



# Report on The Productivity Survey Of Maize Crop

# 2014

August, 2015



**Productivity Assessment Survey of Different Agricultural Crops Programme**

**BANGLADESH BUREAU OF STATISTICS(BBS)**  
**Statistics and Informatics Division(SID)**  
**Ministry of Planning**





Secretary  
Statistics and Informatics Division(SID)  
Ministry of Planning

## Foreword

Agriculture plays a pivotal role in the economy of Bangladesh. This sector alone contributes 16.33% of annual GDP of the country. In addition, it offers both the opportunities of employment and livelihood to a large extent. It is worthy to mention that the country has a strong agriculture structure to maintain a sustainable development of the agriculture production of major and minor crops. As such the country enjoys the food security, sometimes with a buffer stock of major crops. Farmers of Bangladesh simultaneously produce various minor crops which also fulfill the demand of internal consumption of bulk population. In persuasion of the demand of statistics on production, cost of production and market price of various crops, Bangladesh Bureau of Statistics (BBS), apart from major crops, has also been putting efforts in conducting surveys on a series of minor crops.

Maize is a low-cost but the highest yielding grain crop of Bangladesh, which have diversified uses. It is a good source of nutrients for under nourished and mal-nourished population in the country and is widely used in the poultry farms as feed and also used for human consumption in roasted & fried form. Therefore, the demand for maize is increasing day by day in Bangladesh. This maize report is the eighth of its series of nine different crop surveys. I believe that the data presented in the report would be very useful for the policy formulation and planning process of its development initiatives.

I would like to take this opportunity to extend my thanks to the Director General, BBS and his colleagues who were involved in different stages of the survey and finalizing the report. I believe that the policy makers, researchers, consumers and all other stakeholders will find this report very useful.

Dhaka  
August, 2015

KanizFatema, *ndc*  
Secretary





Director General  
Bangladesh Bureau of Statistics(BBS)

## Preface

Bangladesh is predominantly an agriculture country. As the sector is playing a pivotal role in the development of the economy, there is no other alternative but to develop agriculture sector for alleviation of poverty. Since provision of food security, improvement of the living standard and generation of employment opportunity of our population are directly linked to the development of agriculture, there have been continued efforts by the government for the overall development of this sector.

Production of crops, cost of production of crops and market price of both major and minor crops are directly interrelated. Government has to give proper attention on these three factors so that the farmers get fair price of the crops produced during the harvest time.

In order to formulate proper policy and planning for the development of agriculture sector reliable and realistic data regarding production cost of crops in different phases such as cost relating to land preparation, seeds, weeding, insecticides, fertilizers, harvesting, transportation, leasing of land etc. are needed. Keeping these in view, the Productivity Assessment Survey of different Agricultural Crops(PASDAC) Program under the Bangladesh Bureau of Statistics has conducted survey on nine minor crops to obtain cost of production of each individual crop by following the scientific survey methods. This report contains the findings of the survey on Maize conducted during September 2014.

I express my sincere gratitude to the members of the Technical Committee and the Working Committee of the PASDAC Program for providing technical guidance for choosing spices crops for study, sample design, finalizing questionnaire and other related matters. I would like to convey thanks to Mr. Md. Nurul Islam, Joint Secretary (Rtd.), Local consultant, Ms. Salima Sultana, Director, Agriculture wing, BBS and Mr. Md. Akhter Hassan Khan, Programme Director of this study and other officers/staff who worked hard in bringing out this report in time.

Any comments or constructive suggestions for improvement of such report in future will be appreciated.

Dhaka  
August, 2015

Mohammad Abdul Wazed  
Director General  
(Additional Secretary)



## Acknowledgement

Now-a-days agriculture production statistics and cost of production statistics of different crops have wide demand among the users. This statistics provide necessary information to development planners & Policy makers. It also helps business community with market related information. The report on "The Productivity Survey of Maize Crop-2013" will be of great informative publication relating to minor crops production and cost of production.

I would like to express my gratitude to the honorable Secretary, Statistics and Informatics Division for his valuable guidance and directions provided during the survey Programme. I would also remain grateful to Mr.Mohammad Abdul Wazed Director General (Additional Secretary), BBS for his continued suggestions and support to me in performing all the necessities during the survey and for preparing the report. I would like to extend my gratitude to Dr. KaziMostafaSarwar, Joint Secretary (Admin), Statistics and Informatics Division (SID) for his continuous follow-up implementation of the activities of the programme.

I would like to appreciate Mr. Md. Nurul Islam, Joint Secretary (Rtd) for developing the methodology of the survey as well as the report and also thanks to Ms.Salima Sultana, Director of Agriculture Wing, BBS for her valuable guidance and support that helped to conduct the survey. My thanks also go to Mr. Md. RezaulKarim, Assistant Statistical Officer for his works in data processing. I acknowledge the valuable suggestions and hard work of officials and staff of Agriculture Wing.

I am also grateful to the respondents who extended their cooperation for filling questionnaire and spending their valuable time in spite of their busy occupations. My sincere thanks to the field officials and staff involved in the survey.

Finally I acknowledge the work of the officers and staff who were involved in typing questionnaire, manuals and this report.



Dhaka  
August, 2015

Md. Akhter Hassan Khan  
Programme Director



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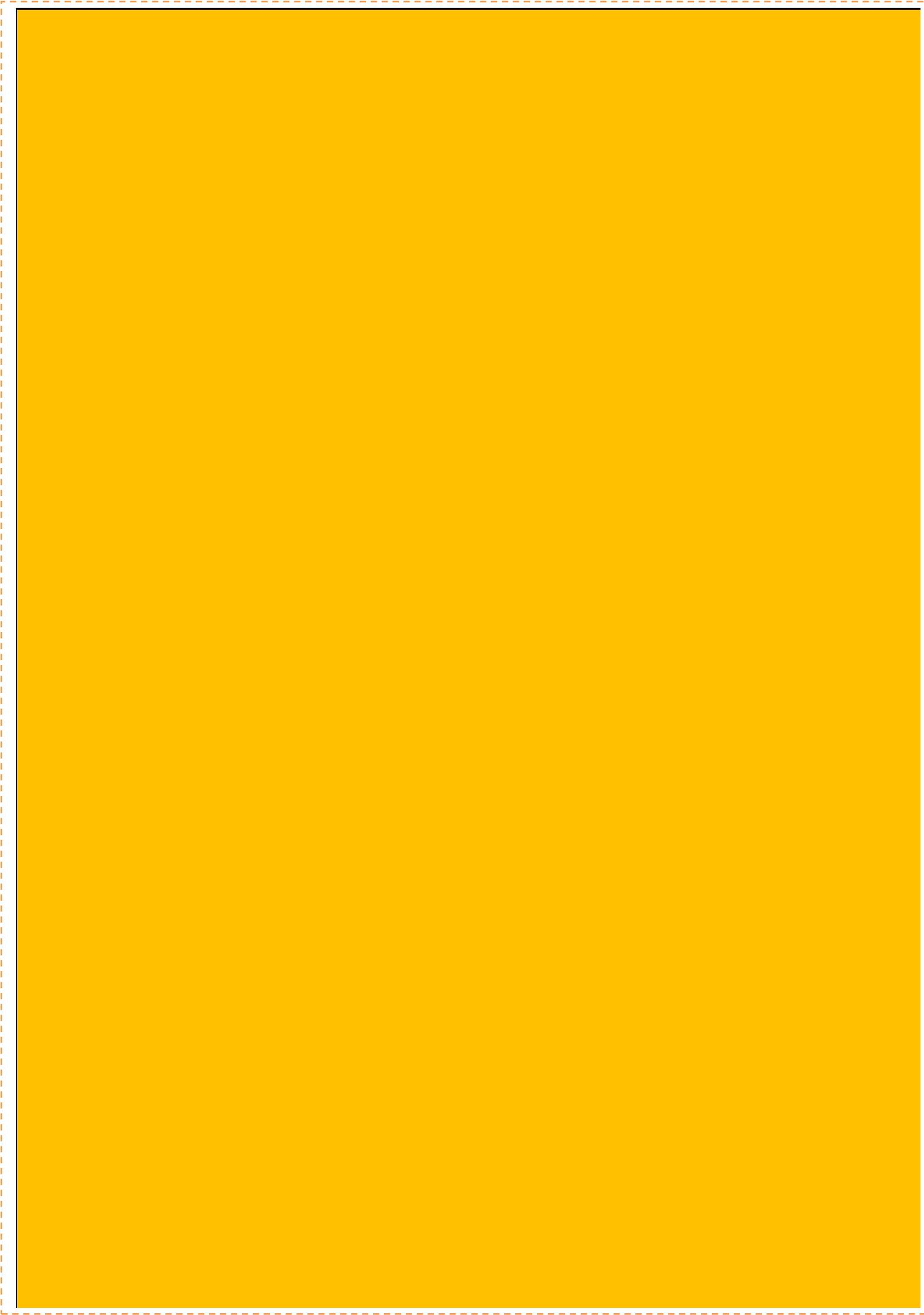
## Key Findings

SL. No.	Items	Result
1	2	3
1.	Area in acre under maize (farm holding)	725700
2.	Percentage of area growing maize by tenancy;	
	a. Own	72.05
	b. Share crop	7.32
	c. Mortgage	8.30
	d. Lease	11.82
	e. Others	0.52
3.	Percentage of area growing maize by stratum	
	a. Stratum-1	9.70
	b. Stratum-2	31.19
	c. Stratum-3	59.11
4.	Percentage of area growing maize by varieties	
	a. Local	5.15
	b. Hybrid	93.90
	c. Others	0.95
5.	Percentage of area growing maize by cultivation type	
	a. Single	92.51
	b. Mixed	7.49
6.	Percentage of area growing maize by farming time	
	a. Rabi/Winter	85.14
	b. Kharif/Summer	14.26
7.	Number of labourers employed by component for per acre production of maize	
	a. Planting	8
	b. Weeding.	17
	c. Harvesting	13
	d. Threshing	12
	Total	50
8.	Per acre leasing value (Tk.)	4511
9.	Per acre production cost (Tk.) by varieties	
	a. Local	20205
	b. Hybrid	24038
	Average	23805
10.	Per acre production cost (Tk.) by stratum	
	a. Stratum-1	23480
	b. Stratum-2	22352
	c. Stratum-3	24625

SL. No.	Items	Result
1	2	3
11	Per acre production cost (Tk.) by type of input	
	a. Land preparation	2538
	b. Seed	1963
	c. Plantation	1650
	d. Weeding	2851
	e. Irrigation	3435
	f. Pesticide/insecticide/Hormone	516
	g. Fertilizer	5162
	h. Harvesting and threshing	4783
	i. Transport	606
	j. Others	303
	Total	23805
12.	Per acre yield rate (Kg.) by stratum	
	a. Stratum-1	2792
	b. Stratum-2	2916
	c. Stratum-3	2818
	All average	2846
13.	Per acre production value (Tk.) by stratum	
	a. Stratum-1	44711
	b. Stratum-2	45844
	c. Stratum-3	48140
	All average	47091
14	Per acre production value (Tk.) by farming time	
	a. Rabi/Winter	48863
	b. Kharif/Summer	36433
15	Per acre yield rate (Kg) by farming time	
	a. Rabi/Winter	2938
	b. Kharif/Summer	2296
16	Per acre production value (Tk.) by variety	
	a. Local	35291
	b. Hybrid	47857
	Average	47091
17	Per acre benefit cost ratio by variety	
	a. Local	1.75
	b. Hybrid	1.99
	<b>Average</b>	<b>1.97</b>

# Chapter-1

## 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 was started happening the activities of the population got diversification towards different sectors. As a result, the contribution of the agriculture sector is slowly reducing and now (2011-12) has reached 16.33% share of GDP (BBS). Still agriculture plays vital role and is contributed 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. Maize is one of the most important food grains in the world as well as developing countries like Bangladesh. It is one of the cash crops in Bangladesh which has the potential to pull farmers out of poverty.

Maize is a versatile crop due to its multifarious uses as feeds, food and industrial raw material. Every part of the maize plant is useful. Green cobs of maize are used as food after cooked by roasting or boiling in water. The top green portion of the plant after harvest of the cob is fed to cattle as fodder, and the dry portion of the stem along with fibrous roots are used as fuel. The greatest advantage of maize over rice and wheat is its high bio-mass potential. Maize grain, full or broken, is used in *Khichuri*, gruel often mixed with pulses. Popcorn is consumed as snacks. Grains are the principal ingredients for poultry and cattle feed. Industries make use of maize for corn oil, starch, adhesives, medicines and in the manufacture of various food products like corn flakes, chips etc. People in Bangladesh consider maize as animal feed or at best a poor people's food. In other countries, however, (e.g. Indonesia, Mexico, Chile, Kenya, Central America and Zimbabwe) maize is a staple food. Maize is more nutritious than rice in terms of protein, phosphorus and carotene content. Fats and mineral contents are also higher. It is rich in Vitamin B and trace elements. Also, its price is lower than rice. The principal consumption of maize is in the form of feed for poultry although some dairy farms use

maize as feed grains and its plants as green fodder for the cattle. Demand for maize in the country is growing and is expected to increase further with the establishment of new poultry, dairy and fish farms.

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 calamities like draught, flood, cyclone, tornado etc. are a very regular phenomenon which hinders the production of agriculture to 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 consistently been allocated 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 influence 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 the 'Productivity Assessment Survey of different Agricultural Crops (PASDAC) Program' of BBS has been given the responsibility of conducting a survey on the yield and cost of production of onion crop.

## 1.1 Production of Maize

Maize is the third grain crop in Bangladesh. It can be grown in all the three seasons of the year. Winter maize is, however, found to be predominant with a share of 84% of the country's total maize area. About the timing of the maize plantation, it is planted at any time during October to February covering five months of the year depending on the land suitability and the cropping practice.

From the agroedaphic point of view, maize can be grown all over the country. It is a fast growing crop. Maize grows well with a minimum temperature of 10 degree C and a maximum 30 degree C. Maize sheds pollen well and matures quickly at a temperature range from 20 degree C to 30 degree C. The average minimum and maximum temperatures of 12 degree C and 29 degree C, respectively, of Bangladesh are ideal for successful maize production. Being a short day crop, maize can be grown throughout the year in all parts of the country.

Among different districts, Dinajpur, Chuadanga, Takurgaon, Lalmonirhat, RajshahiKushtia, RangpurandBogra are noted to be more progressive in maize production with higher rates of growth. Both composite and hybrid maize are grown well in the loam and sandy-loam soils of the country (with three to four irrigations). Hybrid maize has a greater yield with 2.4 tons/acre (5.4 tons per ha), which is higher by one-third over composite maize (1.47 tons/acre or 3.63 tons/hectare). Farmers, however, prefer the composite variety because of the easy availability of seeds, lower price and known quality. Farmers are somewhat uncertain about the quality of hybrid maize seeds available in the market. The prices of hybrid seeds are also higher as compared to the composite variety.

Though the area and production have been raised but per unit yield of maize is very low. The yield of maize can be increased by adopting improve production technology like proper plant spacing. Although maize is one of the major grain crop of Bangladesh, but its production technologies has not been standardized from the scientific and economic point of view. Therefore, research needs to bring improvement in production technologies as well as considering economic return. If nature favors, farmers get moderately good harvest.

## **1.2 Scope and coverage of the survey**

The productivity survey of maize crop-2014 is a household based survey. Under the purview of this survey the target population was having at least five decimal areas under maize dwelling households. The survey covers the whole country. A total of 240 PSUs were taken in the survey from three strata on the basis of maize cultivation land. Stratum-1 covered the districts of Dinajpur, Chuadanga, Takurgaon, Lalmonirhat, Rajshahi, Kushtia, Rangpur and Bogra. Stratum-2 covered the districts Chandpur, Meherpur, Panchagarh, Bandarban, Nowabganj, Sirajganj, Natore, Comilla, Jhenaidah, Nilphamari, Manikganj, Naogaon and Gaibanda and stratum-3 consists of the rest of the forty three districts of Bangladesh.

## **1.3 Objectives of the Survey**

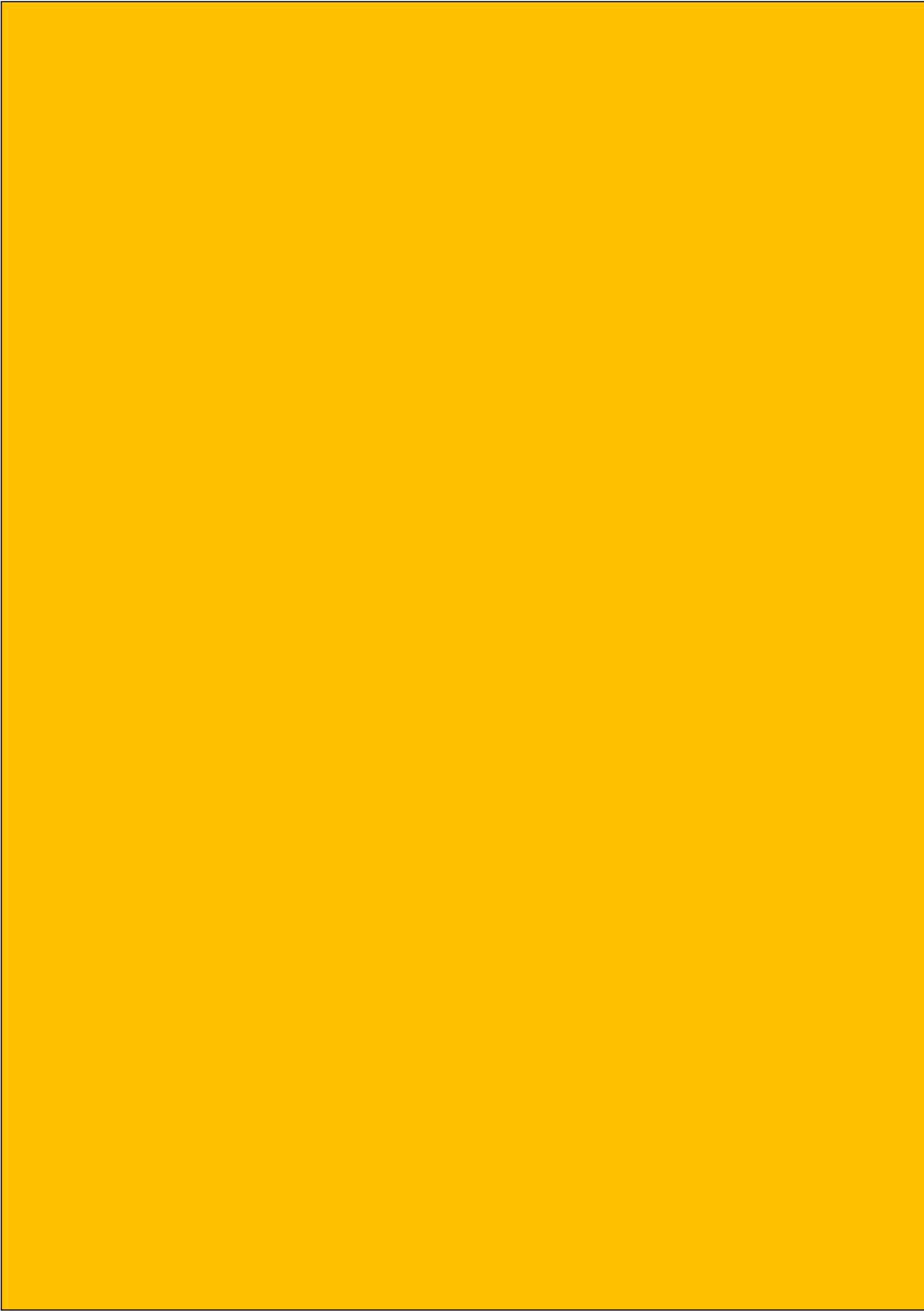
The Maize Survey 2014 is designed to provide national estimates for various indicators that are needed for national accounts and policy purposes.

The objectives of the survey are to estimate:

- (a) Per acre production cost
- (b) Per acre yield rate
- (c) Per acre production value and
- (d) The total area under Maize cultivation

# Chapter-2

## Methodology



# Methodology

## 2.1 Sample Design

The Maize Survey has been conducted in the whole country excluding the City Corporation areas using the Agriculture Census-2008. In this survey, households having at least five decimal area of land under maize crop cultivation are considered as the ultimate sampling units. For the better estimate, sixty four districts are divided into three strata based on area under maize cultivation in Agriculture Census-2008. In stratum-1, the districts are considered having more than 30,000 acres of land, whereas in stratum-2 considered the districts having 10,001 to 30,000 acres of land and stratum-3 is considered the districts having less than 10,000 acres of land. As such the eight districts in stratum-1 are Dinajpur, Chuadanga, Takurgaon, Lalmonirhat, Rajshahi, Kushtia, Rangpur and Bogra. In stratum-2 thirteen districts are Chandpur, Meherpur, Panchagarh, Bandarban, Nowabganj, Sirajganj, Natore, Comilla, Jhenaidah, Nilphamari, Manikganj, Naogaon and Gaibanda. Rest of the forty three districts in stratum-3. From the first stratum, 80 mauzas, second stratum, 100 mauzas and in third stratum 60 mauzas are selected in this survey. A total of 240 PSUs were selected from the whole country. A two stage stratified cluster sampling method has been used to conduct the survey, where a mauza having at least 25 maize farm holdings was treated as the primary sampling unit (PSU) and within the selected mauzas, maize farm households were chosen as the ultimate sampling units. For each stratum, a mauza has been selected following the probability proportional to size (PPS) method taking land under maize cultivation as measure of size. In the second stage, all the maize households were listed and then 30 households were selected following the systematic random sampling. However, if a selected mauza possesses less than 25 maize producing farm households then the remaining households are taken from the adjacent mauza or mauzas.

## 2.2. Data Collection

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

- Questionnaire Design;
- 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 were conducted;
- Required number of field survey staff were set up in order to ensure smooth data collection;
- Extra-care was taken for the data collection activity, sufficient number of supervisors was assigned.

### 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 were addressed to the extent possible for developing the questionnaire of survey.

### 2.2.2. Process of questionnaire design

A working committee comprising of all the Directors of Bangladesh Bureau of Statistics (BBS), headed by the Deputy Director General was formed in order to facilitate the questionnaire development activity. Programme Director and some other members of the working committee had paid several visits to the field with a view to be knowledgeable about the factors of production and the pros and cons of the whole process of the production of Maize. They discussed the matter with the farmers who grow Maize. After having the knowledge on the issue, they provided feedback to the meeting of the working committee. Working committee had thoroughly examined the feedback and selected the topics of the survey. Programme Director was assigned to form a questionnaire on the selected topics and eventually, he developed a questionnaire

with seven questions. Subsequently the questionnaire was brought forward to the Technical Committee, the highest statistical body comprising of representatives from different Ministries, Universities and BBS, which had finally approved the questionnaire.

### **2.2.3. Pre-testing the questionnaire**

The questionnaire was pre-tested to examine the time necessary to complete the interview, test the reliability i.e. whether it captured the information desired, and also investigated the consistency whether the information gathered by it was related to the whole purpose of the survey. The test had also 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 was carried out during the month of March 2013 prior to the survey at rural area of Shibganj Upazila under Bogra District and Gobindoganj Upazila belonging to Gaibandha District. A group including Programme Director, some members of the working committee had gone to the two places mentioned to take part in testing the questionnaire. They had chosen some of the farmers at random as the respondents.

### **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 had been made, this had been eventually adopted properly in the final questionnaire. During the pre-test, it had been found that farmers, the respondents did not feel comfortable to respond to the questions relating to the total area of the land under Maize crop. Considering the fact, the structure of the questionnaire had been changed. Deleting the aggregate area in a single row, the new concept, area by farming year/land type had 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 had been finalized with the approval of the Technical Committee.

### **2.2.6. Training of the Supervisors and Enumerators**

A two days training had been arranged in order to make the Supervisors 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. Two days training programme conducted by the Programme Director had been arranged at the head office of BBS in Dhaka. On the first day the participants received rigorous training on the concepts, definitions and the questionnaire and on the next day they had gone to the rural area of SavarUpazila with a view to having hands-on exercise on the questionnaire. In the second phase, Enumerators had 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 received training on the questionnaire and in the next day they also visited field at remote area of the respective region in order to have experience on hand. However, most of the trainees- both Supervisors 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 had been carried out following Paper and Pencil (PAPI) method.

### **2.2.8. Data Collection and Supervision**

Data collection had taken place during May-June 2013 at the homestead of the household. Usually the respondents are the head of household. The total of 100 enumerators, who were the employees of BBS and had proven experience in this field, had been engaged in data collection from the farm households and the total of 29 Supervising Officers named Regional Coordinators were responsible for supervising the data collection task. All Supervising Officers had been directed to stay at the respective region during the period of data collection so that they could extensively supervise data collection task and address instantly any untoward problem arising during data collection. Four Divisional Coordinators including Program Director were also responsible to oversee all activities at field level relating to data collection. Furthermore, all possible measures had been taken to obtain a good quality of data.

### 2.2.9. Data Editing and Coding

Data editing and coding were other vital phases of the survey, which were indispensable for data processing. It should be completed before data processing. In case of this survey coding had been done along with questionnaire development so that the enumerator could easily and accurately mark the right answers.

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

## 2.3 Data Processing

Data processing involved many steps that were very important because it affected survey results according to the involved steps. During data processing following steps had been taken.

- ❖ Data entry
- ❖ Appending and Merging files
- ❖ Data validation ( further computer 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.

### 2.3.1 Data Entry

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

**(1). Software Used:** Five software namely CSPro, FoxPro, Oracle (SQL), SPSS and Excel had been used for processing the survey data. CSPro had been used for data entry, FoxPro 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 had 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 had been developed depending on data dictionary. After that, the data entry form were tested and, therefore, readily available for use.

## **(3). Data capturing and Preliminary Validation**

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

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

## **(4).Appending and Merging files**

After data entry, files had properly been appended and merged in order to bring all data in a single file.

## **(5). Data Validation**

Validation had been accomplished after appending and merging files by checking the number of variables, the cases, wild codes, missing value and consistency. It had been made sure that the number of variables generated matched with the number of variables in the data set.

## **(6).Final decision on errors**

If there had been found any error during data validation, it was checked and rechecked; and sometimes it had 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 had been completed and generated a data file which contained micro data.

## **(8). Data preservation**

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

### **2.4 Tabulation**

Twenty five tables focusing on the vital components such as total number of labours engaged in production of Maize, cost of land preparation, seedlings used and their price, fertilizer used and their price, cost of insecticides, cost of production by phases etc. had been generated. All these tables had been given in the part of analysis and annexure.

### **2.5 Data Analysis**

Survey results had been analyzed in tabular form. Major variable was explained vertically (columns) and cross tabulation by another related variable(s) horizontally. In the analysis, it had described the variation of the magnitude of the major variables by national. Many aspects of production and the cost of production of Maize had also been explained nationally.

### **2.6. Data Dissemination**

The final report had 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-3

## Area and Household



## Area and Household

The information as obtained from the maize Productivity Survey 2014 in Bangladesh has been analyzed in this chapter. It contains data related to:

- i. Area and tenancy of land ownership under maize cultivation by farming time(rabi&kharif),
- ii. Households cultivating maize by tenancy and farming time,
- iii. Cultivating type of single and mixed crops by farming time,
- iv. Maize producing households by cultivation type and farming time,
- v. Varieties of maize (local, hybrid and others) by farming time,
- vi. Varieties of maize households by farming time, and
- vii. Per acre leasing cost of maize crop by stratum.

**Table-3.1: Percentage distribution of maize cultivation area (acre) by tenancy and farming time separately for stratum**

Farming time	Land tenancy											
	Total		Owned		Crop Share		Mortgage		Lease		Other	
	Area	%	Area	%	Area	%	Area	%	Area	%	Area	%
All Area												
Bangladesh	725700	100.00	522888	72.05	53095	7.32	60203	8.30	85778	11.82	3737	0.52
Rabi	622235	85.74	447269	61.63	46292	6.38	49892	6.88	75982	10.47	2800	0.39
Kharif	103466	14.26	75619	10.42	6804	0.94	10310	1.42	9796	1.35	936	0.13
Stratum-1												
Total	428973	59.11	303271	41.79	31318	4.32	35599	4.91	57258	7.89	1527	0.21
Rabi	374521	51.61	263203	36.27	28770	3.96	29386	4.05	51625	7.11	1527	0.21
Kharif	54452	7.50	40068	5.52	2547	0.35	6213	0.86	5623	0.77	-	-
Stratum-2												
Total	226363	31.19	161635	22.27	18891	2.60	19955	2.75	23877	3.29	2005	0.28
Rabi	187450	25.83	135313	18.65	14738	2.03	15931	2.20	20400	2.81	1068	0.15
Kharif	38913	5.36	26322	3.63	4154	0.57	4025	0.55	3477	0.48	936	0.13
Stratum-3												
Total	70365	9.70	57981	7.99	2886	0.40	4648	0.64	4643	0.64	205	0.03
Rabi	60264	8.30	48763	6.72	2784	0.38	4576	0.63	3946	0.54	205	0.03
Kharif	10101	1.39	9229	1.27	103	0.01	73	0.01	697	0.10	-	-

\* Rabi = Rabi/winter, Kharif =Kharif/summer

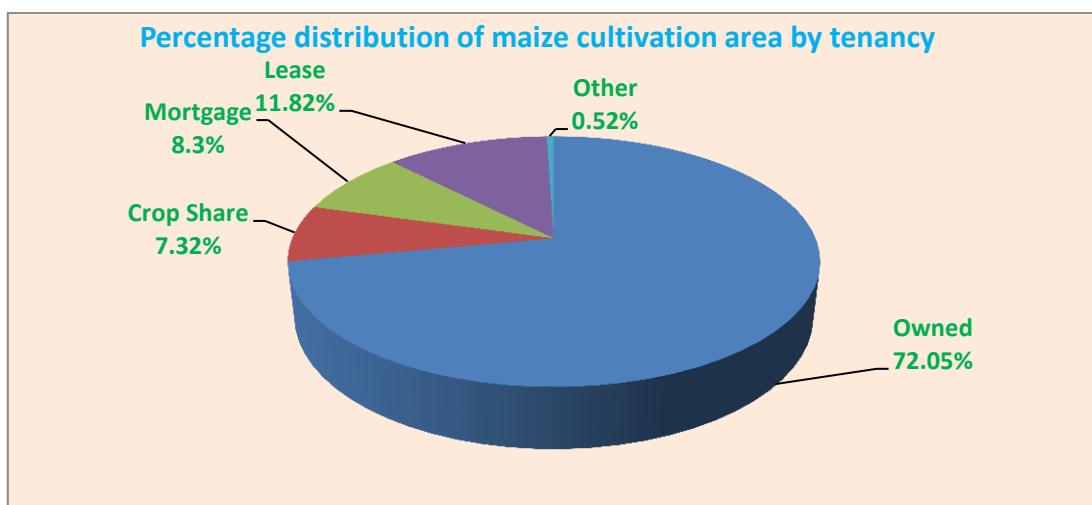


Table 3.1 provides the area (in acres) of maize crop by all tenureship of owned land, share crop, mortgage, lease and others separately for Stratum-1, Stratum-2 and Stratum-3 for the survey year 2014. Percentage distribution of land by tenancy type is also shown in the table. It shows that a total of 725700 acres of land are under maize crop of which an overwhelming majority of 522888 acres are owned land (72.05%) followed by 85778 acres lease land (11.82%), 60203 acres of mortgage land (8.30%), 53095 acres share crop land (7.32%) and 3737 acres other land (0.52%). It is observed from the table that 622235 acres of land are under rabi farming (85.74%) followed by 103466 acres in kharif farming time (14.26%) showing that a great majority of the maize cultivation is under rabi farming and only about one-sixth of the maize cultivation is under kharif farming time. The table also shows that 428973 acres of land are under Stratum-1 (59.11%), 226363 acres are under stratum-2 (31.19%) and 70365 acres are under stratum-3 (9.70%) of the total land.

**Table-3.2: Percentage distribution of maize cultivation households by tenancy and farming time separately for stratum**

Farmi ng time	Tenancy										
	Total		Owned		Crop share		Mortgage		Lease		Other
	H/H	%	H/H	%	H/H	%	H/H	%	H/H	%	H/H
All Area											
Bangladesh	1833736	100.00	1322912	72.14	133906	7.30	169852	9.26	199948	10.90	7119 0.39
Rabi	1561857	85.17	1123613	61.27	115923	6.32	141724	7.73	174611	9.52	5986 0.33
Kharif	271879	14.83	199298	10.87	17982	0.98	28128	1.53	25337	1.38	1133 0.06
Stratum-1											
Total	1075357	58.64	749638	40.88	82321	4.49	103711	5.66	136445	7.44	3241 0.18
Rabi	924975	50.44	640741	34.94	73246	3.99	87182	4.75	120564	6.57	3241 0.18
Kharif	150381	8.20	108897	5.94	9075	0.49	16529	0.90	15881	0.87	-
Stratum-2											
Total	571206	31.15	415229	22.64	43350	2.36	54542	2.97	54826	2.99	3258 0.18
Rabi	474588	25.88	347937	18.97	34709	1.89	43209	2.36	46609	2.54	2125 0.12
Kharif	96618	5.27	67292	3.67	8642	0.47	11333	0.61	8217	0.45	1133 0.06
Stratum-3											
Total	187174	10.21	158044	8.62	8234	0.44	11599	0.63	8677	0.47	620 0.03
Rabi	162294	8.85	134935	7.36	7969	0.43	11333	0.62	7437	0.40	620 0.03
Kharif	24880	1.36	23109	1.26	266	0.01	266	0.01	1240	0.07	-

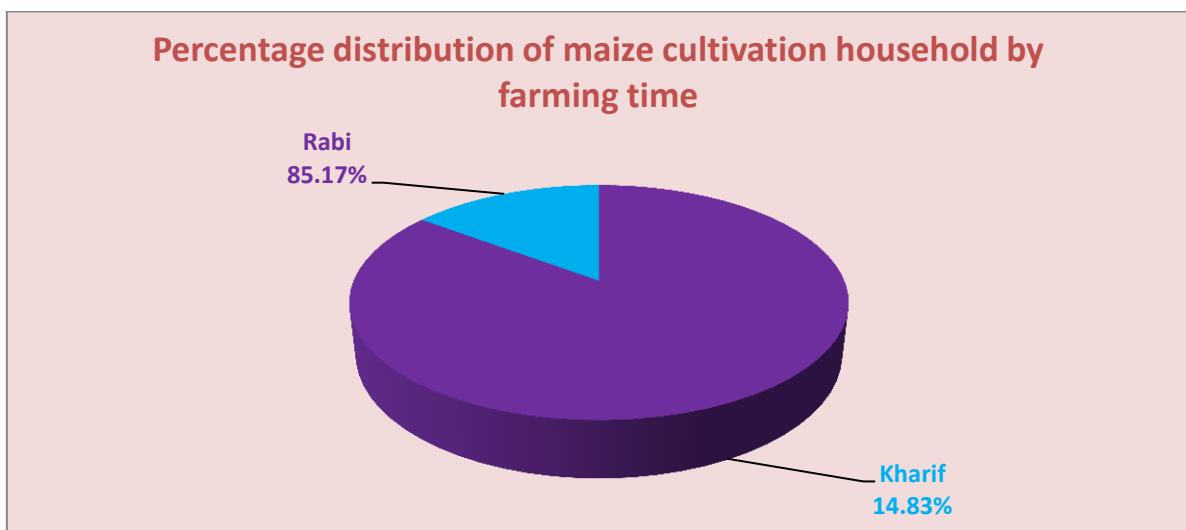


Table 3.2 presents households cultivating maize by all tenureship of own land, share crop, mortgage, lease and others by farming time separately by stratum for the survey year 2014. The table shows that out of 1833736 maize producing households, the highest 72.14% have owned households trailing far behind by 10.90% households having leased tenureship, 9.26% households having mortgaged tenureship, 7.30% households having share cropping tenureship and only 0.39% households have other category of tenureship. The table also shows that 1075357 households are under Stratum-1 (58.64%), 571206 households are under stratum-2 (31.15%) and 187174 households are under stratum-3 (10.21%) of the total households.

**Table-3.3: Percentage distribution of maize producing area (acre) by cultivation type & farming time by stratum**

Farming time	Type of cultivation					
	Total		Single		Mixed	
	Area	%	Area	%	Area	%
All Area						
Bangladesh	725700	100.00	671360	92.51	54340	7.49
Rabi/winter	622235	85.74	579566	79.86	42669	5.88
Kharif/summer	103466	14.26	91794	12.65	11672	1.61
Stratum-1						
Total	428973	59.11	398695	54.94	30277	4.17
Rabi/winter	374521	51.61	348687	48.05	25834	3.56
Kharif/summer	54452	7.50	50008	8.89	4443	0.61
Stratum-2						
Total	226363	31.19	211124	29.09	15239	2.10
Rabi/winter	187450	25.83	174573	24.06	12876	1.77
Kharif/summer	38913	5.36	36550	5.03	2363	0.33
Stratum-3						
Total	70365	9.70	61541	8.48	8824	1.22
Rabi/winter	60264	8.30	56305	7.76	3959	0.55
Kharif/summer	10101	1.39	5235	0.72	4865	0.67

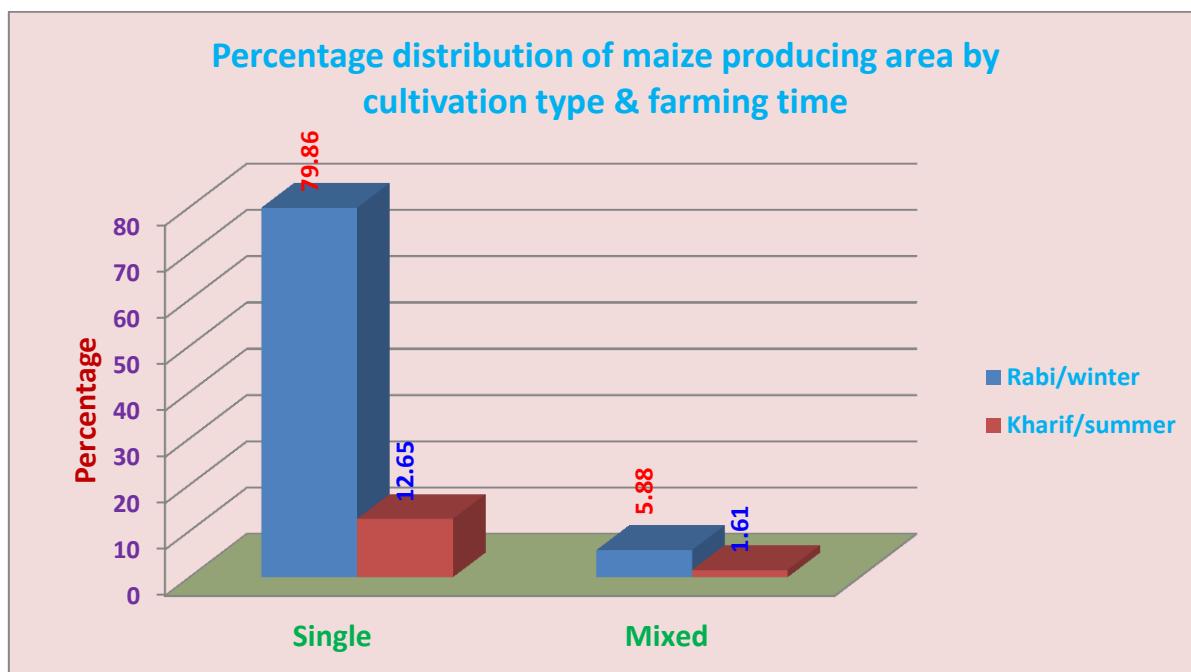


Table 3.3 distributes the maize producing area (acre) by cultivation type of single and mixed crops by farming time and by stratum. The table shows that out of total 725700 acres of land an overwhelming majority 671360 acres (92.51%) are used for single crop trailing far behind by mixed crop of 54340 acres of land (7.49%). Stratum-wise cropping

pattern for maize is found indifferent to a great extent. In the mixed crop, maize cultivation area is 4.17% in stratum-1, 2.10% in stratum-2 and 1.22% in stratum-3. On the other hand, single crop area in maize cultivation is 54.94% in stratum-1, 29.09% in stratum-2 and 8.48% in stratum-3 respectively.

**Table-3.4: Percentage distribution of maize producing households by cultivation type and framing time by stratum**

Farming time	Type of cultivation					
	Total		Single		Mixed	
	Household	%	Household	%	Household	%
All Area						
Bangladesh	1833736	100.00	1676201	91.41	157536	8.59
Rabi/winter	1561857	85.17	1436129	78.32	125728	6.86
Kharif/summer	271879	14.83	240072	13.09	31807	1.73
Stratum-1						
Total	1075357	58.64	990443	54.01	84914	4.63
Rabi/winter	924975	50.44	852053	46.46	72922	3.98
Kharif/summer	150381	8.20	138890	7.57	11992	0.65
Stratum-2						
Total	571206	31.15	519214	28.31	51992	2.84
Rabi/winter	474588	25.88	432938	23.61	41650	2.27
Kharif/summer	96618	5.27	86276	4.70	10342	0.56
Stratum-3						
Total	187174	10.21	166544	9.08	20630	1.13
Rabi/winter	162294	8.85	151138	8.24	11156	0.61
Kharif/summer	24880	1.36	15406	0.84	9474	0.52

**Percentage distribution of maize producing households by cultivation type and framing time**

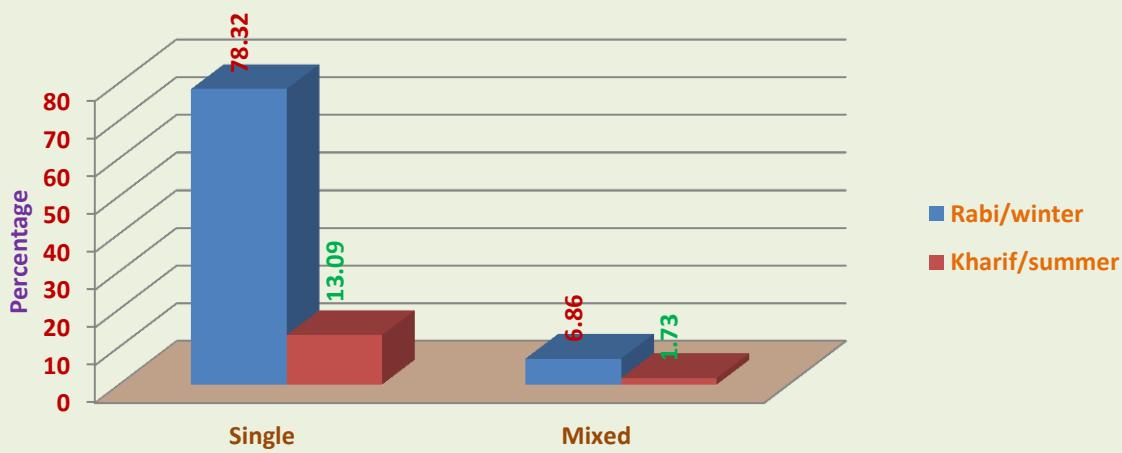


Table 3.4 gives the maize producing households by cultivation type of single and mixed crops and by framing time separately for each stratum. The table shows that maize

is being produced in much higher proportion (54.01%) as single crop in stratum-1 followed by 28.31% in stratum-2 and 9.08% in stratum-3 respectively. On the other hand, it is significantly different and lower for mixed crops which are 4.63% in stratum-1, 2.84% in stratum-2 and 1.13% in stratum-3. It is revealed from the table that much higher proportion of 85.17% households grow the crop in rabi season compared to a much lower 14.83% households growing in kharif season in Bangladesh. For mixed crop households the rabi pattern of growing the crop is more prominent in stratum -1 where the crop is grown in much higher proportion of 85.88% households followed by 80.11% households in stratum-2 and 54.08% households in stratum-3. The table as shows above indicates that a great majority of 91.41% households in Bangladesh are producing single crop of only maize and a much lower 8.59% of households are producing maize as mixed crop along with other crops.

**Table-3.5: Percentage distribution of varieties of maize (area) by farming time and Stratum**

Farming time	Varieties of maize							
	Total		Local		Hybrid		Others	
	Area	%	Area	%	Area	%	Area	%
<b>All Area</b>								
Bangladesh	725700	100.00	37360	5.15	681475	93.90	6865	0.95
Rabi/winter	622235	85.74	24653	3.40	592121	81.59	5461	0.75
Kharif/summer	103466	14.26	12707	1.75	89353	12.31	1405	0.19
<b>Stratum-1</b>								
Total	428973	59.11	15712	2.16	413017	56.91	243	0.03
Rabi/winter	374521	51.61	12384	1.71	361949	49.88	188	0.02
Kharif/summer	54452	7.50	3328	0.46	51068	7.04	55	0.01
<b>Stratum-2</b>								
Total	226363	31.19	7826	1.08	214671	29.58	3866	0.53
Rabi/winter	187450	25.83	5413	0.75	179352	24.71	2685	0.37
Kharif/summer	38913	5.36	2413	0.33	35319	4.87	1182	0.16
<b>Stratum-3</b>								
Total	70365	9.70	13822	1.90	53786	7.41	2756	0.38
Rabi/winter	60264	8.30	6856	0.94	50820	7.00	2588	0.36
Kharif/summer	10101	1.39	6966	0.96	2966	0.41	168	0.02

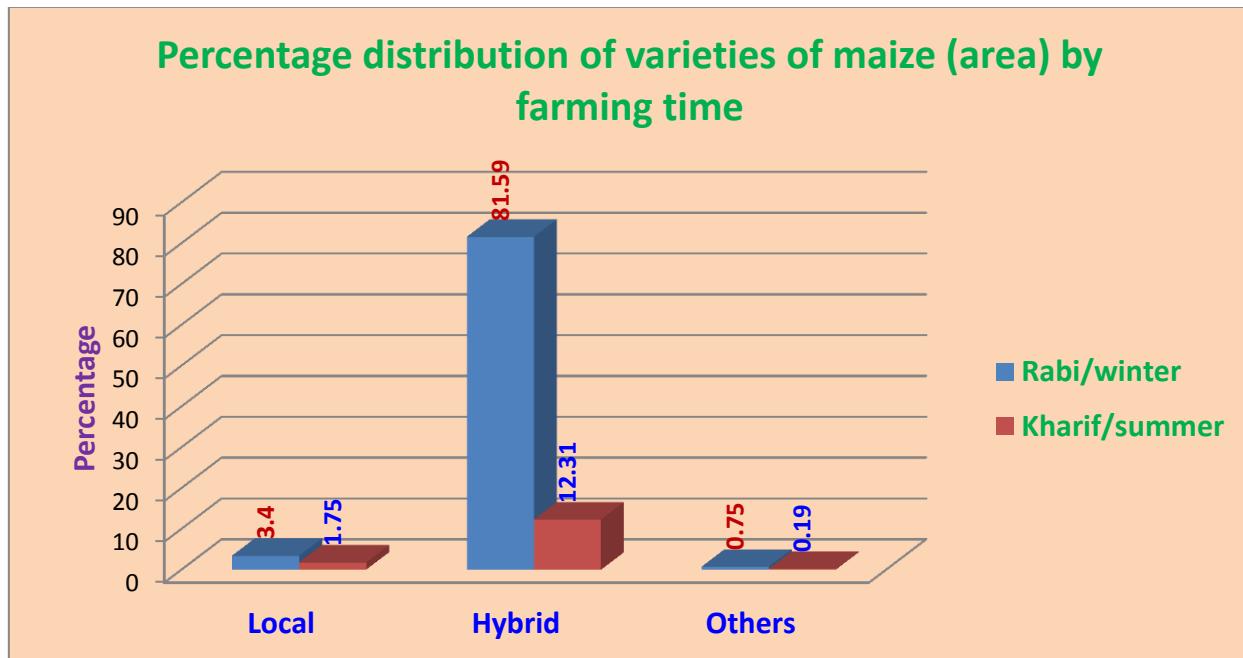


Table 3.5 presents varieties of maize crop (local, hybrid and others) grown in area by farming time of rabi and kharif. The table distributes the varieties of maize that are cultivated in rabi and kharif farming time in the 2014. Out of the total varieties, hybrid has the highest cultivation area of maize which is 93.90%. The second highest 5.15%

land is used for the local variety of maize. And the remaining land areas of 0.95% have been used for other varieties of maize.

The table also shows that the hybrid maize is grown the highest 86.89% in rabi season and the lowest 13.11% in khariffarming time. Hybrid maize is found to grow in the highestproportion (94.99%) in stratum-3, the second highest (87.64%) in stratum-1 and the lowest (83.55%) in stratum-2 as rabi farming but it is reverse as kharif farming which is the highest at (16.45%) in stratum-2, the second highest (12.36%) and the lowest at (5.51%) in stratum-3.

**Table-3.6: Percentage distribution of varieties of maizehousehold by farming time and stratum**

Framing time	Varieties of maize							
	Total		Local		Hybrid		Others	
	Household	%	Household	%	Household	%	Household	%
All Area								
Bangladesh	1833736	100.00	107570	5.87	1710956	93.30	15210	0.83
Rabi/winter	1561857	85.17	69666	3.80	1480547	80.74	11645	0.64
Kharif/summer	271879	14.83	37904	2.07	230410	12.57	3565	0.19
Stratum-1								
Total	1075357	58.64	42457	2.32	1031927	56.27	972	0.05
Rabi/winter	924975	50.44	30141	1.64	894186	48.76	648	0.03
Kharif/summer	150381	8.20	12316	0.67	137742	7.51	324	0.02
Stratum-2								
Total	571206	31.15	26775	1.46	536214	29.24	8217	0.45
Rabi/winter	474588	25.88	16859	0.92	452488	24.68	5242	0.29
Kharif/summer	96618	5.27	9917	0.54	83726	4.57	2975	0.16
Stratum-3								
Total	187174	10.21	38338	2.09	142815	7.79	6021	0.33
Rabi/winter	162294	8.85	22666	1.24	133873	7.30	5755	0.31
Kharif/summer	24880	1.36	15672	0.85	8943	0.49	266	0.02

**Percentage distribution of varieties of maize household by farming time**

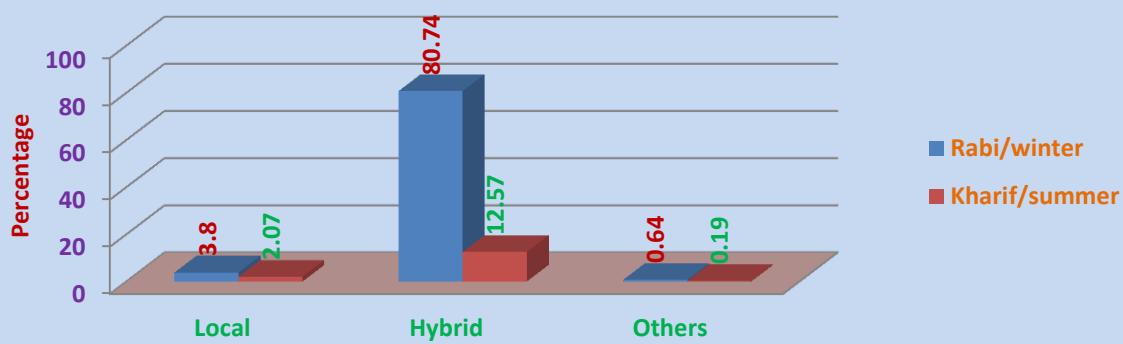


Table 3.6 gives varieties of maize crop (local, hybrid and others) grown in households by farming time of rabi and kharif. The table gives the percentage distribution maize cultivation by variety of maize and farming time for the year 2014. The table shows that the highest percentage (93.30%) of maize producing households is hybrid, followed distantly by local (5.87%) and others (0.83%) for the survey year. Stratum-wise we see that the highest (86.65%) of households is producing rabihybrid in stratum-1 and followed by (84.39%) in stratum-2. KhariffarmingHYVmaize is however grown in much lower percentage of 13.35% in stratum-1, 15.61% in stratum-2 and 6.26% in stratum-3 respectively.

**Table-3.7: Per acre leasing cost of maize crop by stratum.**

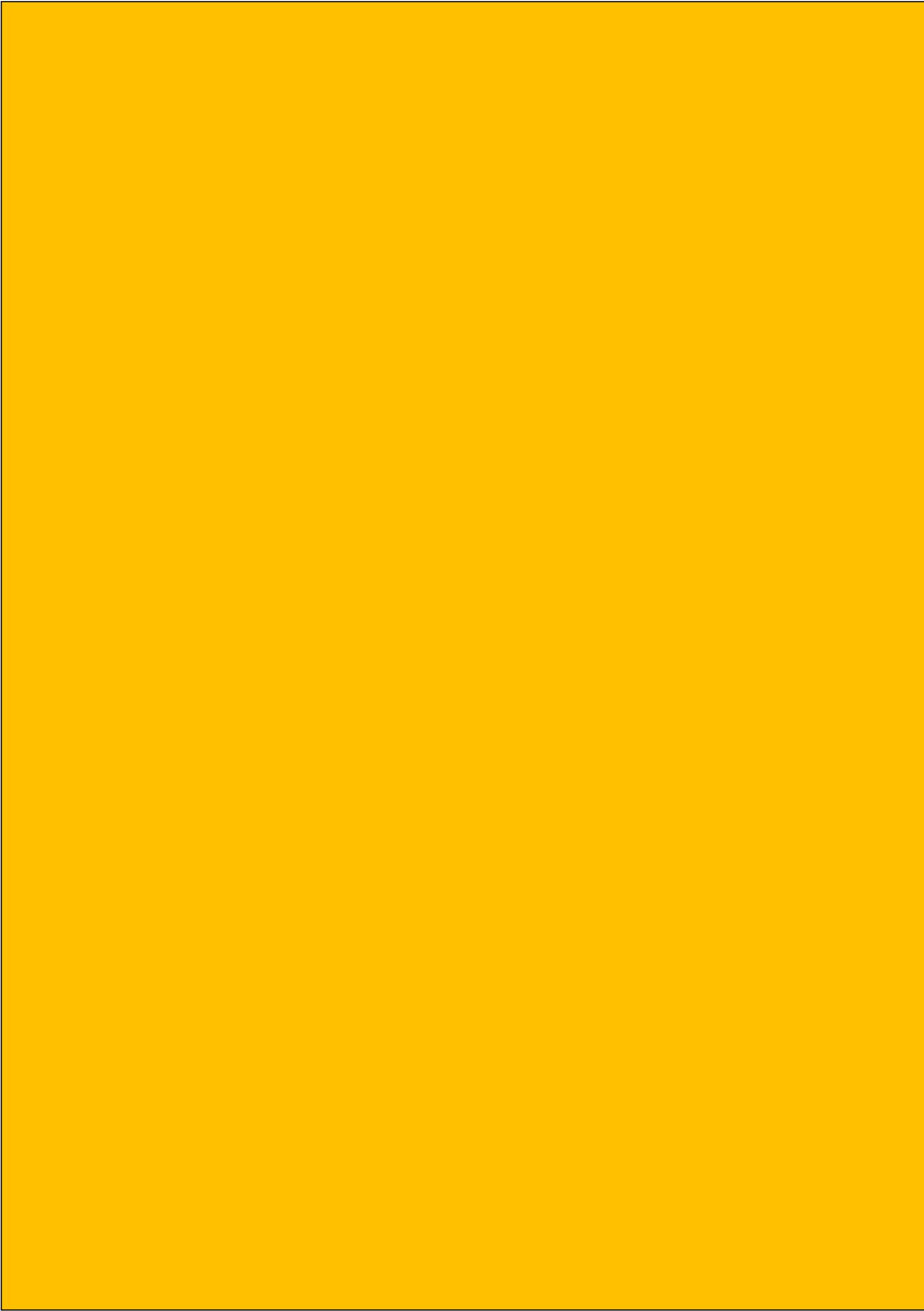
Stratum	Per acre leasing cost (Tk.)
All average	4511
Stratum-1	4441
Stratum-2	4604
Stratum-3	4612

Table 3.7 presents leasing cost of maize crop per acre by stratum for the year 2014. Leasing means the land taken from others by the household for the cultivation of maize crop only on payment of money to the land owner. Leasing value per acre is found to be significantly different among the areas. Local leasing value has also been counted in case of households who cultivate the crop in their own lands. The average per acre leasing cost for maize crop in Bangladesh is Taka 4511.



# Chapter-4

## Production Cost



## Production Cost

This chapter contains data on per acre production cost based on stratum, tenureship and farming time of maize productivity. The cost includes per acre production cost, per kilogram production cost by tenureship and varieties of maize. The various ingredient of maize production viz land preparation, seed and seedling related, weeding, irrigation, pesticide, fertilizer, harmon, harvesting, transport and others have been taken into consideration in obtaining the cost of production.

**Table-4.1: Per acre production cost (TK) by tenancy and production ingredient**

Production ingredient	Tenancy					
	All		Owned		All others	
	Cost(Tk.)	%	Cost(Tk.)	%	Cost(Tk.)	%
Total	23805	100.00	23925	100.00	23495	100.00
Land preparation	2538	10.66	2540	10.62	2531	10.77
Seed	1963	8.25	1955	8.17	1983	8.44
Plantation	1650	6.93	1660	6.94	1622	6.90
Weeding	2851	11.98	2878	12.03	2783	11.85
Irrigation	3435	14.43	3452	14.43	3390	14.43
Pesticides	516	2.17	511	2.14	528	2.25
Fertilizer	5162	21.68	5210	21.78	5037	21.44
Harvesting& threshing	4783	20.09	4792	20.03	4759	20.26
Transport	606	2.55	620	2.59	568	2.42
Others	303	1.27	306	1.28	295	1.26

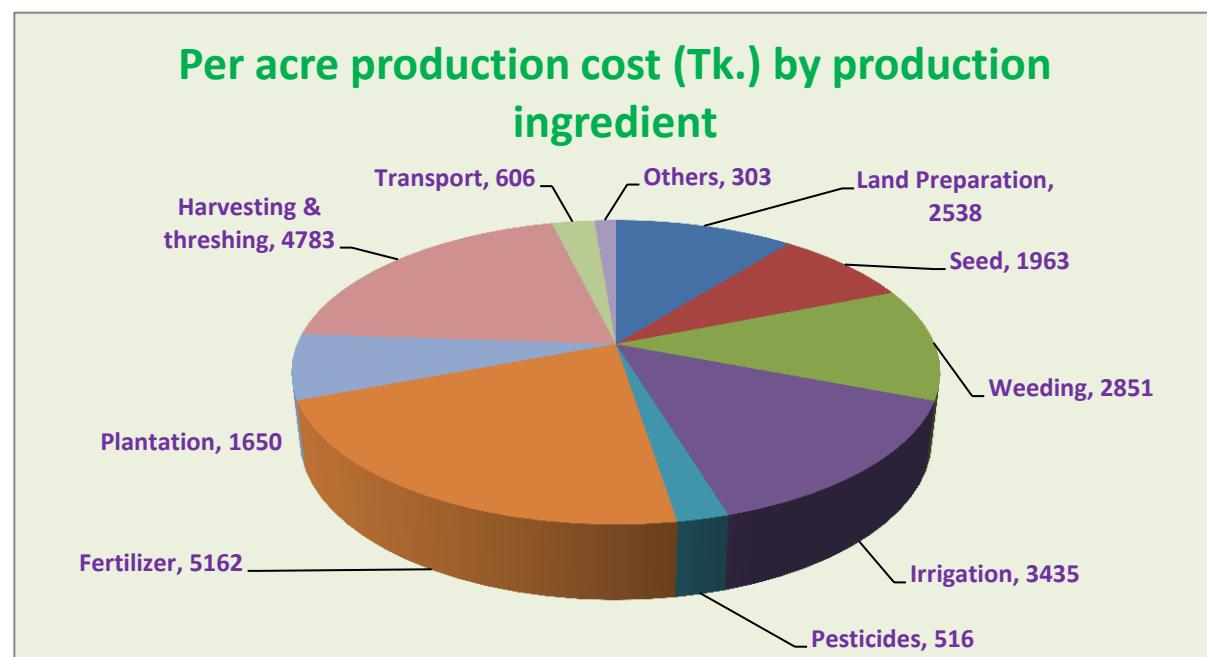
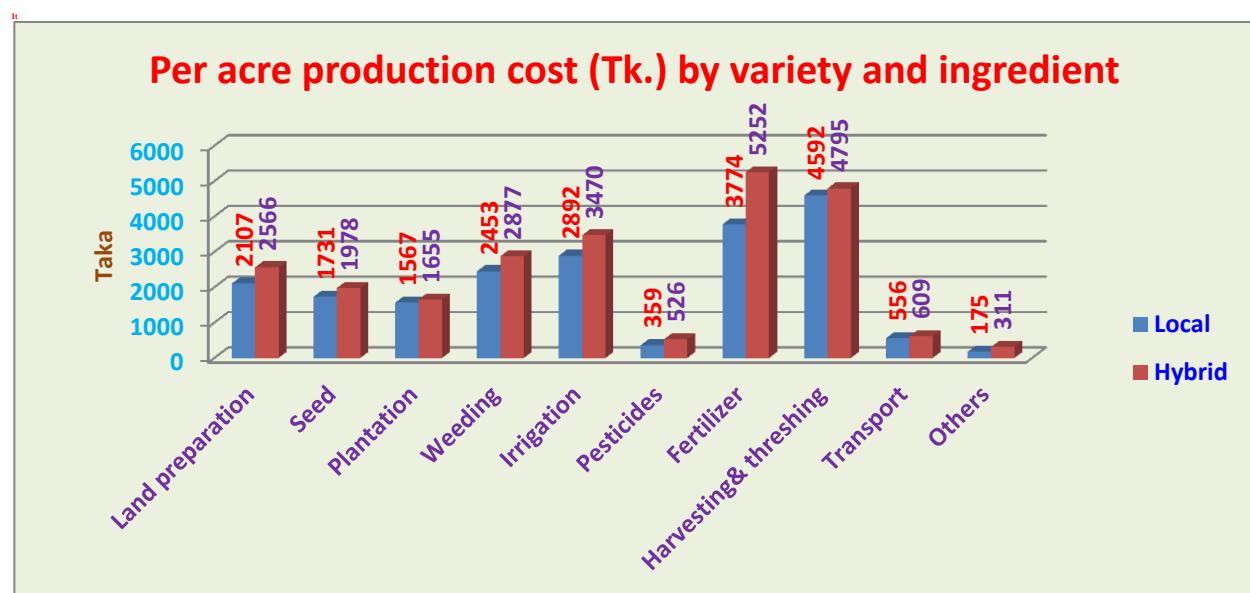


Table-4.1 presents that overall per acre production cost of maize crop in all areas of Bangladesh is Taka 23805 on an average for the year 2014. Whereas the average per acre

production cost of maize crop in own land is Taka 23925 and for all other tenureship is Taka 23495. As regards the production cost by type of ingredient, the highest cost is found in fertilizer which is Taka 5162, followed by harvesting & threshing of Taka 4783, irrigation of Taka 3435, weeding of Taka 2851, land preparation Taka 2538, etc.

**Table-4.2: Per acre production cost (Tk.) by variety and ingredient**

Production ingredient	Variety					
	All variety		Local		Hybrid	
	Cost(Tk.)	%	Cost(Tk.)	%	Cost(Tk.)	%
Total	23805	100.00	20205	100.00	24038	100.00
Land preparation	2538	10.66	2107	10.43	2566	10.67
Seed	1963	8.25	1731	8.57	1978	8.23
Plantation	1650	6.93	1567	7.76	1655	6.88
Weeding	2851	11.98	2453	12.14	2877	11.97
Irrigation	3435	14.43	2892	14.31	3470	14.44
Pesticides	516	2.17	359	1.78	526	2.19
Fertilizer	5162	21.68	3774	18.68	5252	21.85
Harvesting& threshing	4783	20.09	4592	22.73	4795	19.95
Transport	606	2.54	556	2.75	609	2.53
Others	303	1.27	175	0.87	311	1.29



It is found from the above table-4.2 that average per acre production cost of maize in Bangladesh is Taka 23805 in the survey year 2014. The highest average per acre production cost in hybrid variety which is Taka 24038 and the lowest production cost is in local variety which is Taka 20205 respectively. The table also shows that

the production cost (Taka) in each component in hybrid variety is higher than that in local variety and is significantly different between local and hybrid variety.

**Table-4.3: Per acre production cost by farming time and ingredients of cost**

Production ingredient	Farming time					
	All		Rabi/Winter		Kharif/Summer	
	Cost(Tk.)	%	Cost(Tk.)	%	Cost(Tk.)	%
Total	23805	100.00	24218	100.00	21320	100.00
Land preparation	2538	10.66	2588	10.69	2235	10.48
Seed	1963	8.25	1980	8.18	1858	8.71
Plantation	1650	6.93	1661	6.86	1581	7.42
Weeding	2851	11.98	2884	11.91	2655	12.45
Irrigation	3435	14.43	3531	14.58	2858	13.41
Pesticides	516	2.17	527	2.18	446	2.09
Fertilizer	5162	21.68	5300	21.88	4332	20.32
Harvesting& threshing	4783	20.09	4829	19.94	4504	21.12
Transport	606	2.55	615	2.54	550	2.58
Others	303	1.27	303	1.25	301	1.41

Table-4.3 shows that the average cost of production of maize crop is found to be Taka 24218 for rabi farming and Taka 21320 for kharif farming which is lower by 13.59% compared to kharif farming presenting the per acre cost of production for the survey year, 2014. The table also shows the production cost (Taka) in each component in rabi farming and is higher than that in kharif farming is significantly different between rabi and kharif farming.

**Table-4.4: Per acre production cost(Tk.) of maize crop by stratum and ingredients**

Production ingredient	Stratum					
	All area		Stratum-1		Stratum-2	
	Cost(Tk.)	%	Cost(Tk.)	%	Cost(Tk.)	%
Total	23805	100.00	24625	100.00	22352	100.00
Land preparation	2538	10.66	3250	13.20	1495	6.69
Seed	1963	8.25	1972	8.01	1993	8.92
Plantation	1650	6.93	1603	6.51	1650	7.38
Weeding	2851	11.98	2663	10.81	2968	13.28
Irrigation	3435	14.43	3621	17.70	3241	14.50
Pesticides	516	2.17	532	2.16	490	2.19
Fertilizer	5162	21.68	5480	22.25	4757	21.28
Harvesting& threshing	4783	20.09	4532	18.40	4906	21.95
Transport	606	2.55	637	2.59	589	2.64
Others	303	1.27	335	1.36	262	1.17
					236	1.01

The above table-4.4 presents average per acre production cost of maize by stratum in 2014. It shows Taka 24625 in stratum-1, Taka 22352 in stratum-2 and Taka 23480 in stratum-3 respectively which shows production cost in stratum -1 is comparatively higher than those in stratum-2 and stratum-3. The table also reveals that land preparation cost in stratum-1 is more than double that of either stratum-2 or stratum-3 respectively. Besides the cost involved in weeding and harvesting & threshing in stratum-3 are significantly higher than that of either stratum-1 or stratum-2 respectively.

**Table-4.5: Per Kg Production cost (Tk.), per acre production cost(Tk.) & quantity (Kg) by variety and stratum**

Stratum	Per KG Production cost (TK) , per acre production cost and quantity (Kg)								
	All			Local			Hybrid		
	Per Kg production cost (Tk.)	Per acre production		Per Kg production cost (Tk.)	Per acre production		Per Kg production cost (Tk.)	Per acre production	
		Cost(Tk.)	Qty.(Kg.)		Cost(Tk.)	Qty.(Kg.)		Cost(Tk.)	Qty.(Kg.)
All	8.36	23805	2846	9.98	20205	2024	8.29	24038	2899
Srtatum-1	8.73	24625	2818	10.19	22890	2246	8.69	24692	2840
Stratum-2	7.66	22352	2916	10.41	20779	1996	7.57	22438	2966
Stratum-3	8.40	23480	2792	9.40	17216	1830	8.22	25410	3088

Note: Local = local & other variety

The above table-4.5 shows that the average per kilogram production cost of maize overall is Taka 8.36 whereas the cost in stratum-1 is Taka 8.73, Stratum-2 is Taka 7.66 and in stratum-3 is 8.40 respectively. The average per kilogram production cost in local variety is Taka 9.98 and the average per kilogram production cost in hybrid variety is Taka 8.29 respectively. The table further shows that per acre production of hybrid cultivation is higher at 2899 kilogram than that of local variety at 2024 kilogram and is higher by 43.23%.

**Table-4.6: Per KG Production cost (Tk.), per acre production cost (Tk.)& quantity (Kg) by tenancy and stratum**

Stratum	Per KG Production cost (TK) , per acre production cost and quantity (KG)								
	All			Owned			All others		
	Per KG production cost (Tk.)	Per acre production		Per KG production cost (Tk.)	Per acre production		Per KG production cost (Tk.)	Per acre production	
		Cost(Tk.)	Qty.(Kg.)		Cost(Tk.)	Qty.(Kg.)		Cost(Tk.)	Qty.(Kg.)
All	8.36	23805	2846	8.36	23925	2862	8.38	23495	2804
Srtatum-1	8.73	24625	2818	8.81	24755	2811	8.57	24309	2836
Stratum-2	7.66	22352	2916	7.56	22555	2982	7.95	21844	2749
Stratum-3	8.40	23480	2792	8.37	23399	2797	8.62	23859	2769

Note: All others tenancy means all tenancy excluding own

The above table-4.6 shows that the average production cost of maize crop per kilogram of owned tenureship is Taka 8.36 and by all others tenureship is Taka 8.38. In owned tenureship the highest per acre production in stratum-2 is 2982 kilogram followed by stratum-1 which is 2811 kilogram and in stratum-3 is 2797 kilogram. On the other hand, in all other tenureship the highest per acre production in stratum-1 is 2836 kilogram followed by stratum-3 which is 2769 kilogram and in stratum-2 is 2749 kilogram respectively.

**Table-4.7: Per KG Production cost (Tk.), per acre production cost (Tk.) & quantity (Kg) by farming time and stratum**

Stratum	Per KG Production cost (TK), per acre production cost and quantity (KG)								
	All		Rabi/Winter		Kharif/Summer				
	Per KG production cost (Tk.)	Per acre production	Per KG production cost (Tk.)	Per acre production	Per KG production cost (Tk.)	Per acre production	Cost(Tk.)	Qty.(Kg.)	
All	8.36	23805	2846	8.24	24218	2938	9.29	21320	2296
Srtatum-1	8.73	24625	2818	8.61	24989	2902	10.00	22393	2239
Stratum-2	7.66	22352	2916	7.54	22705	3012	8.42	20649	2452
Stratum-3	8.40	23480	2792	8.33	24377	2923	9.04	18125	2006

The table-4.7 reveals that the average production cost per kilogram of maize in rabi farming time is Taka 8.24 which is higher at Taka 9.29 in kharif farming time. This pattern is followed in all the strata. The average per acre production of maize is 2938 kilogram in rabi farming time and 2296 kilogram in kharif farming time showing 27.96% higher production in rabi farming than in kharif farming.



# Chapter-5

## Labour and Labourer's Cost



## Labour and Labourers Cost

Information related to number and cost of labourers for plantation, weeding, harvesting and thresing have been discussed in this chapter.

**Table-5.1: Per acre number of labourer engaged and cost of plantation by farming time**

Stratum	No. of family labourer		No. of Hired labourer		Total number of labourer	Labour cost (Tk.)	Per labour cost (Tk.)
	Male	Female	Male	Female			
Bangladesh	2.85	0.83	3.15	1.19	8.02	1650	205.74
Stratum-1	2.73	0.97	3.09	1.30	8.09	1603	198.15
Stratum-2	2.98	0.56	3.24	0.96	6.78	1650	243.36
Stratum-3	3.12	0.88	3.20	1.34	8.54	1933	226.35

In the above table it is observed that the average number of required labourers for per acre plantation at national level is 8.02 persons and their cost is Taka 1650. The average number of required labourers in stratum-1 is 8.09 and their cost is Taka 1603 which is lower than that in stratum-3 with 8.54 persons and labour cost of Taka 1933 respectively. It is mentionable that the average per acre number of labourers is lower at 6.78 persons in stratum-2 than that of either stratum-1 or stratum-2.

**Table-5.2: Per acre number of labourer engaged and cost of weeding by farming time and stratum**

Stratum	Number of family labourer		Number of Hired labourer		Total number of labourer	Labour cost Tk.)	Per labour cost (Tk.)
	Male	Female	Male	Female			
Bangladesh	3.73	0.51	8.42	4.43	17.03	2851	167.41
Stratum-1	3.58	0.49	8.27	4.96	17.30	2663	153.93
Stratum-2	3.89	0.32	8.64	4.43	17.28	2968	171.78
Stratum-3	4.17	1.28	8.59	1.18	15.22	3621	237.91

Table 5.2 shows that the average number of required labourer per acre weeding overall at national level is 17.03 persons and their cost is Taka 2851. Among the three strata, the average number of required labourer is lower in stratum-3 at 15.22 persons and their labour cost is Taka 3621. It is mentionable that the average required number of labourer is almost same persons in stratum-1 (17.30 persons) and stratum-2 (17.28 persons) but their labour cost is 11.45% higher in stratum-2 than that of stratum-1.

**Table-5.3: Per acre number of labourer engaged and cost of harvesting by stratum**

Stratum	Number of labourer					Labour cost (Tk.)	Per labour cost (Tk.)		
	Family		Hired		Total number of labourer				
	Male	Female	Male	Female					
Bangladesh	3.64	0.79	7.26	0.88	12.57	2752	218.93		
Stratum-1	3.27	0.75	7.55	0.93	12.50	2603	208.24		
Stratum-2	3.97	0.74	6.90	0.78	12.39	2864	231.15		
Stratum-3	4.76	1.14	6.65	0.88	13.43	3299	245.64		

The above table-5.3 provides the average number of required labourers for per acre harvesting at national level which is 12.57 persons and their cost is Taka 2752 during the survey year 2014. The highest per acre required number labourer in stratum-3 is 13.43 persons and their labour cost is Taka 3299. The average per acre required number labourer for harvesting are almost same in stratum-1 and stratum-2 (12.50 persons in stratum-1 and 12.39 persons in stratum-2) but their cost in stratum-2 (Taka 2864) is higher by 10.03% than that of stratum-1 (Taka 2603).

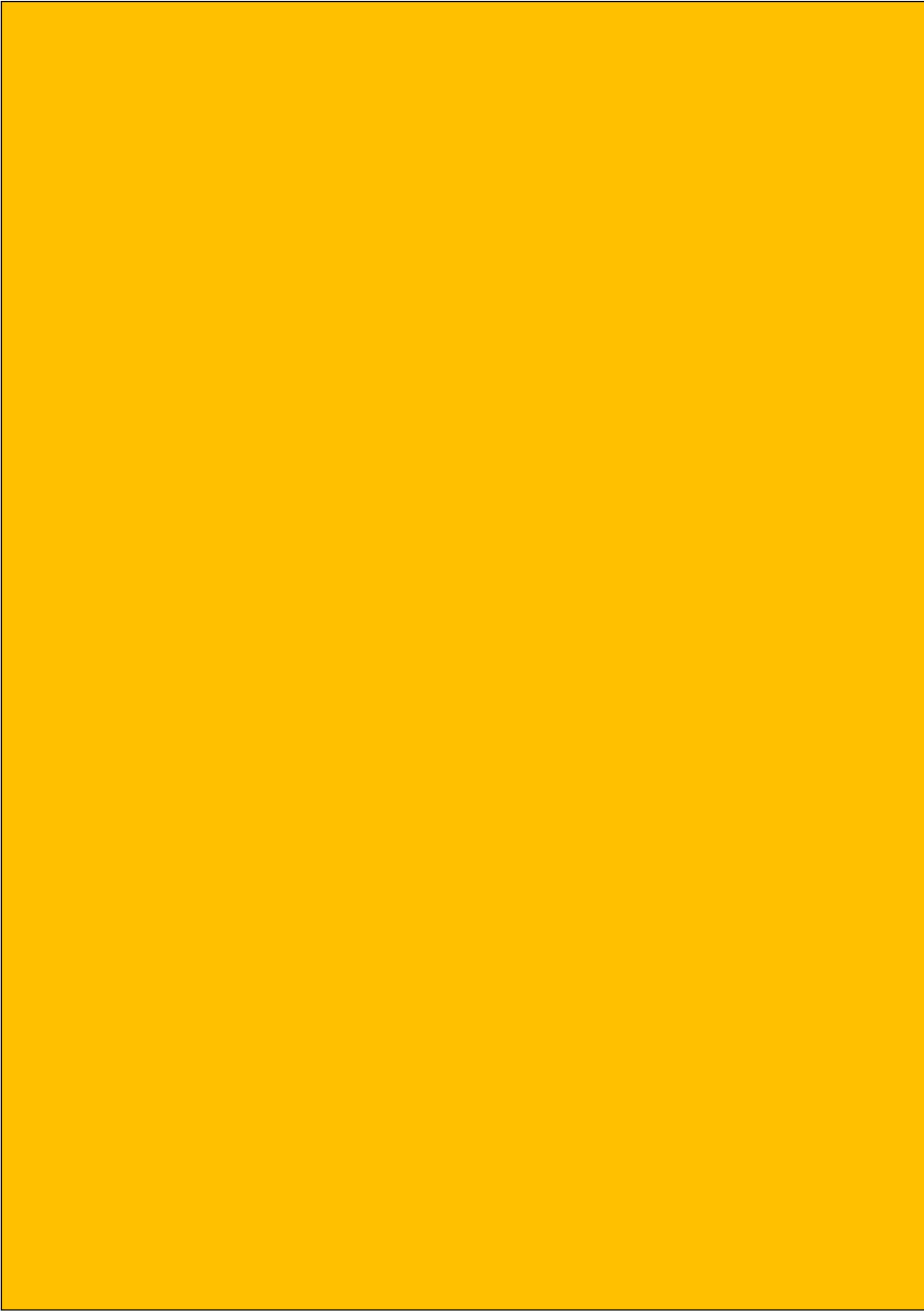
**Table-5.4: Per acre number of labour engaged and threshing cost (Tk.) by stratum**

Stratum	Number of labourer					Labour cost (Tk.)	Per labour cost (Tk.)		
	Family		Hired		Total number of labourer				
	Male	Female	Male	Female					
Bangladesh	2.41	1.90	3.87	3.61	11.79	2031	172.26		
Stratum-1	2.27	1.72	4.14	3.73	11.86	1929	162.65		
Stratum-2	2.53	2.05	3.61	3.76	11.95	2042	170.88		
Stratum-3	2.87	2.49	3.09	2.36	10.81	2617	242.09		

Table-5.4 above shows that the average number of required labourers for per acre harvesting at national level is 11.79 persons and their cost is Taka 2031 during the survey year. The average number of required labourers is the highest in stratum-2 which is 11.95 persons and their cost is Taka 2042. This is followed by in stratum-1 where number of labourer is 11.86 persons and their cost is Taka 1929 and by stratum-3 where number of labourer is 10.81 persons & their cost is Taka 2617 respectively. It is mentionable that though the average number of required labourers is lower in stratum-3 and their labour cost is the highest at Taka 2617 which is higher than that of either stratum-1 or stratum-2.

# Chapter-6

## Production and Production Value



## Production and production value

The estimated per kilogram production value (Taka), per acre production (kilogram) and per acre production value (Taka) by stratum, tenureship and varieties of maize productivity in Bangladesh have been presented in this chapter.

**Table-6.1: Per kg production value (Tk.), per acre production (Kg) & value (Tk.) by tenancy and stratum**

Stratum	All			Owned			All others		
	Per KG production value(Tk.)	Per acre production		Per KG production value(Tk.)	Per acre production		Per KG production value(Tk.)	Per acre production	
		Value (Tk.)	Qty. (Kg.)		Value (Tk.)	Qty. (Kg.)		Value (Tk.)	Qty. (Kg.)
All	16.55	47091	2846	16.56	47407	2862	16.50	46277	2804
Stratum-1	17.08	48140	2818	17.23	48426	2811	16.73	47448	2836
Stratum-2	15.72	45844	2916	15.62	46576	2982	16.01	44016	2749
Stratum-3	16.01	44711	2792	15.87	44391	2797	16.69	46207	2769

Table-6.1 presents per kilogram production value (Taka), per acre production (kilogram) and per acre production value (Taka) by tenancy and stratum. The average per acre production value, per acre production (kilogram) and per kilogram production value of maize crops in Bangladesh are estimated at Taka 47091, 2846 kilograms and Taka 16.55 respectively. The highest per acre production value of Taka 47407 and per acre production kilogram 2862 is seen in owned land tenancy. It is found that the average per kilogram production value (Taka) is significantly different among the stratum varying from Taka 15.72 in stratum-2 to Taka 17.08 in stratum-1.

**Table-6.2: Per kg production value (Tk.), per acre production (Kg) and value (Tk.) by variety and stratum**

Stratum	All			Local			Hybrid		
	Per KG production Value(Tk.)	Per acre production		Per KG production Value(Tk.)	Per acre production		Per KG production Value(Tk.)	Per acre production	
		Value (Tk.)	Qty.(Kg)		Value (Tk.)	Qty.(Kg)		Value (Tk.)	Qty.(Kg)
All	16.55	47091	2846	17.43	35291	2024	16.51	47857	2899
Stratum-1	17.08	48140	2818	17.50	39295	2246	17.07	48481	2840
Stratum-2	15.72	45844	2916	18.08	38080	1996	15.60	46267	2966
Stratum-3	16.01	44711	2792	16.10	29471	1830	16.00	49408	3088

It is found from table-6.2 that the highest per acre yield rate of hybrid maize is 2899 kilograms and its value is estimated at Taka 47857, followed by local variety of maize with 2024 kilograms and its value at Taka 35291. The lowest per kilogram production

value is in hybrid maize which is only Taka 16.51 and the highest per kilogram in production value is found in local variety which is Taka 17.43. Per acre yield rate of local maize is 2246 kilograms in stratum-1 with its value of Taka 39295, followed by stratum-2 with 1996 kilograms and its value at Taka 38080 and followed by stratum -3 with 1830 kilograms and its value at Taka 2947 respectively. On the other hand, there is a reverse situation of per acre yield rate of hybrid maize with 3088 kilograms in stratum-3 with its value at Taka 49408, followed by stratum-2 with 2966 kilograms and its value at Taka 46267 and stratum-1 is 2840 kilograms with its value at Taka 48481 respectively. It is mentionable that stratum-wise per acre production value (Taka) and per acre production (kilograms) are significantly different in the two varieties of maize crop.

**Table-6.3: Per kg production value (Tk.), per acre production (Kg) and value (Tk.) by farming time and stratum.**

Stratum	All		Rabi/Winter			Kharif/Summer			
	Per Kg production Value(Tk.)	Per acre production	Per Kg production Value(Tk.)	Per acre production	Per KG production Value(Tk.)	Per acre production	Per acre production	Value (Tk.)	
		Value (Tk.)		Qty.(Kg)		Value (Tk.)		Qty.(Kg)	
All	16.55	47091	2846	16.63	48863	2938	15.87	36433	2296
Stratum-1	17.08	48140	2818	17.16	49793	2902	16.42	36769	2239
Stratum-2	15.72	45844	2916	15.83	47673	3012	15.10	37029	2452
Stratum-3	16.01	44711	2792	16.01	46786	2923	16.11	32326	2006

Table-6.3 shows the per kilogram production value, per acre production (kilogram) and per acre production value (Taka) of maize by farming time and stratum. It is observed that the higher per acre production of 2938 kilograms in rabi maize with its value at Taka 48863 compared to a lower per acre production of 2296 kilograms in kharif maize with its value at Taka 36433. It is noticeable that stratum-wise per acre production value (Taka) and per acre production (kilograms) are significantly different in two farming times.

**Table-6.4: Per acre productivity of maize crops by variety and stratum**

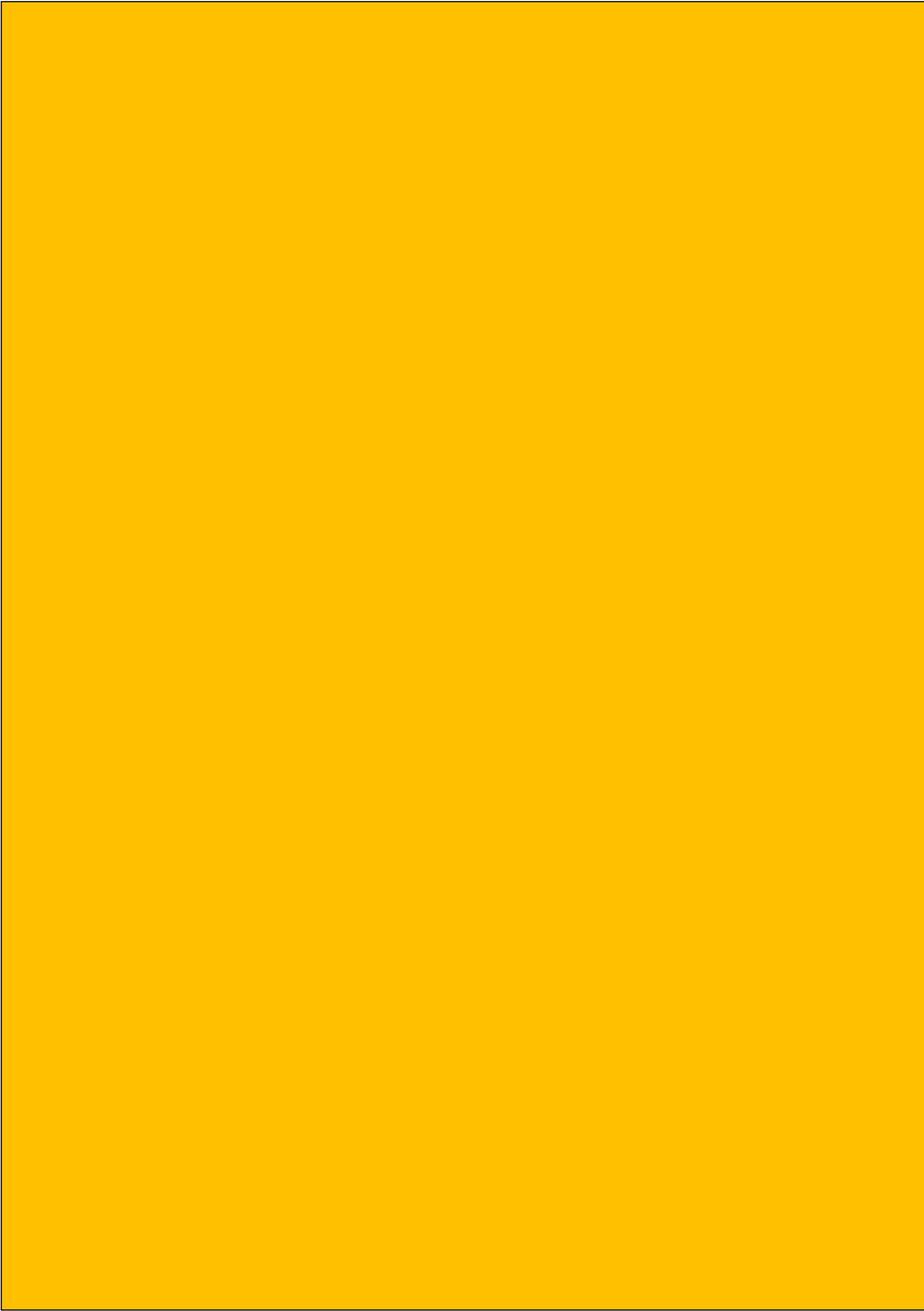
Stratum	All			Local			Hybrid		
	Per acre production		Benefit cost ratio	Per acre production		Benefit cost ratio	Per acre production		Benefit cost ratio
	Cost (Tk.)	Value (Tk.)		Cost (Tk.)	Value (Tk.)		Cost (Tk.)	Value (Tk.)	
All	23805	47091	1.97	20205	35291	1.75	24038	47857	1.99
Stratum-1	24625	48140	1.95	22890	39295	1.72	24692	48481	1.96
Stratum-2	22352	45844	2.05	20779	38080	1.83	22438	46267	2.06
Stratum-3	23480	44711	1.90	17216	29471	1.71	25410	49408	1.94

Table-6.4 exposes the benefit cost ratio of the cost by varieties of maize in three strata. It is the most significant component of production because it determines whether the producer will continue the production of the respective crops or not. If the benefit cost ratio of a maize crop is greater than one it means that the producer will be benefited and he will be interested to continue the production of the crop; and if it is less than one it means that the producer will be looser and he will quit the production of the crop. It is evident from the table that benefit cost ratio of maize crop at national level is 1.97, in stratum-1 it is 1.95, stratum-2 it is 2.05 and in stratum-3 it is 1.90. This means that the productivity is greater than one in all the strata and farmers get some profit from the production of maize. At the national level the highest benefit cost ratio is 1.99 for hybrid maize and minimum/lowest productivity is 1.75 in local variety of maize.



# Chapter-7

Sampling Error and Data Reliability



## Sampling Error and Data Reliability

In estimating variance of R, using the Random Group Method the following formula is used:

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

Where:  $\bar{R}$  = the estimated average production cost  
 $R_g$  = the estimated mean for the  $g^{\text{th}}$  random group  
 $K$  = the number of random group

**Table-7.1: Estimated per acre production cost (excluding leasing value) and their standard errors by stratum**

Stratum	Production Cost (Taka)	Standard Error	Relative Standard Error (%)
Total	23805	56.134	0.2358
Stratum-1	24625	121.643	0.4940
Stratum-2	22352	90.954	0.4069
Stratum-3	23480	161.211	0.6866

The table shows that the average production cost per acre for national level of 23805 taka is not significantly different from the 24625 taka average highest production cost for stratum-1 at 95% confidence interval. Similarly, the average production cost per acre for national level of 23805 taka is not significantly different from the 22352 taka average lowest production cost for stratum-2 at 95% confidence interval.

Although the estimated per acre production cost for stratum-3 cultivation is subject to the higher standard error than for national level. Production cost per acre for all estimates have acceptable reliability in terms of sampling error.

**Table-7.2: Estimated per acre production value (excluding leasing value and their standard errors by stratum**

Stratum	Production value (Taka)	Standard Error	Relative Standard Error (%)
Total	47091	281.175	0.5971
Stratum-1	48140	399.904	0.8307
Stratum-2	45844	403.321	0.8798
Stratum-3	44711	165.761	0.3707

The table shows that the average production value per acre for national level of 47091 taka is not significantly different from the 48140 taka average highest production value for stratum-1 at 95% confidence interval. Similarly, the average production value per acre for national level of 47091 taka is not significantly different from the 44711 taka average lowest production value for stratum-3 at 95% confidence interval.

Although the estimated per acre production value for stratum-2 cultivation is subject to the higher standard error than for national level. Production value per acre for all estimates have acceptable reliability in terms of sampling error.

# Annex

Annex-A: Statistical Table

Annex-B: Concepts and Definitions

Annex-C: Questionnaire (Bangla)

Annex-D: Questionnaire (English)

Annex-E: Reference



## Annex-A: Statistical Table

Table-1: Distribution of area (acres) under maize cultivation by tenancy, farming time&stratum

Farming time	Tenancy					
	Total	Owned	Share crop	Mortgage	Lease	Other
1	2	3	4	5	6	7
<b>All Areas</b>						
Bangladesh	725700	522888	53095	60203	85778	3737
Kharif	622235	447269	46292	49892	75982	2800
Rabi	103466	75619	6804	10310	9796	936
<b>Stratum-1</b>						
Total	428973	303271	31318	35599	57258	1527
Kharif	374521	263203	28770	29386	51635	1527
Rabi	54452	40068	2547	6213	5623	-
<b>Stratum-2</b>						
Total	226363	161635	18891	19955	23877	2005
Kharif	187450	135313	14738	15931	20400	1068
Rabi	38913	26322	4154	4025	3477	936
<b>Stratum-3</b>						
Total	70365	57981	2886	4648	4643	205
Kharif	60264	48753	2784	4576	3946	205
Rabi	10101	9229	103	73	697	-

Table-2: Distribution of households under cauliflower cultivation by tenancy, farming time& stratum

Farming time	Tenancy					
	Total	Owned	Share crop	Mortgage	Lease	Other
1	2	3	4	5	6	7
<b>All Areas</b>						
Bangladesh	1833736	1322912	133906	169852	199948	7119
Kharif	1561857	1123613	115923	141724	174611	5986
Rabi	271879	199298	17982	28128	25337	1133
<b>Stratum-1</b>						
Total	1075357	749638	82321	103711	136445	3241
Kharif	924975	640741	73246	87182	120564	3241
Rabi	150381	108897	9075	16529	15881	-
<b>Stratum-2</b>						
Total	571206	415229	43350	54542	54826	3258
Kharif	474588	347937	37709	43209	46609	2125
Rabi	96618	67292	8642	11333	8217	1133
<b>Stratum-3</b>						
Total	187174	158044	8234	11599	8677	620
Kharif	162294	134935	7969	11333	7437	620
Rabi	24880	23109	266	266	1240	-

Table-3: Distribution of area (acres) under maize cultivation by variety, farming time and stratum

Farming time	Variety			
	Total	Local	Hybrid	Others
1	2	3	4	6
All				
Bangladesh	725700	37360	681475	6865
Kharif	622235	24653	592121	5461
Rabi	103466	12707	89353	1405
Stratum-1				
Total	428973	15712	413017	243
Kharif	374521	12384	361949	188
Rabi	54452	3328	51068	55
Stratum-2				
Total	226363	7826	214671	3866
Kharif	187450	5413	179352	2685
Rabi	38913	2413	35319	1182
Stratum-3				
Total	70365	13822	53786	2756
Kharif	60264	6856	50820	2588
Rabi	10101	6966	2966	168

Table-4: Distribution of households under maize cultivation by variety, farming time & stratum

Farming time	Variety			
	Total	Local	Hybrid	Others
1	2	3	4	6
All				
Bangladesh	1833736	107570	1710956	15210
Kharif	1561857	69666	1480547	11645
Rabi	271879	37904	230410	3565
Stratum-1				
Total	1075357	42457	1031927	972
Kharif	924975	30141	894186	648
Rabi	150381	12316	137742	324
Stratum-2				
Total	571206	26775	536214	8217
Kharif	474588	16859	452488	5242
Rabi	96618	9917	83726	2975
Stratum-3				
Total	187174	38338	142815	6021
Kharif	162294	22666	133873	5755
Rabi	24880	15672	8943	266

Table-5: Distribution of area (acres) & number of households by cultivation type, farming time& stratum

Farming time	Type of cultivation					
	Total		Single		Multiple	
	Area	Household	Area	Household	Area	Household
1	2	3	4	5	6	7
<b>All Areas</b>						
Bangladesh	725700	1833736	671360	1676201	54340	157536
Kharif	622235	1561857	579566	1436129	42669	125728
Rabi	103466	271879	91794	240072	11672	31807
<b>Stratum-1</b>						
Total	428973	1075357	398695	990443	30277	84914
Kharif	374521	924975	348687	852053	25834	72922
Rabi	54452	150381	50008	138390	4443	11992
<b>Stratum-2</b>						
Total	226363	571206	211124	519214	15239	51992
Kharif	187450	474588	174573	432938	12876	41650
Rabi	38913	96618	36550	86276	2363	10342
<b>Stratum-3</b>						
Total	70365	187174	61541	166544	8824	20630
Kharif	60264	162294	56305	151138	3959	11156
Rabi	10101	24880	5235	15406	4865	9474

Table-6: Per acre land preparation cost (Tk.) by farming time andstratum

Farming time	Area	Land preparation cost(Tk.)						
		Total cost (Tk.)	Plough/kodal		Power tiller		Other Cost(Tk.)	
1	2		3	4	5	6	7	8
<b>All Areas</b>								
Bangladesh	725700	2538	1.04	241	2.37	1907	390	
Kharif	622235	2588	0.90	216	2.39	1969	403	
Rabi	103466	2235	1.84	387	2.26	1532	317	
<b>Stratum-1</b>								
Total	428973	3250	0.89	246	2.40	2602	401	
Kharif	374521	3294	0.77	219	2.38	2663	412	
Rabi	54452	2945	1.71	434	2.49	2189	323	
<b>Stratum-2</b>								
Total	226363	1495	1.13	216	2.34	910	369	
Kharif	187450	1513	1.04	207	2.37	913	392	
Rabi	39913	1407	1.57	257	2.17	894	256	
<b>Stratum-3</b>								
Total	70365	1554	1.63	288	2.36	871	395	
Kharif	60264	1546	1.31	230	2.53	943	374	
Rabi	10101	1601	3.55	636	1.34	445	520	

Table-7: Per acre seed quantity (kg.) and their value (Tk.) and plantation cost (Tk.) by farming time and stratum

Farming time	Seed		Plantation cost (Tk.)					
	Qty. (Kg)	Value (Tk.)	Family		Hired		Cost (Tk.)	
			Male	Female	Male	Female		
1	2	3	4	5	6	7	8	
<b>All Areas</b>								
Bangladesh	6	1963	2.85	0.83	3.15	1.19	1650	
Kharif	6	1980	2.81	0.81	3.20	1.27	1661	
Rabi	6	1858	3.05	0.98	2.81	0.75	1581	
<b>Stratum-1</b>								
Total	6	1972	2.73	0.97	3.09	1.30	1603	
Kharif	5	1983	2.67	0.99	3.12	1.37	1609	
Rabi	7	1897	3.14	0.82	2.88	0.76	1558	
<b>Stratum-2</b>								
Total	6	1993	2.98	0.56	3.24	0.96	1650	
Kharif	6	1998	2.94	0.53	3.32	1.07	1682	
Rabi	5	1966	3.16	0.70	2.84	0.42	1496	
<b>Stratum-3</b>								
Total	5	1809	3.12	0.88	3.20	1.34	1933	
Kharif	5	1906	3.28	0.55	3.35	1.23	1917	
Rabi	4	1229	2.17	2.88	2.32	2.00	2029	

Table-8: Per acre number of labourer required and their cost (Tk.) for weeding by farming time and stratum

Farming time	Total Cost (TK.)	Weeding cost (Tk.)			
		Family (No.)		Hired(No.)	
		Male	Female	Male	Female
1	2	3	4	5	6
<b>All Areas</b>					
Bangladesh	2851	3.73	0.51	8.42	4.43
Kharif	2884	3.77	0.43	8.69	4.79
Rabi	2655	3.50	1.02	6.77	2.28
<b>Stratum-1</b>					
Total	2663	3.58	0.49	8.27	4.96
Kharif	2707	3.57	0.48	8.56	5.52
Rabi	2364	3.62	0.56	6.24	1.16
<b>Stratum-2</b>					
Total	2968	3.89	0.32	8.64	4.43
Kharif	2957	3.94	0.32	8.76	4.53
Rabi	3019	3.66	0.28	8.05	3.94
<b>Stratum-3</b>					
Total	3621	4.17	1.28	8.59	1.18
Kharif	3755	4.49	0.42	9.25	1.05
Rabi	2821	2.26	6.41	4.65	1.96

Table-9: Per acre pesticide, insecticide & hormonecost (Tk.) by farming time &stratum

Farming time	Total cost (Tk.)	Pesticide cost (Tk.)	Insecticide cost (Tk.)	Hormone cost (Tk.)
1	2	3	4	5
<b>All Areas</b>				
Bangladesh	516	119	310	87
Kharif	527	125	314	88
Rabi	446	82	285	79
<b>Stratum-1</b>				
Total	532	127	332	73
Kharif	542	137	331	73
Rabi	466	60	340	66
<b>Stratum-2</b>				
Total	490	100	272	119
Kharif	496	96	278	121
Rabi	463	115	240	108
<b>Stratum-3</b>				
Total	497	130	296	71
Kharif	535	140	318	77
Rabi	268	69	166	33

Table-10: Per acre irrigation and irrigation related cost (Tk.) by farming time &stratum

Farming time	Total cost (Tk.)	Irrigation cost (Tk.)	Irrigation related cost (Tk.)
1	2	3	4
<b>All Areas</b>			
Bangladesh	3435	2884	551
Kharif	3531	2964	567
Rabi	2858	2406	452
<b>Stratum-1</b>			
Total	3621	3015	606
Kharif	3705	3096	609
Rabi	3044	2457	587
<b>Stratum-2</b>			
Total	3241	2731	510
Kharif	3333	2778	554
Rabi	2799	2501	298
<b>Stratum-3</b>			
Total	2928	2583	345
Kharif	3069	2720	349
Rabi	2087	1764	323

Table-11: Per acre type of fertilizer used (kg) and Price (Tk.) by farming time and stratum

Farming time	Total value	Urea		TSP/DAP		MOP		Zink		Boron		Cake (Tk.)	Others (Tk.)
		Qty. (kg)	Price (Tk.)										
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>All Areas</b>													
Bangladesh		65	1290	55	1353	48	802	21	420	18	220	707	370
Kharif		66	1302	57	1390	49	829	19	445	18	229	718	386
Rabi		62	1212	47	1131	39	641	28	274	18	166	635	272
<b>Stratum-1</b>													
Total		66	1309	58	1408	54	894	25	474	23	239	731	425
Kharif		67	1313	59	1431	55	921	23	496	23	246	739	442
Rabi		64	1245	52	1251	45	709	38	326	27	189	676	306
<b>Stratum-2</b>													
Total		65	1286	53	1301	38	669	16	333	11	196	674	299
Kharif		65	1296	55	1336	39	674	15	353	11	204	678	322
Rabi		63	1237	47	1134	35	645	19	235	9	155	654	2189
<b>Stratum-3</b>													
Total		60	1184	48	1185	41	667	10	376	5	185	660	265
Kharif		63	1225	53	1304	45	736	11	414	5	203	714	240
Rabi		48	940	19	473	15	256	3	147	2	79	340	412

Table-12: Per acre number of labourer & their cost (Tk.) for type of harvesting by seasonality and stratum

Seasonal ity	No. of labourer & their cost (Tk.) for harvesting						No. of labourer & their cost (Tk.) for threshing						Harvesting cost (Tk.)	
	Family (No.)		Hired (No.)		Cost (Tk.)	Family (No.)		Hired (No.)		Cost (Tk.)				
	Male	Female	Male	Female		Male	Female	Male	Female					
1	2	3	4	5	6	7	8	9	10	11	12			
<b>All Areas</b>														
Bangladesh	3.64	0.79	7.26	0.88	2752	2.41	1.90	3.87	3.61	2031	5691			
Kharif	3.58	0.72	7.45	0.85	2771	2.41	1.76	4.05	3.66	2058	5747			
Rabi	3.95	1.21	6.15	1.09	2635	2.37	2.71	2.82	3.28	1870	4356			
<b>Stratum-1</b>														
Total	3.27	0.75	7.55	0.93	2603	2.27	1.72	4.14	3.73	1929	5504			
Kharif	3.24	0.71	7.76	0.90	2610	2.22	1.47	4.35	3.60	1828	5517			
Rabi	3.49	1.01	6.14	1.18	2553	2.58	3.42	2.67	4.64	1936	5416			
<b>Stratum-2</b>														
Total	3.97	0.74	6.90	0.78	2864	2.53	2.05	3.61	3.76	2042	5758			
Kharif	4.05	0.68	6.93	0.77	2895	2.58	2.07	3.72	4.15	2094	5863			
Rabi	3.60	1.05	6.75	0.79	2719	2.25	1.98	3.09	1.85	1789	5250			
<b>Stratum-3</b>														
Total	4.76	1.14	6.65	0.88	3299	2.87	2.49	3.09	2.36	2617	6615			
Kharif	4.25	0.84	7.11	0.74	3391	3.06	2.62	3.16	2.55	2749	6812			
Rabi	7.77	2.89	3.87	1.70	2751	1.74	1.70	2.63	1.23	1825	5442			

Table-13: Per acre different type of production quantity (Kg.) and their value (Tk.) by seasonality and stratum

Seasonality	Total value (Tk.)	Maize		By product		Animal food (Tk.)
		Qty.(Kg)	Value (Tk.)	Qty.(Kg)	Value (Tk.)	
1	2	3	4	5	6	7
<b>All Areas</b>						
Bangladesh	47091	2846	45855	636	805	432
Kharif	48863	2938	47595	657	827	441
Rabi	36433	2296	35391	508	669	374
<b>Stratum-1</b>						
Total	48140	2818	47116	662	724	299
Kharif	49793	2902	48725	670	746	322
Rabi	36769	2239	36050	608	574	145
<b>Stratum-2</b>						
Total	45844	2916	44319	594	883	642
Kharif	47673	3012	46091	631	923	657
Rabi	37029	2452	35782	420	678	569
<b>Stratum-3</b>						
Total	44711	2792	43106	610	1044	560
Kharif	46786	2923	45247	662	1027	512
Rabi	32326	2006	30331	304	1145	851

Table-14.a: Per acre production cost (Tk.) by size of land and stratum.

Size of land planted (Acres)	Per acre production Cost (taka)										
	Total	Land Preparation	Seed	Plantation, threshing	Wedding	Irrigation	Pesticide/insecticide	Fertilizer	Harvesting	Transport	Others
	1	2	3	4	5	6	7	8	9	10	11
<b>All Areas</b>											
Total	23805	2538	1963	1650	2851	3435	516	5162	4783	606	303
<= 0.04	13633	2000	1000	1350	-	2000	-	1000	5750	533	-
0.05 – 0.49	25164	2562	1934	1914	3407	3447	504	4951	5571	582	293
0.50 – 0.99	24047	2467	1970	1677	2871	3453	533	5301	4855	611	310
1.00 – 1.49	23764	2604	1988	1633	2697	3429	500	5343	4630	617	323
1.50 – 2.49	23028	2644	1980	1479	2537	3525	506	5147	4311	610	289
2.50 – 4.99	22267	2493	1928	1435	2588	3185	502	4990	4283	582	281
5.00 – 7.49	22808	1712	1998	1366	3078	4037	758	4511	4391	692	265
7.50 +	18439	2081	1715	1145	2228	2778	615	3429	3409	733	306
<b>Stratum-1</b>											
Total	24625	3250	1972	1603	2663	3621	532	5480	4532	637	335
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25779	3288	1915	1888	3309	3741	471	4894	5393	573	307
0.50 – 0.99	24853	3181	1964	1652	2669	3730	570	5571	4524	646	345
1.00 – 1.49	24632	3307	2032	1560	2455	3640	506	5767	4350	655	361
1.50 – 2.49	23701	3268	1991	1407	2351	3567	529	5504	4114	652	318
2.50 – 4.99	23986	3211	1948	1447	2552	3259	593	5735	4263	646	333
5.00 – 7.49	24106	3260	2000	896	3280	1506	347	6397	5500	820	100
7.50 +	17868	3307	1600	1280	1680	2600	793	3101	2207	800	500
<b>Stratum-2</b>											
Total	22352	1495	1993	1650	2968	3241	490	4757	4906	589	262
<= 0.04	13633	2000	1000	1350	-	2000	-	1000	5750	533	-
0.05 – 0.49	23884	1657	2013	1796	3343	3164	537	5148	5326	612	289
0.50 – 0.99	22974	1529	2024	1679	3029	3202	492	5080	5066	595	278
1.00 – 1.49	22329	1469	1975	1690	2951	3154	494	4803	4942	592	259
1.50 – 2.49	21466	1372	1976	1581	2721	3517	473	4425	4593	579	230
2.50 – 4.99	19039	1333	1939	1394	2451	3058	305	3668	4195	489	207
5.00 – 7.49	22273	1244	1994	1555	3030	4640	933	3694	4199	691	293
7.50 +	16131	1380	1734	749	2036	2693	378	2925	3372	688	176
<b>Stratum-3</b>											
Total	23480	1554	1809	1933	3621	2928	497	4522	5916	464	236
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25775	1620	1803	2356	4047	2839	573	4685	7074	541	238
0.50 – 0.99	23004	1504	1821	1812	3495	2704	451	4492	6043	466	216
1.00 – 1.49	22669	1632	1740	1928	3472	2935	480	4295	5463	448	277
1.50 – 2.49	22462	1584	1902	1737	3456	3223	427	4515	5013	360	244
2.50 – 4.99	21329	1360	1727	1508	3427	3100	560	4270	4789	435	154
5.00 – 7.49	23733	1354	2031	1066	2915	6000	419	6202	2915	346	485
7.50 +	29490	1079	1995	2317	4705	3677	1008	6478	7300	707	221

Table-14.b: Per acre production quantity (Kg) & their value (Tk.) by size of land and stratum

Size of land (Acres)	Total value (Tk.)	Maize		By product		Animal food (Tk.)
		Qty. (Kg)	Value (Tk.)	Qty. (Kg)	Value (Tk.)	
1	2	3	4	5	6	7
<b>All Areas</b>						
Total	47091	2846	45855	636	805	432
<= 0.04	45433	2750	45433	-	-	-
0.05 – 0.49	45849	2769	44477	646	879	493
0.50 – 0.99	48404	2977	47166	620	842	396
1.00 – 1.49	47478	2836	46259	679	857	362
1.50 – 2.49	46102	2760	44935	642	656	511
2.50 – 4.99	46421	2771	45253	609	771	397
5.00 – 7.49	51541	3025	50564	413	557	421
7.50 +	41762	2617	40862	339	165	736
<b>Stratum-1</b>						
Total	48140	2818	47116	662	724	299
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	45450	2658	44280	665	787	383
0.50 – 0.99	49958	2946	49002	620	728	229
1.00 – 1.49	48605	2792	47578	687	781	246
1.50 – 2.49	46732	2774	45750	689	611	371
2.50 – 4.99	49669	2899	48609	683	735	325
5.00 – 7.49	55068	2989	54868	200	200	-
7.50 +	43121	2551	42134	800	400	587
<b>Stratum-2</b>						
Total	45844	2916	44319	594	883	642
<= 0.04	45433	2750	45433	-	-	-
0.05 – 0.49	46464	2927	44781	621	1017	667
0.50 – 0.99	46948	3084	45320	609	945	683
1.00 – 1.49	45891	2928	44444	684	930	517
1.50 – 2.49	45555	2788	44190	534	652	713
2.50 – 4.99	40594	2514	39215	485	826	553
5.00 – 7.49	51049	2920	49879	459	561	608
7.50 +	38642	2565	37586	67	23	1034
<b>Stratum-3</b>						
Total	44711	2792	43106	610	1044	560
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	46037	2860	44569	622	935	533
0.50 – 0.99	44361	2797	42806	652	1156	400
1.00 – 1.49	45171	2824	43420	614	1125	626
1.50 – 2.49	42768	2555	40730	595	1024	1014
2.50 – 4.99	43583	2765	42386	504	842	355
5.00 – 7.49	45831	4028	44305	626	1526	-
7.50 +	50071	3035	50071	-	-	-

Table-15.a: Per acre production cost (Tk.) for own land by size of land & stratum

Size of land planted (Acres)	Per acre production Cost (taka)										
	Total	Land Preparation	Seedling	Plantation	Wedding	Irrigation	Pesticide/insecticide	Fertilizer	Harvesting	Transport	Others
1	2	3	4	5	6	7	8	9	10	11	12
<b>All Areas</b>											
Total	23925	2540	1955	1660	2878	3452	511	5210	4792	620	306
<= 0.04	13633	2000	1000	1350	-	2000	-	1000	5750	533	-
0.05 – 0.49	25272	2514	1932	1937	3404	3446	517	5036	5585	605	296
0.50 – 0.99	24080	2469	1961	1679	2848	3478	529	5364	4820	617	315
1.00 – 1.49	23374	2521	1970	1594	2637	3364	490	5292	4556	628	322
1.50 – 2.49	23709	2796	1984	1526	2695	3645	491	5264	4390	625	295
2.50 – 4.99	22445	2456	1910	1429	2686	3300	525	4960	4268	633	279
5.00 – 7.49	23314	2069	1994	1157	2882	3442	507	5695	4670	656	242
7.50 +	16865	2606	1783	936	1850	2665	464	3051	2459	687	364
<b>Stratum-1</b>											
Total	24755	3278	1972	1615	2707	3602	533	5501	4560	647	340
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25958	3244	1926	1923	5036	3697	498	3321	5413	595	306
0.50 – 0.99	25053	3247	1961	1654	5649	3757	565	2696	4520	651	353
1.00 – 1.49	24101	3216	2028	1511	5682	3521	487	2344	4291	656	363
1.50 – 2.49	24341	3475	2002	1457	5540	3631	535	2510	4208	653	329
2.50 – 4.99	24201	3183	1941	1455	5717	3242	596	2706	4321	697	344
5.00 – 7.49	24106	3260	2000	896	6397	1506	347	3280	5500	820	100
7.50 +	17868	3307	1600	1280	3101	2600	793	1680	2207	800	500
<b>Stratum-2</b>											
Total	22555	1496	1986	1649	2959	3348	485	4914	4836	621	262
<= 0.04	13633	2000	1000	1350	-	2000	-	1000	5750	533	-
0.05 – 0.49	23869	1671	2003	1778	3276	3284	529	5168	5218	643	299
0.50 – 0.99	22973	1528	2018	1676	2938	3279	501	5224	4931	599	279
1.00 – 1.49	22290	1440	1965	1641	2923	3205	510	4923	4795	634	254
1.50 – 2.49	22171	1339	1968	1640	2858	3788	378	4686	4628	671	221
2.50 – 4.99	19603	1295	1881	1412	2612	3441	432	3615	4157	571	187
5.00 – 7.49	22287	1146	1975	1446	2478	4454	696	4826	4466	603	296
7.50 +	15449	1617	2041	449	2089	2757	-	2981	2815	527	173
<b>Stratum-3</b>											
Total	23399	1595	1781	1931	3542	2963	471	4513	5882	474	246
= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25886	1634	1787	2366	4035	2837	565	4729	7127	556	249
0.50 – 0.99	22717	1553	1782	1812	3326	2717	438	4387	5965	500	238
1.00 – 1.49	22318	1628	1668	1922	3466	2936	451	4150	5358	465	275
1.50 – 2.49	23014	1641	1901	1715	3502	3425	450	4759	5028	348	246
2.50 – 4.99	20125	1423	1774	1280	2848	3162	332	4501	4309	362	133
5.00 – 7.49	23733	1354	2031	1066	2915	6000	419	6202	2915	346	485
7.50 +	-	-	-	-	-	-	-	-	-	-	-

Table-15.b: Per acre production quantity (Kg) & their value (Tk.) for own land by size of land and stratum

Size of land (Acres)	Total value (Tk.)	Maize		By product		Animal food (Tk.)
		Qty. (Kg)	Value (Tk.)	Qty. (Kg)	Value (Tk.)	
1	2	3	4	5	6	7
<b>All Areas</b>						
Total	47407	2862	46154	630	827	426
<= 0.04	45433	2750	45433	-	-	-
0.05 – 0.49	46854	2858	45466	659	899	489
0.50 – 0.99	48901	2964	47636	625	867	398
1.00 – 1.49	46424	2783	45195	668	874	355
1.50 – 2.49	47430	2838	46283	604	674	473
2.50 – 4.99	46681	2794	45525	549	759	397
5.00 – 7.49	47406	2925	46548	632	612	245
7.50 +	38090	2371	36731	468	234	1125
<b>Stratum-1</b>						
Total	48426	2811	47389	650	734	303
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	46587	2715	45348	687	824	415
0.50 – 0.99	50673	2942	49710	610	751	212
1.00 – 1.49	46509	2663	45453	715	775	281
1.50 – 2.49	48029	2833	47104	623	591	334
2.50 – 4.99	50800	2928	49730	610	745	325
5.00 – 7.49	55068	2989	54868	200	200	-
7.50 +	43121	2551	42134	800	400	587
<b>Stratum-2</b>						
Total	46576	2982	45087	591	906	583
<= 0.04	45433	2750	45433	-	-	-
0.05 – 0.49	47529	3088	45945	628	996	589
0.50 – 0.99	47587	3042	45948	639	965	674
1.00 – 1.49	47155	3040	45815	587	955	385
1.50 – 2.49	48167	2991	46874	533	717	576
2.50 – 4.99	39425	2509	38177	421	727	521
5.00 – 7.49	40414	2476	39143	1059	699	572
7.50 +	30986	2116	29101	-	-	1885
<b>Stratum-3</b>						
Total	44391	2797	42670	636	1096	625
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	46308	2881	44803	620	964	541
0.50 – 0.99	44202	2825	42605	656	1139	457
1.00 – 1.49	43992	2749	42119	635	1196	677
1.50 – 2.49	42107	2542	39881	636	1104	1122
2.50 – 4.99	43876	2918	42396	604	1029	452
5.00 – 7.49	45831	4028	44305	626	1526	-
7.50 +	-	-	-	-	-	-

Table-16.a: Per acre production cost (Tk.) for all other tenancy by size of land & stratum

Size of land planted (Acres)	Per acre production Cost (taka)										
	Total	Land Preparation	Seedling	Plantation	Wedding	Irrigation	Pesticide	Fertilizer	Harvesting	Transport	Others
1	2	3	4	5	6	7	8	9	10	11	12
<b>All Areas</b>											
Total	23495	2531	1983	1622	2783	3390	528	5037	4759	568	295
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25269	2644	1957	1867	3388	3579	518	4931	5541	561	283
0.50 – 0.99	23774	2579	2034	1611	2821	3341	522	5231	4748	584	303
1.00 – 1.49	23360	2645	2002	1607	2598	3453	472	5158	4513	602	310
1.50 – 2.49	21013	2363	1917	1322	1954	3191	638	4957	3894	518	259
2.50 – 4.99	21267	2226	1936	1430	2410	3021	442	4661	4327	496	318
5.00 – 7.49	18831	1129	1797	1207	2621	3955	790	2563	3729	669	372
7.50 +	29490	1079	1995	2317	4705	3677	1008	6478	7300	707	221
<b>Stratum-1</b>											
Total	24309	3182	1973	1573	2558	3666	531	5429	4463	613	322
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25742	3212	1910	1857	3258	3845	505	4903	5368	585	299
0.50 – 0.99	24255	3205	2033	1536	2528	3579	539	5594	4291	618	332
1.00 – 1.49	24557	3320	2017	1564	2406	3799	496	5664	4249	682	359
1.50 – 2.49	21825	2900	1923	1212	1717	3386	586	5648	3614	577	263
2.50 – 4.99	23237	3148	1862	1381	1999	3611	582	5603	4055	580	417
5.00 – 7.49	-	-	-	-	-	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-	-	-	-	-	-
<b>Stratum-2</b>											
Total	21844	1491	2010	1655	2990	2974	505	4366	5081	510	262
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	24205	1602	2051	1830	3513	3136	536	5035	5686	543	273
0.50 – 0.99	22790	1538	2053	1725	3222	2962	480	4582	5398	562	268
1.00 – 1.49	21085	1444	1973	1660	2851	2874	412	4211	4960	474	227
1.50 – 2.49	19734	1346	1916	1506	2270	2967	782	3877	4398	413	260
2.50 – 4.99	18183	1499	2054	1344	2262	2384	189	3654	4182	380	236
5.00 – 7.49	18831	1129	1797	1207	2621	3955	790	2563	3729	669	372
7.50 +	-	-	-	-	-	-	-	-	-	-	-
<b>Stratum-3</b>											
Total	23859	1362	1941	1943	3991	2765	619	4563	6075	414	187
= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25316	1450	2011	2183	4260	2792	566	4714	6820	379	142
0.50 – 0.99	23665	1351	1953	1807	3794	2798	545	4732	6134	361	190
1.00 – 1.49	22660	1536	2003	1890	3698	2539	589	4726	5145	333	201
1.50 – 2.49	18156	1383	1851	1654	3106	2058	500	2479	4539	383	203
2.50 – 4.99	26000	1161	1752	2061	5038	3124	940	4781	6289	629	224
5.00 – 7.49	-	-	-	-	-	-	-	-	-	-	-
7.50 +	29490	1079	1995	2317	4705	3677	1008	6478	7300	707	221

Table-16.b: Per acre production quantity (Kg) & their value (Tk.) for other tenancy by size of land and stratum

Size of land (Acres)	Total value (Tk.)	Maize		By product		Animal food (Tk.)
		Qty. (Kg)	Value (Tk.)	Qty. (Kg)	Value (Tk.)	
1	2	3	4	5	6	7
<b>All Areas</b>						
Total	46277	2804	45084	651	747	447
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	46957	2859	45675	617	811	471
0.50 – 0.99	46904	2884	45901	571	689	314
1.00 – 1.49	45977	2724	44599	758	816	562
1.50 – 2.49	43977	2673	42704	813	707	566
2.50 – 4.99	44019	2552	42578	700	863	577
5.00 – 7.49	55796	3374	55777	64	19	-
7.50 +	50071	3035	50071	-	-	-
<b>Stratum-1</b>						
Total	47448	2836	46458	691	701	290
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	47726	2856	46701	618	696	328
0.50 – 0.99	48233	2883	47438	566	315	180
1.00 – 1.49	48318	2828	47233	801	843	243
1.50 – 2.49	44829	2760	43581	930	745	504
2.50 – 4.99	44792	2642	43737	841	647	407
5.00 – 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-
<b>Stratum-2</b>						
Total	44016	2749	42403	602	825	788
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	45272	2853	43487	602	979	806
0.50 – 0.99	44246	2900	42809	575	799	639
1.00 – 1.49	41533	2544	39550	723	795	1188
1.50 – 2.49	41664	2490	40271	647	669	723
2.50 – 4.99	43265	2464	41237	621	1154	874
5.00 – 7.49	55496	3374	55777	64	19	-
7.50 +	-	-	-	-	-	-
<b>Stratum-3</b>						
Total	46207	2769	45148	492	801	257
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	46800	2927	45140	678	1281	378
0.50 – 0.99	46346	2824	45328	603	900	118
1.00 – 1.49	44592	2510	43469	334	543	580
1.50 – 2.49	46165	2605	45234	292	456	476
2.50 – 4.99	43789	2526	43200	393	557	31
5.00 – 7.49	-	-	-	-	-	-
7.50 +	50071	3035	50071	-	-	-

Table-17.a: Per acre production cost (Tk.) for local variety by size of land & stratum

Size of land planted (Acres)	Per acre production Cost (taka)										
	Total	Land Preparation	Seedling	Plantation	Wedding	Irrigation	Pesticide	Fertilizer	Harvesting	Transport	Others
1	2	3	4	5	6	7	8	9	10	11	12
<b>All Areas</b>											
Total	20780	2107	1731	1567	2453	2892	359	3774	4592	556	175
<= 0.04	14183	2000	1000	1350	-	2000	-	1000	5750	533	-
0.05 – 0.49	21357	2087	1718	1930	3266	2950	400	4370	6104	582	237
0.50 – 0.99	21201	2248	1829	1520	2437	2649	363	4075	4814	548	179
1.00 – 1.49	19172	2130	1598	1518	2143	2846	308	3301	4082	528	146
1.50 – 2.49	18498	2135	1825	1308	1720	3298	368	3555	3166	547	91
2.50 – 4.99	15127	1081	1465	1086	2540	2527	316	1731	3062	642	297
5.00 – 7.49	-	-	-	-	-	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-	-	-	-	-	-
<b>Stratum-1</b>											
Total	23262	3109	1795	1490	2575	3908	432	4357	4323	694	208
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25092	3087	1654	1861	3476	3770	423	4339	5109	616	292
0.50 – 0.99	25800	3682	2054	1738	2335	4140	531	5333	4594	734	225
1.00 – 1.49	22453	3219	1716	1351	2280	3912	360	4258	4150	740	130
1.50 – 2.49	21301	2947	1825	1055	2193	4219	455	4059	3488	726	71
2.50 – 4.99	14655	1000	1400	886	2308	2462	200	1648	3446	585	500
5.00 – 7.49	-	-	-	-	-	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-	-	-	-	-	-
<b>Stratum-2</b>											
Total	21391	1523	1795	1429	2294	2950	335	4160	5492	628	173
<= 0.04	14183	2000	1000	1350	-	2000	-	1000	5750	533	-
0.05 – 0.49	23504	1590	1774	1543	2610	2902	398	4977	6243	604	203
0.50 – 0.99	20985	1450	1970	1230	2270	2063	317	4091	6391	503	174
1.00 – 1.49	20710	1554	1627	1535	2263	3214	267	3647	5105	649	192
1.50 – 2.49	19659	1534	1770	1309	1458	3719	282	4087	4068	737	134
2.50 – 4.99	22035	1297	2000	1890	4590	3967	727	2485	3300	1000	-
5.00 – 7.49	-	-	-	-	-	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-	-	-	-	-	-
<b>Stratum-3</b>											
Total	17960	1554	1624	1738	2447	1873	306	2941	4216	373	144
= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	24312	1548	1735	2269	3549	2251	382	3961	6896	536	212
0.50 – 0.99	17203	1459	1537	1505	2633	1675	240	2936	4024	408	140
1.00 – 1.49	15262	1650	1477	1646	1933	1676	295	2237	3255	258	125
1.50 – 2.49	14551	1659	1865	1588	1379	1972	331	2615	2166	213	82
2.50 – 4.99	9649	1093	1109	793	1133	1308	199	1208	1928	437	98
5.00 – 7.49	-	-	-	-	-	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-	-	-	-	-	-

Table-17.b: Per acre production quantity (Kg) & their production value (Tk.) for local variety by size of land

Size of land (Acres)	Total value (Tk.)	Maize		By product		Animal food (Tk.)
		Qty. (Kg)	Value (Tk.)	Qty. (Kg)	Value (Tk.)	
1	2	3	4	5	6	7
<b>All Areas</b>						
Total	35291	2024	32957	362	599	1734
<= 0.04	45433	2750	45433	-	-	-
0.05 – 0.49	40236	2315	37565	427	718	1853
0.50 – 0.99	37410	2138	34501	419	679	2230
1.00 – 1.49	31765	1776	29641	280	568	1555
1.50 – 2.49	29845	1727	28137	303	382	1327
2.50 – 4.99	34570	2158	34040	293	510	21
5.00 – 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-
<b>Stratum-1</b>						
Total	39295	2246	38311	479	557	427
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	45787	2595	44134	586	875	778
0.50 – 0.99	45678	2550	44612	628	768	298
1.00 – 1.49	35473	2023	34598	388	385	490
1.50 – 2.49	27016	1592	26512	400	252	2 51
2.50 – 4.99	39451	2453	39451	-	-	-
5.00 – 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-
<b>Stratum-2-</b>						
Total	38080	1996	33537	332	763	3779
<= 0.04	45433	2750	45433	-	-	-
0.05 – 0.49	37237	1915	32234	299	677	4326
0.50 – 0.99	36906	1805	29280	383	564	7061
1.00 – 1.49	35074	1888	31646	225	960	2467
1.50 – 2.49	44924	2461	43384	281	661	879
2.50 – 4.99	38667	2333	36667	1200	2000	-
5.00 – 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-
<b>Stratum-3</b>						
Total	29471	1830	27395	270	524	1551
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	37420	2352	35514	377	607	1299
0.50 – 0.99	30294	1975	28682	252	671	942
1.00 – 1.49	26162	1484	23972	232	427	1763
1.50 – 2.49	22267	1354	19096	211	327	2844
2.50 – 4.99	19116	1292	18735	121	292	89
5.00 – 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-

Table-18.a: Per acre production cost (Tk.) for Hybrid variety by size of land & stratum

Size of land planted (Acres)	Per acre production Cost (taka)										
	Total	Land Preparation	Seedling	Plantation	Wedding	Irrigation	Pesticide	Fertilizer	Harvesting	Transport	Others
1	2	3	4	5	6	7	8	9	10	11	12
<b>All Areas</b>											
Total	24038	2566	1978	1655	2877	3470	526	5252	4795	609	311
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25292	2602	1952	1911	3416	3488	513	5012	5518	582	298
0.50 – 0.99	24297	2493	1981	1686	2898	3511	542	5394	4857	617	317
1.00 – 1.49	24000	2610	2006	1638	2746	3451	510	5427	4661	619	334
1.50 – 2.49	23348	2689	1997	1487	2565	3532	518	5261	4381	615	303
2.50 – 4.99	22605	2545	1940	1448	2596	3232	512	5135	4331	582	284
5.00 – 7.49	22808	1712	1998	1366	3078	4037	758	4511	4391	692	265
7.50 +	18439	2081	1715	1145	2228	2778	615	3429	3409	733	306
<b>Stratum-1</b>											
Total	24692	3255	1979	1607	2667	3610	536	5524	4540	635	340
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	25848	3300	1931	1889	3295	3737	471	4945	5399	571	309
0.50 – 0.99	24896	3181	1965	1648	2681	3725	573	5611	4516	648	349
1.00 – 1.49	24588	3283	2031	1562	2468	3619	509	5747	4353	646	369
1.50 – 2.49	23835	3285	2005	1422	2341	3536	535	5588	4145	649	328
2.50 – 4.99	24243	3270	1962	1462	2559	3280	603	5845	4285	648	328
5.00 – 7.49	24105	3260	2000	896	3280	1506	347	6397	5500	820	100
7.50 +	17868	3307	1600	1280	1680	2600	793	3101	2207	800	500
<b>Stratum-2</b>											
Total	22438	1493	2003	1662	3005	3257	499	4790	4874	587	267
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	23985	1664	2028	1814	3400	3191	550	5162	5267	614	294
0.50 – 0.99	23093	1533	2027	1701	3062	3257	497	5120	5019	594	282
1.00 – 1.49	22405	1457	1998	1700	2982	3144	504	4865	4900	590	265
1.50 – 2.49	21626	1359	1992	1592	2812	3493	495	4454	4621	572	237
2.50 – 4.99	18992	1334	1938	1383	2405	3038	296	3694	4214	478	212
5.00 – 7.49	22273	1244	1994	1555	3030	4640	933	3694	4199	691	293
7.50 +	16131	1380	1734	749	2036	2693	378	2925	3372	688	176
<b>Stratum-3</b>											
Total	25410	1554	1866	1993	3983	3254	555	5009	6439	492	264
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	26441	1643	1822	2370	4192	3017	640	4895	7081	535	243
0.50 – 0.99	24948	1512	1905	1901	3775	3021	512	4963	6632	487	240
1.00 – 1.49	25469	1616	1834	2014	4106	3281	540	5007	6254	504	316
1.50 – 2.49	24890	1597	1942	1757	3934	3634	433	4958	5900	431	303
2.50 – 4.99	24319	1307	1726	1634	3968	3735	688	5227	5404	437	191
5.00 – 7.49	23733	1354	2031	1066	2915	6000	419	6202	2915	346	485
7.50 +	29490	1079	1995	2317	4705	3677	1008	6478	7300	707	221

Table-18.b: Per acre production quantity (Kg) & their production value (Tk.) for Hybrid variety by size of land and stratum

Size of land (Acres)	Total value (Tk.)	Maize		By product		Animal food (Tk.)
		Qty. (Kg)	Value (Tk.)	Qty. (Kg)	Value (Tk.)	
1	2	3	4	5	6	7
<b>All Areas</b>						
Total	47857	2899	46692	654	818	347
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	46374	2808	45115	663	891	368
0.50 – 0.99	49096	3028	17958	634	852	287
1.00 – 1.49	48329	2896	47175	700	877	277
1.50 – 2.49	47323	2838	46195	668	670	458
2.50 – 4.99	46966	2803	45766	626	789	411
5.00 – 7.49	51541	3025	50564	413	557	421
7.50 +	41762	2617	40862	339	165	736
<b>Stratum-1</b>						
Total	48481	2840	47756	669	731	295
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	45504	2664	44365	668	780	359
0.50 – 0.99	50160	2963	49207	624	728	225
1.00 – 1.49	48896	2810	47870	687	787	239
1.50 – 2.49	47603	2826	46588	709	634	380
2.50 – 4.99	49943	2911	48854	702	755	333
5.00 – 7.49	55068	2989	54868	200	200	-
7.50 +	43121	2551	42134	800	400	587
<b>Stratum-2-</b>						
Total	46267	2966	44906	609	889	471
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	47179	2997	45736	644	1038	405
0.50 – 0.99	47372	3137	46002	618	960	410
1.00 – 1.49	46450	2988	45140	710	936	374
1.50 – 2.49	45771	2829	44423	560	638	710
2.50 – 4.99	40636	2518	39270	469	801	565
5.00 – 7.49	51049	2920	49879	459	561	608
7.50 +	38642	2565	37586	67	23	1034
<b>Stratum-3</b>						
Total	49408	3088	47949	715	1204	255
<= 0.04	--	-	-	-	-	-
0.05 – 0.49	48815	3018	47470	704	1052	293
0.50 – 0.99	48554	3044	47038	770	1295	222
1.00 – 1.49	51086	3237	49495	766	1383	208
1.50 – 2.49	50363	2994	48902	652	1167	295
2.50 – 4.99	48850	3154	47358	649	1074	418
5.00 – 7.49	45831	4028	44305	626	1526	-
7.50 +	50071	3035	50071	-	-	-

Table-19.a: Per acre production cost (Tk.) for rabi farming time by size of land & stratum

Size of land planted (Acres)	Per acre production Cost (taka)										
	Total	Land Preparation	Seedling	Plantation	Wedding	Irrigation	Pesticide	Fertilizer	Harvesting	Transport	Others
	1	2	3	4	5	6	7	8	9	10	11
<b>All Areas</b>											
Total	24218	2588	1980	1661	2884	3531	527	5300	4829	615	303
<= 0.04	14186	1999	1087	1288	827	587	164	2046	5512	675	-
0.05 – 0.49	25229	2569	1958	1907	3388	3462	506	5020	5540	583	296
0.50 – 0.99	24355	2526	1997	1678	2891	3548	535	5400	4842	623	316
1.00 – 1.49	24176	2688	2014	1605	2650	3556	518	5545	4624	652	323
1.50 – 2.49	23326	2648	1956	1491	2645	3637	520	5220	4340	589	281
2.50 – 4.99	23413	2687	1950	1510	2609	3379	550	5378	4465	608	276
5.00 – 7.49	21875	1675	1994	1214	2906	3749	721	4367	4351	661	237
7.50 +	21412	1088	1956	1541	2943	2992	898	4144	5205	821	195
<b>Stratum-1</b>											
Total	24949	3294	1983	1609	2707	3705	542	5593	4538	645	334
= 0.04	28925	2650	1875	1250	6250	3125	150	7375	6250	-	-
0.05 – 0.49	25819	3268	1929	1885	3292	3726	467	5004	5351	585	312
0.50 – 0.99	25139	3268	1987	1636	2679	3844	579	5674	4453	662	357
1.00 – 1.49	25020	3398	2047	1550	2399	3753	529	5969	4319	691	362
1.50 – 2.49	23815	3258	1971	1411	2475	3652	542	5486	4097	624	300
2.50 – 4.99	24551	3262	1962	1487	2653	3326	619	5917	4358	650	317
5.00 – 7.49	24106	3260	2000	896	3280	1506	347	6397	5500	820	100
7.50 +	-	-	-	-	-	-	-	-	-	-	-
<b>Stratum-2</b>											
Total	22705	1513	1998	1682	2957	3333	496	4863	4989	612	262
<= 0.04	11938	1900	967	1293	-	200	167	1233	5400	778	-
0.05 – 0.49	23888	1645	2032	1809	3322	3170	534	5123	5352	610	290
0.50 – 0.99	23172	1545	2033	1709	3056	3248	472	5103	5114	616	277
1.00 – 1.49	22456	1498	1982	1630	2905	3265	482	4842	4954	647	252
1.50 – 2.49	21623	1333	1919	1631	2633	3709	501	4613	4499	555	231
2.50 – 4.99	20413	1452	1989	1566	2144	3561	325	4054	4565	563	194
5.00 – 7.49	20938	1198	1988	1334	2784	4217	877	3497	4143	645	253
7.50 +	16960	1092	1360	1113	1971	2615	838	2857	4050	884	180
<b>Stratum-3</b>											
Total	24377	1546	1906	1917	3755	3069	535	4836	6140	435	237
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	26112	1643	1893	2310	4090	2938	626	4799	7090	494	230
0.50 – 0.99	23773	1500	1938	1816	3573	2829	486	4800	6204	419	208
1.00 – 1.49	23854	1611	1892	1896	3550	3131	554	4872	5662	407	280
1.50 – 2.49	24192	1558	1943	1720	3966	3335	405	4836	5742	414	273
2.50 – 4.99	22221	1337	1750	1552	3496	3322	586	4551	5071	395	162
5.00 – 7.49	23733	1354	2031	1066	2915	6000	419	6202	2915	346	485
7.50 +	29490	1079	1995	2317	4705	3677	1008	6478	7300	707	221

Table-19.b: Per acre production quantity (Kg) & their production value (Tk.) for rabi farming time by size of land and stratum

Size of land (Acres)	Total value (Tk.)	Maize		By product		Animal food (Tk.)
		Qty. (Kg)	Value (Tk.)	Qty. (Kg)	Value (Tk.)	
1	2	3	4	5	6	7
<b>All Areas</b>						
Total	48863	2938	47595	657	827	441
<= 0.04	46516	2750	46476	43	40	-
0.05 – 0.49	46665	2840	45307	658	866	492
0.50 – 0.99	49683	3015	48392	644	854	437
1.00 – 1.49	49923	2959	48571	715	923	429
1.50 – 2.49	48110	2883	47022	627	642	446
2.50 – 4.99	50096	2944	48852	686	855	389
5.00 – 7.49	50451	2988	49828	337	327	296
7.50 +	48700	3083	48667	95	33	-
<b>Stratum-1</b>						
Total	49793	2902	48725	670	746	322
<= 0.04	53875	2750	53575	325	300	-
0.05 – 0.49	46407	2717	45258	671	776	372
0.50 – 0.99	51313	3004	50323	619	740	249
1.00 – 1.49	50866	2914	49710	726	862	294
1.50 – 2.49	48807	2886	47825	664	580	402
2.50 – 4.99	51543	2988	50401	728	782	360
5.00 – 7.49	55068	2989	54868	200	200	-
7.50 +	-	-	-	-	-	-
<b>Stratum-2-</b>						
Total	47673	3012	46091	631	925	657
<= 0.04	45393	2750	45393	-	-	-
0.05 – 0.49	47181	3047	45505	627	1005	670
0.50 – 0.99	47974	3047	46253	669	972	750
1.00 – 1.49	48548	3039	46911	709	1028	609
1.50 – 2.49	45913	2846	44646	514	634	634
2.50 – 4.99	47900	2862	46356	608	1052	491
5.00 – 7.49	49486	2868	48829	349	230	427
7.50 +	47945	3110	47894	148	51	-
<b>Stratum-3</b>						
Total	46786	2923	45247	662	1027	512
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	46491	2874	44972	682	927	593
0.50 – 0.99	45915	2876	44323	709	1119	473
1.00 – 1.49	47831	3012	46050	656	1009	773
1.50 – 2.49	48721	2958	47314	649	1133	274
2.50 – 4.99	44273	2815	43001	555	925	347
5.00 – 7.49	45831	4028	44305	626	1526	-
7.50 +	50071	3035	50071	-	-	-

Table-20.a: Per acre production cost (Tk.) for kharif farming time by size of land & stratum

Size of land planted (Acres)	Per acre production Cost (taka)										
	Total	Land Preparation	Seedling	Plantation	Wedding	Irrigation	Pesticide	Fertilizer	Harvesting	Transport	Others
	1	2	3	4	5	6	7	8	9	10	11
<b>All Areas</b>											
Total	21320	2235	1858	1581	2655	2858	446	4332	4504	550	301
<= 0.04	13349	2214	1129	1432	1104	110	168	1259	5198	734	-
0.05 – 0.49	23180	2214	1841	1936	3106	2991	464	4348	5531	489	261
0.50 – 0.99	21763	2360	1916	1510	2454	2890	495	4848	4382	578	331
1.00 – 1.49	19210	2223	1766	1359	2352	2599	400	4038	3580	592	301
1.50 – 2.49	19108	2168	1947	1302	1823	2856	366	3767	3926	610	343
2.50 – 4.99	17514	1753	1705	1018	3608	2713	344	2750	2782	524	318
5.00 – 7.49	14051	1602	2045	442	1764	2556	-	2965	1805	602	271
7.50 +	-	-	-	-	-	-	-	-	-	-	-
<b>Stratum-1</b>											
Total	22393	2945	1897	1558	2364	3044	466	4703	4488	585	343
<= 0.04	22393	4000	1875	1500	7500	750	375	900	5625	-	-
0.05 – 0.49	23629	2767	1818	1931	2863	3208	466	4292	5570	459	255
0.50 – 0.99	22667	3025	1987	1483	2179	2993	479	5302	4216	634	370
1.00 – 1.49	20818	3211	1939	1123	2163	2869	429	4895	3102	703	384
1.50 – 2.49	21173	3300	1950	1183	1410	3118	447	4562	4063	665	474
2.50 – 4.99	16302	2215	1504	1090	2030	2533	507	2361	2867	696	500
5.00 – 7.49	-	-	-	-	-	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-	-	-	-	-	-
<b>Stratum-2</b>											
Total	20649	1407	1966	1496	3019	2799	463	4249	4509	480	261
<= 0.04	11764	1906	1000	1421	-	-	132	1321	5125	860	-
0.05 – 0.49	22575	1507	1979	1819	3401	2797	494	4529	5300	480	270
0.50 – 0.99	21410	1393	2000	1484	2895	2925	593	4720	4665	446	291
1.00 – 1.49	18816	1371	1870	1321	2376	2565	432	4113	4030	492	246
1.50 – 2.49	18400	1124	2076	1387	2321	2955	318	3270	4111	599	239
2.50 – 4.99	18526	1367	1873	957	4926	2863	208	3075	2711	380	166
5.00 – 7.49	14051	1602	2045	442	1764	2556	-	2965	1805	602	271
7.50 +	-	-	-	-	-	-	-	-	-	-	-
<b>Stratum-3</b>											
Total	18125	1601	1229	2029	2821	2087	268	2647	4576	634	232
<= 0.04	-	-	-	-	-	-	-	-	-	-	-
0.05 – 0.49	22798	1545	1328	2548	3471	2330	294	3883	6374	758	266
0.50 – 0.99	17817	1614	1268	1741	2631	2214	286	2719	4442	668	234
1.00 – 1.49	16006	1765	1059	2063	2783	1984	247	1624	3711	549	221
1.50 – 2.49	11742	1113	1342	1526	1674	1056	168	1956	2382	374	150
2.50 – 4.99	-	-	-	-	-	-	-	-	-	-	-
5.00 – 7.49	-	-	-	-	-	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-	-	-	-	-	-

Table-20.b: Per acre production quantity (Kg) & their production value (Tk.) for kharif farming time by size of land and stratum

Size of land (Acres)	Total value (Tk.)	Maize		By product		Animal food (Tk.)
		Qty. (Kg)	Value (Tk.)	Qty. (Kg)	Value (Tk.)	
1	2	3	4	5	6	7
<b>All Areas</b>						
Total	36433	2296	35391	508	669	374
<= 0.04	44969	2737	44792	147	177	-
0.05 – 0.49	37403	2266	36316	584	758	329
0.50 – 0.99	37893	2487	37015	449	646	232
1.00 – 1.49	33137	2028	32072	541	676	389
1.50 – 2.49	34195	2220	33088	437	523	584
2.50 – 4.99	35309	2249	33777	483	551	982
5.00 – 7.49	31366	2123	29185	-	-	2180
7.50 +	-	-	-	-	-	-
<b>Stratum-1</b>						
Total	36769	2239	36050	608	574	145
<= 0.04	31500	2000	30300	1000	1200	-
0.05 – 0.49	37080	2134	36118	713	739	224
0.50 – 0.99	37981	2436	37392	501	509	80
1.00 – 1.49	33093	1941	32588	641	396	110
1.50 – 2.49	33147	2138	32421	684	630	96
2.50 – 4.99	41958	2551	41484	415	207	267
5.00 – 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-
<b>Stratum-2</b>						
Total	37029	2452	35782	420	678	569
<= 0.04	47294	-	2864	47294	-	-
0.05 – 0.49	37423	443	2417	36225	456	755
0.50 – 0.99	39646	327	2717	38616	399	703
1.00 – 1.49	34848	311	2277	33886	498	651
1.50 – 2.49	38260	1168	2494	36642	228	450
2.50 – 4.99	29760	1578	1997	27344	541	838
5.00 – 7.49	31366	2180	2123	29185	-	-
7.50 +	-	-	-	-	-	-
<b>Stratum-3</b>						
Total	32326	2006	30331	304	1145	851
<= 0.04	-	-	-	-	-	-
0.05 – 0.49	39717	2517	38241	248	917	559
0.50 – 0.99	32050	2066	30029	317	1231	791
1.00 – 1.49	29024	1635	26250	385	1468	1306
1.50 – 2.49	21054	1388	20324	125	303	427
2.50 – 4.99	-	-	-	-	-	-
5.00 – 7.49	-	-	-	-	-	-
7.50 +	-	-	-	-	-	-

Table-21: Distribution of number household, amount of loan and money used for maize farming  
By source of loan.

Items	Source of loan						
	Total	Bank	NGO	Mahajon	Foria/ Pikar	Relative/ Neighbor	Others
1	2	3	4	5	6	7	8
All							
No. of HH loaner	115347	10463	49477	13650	10229	22314	9214
Amount (Tk.) of loan	1552994549	229704023	745792690	159237716	102548605	209228168	106483347
Money (Tk.) used for onion farming	1235508264	183628168	530514845	137281379	91955301	198089405	94039166
Stratum-1							
No. of HH loaner	65144	5186	27872	8427	7130	9723	6806
Amount (Tk.) of loan	841899132	112137839	422461482	90423286	76162983	65467756	75245786
Money (Tk.) used for onion farming	689508347	107924567	297294912	84103379	66278000	63199071	70708417
Stratum-2							
No. of HH loaner	38959	4392	17709	2833	2833	9492	1700
Amount (Tk.) of loan	558576068	93925950	269410226	36975374	24083577	112505722	21675219
Money (Tk.) used for onion farming	429551846	64813156	189126913	28333620	24083577	107965259	15229321
Stratum-3							
No. of HH loaner	11245	885	3896	2391	266	3099	708
Amount (Tk.) of loan	152519349	23640233	53920982	31839056	2302045	31254691	9562342
Money (Tk.) used for onion farming	116448071	10890445	44093020	24844380	1593724	26925075	8101428

Table-22: Distribution of type of problem wise household by level of problem

Serial Number	Type of problem	Problem		
		Principal	Medium	Minimum
1	2	3	4	5
Total		1121232	1121232	1121232
01.	Lack of high quality seed	161811	52318	34677
02.	High price high quality seed	196756	144150	80635
03.	Shortest of fertilizer	20417	38199	19671
04.	High price of fertilizer	51989	129145	110589
05.	Severe insect attack	33416	45705	31402
06.	Disease attack	11127	27552	24308
07.	Lack of appropriate insecticide	5802	23580	15946
08.	Lack of appropriate pesticide	4364	12471	9517
09.	High price of insecticide	1471	22736	28679
10.	High price of pesticide	5214	6299	9135
11.	Lack of regulator & high price	4128	3062	4307
12.	Lack of marketing	88854	109574	72533
13.	Produced maize low value	334483	227750	172298
14.	Produced seed low value	5821	12462	28264
15.	Lack of capital	79212	60128	72044
16.	Lack of government support	46750	98164	173641
17.	Lack of technical knowledge	12342	27230	36207
18.	Decreasing productivity	13718	37465	67550
19.	Lack of maize storage	32558	43240	129832



## Annex-B: Concepts and Definitions

### **Mauza:**

Mauza is the demarcated lowest administrative territorial unit having separate jurisdiction list (JL) number in the revenue records. Every mauza has its well demarcated Cadastral Survey (CS) 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 Unit (PSU):**

PSU, here in this Maizesurveyrefers to one or more than one mauzas or any part of a mauza. For effective implementation of this survey, 100 primary sampling units have been selected from the whole country.

**Stratum-1:** Stratum-1 consists of five(5) districts namely Chittagong, Cox's Bazar, Bandarban, Rangamati and Khagrachhari

**Stratum-2:** Stratum-2 consists of the remaining 59 districts.

### **Ultimate Sampling Units (USUs):**

All the households having at least 5 decimal area of land under maizecultivation were listed from the selected PSUs and then 30 households have been drawn following the systematic random sampling, where a mouza was treated as the primary sampling unit (PSU) and within the selected mouzas, Maize crop producing households were the ultimate sampling unit.

### **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 described 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 this household 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 the households has owner-like possession.

### **Share crop:**

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 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 criteria mentioned earlier is treated as the others category.

### **Homestead area:**

This includes land under household residence with all its structures, court yard, and entrance & exit passage. The land adjacent to residence and used for temporary or perennial crops, ponds & tanks, and other compact plantation is excluded from homestead area.

### **Single cropped area:**

Single cropped area means wherein one crop has been grown in survey year.

### **Mixed cropped area:**

Mixed cropped area is defined an area where two or more crops are grown simultaneously in a survey year.

### **Reference period:**

The year 2013, prior to the survey year 2014, was considered as reference period.

### **Maize farm holding:**

The households having at least five decimal area of land under Maize cultivation was considered as the Maize farm holding.

### **Maize:**

Maize is an edible fruit produced by several kinds of large herbaceous flowering plants in the genus *Musa*. There are a lot of varieties of Maize in the world. Nearly seventy local varieties of Maize are found in India. In Bangladesh more than thirty varieties of Maize have been observed. On the basis of utilization, all varieties of Maize can be divided into two broad categories viz. ripen Maize and anaji Maize.

### **Ripen Maize (suitable for eating):**

Based on Maize tree this type of variety can be two types such as long and short (singapuri) type of Maize tree. The Maize that are produced in the long type of Maize tree normally they are three forms and these are



## Annex-C: Questionnaire (Bangla)

গণপ্রজাতন্ত্রী বাংলাদেশ সরকার

বাংলাদেশ পরিসংখ্যান বুরো

এগ্রিকালচার উইং

গ্রোডাক্সিভিটি এ্যাসেমবেন্ট সার্ভে অব ডিফারেন্ট

এগ্রিকালচারাল ক্রপস্ক কর্মসূচি

ই-২৭/এ, আগারগাঁও, ঢাকা-১২০৭

গোপনীয়

ভুট্টা ফসলের উৎপাদনশীলতা জরিপ-২০১৪

### প্রথম অংশ

#### ১। খানার পরিচিতি

খানার ক্রমিক নং

স্ট্যাট্রাম নম্বর

পিএসইউ নম্বর

নমুনা খানা নম্বর

খানা প্রধানের নামঃ .....	পিতা/স্বামীর নামঃ .....			
বিভাগের নামঃ	কোড	চাষীর মোবাইল নম্বরঃ		
জেলার নামঃ	কোড	উপজেলার নামঃ	কোড	
ইউনিয়নের নামঃ	কোড	মৌজা/গ্রামের নামঃ	কোড	

### দ্বিতীয় অংশ

#### ২। ভুট্টা ফসলের জমির পরিমাণ, মালিকানা, চাষের প্রকার, চাষের ধরন এবং খরচ (টাকায়)

জমির প্লট/খন্ড	জমির পরিমাণ		জমির মালিকানা কোড	ভুট্টা ফসলের জাতের প্রকার কোড	চাষের প্রকার কোড	চাষের মৌসুম কোড	চাষের ধরন (নিজস্ব হলে বাজার দরে লিখতে হবে) এবং খরচ		অন্যান্য খরচ (টাকা)	মোট খরচ (টাকা) (৯+১১+১২=১৩)		
	একর	শতক					লাঙ্গল/কোদাল	যান্ত্রিক				
	সংখ্যা	খরচ (টাকা)					সংখ্যা	খরচ (টাকা)				
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩
১ম												
২য়												
৩য়												
৪র্থ												
৫ম												

জমির মালিকানা: নিজস্ব-১, বর্গা-২, বন্ধক-৩, লীজ-৪, অন্যান্য-৫ চাষের প্রকার কোডঃ একক-১ মিশ-২জাতের প্রকার কোডঃ দেশী-১ হাইব্রিড-২, অন্যান্য-৩ চাষের মৌসুম কোডঃ রবি-১, খরিপ-২

৩। ভুট্টা ফসলের বীজের পরিমাণ, বীজ রোগণ এবং নিড়ানির খরচ

জমির প্লট/খন্ড	বীজের		বীজ রোপণের জন্য শ্রমিকের সংখ্যা ও খরচ				নিড়ানির জন্য শ্রমিকের সংখ্যা এবং খরচ				মোট খরচ (টাকা) (৩+৮+১৩=১৪)		
	পরিমাণ (কেজি)	মূল্য (টাকা)	পারিবারিক (সংখ্যা)		ভাড়া (সংখ্যা)		খরচ (টাকা)	পারিবারিক (সংখ্যা)		ভাড়া (সংখ্যা)			
			পুরুষ	মহিলা	পুরুষ	মহিলা		পুরুষ	মহিলা	পুরুষ	মহিলা		
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩	১৪
১ম													
২য়													
৩য়													
৪র্থ													
৫ম													

৪। ভুট্টা ফসলে সার ব্যবহারের পরিমাণ (কেজিতে) ও মূল্য (টাকায়)

জমির প্লট/খন্ড	ইউরিয়া		টিএসপি/ডিএপি		এমওপি		দস্তা/জিংক		বোরন		গোবর	অন্যান্য (টাকা)	মোট মূল্য (টাকা) (৩+৫+৭+৯+১১ +১২+১৩=১৪)
	পরিমাণ (কেজি)	মূল্য (টাকা)	মূল্য (টাকা)										
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩	১৪
১ম													
২য়													
৩য়													
৪র্থ													
৫ম													

৫। ভুট্টা ফসলের সেচ ও সেচ সম্পর্কীয় খরচ (টাকায়), বালাইনাশক (গোকা মাকড় ও রোগ দমন) খরচ (টাকায়) এবং হরমোন ব্যবহারের খরচ (টাকায়)

জমির প্লট/খন্ড	সেচ এবং সেচ সম্পর্কীয় খরচ			কীটনাশক বাবদ খরচ (টাকা)	রোগনাশক বাবদ খরচ (টাকা)	হরমোন খরচ (টাকা)
	সেচ খরচ	সেচ সম্পর্কীয় খরচ	মোট খরচ (টাকা) (২+৩=৪)			
১	২	৩	৪	৫	৬	৭
১ম						
২য়						
৩য়						
৪র্থ						
৫ম						

কীটনাশকের নাম ক্যারাট, ভলিউম, প্রোক্লেম, একতারা, এডমায়ার, সবিক্রন, সেভিন-৮৫ এবং অন্যান্য। রোগনাশকের নাম টিল্ট, রিডোমিল এম জেড, ক্লোর, এ্যামিষ্টার টপ, ভারটিমেক, ডাইথেন-এম-৮৫, নিউবেন, বদ্দো মিকচার, সিকিউর, ইনডেফিল-এম-৮৫ এবং অন্যান্য।

## ৬। ভুট্টা ফসলের জন্য ঝণ প্রহণ সংক্রান্ত তথ্যঃ

ভুট্টা ফসল চাষের জন্যকোন ঝণ নিয়েছেন কি? হাঁ-১, না-২	হাঁ হলে উৎস কোড	টাকার পরিমাণ	ঝণের টাকার মধ্যে কত টাকা ভুট্টা ফসল চাষের জন্য ব্যয় করেছেন (টাকা)
১	২	৩	৪

উৎস কোডঃব্যাংক-১, এনজিও-২, মহাজন-৩, ফিডিয়া/পাইকার-৪, আঞ্চীয়/প্রতিবেশী-৫ ও অন্যান্য-৬

## ৭। ভুট্টা ফসলের কর্তন, মাড়াই ও পরিবহন খরচ (টাকায়)

জমির প্লট/খন্ড	ভুট্টা কর্তনে শুমিকের সংখ্যা এবং খরচ				মাড়াইশ্বামিকের সংখ্যা এবং খরচ				পরিবহন খরচ(টাকা)	অন্যান্য খরচ(টাকায়)	মোট খরচ(টাকায়) (৬+১১+১২+১৩=১৪)			
	পারিবারিক (সংখ্যা)		ভাড়া (সংখ্যা)		পারিবারিক (সংখ্যা)		ভাড়া (সংখ্যা)							
	পুরুষ	মহিলা	পুরুষ	মহিলা	পুরুষ	মহিলা	পুরুষ	মহিলা						
১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩	১৪	
১ম														
২য়														
৩য়														
৪র্থ														
৫ম														

## ৮। গো খাদ্য হিসাবে ব্যবহৃত ভুট্টা ফসল এর গাছের মূল্য, উৎপাদিত ভুট্টার পরিমাণ ও মূল্য এবং উৎপাদিত ভুট্টার উপজাতের পরিমাণ ও মূল্য (টাকায়)

জমির প্লট/খন্ড	গো খাদ্যে ব্যবহৃত ভুট্টার (কাঁচা) গাছের মূল্য (টাকা)	উৎপাদিত ভুট্টা		উৎপাদিত ভুট্টার উপজাত		মোট মূল্য (টাকা) (২+৪+৬=৭)
		পরিমাণ (কেজি)	মূল্য (টাকা)	পরিমাণ (কেজি)	মূল্য (টাকা)	
১	২	৩	৪	৫	৬	৭
১ম						
২য়						
৩য়						
৪র্থ						
৫ম						

৯। ভুট্টা ফসলের জন্য লীজ নেয়া জমি সংক্রান্ত তথ্যঃ

আপনি কোন জমিলীজ নিয়েছেন কি? হ্যাঁ-১, না-২	উত্তর হ্যাঁ হলে উক্ত জমিতে আর কি ফসল চাষ করেছেন?	উক্ত জমিলীজ নেওয়ার জন্য মালিককে 'এক বছরের জন্য' কত টাকা দিতে হয়		শুধুভুট্টা ফসল চাষের জন্য এক একর জমি 'এক বছরের জন্য' লীজ নিতে মালিককে কত টাকা দিতে হয়। (টাকা)
		জমির পরিমাণ	টাকা	
১	২	৩	৪	৫
	১।	২।	৩।	

১০। ভুট্টা ফসল চাষে প্রধান তিনটি সমস্যা আপনি কি মাত্রায় অনুভব করেন তা নির্দিষ্ট স্থানে কোড দিন।

অতি সমস্যা

মধ্যম সমস্যা

স্বল্প সমস্যা

- সমস্যার নাম ও কোডঃ উন্নত বীজের অভাব-১, উন্নত বীজের উচ্চ মূল্য-২, সারের অভাব-৩, সারের উচ্চ মূল্য-৪, তীব্র পোকার আক্রমণ-৫, রোগের আক্রমণ-৬, সঠিক কীটনাশকের অভাব-৭, সঠিক বালাইনাশকের অভাব-৮, কীটনাশকের উচ্চ মূল্য-৯, বালাইনাশকের উচ্চ মূল্য-১০, সঠিক গ্রোথ রেগুলেটরের অভাব ও উচ্চ মূল্য-১১, বাজারজাতকরণের অভাব-১২, উৎপাদিত ভুট্টার নিম্ন মূল্য-১৩, উৎপাদিত বীজের নিম্ন মূল্য-১৪, প্রয়োজনীয় মূলধনের অভাব-১৫, সরকারী সহযোগিতার অভাব-১৬, কারিগরি জ্ঞানের অভাব-১৭, ভুট্টা চাষে জমির উর্বরতা কমে যায়-১৮ এবং ভুট্টাসংরক্ষণের অভাব-১৯।

স্বাক্ষর

তথ্য সংগ্রহকারীর নামঃ .....

পদবীঃ .....

তারিখঃ.....

মোবাইল নম্বরঃ

স্বাক্ষর

সুপারভাইজারের নাম .....

পদবীঃ .....

তারিখঃ .....

মোবাইল নম্বরঃ

## Annex-D: Questionnaire (English)

Government of the People's Republic of Bangladesh  
 Bangladesh Bureau of Statistics  
 Agriculture Wing

Productivity Assessment Survey of Different Agricultural Crops Program  
E-27/A, Agargoan, Dhaka-1207

Confidential

### Maize Productivity Survey-2014 First Part

#### 1. Identification of Household

Household SI No.    Statrum No.  PSU NO.   Selected Sample Household No.

Name of Head Household : .....			Father/Husband Name: .....		
Division name : .....		Code		Farmer/Respondent Mobile No: .....	
District Name:.....		Code		Upazila Name:.....	Code
Union Name:.....		Code		Mouza/VillageName:.....	Code

### Second Part

#### 2. Area under Maize Crops, Land ownership, Variety and Land preparation cost (Tk.)

Land plot/ part	Land area		Land ownership (code)	Variety of Maize (code)	Cultivation type (code)	Cultivation Season (code)	Land preparation and cost (Tk.) (Market price is shown when cultivated is own)			Total Cost (Tk.) (9+11+12=13 )			
							Plough/Hoe		Mechanized				
	Acre	Decimal					No.	Cost (Tk.)	No.	Cost (Tk.)			
1	2	3	4	5	6	7	8	9	10	11	12	13	
1 <sup>st</sup>													
2 <sup>nd</sup>													
3 <sup>rd</sup>													
4 <sup>th</sup>													
5 <sup>th</sup>													

\*Land ownership code: Owned-1, Share crop-2, Mortgage-3, Lease-4 and others-5 \*Cultivation type code: Single-1, Mixed-2

\*Variety of Maize code: Local-1, Hybrid-2 and Others-3 \*Cultivation season code: Rabi-1, Kharif-2

### 3. Quantity of seed, Seed plantation & weeding cost (Tk.)

Land plot/part	Seed		Number of labour regarding seed planting cost (Tk.)					Number of labour regarding weeing cost (Tk.)					Total cost(Tk.) (3+8+13)=14	
	Quantity (kg)	Cost (Tk.)	Family (Number)		Hired (Number)		Cost (Tk.)	Family (Number)		Hired (Number)		Cost (Tk.)		
			Male	Female	Male	Female		Male	Female	Male	Female			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1 <sup>st</sup>														
2 <sup>nd</sup>														
3 <sup>rd</sup>														
4 <sup>th</sup>														
5 <sup>th</sup>														

### 4. Use of fertilizer Quantity (Kg) & cost (Tk.)

Land plot/part	Urea		TSP/ DAP		MOP		Zinc		Boran		Cowdung	Other cost (Tk.)	Total Cost (Tk.) (3+5+7+9+11+ 12+13)=14
	Quantity (Kg.)	Cost (Tk.)	cost (Tk.)										
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 <sup>st</sup>													
2 <sup>nd</sup>													
3 <sup>rd</sup>													
4 <sup>th</sup>													
5 <sup>th</sup>													

### 5. Irrigation & Irrigation related cost (Tk.), use insecticide & pesticide and Harmon cost (Tk.)

Land plot/part	Irrigation and Irrigation related cost			Insecticide related cost (Tk.)	Pesticide related cost (Tk.)	Harmon cost (Tk.)
	Irrigation cost	Irrigation related cost	Total cost (Tk.) (2+3)=4			
1	2	3	4	5	6	7
1 <sup>st</sup>						
2 <sup>nd</sup>						
3 <sup>rd</sup>						
4 <sup>th</sup>						
5 <sup>th</sup>						

**Insecticide name :** Karate, Voliam, Proclaim, Actara, Admire, Shobicron, Sevin-85 and Others.

**Pesticide name:** Tilt, Ridomil Gold MZ, Score, Amistar top, Vertimec, Dithan-M-45, Nuben, Boudeaux mixture, Secure, Indofil-M-45 & Others.

## 6. Loan related information for Maize crop:

Loan taken? Yes-1, No-2	If yes, source (Code)	Amount of Taka	Loan( money) used for Maize crop under cultivation
1	2	3	4

Loan source code: Bank-1, NGO-2, Mahajan-3, Foria/Paikar-4, Relative/Neghbhour-5 and Others-6

## 7. Harvesting, threshing & transport cost (Tk.)

Land plot/part	Number of labour regarding harvesting				Number of labour regarding threshing				Transport cost (Tk.)	Other cost (Tk.)	Total cost (Tk.) (6+11+12+13)=14			
	Family (Number)		Hired (Number)		Cost (Tk.)	Family (Number)		Hired (Number)						
	Male	Female	Male	Female		Male	Female	Male	Female					
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1 <sup>st</sup>														
2 <sup>nd</sup>														
3 <sup>rd</sup>														
4 <sup>th</sup>														
5 <sup>th</sup>														

## 8. Cattle feed (Maize tree), Production quantity & cost and By-product quantity & cost (Tk.)

Land plot/part	Cattle feed (Maize tree) cost (Tk.)	Maize production		By-product		Total cost (Tk.) (2+4+6)=7
		Quantity (kg.)	Cost(Tk.)	Quantity (kg.)	Cost(Tk.)	
1	2	3	4	5	6	7
1 <sup>st</sup>						
2 <sup>nd</sup>						
3 <sup>rd</sup>						
4 <sup>th</sup>						
5 <sup>th</sup>						

## 9. Land leasing related Information for Maize crops:

Land leasing taken? Yes-1, No-2	If Yes, Mention the crops name	Per year leasing value to be paid for using land		Per acre yearly leasing value for Maize crops under cultivation (Tk.)
		Land area	Taka	
1	2	3	4	5
	1 2 3			

## 10. Mention three main problems for Maize cultivation.

Principal

Medium

Minimum

- Problems name & code:** Lack of high quality seed-1, High price of quality seed-2, Shortest of fertilizer-3, High price of fertilizer-4, Severe insect attack-5, Disease attack-6, Lack of appropriate Insecticide-7, Lack of appropriate Pesticide-8, High price of Insecticide-9, High price of Pesticide-10, Lack of regulator & High price-11, Lack of marketing-12, Produced Maize low value-13, Produced seed low value-14, Lack of capital-15, Lack of government support-16, Lack of technical knowledge-17, Decreasing productivity-18 & Lack of Maize storage-19.

Signature

Data collector name: .....

Designation: .....

Date:.....

Mobile No.: .. . . . .

Signature:

Supervising Officer name:.....

Designation: .....

Date:.....

Mobile No.: .. . . . .





## Annex-E: Reference

1. Statistical Year Book of Bangladesh, 2012
  - Bangladesh Bureau of Statistics
2. Agriculture Sample Census, 2005
  - Bangladesh Bureau of Statistics
3. Agriculture Sample Survey, 2008
  - Bangladesh Bureau of Statistics
4. Preliminary Report on Agriculture Census, 2008
  - Bangladesh Bureau of Statistics
5. Agriculture Census Report-2008
  - Bangladesh Bureau of Statistics
6. Census of Agriculture 2008 (Analytical report)
  - Bangladesh Bureau of Statistics
7. Census of Agriculture, 1996
  - Bangladesh Bureau of Statistics
8. Yearbook of Agriculture Statistics of Bangladesh, 2011
  - Bangladesh Bureau of Statistics
9. Report on the cost of production of 10 Crops (Aus, Aman, Boro, , Jute, Potato, Onion, Maize, Oil-seeds & Pulses), 2008-09
  - Bangladesh Bureau of Statistics
10. Report on the cost of production of 04 Crops (Watermelon, Tomato, Papaya & Brinjal) 2012
  - Bangladesh Bureau of Statistics



## Acronyms

BBS	Bangladesh Bureau of Statistics
CH	Chittagong Hill
GDP	Gross Domestic Product
GOB	Government of Bangladesh
HH	Household
Kg	Kilogram
M. Tons	Metric Tons
No.	Number
PASDAC	Productivity Assessment Survey of Different Agricultural Crops
PSU	Primary Sampling Unit
RSE	Relative Standard Error
SE	Standard Error
Tk	Taka
T/ha	Ton per hectare
USUs	Ultimate Sampling Units
%	Percentage



## **List of personnel engaged in the preparation of the report**

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- 2. Mr. MostafaAshrafuzzaman, Deputy Director**
- 3. Ms. MosammatSayeeda Begum, Programmer**
- 4. Mr. Md. RezaulKarim, Assistant Statistical Officer**
- 5. Mr. Md. MortuzaHossain, Assistant Statistical Officer**
- 6. Mr. S M Anwar Husain, Statistical Investigator**
- 7. Mr. Md. Shah AlamMiah, Statistical Investigator**
- 8. Mr. Md. IqbalHossain, Enumerator.**
- 9. Mr. A. K. M. AkhterHossain, Steno-Typist/Computer Operator.**