Report on the Cost of Production of Wheat
2008-09

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

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Foreword

Bangladesh is predominantly a agricultural country. Although, the contribution of industrial sector to the gross domestic product (GDP) is gradually increasing over the decades, till date, the agriculture sector has been dominating the economy of Bangladesh. Most importantly, food security of the country is critically dependent on the domestic production of crops.

Crop Production is very much related to its 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 very glad 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 formulations 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,
November,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,
November,2010

Md. Shahjahan Ali Mollah

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Key Findings: At a glance

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1.	Percentage of household having Wheat cultivation in the sample area	**10.16**
2.	Percentage of household growing Wheat by land tenure:	
	a. Own	**79.38**
	b. Share cropping	**10.22**
	c. Mortgage	**5.27**
	d. Lease	**3.82**
	e. Others	**1.30**
3.	Yield of Wheat crop per acre(in maund)	**22.97**
4.	Yield of Wheat straw per acre (in maund)	**23.75**
5.	Number of labourers employed by component for per acre production of Wheat:	
	a. weeding	**2.63**
	b. Harvesting	**9.16**
	c. Thrashing	**5.90**
	Total	**17.69**
6.	Number of family labourers worked for per acre Wheat production	**6.58**
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10.	Cost of land preparation per acre(in taka):	**2270**
11.	Cost of seeds per acre(in taka)	**1924**
12.	Cost of sowing of seeds per acre (in taka)	**82**

SL. No.	Items of study	Result
13.	Cost of fertilizers by type per acre (in taka):	
	a. Urea	720
	b. TSP	893
	c. MoP	846
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	e. Other Cost	171
	Total	**2836**
14.	Cost of insecticides per acre (in taka)	103
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16.	Cost of irrigation per acre (in taka)	655
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19.	Cost of leasing per acre (in taka)	3223

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. Wheat is an important cereal crop which shares about 3% of total major cereal production (BBS estimate 2008-09). The production of Wheat largely depends on the use of fertilizers, irrigation etc. The Government of Bangladesh has, therefore, provided top most priority to the agriculture sector specially on food crop to increase the production of cereals 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. Generally, 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.

1.1. Wheat: A cereal crop

Wheat is a cereal crop. Wheat seeds are sown in the month of November to mid December. Harvesting time of the crop is March to April. It is a winter crop. Growth of the crop is directly related with the duration of the cold weather. If cold weather prevails for a long time, the plants give better yield.

1.2. Production of Wheat:

The alluvial soils of Bangladesh with plenty water resources for irrigation is favorable for wheat production. But the cropping time of wheat is the same as that of Boro. And farmers are also very much disinterested in taking the risk of cold weather which is very much needed for the growth of wheat crop. Acreage, production and yield rate of wheat are shown in the table below:

Table : Acreage, Production and yield rate of wheat during the last ten years.

Year	Acreage in '000'	Production in '000' M. Tons	Yield rate M. tons
1998-99	2180	1908	0.875
1999-00	2057	1840	0.895
2000-01	1909	1673	0.876
2001-02	1833	1606	1.876
2002-03	1746	1507	0.863
2003-04	1586	1253	0.790
2004-05	1380	976	0.707
2005-06	1184	735	0.621
2006-07	988	737	0.746
2007-08	958	844	0.881

Above table reflects that during the last ten years, the crop acreage as well as production is decreasing gradually and this is due to increased cultivation of HYV boro as farmers here are very much interested to grow paddy crop.

1.3. Scope and coverage of the survey:

Survey on the production cost of *wheat* 2008 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.

1.4. Objective of the survey:

The specific objective of the survey is

- ►to estimate per acre production cost of wheat
- ►to estimate per kilogram production cost of wheat

The other objectives of the survey are as follows:

- ►to know the area under wheat by land tenure
- ►to asses the cost of production of wheat by different phases
- ►to produce benchmark data on the production cost of wheat
- ►to assist the policy maker by supplying data on the cost of production of wheat in order to formulate appropriate policies for increasing the production of wheat 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. Wheat is one of the 10 crops. Sample design has been discussed in detail below:

1.1 Universe:

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

1.2 Sampling Technique:

Multi-stage sampling technique has been followed.

1.3 Sampling Frame:

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

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 Wheat crop has followed the same design as the integrated sample design for the said 10 crops.

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.

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.

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 Wheat 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 field staff 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 Wheat as well. They discussed the matter with the farmers who grow Wheat. 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 upazila 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 farmers at random as the respondents. 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 Wheat 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 was 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. 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. On 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 upazila 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 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 farm households

and the total of 28 supervising officers 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 to 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.

2.2.10. Data Processing:

Data processing involves many steps that are very important because it affects survey results according to the involved steps. During data processing following steps have been taken:

- 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:

After editing, all questionnaires have been sent to Computer Wing of BBS in order to do all works of data processing. Computer Wing has maintained the steps as mentioned aiming to ensure perfect data processing:

i. 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.

ii. 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 was 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.

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

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 been made to make sure that the number of variables generated matched with the number of variables in the data set.

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.

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.

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 has been put forward to the survey authority for tabulation and analysis.

2.3 Tabulation:

Twelve tables focusing on the vital components such as total number of labourers engaged in production of jute, 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 in the part of analysis and annexure.

2.4 Data Analysis:

Survey results have been analyzed 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 Wheat have also been explained nationally.

2.5 Data Dissemination:

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 Agricultural Statistics of Bangladesh and Monthly Statistical Bulletin etc.

Chapter-III

Statistical Findings

Statistical Findings of the Survey

This chapter deals with the costs of factors of production related to Wheat crop. The factors focused are (i) land tenureship such as own, share cropping, mortgage, lease and others, (ii) labourer employed by phase such as land preparation, sowing, weeding, harvesting and thrashing, (iii) use of insecticides, fertilizer, plough, power tiller etc, (iv) Leasing cost,(v) Production cost and (vi) productivity etc.

3.1 Wheat growing households (HH)

This survey was carried out in may, 2009 and has dealt with the total of 24625 households across the country, of which only 2503 HHs were involved in Wheat cultivation. Table 3.1 shows that only 10.16 percent HH at national level cultivate Wheat which indicates that a moderate number of farmers grow Wheat in Bangladesh.

Table 3.1.Total number of PSU, SSU, USU (HH) & number of households growing Wheat.

Division	Total Number				
	PSU	SSU	USU(HH)	HH having wheat	% of HH having wheat
1	2	3	4	5	6
Barisal	9	9	2250	32	1.42
Chittagang	16	16	3625	117	3.23
Dhaka	25	25	6250	394	6.30
Khulna	16	16	4000	685	17.13
Rajshahi	28	28	7000	1259	17.99
Sylhet	6	6	1500	16	1.07
Bangladesh	100	100	24625	2503	10.16

Distribution of sample and percentage of households having Wheat cultivation by division is shown in table 3.1. It is observed that in Sylhet division the lowest percentage of HH, only 1.07% cultivates Wheat and the highest, 17.99 percent is in Rajshahi division. It is mentionable that a significant proportion of the HHs grow Wheat in two divisions, Khulna (17.13%), and Rajshahi (17.99%), which are much higher than the national percentage (10.16%), whereas very negligible percentage of the HHs of the other three divisions of Barisal (1.42%), Sylhet (1.07%) and Chittagong (3.23%) have much lower percentage than the national percentage. So, it is a matter of study why Wheat cultivation is not evenly distributed across the country.

3.2 Area under sample survey:

Table-3.2:Total sample area and percentage of Wheat cultivation by division 2008-2009.

(Area in acres.)

Division	Wheat	
	Area	%
1	2	3
Barisal	9	0.75
Chittagang	27	2.26
Dhaka	102	8.51
Khulna	302	25.2
Rajshahi	747	62.36
Sylhet	11	0.92
Bangladesh	1198	100

Table 3.2 contains total area under wheat crop and its percentage by division. It is observed from the table that area under Wheat crop was 1198 acres at national level. Rajshahi division covers large area (747 acre) under Wheat crop, on the other hand Barisal and Sylhet division covers insignificant area of Wheat cultivation. Khulna and Rajshahi division covers 88% area of Wheat crop.

3.3. Land Tenureship:

This section deals with household growing Wheat crop by type of land teanureship.

Table-3.3: Percentage of area under Wheat crop by land tenure by division.

Division	Land tenureship					Total
	Owner	Crop share	Mortgage	Lease	Others	
1	2	3	4	5	6	7
Barisal	58.82	17.65	5.88	17.65	0.00	100.00
Chittagang	80.95	8.73	3.18	7.14	0.00	100.00
Dhaka	63.96	18.90	12.31	1.54	3.30	100.00
Khulna	79.67	7.47	5.71	5.50	1.65	100.00
Rajshahi	83.27	9.48	3.53	2.92	0.81	100.00
Sylhet	59.09	9.09	9.09	22.73	0.00	100.00
Bangladesh	79.38	10.22	5.27	3.82	1.30	100.00

Table 3.3 shows percent of households growing Wheat crop by type of land tenure and by division. It is seen from the table that at national level, the highest 79.38 %

of the total HHs grow Wheat in their own land and the lowest only 1.30 % produces it occupying the land as other. Share cropping holds 10.22 percent and mortgage 5.27 %.

Divisional variation of Wheat cultivation by land tenure is observed in this table. It is found that in Rajshahi the highest 83.27% percent of Wheat are cultivated in own land and the lowest 58.82 percent in Barisal division. Cultivation of wheat through share cropping is also significant at national level(10.2%) and is the highest (18.9%) in Dhaka division followed by Barisal (17.65). Wheat cultivation in mortgaged land is only about 5.30% at national level and is much higher in two divisions Dhaka(12.3%) and Sylet (9.09%). Growing wheat in leased land, though insignificant (3.8%) at national level, is the highest (22.7%) in Sylhet division followed by Barisal (17.65%).

In Chitagong the highest 80.95% in own land and the lowest 3.18% in mortgaged land; in Khulna the highest 79.67% in own land and the lowest 1.65% in other. In Barisal, among three types- own, share cropping and mortgage, the highest cultivation(58.82%) is in own land while crop sharing and leasing systems are also significantly at 17.7% same. It is noticeable that the category of own land in land tenure strongly dominates Wheat cultivation in all the divisions and the contribution of share cropping is significant at national level (10.22%) with the highest percent (18.90%) in Dhaka followed by Barisal (17.65%). Cultivation of Wheat in mortgaged land is above national level (5.27%) in all divisions except in Rajshahi and Chittagong and highest (12.31%) in Dhaka division. Wheat cultivation on lease lands is highly significant in Sylhet (22.73%) and Barisal (17.65%) divisions followed by Chittagong (7.14%) and Khulna (5.50%).

3.4. Leasing**:**

Leasing means the land taken by the household for the cultivation of Wheat crops only on payment of money to the land owner. Leasing price per acre is found to be significantly different across divisions. Local leasing value has also been recorded in case of households who cultivated the crop in their own lands.

Table-3.4: Per acre leasing cost of Wheat by division.

Division	Cost (Tk.)
1	2
Barisal	3081
Chittagang	3657
Dhaka	3262
Khulna	3477
Rajshahi	3013
Sylhet	3153
Bangladesh	3223

Leasing cost per acre of Wheat cultivation by division is placed in table 3.4 Leasing cost per acre is found to be Tk. 3223 at national level. The highest rate of Tk. 3657 is in Chittagong and the lowest of Tk. 3013 in Rajshahi.

3.5. Preparation of land:

Before sowing of seeds land has to be prepared by tilling. Generally land is tilled by local plough or power tiller. Presently in our country land is tilled mostly by power tillers. Expenditure per acre (in Tk.) involved in land preparation is shown in table 3.5.

Table-3.5. Per acre land preparation cost for wheat by division and by means of cultivation.

(Figures in Tk.)

Division	Plough	Power tiller	Others	Total
	Tk.	Tk.	Tk.	Tk.
1	2	3	4	5
Barisal	296	1618	76	1990
Chittagang	218	1904	213	2336
Dhaka	150	1484	210	1844
Khulna	384	1847	111	2341
Rajshahi	333	1780	188	2301
Sylhet	517	1650	53	2219
Bangladesh	316	1785	169	2270

The table shows the cost to prepare the lands for the sowing of seeds by different means such as country plough, power tiller and others. ‘Others’ means prep[aration of lands by spade. At national level Per acre total cost of land preparation is recorded at Tk.2270 and it ranges from Tk.1844 in Dhaka to Tk.2341 in Khulna. 79% of total cost per acre is spent for mechanized tilling. Barisal Dhaka and Sylhet divisions spent less than average cost on land preparation compared to other divisions.

3.6 Seeds.

Table3.6(a). Per acre seeds used and seed cost by division

Division	Seed	
	Quantity (KG)	Value Tk.
1	2	3
Barisal	61.36	1911
Chittagang	60.66	1807
Dhaka	57.14	1824
Khulna	52.12	1580
Rajshahi	64.14	2083
Sylhet	61.92	1969
Bangladesh	60.37	1924

Per acre seeds used and per acre sowing cost are portrayed in table 3.6. It is observed from the table that per acre average seed requirement for the sowing of Wheat across the country is 60.37kg. which costs Tk.1924 in total and the average price of seeds per kg is Tk.31.87. From the divisional figures it appear that the highest quantity at seeds (64.14Kg.) is used in Rajshahi Division whereas the lowest (52.12Kg.) in Khulna division. The highest total cost for seeds is Tk. 2083 in Rajshahi whereas the lowest of cost Tk. 1580 in Khulna Division.

Table-3.6(b). Per acre sowing cost by division

Division	Sowing cost (Tk).
1	2
Barisal	89
Chittagang	132
Dhaka	169
Khulna	87
Rajshahi	64
Sylhet	188
Bangladesh	82

It is seen in the above stated table that at national level, average sowing cost recorded is at Tk. 82. Among the division, the highest cost in incurred in Sylhet(Tk. 188) and the lowest in Rajshahi (Tk. 64).

3.7. Fertilizer:

Table-3.7: Per acre qty. of fertilizer used (Kg) and value (Tk) for Wheat by division

(Fig. in Tk.)

Division	Urea		TSP		MOP		Organic		Others	Total
	Qty (Kg)	value (Tk)	Qty (Kg)	value (Tk)	Qty (Kg)	value (Tk)	Qty (Kg)	value (Tk)		
1	2	3	4	5	6	7	8	9	10	11
Barisal	54.01	751	23.05	922	14.82	716	25.25	42	76	2506
Chittagang	51.62	670	25.87	987	13.56	662	187.69	226	164	2709
Dhaka	52.90	684	20.55	931	11.00	567	46.30	42	81	2305
Khulna	55.49	720	20.64	913	12.18	593	69.28	60	187	2472
Rajshahi	56.24	730	19.81	881	19.56	1005	281.73	293	180	3088
Sylhet	37.12	483	13.50	540	6.97	315	0.00	0	48	1385
Bangladesh	55.49	720	20.20	893	16.66	846	200.61	206	171	2836

Per acre quantity and cost of fertilizer by type and division are exhibited in table 3.7. The table shows that in case of using fertilizers except organic, urea alone holds lion's share of quantity at both national and divisional level. Average total cost per acre across the country for fertilizer for production of Wheat is Tk.2836 in which the cost for urea is Tk.720, TSP Tk.893, MoP Tk.846 and for organic only Tk.206.

Analysing the figures by division, it is observed that per acre cost for urea is the highest (Tk.751) in Barisal division, TSP (Tk.987) in Chittagong, MoP (Tk.1005) and Organic (Tk.292) in Rajshahi and per acre lowest cost for urea (Tk.483), TSP (Tk.540), MoP (Tk.315) in Sylhet. Organic fertilizer is not used in Sylhet. Among the divisions, the highest cost in total is incurred in Rajshahi (Tk.3088) and the lowest in Sylhet (Tk.1385). Per acre total cost for fertilizer in Dhaka (Tk 2305) and Sylhet (Tk 1385) are significantly lower in comparison to national figure.

3.8. Pesticide, irrigation and other cost:

Table 3.8: Per acre cost of pesticide, irrigation and other cost of wheat by division.

(Fig. in Tk.)

Division	pesticide	Irrigation	Others	Total
1	2	3	4	5
Barisal	187	525	65	777
Chittagang	181	624	136	941
Dhaka	21	641	68	730
Khulna	20	655	55	730
Rajshahi	144	662	69	873
Sylhet	109	453	0	562
Bangladesh	103	655	66	822

Per acre cost of pesticide, irrigation and others for Wheat production by division is shown in table 3.8. The table reveals that per acre cost of pesticides, irrigation and others for Wheat production at national level is Tk.822 which is not very significant compared to the costs incurred for many other factors of Wheat production mentioned earlier. From the table, it is seen that per acre average pesticide cost stands at Tk 103 while it is Tk 655 for irrigation cost and Tk 66 is spent for other purposes. Here it is noted that in Dhaka and Khulna insignificant insecticide/pesticide cost is seen compared to other four divisions. The highest irrigation cost at Tk 662 is seen in Rajshahi division followed by Tk 655 in Khulna division. 'Others' means some additional helping labourers needed for the application of pesticide and irrigation.

3.9. Labourer:

Table 3.9: Per acre no. of labour engaged and cost of weeding, harvesting, thrashing & others cost by division.

(Cost in Tk.)

Division	Weeding		Harvesting		Thrashing		Others	Total
	No.of labour	Cost	No. of labour	Cost	No. of labour	Cost	Others	Total
1	2	3	4	5	6	7	8	9
Barisal	1.76	263	9.44	1407	7.79	1058	103	2832
Chittagang	3.94	591	9.70	1349	9.21	1312	150	3402
Dhaka	3.53	527	10.11	1471	7.96	1132	98	3228
Khulna	2.16	323	8.52	1239	6.08	866	541	2969
Rajshahi	2.66	398	9.29	1346	5.40	783	274	2801
Sylhet	2.45	367	7.98	1197	6.17	925	18	2507
Bangladesh	2.62	393	9.16	1329	5.91	850	321	2892

Number of labourers employed and their wages for per acre of land in weeding, harvesting, thrashing and other cost by division are presented in table 3.9. The table gives the labourers of cost per acre for weeding and harvesting at national level is Tk.393 and Tk.1329 respectively. By division, it is observed that per acre labour cost for weeding is the highest at Tk.591 in Chittagong division and the lowest Tk.263 is in Barisal and the highest per acre labourer cost for harvesting, Tk.1471 in Dhaka division and the lowest Tk.1197 is in Sylhet. In comparison to national figure, lower cost for weeding has been recorded at Barisal (Tk.263), Khulna Tk.323 and Sylhet Tk 367.The higher cost in weeding is found in other three divisions- Chittagong Tk.591, Dhaka Tk 527 and Rajshahi Tk 398. Cost for harvesting in two divisions, such as Barisal Tk.1407 and Dhaka Tk.1471 are higher compared to other four divisions. In case of thrashing, per acre cost at national level is Tk 850 and no of labour required is 5.90. The highest cost observed is in Chittagong division(Tk 1312) and the lowest is Tk 783 in Rajshahi division. In Chittagong division, the cost of Tk 1312 is significantly higher compared to national figure. It is noteworthy that labour cost variation in harvesting among the three divisions Dhaka, Barisal, Rajshahi and Chittagong and the nation as well is very nominal, but it is considerably lower in two divisions- Khulna and Sylhet.

3.10 Family and hired labourers:

Table-3.10 Total number of labourers employed per acre with phase-wise break-up and total number of family labourers involved in producing Wheat crop.

Division	Weeding		Harvesting		Thrashing		Total	Total family Labourers	PC(%) of family labourers
	Family labour	Hired labour	Family labour	Hired labour	Family labour	Hired labour			
1	2	3	4	5	6	7	8	9	10
Barisal	1.54	0.22	5.27	4.17	6.26	1.54	18.99	13.06	68.79
Chittagang	1.02	2.92	4.78	4.93	8.53	0.68	22.85	14.32	62.69
Dhaka	2.99	0.54	6.76	3.36	5.67	2.29	21.60	15.41	71.37
Khulna	0.83	1.33	3.30	5.22	3.44	2.64	16.76	7.57	45.16
Rajshahi	0.63	2.02	2.56	6.73	1.44	3.96	17.34	4.63	26.70
Sylhet	0.18	2.27	1.54	6.44	1.00	5.17	16.59	2.72	16.39
Bangladesh	0.90	1.73	3.17	5.99	2.51	3.39	17.69	6.58	37.22

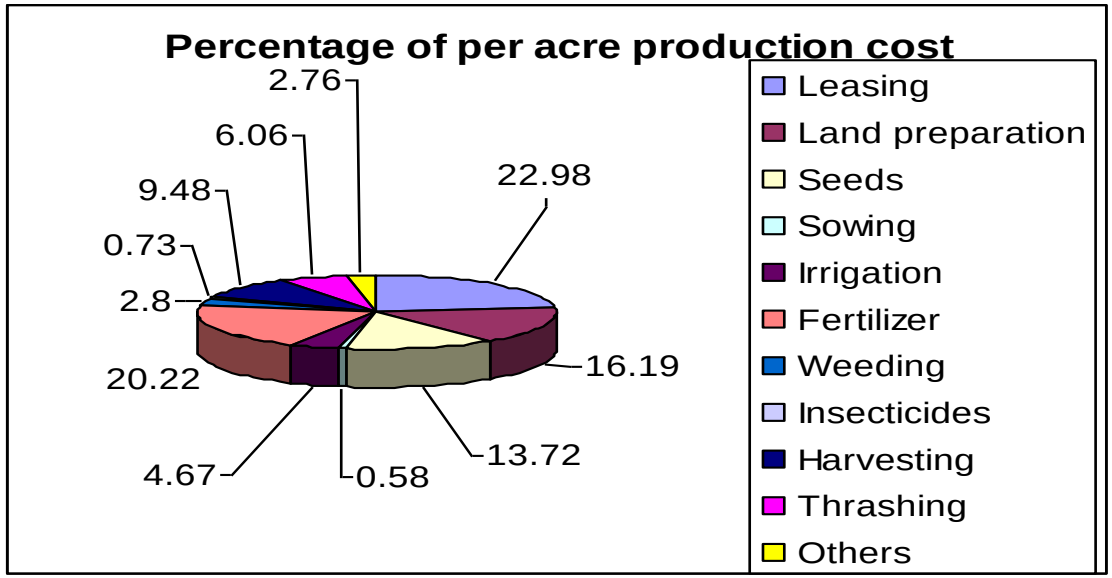
Total number of labourers, family labourers, and the percentage of family labourers, required for per acre production of Wheat are exhibited in table 3.10. From this table it is clear that at national level out of 17.69 labourers, 6.58 are family labourers that represent 37.22 percent of the total labourers.

If the figures are considered by division, it is observed that the highest number of family labourer (15.45) are entangled in Wheat production in Dhaka division, which represents 71.37% of the total labourers, whereas the lowest only 2.72 in Sylhet, which represents 16.39% of the total. It is notable that involvement of family labourers in production of Wheat in three divisions of Barisal(13.06), Chittagong(14.32) and Dhaka (15.41) in comparison to national level (6.58) is significantly higher and that in two divisions Rajshahi(4.63) and Sylhet (2.72) dramatically lower than that at national level.

Table 3.11: Per acre production cost (in Tk.)for Wheat cultivation by components and by division, 2008-09.

Division	Leasing	Land Preparation	Seeds	Sowing	Irrigation	Fertilizer	Weeding	Insecticides	Harvesting	Thrashing	Others	Total
Barisal	3081	1990	1911	89	525	2506	263	187	1407	1058	168	13185
Chittagong	3657	2336	1807	132	624	2709	591	181	1349	1312	286	14986
Dhaka	3262	1844	1824	169	641	2305	527	21	1471	1132	166	13362
Khulna	3477	2341	1580	87	655	2472	323	20	1239	866	596	13656
Rajshahi	3013	2301	2083	64	662	3088	398	144	1346	783	343	14225
Sylhet	3153	2219	1969	122	453	1385	367	109	1197	725	18	11983
Bangladesh	3223	2270	1924	82	655	2836	393	103	1329	850	387	14052
Pc(%)	22.98	16.19	13.72	0.58	4.67	20.22	2.80	0.73	9.48	6.06	2.76	100

Above shown table focuses the per acre total production cost (in Tk.) by component. Of the total cost, land leasing value is the highest 22.98% followed by fertilizer 20.22%. Shares of different costs such as land preparation, seeds, harvesting and thrashing are 16.19%, 13.72%, 9.48% and 6.06% respectively. Here other cost means the wages of some additional labourers employed in different components. All costs by component are shown in the pi-chart below:



3.11. Production cost:

Table 3.11(a): Per acre production cost (Tk) of Wheat by division.

Division	Per acre production cost(Tk)
1	2
Barisal	13185
Chittagang	14986
Dhaka	13362
Khulna	13656
Rajshahi	14225
Sylhet	11983
Bangladesh	14052

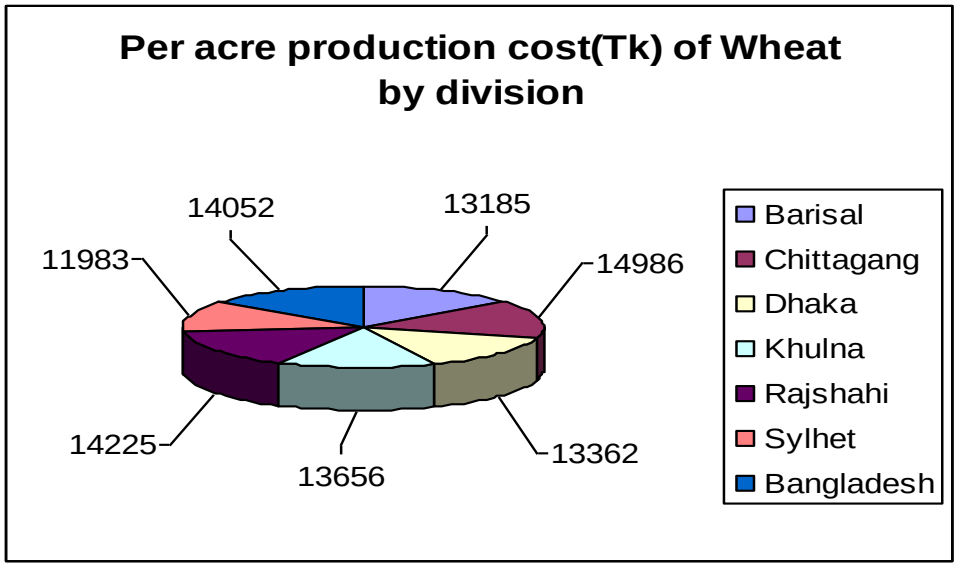


Fig.: Per acre production cost(Tk) of Wheat by division.

Per acre production cost of wheat by division is presented in table 3.11(a). The table exposes the per acre production cost of Wheat at national level is Tk.14052. It is definitely desirable that the value of production is higher than the cost. It is eventually true that the higher the profit, the higher the production, as the greater number of farmers will get interest to cultivate Wheat which ultimately leads to more production of Wheat.

If the divisional figures are compared with that of national level, it reveals that production cost for two divisions Chittagong (14986) and Rajshahi (14225) are higher than that at national level and other four divisions are lower than that. In Sylhet division, the cost of Tk 11983 is significantly lower compared to national figure.

Table 3.11(b): Per KG production cost (Tk) of wheat by division .

(Fig. in Tk.)

Division	Per Kg production cost (Tk)
1	2
Barisal	14.87
Chittagang	15.99
Dhaka	13.82
Khulna	14.92
Rajshahi	15.56
Sylhet	14.24
Bangladesh	15.29

Table 3.11(b) contains per kg production cost for Wheat by division. It is revealed that per kg production cost of wheat at national level is Tk 15.29. If the divisional figures are compared with that of national level, it shows that production cost for two divisions Chittagong (15.99) and Rajshahi (15.56) are higher than the national cost and for other 4 divisions- Dhaka (13.82), Khulna(14.92), Barisal(14.87) and Sylhet (14.24) is lower as well.

3.12. Production and value:

Table 3.12(a):Per acre production (maund) and value (Tk) of wheat by division.

Division	Wheat	
	Per acre Production (Maund)	Value(Tk)
1	2	3
Barisal	22.17	16763
Chittagang	23.44	18577
Dhaka	24.18	18809
Khulna	22.88	18316
Rajshahi	22.86	18534
Sylhet	21.03	17726
Bangladesh	22.97	18481

Table 3.12(a).exhibited per acre production and value in Taka of wheat by division. From this table we find that per acre average production at national level at survey time was 22.97maunds and its price was Tk 18481. It is noteworthy that variation in value at both divisions and national level is very nominal and it is considerably lower in two divisions- Barisal and Sylhet.

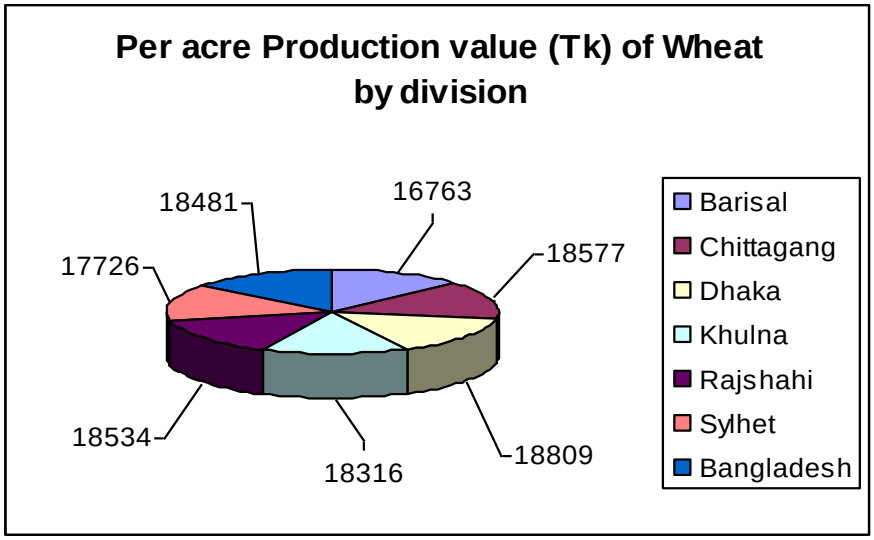


Fig.: Per acre production value (Tk) of Wheat by division.

Table 3.12(b): Per acre production (maund) and value (Tk) of by-product by division of Wheat

(Fig. in Tk.)

Division	Production of by product of Wheat (Straw)	
	Maund	Value(Tk)
1	2	3
Barisal	20.31	424
Chittagang	22.13	460
Dhaka	22.49	466
Khulna	24.65	504
Rajshahi	23.80	485
Sylhet	15.23	313
Bangladesh	23.75	486

From the Table: 3.12(b) it is found that the cost of by product is the highest (Tk.504) in Khulna and the lowest (Tk.313) in Sylhet division. If the divisional figures are compared with that of national level, it reveals that production value for all divisions are lower than that at national level except Khulna (Tk 504).

3.13. Productivity:

Table-3.13: Productivity of Wheat paddy per acre by division.

Division	Total production cost per acre (Tk.)	Total farmgate Value per acre (Tk.)			Productivity
		Wheat	By product	Total	
1	2	3	4	5	6
Barisal	13185	16763	424	17187	1.33
Chittagong	14986	18577	460	19037	1.27
Dhaka	13362	18809	466	19275	1.44
Khulna	13656	18316	504	18820	1.38
Rajshahi	14205	18534	485	19019	1.34
Sylhet	11983	17726	313	18039	1.50
Bangladesh	14052	18481	486	18967	1.35

Table 3.13 depicts the productivity by division and national level as well. It is the most significant component of production because it determines whether producers will continue the production of the respective goods. If it is greater than one it means that the producer becomes benefited and he will be interested to continue the production of those goods; and if it is less than one it means that the producer will be looser and he will quit the production of those goods. It is evident from the table that productivity of Wheat crop at national level is greater than one(1.35), which means that farmers get some profit from the production of wheat crop. All the divisions are benefited by producing wheat of which Sylhet gets the highest profit of the productivity (1.50).

3.14. By size of land planted all (Wheat):

Per decimal production cost and production value by size of land planted under Wheat have been shown below. Here size of land planted means land planted under Wheat by the households in the sample area. Land size planted has been divided into 8 classes.

Table-3.14(a): Distribution of per decimal production cost (excluding leasing) by size of land planted for Wheat crop 2008-09.

(Fig in Tk)

Size of land planted(acres)	Land preparation	Seed, pesticide & irrigation	Fertilizer	Other	Total
1	3	4	5	6	2
<= 0.04	33.80	29.64	35.66	39.20	138.20
0.05 – 0.49	26.34	29.00	28.13	36.11	119.57
0.50 – 0.99	23.27	28.46	28.08	28.39	108.20
1.00 – 1.49	20.51	27.39	27.32	23.13	98.35
1.50 – 2.49	18.37	26.68	28.72	21.08	94.84
2.50 – 4.99	14.73	26.48	31.82	19.36	92.39
5.00-7.49	0.00	0.00	0.00	0.00	0.00
7.50+	0.00	0.00	0.00	0.00	0.00
Total	22.69	28.17	28.18	28.90	107.93

It is noticed from the table 3.14(a) that per decimal total production cost (excluding leasing value) for total land is almost same for i) seed, pesticide and irrigation cost (28.17), ii)fertilizer cost (28.18) and iii) other cost (28.90) ; but for land preparation cost it is Tk 22.69. The table-3.14(a) further exposes that per decimal production cost is increased for all components where land size is decreased. No cultivation of Wheat was found in the size class of 5.00-7.40 and 7.50+ acres in the sample area.

Table-3.14(b): Distribution of per decimal production value by land size for the 2008-09 Wheat crop.

(Fig. in Tk)

Size of land planted(acres)	Total	Product Value	Other
1	2	3	4
<= 0.04	206.08	197.88	8.20
0.05 – 0.49	201.17	195.62	5.55
0.50 – 0.99	179.02	174.32	4.70
1.00 – 1.49	190.84	186.67	4.17
1.50 – 2.49	182.92	178.29	4.63
2.50 - 4.99	190.68	187.15	3.53
5.00-7.49	0.00	0.00	0.00
7.50+	0.00	0.00	0.00
Total	189.67	184.81	4.86

The table 3.14(b) focuses that per decimal total production value for total land at national level is Tk 189.67. In this case also it is noticed that per decimal production value is observed higher where land size is lower and it is due to farmer's more care to the land for getting better yield.

Table-3.14(c): Distribution of per decimal production cost (excluding leasing) by size of land planted and tenureship of land for the 2008-09Wheat crop.

(Fig. in Tk)

Size of land planted(acres)	Tenureship					All
	Own	Share	Mortgage	Lease	Others	
1	1	2	3	4	5	6
<= 0.04	165.36	103.64	0.00	0.00	0.00	138.20
0.05 – 0.49	119.18	119.98	119.23	120.04	132.87	119.57
0.50 – 0.99	107.54	111.62	102.03	116.11	142.11	108.20
1.00 – 1.49	98.02	102.47	43.40	0.00	96.00	98.35
1.50 – 2.49	96.85	80.46	93.35	85.04	0.00	94.84
2.50 - 4.99	92.39	0.00	0.00	0.00	0.00	92.39
5.00-7.49	0.00	0.00	0.00	0.00	0.00	0.00
7.50+	0.00	0.00	0.00	0.00	0.00	0.00
Total	107.18	109.25	110.65	114.47	131.67	107.93

The table clearly exposes that per decimal production cost for all is high where the land size of wheat cultivation is low and the picture is true for all types of tenurship of land. No cultivation of wheat above 4.99 acres is found in the sample area. But for own type of tenureship, the cost is low (Tk 107.18) and others system it is high (131.67).

Table-3.14(d): Distribution of major group wise per decimal production value by type of tenureship for the2008-09Wheat crop.

(fig in Tk)

Size of land planted(acres)	Tenureship					All
	Own	Share	Mortgage	Lease	Others	
1	1	2	3	4	5	6
<= 0.04	162.86	261.09	0.00	0.00	0.00	206.08
0.05 – 0.49	209.33	174.15	168.32	179.89	173.10	201.17
0.50 – 0.99	181.54	168.23	151.26	180.89	187.25	179.02
1.00 – 1.49	193.16	175.53	101.96	0.00	103.10	190.84
1.50 – 2.49	187.36	160.60	83.84	159.29	0.00	182.92
2.50 - 4.99	190.68	0.00	0.00	0.00	0.00	190.68
5.00-7.49	0.00	0.00	0.00	0.00	0.00	0.00
7.50+	0.00	0.00	0.00	0.00	0.00	0.00
Total	193.84	170.90	157.31	177.51	168.98	189.67

The table focuses that per decimal production value of own land is higher where land size under Wheat is lower. But some fluctuating values are seen in the lands share cropping, mortgage, lease and others. For own system, production value is high (Tk 193.84) and mortgage system, it is low (Tk 157.31).

3.15 Sampling Error and data reliability

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

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

Where : R= the estimated average cost (land preparation/ seed, pesticide & irrigation/ fertilizer/weeding, harvesting & trashing)

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

K = the number of random group

Table-3.15(a). Estimated average production cost per kg and per decimal(excluding leasing) for the 2008-09 wheat crops and their standard errors

Cost	Per kg		Per decimal	
	Cost	Standard Error	Cost	Standard Error
Land preparation	2.47	0.0629132	22.65	0.0284511
Seed, pesticide & irrigation	3.08	0.1968231	28.25	0.0296597
Fertilizer	3.09	0.1027814	28.30	0.0447381
Others	3.12	0.2186252	28.82	0.1087848
Wheat	11.76	0.3161748	108.02	0.0775122

The standard errors of five type of estimated average production cost per kg were higher than for five type of estimated average production cost per decimal; but all the estimated costs have acceptable reliability in terms of sampling error.

Chapter-IV

Statistical Table

Statistical Table

Table-4.1. Distribution of per decimal production cost (excluding leasing) by Size of land planted (acres) for Wheat crop, 2008-09.

(Fig. in Tk.)

Size of land planted (acres)	Land preparation	Seed, pesticide & irrigation	Fertilizer	Other	Total
1	2	3	4	5	6
<= 0.04	33.80	29.64	35.56	39.20	138.20
0.05 – 0.49	26.34	29.00	28.13	36.11	119.57
0.50 – 0.99	23.27	28.46	28.08	28.39	108.20
1.00 – 1.49	20.51	27.39	27.32	23.13	98.35
1.50 – 2.49	18.37	26.68	28.72	21.08	94.84
2.50 – 4.99	14.73	26.48	31.82	19.36	92.39
5.00 – 7.49	0.00	0.00	0.00	0.00	0.00
7.50+	0.00	0.00	0.00	0.00	0.00
Total	22.69	28.17	28.18	28.90	107.93

Table-4.2. Distribution of major decimal production value by Size of land planted (acres) for Wheat crop, 2008-09.

(Fig. in Tk)

Size of land planted (acres)	Total	Product Value	By Product Value
1	2	3	4
<= 0.04	206.08	197.88	8.20
0.05 – 0.49	201.17	195.62	5.55
0.50 – 0.99	179.02	174.32	4.70
1.00 – 1.49	190.84	186.67	4.17
1.50 – 2.49	182.92	178.29	4.63
2.50 - 4.99	190.68	187.15	3.53
Total	189.67	184.81	4.86

Table-4.3: Distribution of per decimal production cost (excluding leasing) of own land size for the year 2008-09 of Wheat crop.

Size of land planted (acres)	Land preparation	Seed, pesticide & irrigation	Fertilizer	Other	Total
1	2	3	4	5	6
<= 0.04	38.21	31.50	47.07	48.57	165.36
0.05 – 0.49	26.53	28.66	28.00	35.99	119.18
0.50 – 0.99	23.17	28.21	28.00	28.16	107.54
1.00 – 1.49	20.04	27.44	27.17	23.37	98.02
1.50 – 2.49	18.68	26.79	29.59	21.80	96.85
2.50 – 4.99	14.73	26.48	31.82	19.36	92.39
5.00 – 7.49	0.00	0.00	0.00	0.00	0.00
7.50+	0.00	0.00	0.00	0.00	0.00
Total	22.46	27.95	28.22	28.55	107.18

Table-4.4: Distribution of per decimal production value of own land size for the 2008-09 Wheat crop.

(Fig. in Tk)

Size of land planted (acres)	Production Value	By Production Value	Total value
1	2	3	4
<= 0.04	154.07	8.79	162.86
0.05 – 0.49	203.66	5.68	209.33
0.50 – 0.99	176.91	4.63	181.54
1.00 – 1.49	189.20	3.97	193.16
1.50 – 2.49	182.70	4.65	187.36
2.50 - 4.99	187.15	3.53	190.68
5.00 – 7.49	0.00	0.00	0.00
7.50+	0.00	0.00	0.00
Total	189.04	4.80	193.84

Table-4.5: Distribution of per decimal production cost (excluding leasing) of land under crop sharing by size for the 2008-09 Wheat crop.

Size of land planted (acres)	Land preparation	Seed, pesticide & irrigation	Fertilizer	Other	Total
1	2	3	4	5	6
<= 0.04	28.18	27.27	20.91	27.27	103.64
0.05 – 0.49	26.50	29.70	28.36	35.42	119.98
0.50 – 0.99	24.40	29.84	28.15	29.23	111.62
1.00 – 1.49	24.79	27.98	28.27	21.44	102.47
1.50 – 2.49	16.09	26.63	23.11	14.64	80.46
2.50 – 4.99	0.00	0.00	0.00	0.00	0.00
5.00 – 7.49	0.00	0.00	0.00	0.00	0.00
7.50+	0.00	0.00	0.00	0.00	0.00
Total	24.00	29.08	27.53	28.65	109.25

Table-4.6: Distribution of per decimal production value of land under crop sharing by size for the 2008-09 Wheat crop.

(Fig. in Tk)

Size of land planted (acres)	Production Value	By Production Value	Total value
1	2	3	4
<= 0.04	253.64	7.46	261.09
0.05 – 0.49	168.55	5.59	174.15
0.50 – 0.99	162.29	5.95	168.23
1.00 – 1.49	169.00	6.53	175.53
1.50 – 2.49	155.29	5.31	160.60
2.50 - 4.99	0.00	0.00	0.00
5.00 – 7.49	0.00	0.00	0.00
7.50+	0.00	0.00	0.00
Total	165.09	5.81	170.90

Table-4.7: Distribution of per decimal production cost (excluding leasing) of land under mortgage by size for the crop 2008-09 Wheat crop.

Size of land planted (acres)	Land preparation	Seed, pesticide & irrigation	Fertilizer	Other	Total
1	2	3	4	5	6
<= 0.04	0.00	0.00	0.00	0.00	0.00
0.05 – 0.49	25.93	30.63	29.01	33.66	119.23
0.50 – 0.99	22.53	28.29	25.82	25.39	102.03
1.00 – 1.49	12.26	16.98	0.00	14.15	43.40
1.50 – 2.49	9.67	21.40	50.88	11.40	93.35
2.50 – 4.99	0.00	0.00	0.00	0.00	0.00
5.00 – 7.49	0.00	0.00	0.00	0.00	0.00
7.50+	0.00	0.00	0.00	0.00	0.00
Total	23.69	29.07	28.55	29.35	110.65

Table-4.8: Distribution of per decimal production value of land under mortgage by size for the crop 2008-09 Wheat crop.

(Fig. in Tk)

Size of land planted (acres)	Product Value	By Product Value	Total value
1	2	3	4
<= 0.04	0.00	0.00	0.00
0.05 – 0.49	164.28	4.05	168.32
0.50 – 0.99	147.80	3.46	151.26
1.00 – 1.49	99.59	2.38	101.96
1.50 – 2.49	82.16	1.68	83.84
2.50 - 4.99	0.00	0.00	0.00
5.00 – 7.49	0.00	0.00	0.00
7.50+	0.00	0.00	0.00
Total	153.61	3.70	157.31

Table-4.9: Distribution of per decimal production cost (excluding leasing) of land under land lease by size for the crop 2008-09 Wheat crop.

Size of land planted (acres)	Land preparation	Seed, pesticide & irrigation	Fertilizer	Other	Total
1	2	3	4	5	6
<= 0.04	0.00	0.00	0.00	0.00	0.00
0.05 – 0.49	21.29	29.66	29.56	39.54	120.04
0.50 – 0.99	20.48	30.02	31.27	34.34	116.11
1.00 – 1.49	0.00	0.00	0.00	0.00	0.00
1.50 – 2.49	19.09	25.52	15.09	25.34	85.04
2.50 – 4.99	0.00	0.00	0.00	0.00	0.00
5.00 – 7.49	0.00	0.00	0.00	0.00	0.00
7.50+	0.00	0.00	0.00	0.00	0.00
Total	21.38	29.24	28.32	35.53	114.47

Table-4.10: Distribution of per decimal production value of land under land lease by size for the crop 2008-09 Wheat crop.

(Fig. in Tk)

Size of land planted (acres)	Product Value	By Product Value	Total value
1	2	3	4
<= 0.04	0.00	0.00	0.00
0.05 – 0.49	175.57	4.32	179.89
0.50 – 0.99	176.58	4.31	180.89
1.00 – 1.49	0.00	0.00	0.00
1.50 – 2.49	156.30	2.99	159.29
2.50 - 4.99	0.00	0.00	0.00
5.00 – 7.49	0.00	0.00	0.00
7.50+	0.00	0.00	0.00
Total	173.37	4.14	177.51

Table-4.11: Distribution of per decimal production cost (excluding leasing) of land under other by size for the crop 2008-09 Wheat crop.

Size of land planted (acres)	Land preparation	Seed, pesticide & irrigation	Fertilizer	Other	Total
1	2	3	4	5	6
<= 0.04	0.00	0.00	0.00	0.00	0.00
0.05 – 0.49	28.79	32.12	26.60	45.36	132.87
0.50 – 0.99	37.07	34.15	36.06	34.84	142.11
1.00 – 1.49	19.50	22.00	41.00	13.50	96.00
1.50 – 2.49	0.00	0.00	0.00	0.00	0.00
2.50 – 4.99	0.00	0.00	0.00	0.00	0.00
5.00 – 7.49	0.00	0.00	0.00	0.00	0.00
7.50+	0.00	0.00	0.00	0.00	0.00
Total	30.00	31.52	29.54	40.61	131.67

Table-4.12: Distribution of per decimal production value of land under other by size for the crop 2008-09 Wheat crop.

(Fig. in Tk)

Size of land planted (acres)	Product Value	By Product Value	Total value
1	2	3	4
<= 0.04	0.00	0.00	0.00
0.05 – 0.49	165.84	7.26	173.10
0.50 – 0.99	179.29	7.97	187.25
1.00 – 1.49	97.50	5.60	103.10
1.50 – 2.49	0.00	0.00	0.00
2.50 - 4.99	0.00	0.00	0.00
5.00 – 7.49	0.00	0.00	0.00
7.50+	0.00	0.00	0.00
Total	161.76	7.23	168.98

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 me 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 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 be varied from place to place. It might be one third (1/3) or half (1/2) or two-third (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 jute has been cultivated during survey year.

Annexure- B

Statement-I

Crop	2005 Cropped 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।

গম উৎপাদন খরচ জরিপ, ২০০৯

প্রথম অংশ

খানার পরিচিতি

খানার ক্রমিক নম্বর☐☐☐

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

জেলা _____ কোড ☐☐ উপজেলা _____ কাড ☐☐

ইউনিয়ন_____ কোড☐☐ মৌজা/গ্রাম _____ কোড ☐☐☐

দ্বিতীয় অংশ

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

খন্ড	গমের 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										

গমের প্রকারের কোড ঃ দেশী-১ ও উফশী-২ মালিকানা কোডঃ নিজস্ব-১, বর্গা-২, বন্ধক-৩, লীজ-৪ এবং অন্যান্য-৫

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

খন্ড	বীজ		বীজ বপণ 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 ও খরচ (টাকা) এবং কীটনাশক খরচ (টাকা)

খন্ড	ইউরিয়া		টিএসপি		পটাশ (এমওপি)		গোবর/জৈব		অন্যান্য	মোট (টাকা)
	পরিমাণ (কেজি)	মূল্য (টাকা)	পরিমাণ (কেজি)	মূল্য (টাকা)	পরিমাণ (কেজি)	মূল্য (টাকা)	পরিমাণ (কেজি)	মূল্য (টাকা)	মূল্য (টাকা)	
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১
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 গম (মণ) এবং উপজাতের পরিমাণ (মণ) ও মূল্য (টাকা)

খন্ড	ফসল (গম)		উপজাত (ডাটি)		মোট উৎপাদিত দ্রব্যের মূল্য (টাকা)
	পরিমাণ (মণ)	মূল্য (টাকা)	পরিমাণ (কেজি)	মূল্য (টাকা)	
১	**২**	**৩**	**৪**	**৫**	**৬**
১ম					
২য়					
৩য়					
৪র্থ					
৫ম					

(১ মণ=৪০ কেজি)

৭। গম মৌসুমে গমের চাষের জন্য এক একর জমি লীজ নিতে মালিককে কত টাকা দিতে হয়ঃ----------

তথ্য সংগ্রহকারীর নাম ---------- সুপারভাইজারের নাম ----------

পদবী ---------- পদবী ----------

তারিখ ---------- তারিখ ----------

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