THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

CENTRAL STATISTICAL AGENCY

AGRICULTURAL SAMPLE SURVERY

2010/11 (2003 E.C) VOLUME V

REPORT ON AREA AND PRODUCTION OF BELG SEASON CROPS FOR

PRIVATE PEASANT HOLDINGS

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CHAPTER I

1. INTRODUCTION AND OBJECTIVES OF THE SURVEY

1.1 INTRODUCTION

As it is true in most developing countries, in Ethiopia, agriculture is the dominant sector of the economy. As a result, Ethiopian agriculture contributes the lion share of the Gross Domestic Product (GDP) and foreign currency earnings of the country from the sell of agricultural outputs abroad. Moreover, the sector creates employment opportunity to the majority of the country's population and at present nearly about 84 percent of the country's population depends on agriculture to sustain their livelihood. Hence, as it had been for centuries in the past, still being the leading sector at present, it is believed to remain being the determinant sector to play a dominant role to bring about an overall sustainable economic growth to the country, for the years to come. This would be materialized if and only if strenuous efforts are made by the government and the concerned stakeholders including the farmer, to increase productivity through increased use of farm inputs such as improved seed, and fertilizers and modernize the farm activity through increased use of modern and improved farm implements and farming systems as well as through the introduction of modern farming technology to the sector as a whole. In order to meet the goals mentioned above and pave the way for the concerned stakeholders to identify, plan, implement and monitor agricultural projects and developmental programs among others, the availability and regular supply of reliable, comprehensive and timely statistical information on the overall performance of the sector is considered essential for use as a primary input to their planning purpose and related activities.

To minimize the existing data gap and fulfill the demand of the stakeholders concerned, for the past three decades, the Central Statistical Agency (CSA) has been conducting annual agricultural sample survey under which four integrated sample surveys designed for the collection of agricultural information on the performances of the sector were launched all over the country and used to disseminate the survey results to ultimate users on annual basis. The 2010/11 (2003 E.C.), Belg Season Crop Production Sample Survey, for which this report is meant for, is among the four integrated sample surveys launched on annual basis under the umbrella of the agricultural sample survey all over the country.

This report, which is Volume V of the nine series of statistical reports on agriculture, presents quantitative results on crop land area, production, and yield of major Belg crops, grown during the 2010/11 Belg season by private peasant holdings as obtained from the results of the 2010/11 (2003 E.C.), Belg Season Crop Production Sample Survey.

1.2 Objectives of the Survey

The objectives of the 2010/11 (2003 E.C.), Belg Season Crop Production Sample Survey is to produce basic quantitative information on cropland area, production and yield of major Belg season crops, as well as to provide quantitative information on:-

- cropland area, production and yield of major belg season crops, and
- the extent and use of different farm management practices on belg season crops such as fertilized crop land area and quantity of fertilizer used by crop and fertilizer type, irrigated crop land area, area under improved seed, pesticide treated cropland area … etc.

The adequate and timely supply of this information to ultimate users is therefore, important for use as a primary input in the process of policy formulation, designing developmental agricultural projects and programmes. This report, therefore, presents quantitative information on the above-mentioned major variables at country and regional levels.

CHAPTER II

2. SURVEY METHODOLOGY, DATA COLLECTION AND PROCESSING

2.1 COVERAGE

The 2010/11 (2003 E.C.) Annual Agricultural Sample Survey (Belg season) covered the entire rural parts of the country except the non-sedentary population of three zones of Afar & six zones of Somali regions. Accordingly the survey took in to account of all parts of Harari, Dire Dawa, and actually **59** Zones / Special weredas (that are treated as zones) of other regions.

To be covered by the survey, a total of around 2110 Enumeration Areas (EAs) were selected. However, due to some EAs weren't growing Belg season crops, in 934 EAs the survey could not be successful and hence interrupted. Thus, all in all the survey succeeded to cover 1176 EAs throughout the regions. The Annual Agricultural Sample survey (Belg season) data was collected from 30 agricultural households selected from each EA.

2.2 SAMPLING FRAME

The list containing EAs of all regions and their respective households obtained from the 2007 Population and housing Census Frame was used as the sampling frame in order to select the Primary Sampling Units (EAs). Consequently, all sample EAs were selected from this frame based on the design proposed for the survey. The second stage sampling units, households, were selected from a fresh list of households that were prepared for each EA at the beginning of the survey.

2.3 SAMPLE DESIGN

In order to select the sample a stratified two-stage cluster sample design was implemented. Enumeration areas (EAs) were taken to be the primary sampling units (PSUs) and the Secondary Sampling Units (SSUs) were agricultural households. The sample size for the 2010/11agricultural sample survey was determined by taking into account of both the required level of precision for the most important estimates within each domain and the amount of

resources allocated to the survey. In order to reduce non-sampling errors, manageability of the survey in terms of quality and operational control was also considered. Except Harari, and Dire Dawa, where each region as a whole was taken to be the domain of estimation; each zone of a region / special wereda was adopted as a stratum for which major findings of the survey are reported.

2.4 SELECTION SCHEME

Enumeration areas from each stratum were selected systematically using probability proportional to size sampling technique; size being number of agricultural households. The sizes for EAs were obtained from the 2007 Population and Housing census frame. From the fresh list of households prepared at the beginning of the survey 30 agricultural households within each sample EA were selected systematically. Estimation procedure of totals, ratios, sampling error and the measurement of precision of estimates (CV) are given in Appendix-I and II respectively. Distribution of sampling units (sampled and covered EAs and households) by stratum is also presented in Appendix-III.

2.5 Field Organization

The Central Statistical Agency (CSA) Branch Statistical Office heads, field supervisors and enumerators, other supporting staff and drivers were all involved in the field operation activities of the 2010/11 (2003 E.C.) Belg season Crop Production Sample survey. To accomplish the data collection activities, all field enumerators were equipped with the necessary survey equipment (i.e. compass, programmable calculator, measuring tape … etc). To assist with the field work and data collection activities all available four-wheel drive vehicles were used for supervision and collection of completed questionnaires.

2.6 Training of Field Staff

At the beginning of the survey year, the field staff-training program was carried out in two stages. The first stage consisted of trainees from the head office, branch statistical office heads, statisticians and some of the field supervisors for one week at Ambo University that lasted 7 days. Those trained in the first stage conducted similar training for field supervisors and enumerators for15 days in the 24 Branch Statistical Offices, which are distributed all over the country. During the second stage training, the field staff were given detailed classroom

instruction on the objectives and uses of the Agricultural Sample Survey (AgSS), concepts, and definitions of terms used, the method of area measurement, interviewing procedures, … etc. The enumerators and supervisors training also included a field practice to reinforce the procedures discussed in the classroom with regard to field area measurement, use of the programmable calculator and crop-cutting techniques.

2.7 Methods of Data Collection.

Except cropland area of Major Belg Season crop, the data of which collected objectively using compasses and measuring tape, the information on production of major Belg Season crops and agricultural practices (uses of fertilizer, pesticide, improved seed and irrigation) were subjectively collected by interviewing the holders of sampled households. Appendix II illustrates the total number of EAs and households reporting for the **2010/11 (2003 E.C.)**, Belg crop production by region.

A major characteristic of Ethiopian agriculture is the existence of two well-known crop production seasons referred to as the Meher (or main) and Belg(short rain) Seasons. The generally accepted definition of the Meher season is that of the long rainy season, which normally occurs from June to September. The Belg Season most often refers to small but timely rainy season, which normally occurs from February to May but in limited areas of the country. Generally, the Meher Season rainy period provides ideal growing conditions for the longer maturing crops. Planting and harvest of Meher crops can extend to December or January in some areas. Most of the time holders rely on short maturing crops for planting during the Belg rainy period and harvest of the crops is in June or July.

A point of contention arises with respect to the pure definition of the Belg crop. Belg cropping practices are heterogeneous across different parts of the country. The nature of the sowing period also overlaps with some of the Meher Season crops. Consequently, the report on Belg Season crops in the past faced a problem of a clearly defined growing period. It is important not to overlook or miss agricultural practices performed all year round due to use of irrigation or soil moister from sufficiently dried areas that from time-to-time are swampy or marshy. To help clarify the two-crop season, the following definition has been in use since 1987/88:

Belg Season Crops were defined as any crops that are harvested during the months of March to August, while those crops that are harvested during September to February are considered Meher (main) season crops.

This report consists of estimates of area, production and yield of major Belg Season crops for the year 2010/11 (2003 E.C.). The data collection period for obtaining the area, production and agricultural practices of the Belg season crops was from 'Sene' 1-15, 2003 E.C. (i.e. From June 8 to June 22, 2011). Data on area under Belg season crop are collected objectively using compass and measuring tapes, while data on production of belg season crops were using subjective method based on face-to-face interviewing of the holder by the enumerator. Data on production of belg season crops are calculated from the condition factor data that are collected directly from the sampled holders within household, peasant association chairpersons and development agents. The enumerators were trained to systematically present the questions to the respondents on percentage changes using the local translation and meaning. The enumerators were also trained on how to use comparative associations to represent the concept of percentage changes and fill in the questionnaire.

2.8 Data Processing

a. Editing, Coding and Verification

To insure the quality of the collected survey data an editing, coding, and verification instruction manual was written, and 17 editors, data coders and verifiers were trained for one day to edit, code and verify the data using the aforementioned manual as a reference and teaching aid. The enumerator completed edited and coded questionnaires sent to the head office were thoroughly verified by trained verifiers on a 100% basis before the questionnaires were sent to the data entry unit. The editing, coding, verification and manual cleaning of all questionnaires was completed in 15 days.

b. Data Entry, Cleaning and Tabulation

Before starting data entry computer edit specifications were prepared for use on personal computers, utilizing the CSPRO Software for data consistency checking purposes. The data on the coded questionnaires were then entered into the CSPRO software on personal computers. The

data was then checked and cleaned using the computer edit specifications prepared earlier for this purpose. 77 data encoders and 4 supervisors were involved in this total process and it took 19 days to complete the job. Finally, tabulation was done on personal computers to produce results as indicated in the tabulation plan.

2.9 Basic concepts and definitions

For better understanding and ultimate use of the data presented in this report, the definitions and concepts of technical terms and terminologies used for the collection of all types of data of the **2010/11 (2003 E.C.)** Belg Seasons Crop Production Sample Survey is presented here below: -

Enumeration Area (EA): An Enumeration Area in rural parts of the Country is a locality that is less than or equal to a farmer's association area and usually it consists of 150-200 households.

Household:- A household may be either;

a) a one person household, that is a person who makes provision for his own food or other essentials for living without combining with any other person to form part of a multi person household or
b) a multi person household, that is, a group of two or more persons who live together and make common provision for food or other essentials for living. The persons in the group may pool their incomes and have a common budget to greater or lesser extent. They may be related unrelated persons, or a combination of both.

Agricultural Household:- A household is considered an agricultural household when at least one member of the household is engaged in growing crops and/or breeding and raising livestock in private or in partnership with others.

Holder:- A holder is a person who exercises management control over the operations of the agricultural holding and takes the major decision regarding the utilization of the available resources. He has technical and economic responsibility for the holding. He may operate the holding directly as an owner or as a manager.

Under conditions of traditional agricultural holding the holder may be regarded as the person, who with or without helps, of others, operates land or raises livestock in his own right, i.e. the

person who decides on what, when where and how to grow crops or raise livestock and has right to determine the utilization of the products.

Holding: - A holding is all the land and livestock kept which is used wholly or partly for agricultural production and is operated as one technical unit by one person alone, or with others, without regard to title, legal form, size or location.

Parcel: - A parcel of holding is any piece of land entirely surrounded by land, Water, road, forest, etc. which is not part of the holding. It may consist of one or more cadastral units, plots or field adjacent to each other.

Field: - A field is defined as any plot of land, which is a parcel or part of a parcel under the same crop.

Belg Season Crops: - are defined as any crops that are harvested during the months of March (Megabit) to August (Nehase).

Meher Season Crops: - are those crops that are harvested during September (Meskerem) to February (Yekatit) are considered as main (Meher) season crops.

Irrigated area: - refers to the area of land purposely and actually provided with water, other than by rain, for improving the production of crops. The uncontrolled flooding of land by the over flow of rivers or streams is not categorized as irrigation practice although sometimes farmers use this incidence for production.

Improved Seed: is defined as crop variety, which gives significantly higher yield, better quality and/or better benefit compared to traditional varieties of seeds, and usually produced by the Ethiopian Seed Enterprise (ESE) in Ethiopia.

Fertilizer: - refers to anything added to the soil intended to increase the amount of plant nutrients available for crop growth. Usually fertilizers are divided into two parts, Natural and commercial. Examples of natural fertilizers are farmyard manure and wood ashes while commercial fertilizers are DAP (Di-Ammonium phosphate) and UREA (Ammonium Nitrate).

Pesticides: Pesticides are chemicals useful for the mitigation, control or elimination of pests which are troublesome or harmful to crop. Insecticides, herbicides and fungicides are all considered as pesticides.

CHAPTER III

3. SUMMARY OF THE MAJOR FINDINGS OF THE SURVEY.

As it has been forecasted earlier by the Ethiopian Metrological Agency and practically proved by farmers interviewed at their farm gate during the survey field work, the overall performance of the **2010/11 (2003 E.C.)** Belg season crop production activity was not good in all Belg Crop producing areas across the country. The rain of Belg which was abnormal and inadequate in its amount and distribution is among the major factors that had negative effect on the land preparation and sawing activities, and resulted the decreased Belg crop production as a whole. Consequently, considerable number of Belg season dependent farmers were in worse position this year as compared to the previous year .

Based on the facts mentioned above, the results of the **2010/11 (2003 E.C.)** Belg season crop production sample survey revealed that about **1,173,047.52** hectares of land was estimated to be covered by major Belg crops from which a total production of **9,008,230.65** quintals was estimated to be harvested at country level. Out of the above mentioned total Belg season cropland area and total volume of production, cereals contributed the lion share both in cropped area coverage and volume of production i.e. about **934,945.78** hectares (**79.70%)** of the country total Belg cropland area) and about **8,080,789.82** quintals (**89.70%**) of the country total Production), followed by Pulses that covered about **211,461.98** hectares (**18.30%**), with a production of **912,785.18** quintals (**10.13%**). (For details see Summary Table 1).

Summary Table 1: Cropland Area and Production of Major Belg Crops: Private Peasant Holdings, 2010/11 (2003 E.C.).

Country Level

Crop Category	Total Cropland Area		Total Production	
	in Hectare	%	In Quintals	%
Cereal	***934,945.78***	***79.70***	***8,080,789.82***	***89.71***
Pulses	***211,461.98***	***18.03***	***912,785.18***	***10.13***
Oilseeds	***26,639.76***	***2.27***	***14,655.64***	***0.16***
Grain Crops	***1,173,047.52***	***100***	***9,008,230.65***	***100***

To give bird's eye view on the performance of the 2010/11 Crop production Year, the total estimated Cropland Area and production of Major Crops for all sectors [Private peasant & Commercial Farm holdings] during Main (Meher) and Belg Seasons of the Year is presented as follows;-

	Grain Cropped Area in Ha	Volume of Production in Qts
Private holdings in 2010/11 Meher Season	**11,822,786.20**	**203,485,288.33**
Private holdings in 2010/11 Belg Season	**1,173,047.52**	**9,008,230.65**
Commercial farms in **2010**/11 Meher Season	**452,244.02**	**9,327,412.24**
Commercial farms in **2010/11** Belg Season	-	-
Grand Total	**13,448,077.74**	**221,820,931.22**

The details of the above mentioned estimates are presented in Summary Table 4

3.1 Estimates of the 2010/11(2003 E.C) Total Cropland Area and Production of Major Crops Both Seasons (Meher and Belg)

The year **2010/11(2003 E.C.)** total cropland area and production of major crops during both seasons, was estimated to be **12,995,833.72** hectares and **212,493,518.98** quintals, respectively. Out of the above mentioned totals, cereals covered about **10,625,679.74** hectares (**81.76**% of the total cropland area covered during both seasons) with a production of **185,694,155.08** quintals (**87.39** %) of the total volume of production of the year); While Pulses and Oilseeds covered about **1,568,984.66; 801,169.31** hectares which accounted for about **12.07**% and **6.16%** of the total cropland area, respectively. (For the details see Summary Tables 2 and 3).

Summary Table 2. Cropland Area under Major Crops; Private Peasant Holdings 2010/11 (2003 E.C.), Both Seasons:

Country Level

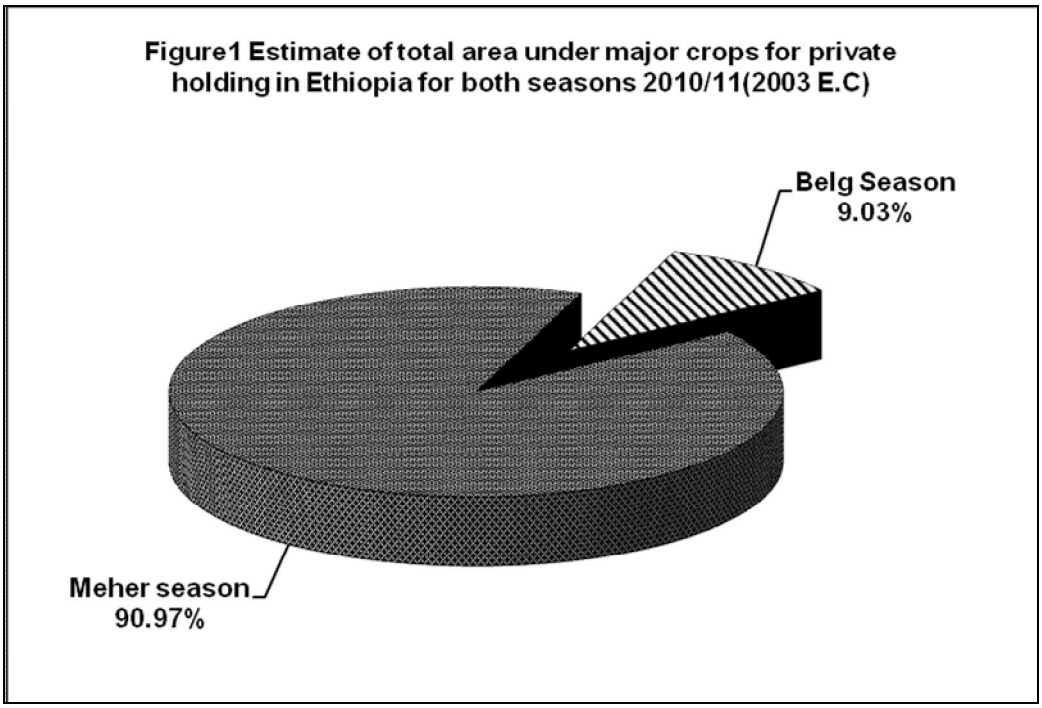
	Total Cropland Area in Hectares during					
	Meher Season		*Belg Season*		*Both seasons Total*	
Crop Type	*Area in Ha*	*%*	*Area in Ha*	*%*	*Area in Ha*	*%*
Cereal	**9,690,733.96**	**81.97**	**934,945.78**	**79.70**	**10,625,679.74**	**81.76**
Pulses	**1,357,522.68**	**11.48**	**211,461.98**	**18.03**	**1,568,984.66**	**12.08**
Oilseeds	**774,529.55**	**6.55**	**26,639.76**	**2.27**	**801,168.55**	**6.16**
Total	**11,822,786.19**	**100.00**	**1,173,047.52**	**100.00**	**12,995,832.95**	**100.00**

Moreover, since Meher is a long rainy season almost 80 to 90 % of the private peasant farmers perform their crop production activities during this season. As a matter this fact, out of the total cropland area cultivated under major crops during the 2010/11(2003 E.C.) production year, Cropland area cultivated under major crops during Meher Season was found to be the highest i.e, **11,822,786.19** hectares.

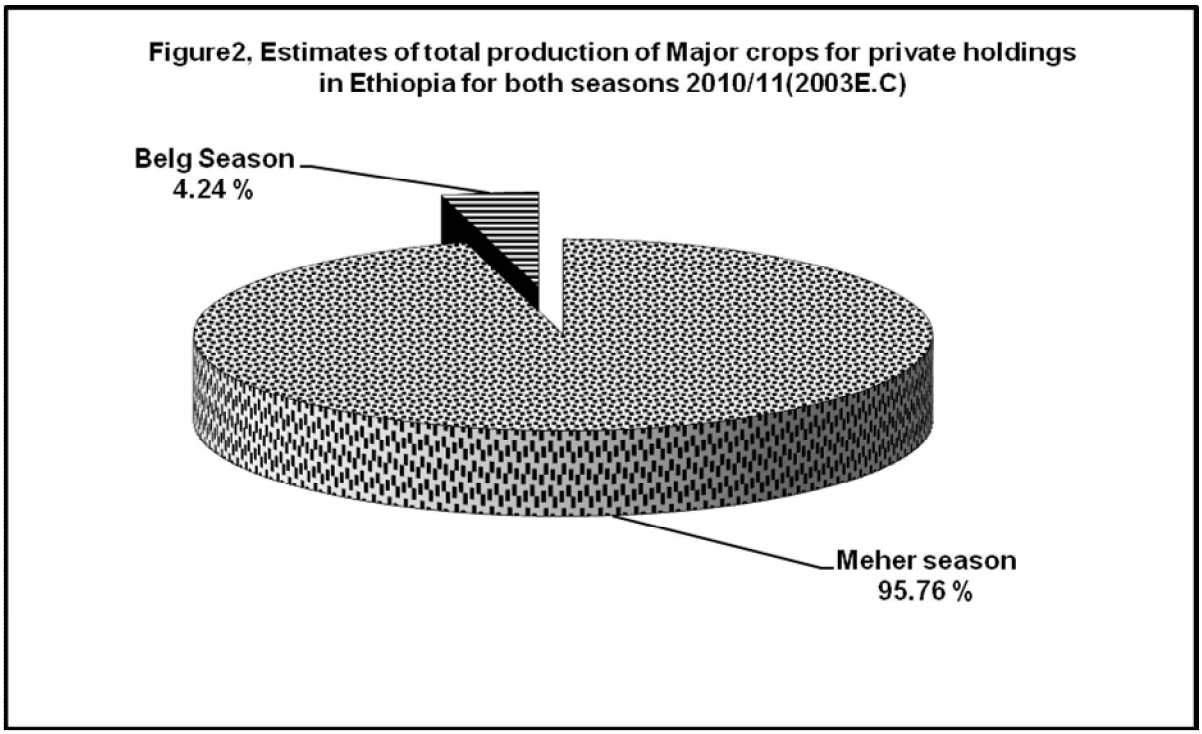
Summary Table 3 Total Production of Major Crops Harvested by Private Peasant Holdings; 2010/11 (2003 E.C.), Both Seasons:

Country Level

	Total Production in Quintals, Harvested during					
	Meher Season		*Belg Season*		*Both seasons Total*	
Crop Type	*Prod. in Qts*	*%*	*Prod. in Qts*	*%*	*in (000) Qts*	*%*
Cereal	**177,613,365.84**	**87.29**	**8,080,789.82**	**89.71**	**185,694,155.66**	**87.39**
Pulses	**19,531,935.01**	**9.60**	**912,542.80**	**10.13**	**20,444,477.81**	**9.62**
Oilseeds	**6,339,987.49**	**3.11**	**14,655.64**	**0.16**	**6,354,643.13**	**2.99**
Total	**203,485,288.34**	**100.00**	**9,007,988.26**	**100.00**	**212,493,276.60**	**100.00**



contributing about **90.97%** to the total cropland area coverage, with a total production of **203,485,288.34** quintals**(95.76%)** at country level. While Belg season contributes the remaining about **9.03%** (i.e. **1,173,047.52** hectares) to the total cropland area with about **4.24 %** (i.e **9,007,988.26** quintal share from the total production volume reported at country level (For the details see Figs 1 and 2).



NOTES: -

1. *Some estimates in all reporting levels are excluded due to high coefficient of variations. Nevertheless, they are incorporated in the total estimates. Hence the sum of the specific estimates may not be equal to the total estimates.*
2. *Users are also advised to use those estimates with 30-50% coefficient of variation* (CV) *cautiously*
3. *Even though area is reported for some crops in some reporting levels, no production data is available such cases are designated by Not Stated* (NS). *On the other hand, in all tables "-" labeled for data not available totally.*

Summary Table 4. Estimates of Total Cropland Area and Production of major crops for all sectors (private peasant and Commercial farm holdings) For main (Meher) and Belg Seasons of 2010/11 (2003 E.C) Crop Production year
Ethiopia

	Crop Production Seasons and Sectors							
	Total Cropland Area in Hectare			all sectors Crop Land Area in Hectare	Total production in Quintals			all sectors Crop Production in Qts
	Main (Meher)		Belg		Main (Meher)		Belg	
Crop Name	Private H	Commercial F	Private H		Private H	Commercial F	Private H	
Grain Crops	**11,822,786**	**452,244.02**	**1,173,047.52**	**13,448,078**	**203,485,288.33**	**9,327,412.24**	**9,008,230.65**	**221,820,931.22**
Cereals.....	**9,690,734**	**181,773.08**	**934,945.78**	**10,807,453**	**177,613,365.84**	**6,112,919.39**	**8,080,789.82**	**191,807,075.05**
Teff.....	2,761,190	8,784.26	77,785.83	2,847,760.14	34,834,826.26	127,210.27	432,350.64	35,394,387.17
Barley.....	1,046,555	1,607.04	162,274.04	1,210,436.38	17,033,465.36	39,774.45	1,127,539.66	18,200,779.47
Wheat.....	1,553,240	45,543.87	71,786.86	1,670,570.62	28,556,817.43	1,504,485.73	707,595.18	30,768,898.34
Maize.....	1,963,180	59,175.41	550,758.73	2,573,113.65	49,861,254.95	2,843,852.92	5,258,584.75	57,963,692.62
Sorghum.....	1,897,734	61,930.58	57,412.61	2,017,077.17	39,598,973.86	1,490,206.90	402,396.13	41,491,576.89
Finger millet...	408,110	423.58	1,380.23	409,914.12	6,348,257.88	6,930.04	2,565.09	6,357,753.01
Oats/'Aja'.....	30,859	3.99	12,977.67	43,840.42	475,650.57	63.84	131,922.96	607,637.37
Rice.....	29,866.16	4,304.36	*		904,119.53	100,395.24	*	**1,004,514.77**
Pulses.....	**1,357,523**	**13,045.18**	**211,461.98**	**1,582,030**	**19,531,935.01**	**212,515.23**	**912,785.18**	**20,657,235.42**
Horse beans.....	459,184	620.78	3,992.76	463,797.05	6,977,983.87	10,868.10	18,835.99	7,007,687.96
Field peas.....	203,991	37.3	7,143.74	211,171.68	2,570,314.09	884.3	47,235.30	2,618,433.69
Haricot beans...	237,366	5,911.61	182,453.44	425,731.44	3,402,795.18	101,353.24	831,557.22	4,335,705.64
Chick-peas.....	208,389	2,875.75	6,235.10	217,499.47	3,228,388.27	45,927.54	14,914.29	3,289,230.10
Lentils.....	77,334	51.26	7,031.37	84,416.85	809,517.33	595.47	*	810112.8
Vetch.....	131,044	4.78	3,411.90	134,460.67	2,009,485.58	87.28	-	2,009,572.86
Soya beans.....	11,261	3,542.43	*		158244.22	52,782.95	-	211027.17
Fenugreek.....	14,670	1.26	1,125.91	15,797.21	179,052.29	16.34	*	179,068.63
Gibto.....	14,284.15	-	*	14,284.15	196,154.18	-	-	196154.18
Oilseeds.....	**774,530**	**257,425.76**	**26,639.76**	**1,058,595**	**6,339,987.49**	**3,001,977.62**	**14,655.64**	**9,356,620.75**
Neug.....	247,611.17	2,318.30	*	249,929.47	1,448,474.82	15,171.93	-	1,463,646.75
Linseed.....	73,688	45.51	366.15	74099.36	654,205.76	813.97	*	655019.73
Groundnuts.....	49,603	755.97	*	50,359	716,068.37	13,009.19	*	729,077.56
Sunflower.....	5,489.79	71.07	*	5,560.86	50,667.88	1,278.62	-	51946.5
Sesame.....	384,683	253,130.22	23,138.68	660951.69	3,277,409.22	2,954,884.73	14,101.38	6,246,395.33
Rapeseed.....	13,455	1,104.69	635	**15,195**	193,161.43	16,819.18	-	209,980.61

National and Regional Statistical Tables

Table 5. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
National

Crop Name	Number of Holders	Cropland Area In Hectares	%	In	Production Quintals	%	Yield QT/Hec
Grain Crops	**4,298,094**	**1,173,047.52**	**100**		**9,008,230.65**	**100**	
Cereals.....	**3,898,164**	**934,945.78**	**79.7**		**8,080,789.82**	**89.7**	
Teff.....	308,661	77,785.83	6.63		432,350.64	4.8	5.56
Barley.....	712,497	162,274.04	13.83		1,127,539.66	12.52	6.95
Wheat.....	204,060	71,786.86	6.12		707,595.18	7.85	9.86
Maize.....	3,188,975	550,758.73	46.95		5,258,584.75	58.38	9.55
Sorghum.....	237,557	57,412.61	4.89		402,396.13	4.47	7.01
Finger millet...	19,107	1,380.23	0.12		2,565.09	0.03	1.86
Oats/'Aja'.....	68,421	12,977.67	1.11		131,922.96	1.46	10.17
Rice.....	*	*	*		*	*	*
Pulses.....	**2,307,874**	**211,461.98**	**18.03**		**912,785.18**	**10.13**	
Horse beans.....	69,016	3,992.76	0.34		18,835.99	0.21	4.72
Field peas.....	66,126	7,143.74	0.61		47,235.30	0.52	6.61
Haricot beans...	2,141,953	182,453.44	15.55		831,557.22	9.23	4.56
Chick-peas.....	42,885	6,235.10	0.53		14,914.29	0.17	2.39
Lentils.....	61,436	7,031.37	0.6		*	*	*
Vetch.....	19,579	3,411.90	0.29		-	-	-
Soya beans.....	1,360	*	*		-	-	-
Fenugreek.....	19,382	1,125.91	0.1		*	*	*
Gibto.....	*	*	*		-	-	-
Oilseeds.....	**101,673**	**26,639.76**	**2.27**		**14,655.64**	**0.16**	
Neug.....	*	*	*		-	-	-
Linseed.....	6,659	366.15	0.03		*	*	*
Groundnuts.....	17,090	*	*		*	*	*
Sunflower.....	*	*	*		-	-	-
Sesame.....	59,235	23,138.68	1.97		14,101.38	0.16	0.61
Rapeseed.....	14,606	635	0.05		-	-	-

Table 6. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
Tigray Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**24,002**	**5,481.16**	**100**	**19,873.96**	**100**	
Cereals.....	**21,133**	**4,805.48**	**87.67**	*****	*****	
Teff.....	9,656	2,762.62	50.4	1,535.79	7.73	0.56
Barley.....	*	*	*	*	*	*
Wheat.....	*	*	*	*	*	*
Maize.....	*	*	*	*	*	*
Sorghum.....	-	-	-	-	-	-
Finger millet...	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-
Pulses.....	*****	*****	*****	*****	*****	
Horse beans.....	-	-	-	-	-	-
Field peas.....	*	*	*	-	-	-
Haricot beans...	-	-	-	-	-	-
Chick-peas.....	*	*	*	*	*	*
Lentils.....	*	*	*	-	-	-
Vetch.....	*	*	*	-	-	-
Soya beans.....	-	-	-	-	-	-
Fenugreek.....	874	*	*	-	-	-
Gibto.....	-	-	-	-	-	-
Oilseeds.....	**-**	**-**	**-**	**-**	**-**	
Neug.....	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-
Groundnuts.....	-	-	-	-	-	-
Sunflower.....	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-

Table 7. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
Afar Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**12,987**	*	*	*	*	
Cereals.....	**11,726**	*	*	*	*	
Teff.....	*	*	*	-	-	-
Barley.....	-	-	-	-	-	-
Wheat.....	-	-	-	-	-	-
Maize.....	10,599	*	*	*	*	*
Sorghum.....	-	-	-	-	-	-
Finger millet...	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-
Pulses.....	*	*	*	-	-	
Horse beans.....	-	-	-	-	-	-
Field peas.....	-	-	-	-	-	-
Haricot beans...	*	*	*	-	-	-
Chick-peas.....	*	*	*	-	-	-
Lentils.....	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-
Oilseeds.....	-	-	-	-	-	
Neug.....	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-
Groundnuts.....	-	-	-	-	-	-
Sunflower.....	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-

Table 8. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
Amhara Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**447,196**	**136,016.48**	**100**	**496,856.60**	**100**	
Cereals.....	**399,491**	**102,157.75**	**75.11**	**462,244.31**	**93.03**	
Teff.....	90,440	16,081.86	11.82	79,677.03	16.04	4.95
Barley.....	243,844	68,464.92	50.34	284,799.15	57.32	4.16
Wheat.....	60,682	6,543.26	4.81	28,768.79	5.79	4.4
Maize.....	85,115	8,667.40	6.37	68,999.34	13.89	7.96
Sorghum.....	*	*	*	-	-	-
Finger millet...	*	*	*	-	-	-
Oats/'Aja'.....	16,270	1,753.64	1.29	-	-	-
Rice.....	-	-	-	-	-	-
Pulses.....	**135,745**	**33,389.91**	**24.55**	**34,612.28**	**6.97**	
Horse beans.....	1,773	*	*	-	-	-
Field peas.....	16,396	1,085.68	0.8	244.08	0.05	0.22
Haricot beans...	52,013	17,886.61	13.15	21,004.02	4.23	1.17
Chick-peas.....	34,887	5,098.49	3.75	13,350.37	2.69	2.62
Lentils.....	44,060	5,425.73	3.99	-	-	-
Vetch.....	16,977	*	*	-	-	-
Soya beans.....	-	-	-	-	-	-
Fenugreek.....	10,570	*	*	*	*	*
Gibto.....	-	-	-	-	-	-
Oilseeds.....	**7,138**	*****	*****	**-**	**-**	
Neug.....	-	-	-	-	-	-
Linseed.....	3,613	202.23	0.15	-	-	-
Groundnuts.....	-	-	-	-	-	-
Sunflower.....	*	*	*	-	-	-
Sesame.....	*	*	*	-	-	-
Rapeseed.....	*	*	*	-	-	-

Table 9. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
Oromia Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**1,928,419**	**601,132.75**	**100**	**5,299,856.20**	**100**	
Cereals.....	**1,733,173**	**503,826.85**	**83.81**	**4,842,976.66**	**91.38**	
Teff.....	145,530	43,769.88	7.28	288,532.96	5.44	6.59
Barley.....	324,571	78,655.71	13.08	738,144.83	13.93	9.38
Wheat.....	129,833	63,952.86	10.64	673,610.68	12.71	10.53
Maize.....	1,431,322	272,440.53	45.32	2,733,287.48	51.57	10.03
Sorghum.....	108,493	33,606.43	5.59	277,477.75	5.24	8.26
Finger millet...	*	*	*	-	-	-
Oats/'Aja'.....	51,554	11,210.31	1.86	131,922.96	2.49	11.77
Rice.....	*	*	*	-	-	-
Pulses.....	**922,625**	**80,730.16**	**13.43**	**456,387.43**	**8.61**	
Horse beans.....	33,822	2,598.44	0.43	14,218.19	0.27	5.47
Field peas.....	39,634	5,533.03	0.92	46,098.24	0.87	8.33
Haricot beans...	867,763	69,897.97	11.63	395,842.43	7.47	5.66
Chick-peas.....	*	*	*	-	-	-
Lentils.....	15,838	1,541.79	0.26	*	*	*
Vetch.....	1,721	*	*	-	-	-
Soya beans.....	*	*	*	-	-	-
Fenugreek.....	6,509	447.15	0.07	-	-	-
Gibto.....	-	-	-	-	-	-
Oilseeds.....	**50,107**	**16,575.74**	**2.76**	*****	*****	
Neug.....	-	-	-	-	-	-
Linseed.....	*	*	*	*	*	*
Groundnuts.....	*	*	*	-	-	-
Sunflower.....	*	*	*	-	-	-
Sesame.....	34,909	15,954.23	2.65	-	-	-
Rapeseed.....	11,733	*	*	-	-	-

Table 10. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
Somale Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**30,094**	**14,823.47**	**100**	**32,322.17**	**100**	
Cereals.....	**30,094**	**14,591.40**	**98.43**	**32,231.67**	**99.72**	
Teff.....	-	-	-	-	-	-
Barley.....	-	-	-	-	-	-
Wheat.....	*	-	-	-	-	-
Maize.....	29,852	13,902.35	93.79	32,231.67	99.72	2.32
Sorghum.....	*	*	*	-	-	-
Finger millet...	*	*	*	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-
Rice.....	*	*	*	-	-	-
Pulses.....	**1,902**	*****	*****	*****	*****	
Horse beans.....	-	-	-	-	-	-
Field peas.....	-	-	-	-	-	-
Haricot beans...	1,902	*	*	*	*	*
Chick-peas.....	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-
Oilseeds.....	*****	*****	*****	**-**	**-**	
Neug.....	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-
Groundnuts.....	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-

Table 11. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
Benshangul-Gumuz Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**35,616**	**4,706.24**	**100**	**28,208.99**	**100**	
Cereals.....	**28,525**	**1,846.88**	**39.24**	**13,734.91**	**48.69**	
Teff.....	*	*	*	-	-	-
Barley.....	562	61.26	1.3	661.27	2.34	10.79
Wheat.....	-	-	-	-	-	-
Maize.....	28,191	1,670.53	35.5	13,073.65	46.35	7.83
Sorghum.....	1,122	112.55	2.39	-	-	-
Finger millet...	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-
Pulses.....	**32,926**	**2,859.22**	**60.75**	**14,474.07**	**51.31**	
Horse beans.....	*	*	*	*	*	*
Field peas.....	*	*	*	-	-	-
Haricot beans...	32,857	2,840.73	60.36	14,172.05	50.24	4.99
Chick-peas.....	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-
Vetch.....	*	*	*	-	-	-
Soya beans.....	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-
Oilseeds.....	*****	*****	*****	**-**	**-**	
Neug.....	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-
Groundnuts.....	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-

Table 12. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
(S.N.N.P.R) Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**1,782,576**	**389,567.30**	**100**	**2,773,891.55**	**100**	
Cereals.....	**1,637,658**	**289,235.70**	**74.25**	**2,371,281.56**	**85.49**	
Teff.....	61,691	14,875.45	3.82	62,604.86	2.26	4.21
Barley.....	136,860	13,852.93	3.56	94,538.21	3.41	6.82
Wheat.....	11,750	1,110.17	0.28	3,133.29	0.11	2.82
Maize.....	1,563,481	235,564.88	60.47	2,065,686.33	74.47	8.77
Sorghum.....	118,050	22,314.68	5.73	124,918.38	4.5	5.6
Finger millet...	14,220	1,041.62	0.27	2,565.09	0.09	2.46
Oats/'Aja'.....	*	*	*	-	-	-
Rice.....	*	*	*	*	*	*
Pulses.....	**1,196,112**	**91,687.58**	**23.54**	**402,547.83**	**14.51**	
Horse beans.....	33,031	1,318.51	0.34	4,315.77	0.16	3.27
Field peas.....	8,983	465.44	0.12	892.99	0.03	1.92
Haricot beans...	1,174,168	89,725.65	23.03	397,339.07	14.32	4.43
Chick-peas.....	1,027	128.87	0.03	-	-	-
Lentils.....	909	13.09	*	-	-	-
Vetch.....	*	*	*	-	-	-
Soya beans.....	*	*	*	-	-	-
Fenugreek.....	1,428	12.43	*	-	-	-
Gibto.....	*	*	*	-	-	-
Oilseeds.....	**42,204**	**8,644.03**	**2.22**	*****	*****	
Neug.....	*	*	*	-	-	-
Linseed.....	1,558	*	*	-	-	-
Groundnuts.....	14,631	*	*	*	*	*
Sunflower.....	2,695	82.77	0.02	-	-	-
Sesame.....	22,349	6,279.52	1.61	-	-	-
Rapeseed.....	2,511	*	*	-	-	-

Table 13. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
Gambella Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**28,799**	**8,116.54**	**100**	**106,798.27**	**100**	
Cereals.....	**28,099**	**6,804.82**	**83.84**	**90,936.27**	**85.15**	
Teff.....	*	*	*	-	-	-
Barley.....	*	*	*	-	-	-
Wheat.....	-	-	-	-	-	-
Maize.....	27,932	6,658.42	82.04	90,936.27	85.15	13.66
Sorghum.....	*	*	*	-	-	-
Finger millet...	147	*	*	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-
Rice.....	179	*	*	-	-	-
Pulses.....	**6,204**	**363.76**	**4.48**	*****	*****	
Horse beans.....	*	*	*	-	-	-
Field peas.....	-	-	-	-	-	-
Haricot beans...	6,204	360.81	4.45	*	*	*
Chick-peas.....	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-
Oilseeds.....	**2,000**	**947.96**	**11.68**	**14,101.38**	**13.2**	
Neug.....	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-
Groundnuts.....	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-
Sesame.....	1,817	899.47	11.08	14,101.38	13.2	15.68
Rapeseed.....	-	-	-	-	-	-

Table 14. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
Harari Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**6,020**	**604.66**	**100**	**3,900.48**	**100**	
Cereals.....	**5,980**	**449.15**	**74.28**	**2,551.95**	**65.43**	
Teff.....	-	-	-	-	-	-
Barley.....	-	-	-	-	-	-
Wheat.....	*	*	*	-	-	-
Maize.....	3,946	197.93	32.73	2,551.95	65.43	12.89
Sorghum.....	3,032	247.64	40.96	-	-	-
Finger millet...	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-
Pulses.....	**4,514**	**153.32**	**25.36**	**1,348.53**	**34.57**	
Horse beans.....	-	-	-	-	-	-
Field peas.....	-	-	-	-	-	-
Haricot beans...	4,514	153.32	25.36	1,348.53	34.57	8.8
Chick-peas.....	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-
Oilseeds.....	*****	*****	*****	**-**	**-**	
Neug.....	*	*	*	-	-	-
Linseed.....	-	-	-	-	-	-
Groundnuts.....	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-

Table 15. Cropland Area, Production and Yield of Major Belg Crops For Private Peasant Holdings For Belg Season 2010/11 (2003 E.C.)
DireDawa Region

Crop Name	Number of Holders	Cropland Area In Hectares	%	Production In Quintals	%	Yield QT/Hec
Grain Crops	**2,385**	*	*	-	-	
Cereals.....	**2,285**	*	*	-	-	
Teff.....	-	-	-	-	-	-
Barley.....	-	-	-	-	-	-
Wheat.....	-	-	-	-	-	-
Maize.....	2,045	*	*	-	-	-
Sorghum.....	486	9.81	*	-	-	-
Finger millet...	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-
Pulses.....	**230**	*	*	-	-	
Horse beans.....	-	-	-	-	-	-
Field peas.....	-	-	-	-	-	-
Haricot beans...	230	*	*	-	-	-
Chick-peas.....	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-
Oilseeds.....	*	*	*	-	-	
Neug.....	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-
Groundnuts.....	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-
Sesame.....	*	*	*	-	-	-
Rapeseed.....	-	-	-	-	-	-

APPENDIX I

Estimation Procedures of Totals, Ratios and Sampling Errors

APPENDIX I Estimation Procedures of Totals, Ratios and Sampling Errors

The following formulas were used to estimate total area of land under specific crop and production of specific crop in a stratum.

1. For estimating Total Area of Land under Specific Crop:

$$\hat{A}_h = \sum_{i=1}^{n_h} W_{hi} \sum_{j=1}^{h_{hi}} a_{hij} = \sum_{i=1}^{n_h} W_{hi} a_{hi}$$

in which, $W_{hi} = \dfrac{M_h H_{hi}}{n_h m_{hi} h_{hi}}$ is the basic weight.

Where:

h represents the stratum

n_h is the total number of sample EAs successfully covered in the hth stratum.

M_h is the measure of size of the hth stratum as obtained from the sampling frame.

m_{hi} is the measure of size of the ith sample EA in the hth stratum obtained from the sampling frame.

H_{hi} is the total number of agricultural households of the ith sample EA in the hth stratum.

h_{hi} is the number of sample agricultural households successfully covered in the ith sample EA in the hth stratum.

a_{hij} is the value of area for agricultural household j, in the ith EA in the hth strtatum under a specific crop.

a_{hi} is the sample total area under specific crop for EA i in stratum h

$\hat{A}_h$ estimate of total area under specific crop in stratum h

2. For estimating Total Production under Specific Crop:

$$\hat{P}_h = \sum_{i=1}^{n_h} W_{hi} P_{hi}$$

in which, $P_{hi} = a_{hi} * \overline{Y}_{hi}$

Where,

$\overline{Y}_{hi}$ is average yield per square meter of a specific crop in the ith EA in the hth stratum.

$\hat{P}_h$ is estimate of total quantity of production of a specific crop in the hth stratum.

P_{hi} is estimate of total quantity of production under specific crop for EA i in stratum h.

3. Sampling Variance of Estimates:

Sampling variance for the estimate of stratum total of area, production and yield for a specific crop are estimated by the following formulas.

$$Var(\hat{A}_h) = (1 - f_h)\frac{n_h}{n_h - 1}\sum_{i=1}^{n_h}\left(\hat{A}_{hi} - \frac{\hat{A}_h}{n_h}\right)^2 + f_h \sum_{i=1}^{n_h}(1 - f_{hi})\left(\frac{h_{hi}}{h_{hi} - 1}\right)\sum_{j=1}^{h_{hi}}\left(\hat{A}_{hij} - \frac{\hat{A}_{hi}}{h_{hi}}\right)^2$$

$$Var(\hat{P}_h) = (1 - f_h)\frac{n_h}{n_h - 1}\sum_{i=1}^{n_h}\left(\hat{P}_{hi} - \frac{\hat{P}_h}{n_h}\right)^2 + f_h \sum_{i=1}^{n_h}(1 - f_{hi})\left(\frac{h_{hi}}{h_{hi} - 1}\right)\sum_{j=1}^{h_{hi}}\left(\hat{P}_{hij} - \frac{\hat{P}_{hi}}{h_{hi}}\right)^2$$

Where,

f_h = average first stage probability of selection of EAs within stratum *h*.

$f_{hi} = \frac{h_{hi}}{H_{hi}}$ = average second stage probability of selection within the *i*th sample EA in stratum *h*.

$\hat{A}_{hi}, \hat{P}_{hi}$ are weighted total area and production, respectively, of a specific crop in the ith EA and hth

stratum.

$\hat{A}_{hij}, \hat{P}_{hij}$ are weighted values of area and production, respectively, from jth agricultural household in the

ith EA and hth stratum under a specific crop.

Since all strata are independent, the total variance at regional and country level is computed by aggregating the result obtained at Zone/Special Wereda level, i.e.

$$Var(\hat{A}) = \sum_{h}^{L} Var(\hat{A}_h), Var(\hat{P}) = \sum_{h}^{L} Var(\hat{P}_h)$$

Where, L is the number of strata (Zone/Special Wereda).

In estimating the sampling variance by the above formula, selection of EAs within a stratum is assumed to be with replacement. By so doing the variance estimate may be slightly over estimated but it greatly simplifies the estimation procedure.

5. Coefficient of Variation (CV) of Estimates:

Coefficient of Variation (CV) in percentage of estimate of stratum total of area and production for a specific crop are given by:

$$CV(\hat{A}_h) = \frac{\sqrt{Var(\hat{A}_h)}}{\hat{A}_h} * 100, CV(\hat{P}_h) = \frac{\sqrt{Var(\hat{P}_h)}}{\hat{P}_h} * 100,$$

6. Ninety-five percent confidence interval (CI) of stratum total of area:

$$\hat{A}_h \pm 1.96 * SE(\hat{A}_h) \quad ,$$

Where $SE(\hat{A}_h) = \sqrt{Var(\hat{A}_h)}$ is standard error of the estimate of the stratum total of area.

Estimates of standard error and confidence interval for the other estimates can also be calculated by adopting the above formulas.

Appendix II

Standard Error and Coefficient of Variation for Area and Expected Production

Appendix. Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

National

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	4,298,094	77,914.13	1.81	1,173,047.52	42,869.51	3.65	9,008,230.65	480,385.67	5.33
Cereals.....	3,898,164	79,044.22	2.03	934,945.78	38,323.11	4.1	8,080,789.82	461,806.11	5.71
Teff.....	308,661	29,162.53	9.45	77,785.83	9,247.25	11.89	432,350.64	75,246.27	17.4
Barley.....	712,497	40,075.37	5.62	162,274.04	14,400.08	8.87	1,127,539.66	151,842.61	13.47
Wheat.....	204,060	24,392.04	11.95	71,786.86	18,034.03	25.12	707,595.18	230,117.95	32.52
Maize.....	3,188,975	79,676.60	2.5	550,758.73	26,902.59	4.88	5,258,584.75	331,228.95	6.3
Sorghum.....	237,557	20,797.51	8.75	57,412.61	9,888.08	17.22	402,396.13	87,675.82	21.79
Finger millet...	19,107	4,008.40	20.98	1,380.23	330.93	23.98	2,565.09	1,202.58	46.88
Oats/'Aja'.....	68,421	11,123.47	16.26	12,977.67	2,922.46	22.52	131,922.96	33,451.19	25.36
Rice.....	*	*	*	*	*	*	*	*	*
Pulses.....	2,307,874	74,532.10	3.23	211,461.98	12,526.88	5.92	912,785.18	60,600.25	6.64
Horse beans.....	69,016	7,935.62	11.5	3,992.76	1,181.42	29.59	18,835.99	6,638.64	35.24
Field peas.....	66,126	9,692.50	14.66	7,143.74	1,550.50	21.7	47,235.30	16,129.06	34.15
Haricot beans...	2,141,953	73,219.68	3.42	182,453.44	11,758.68	6.44	831,557.22	56,306.63	6.77
Chick-peas.....	42,885	9,281.86	21.64	6,235.10	1,567.30	25.14	14,914.29	5,924.95	39.73
Lentils.....	61,436	12,192.29	19.85	7,031.37	1,620.40	23.05	*	*	*
Vetch.....	19,579	6,870.08	35.09	3,411.90	1,627.03	47.69	-	-	-
Soya beans.....	1,360	590.99	43.47	*	*	*	-	-	-
Fenugreek.....	19,382	3,730.16	19.25	1,125.91	405.13	35.98	*	*	*
Gibto.....	*	*	*	*	*	*	-	-	-
Oilseeds.....	101,673	15,000.35	14.75	26,639.76	6,375.21	23.93	14,655.64	4,663.63	31.82
Neug.....	*	*	*	*	*	*	-	-	-
Linseed.....	6,659	1,482.55	22.26	366.15	118.51	32.37	*	*	*
Groundnuts.....	17,090	4,848.93	28.37	*	*	*	*	*	*
Sunflower.....	*	*	*	*	*	*	-	-	-
Sesame.....	59,235	12,929.07	21.83	23,138.68	6,269.99	27.1	14,101.38	4,652.42	32.99
Rapeseed.....	14,606	5,035.44	34.47	635	312.8	49.26	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

Tigray Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	24,002	4,755.20	19.81	5,481.16	1,171.10	21.37	19,873.96	9,347.64	47.03
Cereals.....	21,133	4,237.69	20.05	4,805.48	1,099.61	22.88	*	*	*
Teff.....	9,656	4,202.79	43.52	2,762.62	1,217.27	44.06	1,535.79	722.42	47.04
Barley.....	*	*	*	*	*	*	*	*	*
Wheat.....	*	*	*	*	*	*	*	*	*
Maize.....	*	*	*	*	*	*	*	*	*
Sorghum.....	-	-	-	-	-	-	-	-	-
Finger millet...	-	-	-	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-	-	-	-
Pulses.....	*	*	*	*	*	*	*	*	*
Horse beans.....	-	-	-	-	-	-	-	-	-
Field peas.....	*	*	*	*	*	*	-	-	-
Haricot beans...	-	-	-	-	-	-	-	-	-
Chick-peas.....	*	*	*	*	*	*	*	*	*
Lentils.....	*	*	*	*	*	*	-	-	-
Vetch.....	*	*	*	*	*	*	-	-	-
Soya beans.....	-	-	-	-	-	-	-	-	-
Fenugreek.....	874	360.66	41.26	*	*	*	-	-	-
Gibto.....	-	-	-	-	-	-	-	-	-
Oilseeds.....	-	-	-	-	-	-	-	-	-
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-	-	-	-
Groundnuts.....	-	-	-	-	-	-	-	-	-
Sunflower.....	-	-	-	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

Afar Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	12,987	3,913.12	30.13	*	*	*	*	*	*
Cereals.....	11,726	3,872.14	33.02	*	*	*	*	*	*
Teff.....	*	*	*	*	*	*	-	-	-
Barley.....	-	-	-	-	-	-	-	-	-
Wheat.....	-	-	-	-	-	-	-	-	-
Maize.....	10,599	3,942.47	37.2	*	*	*	*	*	*
Sorghum.....	-	-	-	-	-	-	-	-	-
Finger millet...	-	-	-	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-	-	-	-
Pulses.....	*	*	*	*	*	*	-	-	-
Horse beans.....	-	-	-	-	-	-	-	-	-
Field peas.....	-	-	-	-	-	-	-	-	-
Haricot beans...	*	*	*	*	*	*	-	-	-
Chick-peas.....	*	*	*	*	*	*	-	-	-
Lentils.....	-	-	-	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-	-	-	-
Oilseeds.....	-	-	-	-	-	-	-	-	-
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-	-	-	-
Groundnuts.....	-	-	-	-	-	-	-	-	-
Sunflower.....	-	-	-	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

Amhara Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	447,196	20,861.40	4.66	136,016.48	12,546.25	9.22	496,856.60	86,101.58	17.33
Cereals.....	399,491	22,066.06	5.52	102,157.75	9,969.14	9.76	462,244.31	82,909.25	17.94
Teff.....	90,440	18,439.14	20.39	16,081.86	4,296.80	26.72	79,677.03	39,245.19	49.26
Barley.....	243,844	25,124.06	10.3	68,464.92	10,370.54	15.15	284,799.15	77,116.94	27.08
Wheat.....	60,682	13,327.50	21.96	6,543.26	1,680.95	25.69	28,768.79	11,296.52	39.27
Maize.....	85,115	13,993.92	16.44	8,667.40	2,084.89	24.05	68,999.34	29,246.71	42.39
Sorghum.....	*	*	*	*	*	*	-	-	-
Finger millet...	*	*	*	*	*	*	-	-	-
Oats/'Aja'.....	16,270	5,099.11	31.34	1,753.64	785.5	44.79	-	-	-
Rice.....	-	-	-	-	-	-	-	-	-
Pulses.....	135,745	15,733.05	11.59	33,389.91	7,842.04	23.49	34,612.28	10,610.84	30.66
Horse beans.....	1,773	741.69	41.83	*	*	*	-	-	-
Field peas.....	16,396	4,563.16	27.83	1,085.68	425.95	39.23	244.08	107.53	44.06
Haricot beans...	52,013	11,247.89	21.63	17,886.61	7,292.71	40.77	21,004.02	8,409.38	40.04
Chick-peas.....	34,887	8,461.28	24.25	5,098.49	1,444.61	28.33	13,350.37	5,720.89	42.85
Lentils.....	44,060	10,896.79	24.73	5,425.73	1,481.57	27.31	-	-	-
Vetch.....	16,977	6,808.58	40.11	*	*	*	-	-	-
Soya beans.....	-	-	-	-	-	-	-	-	-
Fenugreek.....	10,570	3,252.16	30.77	*	*	*	*	*	*
Gibto.....	-	-	-	-	-	-	-	-	-
Oilseeds.....	7,138	3,217.36	45.07	*	*	*	-	-	-
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	3,613	1,108.01	30.67	202.23	93.07	46.02	-	-	-
Groundnuts.....	-	-	-	-	-	-	-	-	-
Sunflower.....	*	*	*	*	*	*	-	-	-
Sesame.....	*	*	*	*	*	*	-	-	-
Rapeseed.....	*	*	*	*	*	*	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

Oromia Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	1,928,419	65,313.78	3.39	601,132.75	35,180.09	5.85	5,299,856.20	405,540.07	7.65
Cereals.....	1,733,173	66,043.11	3.81	503,826.85	31,830.52	6.32	4,842,976.66	387,128.38	7.99
Teff.....	145,530	20,488.57	14.08	43,769.88	7,501.89	17.14	288,532.96	63,464.48	22
Barley.....	324,571	27,901.79	8.6	78,655.71	9,827.88	12.49	738,144.83	129,967.21	17.61
Wheat.....	129,833	20,084.11	15.47	63,952.86	17,951.66	28.07	673,610.68	229,826.87	34.12
Maize.....	1,431,322	68,054.18	4.75	272,440.53	20,508.16	7.53	2,733,287.48	231,935.55	8.49
Sorghum.....	108,493	17,853.93	16.46	33,606.43	9,232.36	27.47	277,477.75	84,475.57	30.44
Finger millet...	*	*	*	*	*	*	-	-	-
Oats/'Aja'.....	51,554	9,881.02	19.17	11,210.31	2,814.89	25.11	131,922.96	33,451.19	25.36
Rice.....	*	*	*	*	*	*	-	-	-
Pulses.....	922,625	62,180.93	6.74	80,730.16	8,280.79	10.26	456,387.43	52,713.68	11.55
Horse beans.....	33,822	7,047.08	20.84	2,598.44	1,163.65	44.78	14,218.19	6,601.38	46.43
Field peas.....	39,634	8,349.06	21.07	5,533.03	1,483.70	26.82	46,098.24	16,125.58	34.98
Haricot beans...	867,763	61,677.32	7.11	69,897.97	7,674.31	10.98	395,842.43	48,218.68	12.18
Chick-peas.....	*	*	*	*	*	*	-	-	-
Lentils.....	15,838	5,422.34	34.24	1,541.79	654.29	42.44	*	*	*
Vetch.....	1,721	678.75	39.44	*	*	*	-	-	-
Soya beans.....	*	*	*	*	*	*	-	-	-
Fenugreek.....	6,509	1,686.40	25.91	447.15	178.98	40.03	-	-	-
Gibto.....	-	-	-	-	-	-	-	-	-
Oilseeds.....	50,107	12,291.44	24.53	16,575.74	5,611.02	33.85	*	*	*
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	*	*	*	*	*	*	*	*	*
Groundnuts.....	*	*	*	*	*	*	-	-	-
Sunflower.....	*	*	*	*	*	*	-	-	-
Sesame.....	34,909	11,241.49	32.2	15,954.23	5,612.32	35.18	-	-	-
Rapeseed.....	11,733	4,894.54	41.71	*	*	*	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

Somale Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	30,094	3,152.03	10.47	14,823.47	2,719.17	18.34	32,322.17	10,204.25	31.57
Cereals.....	30,094	3,152.03	10.47	14,591.40	2,682.81	18.39	32,231.67	10,204.73	31.66
Teff.....	-	-	-	-	-	-	-	-	-
Barley.....	-	-	-	-	-	-	-	-	-
Wheat.....	*	*	*	-	-	-	-	-	-
Maize.....	29,852	3,171.79	10.63	13,902.35	2,626.05	18.89	32,231.67	10,204.73	31.66
Sorghum.....	*	*	*	*	*	*	-	-	-
Finger millet...	*	*	*	*	*	*	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-	-	-	-
Rice.....	*	*	*	*	*	*	-	-	-
Pulses.....	1,902	735.16	38.66	*	*	*	*	*	*
Horse beans.....	-	-	-	-	-	-	-	-	-
Field peas.....	-	-	-	-	-	-	-	-	-
Haricot beans...	1,902	735.16	38.66	*	*	*	*	*	*
Chick-peas.....	-	-	-	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-	-	-	-
Oilseeds.....	*	*	*	*	*	*	-	-	-
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-	-	-	-
Groundnuts.....	*	*	*	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

Benshangul-Gumuz Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	35,616	1,910.19	5.36	4,706.24	527.34	11.21	28,208.99	2,219.37	7.87
Cereals.....	28,525	2,126.86	7.46	1,846.88	180.78	9.79	13,734.91	1,709.29	12.44
Teff.....	*	*	*	*	*	*	-	-	-
Barley.....	562	208.11	37.04	61.26	25.71	41.98	661.27	304.52	46.05
Wheat.....	-	-	-	-	-	-	-	-	-
Maize.....	28,191	2,188.69	7.76	1,670.53	165.98	9.94	13,073.65	1,625.04	12.43
Sorghum.....	1,122	399.73	35.62	112.55	44.11	39.19	-	-	-
Finger millet...	-	-	-	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-	-	-	-
Pulses.....	32,926	2,695.08	8.19	2,859.22	493.46	17.26	14,474.07	1,371.48	9.48
Horse beans.....	*	*	*	*	*	*	*	*	*
Field peas.....	*	*	*	*	*	*	-	-	-
Haricot beans...	32,857	2,693.75	8.2	2,840.73	493.42	17.37	14,172.05	1,280.42	9.03
Chick-peas.....	-	-	-	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-	-	-	-
Vetch.....	*	*	*	*	*	*	-	-	-
Soya beans.....	-	-	-	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-	-	-	-
Oilseeds.....	*	*	*	*	*	*	-	-	-
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-	-	-	-
Groundnuts.....	*	*	*	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

S.N.N.P.R Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	1,782,576	36,280.67	2.04	389,567.30	19,510.49	5.01	2,773,891.55	156,767.73	5.65
Cereals.....	1,637,658	36,744.58	2.24	289,235.70	17,173.59	5.94	2,371,281.56	149,058.48	6.29
Teff.....	61,691	8,496.52	13.77	14,875.45	3,040.56	20.44	62,604.86	9,672.35	15.45
Barley.....	136,860	13,389.60	9.78	13,852.93	1,622.15	11.71	94,538.21	12,666.11	13.4
Wheat.....	11,750	3,383.05	28.79	1,110.17	328.9	29.63	3,133.29	1,432.61	45.72
Maize.....	1,563,481	38,430.04	2.46	235,564.88	15,458.47	6.56	2,065,686.33	144,341.68	6.99
Sorghum.....	118,050	10,319.25	8.74	22,314.68	3,507.94	15.72	124,918.38	23,471.84	18.79
Finger millet...	14,220	3,255.16	22.89	1,041.62	284.8	27.34	2,565.09	1,202.58	46.88
Oats/'Aja'.....	*	*	*	*	*	*	-	-	-
Rice.....	*	*	*	*	*	*	*	*	*
Pulses.....	1,196,112	37,699.96	3.15	91,687.58	5,033.22	5.49	402,547.83	27,837.54	6.92
Horse beans.....	33,031	3,563.19	10.79	1,318.51	201.48	15.28	4,315.77	660.02	15.29
Field peas.....	8,983	1,697.88	18.9	465.44	140.38	30.16	892.99	316.88	35.49
Haricot beans...	1,174,168	37,680.36	3.21	89,725.65	4,995.99	5.57	397,339.07	27,769.69	6.99
Chick-peas.....	1,027	360.01	35.06	128.87	46.66	36.21	-	-	-
Lentils.....	909	351.01	38.64	13.09	4.39	33.58	-	-	-
Vetch.....	*	*	*	*	*	*	-	-	-
Soya beans.....	*	*	*	*	*	*	-	-	-
Fenugreek.....	1,428	602.94	42.22	12.43	5.72	46.05	-	-	-
Gibto.....	*	*	*	*	*	*	-	-	-
Oilseeds.....	42,204	7,954.82	18.85	8,644.03	3,000.12	34.71	*	*	*
Neug.....	*	*	*	*	*	*	-	-	-
Linseed.....	1,558	574.71	36.9	*	*	*	-	-	-
Groundnuts.....	14,631	4,587.27	31.35	*	*	*	*	*	*
Sunflower.....	2,695	833.65	30.93	82.77	37.27	45.03	-	-	-
Sesame.....	22,349	6,363.35	28.47	6,279.52	2,779.97	44.27	-	-	-
Rapeseed.....	2,511	1,126.26	44.85	*	*	*	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

Gambella Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	28,799	894.48	3.11	8,116.54	749.78	9.24	106,798.27	11,081.37	10.38
Cereals.....	28,099	948.51	3.38	6,804.82	702.17	10.32	90,936.27	10,639.32	11.7
Teff.....	*	*	*	*	*	*	-	-	-
Barley.....	*	*	*	*	*	*	-	-	-
Wheat.....	-	-	-	-	-	-	-	-	-
Maize.....	27,932	957.7	3.43	6,658.42	679.43	10.2	90,936.27	10,639.32	11.7
Sorghum.....	*	*	*	*	*	*	-	-	-
Finger millet...	147	68.76	46.75	*	*	*	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-	-	-	-
Rice.....	179	85.64	47.79	*	*	*	-	-	-
Pulses.....	6,204	880.81	14.2	363.76	123.62	33.98	*	*	*
Horse beans.....	*	*	*	*	*	*	-	-	-
Field peas.....	-	-	-	-	-	-	-	-	-
Haricot beans...	6,204	880.81	14.2	360.81	123.76	34.3	*	*	*
Chick-peas.....	-	-	-	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-	-	-	-
Oilseeds.....	2,000	541.67	27.08	947.96	292.35	30.84	14,101.38	4,652.42	32.99
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-	-	-	-
Groundnuts.....	*	*	*	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-	-	-	-
Sesame.....	1,817	529.53	29.15	899.47	293.93	32.68	14,101.38	4,652.42	32.99
Rapeseed.....	-	-	-	-	-	-	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

Harari Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	6,020	402.26	6.68	604.66	87.43	14.46	3,900.48	837.63	21.47
Cereals.....	5,980	396.15	6.63	449.15	61.55	13.7	2,551.95	863.92	33.85
Teff.....	-	-	-	-	-	-	-	-	-
Barley.....	-	-	-	-	-	-	-	-	-
Wheat.....	*	*	*	*	*	*	-	-	-
Maize.....	3,946	445.94	11.3	197.93	48.36	24.43	2,551.95	863.92	33.85
Sorghum.....	3,032	609.56	20.11	247.64	60.38	24.38	-	-	-
Finger millet...	-	-	-	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-	-	-	-
Pulses.....	4,514	639.18	14.16	153.32	34.05	22.21	1,348.53	301.93	22.39
Horse beans.....	-	-	-	-	-	-	-	-	-
Field peas.....	-	-	-	-	-	-	-	-	-
Haricot beans...	4,514	639.18	14.16	153.32	34.05	22.21	1,348.53	301.93	22.39
Chick-peas.....	-	-	-	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-	-	-	-
Oilseeds.....	*	*	*	*	*	*	-	-	-
Neug.....	*	*	*	*	*	*	-	-	-
Linseed.....	-	-	-	-	-	-	-	-	-
Groundnuts.....	*	*	*	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-	-	-	-

Standard Errors and Coefficient of Variation For the Estimates of Number of holders, Area and Production of major Crops, 2010/11(2003 E.C) agricultural Sample Survey, Belg Season

Dire Dawa Region

Crop	Holders			Area			Production		
	Estimate	S.E.	C.V.in %	Hectares	S.E.	C.V.in %	Quintals	S.E	C.V.in %
Grain Crops	2,385	874.98	36.69	*	*	*	-	-	-
Cereals.....	2,285	868.28	38	*	*	*	-	-	-
Teff.....	-	-	-	-	-	-	-	-	-
Barley.....	-	-	-	-	-	-	-	-	-
Wheat.....	-	-	-	-	-	-	-	-	-
Maize.....	2,045	865.57	42.34	*	*	*	-	-	-
Sorghum.....	486	183.61	37.81	9.81	4.56	46.5	-	-	-
Finger millet...	-	-	-	-	-	-	-	-	-
Oats/'Aja'.....	-	-	-	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-	-	-	-
Pulses.....	230	101.34	44.01	*	*	*	-	-	-
Horse beans.....	-	-	-	-	-	-	-	-	-
Field peas.....	-	-	-	-	-	-	-	-	-
Haricot beans...	230	101.34	44.01	*	*	*	-	-	-
Chick-peas.....	-	-	-	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-	-	-	-
Soya beans.....	-	-	-	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-	-	-	-
Oilseeds.....	*	*	*	*	*	*	-	-	-
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-	-	-	-
Groundnuts.....	*	*	*	*	*	*	-	-	-
Sunflower.....	-	-	-	-	-	-	-	-	-
Sesame.....	*	*	*	*	*	*	-	-	-
Rapeseed.....	-	-	-	-	-	-	-	-	-

Appendix III – Questionnaires

Form CPSS 2003/8A

APPENDIX III:

From Agricultural Holders

Questionnaires used for the 2010/11 (2003 E.C) Belg Season Crop Production Sample Servey

NOTE:- This Form Should be Filled Out For Mixed Crops According to their Type in pure Stands

Assessment of Belg Season Crop Conditions- 2010/11 (2003 E.C)

Part I – Identification Particulars

1	2	3	4	5	6
Region	Zone	wereda	Farmers' Association	Enumeration Area	Crop Name

Part II - Assessment of Crop Conditions (For Belg Season)

1	2	3	4	5	6		7		8		9		1®		11
Sr. No.	Name of Holder	Household ID Numb	Holder ID Number	Number Of Fields	Crop Productivity Compared to Last Year										Expected Productivity Change In Percent
					Increase = 1 Equal/ No change = 2 Decrease = 3		If Increase				If Decrease				
							Quantity in Percent		One Major Reason for Increase		Quantity in Percent		One Major Reason for Decrease		
						Code				Code				Code	
® 1															
® 2															
® 3															
® 4															
® 5															
® 6															
® 7															
® 8															
® 9															
1 ®															
1 1															
1 2															
1 3															
1 4															
1 5															

Form CPSS 2003/8B

Questionnaires used for the 2010/11(2003 E.C) Belg Season Crop Production Sample Survey Assessment of crop condition

Part I –Identification Particulars

1	2	3	4	5
Region	Zone	Wereda	Farmers' Association	Enumeration Area

Part II - Assessment of Crop Conditions (For Belg Season)

1	2	3		4	5		6	7		8
Crop Name	Code	Expected Crop Productivity Compared to Last Year								
		Increase = 1 Equal/No Change = 2 Decrease = 3		If increase			If Decrease			Expected Productivity Change In Percent
				Quantity of increase In percent	One Major Reason for Increase		Quantity of Decrease In percent	One Major Reason for Decrease		
			Code			Code			Code	
Teff	07									
Barley	01									
Wheat	08									
Maize	02									
Sorghum	06									
Finger millet	03									
Oats/'aja'	04									
Rice	05									
Horse beans	13									
Field peas	15									
Haricot beans	12									
Chick peas	11									
Lentils	14									
Grass peas/vetch	16									
Fenugreek	36									
Gibto	17									
Niger seed	25									
Lin seed/flax	23									
Ground nuts	24									
Sufflower	28									
Sesame	27									
Rape seed	26									
Soya beans	18									

	Name	Date	Signature
Development Agent (Respondent)	_____	_____	_____
Data Collector	_____	_____	_____
Supervisor	_____	_____	_____

- Data in this questionnaire should be collected from the Development Agent only by Interview method.

Form CPSS 2003/8C

Questionnaires used for the 2010/11(2003 E.C)
Belg Season Crop Production Sample Survey
Assessment of crop condition

Part I –Identification Particulars

1	2	3	4	5
Region	Zone	Wereda	Farmers' Association	Enumeration Area

Part II - Assessment of Crop Conditions (For Belg Season)

1	2	3		4	5		6	7		8
Crop Name	Code	Expected Crop Productivity Compared to Last Year								
		Increase = 1 Equal/No Change = 2 Decrease = 3		If increase			If Decrease			Expected Productivity Change In Percent
				Quantity of increase In percent	One Major Reason for Increase		Quantity of Decrease In percent	One Major Reason for Decrease		
			Code			Code			Code	
Teff	07									
Barley	01									
Wheat	08									
Maize	02									
Sorghum	06									
Finger millet	03									
Oats/'aja'	04									
Rice	05									
Horse beans	13									
Field peas	15									
Haricot beans	12									
Chick peas	11									
Lentils	14									
Grass peas/vetch	16									
Fenugreek	36									
Gibto	17									
Niger seed	25									
Lin seed/flax	23									
Ground nuts	24									
Sufflower	28									
Sesame	27									
Rape seed	26									
Soya beans	18									

	Name	Date	Signature
Agricultural Development leaders (Respondents)	1. _____	_____	_____
	2. _____	_____	_____
	3. _____	_____	_____
Data Collector	_____	_____	_____
Supervisor	_____	_____	_____

- Data in this questionnaire should be collected from the Development leaders of the kebele only by interview method.

Form AgSS 2003/8

CENTRAL STATISTICAL AUTHORITY
ETHIOPIAN AGRICULTURAL SAMPLE SURVEY 2010/2011 (2003 E.C)

PART I – IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11	12	13	14
Region	Zone	Wereda	PA / REST.AR	EA LOCAL	HH ID	HH HEAD SEX 1=M 2=F	HOLDER ID	HOLDER'S NAME	AGE	SEX M=1 F=2	HIGHEST GRADE COMPLETED	HOLDER'S HH SIZE	FARMING TYPE CROP=1 LIVEST=2 BOTH=3

PART II – CROP FIELD / OTHER LAND USE

15		16	17					
			PARCEL NO.		FIELD NO.			
			IS THE FIELD PURE STAND =1 MIXED CROP =2 OTHER LAND USE=3					
			CROP/OTHER NAME		CROP NAME		CROP NAME	
SER. NO.		QUESTIONS FOR THE HOLDER	CODE		CODE		CODE	
0	1	Ownership Own = 1 Rented in =2 Other =3						
0	2	Is field under Extension Program? Yes =1 No = 2						
0	3	Is Field Irrigated? Yes =1 No =2						
0	4	If Field Irrigated source of water River =1 Lake =2 Pond =3 Harvested water =4 other =5						
0	5	Percent share of mixed crops						
0	6	Seed / Seedling Type Improved Seed = 1 indigenous seed = 2						
0	7	*For Cereals, Pulses & Oilseeds only* Quantity of improved seeds used	Kilo	Gram	Kilo	Gram	Kilo	Gram
0	8	*For Cereals, Pulses & Oilseeds only* Price of improved seeds used	Birr	Cents	Birr	Cents	Birr	Cents
0	9	*For Cereals, Pulses & Oilseeds only* Quantity of indigenous seeds used	Kilo	Gram	Kilo	Gram	Kilo	Gram
1	0	Was crop damaged ? Yes = 1 No =2						
1	1	If yes in question number 10, Cause of damage						
1	2	Code						
1	3	Percent of damaged crop						
		Prevention/precaution measure taken? Yes =1 No =2						
1	4	Type of measure if any? Chemical = 1 Non – chemical = 2 Both = 3						
1	5	Chemical type used if any Pesticide =1 herbicide =2 Fungicide =3 1&2 = 4 1 & 3 = 5 2 & 3 = 6 All = 7						
1	6	Is Fertilizer Used? Yes =1 No = 2						
1	7	Type of fertilizer used if any? Natural = 1 Chemical = 2 Both = 3						
1	8	If chemical fertilizer used 18.1 Type UREA = 1 DAP = 2 Both = 3						
		18.2 Quantity of chemical fertilizer used	Kilo		Gram			
1	9	If natural fertilizer used, type Manure = 1 Compost = 2 Organic = 3 1 &2 = 4 1&3 = 5 2 & 3 = 6 All = 7 others = 8						
2	0	Quantity of crop produced in standard/local measurement	Name	Code	Quantity	Name	code	Quantity
						Name	Code	Quantity

PART 3A: RESULTS OF AREA MEASUREMENTS using GPS

18	19	20	21	22	23	24	25
GPS Accuracy during field measurement	Is the field measured? yes =1 No =2 →						
	Area of measured field		**Is the field** **Flat =1** **Partialy Sloppy = 2** **Sloppy = 3**	**Code**	**If the field covered?** **None = 1** **With plant / permanent crop = 2** **With house = 3** **Partially covered = 4** **Others = 5**	**Code**	**Comments**
	Area in square meters **(Clockwise)**	Area in square meters **(Anti-Clockwise)**					
Field measurement			***Date***		***Month***		

PART 3B – RESULTS OF AREA MEASUREMENTS USING COMPASS-ROPE

18	19	20	21	22	23	24	25	26
Is the field measured?	Yes =1			No = 2	Code →			
Side	1 - 2	2 - 3	3 -	4 -	5 -	6 -	7 -	8 -
Bearing (0)								
Length								
Side	9 -	10 -	11 -	12 -	13 -	14 -	15 -	16 -
Bearing(0)								
Length								
Side	17 -	18 -	19 -	20 -	21 -	22 -	23 -	24 -
Bearing (0)								
Length								
Side	25 -	26 -	27 -	28 -	29 -	30 -	31 -	32 -
Bearing (0)								
Length								
Field Measurement	date	month	**Closure error**		Area in square meters			

	Name	**Signature**	**Date**
Data collector			
Field Supervisor			

APPENDIX I:

From Agricultural Holders

Questionnaires used for the 2010/11 (2003 E.C) Belg Season Crop Production Sample Servey

NOTE:- This Form Should be Filled Out For Mixed Crops According to their Type in pure Stands

Assessment of Belg Season Crop Conditions- 2010/11 (2003 E.C)

Part I – Identification Particulars

1	2	3	4	5	6
Region	Zone	wereda	Farmers' Association	Enumeration Area	Crop Name

Part II - Assessment of Crop Conditions (For Belg Season)

1	2	3	4	5	6		7	8		9		10		11
					Crop Productivity Compared to Last Year									
					Increase = 1 Equal/ No change = 2 Decrease = 3		If Increase			If Decrease				Expected Productivity Change In Percent
Sr. No.	Name of Holder	Household ID Numb	Holder ID Number	Number Of Fields		Code	Quantity in Percent	One Major Reason for Increase	Code	Quantity in Percent		One Major Reason for Decrease	Code	
01														
02														
03														
04														
05														
06														
07														
08														
09														
10														
11														
12														
13														
14														
15														

Questionnaires used for the 2010/11(2003 E.C) Belg Season Crop Production Sample Survey

Assessment of crop condition

Part I –Identification Particulars

1	2	3	4	5
Region	Zone	Wereda	Farmers' Association	Enumeration Area

Part II - Assessment of Crop Conditions (For Belg Season)

1	2	3		4	5		6	7		8
		Expected Crop Productivity Compared to Last Year								
Crop Name	Code	Increase = 1 Equal/No Change = 2 Decrease = 3		If increase			If Decrease			Expected Productivity Change In Percent
			Code	Quantity of increase In percent	One Major Reason for Increase	Code	Quantity of Decrease In percent	One Major Reason for Decrease	Code	
Teff	07									
Barley	01									
Wheat	08									
Maize	02									
Sorghum	06									
Finger millet	03									
Oats/'aja'	04									
Rice	05									
Horse beans	13									
Field peas	15									
Haricot beans	12									
Chick peas	11									
Lentils	14									
Grass peas/vetch	16									
Fenugreek	36									
Gibto	17									
Niger seed	25									
Lin seed/flax	23									
Ground nuts	24									
Sufflower	28									
Sesame	27									
Rape seed	26									
Soya beans	18									

	Name	Date	Signature
Development Agent (Respondent)			
Data Collector			
Supervisor			

- Data in this questionnaire should be collected from the Development Agent only by Interview method.

Questionnaires used for the 2010/11(2003 E.C) Belg Season Crop Production Sample Survey

Assessment of crop condition

Part I –Identification Particulars

1	2	3	4	5
Region	Zone	Wereda	Farmers' Association	Enumeration Area

Part II - Assessment of Crop Conditions (For Belg Season)

1	2	3		4		5		6		7	8
Crop Name	Code	Expected Crop Productivity Compared to Last Year									
		Increase = 1 Equal/No Change = 2 Decrease = 3		If increase				If Decrease			Expected Productivity Change In Percent
				Quantity of increase In percent	One Major Reason for Increase			Quantity of Decrease In percent	One Major Reason for Decrease		
			Code			Code				Code	
Teff	07										
Barley	01										
Wheat	08										
Maize	02										
Sorghum	06										
Finger millet	03										
Oats/'aja'	04										
Rice	05										
Horse beans	13										
Field peas	15										
Haricot beans	12										
Chick peas	11										
Lentils	14										
Grass peas/vetch	16										
Fenugreek	36										
Gibto	17										
Niger seed	25										
Lin seed/flax	23										
Ground nuts	24										
Sufflower	28										
Sesame	27										
Rape seed	26										
Soya beans	18										

		Name	Date	Signature
Agricultural Development leaders (Respondents)	1.	_____	_____	_____
	2.	_____	_____	_____
	3.	_____	_____	_____
Data Collector		_____	_____	_____
Supervisor		_____	_____	_____

❖ Data in this questionnaire should be collected from the Development leaders of the kebele only by interview method.