PROBLEMS FACED BY THE BEAN FARMERS OF PABNA DISTRICT

MD. SHARIFUL ISLAM

DEPARTMENT OF AGRICULTURAL EXTENSION &
INFORMATION SYSTEM
SHER-E-BANGLA AGRICULTURAL UNIVERSITY
DHAKA-1207

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By

MD. SHARIFUL ISLAM

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APPROVED BY:

Mohammad Zamshed Alam	**(Dr. Muhammad Humayun Kabir)**
Supervisor &	Co-Supervisor &
Associate Professor	Associate Professor
Dept. of Agril. Ext. and Info. System	Dept. of Agril. Ext. and Info. System
Sher-e-Bangla Agricultural University	Sher-e-Bangla Agricultural University

Md. Mahbubul Alam, Ph.D.

Associate Prof. &

Chairman Examination Committee

Dept. of Agricultural Extension and Information System

Sher-e-Bangla Agricultural University

DEPARTMENT OF AGRICULTURAL EXTENSION AND INFORMATION SYSTEM
Sher-e-Bangla Agricultural University
Sher-e-Bangla Nagar, Dhaka-1207

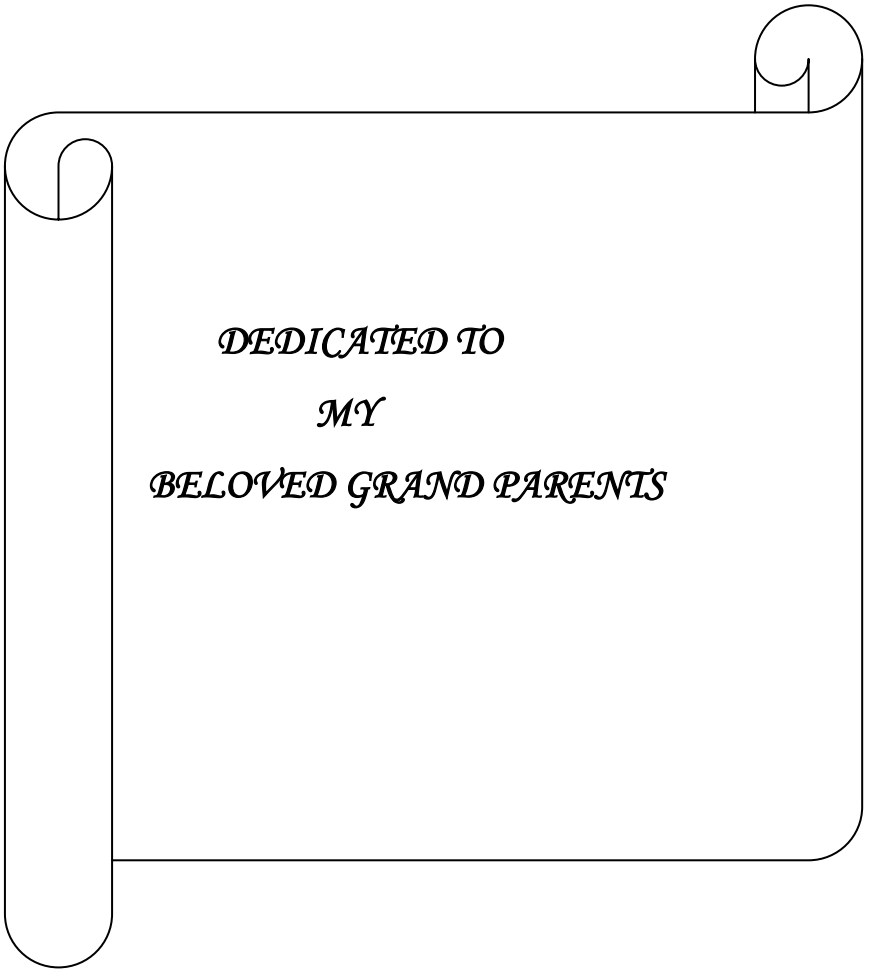
This is to certify that the thesis entitled **"PROBLEMS FACED BY THE BEAN FARMERS OF PABNA DISTRICT"** submitted to the department of Agricultural Extension and Information System, Faculty of Agriculture, Sher-e-Bangla Agricultural University, Sher-e-Bangla Nagar, Dhaka in partial fulfillment of the requirements for the degree of Master of Science (M.S.) in Agricultural Extension and Information System, embodies the result of a piece of bonafide research work carried out by **Md. Shariful Islam, Registration No. 15-07003** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

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

Dated:

Dhaka, Bangladesh

Mohammad Zamshed Alam
Supervisor
Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University
Sher-e-Bangla Nagar, Dhaka-1207


DEDICATED TO
MY
BELOVED GRAND PARENTS

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ABBREVIATIONS USED

BAU	Bangladesh Agricultural University
BBS	Bangladesh Bureau of Statistics
GDP	Gross Domestic Product
DAE	Department of Agriculture Extension
NGOs	Non-government Organizations
SAAO	Sub-Assistant Agriculture Officer
VTA	Vegetables Traders Association

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PROBLEMS FACED BY THE BEAN FARMERS OF PABNA DISTRICT

MD. SHARIFUL ISLAM

ABSTRACT

The purpose of the study was to ascertain the problems faced by the farmers in bean production and to explore the relationships between the problems faced by the bean farmers and their selected characteristics. The study was conducted in four villages of two unions under Atghoria upazilla of Pabna district. Data for this study were collected from 106 bean farmers by using an interview schedule during 15 dec, 2017 to 15 jan, 2018. The interview survey revealed that highest proportion (71.70 percent) of the farmers had medium problem faced in bean production, while 16.04 percent had high and 12.26 percent had low problem faced. Among various problems faced by the farmers non-availability of quality pesticides was the highest followed by non-availability of quality fertilizers. Lack of irrigation was the least important problem. Correlation analysis indicated that education, training exposure, organizational participation, extension media contact and farmers' knowledge had significant negative relationship with their problem faced. Age had significant positive relationship with their problem faced. The characteristics, namely family members, farm size, annual family income, bean cultivation area, and credit received by the farmers had no significant relationship with their problem faced.

CHAPTER I
INTRODUCTION

1.1 General Background

Bangladesh is an agriculture based country. The growth and stability of the economy depends largely on the growth of agriculture. Agriculture sector contributes about 17 percent to the country`s Gross Domestic Product (GDP) and employs more than 45 percent of total labour forces (BBS 2013).The agriculture sector comprises crops, livestock, forestry and fisheries while approximately 8.99 percent of the GDP was derived from crops and horticulture (BBS 2013).Of the total 13.3 million hectares of arable land in the country, only 6.73 percent is under horticultural crop. If potato and spices are excluded, the area comes down to 3.22 percent only (Hossain, 2004). But now-a-day's commercial production of vegetables is becoming popular among some of the farmers.

Among the vegetables beans are important crops. They are in different shapes, sizes and colors, are versatile and amazingly convenient because they can be dried and stored for one's. Beans can be eaten raw, sprouted or cooked, ground into flour. The beans contain calories 131.98k cal, carbohydrates 23.72g, protein 8.84g, fat 0.52g, vitamins 6.86mg, mineral 596.99mg, water 65.7g per 100g of beans (USDA 2012).The beans are lowest in fats, oils and sugars. Most beans contain only 2-3 percent fat. They are the perfect food for a fat-restricted diet. It contains no cholesterol, and they can help lower your cholesterol level because they are one of the richest sources of fiber. Most beans contain at least 20 percent protein and are high in carbohydrate which provides long lasting energy.

A large number of farmers in Pabna districts are now engaged in commercial bean cultivation as the profitable farming has changed the lives of many people in the region. The bean farming area of pabna districts are 445.34 ha and its productions are 1651 metric tons (BBS 2014). The area, production and yield of bean per hectare inPabna districts and Bangladesh for the last five (5) years are shown in Table 1.1.

Table 1.1 Bean production scenario in Pabna district compare to Bangladesh

Year	Pabna		Bangladesh	
	Area (acre)	Production (MT)	Area (acre)	Production (MT)
2010	895	952	40992	88581
2011	963	1021	42760	94756
2012	995	1152	42300	94356
2013	966	1172	42129	93055
2014	1100	1651	45029	110116

(Source: yearbook of agriculture statistics, 2015)

Thousands of farmers in different upazila of Pabna district are now engaged in bean cultivation as it proved profitable, and farming of it has changed the lots of farmers in the area. According to sources, some 60-70 trucks loaded with beans leave 'Muladuli bean zone' in Iswardi upazila of the district, the biggest bean-producing for capital Dhaka and other parts of the country everyday as beans worth around Tk 1 crore are traded daily at the local market (DAE), and more than 1.5 lakh families have been engaged in bean cultivation for the last several years, and its business in the region seems to be more profitable than other cultivation. Bean farmers from Pabna and Natore districts take their products to Muladuli market and sell it to wholesalers who supply it to different places including Dhaka, Chittagong, Sylhet and Narayanganj. Farmers from all the villages of Muladuli union under Ishwardi upazila, Khidirpur, Per Khidirpur and Ramchandrapur unions of Atghoria upazila and Zednail, Haripur and adjoining villages of Chatmohar upazila under Pabna district bring their product to the market for sale. But none of businessmen came from Dhaka and other parts to the market for buying beans. As a result a big amount of beans returned to the local market and selling at very minimum prices. At least 3,000 hectares of land have been brought under bean cultivation in the district this year while it was around 2,200 hectares last year. This year beans have been produced on over 6,000 hectares of land (DAE, 14)

For getting the optimum production from bean cultivation, at least two things are necessary. Firstly, the bean farmers must be aware of the improved practices of bean cultivation and secondly, the bean farmers should not face difficulty in adopting the improved practices for bean cultivation. Generally bean farmers confront many problems during bean cultivation. In general, problem refers to some difficulties when a bean farmers experiences from practical situation and wants to get a solution for the same. Bean farmers face different problems.

The problems can be classified as followings-

a. Inputs problems: seeds, labors, fertilizer, compost or cow dung etc.
b. Soil problems: weed, soil fertility, soil productivity, soil type etc.
c. Climatic problems: Rainfall, temperature, light, humidity etc.
d. Disease and pest problems: Major diseases of beans are bacterial brown spot, bacterial wilt, anthracnose, lesion, root knot and golden mosaic disease.
e. Physical and physiological problems: Mechanical injury, high desiccation rate, dropping off mature leaves during winter season etc.
f. Management problems: Land preparation, weeding, irrigation, fertilizer management, labor management and post-harvest management like storage facilities etc.
g. Economic problems: Lack of capital, loan or credit, crop insurance, high labor cost etc.
h. Marketing problems: Low market prices, middlemen, transport problem etc.

So long the problem confrontation, researchers used to find out problems with degree of severity as perceived by the concerned respondents. But the researcher of this study had a research design to describe how each of the problems was tackled by them during bean cultivation. Pabna district is a suitable place for bean cultivation and there are a significant number of bean farmers and they confront different problems in bean cultivation. But little effort has been made to undertake systematic investigation in this respect. These facts indicate the need for conducting a research study entitled, ‘Problems Faced by the Bean Farmers of Pabna District’.

1.2 Statement of the Problem

Problems of the farmers in bean production means the difficulties they faced during the whole production process. Problem may be low price of bean, adverse climate, pest attack, lack of high yielding varieties, unavailability of pesticides, fertilizers and irrigation water, unavailability of labor, difficulties of getting loans, high bank interest, lack of training facilities, need high crop management, lack of proper knowledge, lack of marketing facilities, undue flood, high price of pesticides and fertilizers. Bean is one of the important vegetables that have a great opportunity to keep contribution in the country's economy. Very practically this crop should stay a very sensitive and important consideration in the agricultural fields of Bangladesh.

In many cases bean farmers are not familiar with modern technologies and management practices of bean cultivation. Most of the farmers are unable to understand the behavior and physiology of bean. As a result, they failed to take necessary steps in due time of adverse situations as well as management practice. Finally their yield decreases and they begin to lose interest of bean cultivation and migrate from bean. It is, therefore, important and essential to acquire clear and good understanding on problems faced by the farmers in bean production at field level. Considering the fact a research study entitled, "problems faced by the bean farmers of pabna district" was undertaken.

Considering the problems faced in bean production by the farmers, this study should be designed to find out the following research questions:

1. What are the different characteristics of the bean farmers?
2. What is the extent of problems faced by the farmers in bean cultivation?
3. Is there any relationship between the farmers' problems faced in bean cultivation and their selected characteristics?
4. What are the levels of severities of the different problems faced by the farmers in bean cultivation?

1.3 Specific Objectives

The following specific objectives were formulated to give proper direction to the study:

1. To determine the extent of problems faced by the farmers in bean production,

2. To describe some selected characteristics of the bean farmers. The characteristics are:
    - Age
    - Education
    - Family size
    - Farm size
    - Annual family income
    - Bean cultivation area
    - Training exposure
    - Organizational participation
    - Extension media contact
    - Bean cultivation knowledge, and
    - Credit received
3. To explore the relationships between the selected characteristics of the bean farmers and their extent of problem faced in bean production,
4. To compare the severity among the problems faced by the farmers in bean production.

1.4 Justification of the Study

Problem in bean cultivation is an important issue for the bean farmers. Problem may be technical, economical, marketing and skill oriented. Due to the problems bean cultivation is in morbid condition all Bangladesh. In this circumstance, farmers count economic loss with grief. However, there are some innovative and venturesome farmers who confront the problems with the help of extension service and applying their own experiences. They gained knowledge about problem confrontation devices acquired from different sources. Farmers of Pabna district confront problems in bean cultivation what mechanism is used against what problem? So, the experiences of problem confrontation by bean farmers of Pabna district could be leaning avenue for other the farmers of other districts. Considering the above mentioned points the researcher because highly interested to conduct research entitled **'Problems Faced by the Bean Farmers of Pabna District'.**

1.5 Assumptions of the Study

"An assumption is the supposition that an apparent fact or principle is true in the light of the available evidence" (Goode, 1945). The researcher had the following assumptions in mind while undertaking this study:

1. The respondents included in the sample for this study were competent enough to furnish proper responses to the queries included in the interview schedule.
2. The researcher who acted as the interviewer was adjusted to social and environmental conditions of the study area. Hence, the data collected by him from the respondents were free from bias.
3. The responses furnished by the respondents were valid and reliable.
4. Views and opinions furnished by the bean farmers included in the sample were the representative views and opinions of the whole population of the study area.
5. The findings of the study might have general application to other parts of the country with similar personal, socio-economic and cultural condition of the study area.

1.6 Limitations of the Study

The major purpose of the study was to have an understanding of the problem faced in bean cultivation by the bean farmers. However, from the research point of view, it was necessary to impose certain limitations as follows:

1 .The study was confined to only four selected villages of Atghoria Upazilla.

2. Characteristics of the farmers are many and varied but only eleven were selected for investigation in this study as stated in the objectives.
3. Population for the present study was kept confined within the heads of the bean cultivated farm families. Because they were the major decision makers regarding bean cultivation.
4. For information about the study, the researcher depended on the data as furnished by the selected farmers during interview.

1.7 Definition of Different Terms

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

Age

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

Level of education

Empirically it is defined as the development of desirable changes in knowledge, skill and attitudes in an individual through reading, writing, walking, observation and other selected activities. It was measured on the basis of classes a respondent's has passed from a formal educational institution.

Family size

Family size refers to the number of members including the respondent himself/herself, his/her wife/husband, children and other permanent dependents, who live together in a family unit.

Farm size

The term related to the hectare of land owned by a respondent's on which he or she carried on his or her farming activities, the area being estimated in terms of full benefit to the farmer. A farmer was considered to have full benefit from cultivated are a either owned by himself or obtained as lease from others and half benefit from the area which was either cultivated by borga or given to others for cultivation on borga basis.

Family annual income

Annual income of a respondent refers to the total earning by him and other members of his/her family from agricultural (field crop, fish, livestock, poultry, fruits and vegetables and timbers, etc.) and other sources (service, business, etc.) during a year. Annual family

income of the respondent also included the cost of maintaining his family. It was expressed in Taka.

Bean cultivation area

Bean cultivation area means the amount of land brought under bean cultivation by the respondents.

Training exposure

It refers to the total number of days attended by a farmer in his or her life to the training courses on various agriculture related subject matters.

Organizational participation

Social organizational participation of a respondent refers to his nature of participation in different social organizations before the time of interviewing.

Extension media contact

This term refers to an individual's access to or contact with the different communication media and source being used for dispersion of new technologies and for other perspectives.

Knowledge on bean cultivation

Literally knowledge means knowing or what one knows about a subject, fact, person etc. Knowledge on bean cultivation refers to the understanding of the bean farmers about the different aspects of bean cultivation.

Credit received

Credit received of a respondent refers to the amount of Taka received by a respondent from different institutional and non- institutional sources through a certain rate of interest for a certain period of time. It was expressed in Taka.

Problems in bean cultivation

Problem in bean cultivation means any difficult situation which requires some actions to minimize the gap between "what ought to be" and "what is" The term problem in bean cultivation refers to extent of different problems faced by the bean farmers in bean cultivation

CHAPTER II

REVIEW OF LITERTURE

In conducting research the review of literature gives the clear and concise direction of the researcher in various aspect of conducting the research. In this chapter, review of literatures relevant to the study was presented. There was serious dearth of literature with respect to research studies on this aspect. So the directly related literatures were not readily available for this study. Some researchers addressed various aspects of problem confrontation in various crops. A few of these studies relevant to this research are briefly discussed in this chapter under the following three sections:

Section 1: Literature related to problems faced by the respondent's in different aspects of agriculture

Section 2: Review concerning the relationship between selected characteristics of the respondents and their problem confrontation

Section 3: Conceptual framework of the study

2.1. Problem Faced by the Farmers in Different Agricultural Aspects

Rahman (1995) in his study, identified farmers' faced problems in cotton cultivation. Non-availability of quality seed in time, unfavourable and high cost of fertilizer and insecticides, lack of operating capital, not getting fair weight and reasonable price according to grade, affects of cattle in cotton field, lack of technical knowledge, lack of storage facility, stealing from field at maturity stage, and late buying of raw cotton by Cotton Development Board were identified as major problems of cotton farmers in Mymensingh district.

Chander and Sharma (1990) revealed that the main problems of potato cultivation were ignorance about improved cultivars and cultivation practices, ignorance about scientific method of sowing, lack of guidance of marketing potato, high cost of improved cultivars, high cost of fertilizers, pesticides and irrigation, lack of enough space for storing potatoes scientifically.

Raha *et al.* (1986) identified some common problems of cotton cultivation as perceived by the farmers in Bangladesh. Those were lack of suitable land, lack of irrigation facility,

shortage of labour, shortage of cash money, lack of technical knowledge, lower price of cotton and non-availability of seed, insecticide and fertilizer.

Nahid (2005) revealed that the highest proportion (91%) of the growers had medium overall problem confrontation in cotton production, while 5 percent had high and ***4*** percent had low problem confrontation. The problems confronted by the cotton growers were not getting the price at a time after selling the cotton, selling problem of cotton, non-availability of fertilizer and pesticide in time, low supply of fertilizer and pesticide in time, delay of payment after selling the cotton, difficulty in getting loan, relay crops are not successful, lack of capital, lack of necessary advice from SAAO, lack of necessary advice from Agricultural Extension Officer, adverse climate, high price of fertilizer and pesticide, transport problem in carrying cotton, facing problem in tying cotton, insect and pest attack in cotton crop, late in supply of new varieties, lack of necessary advice and instructions from ACDO, irrigation problem, lack of skilled labor, lack of knowledge about diseases of cotton crop, lack of knowledge about rate of fertilizer and pesticide, absence of sufficient demonstration plots on cotton production, lack of training facility about cotton production and lack of leaflets, posters, etc. about cotton production.

Biswas (1992) in his study identified farmers‟ problems in cotton cultivation. Non availability of quality seed in time, unfavorable and high cost of fertilizer and insecticides, lack of operating capitals, not getting fair weight and reasonable price according to grade, lack of technical knowledge, lack of storage facility, stealing from field, and late buying of raw cotton by Cotton Development Board were identified as major problems of cotton in Jessore District.

Ismail (2001) conducted a study on farm youth of haor area of Mohangonj upazila. Study revealed that there were six top problems in rank order were (i) no arrangement of loan for the farm youth for fishery cultivation, (ii) lack of government programmes in agriculture for the farm youth, (iii) absence of loan giving agencies for establishing farm, (iv) general people face problem for fishery due to government leasing of Jalmohal, lack of government programmes for establishing poultry farm, (vi) lack of agricultural loan for the farm youth.

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

Salam (2003) in his study identified constraints in adopting environmentally friendly farming practices. Top six identified constraints according to their rank order were: i) low production due to limited use of fertilizer (ii) lack of organic matter in soil, (iii) lack of Govt. support for environmentally friendly farming practices, (iv) lack of capital and natural resources for integrated farming practices, (v) lack of knowledge on integrated farm management and (vi) unavailability of pest resistant varieties of crops.

Ramachandran and Sripal (1990) identified different constraint in adopting of dry land technology for rain fed cotton in Kamaraz district, Tamilnadu, India. The found that farmers faced constraints which included insufficient rainfall susceptibility of pest and diseases, lack of experience, unavailability of inputs in time, lack of knowledge, in sufficient livestock, risk due to failure of monsoon ,high cost etc.

Musnicki (2003) showed in Poland that high soil cultivation requirements, low frost resistance, high crop protection costs and a relatively long vegetative season are some of the major constraints.

The most important problems identified by Kher and Halyal (1988) regarding cotton cultivation technology were an irregular and insufficient electricity supply, small size of holding for green manuring, inconvenience of intercropping due to weeds, high cost of farm fuel, scare irrigation facilities and absence of location specific recommendations for ear thing up, lack of drought resistant varieties and lack of technical knowledge about plant protection and chemical fertilizers.

Marothia (1983) conducted a study to find out the constraints in the adoption of paddy technologies in two villages in Raipur block, Madhya Pradesh, India. The findings revealed that the majority of farmers still adopt a partial package of recommendations, mainly due to the high cost of input, financial limitations and risk of crop failure. Inadequate supportive input facilities were found to be responsible for the slow adoption of paddy technology.

2.2 Studies on Selected Characteristics of the Farmers with their Problem Faced

2.2.1 Age and problem faced

Nahid (2005) conducted a study and found that there was no relationship between age of the sugarcane growers and their problem confrontation in sugarcane production.

Hossain (1985) in a study on landless laborers in Bhabakhali union of Mymensingh district found that there was no relationship between age of the landless laborers and their problem faced. Similar findings were obtained by Rahman (1995), Ali (1999), Rashid (1999), Parmanik (2001), Ahmed (2002), Hossain (2002) and Salam (2003) in their respective studies.

Akanda (1993) found that there was no relationship between age of farmers and their problem faced in using quality rice (BR 11) seed.

Hasan (1995) found that there was no relationship between age of the block supervisors and their problem faced.

Rahman (1995) conducted a study and found negative relationship between age of the farmers and their problem faced. Shahidullah (1987) found similar finding.

Karim (1996) conducted a study and found that age had no significant relationship with problem faced. Bhuyan (2002) in his study found a positive and significant relationship between age of the farmers and their constraint in banana cultivation. Similar findings were obtained by Rahman (1996) in his study.

Rashid (2003) found that age of the rural youth had significant negative relationship with their problem faced in selected agricultural production activities.

Rahman (2006) found that age of the farmers had no significant relationship with their constraints faced in Banana cultivation of Sunargaon Upazilla under Narayangonj distrct.

Huque (2006) found that age of the farmers had no significant relationship with their problem faced in using integrated plant nutrient management.

Basher (2006) found that age of the farmers had significant negative relationship with their problem confrontation in mashroom cultivation.

Aziz (2006) found that age of the farmers had no significant relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

2.2.2 Level of education and problem confrontation

Kashem (1997) in his study found a significant negative relationship between education of the landless labourers and their problem confrontation.

Islam (1987) in his study found a significant and negative relationship between education of the farmers and their problem confrontation on artificial insemination. Similar findings were obtained by Mansur (1989), Rahman (1995),Haque (1995), Rahman (1996), Karim (1996), Faroque (1997), Pramanik (2001),Ahmed (2002), Hossain (2002), Bhuiyan (2002) and Salam (2003) in the irrespective studies.

Haque (2001) found a significant negative relationship between education and problem confrontation of the Farmers Field School (FFS) in practicing IPM.

2.2.3 Family size and problem faced

Nahid (2005) conducted a study and found that there was no significant relationship between family size of the sugarcane growers and their problem confrontation in sugarcane production.

Hossain (1985) found in his study that there was no relationship between family size of the landless laborers and their problem faced.

Haque (1995) found that there was no significant relationship between family size and problem faced of the Mohila Bittaheen Samabaya Samittee. Similar findings were obtained by Rashid (1999), Bhuyan (2002), Hossain (2002) and Ahmed (2002) in their respective studies.

Rahman (1995) found that there was no significant relationship between family size of the pineapple growers and their problem faced. He also found negative tendency between the concerned variables.

Salam (2003) in his study found a positive significant relationship between family Size and their constraint in adopting environmentally friendly farming practices.

Huque (2006) found that family size of the farmers had no significant relationship with their problem faced in using integrated plant nutrient management.

Rahman (2006) found that family size of the farmers had no significant relationship with their constraints faced in Banana cultivation of Sunargaon Upazilla under Narayangonj distrct.

Basher (2006) found that family size of the farmers had no significant relationship with their problem confrontation in mashroom cultivation.

Aziz (2006) found that family size of the farmers had very high significant negative relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

2.2.4 Farm size and problem faced

Nahid (2005) conducted a study and found that there was a highly significant negative relationship between total farm size of the cotton growers and their problem confrontation in cotton production.

Hossain (1985) found that borga farm size of the landless laboureres had a significant relationship with their problem confrontation. The problem confrontation was higher in borga farming than no borga farming category.

Islam (1987) in his research found that cattle strength of the Farmers had a significant negative relationship with their artificial insemination problem confrontation. Similarly, Ali and Anwar (1987) found that there was a negative relationship between cattle strength of the farmers and their cattle problem confrontation.

Raha (1989) found that there was no significant relationship between the farmers' area under irrigation and their irrigation problem confrontation. On the other hand, similar findings were obtained by Mansur (1989) and Bhuyan (2002) in their respective studies.

Rahman (1996) found that farm size of the respondents had a negative significant relationship with their problem confrontation in potato cultivation.

Karim (1996) conducted a study and found that farm size of the fanners had no significant relationship with their problem confrontation. Rashid (1975) obtained similar finding in his study.

Ali (1999) found that family farm size of the rural youth had no relationship with their anticipated problem confrontation in self-employment by undertaking selected agricultural income-generating activities. Saha (1997), Rashid (1999), Hossain (2002), Bhuyan (2002), and Salam (2003) found similar findings in their respective studies.19

Hague (2001) found that significant positive relationship between farm size and problem confrontation of the FFS farmers in practicing IPM.

Rashid (2003) found that farm size of the rural youth had no relationship with problem confrontation in selected agricultural production activities.

Huque (2006) found that farm size of the farmers had no significant relationship with their problem faced in using integrated plant nutrient management.

Rahman (2006) found that farm size of the farmers had no significant relationship with their constraints faced in Banana cultivation of Sunargaon Upazilla under Narayangonj distrct.

Basher (2006) found that farm size of the farmers had significant negative relationship with their problem confrontation in mashroom cultivation.

Aziz (2006) found that farm size of the farmers had very high significant negative relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

2.2.5 Family annual income and problem confrontation

Kashem (1977) in his study examined the relationship between income of the landless labourers and their problem confrontation. Though the relationship was not statistically significant, the data indicated an appreciable negative trend between the two variables.

Saha (1983) found in his study a negative relationship between income of the farmers and their poultry problem confrontation.

Hossain (1985) found a significant relationship between income and problem confrontation of the land less labourers.

Islam (1987) reported that the relationship between income and artificial insemination problem confrontation was negatively significant.

Raha (1989) found in his study that income of the farmers had no significant relationship with their irrigation problem confrontation.

Masur (1989) did not find any significant relationship between income of the farmers and their problem confrontation in feeds and feeding cattle. However, the trend of the relationship was negative.

2.2.6. Bean Cultivation area and problem faced

The researcher could not find any literature regarding relationship between bean cultivation area and problem confrontation of the bean farmers.

2.2.7 Training exposure and problem faced

Nahid (2005) conducted a study and found that there was no significant relationship between training exposure of the cotton growers and their problem confrontation in cotton production.

Saha (1997) found that training experience of the youth had no relationship the problem confrontation in relation to employment opportunity of youth. Similar findings were obtained by all in his study.

Ali (1999) found that training experience of the rural youth had no relationship with their anticipated problem confrontation in self-employment by undertaking selected agricultural income generating activities.

Ahmed (2002) showed that training experience of the farmers had a significant negative relationship with their problem confrontation in jute seed production.

Basher (2006) found that training exposure of the farmers had high significant negative relationship with their problem confrontation in washroom cultivation.

2.2.8 Organizational participation and problem faced

Nahid (2005) conducted a study and found that there was a very high significant negative relationship between organizational participation of the sugarcane growers and their problem confrontation in sugarcane production.

Mansur (1989) in his study indicated that organizational participation of the farmers had a significant negative relationship with their problem confrontation.

Raha (1989) and Islam (1987) found that there was no significant relationship between the organizational participation of the farmers and their problem confrontation. Rashid (1975) found similar finding. Rahman (1995), Sarker (1983), Saha (1983) and Ali (1978) also found similar findings in their respective studies.

Karim (1996) found that organizational participation of the farmers had significant negative relationship with their problem confrontation.

Huque (2006) found that organizational participation of the fanners had no significant relationship with their problem faced in using integrated plant nutrient management.

Rahman (2006) found that organizational participation of the farmers had significant negative relationship with their constraints faced in Banana cultivation of Sunargaon Upazilla under Narayangonj district.

Basher (2006) found that organizational participation of the farmers had high significant negative relationship with their problem confrontation in mashroom cultivation.

Aziz (2006) found that organizational participation of the farmers had very high significant negative relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

2.2.9 Extension media contact and problem faced

Nahid (2005) conducted a study and found that there was a very high significant negative relationship between extension media contact of the sugarcane growers and their problem confrontation in sugarcane production.

Akanda (1993) in his study conducted that extension contact of exerted significant negative influence on their faced constraints in cultivation.

Haque (1995) found in his study that extension contact of the members of Mohila Bittaheen Samabaya Samittee had no significant effect on their problem confrontation.

Rahman (1995) in his study conducted that extension contact of the farmers exerted significant negative influence on their faced constraints in cotton cultivation i.e. the higher the extension contact of the farmers the lower was their constraints facing.

The study of Ismail (2001) revealed that there was no significant relation between farm youths‟ extension contact and their agricultural problem confrontation. Similar findings were obtained by Raha (1989) and Hoque in their respective studies.

Huque (2006) found that extension media contact of the farmers had high significant negative relationship with their problem faced in using integrated plant nutrient management.

Rahman (2006) found that extension media contact of the farmers had no significant relationship with their constraints faced in Banana cultivation of Sunargaon Upazilla under Narayangonj district.

Basher (2006) found that extension media contact of the farmers had significant negative relationship with their problem confrontation in mashroom cultivation.

Aziz (2006) found that extension media contact of the farmers had very high significant negative relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

2.2.10 Bean cultivation knowledge and problem faced

The researcher could not find any specific literature about relationship between knowledge on bean cultivation and problem confrontation of the bean farmers. But the researcher studied another related literature on knowledge and problem faced.

Nahid (2005) conducted a study and found that there was no significant relationship between cotton cultivation knowledge of the cotton growers and their problem confrontation in cotton production.

Saha (1983) studied on poultry problem confrontation and reported that the relationship between poultry knowledge and poultry problem confrontation was negative.

Raha (1989) reported that knowledge in irrigation of modem boro paddy of the farmers had no significant relationship with their irrigation problem confrontation.

Karim (1996) indicated in his study that agricultural knowledge of the kakrol gowers had significant negative relationship with their problem confrontation. Rahman (1996) also found similar findings in his study.

Haque (2006) found that knowledge of the farmers had significant negative relationship with their problem faced in using integrated plant nutrient management.

Basher (2006) found that knowledge of the farmers had significant negative relationship with their problem confrontation in mashroom cultivation.

Aziz (2006) found that knowledge of the farmers had very high significant negative relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

2.2.11 Credit received and problem faced

No literature was found related to relationship between credit availability and problem faced by the farmers.

2.3 Conceptual Framework of the Study

In scientific research, selection and measurement of variables constitute an important task. The hypothesis of a research while constructed properly consist at least two important elements i.e.: a dependent variable and an independent variable. A dependent variable is that factor which appears, disappears or varies as the researcher introduces, removes or varies the independent variables (Townsend, 1953)**.** An independent variable is that factor which is manipulated by the researcher in his attempt to ascertain its relationship to an observed phenomenon. Variables together are the causes and the phenomenon is effect and thus, there is cause effect relationship everywhere in the universe for a specific events or issues.

The conceptual framework of Rosenberg and Hovland (1960) was kept in mind while making structural arrangements for the dependent and independent variables. This study is concerned with the 'Problems Faced by the Bean Farmers of Pabna District'. Thus, the problem faced in bean cultivation by the farmers of Pabna district was the dependent

variable and 11 selected characteristics of the bean farmers were considered as the independent variables. Problem of bean farmers may be affected through interacting forces of many independent variables. It is not possible to deal with all of the independent variables in a single study. It was therefore, necessary to limit the independent variables, which include age, level of education, family size, farm size, bean cultivation area, family annual income, experience in bean cultivation, knowledge on bean cultivation, training exposure, media exposure, credit received, Organizational participation and problems in bean cultivation for this study. Considering the above mentioned discussion, a conceptual framework has been developed for this study, which is diagrammatically presented in the following Figure 2.1.

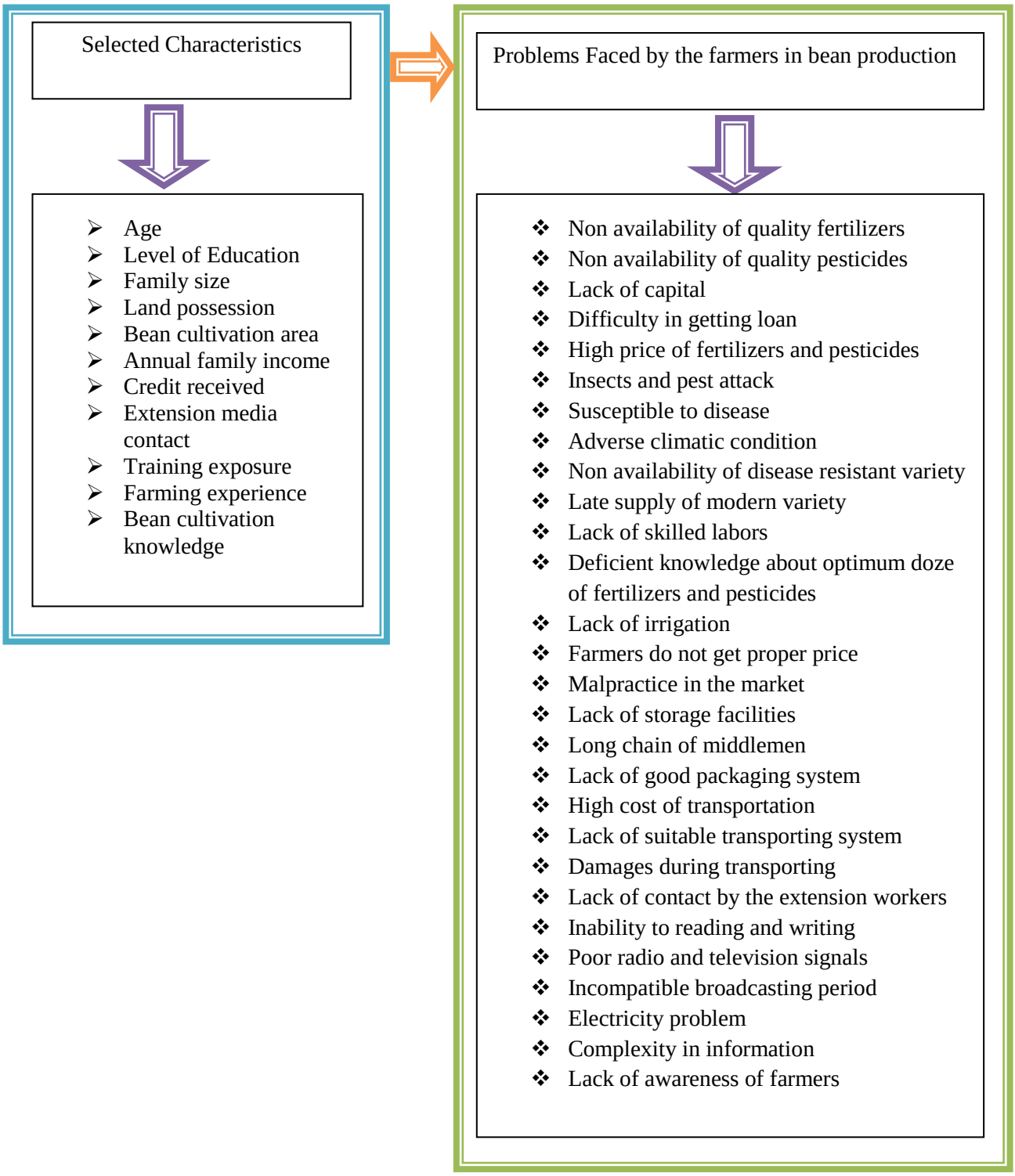

Figure 2.1: Conceptual framework of the study

CHAPTER III

METHODOLOGY

Methodology enables the researcher to collect valid information. It is impossible to conduct research work smoothly without proper methodology and it is very difficult to address the objectives with a scientific manner. It requires a very careful consideration on the part of the researcher to collect valid and reliable data and to analyze the same for meaningful conclusion. A sequential description of the methodologies followed in conducting this research work has been presented in this Chapter.

3.1 Locale of the Study

Two unions of Atgharia Upazilla, namely, Majpara and Chandba were purposively selected as the locale of the study. The figures 3.1 and 3.2 are showing Atgharia Upazilla of Pabna district and the study area under Atghoria Upazilla, respectively.

3.2 Population and Sampling

Bean farmers of Sonjoypur and Hapania villages of Chandba and Rokonpur and Khidirpur villages of Majpara union under Atgharia upazilla of Pabna district constituted the population of the study. An update list of 972 bean farmers was prepared with the help of Upazilla Agricultural Officers of these localities. Sample size determined by using Yamane's (1967) formula. In calculating sample size from the following Yamene's formula, 9% precission level, 50% degree of variability and value of Z=1.96 at 95% confidence level were considered,

Yemans's formula

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

Where,

n = Sample size

N = Population size

e = the level of precision (9%)

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

P = the proportion or degree of variability

Thus, 106 bean farmers constituted the sample of the study. A reserve list of 10 farmers was also prepared by the same method so that the respondents of this list could be used for interview if the respondents included in the original sample were not available at the time of data collection. Proportionate random sampling was used to select the respodents. The distribution of the population, sample and the reserve list are given in Table 3.1. for clarity of understand.

Table 3.1 Distribution of the farmers constituting the populations, sample and reserve list in selected villages under Atgharia upazilla.

Sl. No	Unions	Villages	Number of the farmers		Reserve list
			Population	Sample	
01	Chandva	Sonjoypur	222	24	2
		Hapania	218	24	2
02	Majpara	Rokonpur	278	30	3
		Khidirpur	254	28	3
Total			972	106	10

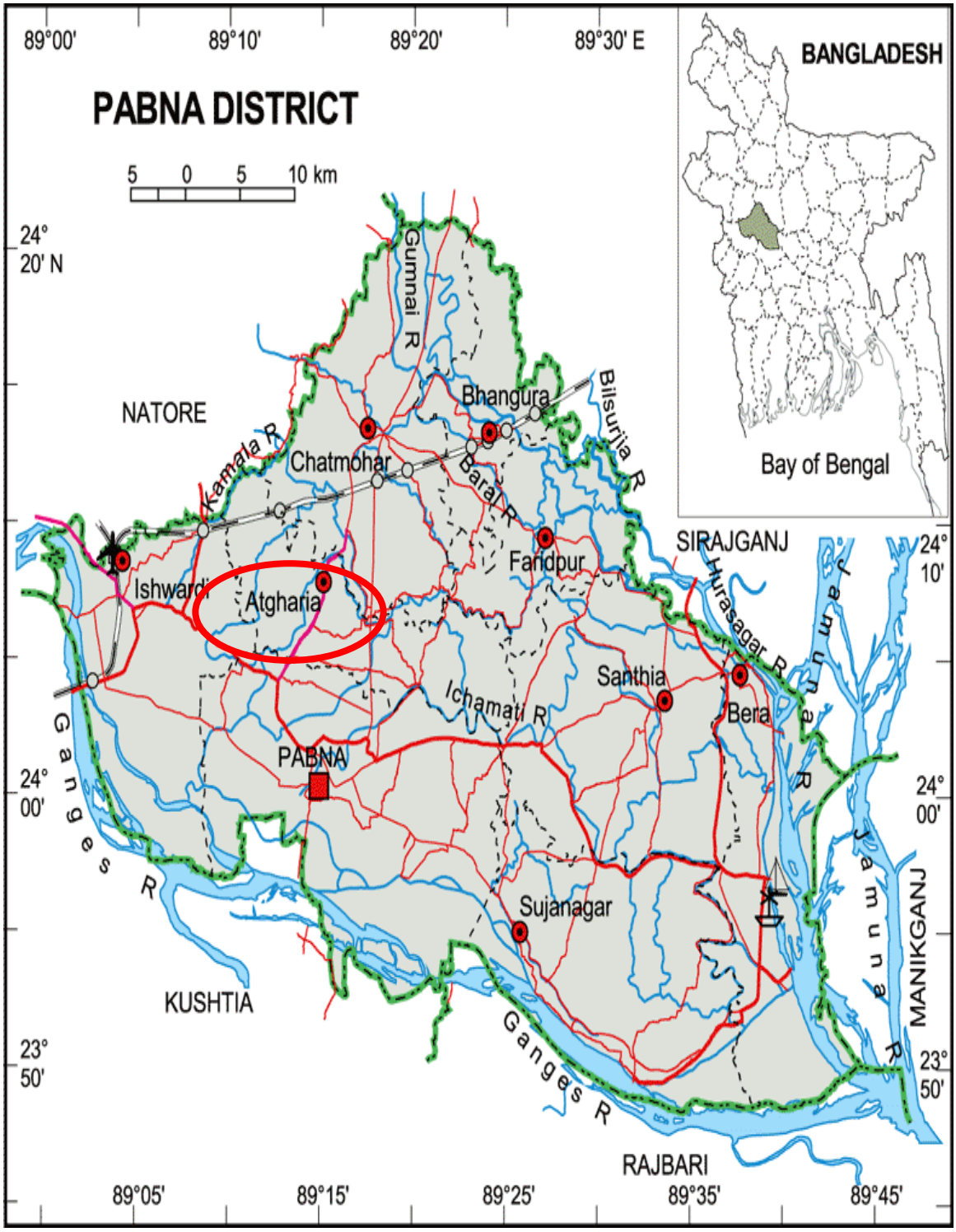

Figure 2: Map of Pabna district showing Atgharia upazilla

Figure 3: Map of Atgharia upazilla showing Majhpara and Chandva union

3.3 Variables of the Study and their Measurement

3.3.1 Measurement of dependent variable

Extent of problems faced by the farmers in bean cultivation was the dependent variable of this study. It was measured on the basis of the problems faced by the farmers in bean cultivation. A scale was used for measuring extent of problems faced by the farmers in bean cultivation. The scale contained 28 problems, which the farmers face in respect of bean production. Each respondent was asked to indicate the extent of difficulty caused by each of the problems by checking any one of the four responses “high problem”, “medium problem”, “low problem” and not at all problem”. Weights were assigned to these responses as 3, 2, 1 and 0 respectively. Weights for responses against all the twenty eight problem-items of a respondent were added together to obtain his problem faced score. Therefore, the problems faced score of the farmers could range from 0 to 84, where 0 indicated facing of no problem and 84 indicated facing of very high problem.

To compare the severity among the problems, Problem Faced Index (PFI) was computed for each problem-item with help of the following formula:

$PFI = P_h X3 + P_m X2 + P_l X1 + P_n X0$

Where,

PFI = Problem Faced Index

P_h= Number of farmers facing "serious problem"

P_m= Number of farmers facing "moderate problem"

P_l= Number of farmers facing "little problem"

P_n= Number of farmers facing "no problem"

Thus, the PFI of the problems could range from 0-318, where 0 indicated facing of no problem and 318 indicated facing of serious problem. Rank order was also made with the descending order of the PFI of the problem-items.

3.3.2 Measurement of independent variables

The 11 characteristics of the bean farmers mentioned above constituted the independent variables of this study. The following procedures were followed for measuring the independent variables.

3.3.2.1 Age

Age of a respondent bean farmer was measured by the period of time from his or her birth to the time of conducting interview and it was measured in terms of complete years on the basis of his or her response. A score of one (1) was assigned for each year of age. Example, if a respondents of 40 years old, he will get 40 score.

3.3.2.2 Level of education

Level of education was measured in terms of class passed by a respondent bean farmer. If a respondent received education from any educational institute or recognized the school or college or university, their education was assessed in terms of year of schooling, which was determined by his response to item no. 2 of the interview schedule (Appendix A) i.e. one (1) score was given for one year of schooling. For example, if a respondent passed the final examination of class V, his or her education score was taken as 5. If the respondents had education outside of school equivalent to class V, then his or her education score was taken as 5. If a respondent passed the final examination of class IX, his score was taken as 9. Each illiterate person was given a score of zero. The respondent who did not know how to read or write but able to sign only was given a score of 0.5.

3.3.2.3 Family size

The family size was measured by the total number of members in the family of a respondent including himself/herself, wife, his/her children and other dependents. The information was obtained by a respondent's response to item no. 3 of the interview schedule (Appendix A). The total number of family members was considered as the family size score of a respondent.

3.3.2.4 Farm size

The total farm size of a respondent referred to the total area of land, on which his family carried out farming operations, the area being estimated in terms of full benefit to the

farmers. A farm was considered to have full benefit from the cultivated area either owned by him or obtained on lease from others and half benefit from the area which was either cultivated by him on borga or given others for cultivation on borga basis. The farm size was measured for each respondent in terms of hectare by using the following formula:

FS= A+B+C+1/2(D+E)+F

Where,

FS = Farm size

A = Area under homestead

B = Area under own cultivation

C= Land taken from others on lease

D = Land given to others as borga

E= Land taken from others as borga

F= Land under pond cultivation

The total number of hectare was his farm size score.

3.3.2.5 Annual family income

It referred to the total earnings in thousand taka by all the family members of a respondent from bean, other crops, poultry, livestock, fisheries, business, service, daily labour and others during a year as contained in question no. 5 of the interview schedule (Appendix A). A score of 1 was assigned for each one thousand Taka of income.

3.3.2.6 Bean cultivation area

The bean cultivation area of a respondent was measured on the basis of the area on which his family carried out bean cultivation operations. The area of bean cultivation was expressed in hectare.

3.3.2.7 Training exposure

Training exposure of a respondent was measured by the total number of days for which a respondent attended in different training programs on agriculture. If a respondent takes training for 7 days, he will get 7 scores.

3.3.2.8 Organizational participation

Organizational participation of the respondent measured on the basis of the nature of his/her participation in 8 selected organizations. Final score was computed by adding all the scores of selected organizations. Following scores were assigned for nature of participation:

Nature of participation	Scores assigned
No participation	0
Participation as general member	1
Participation as executive member	2
Participation as executive	3

The social organizational participation score could range from 0 to 24 where 0 indicated no participation and 24 indicated very high organizational participation.

3.3.2.9 Extension media contact

Extension media contact was measured as ones extent of contact to different information sources. Each respondent was asked to indicate his nature of contact for each of 10 selected media with five alternative responses was prepared for the respondents. Following scores were assigned for each of 10 media.

Extent of exposure	Scores assigned
Not at all	0
Rarely	1
Occasionally	2
Often	3
Regularly	4

Thus, the media exposure scores of bean farmers could range from 0 to 40 where '0' indicated no exposure and 40 indicated very high media exposure.

3.3.2.10 Bean cultivation knowledge

Knowledge on bean cultivation of the bean farmers referred to the knowledge gained by the respondent in bean cultivation activities. A scale consisting of 15 questions was used

to determine the bean cultivation knowledge score of the respondents. The questions were selected from different dimensions of bean cultivation after thorough consultation with the relevant experts and review of relevant literatures as shown in Appendix A. The score allotted for each question was 2. A respondent could get 2 score against each question for correct response and 0 for wrong or no response and partial score was assigned for partially correct answer. Thus, bean cultivation knowledge score of the respondents could range from 0 to 30, where 0 indicated very low bean cultivation knowledge and 30 indicated very high bean cultivation knowledge.

3.3.2.11 credit received

It refers to the total amount of money (in thousands) received from different sources such as NGO, Banks, Money lender, Friends, Neighbors and Relatives as borrow or a certain rate of interest for a certain period of time. A score of 1 was assigned for each one thousand Taka to obtain the credit received score of a respondent.

3.4 Hypothesis

The following null hypothesis was undertaken for the present study. There is no significant relationship between the selected characteristics of bean farmers with the problem confrontation in bean cultivation. The related characteristics are age, level of education, family size, farm size, annual household income, bean cultivation area, training exposure, organizational participation, extension media contact, bean cultivation knowledge, credit received.

3.5 Data Gathering Instrument

In order to collect relevant data from the respondents an interview schedule was prepared. The interview schedule was pre-tested before final data collection for necessary correction, modification and adjustment. The interview schedule contained both open and closed form of questions. Simple and direct questions, and some scales were included in the schedule to obtain information for both independent and dependent variables. The questions were arranged systematically and presented clearly. A copy of the interview schedule has been presented in Appendix-A

3.6 Collection of Data

Data were collected personally by the researcher himself by interviewing the sample of 106 bean farmers with the help of an interview schedule. Before starting collection of data, the researcher met the Upazilla Agriculture Officer, Additional Agriculture Officer, Agricultural Extension Officer and Sub Assistant Agriculture Officer of the respective study area and requested them to provide necessary help and co-operation. The Sub Assistant Agriculture Officer of the study area introduced the local leaders who were very helpful for the researcher in collection of data. The researcher made all possible efforts to explain the purpose of the study to the respondents. Rapport was established with the farmers prior to interview and the objectives of the study were clearly explained by using local language as far as possible. As a result, the respondents did not hesitate to furnish proper responses to the questions and statement. Data were collected during the period from 15 December, 2017 to 15 January 2018. No serious problem was faced by the researcher in collecting data. Excellent co-operation was obtained from the respondents, local leaders and the Sub Assistant Agriculture Officers.

3.7 Data Processing and Analysis

The collected raw data were examined thoroughly to detect errors and omissions. Having consulted with the research supervisor, the Investigator prepared a detailed coding plan. Data were then coded and entered into a coding sheet. In case of qualitative data, putting proper weight against each of the traits to transfer the data into quantitative forms following suitable scoring techniques. Collected, data for the study were compiled, tabulated and analyzed in accordance with the objectives of the study. Various statistical measures such as number and percentage distribution, range, mean, standard deviation and rank order were used in describing the variables of the study. Tables and figures were used in presenting data for clarity of understanding. The relationship between the individual characteristics of the respondents and their problems faced were ascertained by using Pearsons Product Moment Correlation Co-efficient test. For rejecting any null hypothesis a five percent (0.05) level of probability was used throughout the study.

CHAPTER IV

RESULTS AND DISCUSSION

The purpose of this Chapter is to describe the findings of the present study. The first section deals with the selected characteristics of the bean farmers, while the second section deals with the problem faced by the farmers in bean cultivation. The third section deals with the comparative severity among the problems faced by the farmers in bean cultivation. Relationship between the selected characteristics of the farmers and their problem faced in bean cultivation has been discussed in the fourth section.

4.1 Selected Characteristics of the Farmers

Eleven characteristics of the farmers were selected for this research. The characteristics include: age, education, family size, farm size, annual family income, bean cultivation area, training exposure, organizational participation, extension media contact, bean cultivation knowledge and credit received.

4.1.1 Age

The observed age of the respondents ranged from 21 to 70 with a mean of 41.27 and standard deviation of 11.16. The respondents were classified into three age categories namely, young (up to 35 years), middle aged (>35-50 years) and old (above 50 years) as shown in Table 4.1.

Table 4.1 Distribution of the farmers according to their age

Categories (Year)	Bean farmers		Mean	Standard deviation
	Number	Percent		
Young aged (up to 35)	40	37.74	41.27	11.16
Middle aged (> 35-50)	44	41.51		
Old aged (above 50)	22	20.75		
Total	106	100.00		

The largest proportions (41.51%) of the farmers were middle aged, while 20.75 percent of them were old and 37.74 percent were young aged. Thus, more than three fourth (79.25%) of the farmers belonged to young to middle aged categories.

4.1.2 Education

Education of the farmers ranged from 0 to 15 years of schooling having an average of 4.47 years with a standard deviation of 4.14. On the basis of their education, the respondents were classified into four categories as shown in Table 4.2

Table 4.2 Distribution of the farmers according to their education

Categories (level)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
Illiterate (0-0.5)	46	43.40	4.47	4.14
Primary education (1-5)	13	12.26		
Secondary education (6-10)	40	37.74		
Above secondary (> 10)	7	6.60		
Totals	106	100.00		

Data contained in Table 4.2 indicate that 12.26 percent of the farmers had primary level of education, 37.74 percent had secondary level of education and 6.6 percent had above secondary level of education. More than two-fifth (43.4 %) of the farmers were illiterate or can sign their name only.

4.1.3 Family size

Family size of the respondent bean farmers ranged from 2 to 14 with the mean and standard deviation of 5.58 and of 2.22 respectively. According to family size the respondents were classified into three categories viz. ‘small’, ‘medium’ and ‘large’ family. The distribution of the respondents according to their family size is presented in Table 4.3.

Table 4.3. Distributions of the farmers according to their family size

Categories (number)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
Small family (up to 4)	39	36.79	5.58	2.22
Medium family (5-7)	50	47.17		
Large family (above 7)	17	16.04		
Total	06	100.00		

Data presented in Table 4.3 show that the highest proportion (47.17%) of the farmers had medium family size, while 36.79 percent had small families and only 16.04 percent had large families. Thus, a great majority (83.96%) of the bean farmers had small to medium family.

4.1.4 Farm size

The farm size of the respondent's bean farmers ranged from 0.18 ha to 4.11 ha with a mean and standard deviation of 0.92 and of 0.64 respectively. Based on their farm size, the respondents were classified into three categories following the categorization of DAE as presented in Table 4.4.

Table 4.4 Distribution of the farmers according to their farm size

Categories (hectare)	Respondents farmers		Mean	Standard deviation
	Numbers	Percent		
Small farm (< 1.00 ha)	73	68.86	0.92	0.62
Medium farm (1- 3 ha)	31	29.25		
Large farm (> 3 ha)	2	1.89		
Total	106	100.00		

Table 4.4 indicates that the small farm holder constitute the highest proportion (68.86%) followed by the large farm holder (1.89%) and medium farm holder (29.25%). The findings of the study reveal that an overwhelming majority (98.11%) of the bean farmers were small to medium sized farm holder.

4.1.5 Annual family income

Family annual income of the respondent bean farmers ranged from 44 to 1150 thousand taka with a mean and standard deviation of 193.32 and of 149.06 respectively. The bean farmers were classified into three categories, viz. low, medium and high annual income on the basis of mean ± 0.5 SD. The distribution of the bean farmers according to annual income are presented in Table 4.5.

Table 4.5 Distribution of the farmers according to their annual family income

Categories (000 taka)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
Low income (<120)	35	33.02	193.32	149.06
Medium income (>120-270)	56	52.83		
High income (> 270)	15	14.15		
Total	106	100.00		

Data reveal that the bean farmers having medium family annual income constitute the highest proportion (52.83%) followed by low income (33.02%) and high income (14.15%). Overwhelming majority (86%) of the bean farmers have low to medium level annual income.

4.1.6 Bean cultivation area

Bean cultivation area of the bean farmers ranged from 0.07 ha to 0.67 ha with a mean and standard deviation of 0.22 and of 0.12 respectively. Based on the bean cultivation area, the respondents were classified into three categories as small, medium and large bean

farm. The distribution of the bean farmers according to their bean cultivation area has been presented in Table 4.6.

Table 4.6 Distribution of the farmers according to their bean cultivation area

Categories (hectare)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
Small (< 0.1 ha)	12	11.32	0.22	0.12
Medium (0.1- 0.35 ha)	80	75.47		
Large (> 0.35 ha)	14	13.21		
Total	106	100.00		

Data contained in Table 4.6 indicates that the largest proportion (75.47%) of farmers had medium bean cultivation area compared to 11.32 percent having small and 13.21 percent large bean cultivation area. The findings also reveal that a great majority (86.79%) of the farmers had small to medium bean cultivation area.

4.1.7 Training exposure

The score of training exposure of the farmers ranged from 0 to 18 days, the mean being 5.59 and standard deviation of 5.25. Based on training exposure, the bean farmers were classified into three categories as shown in Table 4.7.

Table 4.7 Distribution of the farmers according to their training exposure

Categories (days)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
No training (0)	38	35.85	5.59	5.25
Low training (1-6)	19	17.92		
Medium training (7-12)	39	36.80		
High training (13-18)	10	9.43		
Total	106	100.00		

Data contained in Table 4.7 indicate that majority (36.80%) of the farmers had medium training exposure; while 35.85 percent of the farmers had no training exposure, 17.92 percent had low training and 9.43 had high training exposure. It means that an overwhelming majority (90.57%) of the bean farmers had no to medium training exposure.

4.1.8 Organizational participation

Organizational participation score of the bean farmers ranged from 0 to 15 with a mean and standard deviation of 4.98 and of 4.64 respectively. Based on their organizational participation score, the bean farmers were classified into three categories. These categories were no, low and medium participation. The distribution of the bean farmers according to their organizational participation is presented in Table 4.8

Table 4.8 Distribution of the farmers according to their organizational participation

Categories (days)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
No participation	40	37.74	4.98	4.64
Low participation (up to 8)	45	42.45		
Medium participation (above 8)	21	19.81		
Total	106	100.00		

Data revealed in Table 4.8 indicates that the largest proportion (42.45%) of the farmers had low organizational participation; compared to 37.74 percent had no organizational participation and 19.81 percent of farmers had medium organizational participation.

4.1.9 Extension media contact

Extension media contact score of the respondent ranged from 8 to 32 against the possible range of 0 to 39 with a mean and standard deviation of 18.88 and of 3.97 respectively. Based on the media contact score, the respondents were classified into three categories. These categories were ‘low’, ‘medium’ and ‘high’ media contact. The distribution of the bean farmers according to their media contact is presented in Table 4.9.

Table 4.9 Distribution of the farmers according to extension media contact

Categories (scores)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
Low (< 14)	15	14.15	18.38	3.97
Medium (14- 22)	78	73.59		
High (> 22)	13	12.26		
Total	106	100.00		

Data presented in the Table 4.9 indicate that highest proportion (73.59%) of the farmers had medium extension media contact compared to 12.26 percent had high and 14.15 percent had low extension media contact. Findings again revealed that almost all (87.74%) the farmers had low to medium extension media contact.

4.1.10 Bean cultivation knowledge

The computed bean cultivation knowledge scores of the farmers ranged from 12 to 27 against the possible range of 0 to 30, the mean being 19.19 and standard deviation of 2.76. Based on their bean cultivation knowledge scores, the farmers were classified into three categories as shown in Table 4.10.

Table 4.10 Distribution of the farmers according to their bean cultivation knowledge

Categories (scores)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
Low (< 15)	6	5.66	19.19	2.76
Medium (15- 22)	87	82.08		
High (> 22)	13	12.26		
Total	106	100.00		

Data presented in the Table 4.10 indicates that majority (82.08%) of the farmers had medium bean cultivation knowledge as compared to 12.26 percent high and 5.66 percent low bean cultivation knowledge. This means that most of the bean farmers (87.74%) had low to medium bean cultivation knowledge.

4.1.11 Credit received

The observed credit received scores of the bean farmers ranged from 0 to 60 thousands of taka, the mean being 20.08 and standard deviation of 19.21. Based on the credit received scores the farmers were classified into four categories as shown in Table 4.11.

4.11 Distribution of the farmers according to their credit received

Categories (000 taka)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
No credit	43	40.57	20.08	19.21
Low credit (up to 20)	16	15.09		
Medium credit (> 20-40)	35	33.02		
High credit (above 40)	12	11.32		
Total	106	100.00		

Data contained in Table 4.11 indicates that 40.57 percent of the farmers had no credit received, while 15.09 percent of the farmers had low credit received, 33.02 percent had medium credit received and only 11.32 percent had high credit received. That means more than half of the bean farmers (55.66%) had no to low credit received.

4.2 Problems Faced by the Farmers in Bean Cultivation

Problem faced by the bean farmers was the dependent variable of this study. Problem faced by the bean farmers was measured by computing problems faced scores according to extent of problems faced in 28 selected problem items in bean cultivation. Problem faced by the bean farmers range from 25 to 72 against the possible range of 0 to 84 with the mean and standard deviation of 48.35 and of 9.09 respectively. On the basis of problem faced scores, the respondents were classified into three categories namely, low,

medium and ‘high problem. The distribution of the respondents according to problem faced by the bean farmers under the study is given in Table 4.12.

Table 4.12 Distribution of the farmers according to problems faced in Bean cultivation

Categories (scores)	Respondents farmers		Mean	Standard deviation
	Number	Percent		
Low problem (up to 39)	13	12.26	48.35	9.09
Medium problem (>39-57)	76	71.70		
High problem (above 57)	17	16.04		
Total	106	100.00		

Table 4.12 indicates that among the respondents the highest proportion (71.70%) of the bean farmers belongs to the group of medium problem faced as compare to 12.26 percent faced low problem and 16.04 percent faced high problem in bean production.

4.3 Comparative severity among the problems faced by the farmers in bean cultivation

The observed Problem Faced Index of the problems ranged from 140 to 237 against the possible range of 0-318. Problem Faced Index (PFI) of the selected problems is shown in Table 4.13.

On the basis of PFI, it was observed that “non availability of quality pesticides” ranked first followed by “Non-availability of quality fertilizers”, “lack of capital”, “difficulty in getting loan”, “lack of fair price”, “were the top problems and “complexity in information”, “damages during transporting”, and “lack of irrigation” were the least problems faced by the farmers in bean cultivation.

Table 4.13 Rank order of problems faced by the farmers in bean production

Problems	Numbers of farmers				PFI	Rank order
	High problem	Medium problem	Low problem	Problem not at all		
Non availability of quality pesticides	41	51	12	2	237	1
Non-availability of quality fertilizers	39	54	11	2	236	2
Lack of capital	36	46	23	1	223	3
Difficulty in getting loan	32	51	19	4	217	4
Lack of fair price	14	73	19	0	207	5
Insect and pest attack	30	43	26	7	202	6
High price of fertilizers and pesticides	26	45	33	2	201	7
Susceptible to disease	22	51	28	5	196	8
Lack of contact by the extension workers	10	73	20	3	196	8
Malpractices in the market	15	64	22	5	195	10
Lack of storage facilities	17	58	25	6	192	11
Inability to reading and writing	12	61	32	1	190	12
Lack of good packaging system	17	52	31	6	186	13
Poor radio and television system	17	50	35	4	186	13

Non availability of disease resistant variety	16	51	34	5	184	15
Adverse climatic condition	14	45	41	6	173	16
Long chain of middlemen	16	41	41	8	171	17
Deficient knowledge about optimum dozes of fertilizers and pesticides	13	44	43	6	170	18
High cost of transportation	14	41	42	9	166	19
Late supply of modern variety	9	48	42	7	165	20
Incompatible broadcasting period	11	40	51	4	164	21
Lack of skilled labor	11	43	45	7	164	21
Electricity problem	6	53	38	9	162	23
Lack of suitable transportation	8	40	52	6	156	24
Lack of awareness of farmers	7	44	41	14	150	25
Complexity in information	7	38	52	9	149	26
Damages during transporting	12	35	41	18	147	27
Lack of irrigation in bean cultivation	17	26	37	26	140	28

4.4 Relationship between the Selected Characteristics of the Farmers and their Problems Faced in Bean Cultivation

Coefficient of correlation was computed in order to explore the relationship between the selected characteristics of the farmers and their problems faced in bean cultivation. The selected characteristics constituted the independent variables and problems faced in bean production by the farmers constituted the dependent variable.

In order to determine the relationship between eleven selected characteristics (independent variables) of the farmers viz. age, education, family size, farm size, farmers annual family income, bean cultivation area, training exposure,, organizational participation, extension media contact, knowledge, credit received and the dependent variable i.e., Problems faced by the bean farmers Pearson's Product Moment Correlation was used. Co-efficient of correlation (r) has been used to test the null hypothesis concerning the relationship between the variables. To reject or accept the null hypothesis at 0.05 and 0.01 level of probability was used. A statistically significant and non-significant relationship was observed when the computed value of "r" was greater or smaller than the tabulated value, respectively.

The summery of the results of the Co-efficient of Correlation indicating the relationship between the selected characteristics of the farmers and their problems faced in bean cultivation are shown in Table 4.14.

Table 4.14 Pearson's product moment co-efficient of correlation showing Relationship between dependent and independent variables

Dependent variables	Independents variables	Tabulated value		Value of coefficient correlation with 104 d. f
		0.05	0.01	
Problems faced by the bean farmers	Age	0.192	0.251	0.399**
	Education			- 0.213*
	Family members			0.156
	Farm size			0.019
	Annual family income			0.015
	Bean cultivation area			0.074
	Training exposure			- 0.554**
	Organizational participation			-0.509**
	Extension media contact			-0.226*
	Farmers knowledge			-0.257**
	Credit received			-0.027

* = Significant at 0.05 level of probability

** = Significant at 0.01 level of probability

4.4.1 Relationship between age of the farmers and their problems faced in bean cultivation

The coefficient of correlation between age and problem faced by the bean farmers is presented in Table 4.14. The coefficient of correlation between the concerned variables was found 0.399. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study:

a. The observed value between the concerned variables "r" (0.399) was found to be greater than the tabulated value (r = 0.251) with 104 degrees of freedom at 0.01 level of probability.

b. The null hypothesis could be rejected.

c. The relationship between the concerned variables was statistically significant at 0.01 level of probability.

d. The relationship showed a positive trend between the concerned variables.

Based on the above findings it was concluded that age had significant positive relationship with the extent problem faced by the bean farmers. This represents that age of the bean farmers was an important factor in problem faced and with the increases of age problem confrontation of bean farmers also increases.

4.4.2 Relationship between education level of the farmers and their problems faced in bean cultivation

The coefficient of correlation between level of education and problem faced by the bean farmers is presented in Table 4.14. The coefficient of correlation between the concerned variables was found to be -0.213. The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study:

a. The observed value between the concerned variables "r''(-0.213) was found to be greater than the tabulated value (r = 0.192) with 104 degrees of freedom at 0.05 level of probability.

b. The null hypothesis could be rejected.

c. The relationship between the concerned variables was statistically significant at 0.05 level of probability.

d. The relationship showed a negative trend between the concerned variables.

Based on the above findings it was concluded that level of education had significant negative relationships with the problem faced by the bean farmers. This represents that level of education of the bean farmers was an important factor in problem faced and with the increases of level of education problem faced by the bean farmers decreases.

4.4.3 Relationship between training exposure of bean farmers and their problems faced in bean cultivation

The coefficient of correlation between training and problem faced by the bean farmers is presented in Table 4.14. The coefficient of correlation between the concerned variables was found (-0.554). The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study:

a. The observed value between the concerned variables "r" (-0.554) was found to be greater than the tabulated value (r = 0.251) with 104 degrees of freedom at 0.01 level of probability.

b. The null hypothesis could be rejected.

c. The relationship between the concerned variables was statistically significant at 0.01 level of probability.

d. The relationship showed a negative trend between the concerned variables.

Based on the above findings it was concluded that training had significant negative relationships with the extent of problem faced by the bean farmers. This represents that training exposure of the bean farmers was an important factor in crop production and with the increase of training exposure, the extent of problems confrontation of the bean farmers decreases.

4.4.4 Relationship between organizational participation of bean farmers and their problems faced in bean cultivation

The coefficient of correlation between organization participation and problem faced by the bean farmers is presented in Table 4.14. The coefficient of correlation between the concerned variables was found (-0.509). The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study:

a. The observed value between the concerned variables "r" (-0.509) was found to be greater than the tabulated value (r = 0.251) with 104 degrees of freedom at 0.01 level of probability.

b. The null hypothesis could be rejected.

c. The relationship between the concerned variables was statistically significant at 0.01 level of probability.

d. The relationship showed a negative trend between the concerned variables.

Based on the above findings it was concluded that organizational participation had significant negative relationships with the problem faced by the bean farmers. This represents that organizational participation of the bean farmers was an important factor in problem faced and with the increases of organizational participation problem faced by the bean farmers decreases.

4.4.5 Relationship between extension media contact of bean farmers and their problems faced in bean cultivation

The coefficient of correlation between extension media contact and problem faced by the bean farmers is presented in Table 4.14. The coefficient of correlation between the concerned variables was found (-0.226). The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study:

a. The observed value between the concerned variables "r" (-0.226) was found to be greater than the tabulated value (r = 0.192) with 104 degrees of freedom at 0.05 level of probability.

b. The null hypothesis could be rejected.

c. The relationship between the concerned variables was statistically significant at 0.01 level of probability.

d. The relationship showed a negative trend between the concerned variables.

Based on the above findings it was concluded that extension media contact had significant negative relationships with the problem faced by the bean farmers. This represents that extension media contact of the bean farmers was an important factor in problem faced and with the increases of extension media contact problem faced by the bean farmers decreases.

4.4.6 Relationship between bean cultivation knowledge of bean farmers and their problems faced in bean cultivation

The coefficient of correlation between knowledge on bean cultivation and problem faced by the bean farmers is presented in Table 4.14. The coefficient of correlation between the concerned variables was found (- 0.257). The following observations were made on the basis of the value of correlation coefficient between the two concerned variables of the study:

a. The observed value between the concerned variables “r” (-0.257) was found to be greater than the tabulated value (r = 0.251) with 104 degrees of freedom at 0.01 level of probability.

b. The null hypothesis could be rejected.

c. The relationship between the concerned variables was statistically significant at 0.01 level of probability.

d. The relationship showed a negative trend between the concerned variables.

Based on the above findings it was concluded that knowledge on bean cultivation had significant negative relationships with the problem faced by the bean farmers. This represents that knowledge on bean cultivation of the bean farmers was an important factor in problem faced and with the increases of knowledge on bean cultivation problem faced by the bean farmers decreases.

CHAPTER V

SUMMERY OF FINDINGS, CONCLUSIONS AND RECOMMENDATION

This chapter presents the summery of findings, conclusions and recommendations of the study.

5.1 Summary of Findings

The major findings of the study are summarized below:

5.1.1 Selected characteristics of the farmers

Findings in respect of the 11 selected characteristics of the bean farmers summarized below:

Age: The highest proportion (41.51%) of the respondent bean farmers was middle aged while 20.75 percent was old and 37.74 percent was young aged.

Education: The highest proportion (37.74%) of the respondent bean farmers had secondary level of education, while 32.08 percent had can sign only, 12.26 percent had primary level, 11.32 percent had illiterate and 6.60 percent had above secondary level of education.

Family size: The highest proportion (47.17%) of the bean farmers had medium family size, while 36.79 percent had small family size and 16.04 percent had large family size.

Farm size: 67.92 percent of the farmers had small farm size, while 29.25 percent had medium farm size and 1.89 percent had large farm size.

Annual family income: Annual family income of the bean farmers ranged from 44 to 1150 thousand Tk. with the mean of 193.32 thousand Tk. The highest proportion (57.55%) of the bean farmers had medium annual family income compared to 33.02 percent and 9.43 percent having low and high annual family income respectively.

Bean cultivation area: Bean cultivation area of the bean farmers ranged from 0.07 to 0.67 hectare with a mean of 0.22 ha. The highest proportion (75.47%) of the bean farmers had medium bean cultivation area, while 11.32 percent had small and 13.21 percent had large bean cultivation area. .

Training exposure: Training exposure scores of the bean farmers ranged from 0 to 18 with the mean being 5.59. The majority (47.17%) of the bean farmers had low training, 35.85 percent had no training and 16.98 percent had medium training exposure.

Organizational participation: The observed organizational participation scores of the bean farmers ranged from 0 to 15 with the mean of 5.59. The highest proportion (42.45%) of the bean farmers had low organizational participation, while 37.74 percent had no and 19.81percent bean farmers had medium organizational participation.

Extension media contact: The scores of the bean farmers regarding extension media contact ranged from 8 to 32 with the mean of 4.98. The highest proportion (73.59%) of the bean farmers had medium extension media contact, while 14.15 percent had low and 12.26 percent of bean farmers had high extension media contact. .

Bean cultivation knowledge: Bean cultivation knowledge score of the bean farmers ranged from12 to 27 with the mean being 19.19. The highest proportion (82.08%) of the bean farmers had medium bean cultivation knowledge, while 12.26 percent had high and 5.66 percent had low bean cultivation knowledge.

Credit received: Credit availability scores of the bean farmers ranged from 0 to 60 with the mean being 20.08. The majority proportion of (40.57%) the bean farmers had no credit received, 33.02 percent had medium, 24.53 had low and 1.88 percent of bean farmers had high credit received..

5.1.2 Problems faced by the farmers in bean cultivation

The observed problem faced scores of the bean farmers in selected bean cultivation ranged from 25 to 72 against the possible score ranged of 0 to 84. The mean was 48.36. The highest proportion (71.70%) of the bean farmers had medium problem faced while 16.04 percent had high problem faced and 12.26 percent the bean farmers had low problem faced.

5.1.3 Relationship between selected characteristics of the farmers and their problems faced in bean cultivation

Among 11 selected characteristics of the bean farmers 5 characteristics namely, education, training exposure, organizational participation, extension media contact and bean cultivation knowledge had significant negative relationship with their problems faced in bean cultivation, age had significant positive relationship with their problems faced in bean cultivation and the rest 5 characteristics namely, family size, farm size, annual family income, bean cultivation area and credit received had non-significant relationship with their problems faced in bean cultivation.

5.1.4 Comparative severity among the problems faced by the farmers in bean cultivation

The observed Problem Faced Index of the problems ranged from 122 to 237 against the possible range of 0-318. On the basis of PFI, it was observed that "non availability of quality pesticides" ranked first followed by "Non-availability of quality fertilizers", "lack of capital", "difficulty in getting loan" "lack of fair price", and "complexity in information," "damages during transportation," and "lack of irrigation in bean cultivation were the least problems.

5.2 Conclusions

Following conclusions were drawn on the basis of findings, logical interpretation and other relevant facts of the study:

1. Almost 79.25% of the bean farmers were young to middle aged and there exist a significant positive relationship between the age of the bean farmers and there problems faced. Therefore, it may be concluded that young and middle aged bean farmers faced less problem than the old farmers during their bean cultivation.

2. About half (44.34%) of the bean farmers can sign only or had primary level education. There existed a negative significant relationship between education of the bean farmers and their problems faced. Therefore, it may be concluded that an appreciable proportion

of the bean farmers will not continue to face problems in bean cultivation, if suitable steps are taken to remove illiteracy from the bean farmers.

3. Most of the bean farmers (90.57%) had no training to medium training. Findings expressed that training exposure had significant negative relationship with their problems faced in bean cultivation. So, it may be concluded that any attempt to increase training exposure would ultimately decrease problems in case of bean cultivation.

4. Almost 87.74% of the bean farmers had low to medium extension media contact. Again 80.19% of the bean farmers had no to low organizational participation. Findings expressed that both extension media contact and organizational participation of the bean farmers had significant negative relationship with their problems faced in bean cultivation. So, it may be concluded that if the bean farmer come in more contact of extension provider, electronics, printed media and extends their organizational participation they will face less problems in bean cultivation.

5. On the basis of PFI, the farmers faced serious problems in non availability of pesticides, Non-availability of fertilizers, lack of capital, difficulty in getting loan, farmers do not get proper price and insect and pest attack in bean field. Therefore, it may be concluded that necessary steps should be taken by the concerned authorities to minimize these problems with priority.

5.3 Recommendations

Recommendations based on the findings and conclusions of the study have been presented below:

5.3.1 Recommendation for policy implication

1. The findings indicated that an overwhelming majority (87.74%) of the bean farmers faced medium to high problem. So, it may be recommended that necessary steps should be taken by concerned authority to remove these problems so that they can make their bean cultivation profitable by increasing bean yield with less production cost.

2. The findings of the study indicated that education had significant negative relationship with problems faced by the bean farmers in bean cultivation. Therefore, it may be

recommended that the concerned authorities should take the special mass education program for the illiterate and low literated bean farmers for solving their problems.

3. The findings revealed that the training exposure had a significant negative relationship with the problems faced by the bean farmers in bean cultivation. So, it may be recommended that the concerned authority should increase training facilities to develop skills of the bean farmers technologically so that they can minimize their problems.

4. The findings indicated that organizational participation had a negative significant relationship with the problems faced by the farmers in bean cultivation. Therefore, it may be recommended that the extension provider of concerned authority should target those farmers in formation of common interest group, IPM club to increase their organizational participation.

5. The findings revealed that extension media contact had a significant negative relationship with the problems faced by the farmers in bean cultivation. So, it may be recommended that the extension workers of the concerned authority should increase their contact with farmers personally and motivate them to be connected with electronic and printed media that can help them to exchange related information which will reduce their problems.

6. The findings indicated that bean cultivation knowledge had significant negative relationship with the problems faced by the bean farmers in bean cultivation. Thus, it may be recommended that the extension provider of concerned authority should take the necessary steps to increase their bean cultivation knowledge through motivation, group discussion, group meeting, day training program, demonstration, etc to decrease their bean cultivation problems.

5.3.2 Recommendations for the future study

The following recommendations are made for the future study:

1. The present study conducted on the population of the farmers of 5 villages of two unions under Atghoria Upazilla of Pabna district. The findings of the study need to be varified by undertaking similar research in other bean growing zones of the country.

2. The study investigated the relationships of the eleven selected characteristics of the farmers with their problems faced in bean cultivation. But farmer's problems into bean cultivation might be affected by other various personal, social, psychological, cultural and situational factors of the farmers. It is, therefore, recommended that further study should be conducted involving other characteristics in this regard.

3. In addition to problems in bean cultivation, the bean farmers also faced other problems such as social, economic, housing, sanitation, nutrition and domestic etc. Therefore, it may be recommended that research should be conducted relation to other problems of the farmer.

4. The research was conducted to find out the problems of bean cultivation of the farmer. Further research should be taken related to other issues like inter cropping, other crop cultivation problems etc.

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APPENDIX A

Department of Agricultural Extension and Information System
Sher-e- Bangla Agricultural University
Dhaka-1207

An Interview Schedule
On

PROBLEMS FACED BY THE BEAN FARMERS OF PABNA DISTRICT

Serial No.....
Name of Farmer.....
Village.....
Union.....
Upazila..... District.....

Mobile no:

1. Age: How old are you? …….years

2. What is the level of your education?

i) Do not know reading and writing.....

ii) Do not know reading and writing but can sign only.....

iii) Passed class.....

3. How much members are there in your family? .....

4. Household farm size: Please furnish the following information about the land area of your household.

Sl.	Category of land	Local unit	Hectare
A	Homestead area		
B	Own land under own cultivation		
C	Land taken from others on lease		
D	Land given to others as borga		
E	Land taken from others as borga		
F	Land under pond fish culture		
	Total farm area: A+B+C+1/2(D+E)+F		

5. Annual household income:

Please mention your annual household income in Taka from each of the following sources for last one year.

SL.NO.	Sources of income	Total(tk)
1.	Bean	
2.	Others crop	
3.	Poultry	
4.	Livestock	
5.	Fisheries	
6.	Business	
7.	Service	
8.	Daily labor	
9.	Others	
Total		

6. Bean cultivation area …… hectare.

7. Training exposure: Did you attend any training? Yes / No. If yes, please

Give the following information.

Sl. No.	Training programs	Sponsoring agency	Duration (day)
1			
2			
3			
4			
5			

8. Organizational participation: Please mention the nature and duration of your articipation (past / present) with the following organizations.

Sl. No.	Organization	No participation	Nature and duration (year)		
			Ordinary member	Executive committee member	Executive committee officer (president, secretary)
1	Krishaksamabaysamity				
2	Bazar committee				
3	Youth club				
4	School committee				
5	Madrasha committee				
6	Masjid /mandir/girja committee				
7	Union council				
8	NGO				

9. Extension media contact: please mention your nature of contact with the following media

Sl. No.	Extension personnel	Extent of contact				
		Regularly	Often	Occasionally	Rarely	Not at all
Personal contact						
1	Experienced farmers/neighbours	> 5 times/ week	4-5 times/ week	2-3 times/ week	1 time/ week	0 time/ week
2	Dealers(Fertilizers, Pesticides)	> 5 times/ month	4-5 times/ month	2-3 times/ month	1 time/ month	0 time/ month
3	Sub Assistant Agricultural Officer (SAAO)	> 5 times/ month	4-5 times/ month	2-3 times/ month	1 time/ month	0 time/ month
4	Upazila Agriculture officer (UAO)	> 5 times/ year	4-5 times/ year	2-3 times/ year	1 time/ year	0 time/ year
Group contact						
5	Result demonstration	> 2 times/ year	1 time/ year	1 time/ 2 year	1 time/ 4 year	0 time/ year

6	Group discussion	> 5 times / 6 month	4-5 times/ 6 month	2-3 times/ 6 month	1 time / 6 month	0 time / 6 month
7	Group meeting	> 5 times / 6 month	4-5 times/ 6 month	2-3 times/ 6 month	1 time / 6 month	0 time / 6 month
Mass media contact						
8	Listening radio programmes (agril.)	> 3 times/ week	3 times/ week	2 times/week	1 time/ week	0 time/ week
9	Watching television programmes (agril).	>8 times/ month	6-8 times/ month	3-5 times/ month	1-2 time/ month	0time/ month
10	Reading agricultural newspaper/magazines/bulletins/ leaflets	> 6 times/ month	5-6 times/ month	3-4 times/ month	1-2 time/ month	0 time/ month

10. Knowledge on bean cultivation: please answer the following questions

Sl. No	**Questions**	**Full Marks**	**Obtained Marks**
01	Which soil is suitable for bean cultivation?	2	
02	Mention two varieties of bean	2	
03	Mention two high yielding varieties of bean	2	
04	What is the benefit of high yielding variety ?	2	
05	What is the suitable time for bean cultivation?	2	
06	When irrigation is needed in beans Field??	2	
07	How many times of irrigation is needed for bean cultivation?	2	
08	Mention two insects of bean	2	
09	What are the control measures of harmful insects of bean?	2	
10	Mention two disease of bean	2	
11	What are the control measures of diseases of bean?	2	
12	Mention the recommended dose of fertilizers	2	

13	Name two insecticides/ pesticides	2	
14	How light trap is applied for pest control?	2	
15	What is IPM?	2	

11. Credit received: Did you receive any credit from any sources? (Yes / No) If yes, please mention the sources of receiving credit and the amount of credit received.

Sl. No.	**Sources of credit**	**Amount of credit**
1.	NGO	
2.	Banks	
3.	Money lender	
4.	Friends	
5.	Neighbors	
6.	Relatives	

12. Problems faced by the bean farmers

Please indicate the extent of problems you faced

Sl. No.	**Problems**	**Extents of problems**			
		High	Medium	Low	Not at all
Problems in Production					
1	Non availability of fertilizes				
2	Non availability of pesticides				
3	Lack of capital				
4	Difficulty in getting loan				
5	High price of fertilizers and pesticides				
6	Insect and pest attack				
7	Susceptible to disease				
8	Adverse climatic condition				
9	Non availability of disease resistant variety				
10	Late supply of modern variety				
11	Lack of skilled labours				
12	Deficient knowledge about optimum				

	doze of fertilizers and pesticides				
13	Lack of irrigation				

Problems in Marketing and Transporting

14	Lack of fair price				
15	Malpractices in the market				
16	Lack of storage facilities				
17	Long chain of middlemen				
18	Lack of good packaging system				
19	High cost of transportation				
20	Lack of suitable transportation system				
21	Damages during transporting				

Problems in receiving Information

22	Lack of contact by the extension workers				
23	Inability to reading and writing				
24	Poor radio and television signals				
25	Incompatible broadcasting period				
26	Electricity problem				
27	Complexity in information				
28	Lack of awareness of farmers				

Thank you very much for your kind cooperation

Signature of the interviewer with date

APPENDIX B

Correlation Matrix of Dependent and Independent Variables

variables	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	Y
X1	1											
X2	-.458**	1										
X3	.411	-.200*	1									
X4	.021	.202*	.277*	1								
X5	-002	.090	.242*	.701**	1							
X6	.035	-.102	.045	.453**	.287**	1						
X7	-.325**	.436**	-.105	.203*	.087	.012	1					
X8	-.194*	.270**	-.117	.023	-.053	-.148	.396**	1				
X9	-.300**	.522**	-.102	.304**	.249*	-.129	.318**	.298**	1			
X10	-.199**	.531**	-.172	.133	.133	.047	.338*	.255**	.458**	1		
X11	-.037	-.045	.068	-.087	-.066	-.109	.034	.331**	-.004	-.038	1	
Y	.399**	-.213*	.156	.019	.015	.074	-.554**	-.509**	-.226*	-.257**	-.027	1

*. Correlation is significant at the 0.05 level

**. Correlation is significant at the 0.01 level

X1=Age	X7= Training exposure
X2= Education	X8= Organizational participation
X3= Family size	X9= Extension media contact
X4=Farm size	X10= Bean cultivation knowledge
X5= Family annual income	X11= Credit received
X6= Bean cultivation area	Y= Problem faced in bean cultivation