CONSTRAINTS FACED BY THE FARMERS IN THE CULTIVATION OF OIL SEED AND PULSE

MD KHIJIR HOSSAIN PK.

Examination Roll No. 27495/00684

Registration No. 27495/00684

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DEPARTMENT OF

AGRICULTURAL EXTENSION AND INFORMATION SYSTEM

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BY
MD. KHIJIR HOSSAIN PK.
Registration No. 27495/00684

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Approved by:

Asso. Prof. Md. Sekender Ali
Thesis Supervisor

Prof. Md. Zahidul Haque
Thesis Co-supervisor

Prof. Md. Shadat Ulla
Chairman
Examination Committee

SHER-E-BANGLA AGRICULTURAL UNIVERSITY

DHAKA-1207, BANGLADESH

CERTIFICATE

This is to certify that thesis entiled, "Constraints Faced by the Farmers in Oil Seed and Pulse Cultivation" submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, partial fulfilment of the requirement for the degree of Master of Science in Agricultural Extension embodies out by Md. Khijir Hossain PK. Roll No. 27495/00684. Registration No. 27495/00684 under my supervision and guidance. No. part of the thesis has been submitted for any other degree or diploma.

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

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Md. Sekender Ali
Thesis Supervisor & Associate Proffessor
Department of Agricultural Extension
and Information System
Dhaka, Bangladesh

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ABSTRACT

The purpose of this study was to investigate the farmers' constraints faced in oil seed and pulse crop cultivation and also to explore the relationship between the selected characteristics of the farmers and their constraints faced. The study was conducted in purposively selected 3 villages of Dubchanchia upazila under Bogra district. All the oil seed and pulse crop cultivators of the study area were constituted the population of the study. One hundred oil seed and pulse crop growers were selected randomly as the sample of the study by taking proportionately 20 percent from three selected villages. Data were collected from these farmers by using an interview schedule during 25 June to 30 July 2007. Co-efficient of correlation (r) was computed in order to explore the relationship between the selected characteristics of the respondents and their constraints faced in oil seed and pulse cultivation. The findings revealed that 87 percent of the farmers faced medium to high constraints, while only 13 percent respondents faced low constraints in oil seed and pulse cultivation. Land possessions, cropping intensity, land under oil seed and pulse cultivation, extension contact, knowledge on oil seed and pulse cultivation and attitude towards oil seed and pulse crop cultivation of the farmers were found to have significant negative relationship with their constraints faced in oil seed and pulse cultivation. But age, education, family size, net cropped area, total cropped area and annual family income of the farmers had no significant relationship with their constraints faced in oil seed and pulse cultivation.

INTRODUCTION

General Background

Bangladesh is a developing country crowded with the population of about 140.45 million (UNFPA Report, 2006) in the area of 147,570 square kilometer. About 80 percent of her total population lives in the rural area and 51.69 percent of the country's total labour force are engaged in agriculture (Economic survey, 2007).

Agriculture is the dominant sector of Bangladesh economy. In terms of GDP, it contributes about 16.38 percent. Exports of agriculture primary products accounted for about 12 percent of total exports in 2006-07(Economic survey, 2007).

Further, there is a tremendous pressure on cultivable land because of increasing population, land fragmentation and economic hardship. There is little or no scope for bringing any new land under cultivation. To meet the existing food demand of the population, production per unit area must be increased. This is possible by converting single and double cropped area into tipple cropped area, i. e. cropping intensity must be increased.

Malnutrition still remains the problems of major proportions of population in Bangladesh. More than 95% of the population is undernourished. Children in their critical formative age and women are the worst sufferer. The present per capita average consumption of fat in Bangladesh is about 8g/day. This includes 5 gm contributed by the vegetable oil and 3g from fats and animal origin. It is desirable to increase the level of dietary fats to 30-40g. Such an increase in under thinkable since it would call for 10 folds increase of oil seed production. Similarly, the importance of pulses in the dietary system of people of Bangladesh is often forgotten, pulses have been considered as a poor man's diet since those are the cheapest source of protein. In spite of this, the per capita daily consumption of pulses is about 10g in Bangladesh as compared to neighboring India where it is about 45g (Gowda, 1984).

Pulses have not only twice the protein content (about 22%) of cereals, but also contain more protein on weight basis than eggs, fish and flesh foods. Pulses also play an important role in providing valuable fodder and feed stuff to the cattle and poultry. Pulses also have the remarkable quality of helping the symbiotic root rhizoid in fixing atmospheric Nitrogen. A good stand of pulses can fix 100 to 200 kg of N per hectare (Gowda, 1984). Oil seed occupy 2.3 percent of the total cropped area in Bangladesh or around 10 percent of the winter cropped area. Nation production meets only 30 percent of the edible oil consumption of Bangladesh (Kaul and Das, 1986).

On the other hand a large number of pulses are grown and consumed in Bangladesh. Presently about 830000 areas are cultivated under pulses. This farms less than 4% of the total cultivated lands. The major pulses are lathyrus, lentil, mung bean, black gram and chick pea. These crops cover about 91% of all pulses (Gowda, 1984).

The average national yields of all the pulse and oil seed crops are also quite low. Several factors are responsible for these low yields. These are 1) Low yielding variety, 2) Less attention on cultural practices, 3) Little use of organic manure and balanced fertilizer, 4) Lack of pest control measures, and 5) Post harvest losses. Besides these constraints, another factor is responsible for low yields are the absence of any formal arrangement to produce N-fixing rhizobia bacteria. Yields are considerably low partly due to lack of requisite rhizobia in the soil.

Food production has been given the highest priority in Bangladesh for meeting the demands of its ever increasing population. As a consequence, cereal production has increased significantly over the past few years, but a disquieting is that the area and production of oil seed and pulse crops have been declining gradually during the last 20 years. It is quite obvious that the emphasis seems to have lain principally on rice and wheat production with most of the financial and technical support directed towards these two crops. Table 1.1 and 1.2 shows area under oil seed and pulse and their production for last five years.

Table 1.1 Area under Oil Seed and Their Production, 1999-00 to 2003-04

Year	Area(Acres)	Production(M. Tons)
1999-2000	1078930	405710
2000-2001	1038190	384120
2001-2002	999410	375440
2002-2003	987185	367915
2003-2004	960610	406605

Source: Yearbook of Agricultural Statistics of Bangladesh, 2004.

Table 1.2 Area under Pulse Crop and Their Production, 1999-00 to 2003-04

Year	Area(Acres)	Production(M. Tons)
1999-2000	1229300	383035
2000-2001	1172250	365410
2001-2002	1116430	342490
2002-2003	1107585	349140
2003-2004	1039705	332890

Source: Yearbook of Agricultural Statistics of Bangladesh, 2004.

Most of the pulse crops are concentrated in a few districts. These are Faridpur, Pabna, Jessore, Rajshahi, Kustia, Rangpur, Dinajpur, Tangail and Kishoregonj (Gowda, 1984). On the other hand Comilla, Dhaka, Pabna, Rajshahi, Rangpur, Tangail and Faridpur are the main oil seed growing districts in Bangladesh (Kaul and Das, 1986).

Since all oil seed and pulse crops are traditionally grown during dry winter months, the reason for decline in the area under them as pointed out earlier is quite clear. Recent experiences show that it is feasible to grow summer mung bean and black gram with proper management under the existing cropping patterns of the country.

To halt a steady decline in the production of oil seed crop and pulses in Bangladesh, an intensive research effort was launched by the Bangladesh Agricultural Research Institute in1979. The first step was to collect germplasm of resistant cultivars for rapid

multiplication. Simultaneously, attempts were initiated on agronomic and other important aspects of oil seed crops and pulses cultivation. But the process did not run well.

At present every year we have to import a lot of oil seed and pulses from our neighboring country and for this we have to spend a lot of foreign exchanges. It is therefore necessary to raise our oil seed and pulse production through increasing cropping intensity and introducing modern methods. Moreover, in the unipolar world the world economy has been changing rapidly. The super powers also have been changing their strategy to reduce their dependency on Middle East oil. USA, EU and other developed countries are looking for alternative fuel sources and investing billions of Dollars for such type of research. They want to produce bio diesel from soyabean and other oil seed crops. As a result it would not be possible for them to export these crops and both the demand and the price of these crops will be higher.

So this is the high time for our planners, scientists, extension agents and also farmers that how can we overcome this adverse situation. If we want to get relieve from malnutrition and to improve our soil health as well as our environment and to make our economy healthy and above all, if we want to survive, we all have to focus this sector of our agriculture.

The above facts indicate that there is a need for an investigation aiming at an understanding on the constraints faced by the farmers in oil seed and pulse cultivation. However, no systematic investigation has been done in this context. Hence, the researcher undertook a study relating to the constraints faced by the farmers in oil seed and pulse cultivation.

Statement of the Problem

Oil seed and pulse cultivation is very much important to fulfill nutritional requirement and to save foreign currency. To achieve this goal oil seed and pulse cultivation should be cultivated in planned way. In fact in oil seed and pulse cultivation farmers face many problems. If problems of oil seed and pulse growers are ascertained and surmounted the national economy has a chance to experience a redial future. From this point of view, the

researcher became very much interested to undertake a research programme entitled "Constraints faced by the farmers in oil seed and pulse cultivation". Considering the nature of the study the researcher sought information regarding the following questions.

What are the farmers' characteristics?
What are the constraints being faced by the farmers in oil seed and pulse cultivation?
What are the severity of constraints faced by the farmers in oil seed and pulse cultivation?
What relationships exist between the selected characteristics of the farmers and their constraints faced in oil seed and pulse cultivation?

Specific objectives of the Study

In view of the consideration of above state research questions the following specific objectives have been formulated for giving proper direction to the study:

1. To determine and describe some selected characteristics of the farmers
2. To determine and describe the extent of constraints faced by the farmers in oil seed and pulse cultivation
3. To compare the severity of different constraints in oil seed and pulse cultivation
4. To explore the relationship between the selected characteristics of the farmers and their extent of constrains faced in oil seed and pulse cultivation

Justification of the Study

Prosperity of agriculture is generally measured by the level of production and the extent of probability. Bangladesh endowed with a favourable climate and soil for the production of different crops year round. Although the agro-climatic situations of Bangladesh are so suitable for the cultivation of a large variety of crops but about 80 percent of the gross cropped area are at present confined to the production of rice and wheat. Since the mid sixties all the Government programmes have been aimed at achieving self suffiency in food grain production. This illusive chasing towards self sufficiency in food grain production led to adverse effect on the acreage and production of oil seed and pulse. As a result the people of Bangladesh are suffering from severe malnutrition. The Government

of Bangladesh has given emphasis on oil seed and pulse production in the year round to meet the nutritional and caloric need increasing employment opportunities and income of farmers.

To make oil seed and pulse cultivation profitable, it is necessary to involve farmers in production, planning and ascertain problem with regard to oil seed and pulse production.

The findings of the study are expected to be useful to the students, researchers, extension personnel, policy makers and farmers to undertake more extensive programmes for enhancing in oil seed and pulse production.

Scope and Limitations of the Study

The present study was designed to have an understanding about the constraints faced by the farmers in oil seed and pulse cultivation to explore its relationships with their selected characteristics. Considering the time, money and other necessary resources available to the researcher, and to make the research manageable and meaningful, it become necessary to impose some limitations as stated below:

The study was confined to purposively selected three villages of Dubchanchia Upazila under Bogra district.

2.There were many farmers in the study area, but only the farmers involved in both oil seed and/or pulse crop cultivation were considered for this study.

There were various aspects of constraints in oil seed and pulse cultivation. Only six aspects have been considered for this study. These were seed, pest, credit, field management, marketing and farmers' knowledge related issues.

Characteristics of the farmers are many and varied. However, only twelve characteristics of the farmers were selected for investigation in this study.

The researcher relied on the data furnished by the farmers from their memory during interview.

1.6. Assumptions of the Study

The following assumptions were made in conducting the study:

The respondents selected for this study were competent to furnish proper responses to the queries included in the interview schedule.

The responses furnished by the respondents were reliable. They expressed the truth about their convictions or opinions.

Views and opinions furnished by the farmers included in the sample were the representative views and opinions of all farmers of the population of the study.

The researcher who acted as an interviewer was well adjusted to the social environment of the study area. Hence, the respondents furnished their correct opinions without hesitation

1.7. Definition of Terms

Age

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

Education

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

Family Size

Family size refers to the actual number of member in the family of the respondent including himself, his wife, children and any other permanent dependants those live and eat together with him.

Land possessions

Land possessions of a respondent was measured by the area being estimated in terms of full benefit to him.

Net cropped area

Net cropped area was measured by using the following formula:

NCA = Single cropped area + Double cropped area + Tripple cropped area

Total cropped area

Total cropped area was measured by using the following formula:

TCA= (Single cropped area) x 1+ (Double cropped area) x 2 + (Tripple cropped area) x 3

Cropping Intensity

The ratio of total cropped area and net cropped area expressed in percentage.

Land under oil seed and pulse cultivation

Land under oil seed and pulse cultivation of a respondent was measured in terms of existing area covered by oil seed and pulse cultivation during the previous year of data collection by the respondent. It was expressed in hectare.

Annual family Income

The term annual family income refers to the total earnings of the respondent himself and his family member from agricultural and other non-agricultural source (services, business etc.) during a year.

Extension contact

It refers to an individual's exposure to or contact with different communication media, source and personalities being used for dissemination of new technologies among the farmers.

Knowledge on oil seed and pulse cultivation

It referred to the extent of understanding of a respondent farmer about different facts, information, causes and effects related to oil seed and pulse crop cultivation.

Attitude towards oil seed and pulse cultivation

Attitude means perception about any specific thing. It referred to the positive or negative perception of the farmers on oil seed and pulse cultivation.

Constraints

Constraint refers to a difficult situation about which something needs to be done. Problem, however, may be defined as the difference between desired situation and the present situation (Kashem, 1977).

Constraints faced

In this study constraint faced by the farmers referred to the degree to which they face difficulties in oil seed and pulse cultivation.

CHAPTER 2
REVIEW OF LITERATURE

The purpose of this Chapter is to review the past studies conducted by different researchers related to the present study. As far as possible the researcher tried to review the available literature from different countries related to constraints in crops cultivation, livestock fisheries, and other related matters. Unfortunately, a very few of these studies were directly related to the present study.

This chapter comprises of three sections. In the first section literatures relating to concept of constraints and constraints faced by the farmers in different agricultural aspects have been presented. The second section is in connection with the relationship of selected characteristics of individuals with their constraints faced. Finally the third section of this chapter deals with the conceptual framework of the study.

2.1. Constraints Faced by the Farmers in Different Agricultural Aspects:

Arya and Shah (1984) conducted a study in the mid-Himalayan region of Uttar Pradesh of India to find out the existing and potential level of food production and the main constraints on the adoption of new technology for rain fed agriculture. The main identified constraints were (i) small and skewedly distributed holdings; (ii) fragmented and scattered holdings. (iii) shortage of labour; (iv) lack of availability of inputs and funds; (v) lack of education, extension and training especially for women.

Kher and Halyal (1988) administered a research work to identify the constraints in adoption of sugarcane production technology. The most important constraints identified regarding the adoption of improved sugarcane production technology were ail irregular and insufficient electricity supply, small size of holding for green manuring, intercrops not convenient due to weeds, high cost of farm fuel, scare irrigation facilities, absence of location specific recommendations for earthing up, lack of drought resistant varieties and lack of technical knowledge about plant protection and chemical fertilizers.

Ramachandran and Sripal (1990) identified different constraint in adoption of dry land technology for rainfed cotton in Kainaraj district, Tamilnadu, India. They found that farmers' faced constraints on insufficient rainfall, susceptibility of pest and diseases, lack of experience, presence of modem plants, chemicals not available in time, lack of knowledge and non- availability, insufficient livestock, risk due to failure of monsoon, high cost etc.

Freeman and Breth (1994) conducted a study on issues in African Rural Development Study showed several constraints in farming practices such as intensified land use, fallow periods decline and crop cultivation spreads into marginal or ecologically fragile lands. In the absence of appropriate resource management technologies, these practices inevitably lead, to degradation of the resource base with important implications for soil productivity, household food security and rural poverty.

Gumisiriza *et al.* (1994) showed several constraints traditional farming practices, unavailability or lack of improved cultivars, information and technology transfer, rusts and foliar disease ineffective communication between research stations) and research priorities in Uganda.

Shehrawant and Sharma (1994) found that the Indian rural youths were suffering serious economic problems and difficulty in obtaining loans from banks and other agencies. They further added that the youth faced uncertainty about the access of field corps, loss price of produced crops.

Kumar *et al.* (1995) showed that the economics of improved management practices, extent of adoption of seven improved management activities by crop, and investigates major constraints to adoption. The sample consisted of 25 farmers from all adopted villages for technology transfer and 25 farmers from non-adopted villages. Adoption of improved management practices, though cost intensive, provided higher yield and income levels than traditional farming practices. The level of adoption of improved management practices was higher in the adopted villages than the non-adopted villages. High input

prices and low market prices for output were the major constraints experienced by farmers in both adopted and non-adopted villages.

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.

Faroque (1997) found that female rural youth in Bhaluka (Mymensingh) lacked cash for buying seeds, seedling and fisheries and deprived of necessary knowledge in improved vegetable cultivation. He further added that the majority of female rural youth faced very high (54%) problems.

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.

Pramanik (2001) made an extensive, Study on the twenty-four problems of farm youth in the villages of Mymensingh districts relating to different problems in crop cultivation. Out of twenty-four problems tile top four problems in rank order were: i) local NGO take high rate of interest against a loan, ii) lack of agricultural machinery and tools, iii) lack of cash and iv) financial inability to arrange improved seeds, fertilizers and irrigation.

Agnew *et al.* (2002) found that the adoption of Harvesting Based Practice (HBP) (specifically, lower rate and lower extractor can speed balanced against harvest time) can provide an extra $ 100/ha to the industry. Several barriers to adoption of HBP have

slowed progress. These include low sugar prices, wet weather, orange rust disease, system of harvester payment, insufficient cane quality feedback mechanisms and physical, time and safety upon harvesting.

Halim (2003) conducted a study on constraints faced by the farmers in adopting crop diversification. The top five constraints identified of this study according to their rank order were (i) lack of storage facilities for products and seeds, (ii) high price of inputs, (iii) non-availability of credit for other crops, (iv) lack of sufficient training programme in different aspects of crop diversification and (v) most of land are low areas and not suitable for CDP crops.

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.

Chander and Singh (2003) in their study identified four aspects of constraints in adoption of IMP practices *viz.* technological constraints, economical constraints, services, supply and marketing constraints and transfer of technology constraints. They also opined that economical constraints faced by the farmers at "most serious" level.

Chander et al. (1990) in their study identified constraints in potato cultivation. Main constraints were ignorance about improved cultivars and cultivation practices, ignorance about time and number of irrigation, ignorance about scientific method of sowing, lack of guidance of marketing of potato, high cost of improved cultivars, high cost of fertilizers, pesticides and irrigation, lack of enough space for storing potatoes scientifically and so on.

Alam et al. (2000) conducted a survey of jute crops in seven districts of Bangladesh to find out the state of art in jute cultivation and found that scarcity of quality seed, high labour wage and low market price of fibre were the major constraints of jute cultivation.

Brahamaprakash and Sarkar (2004) argue that the pulses are not as low in their yield performance as is generally projected and that this perception of lower yield is due to a set of confounding issues. It shows that pulses are poor in harvesting the solar energy and in converting it to biological yield. It presents the reasons for this inefficiency and identifies that the inputs supplied to pulses is one of the major factors limiting the pulse yields. The impact of breeding protocols, production system and policy structure for pulse cultivation are also mentioned.

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.

Kar and Pramanik (1995) conducted a study in eight villages of the Begunia Block under Orissa district of India of to determine whether significant differences existed regarding the perception of factors for pulse development or problems of pulse production among the different categories of farmers. Results showed that different types of farmers (small, marginal, large etc.) had different perceptions of problems related to pulse cultivation.

Chandrasekharan, et. al. (1996) showed that Lowland rice culture is a sustainable system that has supported the high population density in South and Southeast Asia. An increase in legume production is possible through additional areal coverage on rainfed rice lands. Soyabeans, mung beans [Vigna radiata], groundnuts, and cowpeas [V. unguiculata] are the commonest legumes grown on rice lands. The major constraints in the lowland rice-legume systems are water availability and poor soil physical conditions. Rice is usually grown under lowland conditions where soils are puddled: pulses are upland crops and soil conditions induced by puddling are often detrimental to pulse production. The effects of

tillage techniques, drainage, and mulching on soil conditions and dry season crop growth are reviewed.

Tuteja and Mohammad (1992) showed the constraints on pulse production, in Haryana state, India. Analysis of data over the period 1964/65-1983/84, at two districts and farm level, shows that the area under pulse crops has continuously declined at a time when most other crops have seen increases. The study also reveals that production and productivity of pulses has been stagnant over the same period, due to low levels of agricultural inputs, uncertain rainfall, lack of irrigation facilities, and lack of plant protection and weed control. Profitability analysis shows that production of pulses yields low, indeed sometimes negative, profit. In conclusion the paper notes that the constraints on pulse production in Haryana are mainly physical, and as such suggests methods by which the levels of productivity and production can be increased.

Goswami (1990) conducted a study to evaluate the impact of the National Pulse Development Project (NPDP) on pulse cultivation by weaker sections of the farming community in Uttar Pradesh, India. A sample of 120 farmers from NPDP districts and 90 from non- NPDP districts were selected the study revealed that the process of implementation of the NPDP was not efficient. The operational procedure of the scheme was rather ambiguous and there was no separate staff for the NPDP. Financial deficiency was also creating constraints. The number and coverage of block demonstrations was inadequate. The overall impact of the sscheme was found to be positive and beneficial for the farmers who had taken advantage of the NPDP scheme.

2.2 Relationship between the Selected Characteristics of the Farmers and Their Constraints faced

2.2.1 Age and constraints faced

Rahaman (1995) in his study on problem faced by the pineapple growers in a selected area of Madhupur thana, under Tangail district found that there was no relationship between age of the pineapple growers and their problem faced.

Karim (1996) found in his study on relationship of selected characteristics of kakrol growers with their problem faced that there was no relationship between age of the kakrol growers and their problem faced .

Islam (1987), Mansur (1989), Akanda (1993) and Hasan (1995) also found no relationship between age and problem faced in their respective studies.

2.2.2 Education and constraints faced

Akanda (1993), in his study on problem faced by the farmers in respect of cultivating BR-11 rice found a significant negative relationship between education of the farmers and their problem faced.

Rahman (1995) in his study on problem faced by the pineapple growers in a selected area of Madhupur thana, under Tangail district found a significant negative relationship between education of the farmers and their problem faced .

Rahaman (1995) in his study found that the education of the farmers had significant negative effect on their constraints faced in cotton cultivation. The findings indicated that the higher the education of the farmers, the lower was their faced constraints in cotton cultivation.

Haque (1995) in his study on problem faced by the members of Mohila Bittaheen Samabaya Sammittee working under the Bangladesh Rural Development Board found a significant negative relationship between education of members and their problem faced.

Hoque, M.K. 2001. Environment Awere ness and Problem Faced by the FFS Farmers in Practising IPM. MS. (Ag. Ext.Ed.)Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Rahman (1996) in his study on farmers' problems in potato cultivation in Saltia union under Gaffargaon thana of Mymensingh district found a significant negative relationship between education of the farmers and their problem faced.

Karim (1996) in his study on relationship of selected characteristics of kakrol growers with their problem faced found a significant negative relationship between education of the farmers and their problem faced.

2.2.3 Family size and constraints faced

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

Hauqe (1995) found that family size of the members of Mohila Bittaheen Samabaya Samity had no significant effect on their problem faced.

Rahman (1995) found that family size of the farmers had no significant effect on their problem faced.

2.2.4 Land possessions and constraints faced

Mansur (1989) found that there was a significant negative relationship between Land possessions of the farmers with their problem faced in feeds and feeding cattle. Akanda (1993) in his study found a negative significant effect on their problem faced.

Rahman (1995) found that land possession of the farmer had a significant negative influence on their faced constraints in cotton cultivation.

Rahman (1996) found that farm size of the farmers had a significant negative effect with their problem faced.

2.2.5 Net cropped area and constraints faced

No literature was found that tried to find out the relationship between net cropped area and constraints faced in any agricultural innovation.

2.2.6 Total cropped area and constraints faced

No literature was found that tried to find out the relationship between total cropped area and constraints faced in any agricultural innovation.

2.2.7 Cropping intensity and constraints faced

No literature was found that determined the relationship between cropping intensity of the frames with constraints faced in any agricultural innovation.

2.2.8 Land under oil seed and pulse cultivation and constraints faced

Islam (1987) in his research studied the relationship between cattle strength of the farmers and their artificial insemination problem confrontation and 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.

Rahman (1995) found a significant and negative relationship between area under cotton cultivation of the farmers and their faced constraints.

Raha (1989) found that there was no significant relationship between area under cotton cultivation of the farmers, area under irrigation and their irrigation problem confrontation. Similar findings were obtained by Manus (1989) and Bhuiyan (2002) in their respective studies.

2.2.9 Annual family income and constraints faced

Mansur (1989) is his study found that the relationship between income of the farmers and their problem faced in feeds and feeding cattle was significant but showed a negative trend.

Rahman (1995) found in his study that annual family income of the farmers had a significant negative effect on their faced constraints in cotton cultivation. The findings indicated that the higher the annual family income of the farmers the lower was their faced constraints in cotton cultivation.

Rahman (1995) found in his study that annual family income of the farmers had a significant negative effect on their faced constraints in pineapple cultivation.

Karim (1996) found in his study that annual family income of the farmers had a significant negative effect on their faced constraints in kakrol cultivation.

Hoque (2001) found in his study that annual family income of Farmers' Field School (FFS) farmers had a positive significant effect on their problem faced.

2.2.10 Extension contact and constraints faced

Akanda (1993) in his study found that extension contact of the farmers exerted significant negative influence of their faced constraints in rice (BR11) cultivation.

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

Rahman (1995) found in his study that extension contact of the farmers had a significant negative effect on their faced constraints in pineapple cultivation.

Raha (1989), Haque (1995) and Rahman (1995) found no significant relationship between extension contact of the farmers and their problem faced in their respective studies.

2.2.11 Knowledge on oil seed and pulse cultivation and constraints faced

Sarker (1983) showed that there was a negative significant relationship between poultry knowledge of the farmers and their poultry problem confrontation, while Islam (1987) in his study found that knowledge regarding utility of artificial insemination of the farmers is positiverly related to their artificial insemination problem confrontation.

Raha (1989) reported from his study that farmers' knowledge in irrigation of modern boro paddy had no significant relationship with their irrigation problem confrontation. Anwar (1994), Karim (1996), Rashid (1999), Ismail (2001) found similar results in their respective studies.

Mansur (1989) found in his study that there was a substantial significant negative relationship between knowledge in feeds and feeding cattle of the farmers and their problem confrontation in feed and feeding.

Ali (1999) found the knowledge of the rural youth had significant positive relationship with their anticipated problem confrontation in self-employment by undertaking selected agricultural income generating activities.

2.2.12 Attitude towards oil seed and pulse cultivation and constraints faced

No literature was found that determined the relationship between attitude towards oil seed and pulse cultivation and constraints faced in these crop cultivation or related aspects.

2.3 The Conceptual Framework of the Study

The conceptual framework of Rosenberg and Hovland (1960) was kept in mind framing the structural arrangements of the variables. The study was conserved with the constraints faced by the farmers in oil seed and pulse cultivation. Thus the constraints were the dependent variable of the study and selected characteristics of the farmers were considered as the independent variables. Constraint of the individual may be affected

through interacting forces of many characteristics in his surroundings. It is not possible to deal with all characteristics in a single study. It was therefore, necessary to limit the characteristics, which include age, education, family size, land possessions, net cropped area, total cropped area, cropping intensity, land under oil seed and pulse crop cultivation, annual family income, extension contact, knowledge on oil seed and pulse cultivation and attitude towards oil seed and pulse cultivation.

Again, in order to have a clear understanding of the nature of constraints faced by the farmers in oil seed and pulse crop cultivation, six aspects of constraints were considered. These were seed constraints, pest constraints, credit constraints, field management constraints, marketing constraints and constraints related to farmers' knowledge.

Based on this discussion and review of literature the conceptual framework of this study has been constructed and shown in figure 2.1

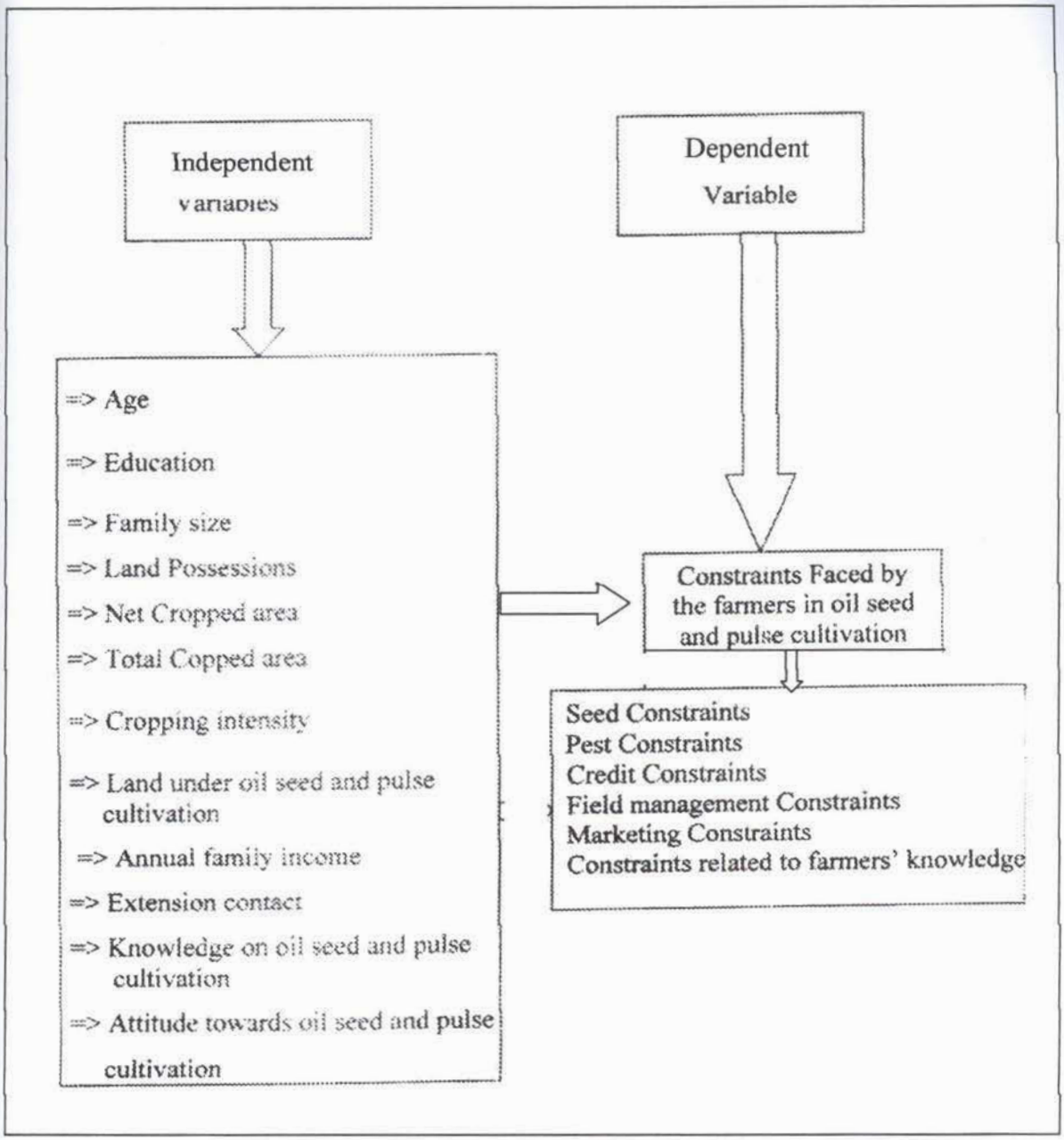

Fig. 2.1. Conceptual framework of the study

METHODOLOGY

3.Introduction

Methods and procedures used in conducting research need very careful consideration. Methodology should be such that enables the researcher to collect valid information and to analyze the same properly to arrive at correct decisions. The methods and procedures followed in conducting this research have been described in this Chapter.

3.1 Locale of the Study

Three villages of Dubchanchia Upazilla under the District of Bogra namely Sonjoypur, Laluka andEast Alohali were selected purposively as the locale for this piece of research. The locale of study is shown in figure 3.1 and 3.2.

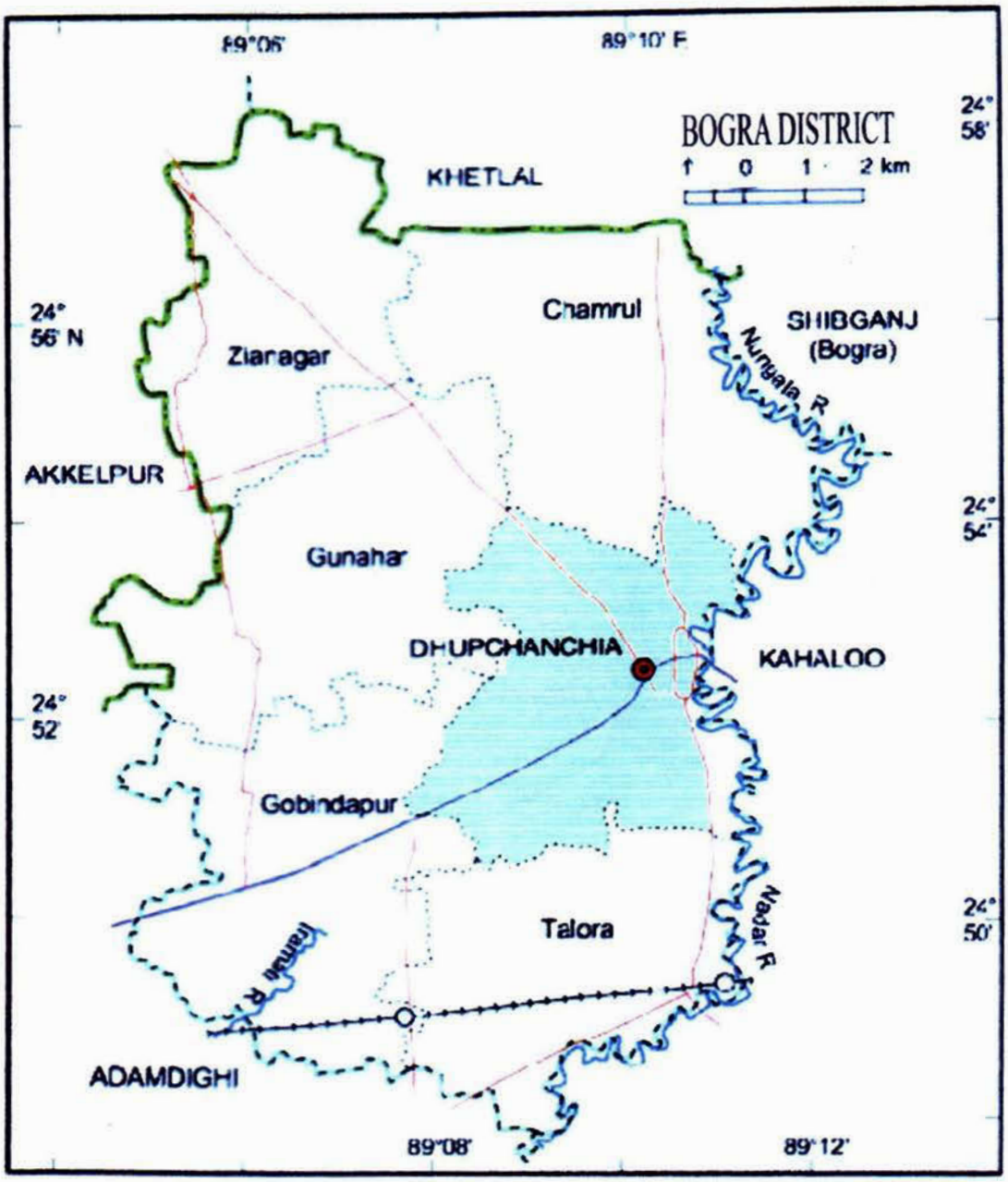

Figure 3.1 A Map of Bogra District Showing Dubchanchia Upazilla

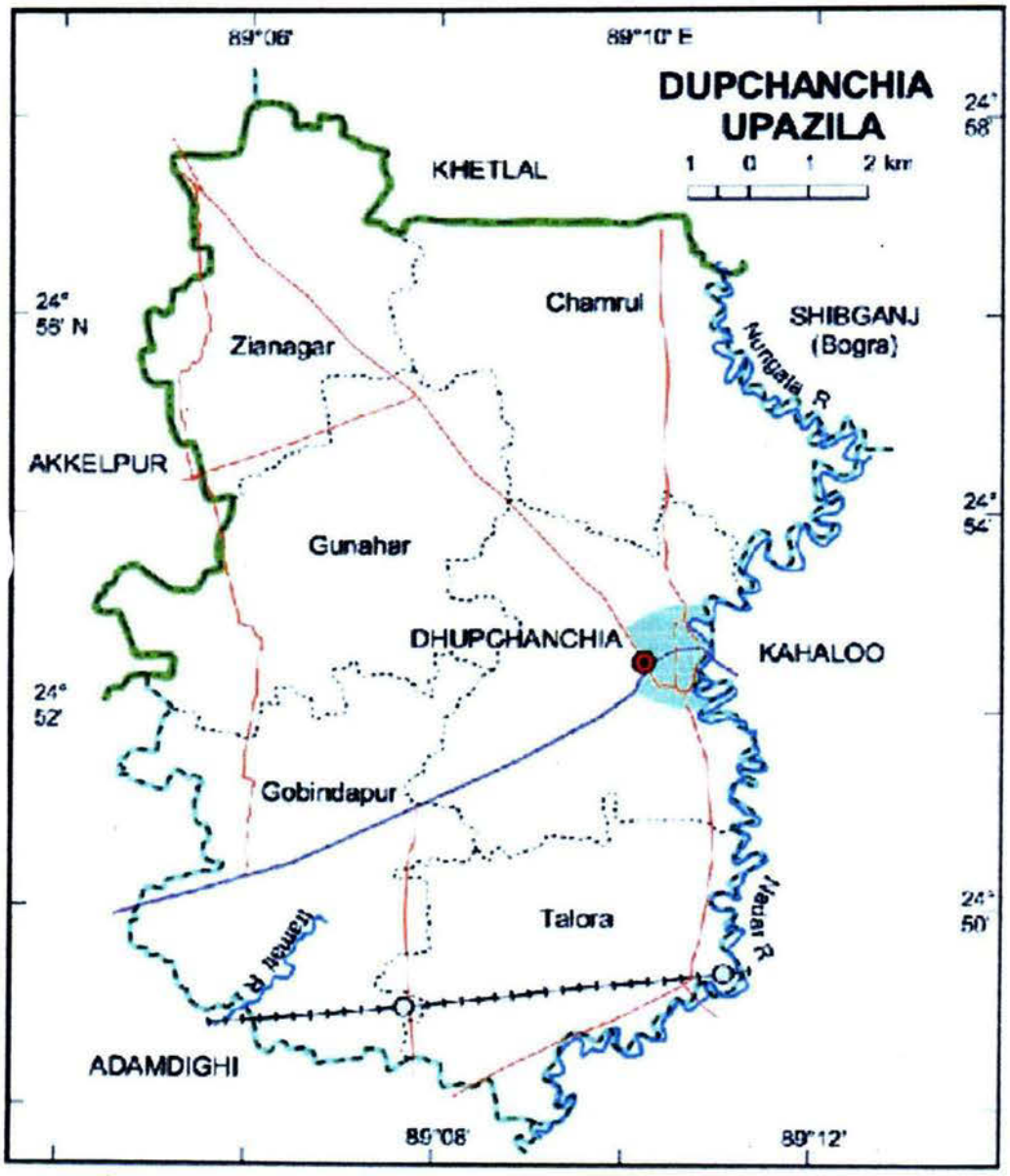

Figure 3.2 A Map of Dubchanchia Upazilla Showing the Study area

3.2 Population of the Study

The researcher prepared a list of pulse and oil seed growers of the study area. After complementing the list it was found that the total number of pulse and oil seed growers at that time of interview (March-2007) was 497 as shown in Table 3.1. These 497 farmers henceforth were the population of the study.

3.3 Sample of the Study

Out of 497 oil seed and pulse crop growers, samples of 100 were selected randomly as the sample of the study by taking proportionately 20% from each of three villages. The researcher also prepared a reserve list of 10 farmers out of this list to use in case of non-availability of sample farmers.

Table 3.1 Distribution of oil seed and pulse crop growers consisting the population, sample and reserve list size in the selected villages of the study area

SL. No.	Name of the Villages	Number of Farmers		Reserve list size
		Population	Sample	
01.	Sonjoypur	220	44	4
02.	Laluka	116	23	3
03	East Alohali	161	33	3
	Total	497	100	10

3.4 Instrument for Collection of Data:

For collecting data from the oil seed and pulse crop growers an interview schedule was prepared carefully. The interview schedule contained both open and closed form questions. Scales were developed for computing suitable scores in respect of constraints in the cultivation of oil seed and pulse growers. The draft interview schedule was pre-tested by administrating the same on 20 oil seed and pulse growers of the study area excluded in the sample or reserve list. The pretest was helpful to find out gaps and to locate faulty questions and statements. Alterations, addition, delition and adjustments were made in the schedule on the basis of the experience of the pretest. The interview schedule was then cyclostyled in its final form for collection of data.

3.5 Variables of the Study

Constraints faced by the farmers in oil seed and pulse cultivation was the dependent variable of the study. Various kinds of factors might influence this phenomenon. However, it was not possible in a single study to deal with all the factors. Hence, it was necessary to limit the factors in conducting the present study.

For selection of those factors which was considered as the independent variables, the researcher went through the past related literature as far as available. After discussing with the teachers, experts in the relevant fields, research fellow in agricultural extension and related disciplines, the researcher carefully selected the various characteristics of the farmers of the study. Availability of times, money and other resources were also kept in view in selecting the variables. Ultimately 12 characteristics of the farmers were selected which might have relationship with constraints faced in oil seed and pulse cultivation. The characteristics were age, education, family size, land possessions, net cropped area, total cropped area, cropping intensity, land under oil seed and pulse crop cultivation, annual family income, knowledge in oil seed and pulse crop cultivation and attitude towards oil seed and pulse crop cultivation.

3.6 Measurement of Variables

It was pertinent to follow a methodological procedure for measuring the variables in order to conduct the study in accordance with the objectives already formulated. The procedures for measuring the variables are described below :

3.6.1 Age

The age of the respondents were measured in terms of years, on the basis of the responses of the respondents. Age was measured by the period of time from the birth of a respondent to the day of interviewing.

3.6.2 Education

Education of a respondent is measured in term of grades (classes) passed by a respondent. One score was assigned for one year of successful schooling. For example, if a respondent passed the final examination of class six, his education score was taken as 6;

if a respondent had education outside the school and if the level of education was through equivalent to that of class four of the school, then his education score was taken as 4. An illiterate person was given a score zero. A score of 0.5 was assigned for those who don't read and write but can sign his name only.

3.6.3 Family size

Family size was operationally measured by assigning a score of one for each member of the family who jointly lived and ate together. The members included the respondent himself, his wife, children and other dependent members.

3.6.4 Land possession

Land possession of a respondent was measured by the area being estimated in terms of full benefit to him. It was expressed in hectare and computed by using the following formula:

LP=A1+A2+A3+1/2(A4+A5) +A6
Where, A1= Homestead non agricultural area
A2=Homestead area under cultivation
A3= Own cultivated area operated by himself
A4= Area taken from others on Borga system
A5= Area given to others on Borga system
A6= Area taken from others on lease

3.6.5. Net cropped area

Net cropped area was measured by using the following formula:

Net Cropped Area (NCA) = Single cropped area + Double cropped area + Tripple cropped area

3.6.6. Total cropped area

Total cropped area was measured by using the following formula:

Total Cropped Area (TCA) = (Single cropped area) x 1+ (Double cropped area) x 2 + (Tripple cropped area) x 3

3.6.7. Cropping intensity

Cropping intensity was expressed in percentage and computed by using the following formula.

Cropping intensity = (TCA/NCA) x100

Where, TCA=Total cropped area

NCA=Net cropped area

3.6.8. Land under oil seed and pulse cultivation

Land under oil seed and pulse cultivation of a respondent was measured in terms of area covered by oil seed and pulse cultivation by the respondent. It was expressed in hectare.

3.6.9. Annual family income

Annual family income of a respondent was measured in thousand taka on the basis of total yearly earning of the respondents and other members of his family. For determining the annual family income of all the members of the families from all the sources were added together. It was expressed in thousand taka.

3.6.10. Extension contact

The extension contact of a respondent was measured by computing an extension contact score on the basis of his extent of contact with eleven selected extension media. The respondents were asked to mention his response to five alternative nature of contact for each media. The score for each respondent was determined by adding his responses to all the items on the basis of his frequency of contact as not at all, rarely, occasionally, often and frequently with a score of 0, 1, 2, 3 and 4 respectively. Extension contact score of the respondents could range from 0 to 44, where 0 indicating no extension contact and 44 indicating very high extension contact.

3.6.11. Knowledge on oil seed and pulse cultivation

On the basis of responses to 20 questions related to oil seed and pulse crop cultivation, knowledge on oil seed and pulse cultivation score of the respondents were computed. The question covered different aspects of oil seed and pulse cultivation knowledge namely improved variety, fertilizer management, pests, diseases etc. For correct response to a question, a respondent could get a score of 2, while he could get a score of zero (0) for

wrong or no answer. Partial score was assigned for partially correct answer. For correct response to all the 20 questions a respondent could get a total score of 40, while for wrong responses to all the questions he could get the score zero (0). Thus the score of knowledge on oil seed and pulse cultivation of the respondents could range from 0 to 40, where 0 indicating very low knowledge on oil seed and pulse crop cultivation and 40 indicating very high knowledge on oil seed and pulse crop cultivation.

3.6.12 Attitude towards oil seed and pulse cultivation

An attitude may be defined as predisposition to act towards an object in a certain manner. Attitude of farmers towards oil seed and pulse crop cultivation was used to refer to his belief, feelings and action towards the various aspects of oil seed and pulse crop cultivation technology. Attitude of a respondent towards oil seed and pulse crop cultivation was measured by developing an attitude scale after Puttaswamy (1977) who developed a scale to measure the attitude of village extension workers towards training and visit system in Indian context. Basically he utilized Likert tyre method of summated ratings in developing the scale. Here also five-point Likert tyre method of summated ratings was used.

Ten statements expressing positive and negative feelings towards oil seed and pulse crop cultivation were considered for the study. A statement was considered as positive if it indicated a favorable attitude towards oil seed and pulse crop cultivation. If the case was reverse, it was considered as the negative statement. Out of these 10 statements 5 were positive and 5 were negative. Scoring was done by assigning 4, 3, 2, 1 and 0 to the five alternatives as "strongly agree", "agree", "undecided", "disagree", and "strongly disagree", respectively in case of a positive statement. Reverse was done for the negative statements. However, attitude towards oil seed and pulse crop cultivation score of a respondent was obtained by summing up his scores for all the 10 statements in item no. 10 in the interview schedule. Attitude towards oil seed and pulse cultivation score of a respondent could range from 0 to 40, where 0 (zero) indicated very unfavorable attitude and 40 indicated highest level of favorable attitude towards oil seed and pulse cultivation.

3.7 Measurement of Constraints Faced by the Farmers in Oil Seed and Pulse Cultivation

After thorough consultation with relevant experts, farmers and relevant available literature, nineteen constraints were selected related to oil seed and pulse crop cultivation for the study. All constraints were related to six selected aspects of oil seed and pulse cultivation, namely seed, pest, credit, field management, marketing and farmers' knowledge related. For each constraint four options were given to the respondents to choose in order to find out the severity of the constraint. The options and their respective weights were as follows:

Degree of severity of the constraint	Weight assigned
High	3
Medium	2
Low	1
Not at all	0

The respondents were asked to choose a single option for each constraint. Finally constraint faced in oil seed and pulse crop cultivation score of a respondent was measured by adding all the scores obtained from the entire 19 selected constraints. Thus, the range of scores of faced constraints in oil seed and pulse crop cultivation by the respondents could vary from 0 to 57, while 0 indicating no constraints and 57 indicating very high constraints faced in oil seed and pulse crop cultivation.

3.8 Measurement of Constraints Faced Index (CFI) to Compare the Severity of Different Constraints

Comparative constraints faced by the farmers in 19 selected constraints in oil seed and pulse crop cultivation was investigated in this piece of research. It was ascertained by extent of severity of different constraints faced by the farmers in oil seed and pulse crop cultivation by using Constraints Faced Index (CFI) of each constraint was computed by using the following formula:

Constraint Faced Index (CFI) $= C_h \times 3 + C_m \times 2 + C_l \times 1 + C_n \times 0$

Where,

c_h = Total number of the farmers expressed 'high constraint'

C_m = Total number of the farmers expressed 'medium constraint'

C_l= Total number of the farmers expressed 'low constraint'

C_n= Total number of the farmers expressed 'not at all constraint'

Thus the Constraints Faced Index (CFI) of any constraint could range from 0 to 300, where '0' indicating no constraint and '300' indicating highest constraint facing.

3.9 Hypothesis

The following null hypotheses formulated to test the relationship of the selected characteristics of the farmers with their faced constraints in oil seed and pulse crop cultivation.

"There were no relationships between the selected characteristics of the farmers and their constraints faced in oil seed and pulse crop cultivation ".

3.10 Data Collection Procedure

Data were collected personally by the researcher himself by interviewing the sample of 100 oil seed and pulse crop growers 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. 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 the study to the farmers. 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 June to 15 Aug, 2007. No serious problem was faced by the researcher in collecting data.

During data collection five respondents of the sample were not available at their residents. Therefore, the researcher collected data from the five oil seed and pulse growers listed in the reserve list. Excellent co-operation was obtained from the respondents, local leaders and the Sub Assistant Agriculture Officer.

3.11 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 into coding sheet. In case of qualitative data, putting proper weight against each of the traits to transfer the data into quantitative forms followed 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 constraints faced were ascertained by using Persons product moment correlation test. For rejecting any null hypothesis a 0.05 level of probability was used throughout the study. In correlation test, if the computed value of coefficient of correlation (r) was equal to or greater than the table value of 'r' at the designated level of significance for (n-2) degree of freedom, the null hypothesis was rejected. Then, and it was concluded that there was a significant relationship between the concerned variables. Whenever, the computed value of r was found to be smaller than the table value at the designated level of significance for the relevant degrees of freedom, the researcher made a conclusion that the null hypothesis could not be rejected and hence there was no significant relationship between the concerned variables.

CHAPTER 4

RESULTS AND DISCUSSION

In this Chapter the findings of the present study and their logical interpretation have been presented to in four sections of this chapter according to the objectives of the study. These are presented in three sections according to the objectives of the study. The first section deals with the selected characteristics of the respondents, the second section deals with the constraints faced by the farmers in oil seed and pulse cultivation. Comparative severity of the constraints has been discussed in the third section. The fourth section deals with the relationships between the respondents' selected characteristics and their constraints faced in oil seed and pulse cultivation.

4.1 Selected Characteristics of the Farmers

In this section the findings on the farmers' selected characteristics have been discussed. The selected characteristics of the farmers were : i) age, ii) education, iii) family size, iv) land possessions, v) net cropped area , vi) total cropped area, vii) cropping intensity viii) land under oil seed and pulse cultivation, ix) annual family income x) extension contact xi) knowledge on oil seed and pulse cultivation and xii) attitude towards oil seed and pulse cultivation. The salient feature of these characteristics of the respondent are shown in Table 4.1 and discussed below:

Table 4.1 Salient features of predictive variables

Predictive variables	Respondents		Measurement (unit/scale)	Range		Mean	Standard deviation
	No	%		Min.	Max.		
Age							
Young (upto 30)	26	26	Year	20	70	41.55	14.20
Middle aged (31-50)	51	51					
Old (>50)	23	23					
Education							
Illiterate (0)	0	0					
Can sign only (0.5)	4	4	Score	0.50	16.00	8.92	3.14
Primary level (1-5)	11	11					
Secondary level (6-10)	58	58					
Above secondary level (>10)	27	27					
Family size							
Small (upto 4)	21	21	Number	2	12.00	5.98	1.92
Medium (5-8)	70	70					
Large (9 and above)	9	9					
Land possessions							
			Hectare	0.25	3.61	1.06	0.63
Small (Up to 0.95 ha.)	58	58					
Medium (0.96-2.43ha.)	40	40					
Large (>2.43ha.)	2	2					
Net cropped area							
Small (<1.00ha)	49	49	Hectare	0.26	4.34	1.17	0.697
Medium (1.00-2.55ha.)	49	49					
Large (>2.55ha.)	2	2					
Total cropped area							
Low (Up to 1.76ha)	48	48	Hectare	0.64	11.38	2.42	1.55
Medium (1.88-5.40ha)	50	50					
High (>5.40ha)	2	2					
Cropping Intensity							
Up to national average(185%)	38	38	Score in percentage	107.27	298.25	210.54	52.97
More than national average	62	62					
Land under oil seed and pulse cultivation							
low (upto 0.23ha.)	38	38	Hecrare	0.15	1.05	0.35	0.34
Medium (0.24-0.47ha.)	40	40					
High (>0.47ha.)	22	22					
Annual family income							
Low (upto 35.42)	16	16	Score	18.70	266.10	94.40	58.98
Medium (35.43-153.38)	61	61					
High (>153.38)	23	23					
Extension contact							
Low (Upto 9.36)	31	31	Score	3.00	23.00	11.26	3.80
Medium (9.37-13.16)	48	48					
High (>13.16)	21	21					
Knowledge on oil seed and pulse cultivation							
Low (Upto 13)	26	26	Score	10.00	37.00	17.54	5.66
Medium (14-26)	65	65					
High (>26)	9	9					
Attitude towards oil seed and pulse cultivation							
Unfavourable attitude (Upto 20)	2	2	Score	19.00	38.00	28.31	3.82
Low favourable (21-27)	41	41					
Moderately favourable (28-35)	55	55					
Highly favourable(36 and above)	2	2					

4.1.1 Age

Age of the respondents ranged from 20-70 years with the average of 41.55 years and standard deviation 14.20. Based on their age, the respondents were classified into three categories as shown in the Table 4.1. Data presented in the Table 4.1 indicated that about half (51.00 percent) of the farmers were in middle aged group ranged from 31 to 50 years, while 26.00 percent and 23.00 percent belonged to young and old aged category. It reveals that the major proportion (77 percent) of the respondents in the study area were young and middle aged which implies that they are more involved in agricultural work than the aged respondents.

4.1.2 Education

The level of education of the respondents ranged from 0.5-16. The average education score was 8.92 with a standard deviation of 3.14. On the basis of their education, the farmers were classified into five categories shown in Table 4.1.

The information of Table 4.1 indicated majority (58 percent) of the respondent had secondary level of education, compare to 11 percent and 27 percent had primary level and above secondary level of education. Only 4 percent of the respondent could sign their name without the ability of reading and writing. Nobody was illiterate in the study area. It means that most (69 percent) of the respondents had education up to secondary level.

4.1.3 Family size

The family size of the respondents ranged from 2-12 members with an average of 5.98 and standard deviation of 1.92. On the basis of family size scores, the respondents were categorized into 3 groups as shown in the Table 4.1.

From the data it was observed that majority (70%) of the respondent had medium family size compare to 21% and 9% had small and large family size.

4.1.4 Land possessions

Land possessions of the respondents ranged from 0.25 to 3.61 hectare with a mean of 1.06 hectare and standard deviation of 0.63. The farmers were classified into three categories on the basis of their land possessions as presented in Table 4.1 as suggested by

DAE (1999). Data represent the Table 4.1 indicating that overwhelming majority (58 percent) of the respondent had small land possessions; while 40 percent had medium land possessions and 2.00 percent had large land possessions.

The findings show that maximum farmers (98 percent) of the sampled population were small or medium farmers on the basis of land possessions. In Bangladesh 9.39 million house holds are land less (BBS, 2001). But in the present study there were no landless farmers in selected 100 farmers. It was because that the researcher selected only those respondents who possess some lands to cultivate oil seed and pulse crops.

4.1.5 Net cropped area

Net cropped area of a respondent expresses the actual amount of cultivable land. It is expressed in hectare.

The net cropped area of the respondents ranged from 0.26-4.34 hectare with an average of 1.17 hectare and standard deviation of 0.697. On the basis of net cropped area the respondents were categorized into 3 groups as shown in the Table 4.1. In case of net cropped area, findings reveled that 98% of the respondents had low to medium total cropped area, where only 2% respondents possesses the large amount of net cropped area.

4.1.6 Total cropped area

Total cropped area is the sum of all cultivable land regarding the number of crop raiser in a year. So, total cropped area is always greater than net cropped area.

The total cropped area of the respondents ranged from 0.64-11.38 hectare with an average of 2.42 hectare and standard deviation of 1.55. On the basis of total cropped area the respondents were categorized into 3 groups as shown in the Table 4.1. In case of total cropped area, findings reveled that 98% of the respondents had low to medium total cropped area, where only 2% respondents possesses the large amount of total cropped area.

4.1.7 Cropping intensity

Cropping intensity expresses about the potentiality of a farmer's land for crop production. It is expressed in percentage. Our national average cropping intensity is 185%.

The cropping intensity of the respondents ranged from 107.27 - 380.25 percent with an average of 210.54 and standard deviation 52.97. On the basis of the cropping intensity the respondents were classified into two categories i. e. Up to national average and above national average which are shown in Table 4.1. In case of the cropping intensity, findings revealed that only 38% respondents possess the cropping intensity up to the national average and the rest (62%) respondents possess the cropping intensity above the national average. This may be due to the location of the study area. Because the study area is comparatively higher in topography in compare of other areas. As a result low lying or marshy lands are not available of the study area. Farmers do not suffer much for the flood or other natural calamities in their hand; on the other hand, they get the opportunity of irrigation.

4.1.8 Land under oil seed and pulse cultivation

Land under oil seed and pulse cultivation of the respondents varied from 0.15 to 1.05 hectares with a mean of 0.35 and standard deviation 0.24. On the basis of the area under oil seed and pulse cultivation the respondents were classified into three categories as shown in Table 4.1. In order to set a clear picture of the situation regarding the variable, small, medium and high amount of land cultivated under oil seed and pulse crops were calculated as "<mean-0.5sd", "mean±0.5sd" and ">mean+.5sd" respectively.

Data shown in the Table 4.1 revealed that 40 percent of the respondents fall in medium categories regarding oil seed and pulse cultivation followed by 38 percent small categories and 22 percent large categories.

4.1.9 Annual family income

Annual family income of the farmers ranged from 18.70 to 266.10 thousand taka. The mean was 94.40 thousand and standard deviation was 58.98. On the basis of annual income the respondents were classified into three groups which are shown in Table 4.1. The data presented in the Table 4.1 indicated that the highest proportion (61.00 percent) of the respondents had medium income followed by high (23.00 percent) and low (16.00

percent) income earners. It means that the majority (77 percent) of the respondent had low to medium annual family income.

4.1.10 Extension contact

Observed extension contact score of the respondents ranged from 3 to 23 against possible range of 0 to 44. The mean of extension contact score was 11.26 with standard deviation of 3.80. Based on the extension contact score, the respondents were classified into three categories as shown in Table 4.1.

Data presented in Table 4.1 indicated that the highest proportion (48 percent) of respondents had medium extension contact, while 31 percent had low and 21 percent had high extension contact. The finding of this study again indicated that the majority (79 percent) farmers in the study area had low to medium extension contact. It could be concluded that extension agent or media of the study area were not very much available to the respondents.

4.1.11 Knowledge on oil seed and pulse cultivation

The knowledge scores of oil seed and pulse growers could range from 0 to 40. But the observed score of the respondents ranged from 10 to 37 with an average of 17.54 and standard deviation 5.66. Based on their knowledge on oil seed and pulse crop cultivation scores, the respondents were classified into three categories as shown in Table 4.1.

Data presented in the Table 4.1 indicated that 65 percent of the respondents had moderate knowledge on oil seed and pulse cultivation. Only 9 percent had high knowledge and 26 percentages had low knowledge on oil seed and pulse cultivation. It could be concluded that most (91 percent) of the respondents of the study area gained low to moderate knowledge and experience to grow oil seed and pulse.

4.1.12 Attitude towards oil seed and pulse cultivation

Morgan *et al.* (1960) regarded attitude as literally mental postures, a guide for conduct for which each new experience is referred before a response is made. Bernard (1965) defined attitude as a predisposition to act in a certain way. It is a state of readiness that influences

a person to act in a given manner. According to Drever (1968) an attitude is a more or less stable set or disposition of opinion, interest or purpose, evolving expectancy of certain kind of experience and readiness with appropriate kind of response. The attitude towards oil seed and pulse cultivation scores ranged from 19 to 38 against the possible scores 0 to 40 with an average of 28.31 and a standard deviation of 3.82. Based on the observed attitude towards oil seed and pulse crop cultivation scores, the respondents were classified into four categories: "unfavourable attitude" (upto 20), "low favourable" (21-27), "moderately favourable" (28-34) and "highly favourable" (35 and above). The distribution of the respondents according to their attitude towards oil seed and pulse cultivation are shown in Table 4.1.

Data presented in Table 4.1 show that the highest proportion (55 percent) of the farmers belonged to moderately favourable attitude towards oil seed and pulse cultivation as compared to 41 percent had low favourable attitude, 2 percent had highly unfavourable and only 2 percent had unfavourable attitude towards oil seed and pulse crop cultivation. This indicates that 96 percent of the respondent farmers had low to moderately favourable attitudes towards oil seed and pulse crop cultivation.

4.2. Constraints Faced by the Farmers in Oil Seed and Pulse Cultivation

Constraints faced in oil seed and pulse crop cultivation score of the farmers ranged from 18 to 46 against the possible range to 0 to 57 with an average of 32.54 and standard deviation 4.89. According to constraints faced score, the farmers were classified into 3 categories as shown in Table 4.2.

Table 4.2 Classification of the farmers according to their Constraints Faced in oil Seed and Pulse Crop Cultivation

Scoring Method	Possible range	Observed range	Categories	Farmers		Mean	SD
				No.	%		
Scaling	0-57	18-46	Low constraint (up to 19)	13	13	32.54	4.89
			Medium constraint (20-38)	73	73		
			High constraint (≥39)	14	14		

From Table 4.2 it was revealed that 73 percent of the farmers faced medium constraints while, 13 and 14 percent faced low and high constraints in oil seed and pulse cultivation respectively. Findings again revealed that most (87 percent) of the respondent farmers faced medium to high constraints in oil seed and pulse cultivation.

4.3. Comparative Severity of Constraints Faced by the Farmer in Oil Seed and Pulse Cultivation

The computed Constraints Faced Index (CFI) of the 19 constraints ranged from 24 to 260 against the possible range of 0 to 300 and has been arranged in rank order which appears in Table 4.3. According to CFI, 'farmers do not get the proper value of their product' ranked first followed by 'unavailability of credit in proper time due to complexity', 'high price of pesticides'. Transportation problem ranked the last.

Table 4.3 Comparative Constraints Faced by the Farmers in Oil Seed and Pulse Cultivation

Constraints	Farmers (N= 100)				PFI	Rank Order
	High	Medium	Low	Not at all		
Seed related						
1. Lack of HYV seed	58	30	7	5	241	4
2. Higher price of HYV seed	60	26	6	8	238	5
3. Less germination rate of seed	35	12	34	19	163	11
Pest related						
4.High price of pesticide	67	18	12	3	249	3
5.Farmers can not select the right pesticide	24	45	22	9	184	10
6. Rate of pest attack increased suddenly due to heavy rainfall	51	25	15	9	218	8
Credit related						
7.Inadequacy of credit against the demand	49	33	12	6	225	7
8.Unavailability of credit in time due to complexity	73	10	11	6	251	2
Field management related						
9.Yield loss due to cattle	17	34	30	19	149	12
10.More Yield loss due to heavy rainfall than monocropping	53	30	16	1	235	6
11. Post harvest loss	16	15	36	33	114	15
Marketing Related						
12. Farmers do not get proper value of their product	71	22	6	1	263	1
13.Lack of preservation scope	7	8	34	51	71	17
14.Transportation problem	8	2	2	88	30	19
Farmers' knowledge related						
15. Farmers can not select the right amount of seed	17	24	33	26	132	13
16. Lack of knowledge on fertilizer application	11	26	30	33	115	14
17. Lack of knowledge on irrigation	2	18	28	52	70	18
18. Lack of knowledge on disease and pest control	47	24	22	7	211	9
19. Lack of knowledge on harvesting and preservation	17	14	18	51	95	16

4.4 Relationship between Selected Characteristics of the Farmers' and Their Constraints Faced in Oil Seed and Pulse Cultivation

To explore the relationships between the selected characteristics of farmers and their constraints faced in oil seed and pulse cultivation, "Pearson's Product-Moment Correlation Co-efficient 'r' has been used. In statistical point of view, there is no existence of the independent and dependent variables in correlation test. In correlation, in every case the concerned two variables are dependent to each other. Therefore, the present researcher tried to use the term "Predictive Variable" for constraints faced by the farmers in oil seed and pulse cultivation. The selected characteristics of the respondents which must have relationship with constraints faced in oil seed and pulse cultivation were treated as the "Experimental Variables". In this study the researcher attempted to find out the relationship of the selected characteristics of respondents (Experimental Variables) with their constraints faced (Predictive Variable) in oil seed and pulse cultivation.

The result of the correlation analysis between the selected characteristics of the farmers and their constraints faced in oil seed and pulse cultivation shown in Table 4.4 and described in the following sub sections. In a bid to achieve the inter- correlations among all the variables were arranged in a matrix which may be seen in Appendix-B.

Table 4.4 Co-efficient of Correlation between Selected Characteristics of the Respondents and Their Constraints Faced in Oil Seed and Pulse Cultivation

Dependent Variable	Selected characteristics of the respondents (independent variables)	Computed value of 'r'	Table value 'r' with 98 degrees of freedom	
			0.05 level	0.01 level
Constraints faced by the farmers in oil seed and pulse cultivation	Age	-0.030 NS	0.196	0.257
	Education	-0.041 NS		
	Family size	-0.0101 NS		
	Land possessions	-0.219*		
	Net cropped area	-0.158 NS		
	Total cropped area	-0.166 NS		
	Cropping intensity	-0.245*		
	Land under oil seed and pulse cultivation	-0.247*		
	Annual family income	-0.113 NS		
	Extension contact	-0.200*		
	Knowledge on oil seed and pulse cultivation	-0.297**		
	Attitude towards oil seed and pulse cultivation	-0.303**		

NS = Not significant
* = Significant at 0.05 level of probability
** = Significant at 0.01 level of probability

4.4.1 Age and constraints faced

The relationship between age of the farmers and their constraints faced was examined by testing the null hypothesis: "There is no relationship between age of the farmers and their constraints faced in oil seed and pulse cultivation." As shown in the Table 4.4 the co-efficient of correlation between the concerned variables was found –0.030, which led to the following observation:

Firstly, the relationship showed tendency in the negative direction between the concerned variables. Secondly the computed value of 'r' (-0.030) was found to be smaller than the table value (r = 0.196) with 98 degrees of freedom at 0.05 level of probability. Hence the concerned null hypothesis could not be rejected. The findings demonstrate that the age of the farmers had no significant relationship with the constraints faced by them in oil seed and pulse cultivation.

4.4.2 Education and constraints faced

Relationship between education of the farmers and their constraints faced in oil seed and pulse cultivation was determined by testing the null hypothesis: "There is no relationship between education of the farmers and their constraints faced in oil seed and pulse cultivation ".

The observed value of the co-efficient of correlation between the concerned variables was found to be -0.041 as shown in Table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

The computed value of 'r' (r = -0.041) was found to be smaller than the tabulated value (r = 0.196) with 98 degrees of freedom at 0.05 level of probability.
The null hypothesis could not be rejected.
The relationship between the concerned variables was not significant.

Based on the above findings, the researcher concluded that education of the farmers had no significant relationship with their constraints faced in oil seed and pulse cultivation. This meant that the education was not an important factor in this case for the farmers.

However, the result is not unexpected as Mandol (2002) and Ali (1995) observed similar findings. But, it is better to go for further verification.

4.4.3 Family size and constraints faced

Relationship between family size of the farmers and their constraints faced in oil seed and pulse cultivation was determined by testing the null hypothesis: "There is no relationship between family size of the farmers and their constraints faced in oil seed and pulse cultivation ".

The calculated value of the co-efficient of correlation between the concerned variables was found to be -0.101 as shown in Table 4.5. The following observations were made regarding the relationship between the two variables under consideration.

The computed value of 'r' (r = -0.101) was found to be smaller than the tabulated value (r = 0.196) with 98 degrees of freedom at 0.05 level of probability.
The null hypothesis could not be rejected.
The relationship between the concerned variables was not significant.

Based on the above findings, the researcher concluded that family size of the farmers had no significant relationship with their constraints faced in oil seed and pulse cultivation. This meant that family size was not an influencing factor for the constraints faced by the farmers. Yeasmin (2002) and Mandol (2000) observed similar findings. The possible cause of this result was comparatively small to medium families of the farmers due to their family planning awareness and also due to little variation in the family size as evident from the standard deviation.

4.4.4 Land possessions and constrains faced

The relationship between land possessions of the farmers and their constraints faced in oil seed and pulse cultivation was examined by testing the null hypothesis: "There is no relationship between land possessions of the farmers and their constraints faced in oil seed and pulse cultivation".

The calculated value of 'r' (-0.219) was greater than that of the tabulated value (r = 0.196) with 98 degrees of freedom at 0.05 level of probability as shown in Table 4.4. Thus, the concerned null hypothesis was rejected. Thus it was concluded that there was significant negative relationship between the land possessions of the farmers and their constraint faced in oil seed and pulse cultivation.

4.4.5 Net cropped area and constrains faced

The relationship between net cropped area of the farmers and their constraints faced in oil seed and pulse cultivation was examined by testing the null hypothesis: "There is no relationship between farmers' net cropped area and their constraints faced in oil seed and pulse cultivation". The calculated value of 'r' (-0.158) was smaller than that of the tabulated value (r = 0.196) with 98 degrees of freedom at 0.05 level of probability as shown in Table 4.4. Thus, the concerned null hypothesis could not be rejected. Thus, it was concluded that there was no significant relationship between farmers' net cropped area and their constraint faced in oil seed and pulse cultivation.

4.4.6 Total cropped area and constrains faced

The relationship between total cropped area of the farmers and their constraints faced in oil seed and pulse cultivation was examined by testing the null hypothesis: "There is no relationship between farmers' total cropped area and their constraints faced in oil seed and pulse cultivation". The calculated value of 'r' (-0.166) was smaller than that of the tabulated value (r = 0.196) with 98 degrees of freedom at 0.05 level of probability as shown in Table 4.4. Thus, the concerned null hypothesis could not be rejected. Thus, it was concluded that there was no significant relationship between farmers' total cropped area and their constraint faced in oil seed and pulse cultivation.

4.4.7 Cropping intensity and constrains faced

The relationship between cropping intensity of the farmers and their constraints faced in oil seed and pulse cultivation was examined by testing the null hypothesis: "There is no relationship between cropping intensity of the farmers and their constraints faced in oil seed and pulse cultivation". The computed value of 'r' (-0.245) was greater than that of the tabulated value (r = 0.196) with 98 degrees of freedom at 0.05 level of probability as

shown in Table 4.4. The relationship between the two concerned variables also showed a negative trend. So a negative significant relationship was found to exist between the concerned variables. Thus, the null hypothesis was rejected.

The findings indicated that the higher cropping intensity of the farmers, the lower was their constraints faced in oil seed and pulse cultivation. This may be because of those farmers who lave greater cropping intensity have the opportunity to cultivate more oil seed and pulse and also get adequate information and support from various sources. Farmers also gain a lot of experience in oil sees and pulse cultivation. As a result they faced low constraints.

4.4.8 Land under oil seed and pulse cultivation and constrains faced

The relationship between land under oil seed and pulse cultivation of the farmers and their constraints faced was examined by testing the null hypothesis: "There is no relationship between land under oil seed and pulse cultivation of the farmers and their constraints faced in oil seed and pulse cultivation". The computed value of 'r' (-0.247) was greater than that of the tabulated value (r = 0.196) with 98 degrees of freedom at 0.05 level of probability as shown in Table 4.4.

The relationship between the two concerned variables showed a negative trend. So a negative significant relationship was found to exist between the concerned variables. Thus, the null hypothesis was rejected. The findings indicated that the higher the land under oil seed and pulse cultivation of the farmers, the lower was their constraints faced in cultivating those crops.

Those farmers who use a larger portion of their lands in cultivating oil seed and pulse possess a larger experience. They also get enough support from Upazilla Agriculture Office and other authorities. As they invest much they have the tendency to gain a larger amount of profit. As a result they take care of their fields and face lower constraints.

4.4.9 Annual family income and constrains faced

The computed value of coefficient of correlation between annual family income of the respondent and their constraints faced in oil seed and pulse cultivation was found to be

-0.113 as shown in Table 4.4. Following observations were made regarding the relationship between these two variables under consideration:

The relationship showed a negative trend

The computed value of r (-0.113) was found to be smaller than the tabulated value (r= 0. 196) with 98 degree of freedom at 0.05 level of probability.

From the above findings, the null hypothesis could not be rejected and hence, the researcher concluded, that the annual family income of the respondents had no significant relationship with their constraints faced in oil seed and pulse crop cultivation. As the computed value showed a negative trend, it may be expected that the higher 'the income, lower was their problem faced in oil seed and pulse cultivation. To cultivate oil seed and pulse it requires money in time. But most of the farmers had low and medium income so that they faced considerable problems in oil seed and pulse cultivation. Islam (1987) and Rahman (1995) also found the similar findings.

4.4.10 Extension contact and constrains faced

The computed value of coefficient of correlation between extension contact of the respondent and their constraints faced in oil seed and pulse cultivation was found to be -0.200 as shown in Table 4.4m. Following observations were made regarding the relationship between these two variables under consideration:

The relationship showed a negative trend

The computed value of r (-0.200) was found to be greater than the tabulated value (r=0.196) with 98 degree of freedom at 0.05 level of probability.

Based on the above findings, the null hypothesis was rejected and hence, the researcher concluded that the extension contact of the respondents had negative significant relationship with their constraints faced in oil seed and pulse cultivation. It indicated that the higher the extension contact of the respondents the lower was the problems in oil seed and pulse cultivation. Farmers who did not contact with the extension agent or agricultural experts could face larger constraints in oil seed and pulse cultivation. But a good number of farmers come in contact with Sub Assistant Agriculture Officer, NGO workers etc. These farmers directly or indirectly get exposure of agricultural technology and can overcome their constraints in oil seed and pulse cultivation to some extent.

4.4.11 Knowledge on oil seed and pulse cultivation and constrains faced

The computed value of coefficient of correlation between Knowledge on oil seed and pulse cultivation of the respondent and their constraints faced in cultivating those crops was found to be -0.297 as shown in Table 4.4. Following observations were made regarding the relationship between these two variables under consideration:

The relationship showed a negative trend

The computed value of r (-0.297) was found to be greater than the tabulated value (r=0.257) with 98 degree of freedom at 0.01 level of probability.

Based on the above findings, the null hypothesis was rejected and hence, the researcher concluded that the knowledge on oil seed and pulse cultivation of the respondents had negative significant relationship with their constraints faced in oil seed and pulse cultivation. Farmers who had knowledge and experience of modem agricultural technology related to oil seed and pulse cultivation, faced low constraints than those who were not exposed to such knowledge. Farmers who had grained modem knowledge from the neighbors, Sub Assistant Agriculture Officer etc. could tackle the constraints in cultivating oil seed and pulse crop. Hence, extension agency should organize different programs to provide necessary information about oil seed and pulse cultivation so that they could increase their knowledge their knowledge on the same.

4.4.12 Attitude towards oil seed and pulse cultivation and constrains faced

The computed value of coefficient of correlation between attitude towards oil seed and pulse cultivation of the respondent and their constraints faced in cultivating those crops was found to be -0.303 as shown in Table 4.4. Following observations were made regarding the relationship between these two variables under consideration:

The relationship showed a negative trend

The computed value of r (-0.303) was found to be greater than the tabulated value (r=0.257) with 98 degree of freedom at 0.01 level of probability.

Based on the above findings, the null hypothesis was rejected and hence, the researcher concluded that the attitude towards oil seed and pulse cultivation of the respondents had negative significant relationship with their constraints faced in oil seed and pulse cultivation. Farmers, who had positive attitude towards oil seed and pulse cultivation,

faced lower constraints than those who were not exposed to such type attitude. Farmers who had grained modem knowledge from the extension agents had the positive attitude towards oil seed and pulse cultivation and could overcome the constraints in cultivating the same crops. Hence, concerned authorities should organize different motivational programs that would be very helpful to make the farmers' positive attitude towards oil seed and pulse cultivation.

Percent of the respondents' possessed primary and secondary education. Family size and land possessions of the respondents ranged from 2-12 members and 0.25-3.61 hectares, respectively. Net cropped area ranged from 0.26 to 4.34 hectares where 49% possess low net cropped area, 49% possess medium net cropped area and only 2% possess high net cropped area. Total cropped area ranged from 0.64 to 11.38 hectares where, 49% possess low total cropped area, also 49% possess medium total cropped area and rest 2% possess high total cropped area. On the other hand cropping intensity ranged from 107.27% to 380.25% where 38% respondents are up to national average and rests of 62% are above national average. Scores of land under oil seed and pulse cultivation ranged from 0.15 to 1.05 hectares with an average of 0.35 hectares. Most (40%) of the farmers had medium area (above 0.23 to 0.47 hectare) followed by 38% have small area and 22% have large area. The highest Proportion (77 percent) of the respondents was either in low or medium income category.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

5.1.1 Characteristics of the farmers

Age

Major proportion (77 percent) of the respondents in the study area were young and middle aged

Education

More than two thirds of the farmers (69 percent) of the study area secured primary and secondary education.

Family Size

About three fourths (70%) of the respondent had medium family size compare to 21% and 9% had small and large family size.

Land possessions

Findings reveled that majority proportion (98%) of the respondent had small to medium land possessions.

Net cropped area

Findings showed that most of the respondents (98%) had low and medium net cropped area.

Total cropped area

Findings reveled that 98% of the respondents possess low to medium total cropped area.

Cropping intensity

Findings showed that 62% respondents had cropping intensity above national average and the rest 38% had below national average.

Land under oil seed and pulse cultivation

Findings reveled that 78% respondents had low to medium amount of land under oil seed and pulse cultivation where 22% respondents' had high amount of land under oil seed and pulse cultivation.

Annual family income

Finding revealed that more then half (61%) of the respondent had medium income compared to 16% and 23% had Low and high annual income.

Extension Contact

Findings revealed that 31% the respondent had low extension contact compared to 57% had medium and 12% had high extension contact.

Knowledge on oil seed and pulse cultivation

Findings revealed that more than half (65%) of the respondents had medium Knowledge on oil seed and pulse cultivation compared to 26% had minimum/ low Knowledge and 9% had high Knowledge on oil seed and pulse cultivation.

Attitude towards oil seed and pulse cultivation

Findings reveled that 2% respondents had unfavourable attitude, 41% had low favourable attitude, 55% had moderately favourable attitude and the rest 2% had very high favourable attitude towards oil seed and pulse cultivation.

5.1.2 Constraints faced in oil seed and pulse cultivation

The constraints faced scores of the respondents ranged from 18-46 with an average of 32.54 against the possible range of 0-57. The majority proportion (87%) of the farmers faced medium and high constraints in oil seed and pulse cultivation. According to constraints faced index (CFI) "Farmers do not get the proper value of their product" ranked first followed by "Unavailability of credit in proper time due to complexity" and "higher price of HYV seed", and "Transportation problem" ranked the last.

5.1.3 Relationships between the selected characteristics of the farmers and their constraints faced in oil seed and pulse cultivation

Correlation analysis indicated that land possessions, cropping intensity, land under oil seed and pulse cultivation, extension contact, knowledge on oil seed and pulse cultivation and attitude of the farmers towards oil seed and pulse cultivation of the farmers had negative significant relationship with their constraints faced in oil seed and pulse cultivation. While age, education, family size, net cropped area, total cropped area and annual family income of the farmers had no significant relationship with their constraints faced in oil seed and pulse cultivation.

5.2 Conclusions

Conclusions drawn on the basis of the findings of this study and their logical interpretation in the light of the other relevant factors are furnished below:

1. It was found that the farmers faced various constraints in oil seed and pulse cultivation. Majority of the farmers (87 percent) under study faced medium and high constraints in pulse and oil seed cultivation. These farmers may face a lot of constraints until or unless necessary steps are taken regarding this aspect.

2.Good management of the existing market system for the farmers getting the proper pricee of their product, an easier credit disbursement system for the farmers getting the credit timely and properly, flexible market price of pesticides, availability of HYV seed, flexible market price of HYV seed appeared as important for oil seed and pulse cultivation to solve the existing constraints. Considering these suggestions, the investigator concluded that the farmers would not be able to cultivate those crops properly if the above measures are not taken care of either by themselves or through external forces.

3. Large land possession gives a man opportunity to cultivate various crops on his field. As a result he can gather experience and through his achieved experience he can solve any constraints easily. On the other hand, it helps him to find many helping hands like Governments or other organizations. There was a negatively significant relationship between farmers' constraints and their land possessions. It could be concluded that

farmers having less amount of land possessions, faced more constraints in oil seed and pulse cultivation.

4. Cropping intensity is expressed in percentage and it indicates the degree of land used of a farmer. If a farmer possesses higher cropping intensity it means that he cultivates several times and various crops in a year. In the present study, there was a negatively significant relationship between farmers' constraints and their cropping intensity. It could be concluded that farmers having higher cropping intensity, faced less amount of constraints.

5. A significant negative relationship between land under oil seed and pulse cultivation and their faced constraints. It means that farmers having more land under oil seed and pulse cultivation faced lesser level of constraints.

6. Significant negative relationship exists between the farmer extension contact and their constraints faced in oil seed and pulse cultivation. This indicates that if farmers having higher extension contact faced lower constraints. This fact leads to the conclusion that increasing extension contact may give the farmers good opportunities to overcome their different constraints in oil seed and pulse cultivation.

7. The findings indicate that knowledge on oil seed and pulse cultivation of the farmers had significant negative relationship with their constraints faced in oil and pulse cultivation. Knowledge on oil seed and pulse cultivation of the farmers help them to understand the various complex and complicated issue of oil seed and pulse cultivation. Most (91%) of the farmers had low or medium knowledge on oil seed and pulse cultivation. So, it is not a good sign for achieving sustainability in agricultural production. The higher authorities of DAE and other organizations should undertake different activities like training, field visit etc. so that the farmers could gain adequate knowledge to take different effective measures very easily in oil seed and pulse cultivation. Training and campaign is needed for the creation of awareness among the farmers. National Crop Diversification Programmee may be very helpful for this purpose.

8. Significant negative relationship exists between farmers' attitude towards oil seed and pulse cultivation and their constraints in oil seed and pulse cultivation. So, the concern authorities should take appropriate measures to build positive attitudes among the farmers towards oil seed and pulse cultivation by adequate advertisement in favour of those crops.

5.3 Recommendations

5.3.1 Recommendation for policy implication

On the basis of findings and conclusions following recommendations are formulated:

1. As majority (87%) of the farmers faced medium to high constrains in various aspects of oil seed and pulse cultivation. Therefore, the concerned authorities should take necessary action so that the farmers could minimize their constrains in oil seed and pulse cultivation

2. Large land possession and land under oil seed and pulse cultivation and cropping intensity of the farmers had negative relationship with their constraints faced by the farmers in oil seed and pulse cultivation. It is not easily possible to increase land size the farmers. But cropping intensity may be increased by proper motivational programme. Therefore concerned authorities should pay attention so that the farmers could increase their cropping intensity by cultivating various oil seed, pulse and other crops.

3. Extension contact, knowledge on oil seed and pulse cultivation of the farmers and attitude towards oil seed and pulse cultivation had negative relationship with constraints faced by the farmers in oil seed and pulse cultivation. Therefore the concerned authorities should take necessary action to increase the extension contact of the farmers by more and more contact with them with increasing motivational programmes for increasing farmers' knowledge on oil seed and pulse cultivations and to make favourable attitude towards oil seed and pulse cultivation. Ultimately the farmers could minimize their constraints faced in oil seed and pulse cultivation.

5.3.2 Recommendation for further study

1. This study investigated constraints faced by the farmers in oil seed and pulse cultivation. There is a need for investigation of other potential crops.

The relationship of twelve important characteristics of the oil seed and pulse growers with their constraints faced in oil seed and pulse cultivation have been investigated in this study. Further research may be undertaken for exploring relationship of other characteristics of the oil seed and pulse growers with their constraints faced.

Relationship of the characteristics of the farmers with their constraints faced in six aspects of oil seed and pulse cultivation namely seed, pest, credit, field management, marketing and knowledge on oil seed and pulse cultivation were investigated in this study. It is necessary to examine the relationship of the characteristics of the farmers with their constraints faced in other aspect of oil seed and pulse cultivation.

The study was conducted on the population of the oil seed and pulse crop growers of purposively selected three villages of Dubchanchia upazilla under Bogra district. Findings of this study need to be varied by undertaking similar research in other oil seed and pulse growing zones of the country.

In addition to constraints in oil seed and pulse cultivation, the farmers also faced other constraints like social, economic, housing, sanitation, nutrition etc. All these constraints affect the performance of the farmers. There is a need for undertaking research on the various constraints faced by the farmers which affect the performance.

BIBLIOGRAPHY

Agnew, J.R., G.R. Sandell, G.T. Stainlay, C. Whiteing and D.M. Hogarth. 2002. Increased sugar industry profitability through harvesting best practice. *Proceeding of the 2002 Conference of the Australian Society of Sugarcane Technology held at Carrus Queensland Australia 29 April to 2 May 2002*: 184-189.

Alam, A.T.M.M., R. Choudhury and M.Z.A. Chowdhury. 2000. Jute production at farmers level : practices and problems. *Bangladesh Journal of Training and Development*, 13 (1&2): 229-236.

Ali, M.A. 1999. Opinion of unemployed Rural youth on self-employment by Undertaking Selected Income-generating Activities in Fulbaria Thana under Mymensingh. *M.S. Thesis*, Department of Agricultural Extension Bangladesh Agricultural University, Mymensingh.

Akanda, M.G.R. 1993. Problem Faced by the Farmers in Respect of Cultivating Mukta (BR 11) Rice. M.S. (Ag. Ext. Ed) *Thesis*, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Annonymous. 2007. Economic Survey. Ministry of Finance. Goverment of the Peoples Republic of Bangladesh.

Arya, S. R.S. and S.L. Shah, 1984. New Technology of Rainfed Agriculture and Identification of Constraints on its Adoption in Mid-hills of U.P. Agricultural Station in India. 37(7): 487-490. Rural Development Abstracts. 1985. 8(2).

Banglapedia, 2003. *National Encyclopedia of Bangladesh*. Asiatic Society of Bangladesh. 4 : 129-152.

BBS, 2004. *Bangladesh Population Census*. Bangladesh Bureau of Statistics, Ministry of Planning, Government of the People's Republic of Bangladesh Dhaka.

.Brahmaprakash, G.P. and Sarkar R.U. 2004. AICRP on Chick pea. Current Science. 87(7):859-861.

Chander,S., H. Nand and J. P. Sharma. 1990. Knowledge, Adoption and Constraints analysis of Potato Technology. Indian Journal of Extension Education. XXvI(1 & 2): 94-98.

Chandrasekharan, B.; Bhattacharyya, H.C. 1996.Problems of and Prospect for Soil Management for Lowland Rice-Pulse Rotations. Soil and Water Management Research Institute, Tamil Nadu Agricultural University.

Chander, S. and S.P. Singh 2003. Constraints in Adoption of Integrated Pest Management in control. *Indian Journal Extension Education.* XXXIX(1 &2) : 41-50.

DAE. 1999. Agricultural Extension Manual. Department of Agricultural Extension. Ministry of Agriculture. Government of the Peoples Republic of Bangladesh.

Faroque, M.G. 1997. Participation of Female Rural Youth in Selected Homestead Activities in Two selected villages of Bhaluka Upazila under Mymensingh District. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Freeman, H.A. and S.A. Breth, 1994. *Population pressure land use and the productivity of Agricultural Systems in the West African Savanna, Issues in African Rural Development*: 103-114.

Goswami, H.G.;1990.Impact of Pulse Developmant Project on Weaker Sections of the Farming Community in Uttar Prodesh. IV + 150pp.; mimco, ISAE.

Gumisiriza, G.W. Wagoire, B. Bungutski and D.G. Tanner 1994. *Wheat Production and Research in Uganda; Constraints and Sustainability. Developing sustainable wheat production systems*. The 8th Regional Wheat Workshop for Easter, Central and Southern Africa, Kampala, Uganda 7 to 10 June 1993: 51-56.

Gowda, C.L.L. 1984. Pulses in Bangladesh. Bangladesh-Canada Agriculture Sector Team. Ministry of Agriculture, Government of the Peoples' Republic of Bangladesh, Dhaka, pp-1-32.s

Haque, M.A. 1995. Problem Confrontation of the Members of Mohila Bittaheen Samabaya Samittee working under the Bangladesh Rural Development Board. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Haque, M.A. 1995. Problem Confrontation the members of Mohila Bittaheen Samabaya Samittee working under Bangladesh Rural Development Board. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Hossain, S.M.A. 1985. A study of the Landless Labourers in Bhabakhali Union of Mymensingh District MSc. (Ag. Ext. Ed.) Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Islam, M.N. 1987. Artificial Insemination Problem Confrontation of the Farmers in the Two Selected Unions of Madhupur Upazila under Tangil District. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education and Teachers' Training, Bangladesh Agricultural University, Mymensingh.

Ismail, S.M. 2001. Agricultural Problem /confrontation of the Farm Youth in a Selected Block of Haor Area of Mohanganj Upazila under Netrokona District. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Kar, G.;Gangopadhyay, PK. and Kar, A.. 1995. A study on the perceived factors for pulse Development, Begunia Block, Orissa- A Case Study. Indian Agriculturist. 39:1, 51-55.

Karim, M.L. 1996. Relationship of Selected Characteristics of Kakrol (Momordilca Dioica) Growers with Their Problem Faced . MS (Ag. Ext. Ed.) Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Kaul, A.K and Das M.L. 1986. Oilseeds in Bangladesh. Bangladesh-Canada Agriculture Sector Team. Ministry of Agriculture, Government of the Peoples' Republic of Bangladesh, Dhaka, pp-1-41.

Kashem, M.A. 1977. A study of the Landless Farmers of Barakhata Uniion Under Rangpur District. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education, and Teachers' Training, Bangladesh Agricultural University, Mymensingh.

Kher, A.O. and K.G. Halyal, 1988. Constraints in Adoption of Sugarcane Production Technology. *Gujrat Agricultural Research Journal*. 13(2): 39-45.

Kumar, S.C.R., H.S., Shivarmu, G.R Chary,. S.C. Yadav, and Gaikwad. 1995. Economics of improved management practices, their extent and constraints in adoption in Madya District, Karnataka. *Journal of Soils and Crops*. 5(1): 22-25.

Mansur, M.A.A. 1989. Farmers Problem Confrontation in Feeds and Feeding Cattle in Sonapur Union of Raipur Upazila Under Lashmipur District. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education and Teachers' Training, Bangladesh Agricultural University, Mymensingh.

Musnicki, C. 2003. Environmentally Friendly Principles of oil seed rape Production. Ochrona-Roslin.; 47(12): 13-16.

Pramanik, N.K. 2001. Crop Cultivation problems of the Farm Youth in A Selected Block of Muktagacha Upazila under Mymensingh District. *M.S. (Ag. Ext. Ed.) Thesis*,

Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Raha, A.K.1989. Deep Tubewell Irrigation Problems of the Farmers is the Cultivation of Boro Paddy in Two Selected Blocks of Muktagacha Upazila under Mymensingh District. M.Sc. - (Ag. Ext. Ed.) Thesis, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Rahman, M.H. 1995. Constraints Faced by the Farmers in Cotton Cultivation. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Rahman, M.S. 1996. Farmers' Problems in Potato Cultivation Satia Union under Gafforgaon Thana of Mymensingh District. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Ramachandran, P. and K.B. Sripal, 1990. Constraints in Adoption of Dryland Technology for Rainfed Cotton. *Indian Journal Extension Education.* XXIV(3 & 4) : 74-76.

Rosenburg, M. and C.I. Hovland, 1960. Research on Communicaiton and Attitude coated in Triandis, H.C. 1971. *Attitude and Attitude Change*. John Wiley Publisher, New York..

Salam, M.A. 2003. Constraints Faced by the Farmers in Adopting Environmentally Friendly Farming Practices. *M.S. (Ag. Ext. Ed.) Thesis*, Department of Agricultural Extension Education, Bangladesh Agricultural University, Mymensingh.

Sarkar, G.-C. 1983. Relationship of Selected Characteristics of the Poultry Farmers in Tarundia Union of Mymensingh District with their Poultry Faced. M.Sc. (Ag. Ex.Ed.) Thesis, Department of Agricultural Extension and Teachers' Training, Bangladesh Agricultural University, Mymensingh.s

Shehrawat, P.S. and R.K. Sharma. 1994. Educated Unemployed Rural Youth: Problems Encountered, Factors Dissuading Them from Family Occupation, and their Human Resources Development. *Journal of -Rural Reconstruction.* 27(1): 73-82.

Tuteja, U. and Mohammad, N.; 1992. Determinants of Pulse cultivation in Haryana. New Dimensions in Agricultural Geography. Vol.-5, P-291-325.
UNFPA. 2007. United Nation Population Fund. Report, 2007.

APPENDIX-A
ENLSIGH VERSION OF THE INTERVIEW SCHEDULE

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

An Interview schedule for a research study entitled constraints faced by the farmers in oil seed and pulse cultivation

Sample no. :

Address of the Respondents

Name :

Village :

Union :

Upazilla :

1. Age.

Please mention your age.

----------years.

2. Educational Qualifications.

In which level you studied? (Please put a tick mark on the selected space or fill in the blank)

a) Cannot read and write ( )

b) Can sign only ( )

c) Studied up to ———————————— class

3. Family members.

Including yourself how many family members belong to your family? please mention.

----------NOS.

4. Please describe about your land possessions.

	Land ownership		Nature of land									
	Local unit	Hectare	Single Corpped Area		Double Corpped Area		Triple cropped area		Net cropped area		Total Croppe area	
					Local unit	Hectare	Local unit	Hectare	Local unit	Hectare	Local unit	Hecta
a) Homestead None Argil land												
b) Homestead argil land												
C)Own cultivated area operated by himself												
d) Area taken *from* others on Borga system												
e) Area given to others on Borga system												
f) Area taken form others on lease												
Total												

5. What amount of land did you used to cultivate oil seed and pulse?

Type of crop	Land Under cultivation	
Oil See	Local Unit	Hectare
a) Mustard		
b) Soybean		
c) Sunflower		
d) Others		
Total		

Pulse	Local Unit	Hectare
a) Lathyrus		
b) Lentil		
c) Chick pea		
d) Others		
Total		

6. Annual Family Income

Please mention the annual family income of the last year.

Source of income	Total value (Taka)
1. Agriculture a) Oil seed b) Pulse c) Vegetable d) Fruit and Tree e) Other crops 2. Live stock 3. Poultry 4. Fisheries 5. Job 6. Business T.Others	
Total	

7. Extension contact

Please Indicate the level of contact with various extension medial agencies :

Nature of information sources	Information source	Level of contact				
		Frequently	Often (3)	Occasionally (2)	Rarely (1)	Natal all (0)
Personal contact	IdeaJ Fanner	4 times or more/month	3 times/ month	2/menths	1 /months	0/month
	NGO worker	4 times or more/month	3 times/ month	2/menths	1 /months	0/month
	Sub- Assistant extension officer	4 times or more/month	3 times/ month	2/menths	1 /months	0/month
	AEO or TAO	4 times or more/month	3 times/ month	2/menths	1 /months	0/month
Group contact	Group discussion	6 or more/ 6months	4-5 times/6 months	2-3/6months	1/6 month	0/6 month
	Technology demonstration	2 or more/ year	I/year	'/2 year	'/4 year	0/year
	Reld day	2 or more/year	I/year	i^year	V* year	0/year
	Hearing radio programme	2 or more/year	I/year	'/2 year	!4 year	0/year
	Enjoy Agril prog. on TV	2 or more/year	I/year	'/2 year	'/4 year	0/year
	Reading agril. info formation on news paper	2 or more/year	I/year	Vi year	V* year	0/year
	Agril hand book/leaf let/krishi kotha/somprosaron Barta	2 or more/year	I/year	'/2 year	Vi year	0/year

8. Please answer the following questions relating to oil seed and pulse cultivation.

Sl. No.	Questions	Marks	Obtained
1.	What is the perfect time for oil seed sowing	2	
2.	How tikka disease affect the ground nut?	2	
3.	How can you remove the aphid of mustard?	2	
4.	How pulse crop keep the soil healthy?	2	
5.	Which fungicide should be used to treat the pulse seed?	2	
6.	When at what amount of irrigation is necessary for oil seed crops?	2	
7.	When mustard should be harvested?	2	
8.	Please mention two HYV of mustard	2	
9.	Please mention two HYV of pulse crop	2	
10.	How honey bee helps the oils seed and pulse crop?	2	
11.	Name two green manure	2	
12.	Why the fanners apply less amount of urea in pulse crop?	2	
13.	How can we control the leaf spot of oil seed by Biological method?	2	
14.	How crop rotation helps to fit the soil health?	2	
15.	Name two useful insects	2	
16.	Name one herbal pesticide	2	
1 7.	In which crop bio fertilizer is applicable?	2	
18.	Why the production increases if we Cultivate rice after pulse crop?	2	
19.	Nodule created in the pulse root works for which fertilizer	2	
20.	Uprooting of pulse crop why harmful?	2	
Total		40	

9. Attitude towards oil seed and pulse cultivation. Mention please by saving the tick marks

SL. NO.	Comments	Types of opinion				
		Strongly agree	Agree	no comment	Disagree	strongly disagree
+01.	Pulse corps add N to the soil.					
-02.	Yield loss due to the attack of cattle.					
+03.	Oils seed crop cultivation is beneficial.					
-04.	Production of oil seed and pulse crop is low.					
+05.	The indigenous lentil is too testy. So it's demand is high in the local market.					
-06.	Rice cultivation is easier and more profitable than oil seed and we can preserve pulse.					
+08.	We have to depend mostly on the weather for the good production of oil seed and pulse crop.					
-09.	The quality do not reduce after transporting a long distance					
+ 10.	The preservation space is not adequate (govt.) for oil seed and pulse crop.					

10. Please mention the level of constraints you face in oil seed and pulse cultivation.

Seed related constraints

Sl. No.	Constraints	Level of constraints			
		High	Medium	Low	Not at all
01.	Lack of HYV seed				
02.	High price of HYV seed				
03.	Less germination rate of seeds				

Pest related constraints

Sl. No.	Constraints	*Level of constraints*			
		High	Medium	Low	Not at all
01.	High price of pesticed				
02.	Farmers can not select the right pesticide				
03.	Pest infestation rate increases due to heavy rainfall				

Credit related constraints

SI. No.	Constraints	Level of constraints			
		High	Medium	Low	Not at all
01.	Inadequacy of credit against the demand				
02.	Unavailability of credited in proper time due to complexity				

Field management related constraints

SI. No.	Constraint	Level of constraints			
		High	Medium	Low	Not at all
01.	Field is attacked by the cattle.				
02.	Yield loss due to heavy rainfall				
03.	Post harvest loss.				

Marketing related constraints

SI. No.	Constraints	Level of constraints			
		High	Medium	Low	Not at all
01.	Farmers do not get proper value of their product				
02.	Lack of preservation scope				
03.	Transportation problem				

Farmers' knowledge related constraints

SI. No.	Constraints	Level of constraints			
		High	Medium	Low	Not at all
01.	Farmers' can not select the right amount of seed				
02.	Lack of knowledge on fertilizer application				
03.	Lack of knowledge on irrigation				
04.	Lack of knowledge on disease and pest control.				
05.	Lack of knowledge on Harvesting and preservation.				

Thanking you

Date :

Signature of the interviewer

CORRELATION MATRIX AMONG THE VARIABLES OF THE STUDY

VARIABLE	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12
X1	1											
X2	-.117	1										
X3	.201*	-.185 NS	1									
X4	.011 NS	.106 NS	.236*	1								
X5	.039 NS	.142 NS	.243*	.955**	1							
X6	-.062 NS	.035 NS	.221*	.915**	.938**	1						
X7	-.269**	-.169 NS	-.054 NS	.056 NS	-.096 NS	.174 NS	1					
X8	-.164 NS	-.065 NS	.123 NS	.597**	.566**	.667**	.299**	1				
X9	-.182 NS	.009 NS	.093 NS	.433**	.440**	.411**	-.052 NS	.182 NS	1			
X10	-.114 NS	.294**	.039 NS	.064 NS	.094 NS	-.018 NS	-.163 NS	-.028 NS	.035 NS	1		
X11	.012 NS	.370**	.142 NS	.409**	.412**	.336**	-.065 NS	.246*	.311**	.326**	1	
X12	-.019 NS	.026 NS	.180 NS	.229*	.151 NS	.226*	.282**	.106 NS	.156 NS	-.301**	.200*	1
X13	-.030 NS	-.041 NS	-.101 NS	-.219*	-.158 NS	-.166 NS	-.245*	-.247*	-.113 NS	-.200*	-.297**	-.303**

NS = Not significant
* = Significant at the 0.05 level
** = Significant at the 0.01 level

X1 = AGE
X2 = EDUCATION
X3 = FAMILY SIZE
X4 = LAND POSSESSIONS
V5 = NET CROPPED AREA
X6 = TOTAL CROPPED AREA
X7 = CROPPING INTENSITY
X8 = LAND UNDER OILSEED AND PULSE CULTIVATION
X9 = ANNUAL INCOME
X10 = EXTENSION CONTACT
X11 = KNOWLEDGE ON OILSEED & PULSE CULTIVATION AND SUSTAINABLE AGRICULTURE
X12 = ATTITUDE TOWARDS OILSEED AND PULSE CULTIVATION
X13 = CONTRAINTS FACED BY THE FARMERS IN OILSEED AND PULSE CULTIVATION