utilize the mass media like radio and television as useful communication media to farmers for technology diffusion. There can be also some marketing strategy to produce low-cost TV for the farmers of rural areas.

6. The communication behaviour of the farmers in receiving "know how" and "do how" of modern rice technology be improved by providing education, because it would help them to a certain extent in understanding the practical benefit of rice technologies. As a large number of farmers are illiterate, arrangements should be made to provide non-formal education to the farmers. This might help to change attitude, behavior and outlook of the future farmers, which would act in a more desirable way than otherwise expected.

7. The Department of Agriculture Extension (DAE) needs to pay more attention to ensure the use of communication media to show clear difference between traditional and recommended practices and as such create more confidence among the farmers about new innovation.

5.3.2 Recommendations for further study

1. This study investigated the effects of eleven characteristics of the farmers on their communication behaviour. Therefore, it is recommended that further studies should be conducted involving other variables in these regards. This study dealt with only five selected improved rice technologies. More studies should be undertaken including other technologies of rice cultivation.

2. This study was concerned with the farmers of the Barkhada union of Kushtia sadar Upazila of Kushtia District. Similar studies should be replicated in other parts of the country.

3. The present study did not reveal the factors that affected the non-use of communication media. It is, therefore, suggested that the factors responsible for non-use of each media be ascertained in future studies.

4. It is recommended that some researches should be undertaken to determine the preferences of the communication media by the farmers in a wide range of situations particularly from ecological considerations.

5. The effectiveness of mass media specially radio and television in the diffusion of farm practices should be ascertained on an experimental design on a small scale as pilot basis under carefully controlled conditions.

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APPENDIX- A

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Dhaka-1207

Interview Schedule On

FARMERS' COMMUNICATION BEHAVIOUR IN RECEIVING INFORMATION ON IMPROVED RICE PRODUCTION TECHNOLOGIES

ENGLISH VERSON OF THE INTERVIEW SCHEDULE

Sl. No. ...

Name of the respondent .....
Village ..... Union .....
Upazila ..... District .....

Please answer the following questions

1. Age

How old are you? .....years

2. Education

Please mention your educational status

a. Can not read and write .....
b. Can sign only .....
c. Have passed class .....

3. Family size

Please mention total number of members of your family
Total number of family members.....

4. Please mention your farm size according to the following items

Sl. No.	Types of land	Land area	
		Local unit	Hectare (Ha)
1.	Homestead area (including pond)		
2.	Own land under own cultivation		
3.	Own land given to others on borga		
4.	Land taken from others on borga		
5.	Own land given to others on lease		
6.	Land taken from others on lease		
Total			

5. Annual income

Please mention your family income from each of the following sources (last year)

Sources of income		Amount of Taka
Agricultural sectors	1. Crops	
	2.Livestock	
	3.Poultry	
	4.Fisheries	
Non agricultural sectors	5.Business	
	6.Services	
	7.Labour	
	8.Others (specify please)	
Total (Tk)		

6. Organizational participation

Please state the nature of your participation in the following organizations

Sl. No.	Name of the organizations	Not involved	Nature of participation (year)		
			As an ordinary member	Executive committee member	President/ Secretary
1.	Farmers co-operative association				
2.	Union Parishad				
3.	Mosque/ Mondir committee				
4.	School/ College/ Madrasa committee				
5.	Youth club				
6.	Bazaar committee				
7.	NGO Association				
8.	Fair organizing committee				
9.	Seed-fertilizer-pesticide dealers association				
10.	Others (specify)				

7.Cosmopoliteness

Please mention your frequency of visits to the following places

Sl. No.	Places of visit	Frequency of visit			
		Regularly	Frequently	Occasionally	Not at all
1.	Relatives and friends home	>=10 times/ month	5-9times/ month	1-4 times/ month	
2.	Own union parisad	>=4 times/ month	2-3 times/ month	1 time/ month	
3.	Own upazila sadar	>=10 times/ year	5-9 times/year	1-4 times/year	
4.	Other upazila sadar	>=8 times/year	4-7 times/year	1-3 times/year	
5.	Own district sadar	>= 6 times/year	3-5 times/year	1-2 times/year	
6.	Other district sadar	>=3 times/year	2 times/year	1 time/year	
7.	Regional agril. research institute	3>=times/year	2 times/year	1time/year	
8.	Capital city	1 time/year	1 time/3 year	1 time/5 year	

8. Innovativeness

If you use the following technologies, please indicate duration of its use from first hearing

Sl. No.	Name of the technology	Never used	Extent of use			
			Used within one year	Used within 1to 2 years	Used within 2 to 3 years	Used after 3 years
1	Use of hybrid variety					
2	BRRI Dhan 28					
3	Use of IPM					
4	Use of Boron fertilizer					
5	Use of green manure					
6	Artificial breeding of cattle					
7	Use of Zinc fertilizer					
8	Use of power tiller					
9	Use of guti urea					
10	Use of Gypsum					

9. Attitude towards agricultural technology

Please indicate your opinion against the following statements

Sl. No.	Statements	Degree of attitude				
		Strongly agree	Agree	No opinion	Disagree	Strongly disagree
1. (+)	Modern variety of rice is more productive than local variety					
2.(-)	Rice cultivation is more profitable than vegetable cultivation					
3.(+)	Guti urea use is profitable than granular urea					
4.(-)	Over use of fertilizer and insecticide is not harmful for the environment					
5. (+)	Line sowing of rice is better than broadcast to get more yield					
6. (-)	IPM is not better than chemical control					
7. (+)	Organic fertilizer helps to preserve soil properties					
8. (-)	Vaccination is not essential to control poultry disease					
9. (+)	It is necessary to use proper dose of fertilizer to get more yield					
10. (-)	Quality seed is not essential for good yield					

10. Problems confrontation in rice production

Sl. No.	Technologies for rice cultivation	Extent of problems confrontation			
		Very high	High	Medium	Not at all
1	Modern varieties				
2	Recommended seed rate				
3	Recommended irrigation				
4	Recommended dose of fertilizer				
5	Pest management practices				

11. Agricultural knowledge

Please answer the following questions

Sl. No.	Questions	Obtained marks
1	Name six high yielding variety of rice for three seasons	
2	Name two insect pest of rice	
3	What is the symptom of rice stem borer infestation?	
4	Name two disease of rice	
5	Name two harmful weeds in rice field	
6	What do you mean by IPM?	
7	What are the qualities of good seed?	
8	Why crop rotation is essential?	
9	What type of soil is suitable for vegetable cultivation?	
10	What do you mean by green manure?	
11	Mention two diseases of poultry	
12	Mention two urea deficiency symptoms of rice	
13	Mention two major problems for cucurbit cultivation	
14	What precautions should need to follow at the time of pesticide application?	
15	Mention two fungicides which are available in your local market	
16	Name two beneficial insects	
17	Mention the pit size of fruit tree plantation	
18	What is the symptom of sulphur deficiency in rice seedling?	
19	What is the dose of urea in HYV-rice cultivation?	
20	Why seeds produced from hybrid seeds are not used as seeds in next generation?	

12.A. Please indicate which of the following communication media you used in receiving information on modern varieties of rice cultivation.

Sl. No.	Communication media	Frequency of communication			
		Regularly	Frequently	Occasionally	Not at all
1	Neighbours	≥4 times/ week	2-3 times/week	1 time/week	
2	Friends	≥4 times/week	2-3 times/week	1 time/week	
3	Relatives	≥5 times/month	3-4 times/month	1-2 times/month	
4	Progressive farmers	≥5 times/month	3-4 times/month	1-2 times/month	
5	Fertilizer dealer	≥5 times/month	3-4 times/month	1-2 times/month	
6	Pesticide dealer	≥5 times/month	3-4 times/month	1-2 times/month	
7	Seed dealer	≥5 times/month	3-4 times/month	1-2 times/month	
8	Sub Assistant Agriculture Officer	≥4 times/month	2-3 times/month	1 time/month	
9	NGO workers	≥4 times/month	2-3 times/month	1 time/month	
10	Upazila level agriculture officers	≥5 times/year	3-4 times/year	1-2 times/year	
11	Group discussion	≥5 times/year	3-4 times/year	1-2 times/year	
12	Field day	≥2 times/year	1 time/year	1 time/2 years	
13	Result demonstration	≥2 times/year	1 time/year	1 time/2 years	
14	Method demonstration	≥2 times/year	1 time/year	1 time/2 years	
15	Radio	≥10 times/month	5-9 times/month	1-4 times/month	
16	Television	≥10 times/month	5-9 times/month	1-4 times/month	
17	Newspaper	≥7 times/month	3-6 times/month	1-2 times/month	
18	Agricultural fair	1 time/year	1 time/2 years	1 time/5 years	

12.B. Please indicate which of the following communication media you used in receiving information on recommended seed rate of rice cultivation.

Sl. No.	Communication media	Frequency of communication			
		Regularly	Frequently	Occasionally	Not at all
1	Neighbours	≥4 times/ week	2-3 times/week	1 time/week	
2	Friends	≥4 times/week	2-3 times/week	1 time/week	
3	Relatives	≥5 times/month	3-4 times/month	1-2 times/month	
4	Progressive farmers	≥5 times/month	3-4 times/month	1-2 times/month	
5	Fertilizer dealer	≥5 times/month	3-4 times/month	1-2 times/month	
6	Pesticide dealer	≥5 times/month	3-4 times/month	1-2 times/month	
7	Seed dealer	≥5 times/month	3-4 times/month	1-2 times/month	
8	Sub Assistant Agriculture Officer	≥4 times/month	2-3 times/month	1 times/month	
9	NGO workers	≥4 times/month	2-3 times/month	1 times/month	
10	Upazila level agriculture officers	≥5 times/year	3-4 times/year	1-2 times/year	
11	Group discussion	≥5 times/year	3-4 times/year	1-2 times/year	
12	Field day	≥2 times/year	1 time/year	1 time/2 years	
13	Result demonstration	≥2 times/year	1 time/year	1 time/2 years	
14	Method demonstration	≥2 times/year	1 time/year	1 time/2 years	
15	Radio	≥10 times/month	5-9 times/month	1-4 times/month	
16	Television	≥10 times/month	5-9 times/month	1-4 times/month	
17	Newspaper	≥7 times/month	3-6 times/month	1-2 times/month	
18	Agricultural fair	1 time/year	1 time/2 years	1 time/5 years	

12.C. Please indicate which of the following communication media you used in receiving information on recommended irrigation of rice cultivation.

Sl. No.	Communication media	Frequency of communication			
		Regularly	Frequently	Occasionally	Not at all
1	Neighbours	≥4 times/ week	2-3 times/week	1 time/week	
2	Friends	≥4 times/week	2-3 times/week	1 time/week	
3	Relatives	≥5 times/month	3-4 times/month	1-2 times/month	
4	Progressive farmers	≥5 times/month	3-4 times/month	1-2 times/month	
5	Fertilizer dealer	≥5 times/month	3-4 times/month	1-2 times/month	
6	Pesticide dealer	≥5 times/month	3-4 times/month	1-2 times/month	
7	Seed dealer	≥5 times/month	3-4 times/month	1-2 times/month	
8	Sub Assistant Agriculture Officer	≥4 times/month	2-3 times/month	1 times/month	
9	NGO workers	≥4 times/month	2-3 times/month	1 times/month	
10	Upazila level agriculture officers	≥5 times/year	3-4 times/year	1-2 times/year	
11	Group discussion	≥5 times/year	3-4 times/year	1-2 times/year	
12	Field day	≥2 times/year	1 time/year	1 time/2 years	
13	Result demonstration	≥2 times/year	1 time/year	1 time/2 years	
14	Method demonstration	≥2 times/year	1 time/year	1 time/2 years	
15	Radio	≥10 times/month	5-9 times/month	1-4 times/month	
16	Television	≥10 times/month	5-9 times/month	1-4 times/month	
17	Newspaper	≥7 times/month	3-6 times/month	1-2 times/month	
18	Agricultural fair	1 time/year	1 time/2 years	1 time/5 years	

12.D. Please indicate which of the following communication media you used in receiving information on recommended dose of fertilizer application for rice cultivation.

Sl. No.	Communication media	Frequency of communication			
		Regularly	Frequently	Occasionally	Not at all
1	Neighbours	≥4 times/ week	2-3 times/week	1 time/week	
2	Friends	≥4 times/week	2-3 times/week	1 time/week	
3	Relatives	≥5 times/month	3-4 times/month	1-2 times/month	
4	Progressive farmers	≥5 times/month	3-4 times/month	1-2 times/month	
5	Fertilizer dealer	≥5 times/month	3-4 times/month	1-2 times/month	
6	Pesticide dealer	≥5 times/month	3-4 times/month	1-2 times/month	
7	Seed dealer	≥5 times/month	3-4 times/month	1-2 times/month	
8	Sub Assistant Agriculture Officer	≥4 times/month	2-3 times/month	1 times/month	
9	NGO workers	≥4 times/month	2-3 times/month	1 times/month	
10	Upazila level agriculture officers	≥5 times/year	3-4 times/year	1-2 times/year	
11	Group discussion	≥5 times/year	3-4 times/year	1-2 times/year	
12	Field day	≥2 times/year	1 time/year	1 time/2 years	
13	Result demonstration	≥2 times/year	1 time/year	1 time/2 years	
14	Method demonstration	≥2 times/year	1 time/year	1 time/2 years	
15	Radio	≥10 times/month	5-9 times/month	1-4 times/month	
16	Television	≥10 times/month	5-9 times/month	1-4 times/month	
17	Newspaper	≥7 times/month	3-6 times/month	1-2 times/month	
18	Agricultural fair	1 time/year	1 time/2 years	1 time/5 years	

12.E. Please indicate which of the following communication media you used in receiving information on pest management practices for improved rice cultivation.

Sl. No.	Communication media	Frequency of communication			
		Regularly	Frequently	Occasionally	Not at all
1	Neighbours	≥4 times/ week	2-3 times/week	1 time/week	
2	Friends	≥4 times/week	2-3 times/week	1 time/week	
3	Relatives	≥5 times/month	3-4 times/month	1-2 times/month	
4	Progressive farmers	≥5 times/month	3-4 times/month	1-2 times/month	
5	Fertilizer dealer	≥5 times/month	3-4 times/month	1-2 times/month	
6	Pesticide dealer	≥5 times/month	3-4 times/month	1-2 times/month	
7	Seed dealer	≥5 times/month	3-4 times/month	1-2 times/month	
8	Sub Assistant Agriculture Officer	≥4 times/month	2-3 times/month	1 times/month	
9	NGO workers	≥4 times/month	2-3 times/month	1 times/month	
10	Upazila level agriculture officers	≥5 times/year	3-4 times/year	1-2 times/year	
11	Group discussion	≥5 times/year	3-4 times/year	1-2 times/year	
12	Field day	≥2 times/year	1 time/year	1 time/2 years	
13	Result demonstration	≥2 times/year	1 time/year	1 time/2 years	
14	Method demonstration	≥2 times/year	1 time/year	1 time/2 years	
15	Radio	≥10 times/month	5-9 times/month	1-4 times/month	
16	Television	≥10 times/month	5-9 times/month	1-4 times/month	
17	Newspaper	≥7 times/month	3-6 times/month	1-2 times/month	
18	Agricultural fair	1 time/year	1 time/2 years	1 time/5 years	

Thank you for your co-operation,

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Signature of the interviewer
Date:

APPENDIX-B

Correlation matrix showing the interrelationships among the concerned variables

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	Y1
X1	1.000	-.139	.195*	.081	.154	.267**	-.078	-.002	-.344**	-.204*	-.241**	-.551**
X2	-.139	1.000	.245**	.205*	.200*	.225*	.191*	.328*	.524**	-.167	.448**	.530**
X3	.195*	.245**	1.000	.210*	.268**	.062	.064	.173	.151	-.315**	.167	.091
X4	.081	.205*	.210*	1.000	.784**	.399**	.220*	.509**	.225*	-.445**	.254**	.152
X5	.154	.200*	.268**	.784**	1.000	.406**	.226*	.528**	.135	-.492**	.172	.074
X6	.267**	.225*	.062	.399**	.406**	1.000	.157	.261**	.099	-.289**	.163	.030
X7	-.078	.191*	.064	.220*	.226*	.157	1.000	.035	.256**	-.169	.143	.273**
X8	-.002	.328**	.173	.509**	.528**	.261**	.035	1.000	.362**	-.344**	.427**	.301**
X9	-.344**	.524**	.151	.225*	.135	.099	.256**	.362**	1.000	-.018	.560**	.735**
X10	-.204*	-.167	-.315**	-.445**	-.492**	-.289**	-.169	-.344**	-.018	1.000	-.029	.016
X11	-.241**	.448**	.167	.254**	.172	.163	.143	.427**	.560**	-.029	1.000	.642**
Y1	-.551**	.530**	.091	.152	.074	.030	.273**	.301**	.735**	.016	.642**	1.000

***=Correlation is significant at 0.05 level of probability**
****=Correlation is significant at 0.01 level of probability**

X1=Age
X2=Education
X3=Family size
X4=Farm size
X5=Annual income
X6=Organizational participation
X7=Cosmopoliteness
X8=Innovativeness
X9=Attitude towards agricultural technology
X10=Problem confrontation
X11=Agricultural knowledge
Y1=Communication behaviour

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