Report on the Cost of Production of Pulses
2009

Updating and Extension of Agriculture Cluster Plots and Survey of Cost of Production Project (UCPSCP)
BANGLADESH BUREAU OF STATISTICS
Statistics Division
Ministry of Planning

Secretary
Statistics Division
Ministry of Planning

Foreword

Bangladesh is predominantly an agricultural country. The agriculture sector has been dominating the economy of Bangladesh. Food security of the country is critically dependent on the domestic production of crops.

Crop Production has a significant relation to production cost. Every year government declares procurement prices before harvesting time for different crops. UCPSCP Project of Bangladesh Bureau of Statistics has undertaken the survey of 10 crops (6 major crops and 4 minor crops) with an aim to estimate the cost of production.

I am happy to know that the UCPSCP Project performed successfully to conduct these surveys for the first time. I hope that the data presented in the publication would be helpful for the policy formulation and planning process of the country.

I extend my thanks to the Director General, BBS, the Project Director and other officials who worked hard to prepare the report.

Dhaka,
December,2010

Riti Ibrahim

Director General
Bangladesh Bureau of Statistics
Ministry of Planning

Preface

Agriculture is the basic culture of Bangladesh. From the time immemorial, the main source of livelihood of the population of this land is agriculture. It plays an important role in the economic development of the country and has a great contribution to the Gross Domestic Product (GDP).

Crop production largely depends on weather variables such as rainfall, temperature, humidity etc. Moreover, Bangladesh is known as a country of natural calamity in the world. Government is fully aware of natural disaster. Government has been allocating considerable annual budget for the development of agriculture and launching different programmes one after another in order to boost up crop production.

In order to formulate proper policy and planning for the development of agriculture sector reliable and realistic data regarding production cost of crops by different phases such as leasing value of the land, land preparation, seeds/ seedlings, weeding, insecticides, fertilizers, harvesting, drying etc. are needed. Keeping these issues in active consideration, the UCPSCP Project under the control of the Bangladesh Bureau of Statistics (BBS) has been given the responsibility of surveying 10 crops (Aus, Aman, Boro, Jute, Wheat, Potato, Maize, Oil Seeds, Onion and Pulses) for the first time for deriving the cost of production of crops by interviewing farmers in field.

I express my deep gratitude to the members of the Technical Committee who rendered technical guidance for the selection of sampling units and finalization of questionnaire for the survey purpose and other survey matters.

I would like to thank all those who are associated in different works of the survey. I take opportunity to convey thanks to Mrs. Salima Sultana, Project Director and other officers and staff members of BBS who worked very sincerely to finalize the report.

Dhaka,
December, 2010.

Md. Shahjahan Ali Mollah

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	b. Share cropping	10.67
	c. Mortgage	10.78
	d. Lease	4.59
	e. Others	0.48
3.	Yield of Pulses per acre(in kilogram)	324
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	b. Thrashing	6
	Total	17
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6.	Production cost of Pulses per kilogram (in taka)	15.44
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Chapter-I

Introduction

Introduction

Bangladesh is an agricultural country. The most of her inhabitants directly or indirectly are involved in agricultural activities for their livelihood. Agriculture has a great contribution to the Gross Domestic Product (GDP) of the country. Earlier more than 50% of GDP came from this sector. When industrialization starts happening the activities of the population starts diversification towards different sectors. As a result, the contribution of the agriculture sector is slowly reducing and now reached 19% share of GDP. Still agriculture plays vital role and is known as the most important sector of the economy.

Bangladesh by birth possesses very fertile land in which diversified crops grow very easily. Various types of crops are produced in this country. These crops might have been categorized into two-food crops and cash crops. Three types of paddy namely aus, aman and Boro and another cereal crop, wheat are produced in this country, which are called major cereal crops. On the other hand people here are habituated in having rice with pulses which is very common and favourite in Bangladesh. People here cannot think of having rice without pulses. Pulses specially lentil contain enough vegetable portion. It gives sufficient energy to the body. Demand of pulses in the market is high. The Government of Bangladesh has, therefore, provided most priority to the agriculture sector on Pulses crop to increase the production of Pulses by giving subsidy to the farmers on different inputs such as fertilizer, irrigation etc. to achieve self sufficiency in food.

Poverty cannot be reduced to a desired level excepting increasing productivity of agriculture sector and at the same time it is to be assured that farmers get fair price of the crops. Natural calamity like draught, flood, cyclone, tornado etc. is a very regular phenomenon which hinders the production of agriculture at a great extent. Cultivable land is being decreased due to the pressure of massive population. As a result, food security is being threatened and the risk of poor people is being increased.

Bangladesh government is remarkably concerned about this agriculture sector. Notable portion of annual budget has been consistently been allocating for the last couple of years for the development of the sector. Government has also been launching many programmes one after another in order to boost up the agriculture production.

Production of crops, cost of production of crops and market price of crops are directly interrelated. Government has to give proper attention on these three factors as stated so that the farmer get fair price of the crop produced during the harvest time. Generaly, Government has to declare procurement price at the harvesting time of the crop so that producer get proper price. Procurement price of the crop has to be fixed considering all these matters. If procurement price is lower than the production cost, producers get looser and discouraged to produce more crops and if procurement price is higher than the production cost, producers get profit and encouragement. This type of loss and profit influences positively or negatively on the cultivation of next year's crops. So, an objective survey is necessary to know the cost of production of crops at farmer's level. And as such this project has been given the responsibility of conducting a survey in this regard.

Pulses : Lentil (Masur), Green gram (Moog)and Vetch (Khesari).

Lentil: The period of sowing of the crop is mid October to November and its harvesting time is February to March.

Green gram: Its sowing period is mid October to mid December and the time of harvesting January to March.

Vetch: Its sowing time is mid October to mid December and harvesting time is mid February to mid April.

Table : Acreages and production figures of Green gram, Lentil and Vetch for last ten years.

Year	Acreages in '000'			Production in '000' M. tons		
	Lentil	Green gram	Vetch	Lentil	Green gram	Vetch
1998-99	508	137		165	34	
1999-00	412	136	499	128	36	166
2000-01	406	130	462	126	34	154
2001-02	398	112	449	115	31	147
2002-03	381	109	459	116	30	157
2003-04	382	108	393	122	30	134
2004-05	380	60	367	121	18	136
2005-06	333	55	315	115	17	107
2006-07	340	60	246	117	19	83
2007-08	179	60	201	72	21	72

Source: Statistical Year Book of Bangladesh 2008.

The figures in the table shows that acreages under pulses are declining gradually. Increase in area under Boro paddy is responsible for decrease in area under pluses.

1.1 Scope and coverage of the survey:

Survey on the production cost of Pulses 2008-09 is a household based survey. Under the purview of this survey the target population was all dwelling households of the sample area. Ten separate surveys for 10 crops like Aus, Aman, Boro, Potato, Jute, Wheat, Maize, Onion, Oilseeds and pulses are conducted following the same sampling design. A target sample of 100 upazilas are selected from 64 districts to capture the rare crops like onion, oilseeds and pulses, where the rest seven crops are believed to be available.

1.2 Objectives of the survey:

The specific objectivs of the survey are:

- ►to estimate per acre production cost of Green gram, Lentil and Vetch.
- ►to estimate per kilogram production cost of Green gram, Lentil and Vetch.

The other objectives of the survey are as follows:

- ► to know the area under Green gram, Lentil and Vetch by land tenure
- ► to assess the cost of production of Green gram, Lentil and Vetch by different phase
- ► to produce benchmark data on the production cost of Green gram, Lentil and Vetch.
- ► to assist the policy maker by supplying data on the cost of production of Green gram, Lentil and Vetch in order to formulate appropriate policies for increasing the production of Pulses crop

Chapter- II

Methodology

Methodology

2.1. Sample Design:

Sample design is the most important aspect of a survey, which strongly affects survey results. An integrated sample design for conducting survey on the cost of production of 10 crops has been developed. Pulses is one of the 10 crops. Sample design has been discussed in detail below:

2.1.1 Universe:

Bangladesh as a whole is taken as the universe of the survey.

2.1.2 Sampling Technique:

Multi-stage sampling technique has been followed.

2.1.3 Sampling Frame:

The list of Districts, Upazilas, and the Mauzas, having the particular crop Pulses, are used as the sampling frame.

2.1.4 Detailed Sample Design:

As this survey is a part of the sample survey on cost of production of 10 crops such as Aman, Aus, Boro, Wheat, Jute, Potato, Maize, Oil Seeds, Pulses and Onion, the sample design for aus crop has been followed the same design as the integrated sample design for the said 10 crops. The sample design has been explained below:

A national sample survey on cost of production of 10 major and minor corps already conducted by the BBS was a complex survey. If the survey had been conducted separately for each crop, it would be very simple and straight forward. But as it had been conducted by a single survey, it became complex. The crops have different acreages ranging from below 1 percent (O.72%) for maize to 35% for Aman crop and they are grown at different times of the crop year. While Aman, Boro and Aus are grown throughout the country, other crops are not grown so widely. Furthermore, cultivation of some minor crops is rare and localized. They grow heavily in some places and do not grow at all in other places of the country. Estimates at sub-national level, say at divisional level, for such minor crops became difficult.

2.1.5 Sample Size Determination

The total acreages and the percentages of acreages of these crops obtained from Sample Survey of Agriculture, 2005 are shown in Statement-I (See Annex- B). The gross cropped area in the country is 299, 90,170 acres as per the Sample Survey of Agriculture, 2005. Using these percentages of acreage of these crops in the country, the minimum sample size for each of these crops is determined in statement-1 applying the following equation which is popularly used for determination of sample size with error and confidence level 95%:

$$n = \frac{pq(1.96)^2}{e^2}$$

Where,

P= Proportion of a crop to total gross cropped area

q=1-p

e= Error level (5% error level is used in this case)

If the survey was conducted for each crop separately drawing the sample from the national frame of the crop all over the country, the sample size (n) as shown in statement-1 would be sufficient to provide cost estimate of the crop with 95% confidence level for the country as a whole. But if divisional estimate is necessary for the crops, n should be 6 times more than the national estimate as given in the statement to conduct the survey for the crop at divisional level. If the samples are drawn independently for each crop then they are likely to be distributed in many Upazilas all over the country resulting higher cost for both increasing man power and traveling distance. With the objective of reducing cost of the survey, the sample is drawn for one crop namely, oil seeds which is distributed almost throughout the country, where n=103. The minimum sample number required for all divisions is (103 X 6) 618 farms growing oil seeds.

2.1.6 Selection Procedure

If divisional estimates are required for all crops, it is pre-determined that primary sampling units (PSUs) i.e. Upazilas should be selected from 64 districts. It is also decided that at least 100 Mouzas/Eas (Enumeration Area) as Secondary Sampling Units should be selected from 64 districts. The selected Mouzas/EAs will consist of about 250 households.

The farm households growing the particular crop are the ultimate sampling unit in the survey. All farm households growing the particular crop in the selected Mouzas/EAs have been interviewed in the survey.

A total of 100 Upazilas have been selected randomly from 64 districts. At first 64 Upazilas having minor crop oil seeds are selected from 64 districts and then the remaining 36 Upazilas have been selected from the districts having higher number of Upazilas growing the particular crops excluding Chittagong hill districts. One Mouza/EA have been selected from each of the 100 selected Upazilas having the highest acreage of the particular crop (oil seeds) and the selection has been made at the Upazila headquarter since the sampling frame of Mouza having a particular crop is available at the Upazila level. These 100 upazilas have been used for all other 9 crops and the same Mouzas/EAs selected for minor crops such as oil seeds are taken as the sample Mouza/EAs. All the farm households with 0.05 acres of land growing these crops in the selected mouza/EA have been interviewed in the survey. The expected number of farm households that might have been interviewed for each of these crops is shown in Statement-I (see annexure- B).

2.2. Data Collection: its whole process

As data collection has a noteworthy impact on the quality of survey results, it is treated as a significant part of survey. Considering its importance, the following measures have been taken during the preparation of questionnaire as the tool of data collection:

- Brain-storming activity has been carried out by the members responsible for developing the questionnaire going to the field again and again in order to design a good questionnaire. They have thoroughly discussed most of the issues relating to the production and the cost of production of Pulses with the farmer.
- Questionnaire has been pre-tested;
- Comprehensive manual of data collection with clearly defined concepts and definitions have been made;
- Training programme for the enumerators and supervisors has been conducted;
- Required number of enumerator in order to ensure smooth data collection has been set up;
- To take extra-care to the data collection activity, sufficient number of supervisors has been occupied.

2.2.1 Questionnaire Design:

A questionnaire is a powerful evaluation tool that allows the collection of data through the use of multi-dimensional questions. A questionnaire written without a clear goal and purpose is inevitably going to overlook important issues and waste enumerators' as well as respondents' time by asking and responding useless questions. All these matters have been tried to address to the extent possible in case of developing the questionnaire for this survey.

2.2.2 Process of questionnaire design

A sub-committee comprising of eight members- all from the different Wings of Bangladesh Bureau of Statistics (BBS) – have been formed in order to facilitate the questionnaire development activity. Project Director, Advisor and some other members of the sub-committee have paid several visits to the field with a view to being acknowledged what are the factors of production and the pros and cons of the whole process of the production of Pulses as well. They discuss the matter with the farmers who grow Pulses. After having the knowledge on the issue, they have placed the feedback to the meeting of the sub-committee. Sub-committee have thoroughly examined the feedback and selected the topics of the survey. Project Director and Advisor have been assigned to form a questionnaire on the selected topics and eventually, they have developed a questionnaire with seven questions. Subsequently the questionnaire has been brought forward to the Technical Committee, the highest statistical body, which has finally approved the questionnaire.

2.2.3 Pre-testing the questionnaire

The questionnaire has been pre-tested to examine the time necessitated to complete the interview, test the reliability i.e. whether it capture the information desired, and also investigate the consistency whether the information gathered by it is related to the whole purpose of the survey. The test has also been targeted to check the logistics required for successful operation of the survey.

In order to ensure the best performance of the questionnaire in respect of data collection, processing and analyzing, the pre-testing has been carried out almost two months before

the survey at rural area of Tangail District and Savar- an Upzila belonging to Dhaka district. A group including Project Director, Advisor, some members of the sub-committee had gone to the mentioned two places to take part in testing the questionnaire. They have chosen some of the farmer at random as the respondent. The farmers have helped the team cordially and wanted to know whether they would be benefited in any way. However it was a very successful programme.

2.2.4 Findings of the Pre-test

Depending on the findings of the pretest, modifications to the questionnaire have been made in the structure and wording of the questionnaire. It has also taken care of semblance of the question, that is, the meaning and clarity which yields the intended information from the respondent. Furthermore, considerable amendment has also taken place in the enumerator's manual in view of ensuring proper questionnaire administration.

After pre-testing some significant suggestions from the respective team have been made, which had been eventually adopted properly in the final questionnaire. During the pre-test, it has been found that farmers, the respondents do not feel comfortable to respond to the questions relating to the total area of the land under Pulses crop as they have cultivated it in many plots. Considering the fact, the structure of the questionnaire significantly changed. Deleting the aggregate area in a single row, the new concept, area by plot in seven rows has been incorporated.

2.2.5 Finalization of the Questionnaire

After addressing all the changes following the recommendations evolved from the pre-test, the questionnaire has been placed to the Technical Committee. The committee also put notable contribution to the questionnaire. Eventually, the questionnaire has been finalized by the approval of the Technical Committee.

2.2.6 Data collection:

Training of the Master Trainers (Division and Regional Coordinator) and Enumerators: Training has been arranged in two phases in order to make the master trainers and enumerators perfectly conceptualized with the concepts and definitions of each word of the questionnaire as well as to convey the proper way of data collection. At

the first stage, two days training programme conducted by the Project Director and Advisor has been arranged at the head office of BBS in Dhaka. At the first day the participants receive rigorous training on the concepts, definitions and the questionnaire and in the next day they have gone to the rural area of Savar Upzila with a view to having hands-on exercise on the questionnaire. In the second phase, enumerators have been trained for two days by the master trainers at the Regional Statistical Offices (RSOs) following the same sequence as the training arranged at the first phase. At first, enumerators receive training on the questionnaire and in the next day they also visit field at remote area of the respective region in order to have experience on hand. However, most of the trainees- both master trainers and enumerators- actively participated in the training and also made some suggestions which were subsequently taken into consideration.

2.2.7 Method of Data Collection: Face to face interview has been carried out following Paper and Pencil (PAPI) method.

2.2.8 Data Collection and Supervision: Data collection has been taken place during May 2009 at the homestead of the household. Usually the respondents are the head of household. The total of 100 enumerators, who are the employees of BBS and have proven experience in this field, have been engaged in data collection from the household and the total of 28 supervising officer named Regional Coordinators are responsible for supervising the data collection task. All supervising officers have been directed to stay at the respective region during the period of data collection so that they can extensively supervise data collection task and address instantly any untoward problem arising during data collection. Three divisional coordinators including Project Director are also responsible to oversee all activities at field level relating to data collection. Furthermore, all possible measures have been taken to have a good quality of data.

2.2.9. Data Editing and Coding:

Data editing and coding are another vital phases of the survey, which is indispensable for data processing. It should be completed before data processing. In case of this survey

coding has been done along with questionnaire development so that the enumerator can easily and accurately mark the right answers.

Data editing refers the activity of checking and cleaning data that have already been collected from the field. A group of experienced staff from Agriculture Wing under the supervision of two officers from the same wing have carried out the work of data editing with careful attention.

2.3 Data Processing:

Data processing involves many steps that are very important because it affects survey results very badly. During data processing following steps have been followed.

- Data entry
- Appending and Merging files
- Data validation (further checking, editing, and imputation)
- Final decision on errors
- Completion of data processing and generation of data files
- Final documentations
- Conversion of data files to another software.
- Storage of all files

Data Entry:

1. Software Used: Five software named CSPro, Foxpro, Oracle (SQL), SPSS and Excel have been used for processing the survey data. CSPro have been used for data entry, Foxpro also for editing, Oracle for tabulation, SPSS for data analysis and Excel for printing output.

2. Designing Data Entry Application: The first thing to do was to create the data dictionary based on the questionnaire. The data dictionary has consisted of ID items, records, items of the records, and also values of the items. Logic check has also maintained to avoid errors of inconsistency. After finishing the data dictionary, the data entry forms have been developed depending on data dictionary. After that, the data entry form are tested and, therefore, readily available for use.

3. Data capturing and Preliminary Validation

Just after the completion of data editing manually, data have been captured in computer. During data capturing, a variety of common errors have been identified. As a result data have been checked and cross checked with questionnaire depending on error message. During data processing, the appropriate corrective methodologies mentioned below have been used to ensure clean data.

- **Wrong data and out of range codes:** Firstly, the data collection instrument restricts the enumerator to a set of codes within the acceptable range for most of the questions. Secondly, the values have been set for avoiding wild codes for most of the questions. For example, the code for ownership of land has been set 1 to 5.
- **Inconsistency checking:** It has been done during designing the data entry program to avoid errors and inconsistency.
- **Treatment of Missing values:** The data entry program has been designed not to allow blanks that ensure not having missing values in the data.
- **Incomplete records and dropped cases.** The data entry program has designed to accept the complete data case; otherwise, it would not be saved. This has been set to avoid incomplete records and dropped cases.
- **Duplication of entries.** The data entry program has been designed in view of rejecting duplication of entries based on the identifiers.

4. Appending and Merging files: After data entry, files have properly been appended and merged in order to bring all data in a single file.

5. Data Validation: Validation has been accomplished after appending and merging files by checking the number of variables, the cases, wild codes, missing value and consistency. It has also done to make sure that the number of variables generated matched with the number of variables in the data set.

6. **Final decision on errors:** If there has been found any error during data validation, it is checked and rechecked; and sometimes it has been sent back to the survey authority to decide how it would be treated.

7. Completion of data processing and generation of data file: Addressing the final decision on error, data processing task have been completed and generated a data file which contains micro data.

8. Data preservation: After completion of processing, data have been stored in ASCII format. The data have also been converted to Microsoft Excel format in order to have the print out. Both original and new format have been preserved. The questionnaires have also filed for safe storage. A copy of the data set put forward to the survey authority for tabulation and analysis.

2.4 Tabulation:

Twelve tables focusing on the vital components such as total number of labours engaged in production of Pulses, cost of land preparation, seeds used and their price, fertilizer used and their price, cost of insecticides, cost of production by phases etc. have been generated. All these tables have been given at the part of analysis and annexure.

2.5 Data Analysis and Dissemination:

Survey results have been analysed in tabular form. Major variable is explained vertically (columns) and cross tabulation by another related variable(s) horizontally. In the analysis, it has been described the variation of the magnitude of the major variables by division. Many aspects of production and the cost of production of Pulses have also been explained nationally.

The final report has been disseminated both in electronic form and hard copy as book. Results are available in the website of BBS. Some data may also be published in other publications of BBS such as Statistical Year Book of Bangladesh, Year Book of Agriculture Statistics of Bangladesh, and Monthly Statistical Bulletin etc.

Chapter-III

Statistical findings

Statistical findings

Various components are used in different stages of growing a crop from sowing to harvesting. This chapter deals with the cost related components of production of Pulses crop namely-Lentil(Masur), Green gram(Moog) and Vetch(Khesari) . The components involved are i) land tenureship such as own, share cropping, mortgage, lease and others, ii) labourers employed by phase such as land preparation, sowing, weeding, harvesting etc iii) use of seeds , fertilizers, pesticides, irrigation etc. iv) Production cost and v) productivity etc.

Pulses producing households (HHs) in the sample area:

24625 sample households (HHs) were under the survey purview across the country, of which only 1496 HHs were involved in Pulses cultivation. The table reveals that only 6.08% of HHs at national level cultivated Pulses indicating that a very small proportion of farmers grow the crop in the country.

Table-3.1: Total number of PSU, SSU, USU (HHS) & number of Pulses producing households (HHs):

Division	PSU	SSU	USU(HHs)	HHS producing Pulses	% of HHs producing Pulses
Barisal	9	9	2250	307	13.64
Chittagang	16	16	3625	173	4.77
Dhaka	25	25	6250	250	4.00
Khulna	16	16	4000	384	9.60
Rajshahi	28	28	7000	382	5.46
Sylhet	6	6	1500	0	0.00
Bangladesh	100	100	24625	1496	6.08

Distribution of sample and percentage of households growing Pulses by division are shown in the above table. The table shows absence of cultivation of pulse in the sample areas of Sylhet division. The table also shows that the highest percentage (13.64)% of households growing pulse is in Barisal division and the lowest percentage (4%) is in Dhaka division. A considerable percentage of households (9.6%)grow pulses in Khulna division followed by Rajshahi (5.46%)and Chittagong (4.77%)divisions.

Area under Pulses in the sample area:

Table-3.2(a): Area (acres) covered in the sample area under the crop by variety and by division.

Variety of Pulses	Division						
	Barisal	Chittagang	Dhaka	Khulna	Rajshahi	Sylhet	Total
Lentil (Masur)	14.04 (2.10)	17.46 (2.62)	39.63 (5.94)	67.42 (10.11)	91.28 (13.69)	-	229.83 (34.48)
Green gram (Moog)	55.85 (8.38)	31.24 (4.69)	7.77 (1.17)	6.84 (1.03)	46.78 (7.02)	-	148.48 (22.27)
Vetch (khesari)	117.62 (17.64)	31.61 (4.74)	62.23 (9.34)	54.30 (8.15)	22.55 (3.39)	-	288.31 (43.25)
Total	187.51 (28.12)	80.31 (12.05)	109.63 (16.45)	128.56 (19.29)	160.61 (24.00)	-	666.62 (100.00)

Figures in parenthesis are the percentages of the total.

It is noticed that the cultivation of Pulses in the sample areas is found maximum (28.12%) in Barisal division and minimum in Chittagang (12.05%) division. Cultivation of pulses in other divisions is almost uniformly distributed - Rajshahi(24%), Khulna(19%) and Dhaka(16%) which is however absent in Sylhet division. Cultivation of Vetch is found maximum (42.25%) followed by Lentil (34.48%) and Green gram (25.27%). Total sample area (acres) under the Pulses by variety are displayed in the ber diagram below:

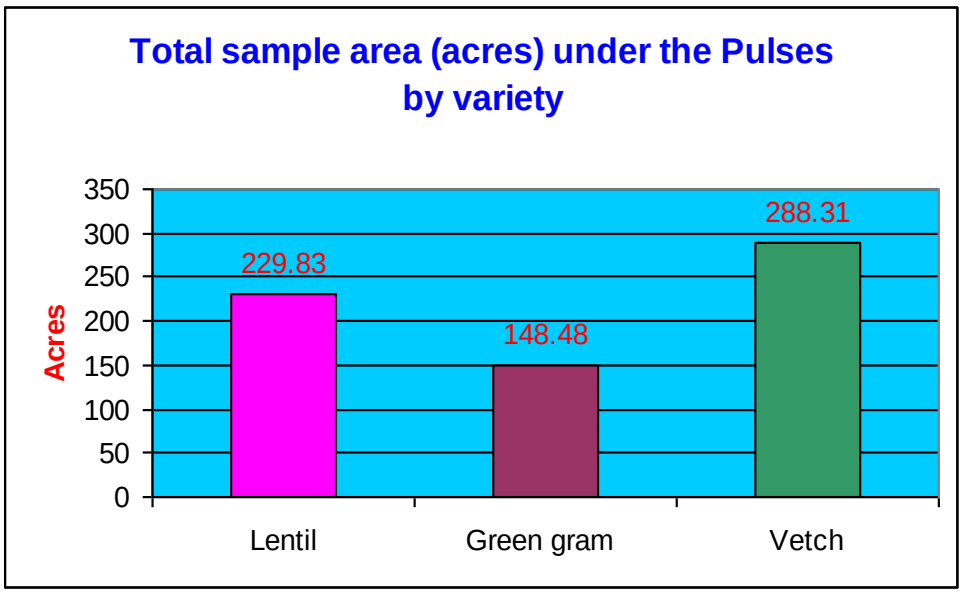
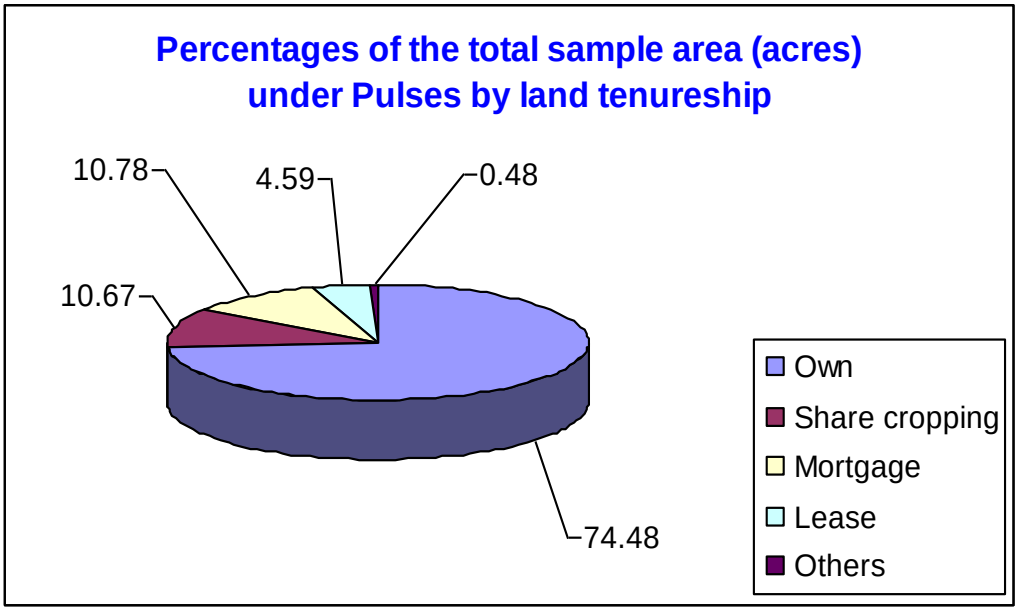


Table-3.2(b): Area (acres) covered in the sample area under the crop by tenure ship.

Variety of Pulses	Tenure ship					Total
	Own	Share	Mortgage	Lease	Others	
Lentil	197.52 (29.63)	15.60 (2.34)	11.76 (1.76)	4.95 (0.74)	-	229.83 (34.48)
Green gram	95.52 (14.33)	17.96 (2.69)	18.57 (2.79)	16.43 (2.46)	-	148.48 (22.27)
Vetch	196.81 (29.52)	37.56 (5.63)	41.52 (6.23)	9.25 (1.39)	3.17 (0.48)	288.31 (43.25)
Total	489.85 (73.48)	71.12 (10.67)	71.85 (10.78)	30.63 (4.59)	3.17 (0.48)	666.62 (100.00)

Figures in parenthesis are the percentages of the total.

The table discloses that farmers cultivated pulses in large part (73.5%) in their own lands followed by mortgaged (10.8%), share cropping (10.7%) and lease(4.6%). Percentages of the total sample area (acres) under Pulses by land tenureship are shown in the Pi-chart below:



Land preparation:

Land is prepared first for the sowing of the crop by tilling either by power tiller or by country plough. Per acre land preparation cost of Pulses are shown in the table below by size of land planted.

Table-3.3: Per acre land preparation cost of Pulses by size of land planted

(Fig in Tk)

Size of land Planted(acres)	Combined	Variety of Pulses			Tenureship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	1103	1390	1562	228	1162	980
0.05 - 0.49	1051	1395	1733	224	1109	848
0.50 - 0.99	987	1455	1593	323	997	958
1.00 - 1.49	918	1586	1513	239	983	693
1.50 - 2.49	804	1596	1658	-	831	780
2.50 - 4.99	-	-	-	-	-	-
5.00 - 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-
Average	974	1451	1670	235	831	840

Note: Others include share cropping, mortgage, lease & others

The table presents per acre land preparation cost by type of Pulses and by type of land tenure. It shows that per acre land preparation cost is Tk 1451, Tk 1670 and Tk 235 for Lentil, Green gram and Vetch respectively. For the 3 varieties combined it stands at Tk 974 and by tenureship it is Tk 831 for own type land and Tk 840 for others, indicating that the costs are almost the same. In case of Vetch, tilling of lands is not needed.

Seeds:

After the preparation of lands, seeds are sown. Per acre cost of seeds used and sowing of seeds are furnished in the table below by size of land planted.

Table-3.4: Per acre seed and seed related cost of Pulses by size of land planted

(Fig in Tk)

Size of land planted(acres)	Combined	Variety of Pulses			Tenureship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	1300	1680	962	1375	1395	1100
0.05 - 0.49	1372	1597	971	1365	1384	1329
0.50 - 0.99	1351	1445	1032	1428	1356	1338
1.00 - 1.49	1384	1642	1087	1386	1431	1213
1.50 - 2.49	1221	1404	1030	1269	1304	1149
2.50 - 4.99	1277	-	-	1277	1535	1036
5.00 - 7.49	-	-	-	-	-	-
7.50 +	-	--	-	-	-	-
Average	1350	1541	1012	1370	1378	1272

Note: Others include share cropping, mortgage, lease & others

Per acre cost of seeds of Lentil , Green gram and Vetch are Tk 1541, Tk 1012 and Tk 1370 respectively. It is Tk 1350 for the 3 varieties combined and by tenure ship it stands at Tk 1378 for own type and Tk1272 for others.

Irrigation, pesticides:

Application of irrigation is needed for well growth of the crop. Plants are sometimes attacked by pests when pesticides are applied. Per acre cost of irrigation and pesticides are given in the table below.

Table-3.5: Per acre irrigation, insecticide & others cost of Pulses by size of land planted,

(Fig in Tk)

Size of land planted (acres)	Combined	Variety of Pulses			Tenureship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	174	180	277	-	257	106
0.05 - 0.49	134	175	276	-	142	93
0.50 - 0.99	124	183	254	-	135	19
1.00 - 1.49	95	150	254	-	115	84
1.50 - 2.49	86	130	289	-	86	-
2.50 - 4.99	-	-	-	-	-	-
5.00 - 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-
Average	119	175	268	-	129	91

It is seen from the table that per acre total cost of irrigation, pesticides and others for two varieties combined is Tk 119 and by tenureship it is Tk 129 for own type of land and Tk 91 for others. For Lentil and green gram these values are Tk 175, and Tk 268 respectively. Here, it is mentionable that, there is no need for irrigation and pesticides and others cost for Vetch.

Fertilizer:

To harvest a good crop both organic and inorganic fertilizers are used. Naturally farmers have to invest a good amount of money for the said inputs, which are shown below by size of land planted with by variety and land tenureship.

Table-3.6: Per acre fertilizer cost of Pulses by size of land planted.

(Fig in Tk)

Size of land planted(acres)	Combined	Variety of Pulses			Tenure ship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	414	580	300	250	414	412
0.05 - 0.49	511	699	281	194	535	267
0.50 - 0.99	513	757	216	115	606	375
1.00 - 1.49	372	630	379	140	371	154
1.50 - 2.49	325	826	173	-	325	-
2.50 - 4.99	-	-	-	-	-	-
5.00 - 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-
Average	475	735	255	160	541	289

Note: Others include share cropping, mortgage, lease & others

It is noticed from the table that per acre total cost of all size of land planted under the crops for the utilization of fertilizer are Lentil Tk 735, Green gram Tk 255 and khessri Tk 160 and combined average of these three varieties is Tk 475. The table reveals that farmers spend more money for fertilizer for Lentil than Green gram and Vetch. It is further noticed from the table that per acre expenditure of this input is substantially more in case of 0.05-0.49 and 0.50-0.99 size of land planted.

By tenureship of land per acre total cost of this input is Tk 541 for own type of land and Tk 289 for others type.

Harvesting:

When seeds are matured the crops are harvested. Costs involve in harvesting. Per acre harvesting cost as obtained in the survey furnished in the table below:

Table-3.7: Per acre harvesting cost of Pulses by size of land planted,

(Fig in Tk)

Size of land planted (acres)	Combined	Variety of Pulses			Tenure ship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	1223	1550	1031	1125	1310	1040
0.05 - 0.49	1259	1302	1325	1171	1254	1279
0.50 - 0.99	1174	1225	1193	1112	1210	1072
1.00 - 1.49	1103	1110	1296	1020	1162	885
1.50 - 2.49	1106	1190	1169	1009	1019	1014
2.50 - 4.99	974	-	-	974	1000	900
5.00 - 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-
Average	1184	1253	1238	1100	1208	1115

Note: Others include share cropping, mortgage, lease & others

It is observed from the above table that per acre harvesting cost of Lentil , Green gram and Vetch are Tk 1253,Tk 1238 and Tk 1100 respectively. and for the 3 varieties combined it is Tk 1184. The figures show that per acre harvesting cost of Vetch is lower than those of Lentil and Green gram. Harvesting cost of Lentil and Green gram is almost the same.

Thrashing:

After thrashing seeds are taken out. Some labourers are needed for this purpose. Per acre thrashing cost of seeds by land size planted and by tenurship are presented below.

Table-3.8: Per acre thrashing and others cost of Pulses by size of land planted.

(Fig in Tk)

Size of land planted (acres)	Combined	Variety of Pulses			Tenure ship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	1004	950	1169	800	957	1100
0.05 - 0.49	1046	1091	1057	989	1058	1003
0.50 - 0.99	859	935	979	716	887	778
1.00 - 1.49	778	937	997	612	817	633
1.50 - 2.49	724	1132	892	560	859	653
2.50 - 4.99	697			697	728	610
5.00 - 7.49	-	-	-	-	-	-
Average	902	1022	970	771	936	804

Note: Others include share cropping, mortgage, lease & others

The above table focuses that per acre thrashing of Lentil is as high as Tk 1022. For Green gram and Vetch costs are Tk 970 and Tk 771 respectively. Cost for the 3 varieties combined is Tk 902.

By land tenureship consideration, the cost is Tk 936 for own type of lands and is Tk 804 for 'others' type of lands. By land size of plots, the cost is higher for lower size plots and lower for higher size plots and is the highest for plots to 0.05-0.49 acres.

Per acre production:

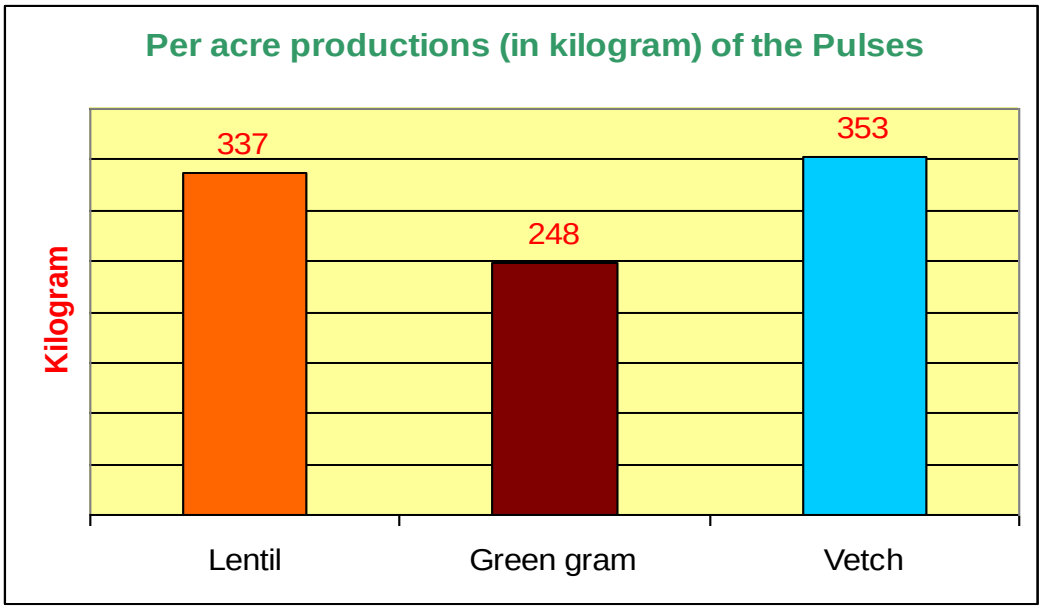
Table-3.9: Per acre production quantity (Kg) of Pulses by size of land planted

Size of land planted (acres)	Combined	Variety of Pulses			Tenure ship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	329	380	308	300	329	330
0.05 - 0.49	321	338	239	353	325	307
0.50 - 0.99	328	349	248	350	327	331
1.00 - 1.49	315	295	247	355	319	299
1.50 - 2.49	339	297	282	368	311	362
2.50 - 4.99	326	-	-	326	361	225
5.00 - 7.49	-	-	-	-	-	-
Average	324	337	248	353	324	324

Note: Others include share cropping, mortgage, lease & others

Per acre production of the 3 varieties combined has been derived as324 kilograms. Yield rates recorded by land size ranged from 315 kilograms to 339 kilograms. Yield rates are found highest for the crops of 1.50-2.49 acres land size. Per acre productions of Lentil, Green gram and Vetch are 337 kg, 248 kg and 353 respectively. The table shows that per

acre production of own type of lands and others are the same (324 Kg.). Per acre productions (in kilogram) of the Pulses are shown in the diagram below:



Per acre production cost:

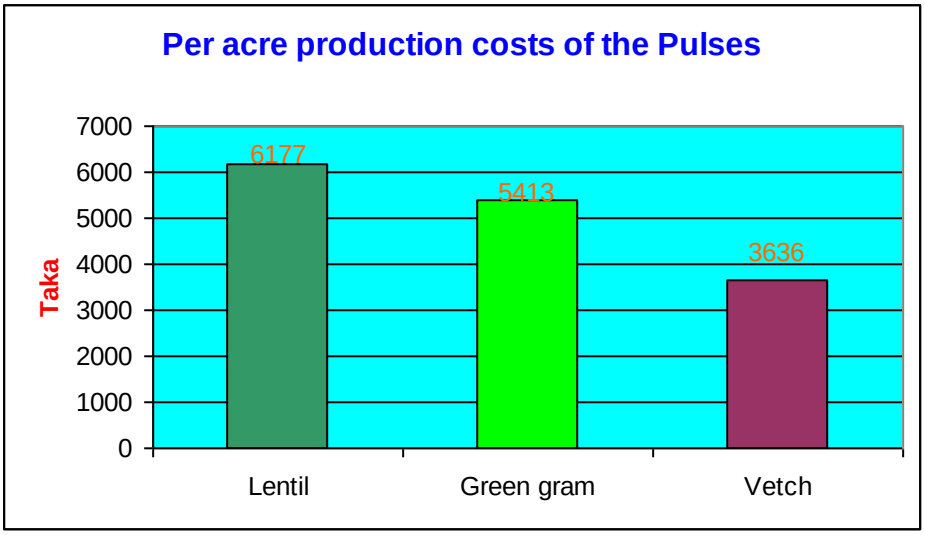
Costs of all components which are needed at different stages of the crop are added for getting per acre total costs. The table computed is as under.

Table-3.10: Per acre production cost by size of land planted of Pulses, 2008-09

Size of land planted(acres)	Combined	Variety of Pulses			Tenure ship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	5118	6330	5301	3778	5495	4738
0.05 - 0.49	5373	6259	5643	3754	5482	4819
0.50 - 0.99	5068	6000	5267	3739	5191	4540
1.00 - 1.49	4650	6054	5526	3372	4879	3682
1.50 - 2.49	4176	6278	5361	2978	4769	3596
2.50 - 4.99	2948			2948	3263	2546
5.00 - 7.49	-	-	-	-	-	-
Average	5004	6177	5413	3636	5214	4411

Note: Others include share cropping, mortgage, lease & others

It is seen from the table that per acre production costs of Lentil , Green gram and Vetch are Tk 6177, Tk 5413 and Tk 3636 respectively and combined per acre production cost of these three varieties is Tk 5004. In terms of size of land planted, 2.50-4.99 acre land size cost is found minimum (Tk 2948) and for the size of land planted 0.05-0.49 acres the cost is maximum (Tk 5373). Per acre production costs of the Pulses are displayed in the bar diagram:



By tenure ship point of view, per acre production cost of own type of land is less at Tk 3263 and for the size of land planted 2.50-4.99 acres, the cost is the highest (Tk 5495). Per acre production cost of 'others' type of land is lower (Tk 4411) than that of own type (Tk 5214)

Per acre production value:

Per acre productions of the three varieties Lentil, Green gram and Vetch by size of land planted are furnished below.

Table-3.11: Per acre production value by size of land planted of Pulses, 2008-09

(Fig in Tk)

Size of land planted (acres)	Combined	Variety of Pulses			Tenure ship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	16258	23550	14269	10375	16905	14900
0.05 - 0.49	14662	20056	10438	11169	15284	12456
0.50 - 0.99	14503	20498	11139	10324	15021	13000
1.00 - 1.49	13269	19012	11874	11103	14109	10133
1.50 - 2.49	11683	18869	12295	10332	11807	11580
2.50 - 4.99	8461	-	-	8461	9306	6030
5.00 - 7.49	-	-	-	-	-	-
Average	14051	20088	11058	10778	14741	12124

Note: Others include share cropping, mortgage, lease & others

It is observed from the table that per acre production value of the three Pulses crop combined is Tk 14051. Per acre production values of the three crops are Tk 20088, Tk 11058 and Tk 10778 for Lentil , Green gram and Vetch respectively. Per acre production value of Lentil is registered the highest at Tk.20,088.

By analyzing the figures of tenure ship, per acre production value of own type of lands is higher at Tk 14741 than that for others type of lands (Tk 12124).Per acre production below varied inversely with the plot size. As the plot size increased, the production value decreased from Tk. 16,258 for plot size <=0.04 to Tk.8461 for plot size 2.502-4.99 acres.

Table-3.12 Per Kg. production cost and production value of pulses by type.

Type	Per Kg. production of (in Tk.)	Per Kg. production value in (Tk.)
Lentil	18.33	59.61
Green gram	21.83	44.59
Vetch	10.30	30.53
Total/Average	15.44	43.37

Productivity:

Table-3.13: Per acre productivity of Pulses by type

Variety	Production cost (in Tk)	Production value (in Tk)	Productivity
Lentil	6177	20088	3.25
Green gram	5413	11058	2.04
Vetch	3636	10778	2.96
Combined average	5004	14051	2.81

Figures in the table expose that cultivation of Pulses is profitable. Productivity of Lentil (3.25), Green gram (2.04) and Vetch (2.96) are substantially high and definitely farmers will continue the production of the crops.

Table-3.14: Per acre productivity of Pulses by land tenureship

Tenure ship	Production cost (in Tk)	Production value (in Tk)	Productivity
Own land	5214	14741	2.83
Other's land	4411	12124	2.75
Combined average	5004	14051	2.81

By tenureship consideration, productivity of Pulses in 'others' type of land is 2.75 and it is 2.83 for 'own' type of land. For all types, cultivation of Pulses is highly profitable.

Table-3.15: Number of plots by tenureship and by size of land planted

Fig. in number

Size of land planted(acres)	Land tenureship					Total
	Own	Share	Mortgage	Lease	Others	
<= 0.04	6	2	1	0	0	9
0.05 - 0.49	980	125	77	60	2	1244
0.50 - 0.99	249	33	35	17	3	337
1.00 - 1.49	58	9	4	3	1	75
1.50 - 2.49	18	4	14	2	0	38
2.50 - 4.99	2	1				3
5.00 - 7.49	-	-	-	-	-	-
Average	1313	174	131	82	6	1706

From the above table, it is seen that number of plots is found maximum (1244) i.e. the highest 73% in the 0.05-0.49 acres size of land planted, of which own type of land shares the highest(78.8%). Total number of plots over the country under the sample area is 1706 and own type of lands is registered as 1313, which represent 77% of the total. No cultivation of Pulses over 5 acres of land planted is seen in the table.

Area covered by tenureship:

Table-3.16: Area (acres) covered in sample by type of land tenure ship and by size of land planted

(Fig in acres)

Size of land planted (acres)	Land tenure ship					Total
	Own	Share	Mortgage	Lease	Others	
<= 0.04	0.21	0.06	0.04	0.00	0.00	0.31
0.05 - 0.49	225.93	31.83	19.57	12.54	0.37	290.24
0.50 - 0.99	160.46	20.12	22.43	10.79	1.80	215.60
1.00 - 1.49	64.40	9.95	4.77	3.00	1.00	83.12
1.50 - 2.49	31.65	6.66	25.04	4.30	0.00	67.65
2.50 - 4.99	7.20	2.50	0.00	0.00	0.00	9.70
5.00 - 7.49	-	-	-	-	-	-
Average	489.85	71.12	71.85	3.63	3.17	666.62

It is depicted from the table that total area of 666.62 acres were covered under the crops- Lentil , Green gram and Vetch . Of the total, own type of land shares 489.85 acres which represents 76%. On the other hand, 65 % of the land were cultivated under the crops in the size of land 0.05-0.99 acres.

Table-3.17: Number of plots by division and by size of land planted.

Size of land planted (acres)	Division						Total
	Barisal	Chittgong	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	1	2	2	2	2	-	9
0.05 - 0.49	332	135	216	301	260	-	1244
0.50 - 0.99	88	23	60	63	103	-	337
1.00 - 1.49	17	13	23	8	24	-	75
1.50 - 2.49	20	6	3	5	5	-	38
2.50 - 4.99	1	2	0	0	0	-	3
5.00 - 7.49	-	-	-	-	-	-	-
Average	459	181	294	379	393		1706

It is noticed in the table that total number of plots were recorded as 1706 in all size of lands planted; Barisal shares the maximum of(27%) followed by Rajshahi (23%), Kholna (22%), Dhaka (17%) and Chitagong (11%) and there is no plots found in Sylhet within the sample. Of the total plots planted, 1244 plots that is 73% of the plots are found in the class interval of 0.05-0.49 and the number of plots are more in all the divisions under these crops in this class interval.

Division wise area (acres) of Pulses:

Table-3.18: Division wise area in acres by size of land planted.

(Fig in Tk)

Size of land planted(acres)	Division						Total
	Barisal	Chittgong	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	0.04	0.06	0.06	0.08	0.07	-	0.31
0.05 - 0.49	73.21	33.17	51.35	69.99	62.64	-	290.24
0.50 - 0.99	57.66	15.77	37.35	41.31	63.51	-	215.60
1.00 - 1.49	18.24	14.61	14.73	8.53	27.01	-	83.12
1.50 - 2.49	35.16	10.20	6.26	8.65	7.38	-	67.65
2.50 - 4.99	3.20	6.50	0.00	0.00	0.00	-	9.70
5.00 - 7.49	-	-	-	-	-	-	-
Average	187.51	80.31	109.63	128.56	160.61	-	666.62

Table shows that out of total land planted (666.62 acres) under the crops, Barisal division shares the maximum area of 28% followed by Rajshahi division (24%), Khulna division (19%), Dhaka and Chitagong (12%). Minimum areas of 80.31acres are found in Chittagong division. Class interval of 0.05-0.49 acres holds the highest areas in all the divisions. No cultivation of these crops are seen in the class interval of 5.00-7.49 acres anywhere in the country. The table shows no area under cultivation of the in the sample area of Sylhet Division.

Number of labourers engaged in harvesting:

Table-3.19: Per acre number of labourers engaged in harvesting by size of land planted.

Land size of land planted	Combined	Variety of Pulses			Tenure ship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	13	13	12	14	14	11
0.05 - 0.49	11	12	11	11	11	9
0.50 - 0.99	10	11	11	10	10	9
1.00 - 1.49	9	9	9	10	10	9
1.50 - 2.49	9	10	10	9	9	8
2.50 - 4.99	8			8	9	8
5.00 - 7.49	-	-	-	-	-	-
Average	11	11	10	10	10	9

Note: Others include share cropping, mortgage, lease & others

The above table reveals that per acre number of labourers engaged in harvesting of the crops is seen 11. Number of labourers is found almost the same for all variety of crops which ranged from 8 to 14. Slightly higher number of labourers are recorded for smaller land size than the larger ones.

Table-3.20: Per acre number of labourer engaged in thrashing by size of land planted.

Size of land planted (acres)	Combined	Variety of Pulses			Tenure ship	
		Lentil	Green gram	Vetch	Own	Others
<= 0.04	10	9	10	8	10	10
0.05 - 0.49	8	7	8	8	8	7
0.50 - 0.99	6	6	7	7	6	5
1.00 - 1.49	6	6	7	6	6	5
1.50 - 2.49	5	6	6	5	5	5
2.50 - 4.99	5	-	-	5	5	4
5.00 - 7.49	-	-	-	-	-	-
Average	6	7	7	6	7	6

Note: Others include share cropping, mortgage, lease & others

Per acre number of labourers engaged in thrashing work for the three varieties combined is 6. It is clearly seen from the table that plants of lower lands size needs more labourers for thrashing purpose.

Major head wise per acre production cost of Pulses.

Per acre production costs of Lentil, Green gram and vetch by major heads are displayed in the tables 3.21, 3.22 and 3.23. It is to be mentioned here that non response of the information from the most farmers about the leasing value (land rental value) of the land for the cultivation of Pulses, it has not been possible to show per acre leasing value.

Table-3.21: Major head wise per acre production cost of lentil by size of land planted.

Size of land planted (Lentil)	Per acre production cost (Tk)					
	Land preparation	Seed & seed related	Insecticide, Irrigation & others	Fertilizer	Harvesting, thrashing, weeding & others	Total
<= 0.04	1390	1680	180	580	2500	6330
0.05 – 0.49	1395	1597	175	699	2393	6259
0.50 – 0.99	1455	1445	183	757	2160	6000
1.00 – 1.49	1585	1642	150	630	2047	6054
1.50 – 2.49	1596	1404	130	826	2322	6278
2.50 – 4.99	-	-	-	-	-	-
5.00 – 7.49	-	-	-	-	-	-
Average	1451	1541	175	735	2275	6177
Percentages	23.49	24.95	2.83	11.90	36.83	100

The table exposes that about 37% of the total production cost per acre of Lentil is spent for the work of harvesting, thrashing, weeding and others. Expenditure under the land preparation and seeds are about 24% and 25% respectively. Percentages of the major head wise per acre production cost of lentil is shown in the pie-chart below.

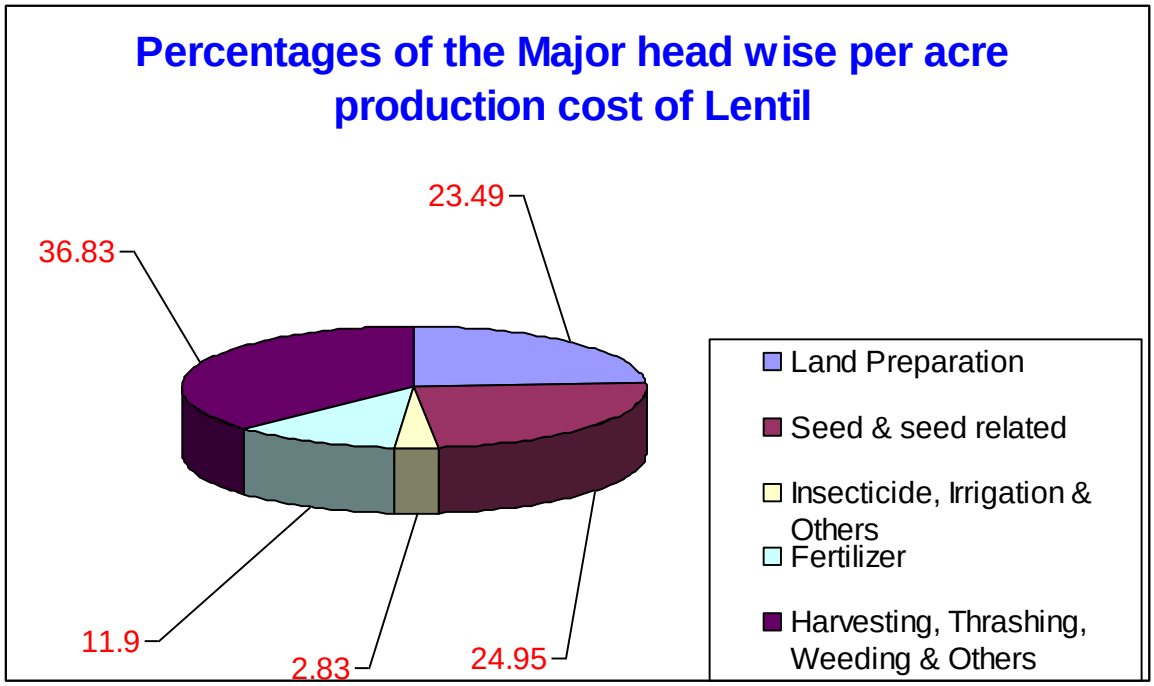


Table-3.22: Major head wise per acre production cost of green gram by size of land planted

Size of land planted (Green gram)	Per acre production cost (Tk)					
	Land preparation	Seed & seed related	Insecticide, Irrigation & others	Fertilizer	Harvesting, thrashing, weeding & others	Total
<= 0.04	1562	962	277	300	2200	5301
0.05 – 0.49	1733	971	276	281	2382	5643
0.50 – 0.99	1593	1032	254	216	2172	5267
1.00 – 1.49	1513	1087	254	379	2293	5526
1.50 – 2.49	1808	1030	289	173	2061	5361
2.50 – 4.99	-	-	-	-	-	-
5.00 – 7.49	-	-	-	-	-	-
Average	1670	1012	268	255	2208	5413
Percentages	30.85	18.70	4.95	4.71	40.79	100

It reveal from the table that as high as 41% of the total production cost per acre is incurred for harvesting, thrashing, weeding and others. per acre land preparation cost shows to be about 31%. Per acre seed and seed related cost is almost 19%. Per acre expenditures for insecticide,

irrigation and others and for fertilizer are about 5% each. Percentages of the major head wise per acre production cost of green gram is represented in the pie-chart below.

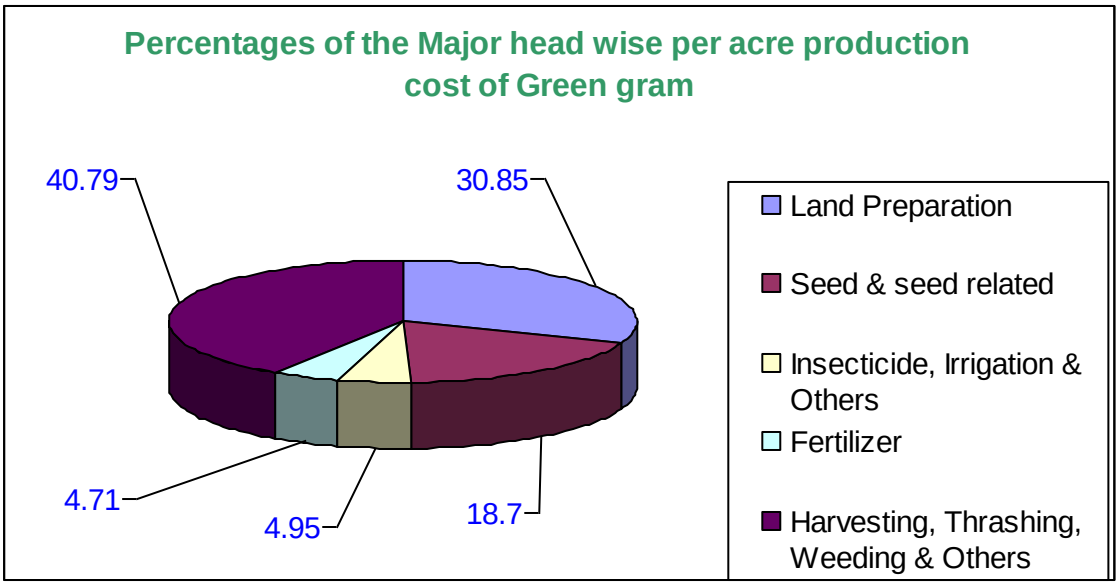
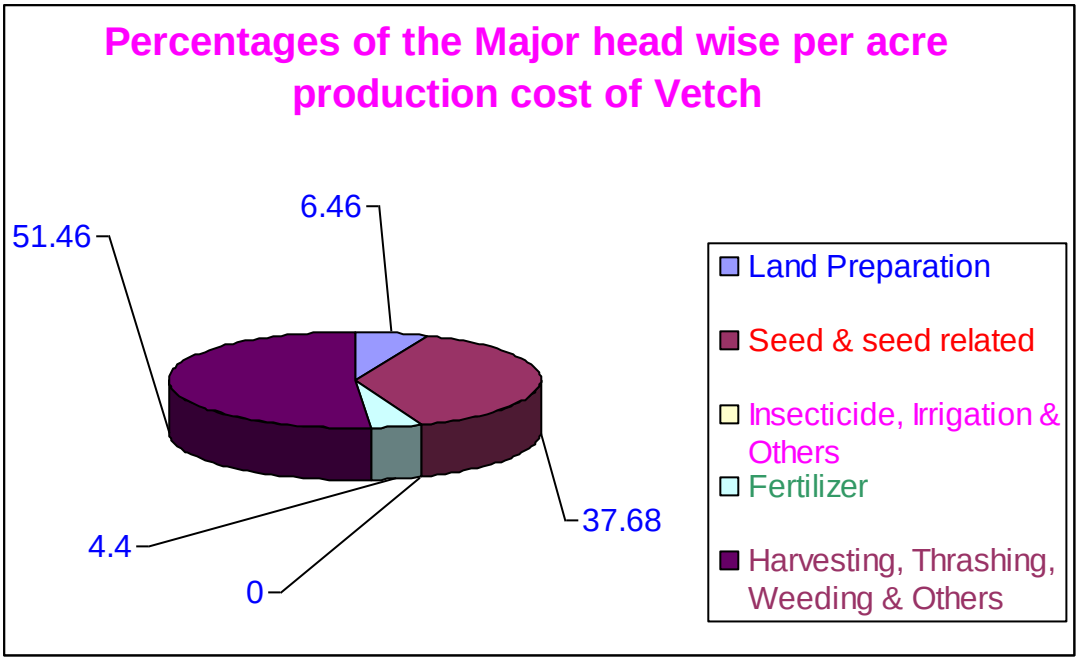


Table-3.23: Major head wise per acre production cost of vetch by size of land planted.

Size of land planted (Vetch)	Per acre production cost (Tk)					
	Land preparation	Seed & seed related	Insecticide, Irrigation & others	Fertilizer	Harvesting, thrashing, weeding & others	Total
<= 0.04	228	1375	0	250	1925	3778
0.05 – 0.49	224	1365	0	194	1971	3754
0.50 – 0.99	323	1428	0	160	1828	3739
1.00 – 1.49	239	1386	0	115	1632	3372
1.50 – 2.49	-	1269	0	140	1569	2978
2.50 – 4.99	-	1277	0	-	1501	2778
5.00 – 7.49	-	-	-	-	-	-
Average	235	1370	0	160	1871	3636
Percentages	6.46	37.68	0	4.40	51.46	100

It is seen from the table that maximum expenditure (about 52%) for per acre vetch production is needed for work of harvesting, thrashing, weeding and others. About 38% is spent for seed and seed related work. Per acre cost of and preparation and fertilizer are 6.46% and 4.40% respectively. Percentages of the major head wise per acre production cost of vetch is displayed in the pie-chart below.



3.24 Standard error and data reliability

Using the random group method the estimated variance of R has the following form

$$\text{Var}(R) = \frac{\sum_{g=1} (R_g - R)^2}{K(K-1)}$$

Where: R= the estimated average cost (land preparation /Seed, pesticide & irrigation / fertilizer/harvesting & others)

R_g= the estimated mean for the g^{th} random group

K = the number of random group

Table-3.24(a): Estimated average production cost (excluding leasing) per kg for the 2008-09 variety wise pulses and their standard errors

Variety of pulses	Total		Land preparation		Seed, pesticide & irrigation		Fertilizer		Harvesting & others	
	Cost	S.E	Cost	S.E	Cost	S.E	Cost	S.E	Cost	S.E
Lentil	18.32	0.01076	2.89	0.00651	5.09	0.00197	2.18	0.00155	6.75	0.00452
Green gram	21.82	0.00515	6.47	0.00389	5.16	0.00415	1.03	0.00389	8.90	0.00153
Vetch	10.30	0.00341	0.67	0.00097	3.85	0.00157	0.45	0.00024	5.30	0.00231
Combined	15.44	0.00320	3.01	0.00282	4.53	0.00161	1.47	0.00149	6.44	0.00120

From the above table- the average production cost per kg for lentil of 18.32 taka is significantly different from the 21.82 taka average production cost for green gram at 95% confidence level. Similarly the average production cost per kg for Green gram of 21.82 taka is significantly different from the average production cost of 10.30 taka for vetch at

95% confidence level. The average per Kg production cost for Green gram is more than double of vetch. Production cost for all estimates have acceptable reliability in terms of sampling error.

Table-3.24(b): Estimated average production cost (excluding leasing) per acre for the 2008- 09 variety wise pulses and their standard errors

Variety of pulses	Total		Land preparation		Seed, pesticide & irrigation		Fertilizer		Harvesting & thrashing	
	Cost	S.E	Cost	S.E	Cost	S.E	Cost	S.E	Cost	S.E
Lentil	6177	0.76056	1451	0.55785	1716	0.10664	735	0.13498	2275	0.24847
Green gram	5413	0.52186	1670	0.37681	1280	0.33138	255	0.36673	2208	0.20409
Vetch	3636	0.72857	235	0.56078	1370	0.18052	160	0.01789	1871	0.30121
Combined	5004	0.37648	974	0.17899	1469	0.23011	475	0.12397	2086	0.11442

The above table shows that the average per acre production cost for lentil of 6177 taka is significantly different from the 5413 taka average production cost for green gram at 95% confidence level. Similarly the average per acre production cost per acre of lentil is 6177 taka is significantly different from the 3636 taka average production cost for vetch at 95% confidence level.

However the estimated production cost per acre for green gram and vetch production cost are subject to higher standard errors than for lentil. Production cost for all estimates have acceptable reliability in terms of sampling error.

Chpter-IV

Statistical Table

Statistical Table

Table -4.1.A. Per acre land preparation cost of Pulses by size of land planted

(Fig in Tk)

Size of land Planted (combined)	Plough	Power tiller	Others	Total
<= 0.04	510	484	110	1103
0.05 - 0.49	265	696	91	1051
0.50 - 0.99	174	715	98	987
1.00 - 1.49	149	682	87	918
1.50 - 2.49	113	566	125	804
2.50 - 4.99				
5.00 - 7.49				
Average	202	677		974

Table 4.1B. Per acre land preparation cost of Pulses by size of land planted

(Fig in Tk)

Size of land planted (Lentil)	Plough	Power tiller	Others	Total
<= 0.04	500	750	140	1390
0.05 – 0.49	250	1025	119	1395
0.50 – 0.99	154	1130	171	1455
1.00 – 1.49	115	1310	160	1586
1.50 – 2.49	211	1221	164	1596
2.50 – 4.99				
5.00 – 7.49				
Average	213	1094	143	1451

Table-4.1C. Per acre land preparation cost of by size of land planted of Pulses, 2008-09

(Fig in Tk)

Size of land planted (Green gram)	Plough	Power tiller	Others	Total
<= 0.04	831	577	154	1562
0.05 – 0.49	661	954	119	1733
0.50 – 0.99	527	968	98	1593
1.00 – 1.49	513	847	153	1513
1.50 – 2.49	216	1287	155	1658
2.50 – 4.99				
5.00 – 7.49				
Average	549	982	138	1670

Table-4.1D Per acre land preparation cost by size of land planted of Pulses,2008-09

(Fig in Tk

Size of land planted (Vetch)	Plough	Power tiller	Others	Total
<= 0.04	30	157	42	228
0.05 - 0.49	10	187	28	224
0.50 - 0.99		301	21	323
1.00 - 1.49		191	49	239
1.50 - 2.49				
2.50 - 4.99				
5.00 - 7.49				
Average	14	187	34	235

Table-4.1E Per acre land preparation cost by size of land planted of Pulses,2008-09

(Fig in Tk)

Size of land planted (Own)	Plough	Power tiller	Others	Total
<= 0.04	524	476	162	1162
0.05 - 0.49	296	716	98	1109
0.50 - 0.99	186	703	106	997
1.00 - 1.49	161	723	98	983
1.50 - 2.49	223	433	176	831
2.50 - 4.99				
5.00 - 7.49				
Average	234	684	104	831

Table-4.1F. Per acre land preparation cost by size of land planted of Pulses,2008-09

(Fig in Tk

Size of land planted (Others)	Plough	Power tiller	Others	Total
<= 0.04	480	500		980
0.05 - 0.49	156	625	67	848
0.50 - 0.99	135	749	73	958
1.00 - 1.49	107	538	48	693
1.50 - 2.49	17	683	80	780
2.50 - 4.99				
5.00 - 7.49				
Average	114	658	69	840

Table-4.2A. Per acre used in seed and seed sowing cost by land size of Pulses, 2008-09

Size of land planted(Combined)	Seed		Seed sowing	Total
	Quantity	Tk.	Tk.	Tk.
<= 0.04	23	1090	210	1300
0.05 – 0.49	25	1255	117	1372
0.50 – 0.99	23	1260	91	1351
1.00 – 1.49	24	1297	87	1384
1.50 – 2.49	25	1161	60	1221
2.50 – 4.99	24	1212	65	1277
5.00 – 7.49				
Average	24	1251	88	1350

Table-4.2B. Per acre used in seed and seed sowing cost by land size of Pulses, 2008-09

Size of land planted (Lentil)	Seed		Seed sowing	Total
	Quantity	Tk.	Tk.	Tk.
<= 0.04	30	1580	100	1680
0.05 - 0.49	20	1488	109	1597
0.50 - 0.99	19	1385	60	1445
1.00 - 1.49	21	1611	31	1642
1.50 - 2.49	20	1370	34	1404
2.50 - 4.99				
5.00 - 7.49				
Average	20	1459	82	1541

Table-4.2C. Per acre used in seed and seed sowing cost by land size of Pulses, 2008-09

Size of land planted (Green gram)	Seed		Seed sowing Tk.	Total Tk.
	Quantity	Tk.		
<= 0.04	15	692	269	962
0.05 - 0.49	16	828	144	971
0.50 - 0.99	14	924	108	1032
1.00 - 1.49	13	999	88	1087
1.50 - 2.49	17	966	65	1030
2.50 - 4.99				
5.00 - 7.49				
Average	15	895	116	1012

Table-4.2D. Per acre used in seed and seed sowing cost by land size of Pulses, 2008-09

Size of land planted (Vetch)	Seed		Seed sowing	Total
	Quantity	Tk.	Tk.	Tk.
<= 0.04	25	1125	250	1375
0.05 - 0.49	35	1255	111	1365
0.50 - 0.99	32	1316	111	1428
1.00 - 1.49	31	1272	114	1386
1.50 - 2.49	28	1206	62	1269
2.50 - 4.99	24	1212	65	1277
5.00 - 7.49				
Average	32	1267	102	1370

Table-4.2E. Per acre used in seed and seed sowing cost by land size of Pulses, 2008-09

Size of land planted (Own)	Seed		Seed sowing	Total
	Quantity	Tk.	Tk.	Tk.
<= 0.04	24	1229	167	1395
0.05 – 0.49	26	1273	111	1384
0.50 – 0.99	23	1265	91	1356
1.00 – 1.49	24	1344	87	1431
1.50 – 2.49	24	1232	72	1304
2.50 – 4.99	24	1458	76	1535
5.00 – 7.49				
Average	25	1280	98	1378

Table-4.2F. Per acre used in seed and seed sowing cost by land size of Pulses, 2008-09

Size of land planted (Others)	Seed		Seed sowing	Total
	Quantity	Cost (Tk)	Tk.	Tk.
<= 0.04	20	800	300	1100
0.05 - 0.49	21	1189	140	1329
0.50 - 0.99	24	1246	91	1338
1.00 - 1.49	25	1124	89	1213
1.50 - 2.49	25	1099	50	1149
2.50 - 4.99	24	1004	32	1036
5.00 - 7.49				
Average	23	1172	99	1272

Table-4.3A. Per acre insecticide, irrigation and other cost by land size of Pulses, 2008-09

(Fig in Tk)

Size of land planted (Combined)	Insecticide	Irrigation	Others	Total
<= 0.04	97	58	19	174
0.05 - 0.49	78	36	20	134
0.50 - 0.99	75	38	11	124
1.00 - 1.49	68	24	2	95
1.50 - 2.49	83		3	86
2.50 - 4.99				
5.00 - 7.49				
Average	75	31	13	119

Table-4.3B. Per acre insecticide, irrigation and other cost by land size of Pulses, 2008-09

(Fig in Tk)

Size of land planted (Lentil)	Insecticide	Irrigation	Others	Total
<= 0.04	0	180	0	180
0.05 - 0.49	90	60	26	175
0.50 - 0.99	83	79	21	183
1.00 - 1.49	54	95	2	150
1.50 - 2.49	108	0	22	130
2.50 - 4.99				
5.00 - 7.49				
Average	85	68	22	175

Table-4.3C. Per acre insecticide, irrigation and other cost by land size of Pulses, 2008-09

(Fig in Tk)

Size of land planted (Green gram)	Insecticide	Irrigation	Others	Total
<= 0.04	231	0	46	277
0.05 - 0.49	183	50	43	276
0.50 - 0.99	203	39	13	254
1.00 - 1.49	246	0	8	254
1.50 - 2.49	287	0	3	289
2.50 - 4.99				
5.00 - 7.49				
Average	209	34	24	268

Table-4.3D. Per acre insecticide, irrigation and other cost by land size of Pulses, 2008-09

(Fig in Tk)

Size of land planted (Vetch)	Insecticide	Irrigation	Others	Total
<= 0.04				
0.05 - 0.49				
0.50 - 0.99				
1.00 - 1.49				
1.50 - 2.49				
2.50 - 4.99				
5.00 - 7.49				
Average				

Not applicable

Table-4.3E. Per acre insecticide, irrigation and other cost by land size of Pulses, 2008-09

(Fig in Tk)

Size of land planted (Own)	Insecticide	Irrigation	Others	Total
<= 0.04	143	86	29	257
0.05 – 0.49	86	35	22	142
0.50 – 0.99	81	41	14	135
1.00 – 1.49	82	31	3	115
1.50 – 2.49	82		4	86
2.50 – 4.99				
5.00 – 7.49				
Average	81	33	15	129

Table-4.3F. Per acre insecticide, irrigation & other cost by land size of Pulses, 2008-09

(Fig in Tk)

Size of land planted (others)	Insecticide	Irrigation	Others	Total
<= 0.04	0			
0.05 – 0.49	51	40	15	106
0.50 – 0.99	57	32	3	93
1.00 – 1.49	19			19
1.50 – 2.49	83		1	84
2.50 – 4.99				
5.00 – 7.49				
Average	60	25	7	91

Table-4.4A .Per acre quantity of fertilizer used (K.G.) and price by land size of Pulses,2008-09

Size of land planted (combined)	Urea		TSP		Organic		Others	Total
	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk	Tk	
<= 0.04	19	186	5	190	14	29	10	414
0.05 - 0.49	21	165	4	213	3	6	128	511
0.50 - 0.99	19	137	5	225	2	4	148	513
1.00 - 1.49	19	125	4	187	5	8	51	372
1.50 - 2.49	21	140	2	148	2	4	32	325
2.50 - 4.99								
5.00 - 7.49								
Average	20	149	4	206	3	6	114	475

Table-4.4B. Per acre quantity of fertilizer used (K.G.) and price (Tk) by land size of Pulses, 2008-09

Size of land planted (Lentil)	Urea		TSP		Organic		Others (Tk)	Total (Tk)
	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk		
<= 0.04	10	140	10	400	20	40	0	580
0.05 - 0.49	20	159	7	339	4	7	194	699
0.50 - 0.99	18	130	8	369	2	3	254	757
1.00 - 1.49	18	121	8	379	12	20	111	630
1.50 - 2.49	15	87	12	454	17	35	251	826
2.50 - 4.99								
5.00 - 7.49								
Average	19	143	7	376	4	8	208	735

Table-4.4C .Per acre quantity of fertilizer used (K.G.) and price (Tk) by land size of Pulses, 2008-09

Size of land planted (Green gram)	Urea		TSP		Organic		Others (Tk	Total (Tk)
	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk		
<= 0.04	33	167	0	0	33	67	67	300
0.05 - 0.49	20	140	1	55	7	13	73	281
0.50 - 0.99	20	126	2	74	6	10	6	216
1.00 - 1.49	25	169	4	186	0	0	24	379
1.50 - 2.49	23	173	0	0	0	0	0	173
2.50 - 4.99								
5.00 - 7.49								
Average	21	143	1	66	5	9	37	255

Table-4.4D. Per acre quantity of fertilizer used (K.G.) and price (Tk) by land size of Pulses, 2008-09

Size of land planted(Vetch)	Urea		TSP		Organic		Others (Tk)	Total (Tk)
	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk		
<= 0.04	25	250						250
0.05 - 0.49	25	194						194
0.50 - 0.99	20	160						115
1.00 - 1.49	17	115						140
1.50 - 2.49	22	140						
2.50 - 4.99								
5.00 - 7.49								
Average	22	160						160

Table-4.4E .Per acre quantity of fertilizer used (K.G.) and price (Tk) by land size of Pulses, 2008-09

Land size of land planted(Own)	Urea		TSP		Organic		Others (Tk)	Total (Tk)
	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk		
<= 0.04	19	186	5	190	14	28	10	414
0.05 - 0.49	21	160	5	232	3	6	137	535
0.50 - 0.99	19	133	6	285	2	4	185	606
1.00 - 1.49	19	128	4	181	4	6	57	371
1.50 - 2.49	17	133	5	266	7	14	101	492
2.50 - 4.99								
5.00 - 7.49								
Average	20	145		252	3	6	138	541

Table-4.4F. Per acre quantity of fertilizer used (K.G.) and price (Tk) by land size of Pulses, 2008-09

Land size of land planted(Others)	Urea		TSP		Organic		Others (Tk)	Total (Tk)
	Qty(Kg)	Price Tk	Qty(Kg)	Price Tk	Qty (Kg)	Price Tk		
<= 0.04	0	0	0	0	0	0	0	0
0.05 - 0.49	22	184	3	129	4	9	91	412
0.50 - 0.99	20	149	1	66	1	2	49	267
1.00 - 1.49	17	102	0	242	15	31	0	375
1.50 - 2.49	23	154	0	0	0	0	0	154
2.50 - 4.99								
5.00 - 7.49								
Average	21		2	77	3	5	47	289

Table-4.5A. Per acre harvesting cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (combined)	Number of labour			Total cost (Tk)
	Family	Hired	Total	
<= 0.04	9	4	13	1223
0.05 - 0.49	7	4	11	1259
0.50 - 0.99	4	6	10	1174
1.00 - 1.49	3	6	9	1103
1.50 - 2.49	3	6	9	1106
2.50 - 4.99	2	6	8	974
5.00 - 7.49				
Average	5	6	11	1184

Table-4.5B. Per acre harvesting cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (Lentil)	Number of labour			Total cost (Tk)
	Family	Hired	Total	
<= 0.04	9	4	13	1550
0.05 – 0.49	7	5	12	1302
0.50 – 0.99	4	7	11	1225
1.00 – 1.49	1	8	9	1110
1.50 – 2.49	1	9	10	1190
2.50 – 4.99				
5.00 – 7.49				
Average	5	6	11	1253

Table-4.5C. Per acre harvesting cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (Green gram)	Number of labour			Total cost (Tk)
	Family	Hired	Total	
<= 0.04	9	3	12	1031
0.05 – 0.49	8	3	11	1325
0.50 – 0.99	5	5	11	1193
1.00 – 1.49	3	6	9	1296
1.50 – 2.49	2	5	10	1169
2.50 – 4.99				
5.00 – 7.49				
Average	6	4	10	1238

Table-4.5D. Per acre harvesting cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (Vetch)	Number of labour			Total cost (Tk)
	Family	Hired	Total	
<= 0.04	14	0	14	1125
0.05 – 0.49	6	5	11	1171
0.50 – 0.99	4	6	10	1112
1.00 – 1.49	3	7	10	1020
1.50 – 2.49	3	6	9	1009
2.50 – 4.99	2	6	8	974
5.00 – 7.49				
Average	4	5	9	1100

Table-4.5E. Per acre harvesting cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (own)	Number of labour			Total cost (Tk)
	Family	Hired	Total	
<= 0.04	10	4	14	1310
0.05 – 0.49	7	4	11	1254
0.50 – 0.99	4	6	10	1210
1.00 – 1.49	3	7	10	1162
1.50 – 2.49	3	6	9	1019
2.50 – 4.99	3	6	9	1000
5.00 – 7.49				
Average	5	5	10	1208

Table-4.5F. Per acre harvesting cost and number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (others)	Number of labour			Total cost (Tk)
	Family	Hired	Total	
<= 0.04	7	4	11	1040
0.05 – 0.49	6	3	9	1279
0.50 – 0.99	4	5	9	1072
1.00 – 1.49	3	5	8	885
1.50 – 2.49	3	5	8	1014
2.50 – 4.99	3	5	8	1169
5.00 – 7.49				
Average	4	5	9	1115

Table-4.6A.Per acre thrashing and others cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (Combined)	Thrashing				Others (Tk)	Total (Tk)
	Number of labour			Cost (Tk)		
	Family	Hired	Total			
<= 0.04	9	1	10	852	52	904
0.05 – 0.49	6	2	8	920	126	1046
0.50 – 0.99	4	2	6	736	123	859
1.00 – 1.49	3	3	6	677	101	778
1.50 – 2.49	3	2	5	642	82	724
2.50 – 4.99	3	2	5	647	50	697
5.00 – 7.49						
Average	4	2	6	786	116	902

Table-4.6B. Per acre thrashing& others cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (Lentil)	Thrashing				Others (Tk)	Total (Tk)
	Number of labour			Cost (Tk)		
	Family	Hired	Total			
<= 0.04	8	1	9	900	50	950
0.05 – 0.49	5	2	7	950	141	1091
0.50 – 0.99	3	3	6	790	145	935
1.00 – 1.49	2	4	6	818	119	937
1.50 – 2.49	2	4	6	980	162	1132
2.50 – 4.99						
5.00 – 7.49						
Average	4	3	6	881	141	1022

Table-4.6C. Per acre thrashing and others cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (Green gram)	Thrashing				Others (Tk	Total (Tk)
	Number of labour			Cost (Tk)		
	Family	Hired	Total			
<= 0.04	8	2	10	1115	54	1169
0.05 – 0.49	7	1	8	951	106	1057
0.50 – 0.99	5	2	7	872	107	979
1.00 – 1.49	4	3	7	889	108	997
1.50 – 2.49	4	2	6	795	97	892
2.50 – 4.99						
Average	5	2	7	865	105	970

Table-4.6D. Per acre thrashing and others cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (Vetch)	Thrashing				Others (Tk	Total (Tk)
	Number of labour			Cost (Tk)		
	Family	Hired	Total			
<= 0.04	7	1	8	750	50	800
0.05 – 0.49	5	2	7	867	122	989
0.50 – 0.99	5	2	6	606	110	716
1.00 – 1.49	4	2	6	522	90	612
1.50 – 2.49	3	2	5	492	63	568
2.50 – 4.99	4	1	5	447	50	697
5.00 – 7.49						
Average	4	2	6	668	103	771

Table-4.6E. Per acre thrashing and others cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted (own)	Thrashing				Others (Tk	Total (Tk)
	Number of labour			Cost (Tk)		
	Family	Hired	Total			
<= 0.04	8	2	10	905	52	957
0.05 – 0.49	6	2	8	928	130	1058
0.50 – 0.99	4	2	6	759	128	887
1.00 – 1.49	3	3	6	714	103	817
1.50 – 2.49	3	2	5	667	92	859
2.50 – 4.99	2	3	5	678	50	728
Average	5	2	7	814	122	936

Table-4.6F. Per acre thrashing and others cost & number of labour engaged by size of land planted of Pulses, 2008-09

Size of land planted(others)	Thrashing				Others (Tk	Total (Tk)
	Number of labour			Cost (Tk)		
	Family	Hired	Total			
<= 0.04	10	0	10	1050	50	1100
0.05 – 0.49	5	2	7	891	112	1003
0.50 – 0.99	3	2	5	671	107	778
1.00 – 1.49	3	2	5	537	96	633
1.50 – 2.49	3	2	5	580	73	653
2.50 – 4.99	2	3	5	560	50	610
Average	4	2	6	704	100	804

Table-4.7A: Major head wise per acre production cost by size of land planted of Pulses, 2008-09

Size of land planted (Combined)	Per acre production cost (Tk)					
	Land preparation	Seed & seed related	Insecticide, Irrigation & others	Fertilizer	Harvesting, thrashing, weeding & others	Total
<= 0.04	1103	1300	174	414	2127	5118
0.05 – 0.49	1051	1372	134	511	2305	5373
0.50 – 0.99	987	1351	124	513	2093	5068
1.00 – 1.49	918	1384	95	372	1881	4650
1.50 – 2.49	804	1221	86	325	1740	4176
2.50 – 4.99	0	1277	0	0	1671	2948
5.00 – 7.49						
Average	974	1350	119	475	2086	5004

Table -4.7B: Major head wise per acre production cost by size of land planted of Pulses, 2008-09

Size of land planted (Lentil)	Per acre production cost (Tk)					
	Land preparation	Seed & seed related	Insecticide, Irrigation & others	Fertilizer	Harvesting, thrashing, weeding & others	Total
<= 0.04	1390	1680	180	580	2500	6330
0.05 – 0.49	1395	1597	175	699	2393	6259
0.50 – 0.99	1455	1445	183	757	2160	6000
1.00 – 1.49	1585	1642	150	630	2047	6054
1.50 – 2.49	1596	1404	130	826	2322	6278
2.50 – 4.99						
5.00 – 7.49						
Average	1451	1541	175	735	2275	6177

Table -4.7C: Major head wise per acre production cost by size of land planted of Pulses, 2008-09

Size of land planted (Green gram)	Per acre production cost (Tk)					
	Land preparation	Seed & seed related	Insecticide, Irrigation & others	Fertilizer	Harvesting, thrashing, weeding & others	Total
<= 0.04	1562	962	277	300	2200	5301
0.05 – 0.49	1733	971	276	281	2382	5643
0.50 – 0.99	1593	1032	254	216	2172	5267
1.00 – 1.49	1513	1087	254	379	2293	5526
1.50 – 2.49	1808	1030	289	173	2061	5361
2.50 – 4.99						
5.00 – 7.49						
Average	1670	1012	268	255	2208	5413

Table-4.7D: Major head wise per acre production cost by size of land planted of Pulses, 2008-09

Size of land planted (Vetch)	Per acre production cost (Tk)					
	Land preparation	Seed & seed related	Insecticide, Irrigation & others	Fertilizer	Harvesting, thrashing, weeding & others	Total
<= 0.04	228	1375	0	250	1925	3778
0.05 – 0.49	224	1365	0	194	1971	3754
0.50 – 0.99	323	1428	0	160	1828	3739
1.00 – 1.49	239	1386	0	115	1632	3372
1.50 – 2.49		1269	0	140	1569	2978
2.50 – 4.99		1277	0		1501	2778
5.00 – 7.49						
Average	235	1370	0	160	1871	3636

Table-4.7E: Major head wise per acre production cost by size of land planted of Pulses, 2008-09

Size of land planted (Own)	Per acre production cost (Tk)					
	Land preparation	Seed & seed related	Insecticide, Irrigation & others	Fertilizer	Harvesting, thrashing, weeding & others	Total
<= 0.04	1162	1395	257	414	2267	5495
0.05 – 0.49	1109	1384	142	535	2312	5482
0.50 – 0.99	997	1356	135	606	2097	5191
1.00 – 1.49	983	1431	115	371	1979	4879
1.50 – 2.49	831	1304	64	692	1878	4769
2.50 – 4.99	0	1535	0	0	1728	3263
5.00 – 7.49						
Average	1022	1378	129	541	2144	5214

Table-4.7F: Major head wise per acre production cost by size of land planted of Pulses,2008-09

Size of land planted (Others)	Per acre production cost (Tk)					
	Land preparation	Seed & seed related	Insecticide, Irrigation & others	Fertilizer	Harvesting, thrashing, weeding & others	Total
<= 0.04	980	1100	106	412	2140	4738
0.05 – 0.49	848	1329	93	267	2282	4819
0.50 – 0.99	958	1338	19	375	1850	4540
1.00 – 1.49	693	1213	104	154	1518	3682
1.50 – 2.49	780	1149	0	0	1667	3596
2.50 – 4.99	0	1036	0	0	1510	2546
5.00 – 7.49						
Average	840	1272	91	289	1919	4411

Table-4.8A. Per acre production quantity (kg)& value (Tk) by land size of land planted of Pulses, 2008-09

Size of land planted (combined)	Production		By production		Total value (Tk)
	Qty(KG)	Value(TK)	Qty(KG)	Value(TK)	
<= 0.04	329	15435	355	823	16258
0.05 – 0.49	321	14000	394	662	14662
0.50 – 0.99	328	13955	317	648	14503
1.00 – 1.49	315	12739	295	530	13269
1.50 – 2.49	339	11142	263	540	11683
2.50 – 4.99	326	8152	227	309	8461
5.00 – 7.49					
Average	324	13460	341	591	14051

Table-4.8B. Per acre production quantity (kg) & value (Tk) by land size of land planted Pulses, 2008-09

Size of land planted (Lentil)	Production		By production		Total value (Tk)
	Qty(KG)	Value(TK)	Qty(KG)	Value(TK)	
<= 0.04	380	22800	450	750	23550
0.05 – 0.49	338	19354	379	702	20056
0.50 – 0.99	349	19974	286	524	20498
1.00 – 1.49	295	18465	377	547	19012
1.50 – 2.49	297	18218	381	651	18869
2.50 – 4.99					
5.00 – 7.49					
Average	337	19465	346	623	20088

Table-4.8C. Per acre production quantity (kg) & value (Tk) by land size of land planted Pulses, 2008-09

Size of land planted (Green gram)	Production		By production		Total value (Tk)
	Qty(KG)	Value(TK)	Qty(KG)	Value(TK)	
<= 0.04	308	13500	346	769	14269
0.05 – 0.49	239	9971	363	467	10438
0.50 – 0.99	248	10781	323	358	11139
1.00 – 1.49	247	11524	218	350	11874
1.50 – 2.49	282	11906	283	388	12295
2.50 – 4.99					
5.00 – 7.49					
Average	248	10649	322	409	11058

Table-4.8D. Per acre production quantity (kg) & value (Tk) by land size of land planted Pulses, 2008-09

Size of land planted(Vetch)	Production		By production		Total value (Tk)
	Qty(Kg)	Value(TK)	Qty(Kg)	Value(TK)	
<= 0.04	300	9375	250	1000	10375
0.05 – 0.49	353	10431	430	738	11169
0.50 – 0.99	350	9954	342	670	10324
1.00 – 1.49	355	10501	290	602	11103
1.50 – 2.49	368	9747	237	585	10332
2.50 – 4.99	326	8152	227	309	8461
5.00 – 7.49					
Average	353	10118	347	660	10778

Table-4.8E. Per acre production quantity (kg) & value (Tk) by land size land planted of Pulses, 2008-09

Size of land planted (Own)	Production		By production		Total value (Tk)
	Qty(Kg)	Value(Tk)	Qty(Kg)	Value(Tk)	
<= 0.04	329	15976	357	929	16905
0.05 – 0.49	325	14619	395	665	15284
0.50 – 0.99	327	14511	303	509	15021
1.00 – 1.49	319	13551	304	558	14109
1.50 – 2.49	311	11354	195	453	11807
2.50 – 4.99	361	9028	222	278	9306
5.00 – 7.49					
Average	324	14160	338	581	14741

Table-4.8F.Per acre production quantity (kg) & value (Tk) by land size land planted of Pulses, 2008-09

Size of land planted (Others)	Production		By production		Total value (Tk)
	Qty(Kg)	Value(Tk)	Qty(Kg)	Value(Tk)	
<= 0.04	330	14300	350	600	14900
0.05 – 0.49	307	11805	388	651	12456
0.50 – 0.99	331	12338	356	662	13000
1.00 – 1.49	299	9708	263	425	10133
1.50 – 2.49	362	10967	319	613	11580
2.50 – 4.99	225	5630	240	400	6030
5.00 – 7.49					
Average	324	11504	349	620	12124

Table-4.9A. Number of plots by tenure ship and size of land planted of Pulses, 2008-09

Size of land planted (Combined)	Number of tenure ship					Total
	Own	Share	Mortgage	Lease	others	
<= 0.04	6	2	1	0	0	9
0.05 – 0.49	980	125	77	60	2	1244
0.50 – 0.99	249	33	35	17	3	337
1.00 – 1.49	58	9	4	3	1	75
1.50 – 2.49	18	4	14	2	0	38
2.50 – 4.99	2	1				3
5.00 – 7.49						1706
Average	1313	174	131	82	6	

Table-4.9B. Number of plots by tenure ship and size of land planted of Pulses, 2008-09

Size of land planted (Lentil)	Number of tenure ship					Total
	Own	Share	Mortgage	Lease	others	
<= 0.04	3	0	0	0		3
0.05 – 0.49	445	45	26	14		530
0.50 – 0.99	113	9	9	2		133
1.00 – 1.49	16	0	1	1		18
1.50 – 2.49	4					4
2.50 – 4.99						
5.00 – 7.49						
Average	581	54	36	17		688

Table-4.9C. Number of plots by tenure ship and size of land planted of Pulses, 2008-09

Size of land planted(Green gram)	Number of tenure ship					Total
	Own	Share	Mortgage	Lease	others	
<= 0.04	1	2	1	0		4
0.05 – 0.49	218	28	20	26		292
0.50 – 0.99	41	9	8	11		69
1.00 – 1.49	14	3	0	1		18
1.50 – 2.49	3	1	4	1		9
2.50 – 4.99						
5.00 – 7.49						
Average	277	43	33	39		392

Table-4.9D. Number of plots by tenure ship and by size of land planted of Pulses,2008-09

Size of land planted (Vetch)	Number of tenure ship					Total
	Own	Share	Mortgage	Lease	others	
<= 0.04	2	0	0	0		2
0.05 – 0.49	317	52	31	20		422
0.50 – 0.99	95	15	18	4		135
1.00 – 1.49	28	6	3	1		39
1.50 – 2.49	11	3	10	1		25
2.50 – 4.99	2	1				3
5.00 – 7.49						
Average	455	77	62	26		626

Table- 4.10A. Area in acres by tenure ship and by size of land planted of Pulses, 2008-09

Size of land planted(Combined)	Tenure ship					Total
	Own	Share	Mortgage	Lease	others	
<= 0.04	0.21	0.06	0.04	0.00	0.00	0.31
0.05 – 0.49	225.93	31.83	19.57	12.54	0.37	290.24
0.50 – 0.99	160.46	20.12	22.43	10.79	1.80	215.60
1.00 – 1.49	64.40	9.95	4.77	3.00	1.00	83.12
1.50 – 2.49	31.65	6.66	25.04	4.30	0.00	67.65
2.50 – 4.99	7.20	2.50	0.00	0.00	0.00	9.70
5.00 – 7.49						
Average	489.85	71.12	71.85	30.63	3.17	666.62

Table-4.10B. Area in acres by tenureship and by size of land planted of Pulses, 2008-09

Size of land planted (Lentil)	Tenure ship					Total
	Own	Share	Mortgage	Lease	Others	
<= 0.04	0.10	0.00	0.00	0.00		0.10
0.05 – 0.49	100.85	10.31	5.47	0.00		119.40
0.50 – 0.99	71.61	5.29	4.96	2.77		43.04
1.00 – 1.49	18.49	0.00	1.33	1.18		20.82
1.50 – 2.49	6.47	0.00	0.00	1.00		6.47
2.50 – 4.99						
5.00 – 7.49						
Average	197.52	15.60	11.76	4.95		229.83

Table- 4.10C. Area in acres by tenure ship and by size of land planted of Pulses, 2008-09

Size of land planted (Green gram)	Tenure ship					Total
	Own	Share	Mortgage	Lease	Others	
<= 0.04	0.03	0.06	0.04	0.00		0.13
0.05 – 0.49	48.27	6.71	5.45	5.79		66.22
0.50 – 0.99	27.03	6.14	5.04	7.34		45.55
1.00 – 1.49	14.93	3.55	0.00	1.00		19.48
1.50 – 2.49	5.26	1.50	8.04	2.30		17.10
2.50 – 4.99						
5.00 – 7.49						
Average	95.52	17.96	18.57	16.43		148.48

Table-4.10D. Area in acres by tenure ship and by size of land planted of Pulses, 2008-09

Size of land planted (Vetch)	Tenure ship					Total
	Own	Share	Mortgage	Lease	Others	
<= 0.04	0.08	0.00	0.00	0.00	0.00	0.08
0.05 – 0.49	76.81	14.81	8.65	3.98	0.37	104.62
0.50 – 0.99	61.82	8.69	12.43	2.27	1.80	87.01
1.00 – 1.49	30.98	6.40	3.44	1.00	1.00	42.82
1.50 – 2.49	7.20	2.50	0.00	0.00	0.00	9.70
2.50 – 4.99						
5.00 – 7.49						
Average	196.81	37.56	41.52	9.25	3.17	288.31

Table-4.11A. Division wise number of plots by size of land planted of Pulses, 2008-09

Size of land planted (Combined)	Division						Total
	Barisal	Chittagang	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	1	2	2	2	2		9
0.05 – 0.49	332	135	216	301	260		1244
0.50 – 0.99	88	23	60	63	103		337
1.00 – 1.49	17	13	23	8	24		75
1.50 – 2.49	20	6	3	5	4		38
2.50 – 4.99	1	2	0	0	0		3
5.00 – 7.49							
Average	459	181	294	379	393		1706

Table-4.11B. Division wise number of plots by size of land planted of Pulses, 2008-09

Size of land planted (Lentil)	Division						Total
	Barisal	Chittagang	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	0	0	1	2	0		3
0.05 – 0.49	55	63	105	173	134		530
0.50 – 0.99	6	6	23	32	66		133
1.00 – 1.49	0	0	3	2	13		18
1.50 – 2.49	0	0		2	2		4
2.50 – 4.99							
5.00 – 7.49							
Average	61	69	132	211	215		688

Table-4.11C. Division wise number of plots by size of land planted of Pulses, 2008-09

Size of land planted (Green gram)	Division						Total
	Barisal	Chittagang	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	1	1	0	0	2		4
0.05 – 0.49	140	39	9	24	80		292
0.50 – 0.99	26	10	3	3	27		69
1.00 – 1.49	2	8	2	0	6		18
1.50 – 2.49	3	3	1		2		9
2.50 – 4.99							
5.00 – 7.49							
Average	172	61	15	27	117		392

Table-4.11D. Division wise number of plots by size of land planted of Pulses, 2008-09

Size of land planted (Vetch)	Division						Total
	Barisal	Chittagang	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	0	1	1	0	0		2
0.05 – 0.49	137	33	102	104	46		422
0.50 – 0.99	56	7	34	28	10		135
1.00 – 1.49	15	5	8	6	5		39
1.50 – 2.49	17	3	2	3	0		25
2.50 – 4.99	1	2	0	0	0		3
5.00 – 7.49							
Average	226	51	147	141	61		626

Table-4.12A..Division wise area in acres of plots by size of land planted of Pulses,2008-09

Size of land planted (Combined)	Division						Total
	Barisal	Chittagang	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	0.04	0.06	0.06	0.08	0.07		0.31
0.05 – 0.49	73.21	33.17	51.23	69.99	62.64		290.24
0.50 – 0.99	57.66	15.77	37.35	41.31	63.51		215.60
1.00 – 1.49	18.24	14.61	14.73	8.53	27.01		83.04
1.50 – 2.49	35.16	10.20	6.26	8.65	7.38		67.65
2.50 – 4.99	3.20	6.50	0.00	0.00	0.00		9.70
5.00 – 7.49							
Average	187.51	80.31	2109.63	128.56	160.61		666.62

Table-4.12B.Division wise area in acres of plots by size of land planted of Pulses,2008-09

Size of land planted (Lentil)	Division						Total
	Barisal	Chittagang	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	0.00	0.00	0.02	0.08	0.00		0.10
0.05 – 0.49	10.52	13.89	22.31	4017	32.51		119.40
0.50 – 0.99	3.52	3.57	14.00	21.49	40.46		83.04
1.00 – 1.49	0.00	0.00	3.30	2.53	14.99		20.82
1.50 – 2.49	0.00	0.00	0.00	3.15	3.32		6.47
2.50 – 4.99							
5.00 – 7.49							
Average	14.04	17.46	39.63	67.42	91.28		229.83

Table-4.12C. Division wise area in acres of plots by size of land planted of Pulses,2008-09

Size of land planted (Green gram)	Division						Total
	Barisal	Chittagang	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	0.04	0.02	0.00	0.00	0.07		0.13
0.05 – 0.49	30.96	9.57	1.63	4.78	19.28		66.22
0.50 – 0.99	17.25	7.60	1.60	2.06	17.04		45.55
1.00 – 1.49	2.10	8.95	2.10	0.00	6.33		19.48
1.50 – 2.49	5.50	5.10	2.44	0.00	4.06		17.10
2.50 – 4.99							
5.00 – 7.49							
Average	55.85	31.24	7.77	6.84	46.78		148.48

Table-4.12D. Division wise area in acres of plots by size of land planted of Pulses,2008-09

Size of land planted (Vetch)	Division						Total
	Barisal	Chittagang	Dhaka	Khulna	Rajshahi	Sylhet	
<= 0.04	0.0	0.04	0.04	0.00	0.00		0.08
0.05 – 0.49	31.73	9.71	27.29	25.04	10.85		104.62
0.50 – 0.99	36.89	4.60	21.75	17.76	6.01		87.01
1.00 – 1.49	16.14	5.66	9.33	6.00	5.69		42.82
1.50 – 2.49	29.66	5.10	3.82	5.50	0.00		44.08
2.50 – 4.99	3.20	6.50	0.00	0.00	0.00		9.70
5.00 – 7.49							
Average	117.62	31.61	62.23	54.30	22.55		288.31

Annexure-A

Concepts and Definitions

Mauza:

Mauza is the demarcated lowest administrative territorial unit having separate jurisdiction list number (J.L.No.) in the revenue records. Every mauza has its well demarcated cadastral map. Mauza should be distinguished from local village since a mauza may consist of one or more villages or part of a village.

Primary Sampling Units (PSUs):

100 Upzilas which have been selected at random from 64 districts are said to be PSUs.

Secondary Sampling Units (SSUs):

100 Mauzas which have been selected from 100 PSUs are said to be SSUs.

Ultimate Sampling Units (USUs):

250 households which have been selected from SSUs following the method of choosing the first one from the south-west corner of the SSU and then moving forwards following serpentine method until having 250 households are said to be USUs.

Enumeration Areas (EAs):

EAs are nothing but the SSUs.

Household (HH):

A household means a group of persons normally living together and eating in one mess (i.e. with common arrangement of cooking) with their dependents, relatives, servants etc. A household may be a one person household or a multi-person household. In other words, when a group of persons living together generally maintain a family or family like relations and take meals from the same kitchen is termed as a household. Popularly, it is descried as “Khana”. In some cases there may be more than one household in a single house or in one dwelling arrangement. Similarly, a household may have more than one house or structure or shed.

The household must be distinguished from a family which consists of blood related members who may live in different places but members of the household must share the same kitchen and live together.

Owned land:

Owned land means the area of the land owned by the holder including members of his family having a title of land with the right to determine the nature and extent of its use and to transfer the same. Moreover, there might be some land over which the holder or any member of his households has owner-like possession. This type of land was included in the area of owned land. The land held by the holder in owner like possession, can be operated by him in the same way as owned land although the holder does not possess a title of ownership.

Share Cropping:

Land under share cropping is treated as the land which is cultivated under the condition of sharing the crops between land owner and the cultivator. The ratio of share cropping might vary from place to place. It might be one third (1/3) or half (1/2) or one two-thirds (2/3) between owner and cultivator.

Mortgage:

The land which is taken in exchange of money paid by the mortgagee to the land owner for a fixed period of time under the condition that land would be released upon refunding the money to the mortgagee by the owner is considered as the land under mortgage.

Lease:

The land which is taken by the cultivator from the owner in exchange of a certain amount of money for one year or for any period of time for the purpose of cultivating crop is treated as land under lease. Under this criterion, land will automatically be released from the occupancy of the cultivator after the certain period of time.

Others:

The land which does not satisfy any of the four criterions mentioned earlier is treated as the land under others.

Plot:

Usually land is divided into many pieces for the purposes of cultivation or distributions among the owners of land or making houses. These pieces are commonly called plots. A plot might comprise of land under many identification numbers (Dag Number) or there might have many plots under the land of single identification number. Even a household has many plots which are situated in different mauzas. It is mentionable that under this survey plot means the land in which Pulses has been cultivated during the survey year.

Annexure- B

Statement-I

Crop	2005Cropped area (acres)	Cropping percent (p)	Minimum Sample size (n)	All farmers in the Mouza(n1)
Amon (4)	10488754	35.00	612	9625
Boro (3)	9272497	30.90	575	8498
Aus (2)	2670787	8.90	220	2448
Wheat	897403	2.99	78	823
Maize	217060	0.72	19	198
Pulses (10)	700651	2.34	60	644
Oil Seeds (12)	1217233	4.06	103	1116
Jute (3)	1117109	3.72	96	1023
Potato	811061	2.70	71	742
Onion	265136	0.88	23	242
Total			1857	25358

Gross cropped area – 2,99,90,170 acres

Annexure- C

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

বাংলাদেশ পরিসংখ্যান ব্যুরো

কৃষি দাগগুচ্ছ হালনাগাদকরণ ও সম্প্রসারণ এবং উৎপাদন খরচ জরিপ প্রকল্প

পরিসংখ্যান ভবন (৭ম তলা, ব- ক-২)

ই-২৭/এ, আগারগাঁও, ঢাকা-১২০৭।

ডাল উৎপাদন খরচ জরিপ, ২০০৯

প্রথম অংশ

খানার পরিচিতি

খানার ক্রমিক নম্বর ঃ ☐☐☐

খানা প্রধানের নাম ঃ ---------- পিতা/স্বামীর নাম ঃ ----------

জেলা _____ কোড ☐☐ উপজেলা _____ কোড ☐☐

ইউনিয়ন _____ কোড ☐☐ মৌজা/গ্রাম _____ কোড ☐☐☐

দ্বিতীয় অংশ

১। ডালের প্রকার ভেদে জমির খন্ডের পরিমাণ, মালিকানা, চাষের ধরন এবং খরচ (টাকা)

খন্ড	ডালের প্রকার (কোড)	জমির পরিমাণ (একর)	জমির মালিকানা (কোড)	লীজ নেয়া হলে বাৎসরিক কত টাকা দিতে হয়	চাষের ধরন (নিজস্ব হলে বাজার দরে লিখতে হবে)					
					লাঙ্গল		যান্ত্রিক		অন্যান্য	মোট (টাকা)
					সংখ্যা	খরচ (টাকা)	সংখ্যা	খরচ (টাকা)	খরচ (টাকা)	
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
১ম										
২য়										
৩য়										
৪র্থ										
৫ম										

ডালের প্রকারের কোড ঃ মসুর-১, মুগ-২ ও খেসারী-৩ **মালিকানা কোডঃ নিজস্ব-১, বর্গা-২, বন্ধক-৩, লীজ-৪ এবং অন্যান্য-৫**

২। বীজ, বীজ বপন, কীটনাশক এবং সেচ খরচ (টাকা)

খন্ড	বীজ		বীজ বপন খরচ (টাকা)	কীটনাশক খরচ (টাকা)	সেচ খরচ (টাকা)	অন্যান্য খরচ (টাকা)	মোট খরচ (টাকা)
	পরিমাণ (কেজি)	মূল্য (টাকা)					
১	২	৩	৪	৫	৬	৭	৮
১ম							
২য়							
৩য়							
৪র্থ							
৫ম							

(পারিবারিক কর্মী হলে মজুরী বাজার দরে লিখতে হবে)

৩। সার ব্যবহারের পরিমাণ (কেজি) ও মূল্য (টাকা)

খন্ড	ইউরিয়া		টিএসপি		গোবর/জৈব		অন্যান্য	মোট (টাকা)
	পরিমাণ (কেজি)	মূল্য (টাকা)	পরিমাণ (কেজি)	মূল্য (টাকা)	পরিমাণ(কেজি)	মূল্য (টাকা)	মূল্য(টাকা)	
১	২	৩	৪	৫	৬	৭	৮	৯
১ম								
২য়								
৩য়								
৪র্থ								
৫ম								

৪। নিড়ানি/আগাছা পরিস্কার, উত্তোলন, মাড়াই শ্রমিকের সংখ্যা ও খরচ (টাকা)

খন্ড	নিড়ানি/আগাছা পরিস্কার			উত্তোলন			মাড়াই			অন্যান্য খরচ (টাকা)	মোট খরচ (টাকা)
	শ্রমিকের সংখ্যা		খরচ (টাকা)	শ্রমিকের সংখ্যা		খরচ (টাকা)	শ্রমিকের সংখ্যা		খরচ (টাকা)		
	পারিবারিক	ভাড়া		পারিবারিক	ভাড়া		পারিবারিক	ভাড়া			
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২
১ম											
২য়											
৩য়											
৪র্থ											
৫ম											

(পারিবারিক কর্মী হলে মজুরী বাজার দরে লিখতে হবে)

৫। উৎপাদিত ফসল (কেজি) এবং উপজাতের পরিমাণ (কেজি) ও মূল্য (টাকা)

খন্ড	ফসল (ডাল)		উপজাত (ভুষি/ডাটি)		মোট উৎপাদিত দ্রব্যের মূল্য (টাকা)
	পরিমাণ (কেজি)	মূল্য (টাকা)	পরিমাণ (কেজি)	মূল্য (টাকা)	
১	২	৩	৪	৫	৬
১ম					
২য়					
৩য়					
৪র্থ					
৫ম					

৬। ডাল চাষের মৌসুমে ডাল চাষের জন্য এক একর জমি লীজ নিতে কত টাকা মালিককে দিতে হয়ঃ---------

তথ্য সংগ্রহকারীর নাম ----------

পদবী ----------

তারিখ ----------

সুপারভাইজারের নাম ----------

পদবী ----------

তারিখ ----------

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