

**THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA CENTRAL
STATISTICAL AGENCY**

**LARGE AND MEDIUM SCALE COMMERCIAL FARMS SAMPLE SURVEY
2018/19(2011 E.C)**

RESULTS AT COUNTRY AND REGIONAL LEVEL VOLUME VIII



**STATISTICAL REPORT ON
AREA AND PRODUCTION OF CROPS, AND FARM MANAGEMENT PRACTICES**

**ADDIS ABABA
JULY, 2019**

STATISTICAL BULLETIN

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PART ONE

1. BACKGROUND

Agriculture is the primary activity in Ethiopia, where about 84 percent of the country's population engaged in various agricultural activities and generates its income for household consumption to sustain its livelihood. Moreover, the country generates the lion share of its foreign currency earnings from the sales/export of agricultural commodities abroad and currently the sector contributes about 42 percent to the country's GDP, and above all, the sector is believed to be the main source of capital to be accumulated for the process of establishing the future industrialized Ethiopia, which again shows the determinant role played by the sector to bring about sustainable economic development for the country in the years to come.

Ethiopian agriculture have suffered for years from the use of traditional farm implements and subsistence farming system as well as limited use of modern farm inputs, that resulted to the sector's poor performance (i.e. low productivity of the sector). However, the surplus production along with productivity increments that have been registered during the last seven consecutive years, indicated that the agricultural system as a whole and the crop production sub sector in particular is showing improvement in terms of productivity, the extent and use of modern farm inputs, and modern farming system practices, etc.

Despite those bottlenecks that hampered the sector's productivity, Ethiopian agriculture, as it had been used for centuries in the past and till the present, the sector is believed to continue being the leading and determinant sector of the country's future economic development.

As mentioned earlier, improvements that have been registered in the overall performance of the agricultural sector, during earlier consecutive years, cannot be considered as an end by itself but could be taken as an indicator for the need of much more efforts to be made by the government and the concerned stakeholders to adopt and implement the available modern and improved agricultural technologies that help attain enhanced productivity and maintain sustainable development of the sector. Thus, all efforts required to bring about the desired change/improvements on the overall performance of the agricultural sector as a whole, could only be successful, if and only if policies, strategies, implementation plans and programs and related efforts are geared towards addressing the problems identified in the two agricultural sub- sectors. The two major agricultural sub sectors are:-

- a) **Private agricultural holding:** this sub-sector includes rural-urban small and fragmented privately owned agricultural holdings on which all types of agricultural activities such as crop production, livestock rearing...etc, are performed by the operator/holders to obtain agricultural produce for self/family consumption and sometimes for sell. However, over 95 % of the annual gross total agricultural output of the country is said to be generated from this sub-sector,
- b) **Commercial Farms:** - this sub-sector refers to the farms that include state and private commercial farms mainly established for the purpose of profit making by selling agricultural products at local market and/or abroad. These farms are commonly owned and operated by government, private companies and non-governmental institutions, such as private individual investors, shareholders, religious and non- religious institutions...etc.

The sub-sector is mainly characterized by the use of relatively capital intensive, mechanized and market oriented farming system, with increased use of modern farm management practices and inputs such as, use of high tech-farm machineries and implements, irrigation scheme, use of chemical fertilizers, pesticides and improved seeds.

In Ethiopia, however, due to various reasons, commercial farms are not widely spread, and as a result of which the contribution of these farms to the country's gross total agricultural output is limited only to about 5 percent. According to some written documents, the introduction of Commercial farms in Ethiopia goes back to the Pre-Derg era, where government owned pilot state and research farms on the basis of Yugoslav model [MOSFD 1986-370], which paved the way for the establishment of private commercial, state and institutional farms in Awassa, Arbaminch, Zeway and Shewarobit which latter on transformed into well organized and relatively mechanized large and medium scale state, private and institutional farms that are collectively called 'Commercial Farms' .

Since then, large and medium scale commercial farms in Ethiopia had been forced to be reorganized by undertaking various structural and organizational adjustments with varying legal status including ownership over a number of economic policy changes that took place over the last three decades. Nevertheless, a decade has passed since the existing Commercial farms reorganized on the basis of market oriented economic policy adopted by the existing Federal Democratic Republic Government of Ethiopia. This report is the eleventh of its type, where the first one was published in the 2002/03 (1995 E.C.), presenting the results of the 2001/02 (1994 E.C.) and the second one was published in the 2008/2010(2001 E.C). During the years between 2002/03 (1995 E.C.) and 2008/2010(2001 E.C) Central Statistical Agency had conducted more than Six surveys on Commercial farms but failed to produce the results due to various reasons mainly due to unwillingness of respondents to give accurate information. However,

after making a through revisions and improvements on the previously adopted questionnaires, the reports on data collection methodology, related survey documents and results in the years 2010/10 (2002 E.C.) and 2010/11 (2003EC) were also released, CSA conducted Large and Medium Scale Commercial farms sample survey covering the whole country.

This report, therefore, presents quantitative information on total area, volume of production and yield of major crops (temporary and permanent), as obtained and summarized from the results of the 2018/19(2011 E.C.) commercial farms sample survey of the Meher Season.

2.OBJECTIVES OF THE 2018/19(2011 E.C) LARGE AND MEDIUM SCALE COMMERCIAL FARMS SURVEY

The major objectives of the 2018/19(2011 E.C) commercial farms sample survey is to provide:-

- Statistical data on crop area and volume of production by farm and crop type to fill-in the existing data gap,
- Detail data on various inputs applied for large and medium scale agricultural production mainly quantity of Chemical fertilizers, pesticides, insecticide improved seeds & indigenous seed but due to this year is a census year and all branch offices are busy to this work we can't cover this farm management practices this year.

The provision of the above mentioned information are important for planning and policy formulation as well as for promoting the establishment of Commercial farms, and to design and formulate means and ways as how to facilitate the transformation of the existing small and fragmented private peasant agricultural holding to Commercial farms in the long run.

PART II

SURVEY METHODOLOGY, OPERATION AND DATA PROCESSING

2.Survey Methodology

2.1 Scope & Coverage

The 2018/19(2011 E.C)large and medium scale commercial farms cover all urban & rural parts of the country. Considering the cost and manageability of field work a sample of 1906 farms were planned and decided to be covered at national level. But the survey succeeded to cover 1641 farms. This sample is

allocated to each region based on number of farms each region has. The regional level distribution of the Farms is given in Appendix III.

2.2 Sampling frame

The sampling frame which is list of commercial farms with their cropland area size and livestock number is collected from all part of the country through CSA Branch Statistical Offices. The collected farm list is compiled at the head office and the functional and nonfunctional farms at the time of updating are identified. Farms which are selected directly and those selected by sample are identified based on this frame. Then the lists of commercial farms to be covered by the survey are distributed back to the Branch Offices for the actual survey.

2.3 Sample design

Two separate sample design is prepared for Commercial farms involved in crop production and livestock. Before the sample selection was done, the cut off point for the farms was decided. The same cut off point for farms involved in crop production and those involved in livestock was set. Farms having total area/number of livestock above the cutoff point are selected with certainty whereas farms having area/ number of livestock below the cutoff point is sampled using probability proportional to size, size being the total area / number of livestock of the farms. For farms involved in livestock simple random sampling technique is used for selection.

The estimation procedure and measure of their precision are given in Appendix I

3. Organization of Field Work

Field organization is usually used as a means to link the data source with the central office to properly carry on the field data collection operations and for the strict control and supervision of the fieldwork.

Since the Commercial farms sample survey is part and parcel of the 2018/19(2011E.C) annual Agricultural Sample Survey, the field organization setup that has been used for the agricultural sample survey of private agricultural holdings was also used for the enumeration of Commercial farms. Moreover, as it has been planned earlier, the actual field data compilation operation for commercial farms was scheduled to be started at the time the field data collection operation that have been carried out for private agricultural holdings were almost due completion. The field worker who was assigned for Commercial farm enumeration was responsible to cover a minimum of 1 and a maximum of 5 farms depending on the number of sampled farms within the territory of the Branch Statistical Office the enumerator belongs to. Moreover, senior supervisors and statisticians who accomplish their assignment in the private peasant agricultural holdings enumeration were assigned as supervisors for quality control that includes spot check, re-interview, and check the consistence of information in the filled-in questionnaires...etc.

3.1 Training

Country experience indicates that it is essential to provide instruction manual and training for survey enumerators and supervisors in order to standardize procedures, secure common understanding of tasks to be performed and provide a reference guide during enumeration. Good data quality is assured when the training meets its objectives and the enumerators and supervisors show a sense of responsibilities and enthusiasm in the exercise of the survey operations.

However, due to their scattered location, and a number of technical and administrative reasons, the field data collection activities for commercial farms was planned to be carried out by senior supervisors. Accordingly, CSA organized a two stage training program that is a training of trainers and followed by training of supervisors. The first stage training was given at the CSA headquarter in Addis Ababa to the trainers consisting of professional staff from different departments at head office. The second stage training was wider in its scope, focusing on reviewing the details of the prepared survey documents and followed by discussions on the past survey experience that took place in 25 training centers located at CSA Branch Offices .

3.2 Method of enumeration

Commercial farms are expected to properly register and document each and every activity carried out in each and every plot of land mainly for administrative purpose. In line with this, the data collection of the year 2018/19(2011 E.C) Commercial farms sample survey was performed by interviewing the farm Owners/managers. The areas of these farms are directly measured by GPS except that of state owned farms whose areas are collected by interview.

4. Data processing

4.1 Editing, Coding and Verification

In the 2018/19(2011 E.C)Commercial farms sample survey; the filled-in forms retrieved from the Branch Statistical Offices were primarily received and systematically registered at the documentation unit of the CSA headquarters in Addis Ababa. Before launching the actual editing and coding activities, the Agriculture, Natural Resources, and Environment Statistics Directorate staff gave adequate training to 15 editors and coders who latter on carried out the manual editing, coding and verification of the filled-in Commercial farms questionnaires. The manual editing and coding activities of the filled-in forms were done region by region. To ensure the quality of the manual editing and coding work, verification of the completed questionnaires was carried out on 100% basis. For the total country, the editing, coding and verification of the filled-in forms for the commercial farms took 15 editors and about 14 working days.

4.2 Data Entry, Cleaning and Tabulation

About 15 data encoders were assigned to undertake the data entry activity of the 2018/19(2011 E.C) filled-in and edited questionnaires of the large and medium scale farms. Before starting the actual data entry

operation, data encoders were trained for about a half day using computer programs developed by the Data Processing Department staff. The Programmers prepared the data entry programs using CSPro.

The data entry exercise was carried out using 38 personal computers (PC's), and it was done region by region as in the case of the manual editing, coding and verification. In order to check the quality of the entered data, verification exercises were carried out. To this end verification activity, on 100% basis was carried out through the process of re-entering the data. For the total country, the whole data entry process of the filled-in forms on commercial farms took 38 entry clerks around 14 working days.

Data entered into the computer needs to be checked for completeness, consistency and validity. For this purpose, computer edit programs were prepared. Using printouts from these programs and referring to the original filled-in forms, corrections were made by trained manual data cleaning technicians. Moreover, other data-cleaning computer operators were involved in making the actual corrections of the data on the computer. Additionally, an intermediate set of instructions or programs were made available and applied on the data to prepare information suitable for tabulation. These programs were prepared using CSPro and IMPS software's. Like IMPS Software, CSPro is used as a tool for entering, editing and tabulating data. Data made ready for tabulation through the process of cleaning and intermediate programs was finally used to generate the required tables. This was done using tabulation programs developed by the senior programmers of the Data Processing Department.

5. Concepts and Definitions

Information on all items of agriculture is not useful until the items are distinctly defined and understood. The procedure of stating data items and related terms is a prerequisite for making standards and definitions for collection and compilation of agricultural data. The intent of using standard concepts and definitions is not only to provide quality data but also to ensure that the right items are enumerated and compiled accurately to reflect the agricultural situation. Standard concepts and definitions used in a survey setup provide clear linkages between various tables of the current and previous surveys and maintain consistent enumeration and measurement of variables of interest. To this end, the CSA has put a lot of efforts into communicating concepts and definitions to the survey field staff through training and instruction manuals. The concepts and definitions used in the census were made to conform to the FAO standard with a slight adaptation of a few of them to suit the agricultural situation in Ethiopia. The concepts and definitions used in commercial farms sample survey includes:-

Commercial Farms:- refers to certified (legally established) farms owned/operated by government, private investors, and/or shareholders, which are profit oriented large and medium scale farms. These farms relatively use capital intensive, mechanized and market oriented farming system, as well as

modern farm management practices and inputs such as irrigation scheme, fertilizers, pesticides . . . etc, to attain high productivity per unit of area.

Agriculture:- The growing of crops and/or raising of livestock for own consumption and/or sale.

Crop:- Includes Cereals, Pulses, Oilseeds, Vegetables, Root Crops, Fruits, Coffee, Inset, Chat, Hops, Sugar cane, Cotton, Tobacco ... etc. produced for food, making drinks, stimulation and making fabrics or clothing.

Crop Production:- The processes of growing and harvesting of the above crops for own consumption and/or sale.

Temporary Crops/Annual:- Annual temporary crops are crops which are grown in less than a year's time, sometimes only a few months with an objective to sow or replant again for additional production following the current harvest. Continuously grown crops planted in rotation are also considered as temporary crops since each is harvested and destroyed by plugging in preparation for each successive crop.

Permanent Crops:- crops which are grown and occupy land for a long period of time, not requiring replanting for several years after each harvest, are considered as permanent crops. All fruit trees (i.e. Oranges, Mandarin, Banana ...etc) and trees for beverages (i.e. Coffee, Tea, Hops...etc.) are considered permanent crops but meadows and pastures are excluded.

Meher (main) Season Crop:- any crop harvested between Meskerem (September) and Yekatit (February) is considered as Meher season crop.

Belg Season Crop:- any crop harvested during the months of March (Megabit) and August (Nehase) is considered to be Belg season crops.

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 organic and/or inorganic nutrients to the soil intended to increase the amount of plant nutrients available for crop growth. Usually, fertilizers are divided into two parts, natural and industrial. Examples of natural fertilizers are farmyard manure, wood ashes, etc, while industrial fertilizers are DAP (Di- Ammonium phosphate), UREA (Ammonium Nitrate), etc.

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

PART III

SUMMARY OF THE 2018/19(2011 E.C) LARGE AND MEDIUM SCALE COMMERCIAL FARMS SAMPLE SURVEY RESULTS

3.1 Introduction

The type of crops on which data were collected during the 2018/19(2011 E.C)commercial farms sample survey are those food crops that are used for domestic consumption and for export as well as those crops used as raw material for domestic agro-industries. Based on their biological classifications these crops are categorized into three major groups i.e. grains (which include cereals, pulses and oil crops), vegetables and root crops from the category of temporary crops and three major groups i.e. Fruit crops, Cash crops and industrial crops from the category of permanent crops. In this chapter of the report, discussions on major findings of the survey results on cropped area and production of temporary and permanent crops of Meher Season crops presented in Section 3.2, as obtained and summarized from the results of the 2018/19(2011 E.C).

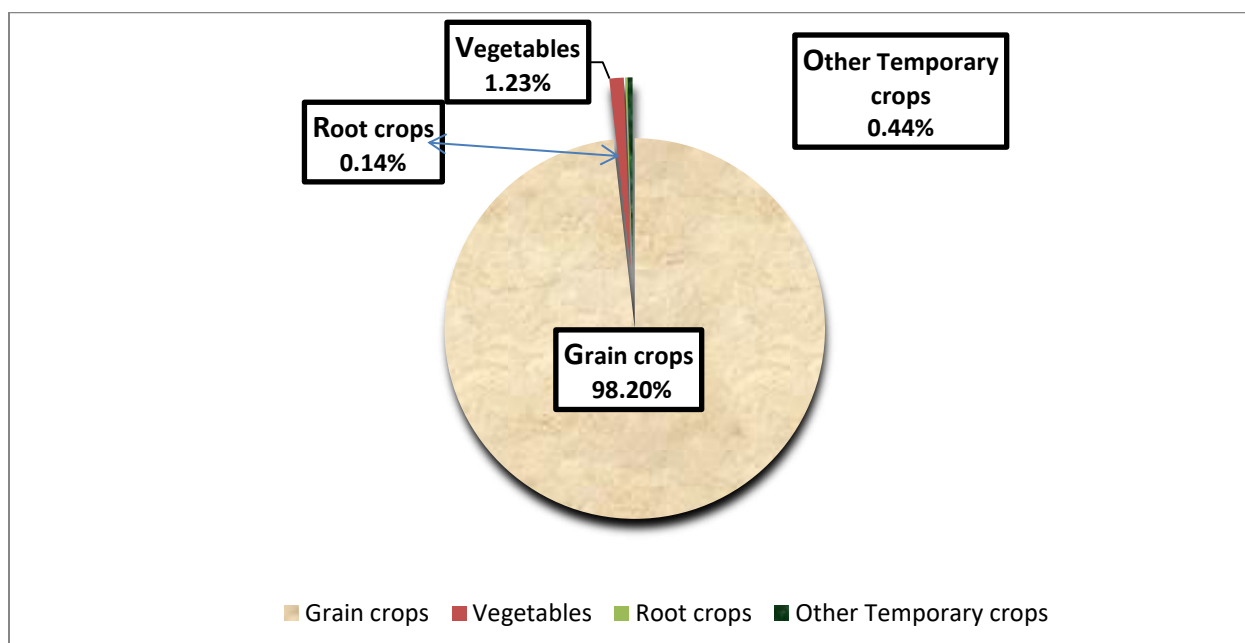
3.2 Maher Season' Total Cropland Area and Production of Temporary Crops

a)Grain Crops

Grain crops refer to the major crop categories that included cereals, pulses and oilseeds, which constituted the major food crops for the majority of the country's population. Besides being staple food crops, the production of grain crops in Ethiopia serves as a source of foreign currency earning that will be used as an input for all efforts being made to bring about sustainable economic growth in the country. In Ethiopia, therefore, the production of grain crops is the most widely spread crop production activity both in terms of

the extent of cropped land area and volume of production when compared with crops such as vegetable and root crops.

Fig 1. Percentages of Total Cropland Area By Major Crop Category Of Meher Season For Commercial Farms: Country Level, 2018/19(2011E.C)



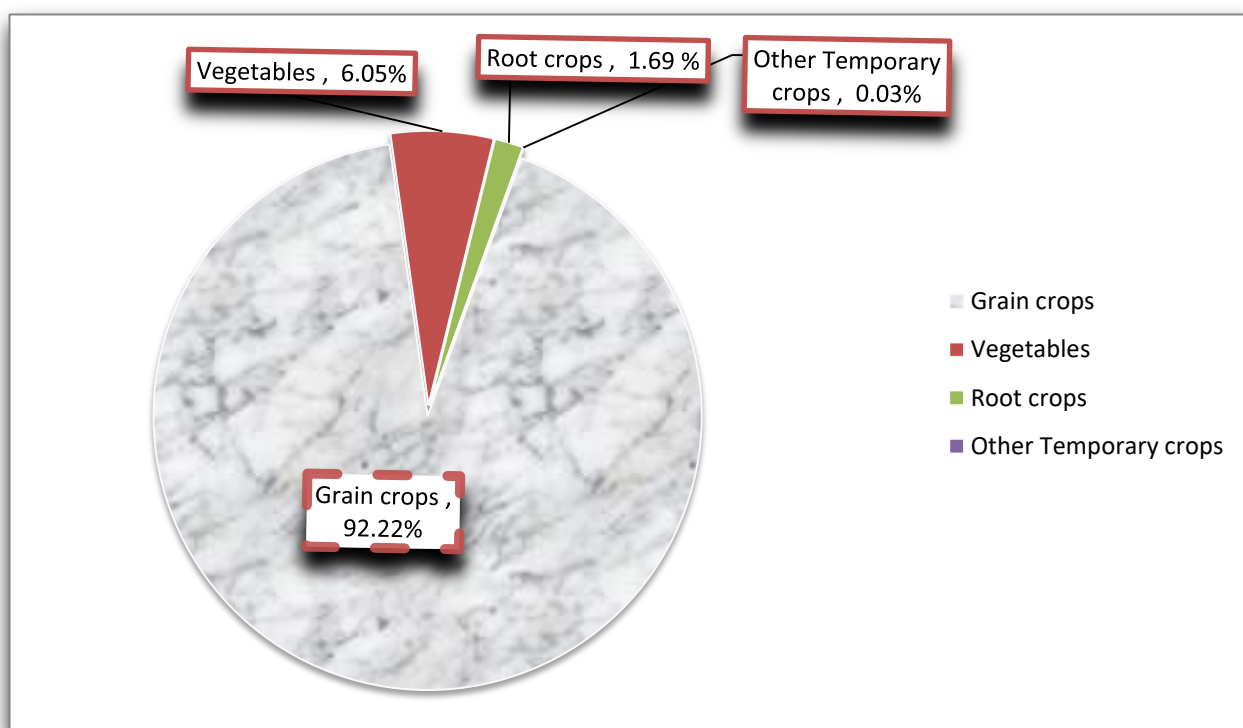
Summary Table 1. Estimates Of Total Cropland Area By Major Crop Category Of Meher Season For Commercial Farms: Country Level, 2018/19(2011 E.C)

Crop Type	Area In Hectare	Percentage
Grain Crops	648,604.39	98.20
Vegetables	8,099.96	1.23

Root Crops	945.07	0.14
Other Temporary Crops	2,874.60	0.44
All temporary crops	660,524.02	100.00

According to the results of the 2018/19(2011 E.C) Large and Medium Scale Commercial Farms sample survey, the total area covered by grain crops was found to be **648,604.39 hectares (98.20%** of the total country level temporary crops covered land area), from which a total of **13,559,381.08** quintals of production, (**92.22%** of the total country level production of temporary crops) was obtained during 2017/18(2010 EC) Meher season harvest. The results of this survey indicates that, both the cultivated land area and volume of production of grain crops obtained from crop production activity carried out during the 2018/19(2011 E.C)Meher Season, contributed the lion share.

Fig 2. Percentage distribution of Total Production Harvested by Major Crop Category and Meher Season for Commercial Farms: Country Level, 2018/19(2011 E.C)



Summary Table 2. Estimates of Total Production Harvested by Major Crop Category and Meher Season for Commercial Farms: Country Level, 2018/19(2011 E.C)

Crop Type	Production in quintals	Percentage
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Grain crops	13,559,381.08	92.22
Vegetables	890,245.20	6.05
Root crops	248,308.52	1.69
Other Temporary crops	4,876.25	0.03
All temporary crops	14702811.05	100.00

Moreover, as it has been mentioned earlier, cereals which are classified within the grain crops category, are also produced in greater volume compared to the other crops by commercial farms because they are the principal staple crops and export commodities. As a matter of fact, cereals are grown in almost all the survey covered commercial farms with notable variation in the extent of area planted and the volume of production obtained across farms. This variation is seemingly caused by a shift in choice of crops, difference in weather conditions and speculated market demand. As indicated in the Appendix iTable 2, cereals covered a total of **307,442.28** hectares of land area, from which a production of **10,060,303.34** was obtained during 2018/19(2011 E.C) Meher Season harvest. Similarly, pulses and oilseeds within the grain crops category are rich in their nutrient content and being used as essential part of the dietary

Requirement for Most Ethiopians. Above all pulses and oil crops form a significant commodity group of export that brings a considerable amount of foreign currency earnings for the country For the reasons mentioned above and a number of others, pulses and oil crops are grown widely by commercial farms in Ethiopia. Nevertheless, the extent of crop land area and volume of pulses and oil crops production in commercial farms show variation from one farm to another for the same reasons mentioned for cereals above. According to the results of the 2018/19(2011 E.C) commercial farms sample survey, pulses and oil crops covered a total land area of **54,907.68** and **286,254.43** hectares, from which a total production of **1,072,804.74** and **2,426,273.00** Quintals was obtained during the 2018/19(2011 E.C) Maher seasons harvest, respectively (For details see Table 2 in Appendix iv).

b, Vegetables

Vegetables are crops that are rich in vitamins necessary for the healthy growth of humans. Moreover, due to their high nutritional value vegetables do have ever rising demand both in local and foreign markets, and are classified among those export commodities' that generate considerable amount of foreign currency earnings to the country. As a matter of these facts commercial farms in Ethiopia used to grow vegetables over a considerable land area for years.

As indicated in Appendix iv Table 2, vegetables covered a total of **8,099.96** hectares of land from which a total volume of **890,245.20** Quintals were obtained in 2018/19(2011 E.C) by Meher Season's harvest

c, Root Crops

Production of **248,308.52** quintals was obtained from Meher season's harvest (Tables 1 in Appendix iv). Like that of grain crops the contribution of root crops such as potatoes and sweet potatoes for human consumption as food crops cannot be over emphasized. The majority of the population in Southern and South Western Ethiopia mainly depends on root crops for their daily food consumption. In addition to serving as food crop and staple food at the time of surplus and/or deficit production years, root crops yield industrial and pharmaceutical products. Moreover, it should be noted that root crops are also a good source of cash and foreign exchange. As the survey result indicates, the total area under root crops was found to be **945.07** hectares, from which a total Production of **248,308.52** quintals was obtained.

3.3 Cropland Area and Production of Permanent Crops

Permanent crops are long-term crops, which do not have to be replanted for several years after each harvest. These include tree crops such as coffee, enset, chat, oranges, mangoes, bananas, papayas, avocados...etc. It doesn't include cotton. The trees that yield oranges; mangoes, papayas, apples and other are known as fruit trees. Permanent crops are a good source of cash both for the farms and the country for generating income and foreign exchange. According to the survey result permanent crops covered a total land of **347,489.57** Hectares with a total production of **70,574,623.78** Quintals obtained from commercial farms during the year 2018/19(2011 E.C) Meher season harvest. These area and production for permanent crops does not include the values of cotton. For simplicity of description of the statistical tables and comparison purposes permanent crops have been grouped into three categories. The categories are fruit crops, cash/stimulant crops, industrial and other permanent crops

Summary Table 3. Estimates of total area harvested of Meher Season's permanent crops by major crop category for commercial farms: National Level 2018/19(2011 E.C)

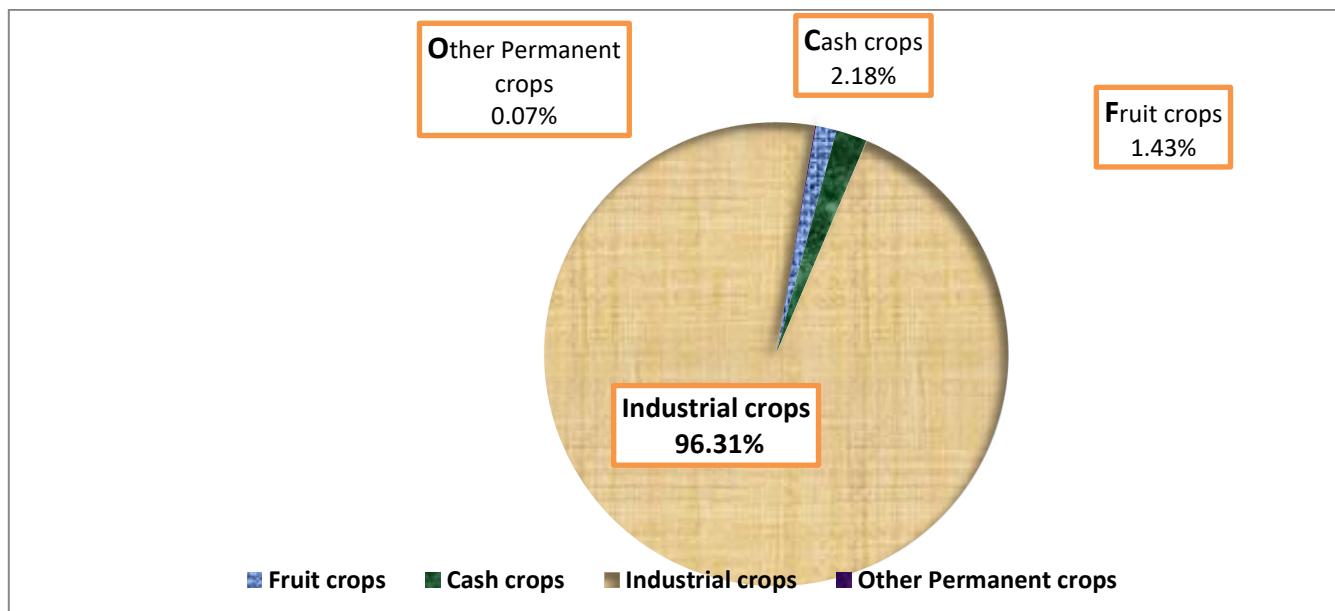
<i>Crop Type</i>	<i>Area in hectare</i>	<i>Percentage</i>
Fruit crops	7,827.20	2.25
Cash crops	113,749.68	32.73
Industrial crops	225,773.46	64.97
Other Permanent crops	139.23	0.04
<i>All permanent crops</i>	<i>347,489.57</i>	<i>100.00</i>

A Fruit Crops

Fruit production is relatively new to Ethiopian agricultural system, with commercial fruit production dating back to only about six decades. Therefore, most of the important fruits that are produced in commercial farms are recent introductions into the country. However, various kinds of fruit crops grow in different regions of the country yielding varying quantities of fruits within commercial farms. Summary of total area harvested of Meher Season's permanent crops by major crop category for commercial farms is illustrated in Summary Table 3 and in Fig 3.

As indicated in Summary Table 3, fruit crops covered a total area of **7,827.20**Hectares (**2.25%** of the total crop land area under permanent crops), with about **1009510.92**quintals of production (**1.43 %** of the total permanent crops production), during the 2018/19(2011 E.C)Meher Season harvest. Oranges, Mangoes and Bananas took the highest area and production share of fruit crops (See Table 2 in Appendix iv).

Fig 3 :-percentage distribution of area under permanent and industrial of permanent crops by major crop category for commercial farms: National Level 2018/19(2011 E.C)



B . Cash/Stimulant crops

Cash/stimulant crops include crops such as tea, coffee and chat considered as easily marketable at local and foreign markets. Commercial farms engaged in growing stimulant crops such as coffee and tea uses larger area with the objective of obtaining larger volume of production so as to earn considerable amount of cash in local and/or foreign currency. As indicated in Table 4 cash/stimulant crops were grown on an estimated total land area of **113,749.68** hectares, with a total production estimated at **1542006.14** quintals of production, contributing about **32.73%** and **2.18 %** to the total cropland area and production of permanent crops, respectively (For details see Summary Table 4).

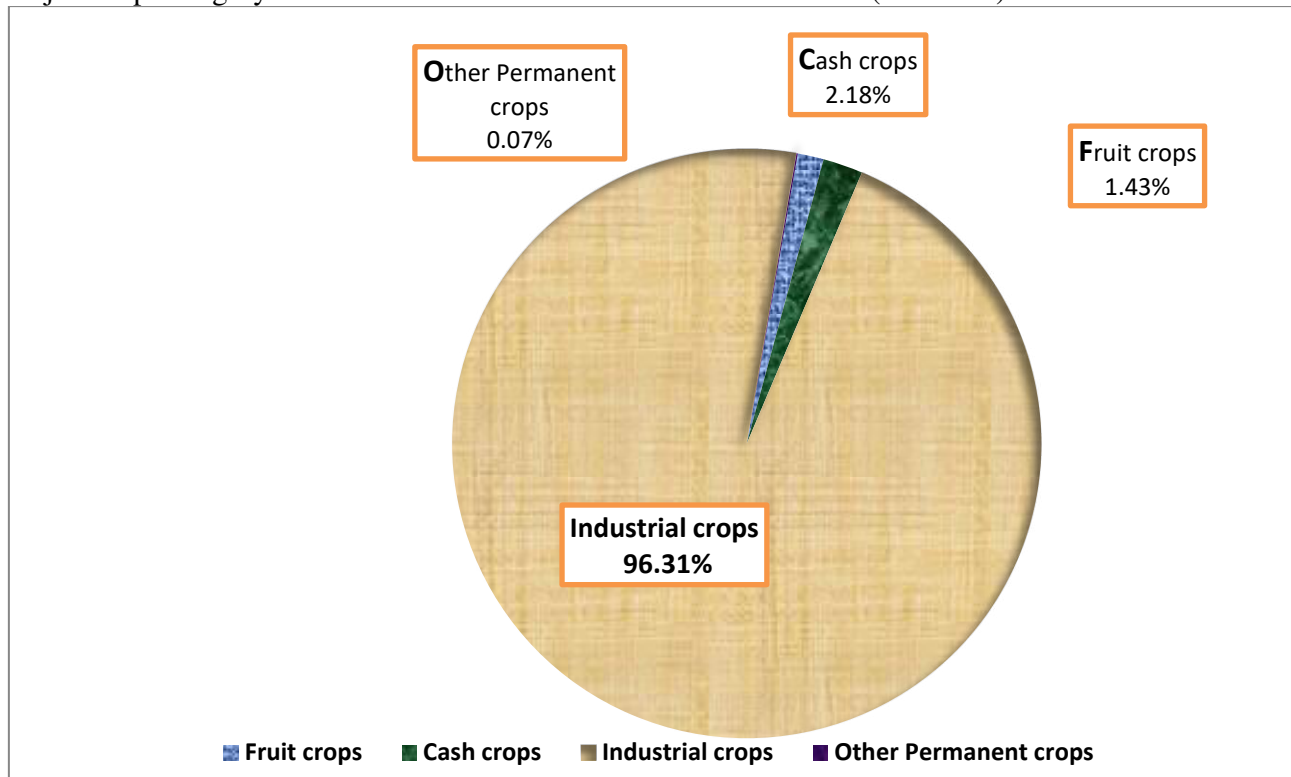
C Industrial Crops

Industrial crops refer to crops commonly used as raw material for domestic agro-industries, which include crops such as **cotton** and **sugarcane**. Industrial crops grown in commercial farms covered a total land area of **225,773.46** hectares (**64.97%** of the total area under permanent crops), with a total production of **67970369.56** Quintals (**96.31 %** of the total permanent crops production), during the 2018/19(2011 E.C) Meher Season harvest

Summary Table 4. Estimates of total production harvested of Meher Season's permanent crops by major crop category for commercial farms: *National Level 2018/19(2011 E.C)*

<i>Crop Type</i>	<i>production in quantals</i>	<i>Percentage</i>
Fruit crops	1009510.92	1.43
Cash crops	1542006.14	2.18
Industrial crops	67970369.56	96.31
Other Permanent crops	52737.16	0.07
<i>All permanent crops</i>	70574623.78	100.00

Fig4:-Percentage Distribution Of Of Production Under Permanent And Industrial Of Permanent Crops By Major Crop Category For Commercial Farms: National Level 2018/19(2011 E.C)



3.4 Comparison of the current year (2018/19) Grain Crops yield with last Year (2017/18), estimates.

Table A of the report attempts to compare area covered and total production estimates of selected important food crops obtained from the 2018/19(2011 E.C) commercial farms Survey with last year i.e. 2016/17(2010 E.C.) Area and crop production estimates of the same crops.

the estimated cropped land area obtained this year for grain crops shows increased by **1.06%** and grain crops production obtained have decreased by **2.39%** over last year 2016/17(2010 E.C.) Estimate.

Appendix I

Estimation Procedures of Tables, Ratios and sampling

Error

Large and medium Scale Commercial Farms

2018/19(2011 E.C)

The following formulas are used for estimation.

1. Estimating the total (For crop)

$$Y_h = \sum_{i=1}^{n_h} w_{hi} y_{hi}$$

In which

$$w_{hi} = \frac{M_h}{m_{hi} n_h} \text{ } ^h \text{Is the weight}$$

Where h = Represents region n_h = Total number of farms covered in the region

M_h = Measure of size of hth region which is the total area in that region for those selected with less than 1 probability.

M_{hi} = Total area for farm i in h^{th} region y_{hi} =

Total for the variable in i^{th} farm h^{th} region

2. Estimation for livestock

$$\hat{Y}_h = \sum w_{hi} y_{hi}$$

In which $w_{hi} = \frac{M_{hi}}{N_h}$ Is the weight

Where h = Represents

region N_h = Measure of

size for h^{th} region which

is total number of farms

having livestock in that

region from the frame.

n_h = Total number of farms with livestock covered in that region y_{hi}

= total for the variable in i^{th} farm h^{th} region

3. Estimating sampling variance

Sampling variance & estimate of stratum total are estimated by the

Following formula

$$\text{var}(\hat{Y}_h) = \frac{N_h}{n_h - 1} \sum_{i=1}^{n_h} Y_{hi}^2 - \frac{Y_h^2}{n_h}$$

4. Estimating coefficient of variation

Coefficient of variation (CV) of estimate of region total is given by $CV(\hat{Y}_h) = \frac{\sqrt{\text{var}(\hat{Y}_h)}}{\hat{Y}_h} \times 100\%$

Appendix II

Questionnaire

Large and medium Scale Commercial Farms

2017/18

Central Statistical Agency

Large and Medium Scale Commercial Farm Sample Survey

2018/19(2011 E.C)

CF-Form 2008/1. Part 1. Identification Particulars

1	2	3	4	5	6	7	8
<i>Region</i>	<i>Zone</i>	<i>Wereda</i>	<i>Farm name</i>	<i>Kebele</i>	<i>Farm Tenure</i> <i>State = 1 Priv</i> <i>Coops= 3 Ot</i>	<i>Type of Holding</i>	<i>Statistical Branch Office</i>

					ate= 2 her= 4	Crop only = 1 Livestock only=2 Both=3	

Season	Meher = 1 Belg , 2
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Part 2 :- Crop land area and Quantity production of Major crops 2018/19(2011 E.C)

1	2	3	4	5	6	7	8	9	10	
Sr. No	Crop Type	Code	Cropped Area		Production In Quintals	Yield (Qts/Ha)	Crop Damage Yes=1 No=2	Is there Crop Damage?		
			From Interview method (In Hectare)	From GPS Reading (In Hectare)				if Yes Reason	Code	Extent of Damage in Percent
1	Sesame	27								
2	Maize	02								
3	Sorghum	06								
4	Soyabens	12								
5	Nueg	25								
6	Suffflower	28								
7	Linsed	23								
8	Ground But	24								
9	Coffee	72								

Part 2:- Crop land area and Quantity production of Major crops 2018/19(2011 E.C)

1	2	3	4	5	6	7	8	9	10	
Sr. No	Crop Type	Code	Cropped Area		Production	Yield (Qts/Ha)	Crop	Is there Crop Damage?		

			<i>From Interview method (In Hectare)</i>	<i>From GPS Reading (In Hectare)</i>	<i>In Quintals</i>		<i>Damage Yes=1 No=2</i>	<i>If Yes Reason</i>	<i>Code</i>	<i>Extent of Damage in Percent</i>
10	<i>Sugar cane</i>	76								
11	<i>Teff</i>	07								
12	<i>Barely</i>	01								
13	<i>Wheat</i>	08								
14	<i>oats</i>	04								
15	<i>Rise</i>	05								
16	<i>Faba Beans</i>	13								
17	<i>Haricot Beans</i>	15								
18	<i>Soybeans</i>	18								
19	<i>Chick Pease</i>	11								
20	<i>Lentils</i>	14								
21	<i>Redpeper</i>	38								
22	<i>Fossella/Fajoli</i>	70								
23	<i>orange</i>	47								
24	<i>Banana</i>	42								
25	<i>Apple</i>	113								
26	<i>Grapes</i>	43								
27	<i>Others</i>									

Part 3- Information on Different Agricultural Practices 2018/19(2011 E.C)

1	2	3	4	5	6	7	8	9
SR. No.	Type of Farm Input	Code	Farm in put listed in Col. 2 Applied			Type of input Used		Production per Hectare
			Crop Name	Code	Field area in Hectare	Unit		
							Amount	

*Kilogram-
1 Litter= 2
Quintal =3
Other = 4*

Name

Signature

Date

Enumerator

Appendix III

Number of planned and covered

Large and medium Scale Commercial Farms

2018/19

Region	Number of	
	Planned	Covered
Tigray	510	504
Afar	39	32
Amhara	320	224
Oromya	330	323
Somali	34	14

Benishangul-Gumuz	146	137
SNNPR	331	236
Gambella	196	171
Harari	0	0
Addis Ababa	0	0
Dire Dawa	0	0
Total	1906	1641

Appendix IV

Statistical Table for

Large and medium Scale Commercial Farms 2018/19(2011 E.C)

**Table 1 Estimates of Cropland Area and Production of Crops For Commercial Farms, 2018/19(2011 E.C)and 2017/18(2010 E.C)Meher (Main) Season
Country (National)**

Crop Types	Cropland area in Hectare			Production in Quintals			Crop Productivity/ Yield (QTS/Ha)		
	2011	2010	% Change	2011	2010	% Change	2011	2010	% Change
Total.....	1,008,013.59	1,006,861.68	0.11	85,277,434.83	84,024,972.51	1.49			
Grain crops...	648,604.39	641,786.88	1.06	13,559,381.08	13,243,443.61	2.39			
Cereals...	307,442.28	296,529.01	3.68	10,060,303.34	9,702,259.60	3.69			
Teff.....	7,551.80	6,863.41	10.03	114,932.16	104,157.73	10.34	15.22	15.18	0.26
Barley.....	2,697.47	2,822.29	(4.42)	85,297.86	88,601.14	(3.73)	31.62	31.39	0.73
Wheat.....	103,186.94	94,631.04	9.04	3,424,785.49	3,148,323.56	8.78	33.19	33.27	(0.24)

Maize.....	91,086.73	88,777.83	2.60	3,825,123.66	3,747,248.59	2.08	41.99	42.21	(0.52)
Sorghum.....	100,158.34	99,622.11	0.54	2,539,679.68	2,499,257.68	1.62	25.36	25.09	1.08
Finger millet	399.96	816.58	(51.02)	7,700.02	35,337.87	(78.21)	19.25	43.28	(55.52)
Oats / 'Aja'...	-	-	#VALUE!	-	-	#VALUE!	-	-	#VALUE!
Rice.....	2,361.04	2,995.76	(21.19)	62,784.47	79,333.02	(20.86)	26.59	26.48	0.42
Pulse	54,907.68	58,762.33	(6.56)	1,072,804.74	1,111,722.30	(3.50)			#DIV/0!
Horse / Faba beans	487.17	825.30	(40.97)	13,188.88	19,090.67	(30.91)	27.07	23.13	17.03
Field Peas...	185.63	144.72	28.27	2,812.61	2,222.43	26.56	15.15	15.36	(1.37)
W/Haricot bean	10,286.37	10,472.03	(1.77)	228,862.88	229,056.89	(0.08)	22.25	21.87	1.74
R/Haricot bean...	3,759.22	5,252.01	(28.42)	7,085.44	9,089.68	(22.05)	1.88	1.73	8.67
B/Haricot bean...	-	-	#VALUE!	-	-	#VALUE!	-	-	#VALUE!
Chick peas...	8,297.33	8,206.75	1.10	134,867.38	133,101.69	1.33	16.25	16.22	0.18
Lentils...	84.09	70.27	19.67	1,393.63	1,164.70	19.66	16.57	16.57	-
Vetch / Grass peas	383.34	382.28	0.28	6,732.08	6,718.40	0.20	17.56	17.57	(0.06)
Soya beans	25,557.59	25,374.64	0.72	635,324.16	632,170.74	0.50	24.86	24.91	(0.20)
Fenugreek...	7.60	551.00	(98.62)	30.40	7,759.79	(99.61)	4.00	14.08	(71.59)
Mung bean/"Masho"	5,859.33	7,483.32	(21.70)	42,507.28	71,347.32	(40.42)	7.25	9.53	(23.92)
Gibto.....	-	-	#VALUE!	-	-	#VALUE!	-	-	#VALUE!
Oilseeds...	286,254.43	286,495.54	(0.08)	2,426,273.00	2,429,461.71	(0.13)			#DIV/0!
Niger seed/neug/	542.17	845.92	(35.91)	5,739.91	11,629.94	(50.65)	10.59	13.75	(22.98)
Linseed.....	202.04	402.46	(49.80)	4,483.21	8,932.93	(49.81)	22.19	22.20	(0.05)
Groundnuts...	842.37	1,516.48	(44.45)	13,951.97	24,738.30	(43.60)	16.56	16.31	1.53
Safflower.....	1,042.02	967.22	7.73	3,504.05	2,525.10	38.77	3.36	2.61	28.74
Sesame.....	279,710.30	278,870.17	0.30	2,319,838.81	2,313,201.93	0.29	8.29	8.29	-
Rape seed...	3,915.53	3,893.29	0.57	78,755.05	68,433.52	15.08	20.11	17.58	14.39
Vegetables.....	8,099.96	8,879.19	(8.78)	890,245.20	1,046,769.43	(14.95)			#DIV/0!
Lettuce.....	285.46	230.95	23.60	84,229.62	68,093.45	23.70	295.07	294.84	0.08
Head cabbage	20.05	265.54	(92.45)	5,370.50	61,311.86	(91.24)	267.86	230.90	16.01
Ethiopian cabbage	8.99	5.26	70.91	537.48	370.20	45.19	59.79	70.38	(15.05)
Tomatoes	1,662.15	1,699.46	(2.20)	536,084.49	615,756.37	(12.94)	322.52	362.32	(10.98)
Green peppers	232.44	240.16	(3.21)	43,111.80	44,468.13	(3.05)	185.47	185.16	0.17
Red peppers	5,890.87	6,437.81	(8.50)	220,911.31	256,769.42	(13.97)	37.50	39.88	(5.97)
Swiss chard	-	-	#VALUE!	-	-	#VALUE!	-	-	#VALUE!
Root crops...	945.07	1,250.82	(24.44)	248,308.52	318,155.46	(21.95)			#DIV/0!
Beetroot	-	3.11	#VALUE!	-	265.66	#VALUE!	-	85.42	#VALUE!
Carrot	11.52	11.64	(1.03)	2,530.95	2,541.17	(0.40)	219.70	218.31	0.64
Onion.....	846.10	1,086.26	(22.11)	226,247.96	284,465.76	(20.47)	267.40	261.88	2.11
Potatoes	76.75	140.71	(45.46)	16,836.57	30,821.38	(45.37)	219.37	219.04	0.15
Garlic...	7.70	9.10	(15.38)	2,112.00	61.48	3,335.26	274.29	6.76	3,957.54
Taro 'Goder	-	-	#VALUE!	-	-	#VALUE!	-	-	#VALUE!
Sweet potatoes	3.00	-	#VALUE!	581.04	-	#VALUE!	193.68	-	#VALUE!
Other Temporary crops	2,874.60	8,438.66	(65.94)	4,876.25	466,885.18	(98.96)			#DIV/0!
Permanent crops	347,489.57	346,506.13	0.28	70,574,623.78	68,949,718.83	2.36			#DIV/0!
Fruit crops...	7,827.20	7,428.64	5.37	1,009,510.92	986,662.59	2.32			#DIV/0!

Avocado	217.44	144.07	50.93	18,682.91	12,081.72	54.64	85.92	83.86	2.46
Bananas...	2,121.24	2,081.49	1.91	179,790.29	176,348.54	1.95	84.76	84.72	0.05
Guava.....	0.76	0.76	-	30.40	30.55	(0.49)	40.00	40.20	(0.50)
Lemons.....	8.19	22.10	(62.94)	896.46	2,321.61	(61.39)	109.46	105.05	4.20
Mangoes	2,624.16	2,328.27	12.71	232,907.15	196,126.06	18.75	88.75	84.24	5.35
Oranges	2,269.60	2,246.63	1.02	328,465.32	324,959.01	1.08	144.72	144.64	0.06
Papayas	548.39	568.04	(3.46)	248,133.50	274,192.50	(9.50)	452.48	482.70	(6.26)
Pineapples...	37.42	37.28	0.38	604.88	602.60	0.38	16.16	16.16	-
Cash crops...	339,523.14	336,461.54	0.91	69,512,375.70	67,726,794.81	2.64			#DIV/0!
Chat.....	1.30	10.23	(87.29)	17.32	4,188.44	(99.59)	13.32	409.43	(96.75)
Coffee.....	106,803.50	106,843.71	(0.04)	793,564.99	794,124.04	(0.07)	7.43	7.43	-
Tea	6,944.88	6,952.34	(0.11)	748,423.83	749,813.57	(0.19)	107.77	107.85	(0.07)
Hops / 'Gesho'	-	-	#VALUE!	-	-	#VALUE!	-	-	#VALUE!
Enset	-	0.29	#VALUE!	-	0.11	#VALUE!	-	0.38	#VALUE!
Sugar cane	52,801.54	51,704.17	2.12	64,585,595.77	62,836,576.64	2.78	1,223.18	1,215.31	0.65
Cotton	172,971.92	170,950.80	1.18	3,384,773.79	3,342,092.02	1.28	19.57	19.55	0.10
Other Permanent crops	139.23	2,615.95	(94.68)	52,737.16	236,261.43	(77.68)	378.78	90.32	319.38

Table 1 Estimate of Cropland Area and Production of Commercial Farms, 2011E.C. (2018/19) National

	Area		Production		Yield
	Hectares	%	Quintals	%	QT/HA
Total	1,008,013.59	100.00	85,277,434.83	100.00	
Grains	648,604.39	64.34	13,559,381.08	15.90	
Cereals	307,442.28	30.50	10,060,303.34	11.80	
Teff	7,551.80	0.75	114,932.16	0.13	15.22
Barley	2,697.47	0.27	85,297.86	0.10	31.62
Wheat	103,186.94	10.24	3,424,785.49	4.02	33.19
Maize	91,086.73	9.04	3,825,123.66	4.49	41.99
Sorghum	100,158.34	9.94	2,539,679.68	2.98	25.36
Finger millet	399.96	0.04	7,700.02	0.01	19.25
Oats/'Aja'	-	-	-	-	-
Rice	2,361.04	0.23	62,784.47	0.07	26.59
Pulse	54,907.68	5.45	1,072,804.74	1.26	
Horse/Faba beans	487.17	0.05	13,188.88	0.02	27.07
Field peas	185.63	0.02	2,812.61	-	15.15
W/Haricot bean	10,286.37	1.02	228,862.88	0.27	22.25
R/Haricot bean	3,759.22	0.37	7,085.44	0.01	1.88
B/Haricot bean	-	-	-	-	-
Chick peas	8,297.33	0.82	134,867.38	0.16	16.25

Lentiles	84.09	0.01	1,393.63	-	16.57
Vetch/Grass peas	383.34	0.04	6,732.08	0.01	17.56
Soya beans	25,557.59	2.54	635,324.16	0.75	24.86
Fenugreek	7.60	-	30.40	-	4.00
Mung bean/"Masho"	5,859.33	0.58	42,507.28	0.05	7.25
Gibto	-	-	-	-	-
Oile seeds	286,254.43	28.40	2,426,273.00	2.85	
Nueg	542.17	0.05	5,739.91	0.01	10.59
Linseed	202.04	0.02	4,483.21	0.01	22.19
Ground nuts	842.37	0.08	13,951.97	0.02	16.56
Safflower	1,042.02	0.10	3,504.05	-	3.36
Sesame	279,710.30	27.75	2,319,838.81	2.72	8.29
Rapeseed	3,915.53	0.39	78,755.05	0.09	20.11
Vegetables	8,099.96	0.80	890,245.20	1.04	
Lettuce	285.46	0.03	84,229.62	0.10	295.07
Head Cabbage	20.05	-	5,370.50	0.01	267.86
Ethiopian Cabbage	8.99	-	537.48	-	59.79
Tomatoes	1,662.15	0.16	536,084.49	0.63	322.52
Green peppers	232.44	0.02	43,111.80	0.05	185.47
Red papers	5,890.87	0.58	220,911.31	0.26	37.50
Swiss chard	-	-	-	-	-
Root crops	945.07	0.09	248,308.52	0.29	
Beet root	-	-	-	-	-
Carrot	11.52	-	2,530.95	-	219.70
Onion	846.10	0.08	226,247.96	0.27	267.40
Potatoes	76.75	0.01	16,836.57	0.02	219.37
Garlic	7.70	-	2,112.00	-	274.29
Taro/'Godere'/	-	-	-	-	-
Sweet potatoes	3.00	-	581.04	-	193.68
Other Temporary	2,874.60	0.29	4,876.25	0.01	
Permanent crops	347,489.57	34.47	70,574,623.78	82.76	
Fruit crops	7,827.20	0.78	1,009,510.92	1.18	
Avocado	217.44	0.02	18,682.91	0.02	85.92
Bananas	2,121.24	0.21	179,790.29	0.21	84.76
Guava/'Zeytun'/	0.76	-	30.40	-	40.00
Lemons	8.19	-	896.46	-	109.46
Mangos	2,624.16	0.26	232,907.15	0.27	88.75
Oranges	2,269.60	0.23	328,465.32	0.39	144.72
Papayas	548.39	0.05	248,133.50	0.29	452.48
Pineapples	37.42	-	604.88	-	16.16
Cash crops	339,523.14	33.68	69,512,375.70	81.51	
Chat	1.30	-	17.32	-	13.32
Coffee	106,803.50	10.60	793,564.99	0.93	7.43
Tea	6,944.88	0.69	748,423.83	0.88	107.77

Hopes/'Gesho'/	-	-	-	-	-
Enset	-	-	-	-	-
Sugar cane	52,801.54	5.24	64,585,595.77	75.74	1,223.18
Cotton	172,971.92	17.16	3,384,773.79	3.97	19.57
Other permanent crops	139.23	0.01	52,737.16	0.06	378.78

**Table 1 Estimate of Cropland Area and Production of Commercial Farms, 2011E.C.
(2018/19) Tigray**

	Area		Production		Yield
	Hectares	%	Quintals	%	QT/HA
Total	205,494.48	100.00	2,663,929.19	100.00	
Grains	191,818.38	93.34	2,490,580.16	93.49	
Cereals	45,211.92	22.00	1,207,917.80	45.34	
Teff	213.79	0.10	3,391.52	0.13	15.86
Barley	1,026.00	0.50	30,680.82	1.15	29.90
Wheat	44.48	0.02	1,962.55	0.07	44.12
Maize	90.54	0.04	2,657.73	0.10	29.35
Sorghum	43,837.11	21.33	1,169,225.19	43.89	26.67
Finger millet	-	-	-	-	-
Oats/'Aja'/	-	-	-	-	-
Rice	-	-	-	-	-
Pulse	1,835.67	0.89	647.75	0.02	
Horse/Faba beans	-	-	-	-	-
Field peas	-	-	-	-	-
W/Haricot bean	-	-	-	-	-
R/Haricot bean	-	-	-	-	-
B/Haricot bean	-	-	-	-	-
Chick peas	2.34	-	41.62	-	17.79
Lentiles	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-
Soya beans	-	-	-	-	-
Fenugreek	-	-	-	-	-
Mung bean/"Masho"	1,833.33	0.89	606.13	0.02	0.33
Gibto	-	-	-	-	-
Oile seeds	144,770.79	70.45	1,282,014.61	48.12	
Nueg	-	-	-	-	-
Linseed	-	-	-	-	-
Ground nuts	-	-	-	-	-
Safflower	82.35	0.04	1,227.86	0.05	14.91

Sesame	144,688.44	70.41	1,280,786.75	48.08	8.85
Rapeseed	-	-	-	-	-
Vegetables	344.24	0.17	17,935.09	0.67	
Lettuce	0.46	-	302.82	0.01	658.30
Head Cabbage	-	-	-	-	-
Ethiopian Cabbage	-	-	-	-	-
Tomatoes	275.64	0.13	-	-	-
Green peppers	68.15	0.03	17,632.27	0.66	258.73
Red papers	-	-	-	-	-
Swiss chard	-	-	-	-	-
Root crops	210.91	0.10	70,925.12	2.66	
Beet root	-	-	-	-	-
Carrot	-	-	-	-	-
Onion	207.91	0.10	70,344.08	2.64	338.34
Potatoes	-	-	-	-	-
Garlic	-	-	-	-	-
Taro/'Godere'/	-	-	-	-	-
Sweet potatoes	3.00	-	581.04	0.02	193.68
Other Temporary	2.89	-	844.25	0.03	
Permanent crops	13,118.06	6.38	83,644.57	3.14	
Fruit crops	297.39	0.14	13,452.31	0.50	
Avocado	14.74	0.01	623.20	0.02	42.28
Bananas	-	-	-	-	-
Guava/'Zeytun'/	-	-	-	-	-
Lemons	8.13	-	882.66	0.03	108.57
Mangos	200.58	0.10	8,807.30	0.33	43.91
Oranges	73.83	0.04	3,121.62	0.12	42.28
Papayas	0.10	-	17.52	-	175.20
Pineapples	-	-	-	-	-
Cash crops	12,814.47	6.24	69,041.52	2.59	
Chat	-	-	-	-	-
Coffee	-	-	-	-	-
Tea	-	-	-	-	-
Hopes/'Gesho'/	-	-	-	-	-
Enset	-	-	-	-	-
Sugar cane	-	-	-	-	-
Cotton	12,814.47	6.24	69,041.52	2.59	5.39
Other permanent crops	6.20	-	1,150.74	0.04	185.60

Table 1 Estimate of Cropland Area and Production of Commercial Farms, 2011E.C.

(2018/19) Afar

	Area		Production		Yield
	Hectares	%	Quintals	%	QT/HA
Total	70,317.11	100.00	2,014,611.19	100.00	
Grains	3,863.43	5.49	120,040.20	5.96	
Cereals	3,456.83	4.92	116,710.15	5.79	
Teff	-	-	-	-	-
Barley	-	-	-	-	-
Wheat	2,422.88	3.45	72,871.81	3.62	30.08
Maize	1,033.95	1.47	43,838.33	2.18	42.40
Sorghum	-	-	-	-	-
Finger millet	-	-	-	-	-
Oats/'Aja'/	-	-	-	-	-
Rice	-	-	-	-	-
Pulse	-	-	-	-	-
Horse/Faba beans	-	-	-	-	-
Field peas	-	-	-	-	-
W/Haricot bean	-	-	-	-	-
R/Haricot bean	-	-	-	-	-
B/Haricot bean	-	-	-	-	-
Chick peas	-	-	-	-	-
Lentiles	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-
Soya beans	-	-	-	-	-
Fenugreek	-	-	-	-	-
Mung bean/"Masho"	-	-	-	-	-
Gibto	-	-	-	-	-
Oile seeds	406.60	0.58	3,330.05	0.17	
Nueg	-	-	-	-	-
Linseed	-	-	-	-	-
Ground nuts	-	-	-	-	-
Safflower	-	-	-	-	-
Sesame	406.60	0.58	3,330.05	0.17	8.19
Rapeseed	-	-	-	-	-
Vegetables	7.31	0.01	4,181.52	0.21	
Lettuce	-	-	-	-	-
Head Cabbage	-	-	-	-	-
Ethiopian Cabbage	-	-	-	-	-
Tomatoes	7.31	0.01	4,181.52	0.21	572.03

Green peppers	-	-	-	-	-
Red papers	-	-	-	-	-
Swiss chard	-	-	-	-	-
Root crops	6.61	0.01	1,200.42	0.06	
Beet root	-	-	-	-	-
Carrot	-	-	-	-	-
Onion	6.61	0.01	1,200.42	0.06	181.61
Potatoes	-	-	-	-	-
Garlic	-	-	-	-	-
Taro/'Godere'/	-	-	-	-	-
Sweet potatoes	-	-	-	-	-
Other Temporary	-	-	-	-	
Permanent crops	66,439.76	94.49	1,889,189.05	93.77	
Fruit crops	127.64	0.18	11,434.35	0.57	
Avocado	-	-	-	-	-
Bananas	-	-	-	-	-
Guava/'Zeytun'/	-	-	-	-	-
Lemons	-	-	-	-	-
Mangos	7.94	0.01	213.64	0.01	26.91
Oranges	119.70	0.17	11,220.72	0.56	93.74
Papayas	-	-	-	-	-
Pineapples	-	-	-	-	-
Cash crops	66,295.78	94.28	1,873,616.39	93.00	
Chat	-	-	-	-	-
Coffee	-	-	-	-	-
Tea	-	-	-	-	-
Hopes/'Gesho'/	-	-	-	-	-
Inset	-	-	-	-	-
Sugar cane	9,327.41	13.26	362,675.27	18.00	38.88
Cotton	56,968.37	81.02	1,510,941.13	75.00	26.52
Other permanent crops	16.34	0.02	4,138.31	0.21	253.26

Table 1 Estimate of Cropland Area and Production of Commercial Farms, 2011E.C. (2018/19) Amhara

	Area		Production		Yield
	Hectares	%	Quintals	%	QT/HA
Total	193,462.39	100.00	3,111,142.17	100.00	
Grains	178,910.32	92.48	2,754,439.79	88.53	
Cereals		29.30			

	56,683.82		1,759,789.20	56.56	
Teff	3,202.52	1.66	49,396.66	1.59	15.42
Barley	589.93	0.30	20,700.50	0.67	35.09
Wheat	3,641.38	1.88	72,341.81	2.33	19.87
Maize	15,751.04	8.14	807,740.57	25.96	51.28
Sorghum	33,373.59	17.25	807,456.39	25.95	24.19
Finger millet	125.36	0.06	2,153.27	0.07	17.18
Oats/'Aja'/	-	-	-	-	-
Rice	-	-	-	-	-
Pulse	19,114.12	9.88	252,888.22	8.13	
Horse/Faba beans	-	-	-	-	-
Field peas	-	-	-	-	-
W/Haricot bean	2,446.58	1.26	4,560.03	0.15	1.86
R/Haricot bean	2,665.00	1.38	6,822.90	0.22	2.56
B/Haricot bean	-	-	-	-	-
Chick peas	4,948.47	2.56	87,560.67	2.81	17.69
Lentils	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-
Soya beans	7,071.47	3.66	150,912.23	4.85	21.34
Fenugreek	7.60	-	30.40	-	4.00
Mung bean/"Masho"	1,975.00	1.02	3,002.00	0.10	1.52
Gibto	-	-	-	-	-
Oil seeds	103,112.38	53.30	741,762.37	23.84	
Nueg	133.33	0.07	1,202.64	0.04	9.02
Linseed	-	-	-	-	-
Ground nuts	111.67	0.06	2,378.34	0.08	21.30
Safflower	64.20	0.03	996.53	0.03	15.52
Sesame	102,777.08	53.13	726,784.86	23.36	7.07
Rapeseed	26.10	0.01	10,400.00	0.33	398.47
Vegetables	651.11	0.34	75,235.07	2.42	
Lettuce	-	-	-	-	-
Head Cabbage	0.35	-	36.00	-	102.86
Ethiopian Cabbage	1.90	-	189.24	0.01	99.60
Tomatoes	60.00	0.03	15,993.00	0.51	266.55
Green peppers	14.63	0.01	1,665.18	0.05	113.82
Red papers	574.24	0.30	57,351.65	1.84	99.87
Swiss chard	-	-	-	-	-

Root crops	111.64	0.06	25,177.45	0.81	
Beet root	-	-	-	-	-
Carrot	-	-	-	-	-
Onion	103.75	0.05	23,025.06	0.74	221.93
Potatoes	0.19	-	40.39	-	212.58
Garlic	7.70	-	2,112.00	0.07	274.29
Taro/'Godere'/	-	-	-	-	-
Sweet potatoes	-	-	-	-	-
Other Temporary	-	-	-	-	
Permanent crops	13,789.32	7.13	256,289.86	8.24	
Fruit crops	791.62	0.41	98,116.18	3.15	
Avocado	-	-	-	-	-
Bananas	101.00	0.05	11,000.87	0.35	108.92
Guava/'Zeytun'/	0.76	-	30.40	-	40.00
Lemons	0.06	-	13.79	-	229.83
Mangos	545.92	0.28	52,385.72	1.68	95.96
Oranges	88.54	0.05	13,675.04	0.44	154.45
Papayas	55.34	0.03	21,010.35	0.68	379.66
Pineapples	-	-	-	-	-
Cash crops	12,997.70	6.72	158,173.68	5.08	
Chat	-	-	-	-	-
Coffee	-	-	-	-	-
Tea	-	-	-	-	-
Hopes/'Gesho'/	-	-	-	-	-
inset	-	-	-	-	-
Sugar cane	15.20	0.01	18,641.28	0.60	1,226.40
Cotton	12,982.50	6.71	139,532.40	4.48	10.75
Other permanent crops	-	-	-	-	-

Table 1 Estimate of Cropland Area and Production of Commercial Farms, 2011E.C. (2018/19) Oromia

	Area		Production		Yield
	Hectares	%	Quintals	%	QT/HA
Total	275,844.75	100.00	71,466,491.91	100.00	
Grains	169,586.23	61.48	5,158,798.84	7.22	
Cereals	144,080.03	52.23	4,814,764.04	6.74	
Teff	1,379.20	0.50	25,988.09	0.04	18.84

Barley	985.25	0.36	31,275.01	0.04	31.74
Wheat	94,769.42	34.36	3,120,887.63	4.37	32.93
Maize	37,916.13	13.75	1,256,790.66	1.76	33.15
Sorghum	8,686.99	3.15	371,295.34	0.52	42.74
Finger millet	274.60	0.10	5,546.75	0.01	20.20
Oats/'Aja'/	-	-	-	-	-
Rice	68.44	0.02	2,980.57	-	43.55
Pulse	11,479.21	4.16	187,038.43	0.26	
Horse/Faba beans	487.17	0.18	13,188.88	0.02	27.07
Field peas	183.12	0.07	2,674.67	-	14.61
W/Haricot bean	2,500.20	0.91	3,091.76	-	1.24
R/Haricot bean	1,094.07	0.40	262.50	-	0.24
B/Haricot bean	-	-	-	-	-
Chick peas	626.45	0.23	12,561.47	0.02	20.05
Lentiles	75.00	0.03	1,242.72	-	16.57
Vetch/Grass peas	-	-	-	-	-
Soya beans	6,513.20	2.36	154,016.43	0.22	23.65
Fenugreek	-	-	-	-	-
Mung bean/"Masho"	-	-	-	-	-
Gibto	-	-	-	-	-
Oile seeds	14,026.99	5.09	156,996.37	0.22	
Nueg	408.84	0.15	4,537.27	0.01	11.10
Linseed	202.04	0.07	4,483.21	0.01	22.19
Ground nuts	523.87	0.19	7,511.61	0.01	14.34
Safflower	24.70	0.01	92.95	-	3.76
Sesame	8,978.11	3.25	72,016.27	0.10	8.02
Rapeseed	3,889.43	1.41	68,355.05	0.10	17.57
Vegetables	5,509.71	2.00	707,960.90	0.99	
Lettuce	285.00	0.10	83,926.80	0.12	294.48
Head Cabbage	3.82	-	1,373.45	-	359.54
Ethiopian Cabbage	-	-	-	-	-
Tomatoes	1,291.15	0.47	510,831.80	0.71	395.64
Green peppers	85.80	0.03	10,917.82	0.02	127.25
Red papers	3,843.93	1.39	100,911.03	0.14	26.25
Swiss chard	-	-	-	-	-
Root crops	346.41	0.13	90,217.23	0.13	

Beet root	-	-	-	-	-
Carrot	11.52	-	2,530.95	-	219.70
Onion	297.39	0.11	79,437.63	0.11	267.12
Potatoes	37.50	0.01	8,248.65	0.01	219.96
Garlic	-	-	-	-	-
Taro/'Godere'/	-	-	-	-	-
Sweet potatoes	-	-	-	-	-
Other Temporary	2,779.88	1.01	3,581.20	0.01	
Permanent crops	97,622.52	35.39	65,505,933.74	91.66	
Fruit crops	4,232.30	1.53	656,121.25	0.92	
Avocado	45.60	0.02	3,800.00	0.01	83.33
Bananas	97.91	0.04	8,362.24	0.01	85.41
Guava/'Zeytun'/	-	-	-	-	-
Lemons	-	-	-	-	-
Mangos	1,707.35	0.62	133,813.78	0.19	78.38
Oranges	1,925.48	0.70	291,114.03	0.41	151.19
Papayas	455.96	0.17	219,031.20	0.31	480.37
Pineapples	-	-	-	-	-
Cash crops	93,386.37	33.85	64,849,562.77	90.74	
Chat	-	-	-	-	-
Coffee	46,712.98	16.93	395,223.75	0.55	8.46
Tea	1,500.24	0.54	225,373.55	0.32	150.22
Hopes/'Gesho'/	-	-	-	-	-
Enset	-	-	-	-	-
Sugar cane	43,458.93	15.75	64,204,279.22	89.84	1,477.36
Cotton	1,714.22	0.62	24,686.24	0.03	14.40
Other permanent crops	3.85	-	249.72	-	64.86

Table 1 Estimate of Cropland Area and Production of Commercial Farms, 2011E.C. (2018/19)Somale

	Area		Production		Yield
	Hectares	%	Quintals	%	QT/HA
Total	411.54	100.00	74,965.20	100.00	
Grains	411.54	100.00	74,965.20	100.00	
Cereals	411.54	100.00	74,965.20	100.00	
Teff	-	-	-	-	-

Barley	-	-	-	-	-
Wheat	352.94	85.76	36,684.00	48.93	103.94
Maize	-	-	-	-	-
Sorghum	58.60	14.24	38,281.20	51.07	653.26
Finger millet	-	-	-	-	-
Oats/'Aja'/	-	-	-	-	-
Rice	-	-	-	-	-
Pulse	-	-	-	-	-
Horse/Faba beans	-	-	-	-	-
Field peas	-	-	-	-	-
W/Haricot bean	-	-	-	-	-
R/Haricot bean	-	-	-	-	-
B/Haricot bean	-	-	-	-	-
Chick peas	-	-	-	-	-
Lentiles	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-
Soya beans	-	-	-	-	-
Fenugreek	-	-	-	-	-
Mung bean/"Masho"	-	-	-	-	-
Gibto	-	-	-	-	-
Oile seeds	-	-	-	-	-
Nueg	-	-	-	-	-
Linseed	-	-	-	-	-
Ground nuts	-	-	-	-	-
Safflower	-	-	-	-	-
Sesame	-	-	-	-	-
Rapeseed	-	-	-	-	-
Vegetables	-	-	-	-	-
Lettuce	-	-	-	-	-
Head Cabbage	-	-	-	-	-
Ethiopian Cabbage	-	-	-	-	-
Tomatoes	-	-	-	-	-
Green peppers	-	-	-	-	-
Red papers	-	-	-	-	-
Swiss chard	-	-	-	-	-
Root crops	-	-	-	-	-
Beet root	-	-	-	-	-
Carrot	-	-	-	-	-
Onion	-	-	-	-	-
Potatoes	-	-	-	-	-
Garlic	-	-	-	-	-
Taro/'Godere'/	-	-	-	-	-
Sweet potatoes	-	-	-	-	-
Other Temporary	-	-	-	-	-

Permanent crops	-	-	-	-	-
Fruit crops	-	-	-	-	-
Avocado	-	-	-	-	-
Bananas	-	-	-	-	-
Guava/'Zeytun'/	-	-	-	-	-
Lemons	-	-	-	-	-
Mangos	-	-	-	-	-
Oranges	-	-	-	-	-
Papayas	-	-	-	-	-
Pineapples	-	-	-	-	-
Cash crops	-	-	-	-	-
Chat	-	-	-	-	-
Coffee	-	-	-	-	-
Tea	-	-	-	-	-
Hopes/'Gesho'/	-	-	-	-	-
Enset	-	-	-	-	-
Sugar cane	-	-	-	-	-
Cotton	-	-	-	-	-
Other permanent crops	-	-	-	-	-

Table 1 Estimate of Cropland Area and Production of Commercial Farms, 2011E.C. (2018/19) Benshangul-Gumuz

	Area		Production		Yield
	Hectares	%	Quintals	%	QT/HA
Total	76,849.92	100.00	1,521,291.97	100.00	
Grains	57,289.14	74.55	1,109,823.07	72.95	
Cereals	21,453.35	27.92	555,552.29	36.52	
Teff	5.00	0.01	30.10	-	6.02
Barley	-	-	-	-	-
Wheat	-	-	-	-	-
Maize	8,761.07	11.40	438,834.92	28.85	50.09
Sorghum	12,687.28	16.51	116,687.27	7.67	9.20
Finger millet	-	-	-	-	-
Oats/'Aja'/	-	-	-	-	-
Rice	-	-	-	-	-
Pulse	13,736.53	17.87	330,836.19	21.75	
Horse/Faba beans	-	-	-	-	-
Field peas	-	-	-	-	-
W/Haricot bean	1,391.99	1.81	1,359.60	0.09	0.98
R/Haricot bean	-	-	-	-	-

B/Haricot bean	-	-	-	-	-
Chick peas	-	-	-	-	-
Lentiles	9.09	0.01	150.91	0.01	16.60
Vetch/Grass peas	-	-	-	-	-
Soya beans	11,310.12	14.72	314,091.42	20.65	27.77
Fenugreek	-	-	-	-	-
Mung bean/"Masho"	1,025.33	1.33	15,234.25	1.00	14.86
Gibto	-	-	-	-	-
Oile seeds	22,099.26	28.76	223,434.59	14.69	
Nueg	-	-	-	-	-
Linseed	-	-	-	-	-
Ground nuts	201.83	0.26	3,902.02	0.26	19.33
Safflower	779.30	1.01	164.84	0.01	0.21
Sesame	21,118.13	27.48	219,367.74	14.42	10.39
Rapeseed	-	-	-	-	-
Vegetables	662.11	0.86	18,227.12	1.20	
Lettuce	-	-	-	-	-
Head Cabbage	-	-	-	-	-
Ethiopian Cabbage	-	-	-	-	-
Tomatoes	-	-	-	-	-
Green peppers	-	-	-	-	-
Red papers	662.11	0.86	18,227.12	1.20	27.53
Swiss chard	-	-	-	-	-
Root crops	-	-	-	-	
Beet root	-	-	-	-	-
Carrot	-	-	-	-	-
Onion	-	-	-	-	-
Potatoes	-	-	-	-	-
Garlic	-	-	-	-	-
Taro/'Godere'/	-	-	-	-	-
Sweet potatoes	-	-	-	-	-
Other Temporary	-	-	-	-	
Permanent crops	18,898.67	24.59	393,241.78	25.85	
Fruit crops	5.00	0.01	187.50	0.01	
Avocado	-	-	-	-	-
Bananas	5.00	0.01	187.50	0.01	37.50
Guava/'Zeytun'/	-	-	-	-	-
Lemons	-	-	-	-	-
Mangos	-	-	-	-	-
Oranges	-	-	-	-	-
Papayas	-	-	-	-	-

Pineapples	-	-	-	-	-
Cash crops	18,893.67	24.59	393,054.28	25.84	
Chat	1.30	-	17.32	-	13.32
Coffee	-	-	-	-	-
Tea	-	-	-	-	-
Hopes/'Gesho'/	-	-	-	-	-
Enset	-	-	-	-	-
Sugar cane	-	-	-	-	-
Cotton	18,892.37	24.58	393,036.96	25.84	20.80
Other permanent crops	-	-	-	-	-

Table 1 Estimate of Cropland Area and Production of Commercial Farms, 2011E.C. (2018/19)SNNP

	Area		Production		Yield
	Hectares	%	Quintals	%	QT/HA
Total	134,990.09	100.00	3,509,503.48	100.00	
Grains	43,256.05	32.04	1,756,234.25	50.04	
Cereals	34,680.17	25.69	1,481,667.82	42.22	
Teff	2,751.29	2.04	36,125.80	1.03	13.13
Barley	27.88	0.02	846.98	0.02	30.38
Wheat	1,955.84	1.45	120,037.69	3.42	61.37
Maize	27,123.02	20.09	1,256,834.00	35.81	46.34
Sorghum	1,415.35	1.05	33,163.52	0.94	23.43
Finger millet	-	-	-	-	-
Oats/'Aja'/	-	-	-	-	-
Rice	1,406.79	1.04	34,659.83	0.99	24.64
Pulse	7,103.48	5.26	264,958.37	7.55	
Horse/Faba beans	-	-	-	-	-
Field peas	2.51	-	137.94	-	54.96
W/Haricot bean	3,947.59	2.92	219,851.50	6.26	55.69
R/Haricot bean	0.15	-	0.04	-	0.27
B/Haricot bean	-	-	-	-	-
Chick peas	2,720.07	2.02	34,703.61	0.99	12.76
Lentiles	-	-	-	-	-
Vetch/Grass peas	383.34	0.28	6,732.08	0.19	17.56
Soya beans	49.80	0.04	3,533.20	0.10	70.95

Fenugreek	-	-	-	-	-
Mung bean/"Masho"	-	-	-	-	-
Gibto	-	-	-	-	-
Oile seeds	1,472.40	1.09	9,608.06	0.27	
Nueg	-	-	-	-	-
Linseed	-	-	-	-	-
Ground nuts	5.00	-	160.00	-	32.00
Safflower	87.40	0.06	917.70	0.03	10.50
Sesame	1,380.00	1.02	8,530.36	0.24	6.18
Rapeseed	-	-	-	-	-
Vegetables	894.54	0.66	62,103.63	1.77	
Lettuce	-	-	-	-	-
Head Cabbage	15.88	0.01	3,961.05	0.11	249.44
Ethiopian Cabbage	6.56	-	333.04	0.01	50.77
Tomatoes	16.65	0.01	509.73	0.01	30.61
Green peppers	44.86	0.03	12,878.29	0.37	287.08
Red papers	810.59	0.60	44,421.52	1.27	54.80
Swiss chard	-	-	-	-	-
Root crops	269.49	0.20	60,788.29	1.73	
Beet root	-	-	-	-	-
Carrot	-	-	-	-	-
Onion	230.43	0.17	52,240.77	1.49	226.71
Potatoes	39.06	0.03	8,547.53	0.24	218.83
Garlic	-	-	-	-	-
Taro/'Godere'/	-	-	-	-	-
Sweet potatoes	-	-	-	-	-
Other Temporary	91.83	0.07	450.81	0.01	
Permanent crops	90,478.18	67.03	1,629,926.50	46.44	
Fruit crops	2,236.84	1.66	204,019.50	5.81	
Avocado	157.10	0.12	14,259.71	0.41	90.77
Bananas	1,917.33	1.42	160,239.69	4.57	83.57
Guava/'Zeytun'/	-	-	-	-	-
Lemons	-	-	-	-	-
Mangos	86.76	0.06	22,474.26	0.64	259.04
Oranges	31.65	0.02	4,915.83	0.14	155.32
Papayas	6.59	-	1,525.13	0.04	231.43
Pineapples	37.42	0.03	604.88	0.02	16.16
Cash crops			1,378,708.61		

	88,128.50	65.29		39.29	
Chat	-	-	-	-	-
Coffee	60,090.52	44.51	398,341.23	11.35	6.63
Tea	5,444.64	4.03	523,050.28	14.90	96.07
Hopes/'Gesho'/	-	-	-	-	-
Enset	-	-	-	-	-
Sugar cane	-	-	-	-	-
Cotton	22,593.33	16.74	457,317.10	13.03	20.24
Other permanent crops	112.84	0.08	47,198.39	1.34	418.28

Table 1 Estimate of Cropland Area and Production of Commercial Farms, 2011E.C. (2018/19 Gambela)

	Area		Production		Yield
	Hectares	%	Quintals	%	QT/HA
Total	50,643.28	100.00	915,499.70	100.00	
Grains	3,469.30	6.85	94,499.56	10.32	
Cereals	1,464.62	2.89	48,936.84	5.35	
Teff	-	-	-	-	-
Barley	68.40	0.14	1,794.55	0.20	26.24
Wheat	-	-	-	-	-
Maize	410.99	0.81	18,427.45	2.01	44.84
Sorghum	99.42	0.20	3,570.77	0.39	35.92
Finger millet	-	-	-	-	-
Oats/'Aja'/	-	-	-	-	-
Rice	885.82	1.75	25,144.07	2.75	28.39
Pulse	1,638.67	3.24	36,435.78	3.98	
Horse/Faba beans	-	-	-	-	-
Field peas	-	-	-	-	-
W/Haricot bean	-	-	-	-	-
R/Haricot bean	-	-	-	-	-
B/Haricot bean	-	-	-	-	-
Chick peas	-	-	-	-	-
Lentiles	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-
Soya beans	613.00	1.21	12,770.88	1.39	20.83
Fenugreek	-	-	-	-	-
Mung bean/"Masho"	1,025.67	2.03	23,664.90	2.58	23.07
Gibto	-	-	-	-	-

Oile seeds	366.01	0.72	9,126.94	1.00	
Nueg	-	-	-	-	-
Linseed	-	-	-	-	-
Ground nuts	-	-	-	-	-
Safflower	4.07	0.01	104.17	0.01	25.59
Sesame	361.94	0.71	9,022.77	0.99	24.93
Rapeseed	-	-	-	-	-
Vegetables	30.93	0.06	4,601.88	0.50	
Lettuce	-	-	-	-	-
Head Cabbage	-	-	-	-	-
Ethiopian Cabbage	0.53	-	15.20	-	28.68
Tomatoes	11.40	0.02	4,568.44	0.50	400.74
Green peppers	19.00	0.04	18.24	-	0.96
Red papers	-	-	-	-	-
Swiss chard	-	-	-	-	-
Root crops	-	-	-	-	
Beet root	-	-	-	-	-
Carrot	-	-	-	-	-
Onion	-	-	-	-	-
Potatoes	-	-	-	-	-
Garlic	-	-	-	-	-
Taro/'Godere'/	-	-	-	-	-
Sweet potatoes	-	-	-	-	-
Other Temporary	-	-	-	-	
Permanent crops	47,143.05	93.09	816,398.26	89.18	
Fruit crops	136.40	0.27	26,179.83	2.86	
Avocado	-	-	-	-	-
Bananas	-	-	-	-	-
Guava/'Zeytun'/	-	-	-	-	-
Lemons	-	-	-	-	-
Mangos	75.60	0.15	15,212.46	1.66	201.22
Oranges	30.40	0.06	4,418.07	0.48	145.33
Papayas	30.40	0.06	6,549.30	0.72	215.44
Pineapples	-	-	-	-	-
Cash crpops	47,006.65	92.82	790,218.43	86.32	
Chat	-	-	-	-	-
Coffee	-	-	-	-	-
Tea	-	-	-	-	-
Hopes/'Gesho'/	-	-	-	-	-
Enset	-	-	-	-	-

Sugar cane	-	-	-	-	-
Cotton	47,006.65	92.82	790,218.43	86.32	16.81
Other permanent crops	-	-	-	-	-