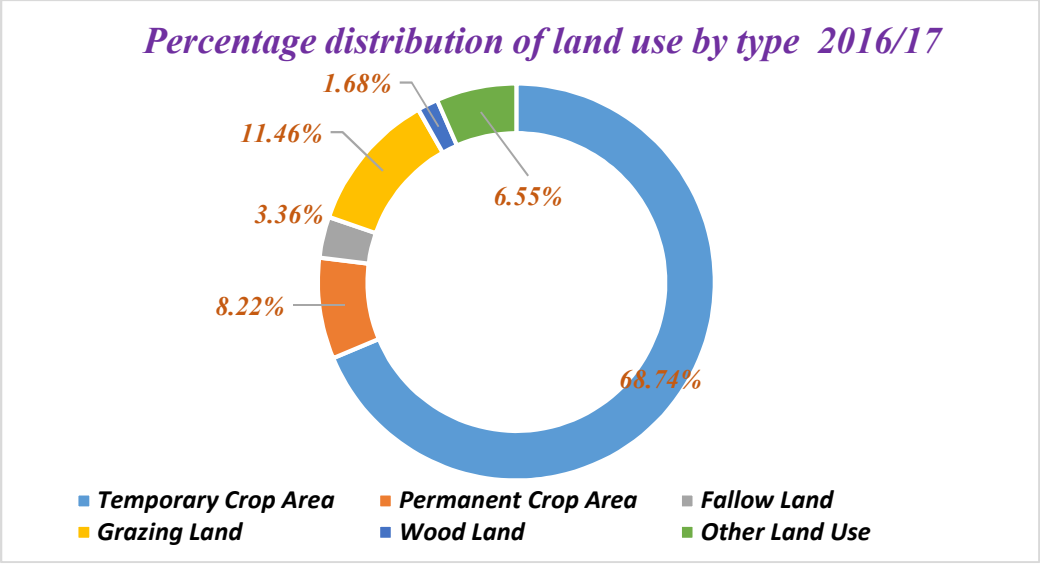
THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA

CENTRAL STATISTICAL AGENCY

KEY FINDINGS OF THE 2016/2017 (2009 E.C)

AGRICULTURAL SAMPLE SURVEYS



COUNTRY SUMMARY

ADDIS ABABA

August 2017

Part I: Introduction

In Ethiopia, agriculture accounts about 42 percent of the GDP, employs about 85 percent of the labor force and contributes around 90 percent of the total export earnings of the country. The sector is dominated by over 15 million smallholders producing about 95 percent of the national agricultural production. This shows that the overall economy of the country and the food security of the majority of the population depend on small holder agriculture. The growth of agricultural sector is taken as an engine and the last resort to take-off the national economy.

The government of Ethiopia have been devised and implementing different strategies and polices to boost the agricultural sector as the main motor of the country overall growth. Now we are in the era of growth and transformation plan (GTPs). Accurate, reliable and timely statistical information in the sector is crucial for designing, monitoring and evaluating these policies and strategies. Specifically estimates and forecasts of crop area and yield are of critical importance to policy makers for the planning of agricultural production and monitoring of food supply in the country.

The central Statistical Agency (CSA) has been conducting and providing agricultural statistical information for more than three decades on annual basis. The agency has conducted one agricultural census by the year 2001/02 and has planned to conduct the second one by 2018/19.

The annual agricultural sample surveys (AgSS) have been aiming at providing statistical information on the agricultural situation of the country that will serve as inputs for assessing, monitoring and evaluating the sector's performance. The survey covers both seasons of annual agricultural production i.e main rainy production season (Meher) and short rainy season (Belge), collect information from the two major agricultural sub-sectors of private rural smallholder farmers and commercial farms. About 95% of the total annual agricultural production generated from the former sub-sector while the remaining comes from the later.

The general objective of the AgSS is to collect basic quantitative information on the country's agriculture that is essential for planning, policy formulation, monitoring and evaluation of mainly food security and other agricultural activities. The AgSS is composed of five components: Crop Production Forecast Survey, Meher Season Post Harvest Survey (Area and production, land use, farm management and crop utilization), Livestock Survey and Belge Season Survey and a survey on Commercial farms.

44,362 sampled agricultural households were covered by the survey. More than three thousand large & medium scale farms were actually covered for the commercial farms survey.[1] *The range of data items in crops and livestock production covered and agricultural holders and commercial farms who grow or/and rear at least one or more of these are enumerated and data for each study variables collected from each operator.The principal data collected are mainly related to crop area and production, agricultural inputs utilization, land use and livestock characteristics at country, regional and Zone levels. The survey methodology of the annual AgSS is sound and up on international standard[2]. Although statistical reports of the survey results have been compiled and disseminated annually for each survey components of AgSS, the Agriculture, Natural Resource and Environmental Statistics Directorate (ANRESD) of CSA finds it very useful to prepare this synopsis of the result of all survey components of the AgSS to data users.*

The data compiled for crop area and production includes both the private peasant holdings and the large and medium scale (commercial) farms. For the private smallholder farms survey about 2,223 sampled enumeration areas (EAs) and about 44,362 sampled agricultural households were covered by the survey. More than three thousand large & medium scale farms were actually covered for the commercial farms survey.[3]

[1] *For detailed information of the survey results of all components of the 2016/17 (2009 E.C) Agricultural Sample survey (AgSS), look CSA website: http// www.csa.gov.et. Or contact the Agriculture, Natural Resource and Environmental statistics Directorate (ANRESD) of CSA: Tel Phone : +251-111-560-992.*

[2] *See the annual statistical bulletins of AgSS*

Part II:
Highlights on the Key Findings of the 2016/17 AgSS Results

1. Cultivated Area, Production & Yield of Major Crops

1.1. Grain Crops

Grain crops are highly important to enhance the food security of smallholder framers in Ethiopia. They are widely grown in all parts of the country. The itensity of cultivation & production of grain crops varies seasonally across regions and zones.

At national level, grain crops constitute the majority of the annual total agricultural crop production. For the private smallholder farmers more than half of (61%) the total agricultural crop output was accounted by grain crops during the 2016/17(2009 E.C) production year.

During the survey year, the total cultivated land area and production of grain crops were 15,089,416 hectares and 325,119,681 quintals, respectively (Table 1).These figures include all grain crops produced by private smallholder farmers (both Meher & Belge seasons), smallholder dry season irrigation farms and commercial farms. The survey result reveals that about 95% of the total grain production comes from private smallholder farms.

Table 1: Grain Crop Production and cultivated area by farm type, 2016/17

Production farm	Grain Crops	
	Area (ha)	Production (Qt)
Private small holder (Belge & Meher Seasons)	14,358,572	308,603,433
Private small holder dry season irrigation farms	90,976	2,989,525
Commercial farms	639,868	13,526,723
Total	**15,089,416**	**325,119,681**

Table 2: Private Smallholder farmers grain crops production & area by Season, 2016/17

Crop Type	Private Small Holder Farms					
	Meher season		Belge Season		Total	
	Area (ha)	Production (qt)	Area (ha)	Production (qt)	Area (ha)	Production (qt)
Grain Crops	12,574,107	290,385,593	1,784,464	18,217,839	14,358,572	308,603,433
Cereals	10,219,443	253,847,240	1,311,901	14,118,999	11,531,345	267,966,238
Pulses	1,549,912	28,146,332	451,759	3,906,040	2,001,671	32,052,372
Oilseeds	804,752	8,392,022	20,804	192,801	825,556	8,584,822

Table 3: Private smallholder farmers dry season irrigation farm grain crops production & area, 2016/17

Crop Category	Area (ha)	Production (Qt)
Grain Crops	90,976.42	2,989,525.28
Cereals	79,669.79	2,772,303.57
Pulses	11,138.88	214,771.33
Oilseeds	167.75	2,450.38

Table 2 presents the total production of grain crops and area cultivated by smallholder farmers during the survey year (Both Meher & Belge Season). The result shows that about 3.9 million tons of grain crops produced and about 14.4 million hectares of land covered by these crops.

Cereals take almost the majority of the total grain crops cultivated land and production for smallholder farmers. As indicated in Figure 1 80 percent and 87 percent of grain crop area and production were cereals, respectively. While the percentage share of pulses and oil seeds crops were 14 percent and 10 percent for pulses and 6 percent and 3 percent for oil seed, respectively.

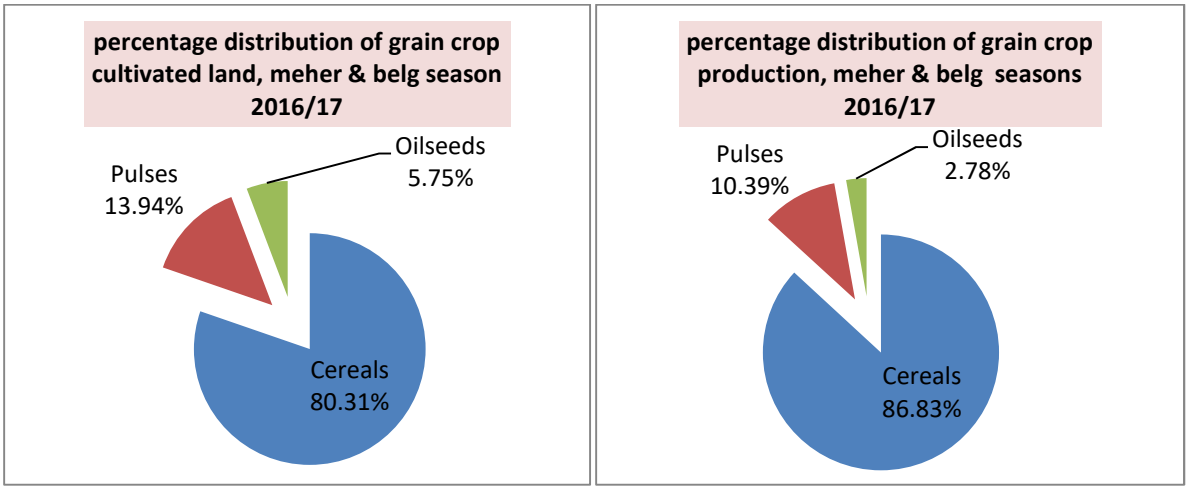


Figure 1: Area and production share of grain crops for private smallholder farmers, 2016/17

For the commercial farms, the total grain crop cultivated land and production were 639,868 hectare and 13,526,723 quintals during the survey year. The survey result shows that the share of cereals from the total grain cropped area commercial farms was about 46 percent. In terms of the production, cereals also take the highest share about 73 percent of commercial farm total grain production followed by oil seeds.

Table 4: Cultivated area and Production of grain crops for commercial farms, 2016/17

Crop Category	Area (ha)	Production (qt)
Grain Crops	639,868	13,526,723
Cereals	291,728	9,838,568
Pulses	59,995	1,326,965
Oilseeds	288,144	2,361,190

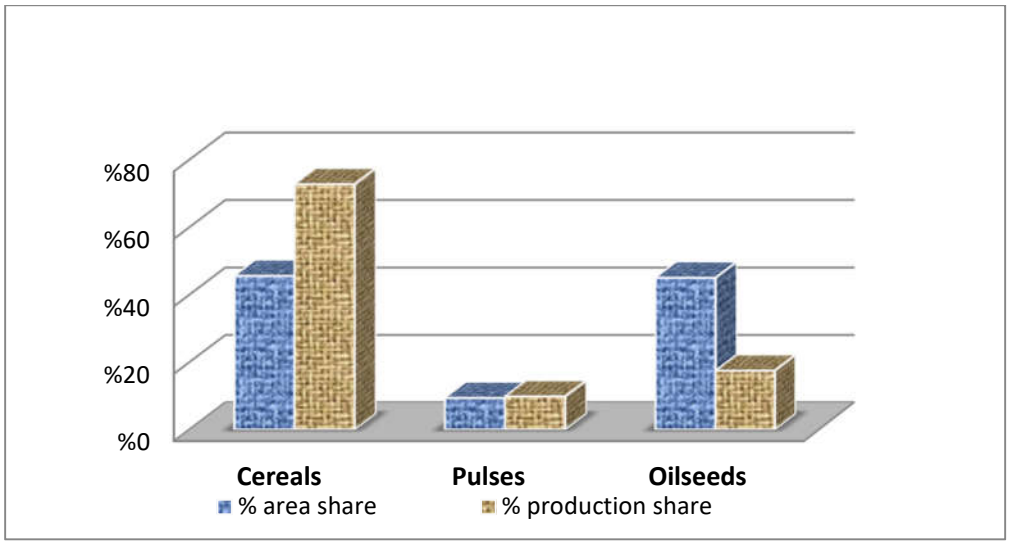


Figure 2: Percentage distribution of grain crops area and production of grain crops for commercial farms, 2016/17

1.2. Vegetables, Root and Permanent Crops

During the survey year a total of 2,789,202 hectares of land were covered by vegetables, root crops and permanent crops by both smallholder and commercial farms. The total crop output for these crops was found 266,333,191 quintals (See Table 5).

Table 5: Area and production of Vegetables, root and permanent crops by Private smallholder farms[4]& Commercial Farms, 2016/17

Crop Category	Private small holder farms		Commercial farms	
	Area (ha)	Production (Qt)	Area (ha)	Production (Qt)
Vegetables	493,938	38,780,464	7,790	959,702
Root Crops	809,856	127,645,418	1,450	364,742
Permanent Crops	1,127,088	29,358,366	349,079	69,224,500

[4] *The private small holder farms production and area figures incudes both Belge & Meher season and dry season irrigation farms*

1.3. Crop Yield for Selected Major Grain Crops

Crop yield directly determines the volume of total agricultural crop production and it is the commonly used indicator for measuring the performance of the agricultural sector of an economy. As many factors affect crop yields, compared to other countries specifically countries that practice mechanized agriculture the yields of major food crops have almost been low in Ethiopia. However, in recent years, crop yield shown a promising increment at private smallholder farms at plot level and in commercial farms.

Figure 3 below presented the yield of some major crops for smallholder farmers and commercial farms during the survey year (2016/17).

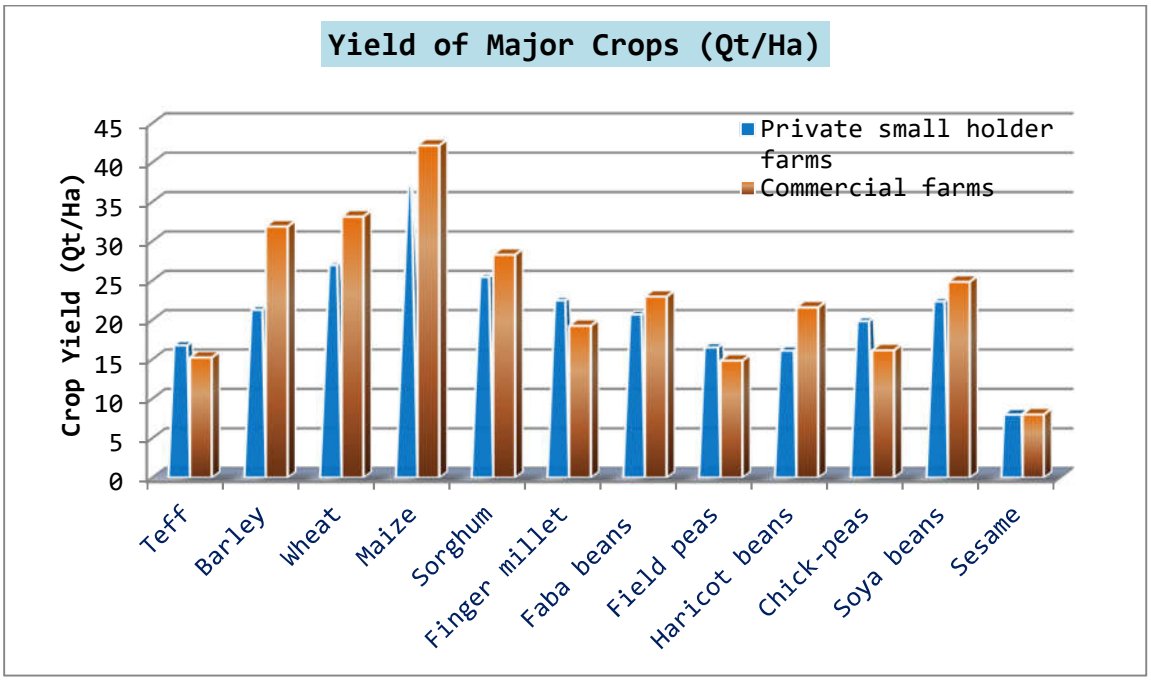


Figure 3: Crop yield for major Grain Crops for Private Smallholder & Commercial farms, Meher season, 2016/17

2. Farm Management Practices

The uses of improved agricultural technologies are very crucial to increase agricultural production and productivity. The use of these improved technologies such as chemical fertilizer, improved seed, irrigation...etc. is minimal in Ethiopia. In this summary report a short summing up of the major findings of the annual agricultural sample survey (AgSS) regarding the application and use of fertilizers, improved seeds, pesticides, irrigation, etc… are presented.

2.1. Fertilizer

According to FAO Agricultural Census Guide (2010), fertilizers are mineral or organic substances, natural or manufactured, which are applied to soil, irrigation water or a hydroponic medium, to supply plants with nutrients or to enhance plant growth. For the CSA annual survey, fertilizer data elicited on two types of fertilizers (Natural and Chemical). The Natural fertilizer consists of the farmyard manure, compost, wood ashes... etc. While the chemical type consists of DAP, Urea and NPS. The chemical fertilizer often called inorganic fertilizer.

2.1.1. Inorganic Fertilizer

The quantity inorganic fertilizer and the cultivated crop area under these fertilizers are increasing in the country. The survey results indicate that the amount of inorganic fertilizer applied to crops was estimated about 11.4 million quintals for private smallholder farmers during the main season of survey year 2016/17 (Table 6).

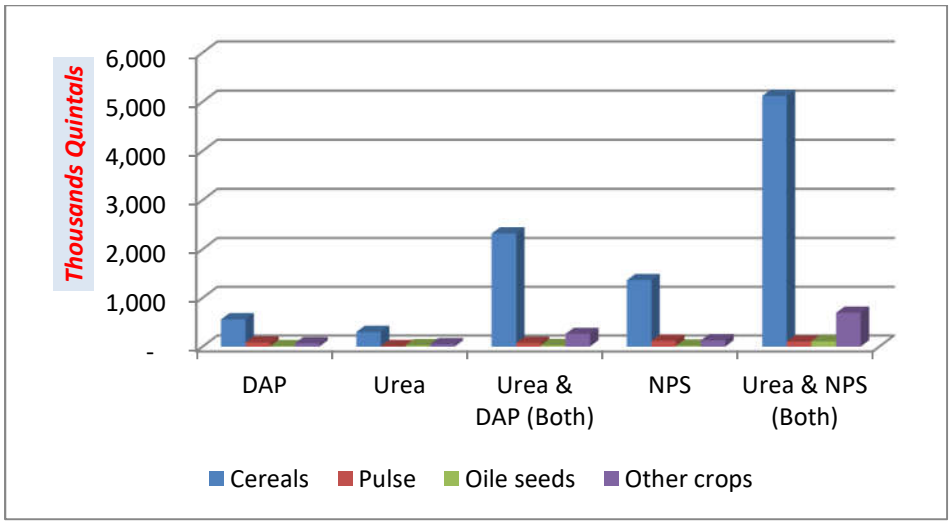


Figure 4: Quantity of inorganic fertilizer by type and crop category, Private smallholder farms, main season 2016/17

More than half of the total cultivated land has fertilized either organically or inorganically. The total fertilized cultivated cropland was 8,473,264 hectares, of which 6,885,273 hectares of land fertilized inorganically and accounted 81.3 % of the total fertilized land area. The share of chemically fertilized area to total fertilized cultivated land higher from previous production year by two percentage points. The survey result shows that the proportion of cultivated land under chemical fertilizer was about 47 % of the total cultivated cropped area at country level, which was also a little bit higher (3%) from the previous survey year.

Table 6: Cultivated land and fertilized crop land by fertilizer & Crop category, smallholders farmers, main season 2016/17

Crop Type	All Cultivated land area(Ha)	All Fertilized area (Ha)	Organic fertilizer (Ha)	Inorganic fertilizer(Ha)
All	14,708,628	8,473,264	1,587,991	6,885,273
Cereals	10,219,443	6,918,312	740,956	6,177,356
Pulse	1,549,912	420,788	118,330	302,458
Oil Seeds	804,752	104,740	31,820	72,920
Other Crops	2,134,521	1,029,424	696,885	332,539

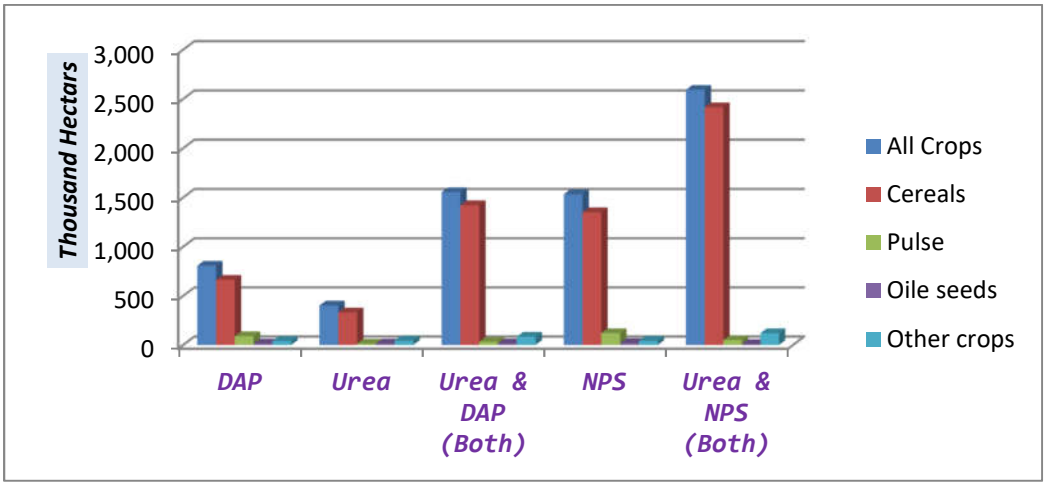


Figure 5: Area of inorganically fertilized land by type & crop category, Private smallholder farms, main season 2016/17

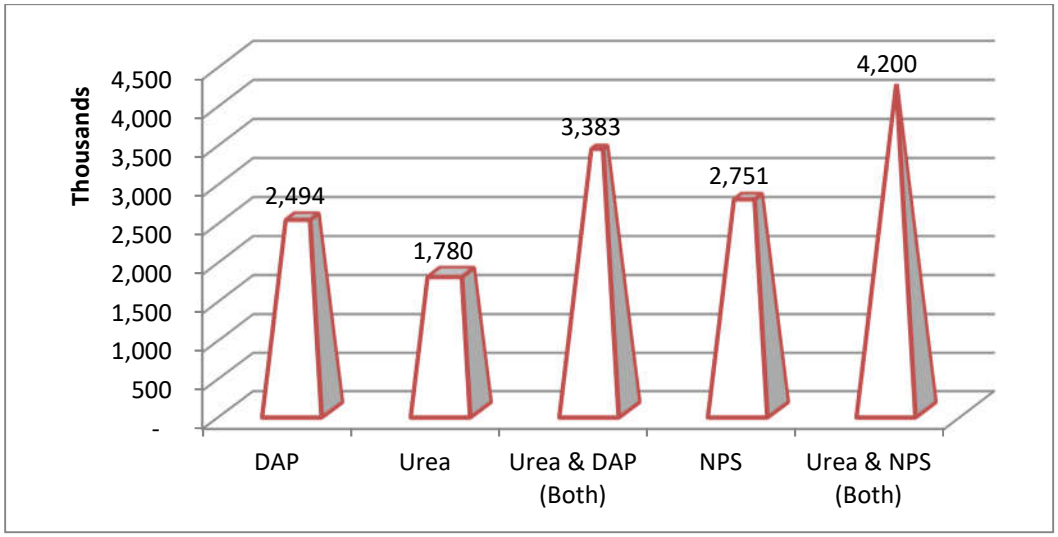


Figure 6: Number of holders applied inorganic fertilizer by type, Private smallholder farms, Main season 2016/17

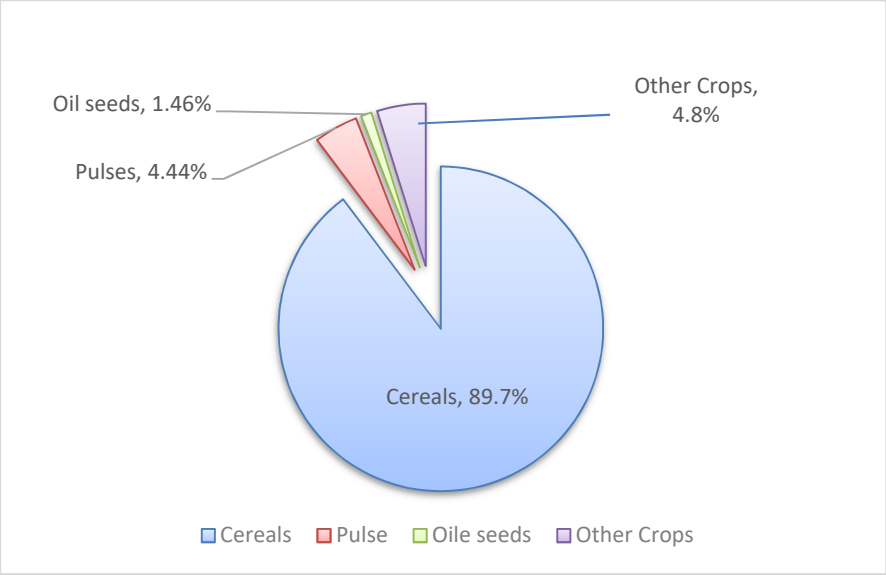


Figure 7: Percentage distribution of inorganically fertilized land by crop, Private smallholder farms, Main season 2016/17

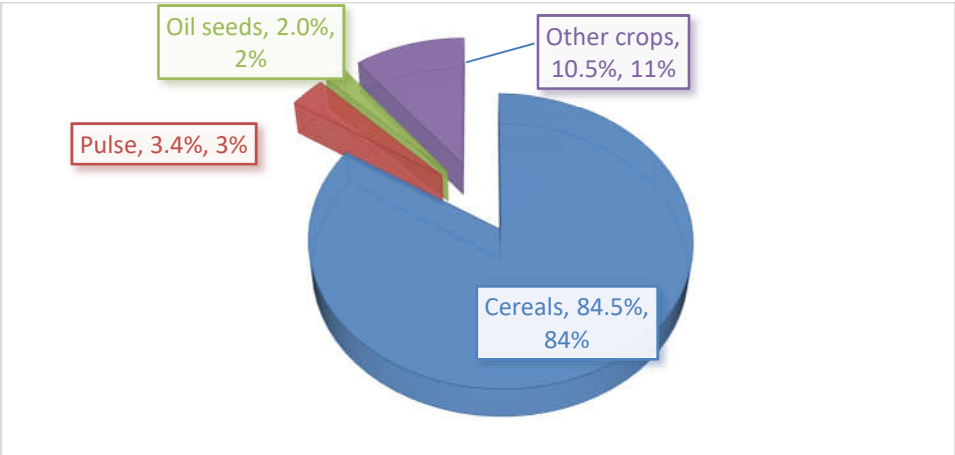


Figure 8: Percentage distribution of total quantity of inorganic fertilizer by crop category, main season 2016/17

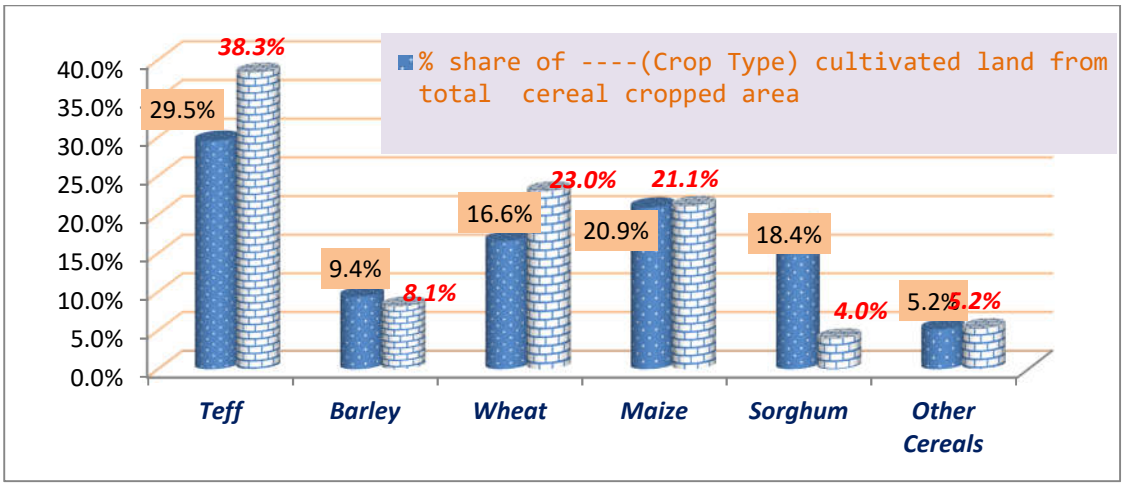


Figure 9: Percentage share of major cereals from total cultivated & fertilized cereal land, Private smallholder farms, main season 2016/17

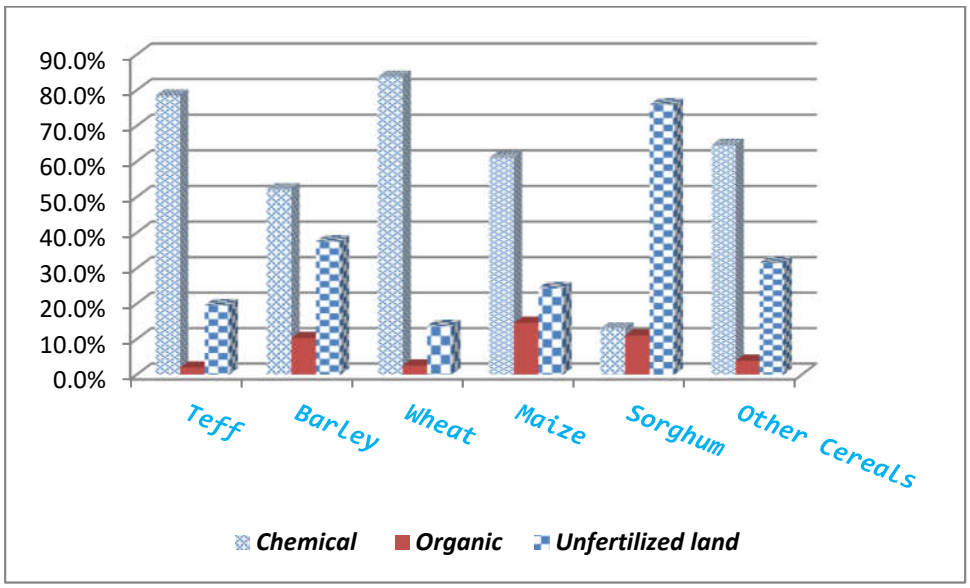


Figure 10: Percentage distribution of fertilized cultivated land by cereal crop type, PSHF, main season 2016/17

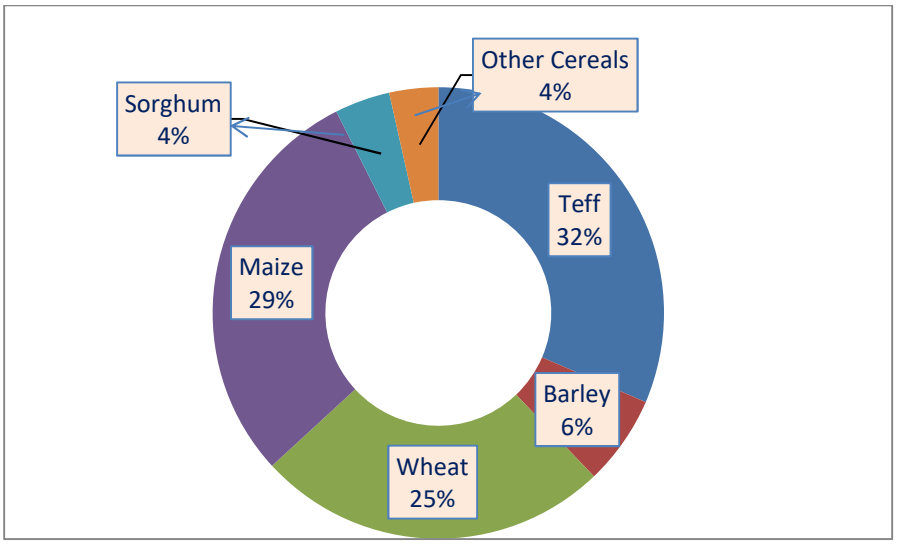


Figure 11: percentage distribution of quantity of inorganic fertilizer for cereals, PSHF, main season 2016/17

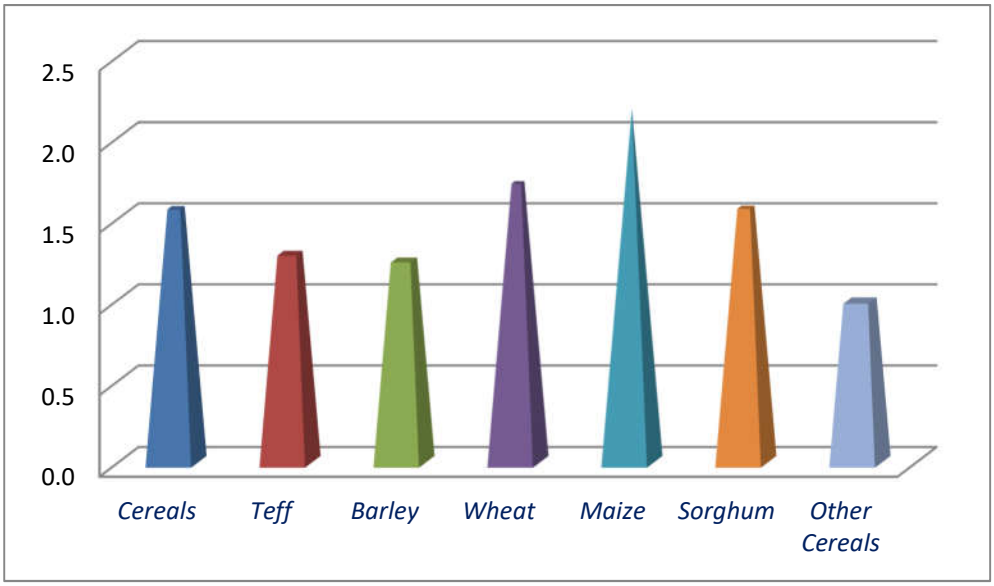


Figure 12: Chemical fertilized application rate (Qt/Ha) for cereals, PSHF, main season, 2016/17

2.2. Improved Seed

Improved seed gives a significantly higher yield, and better quality of crop products compared to locally produced variety of seeds. The use of these seeds still remains very low and compared to the other inputs it has not been widely practiced by smallholder farmers. Even though, the amount of improved seed and the area under application increased from the previous production years the growth is very low.

Only 13 percent of the total cereal cropped area is covered by improved seed. While the figure for pulses and oil seeds was 0.9% and 1.8% of the total pulse and oil seed cropped area were under improved seed, respectively. As indicated in the Figure 13 the majority of smallholder farmers use indigenous seed during the survey year.

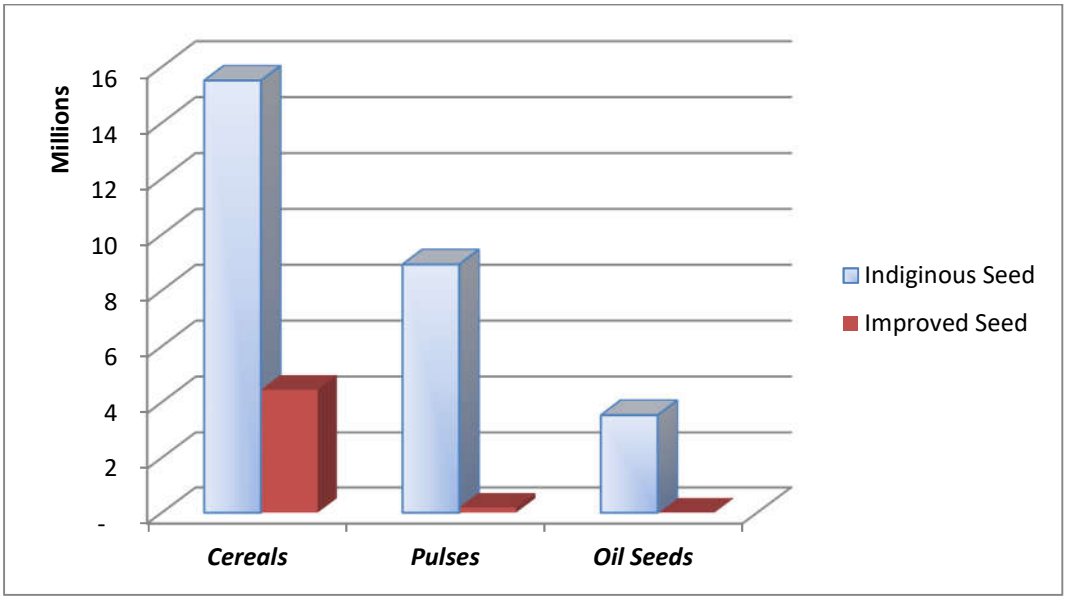


Figure 13: Distribution of Number of holders by seed type & grain crops, PSHF main season 2016/17

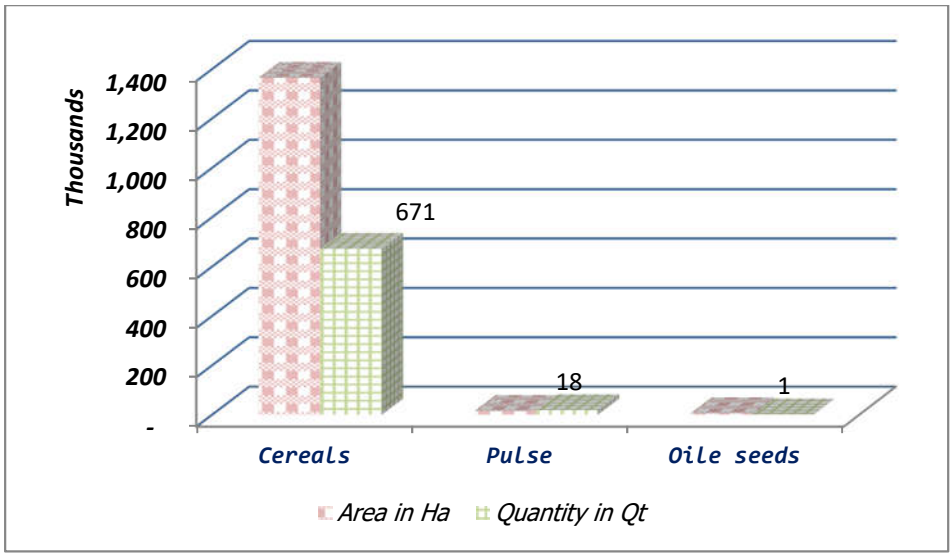


Figure 14: Distribution of quantity of improved seed & area for grain crops, PSHF main season 2016/17

As shown in Figure 15 from the total area under improved seed allocated to cereals about 80% covered by maize. The share for wheat, teff and Barely were 12.1%, 6.5% and 1.1%, respectively. The amount of improved seed per hectare (improved seed application rate) for these major cereal crops is increasing from year to year. Higher application rate found for barley and wheat 1.7 & 1.9 quintal per hectare, respectively and the lowest application rate was for maize (0.28 quintal per hectare). The application rate for *teff* and sorghum were 0.34 quintal per hectare and 0.32 quintal per hectare of cultivated land, respectively, See Fig. 17.

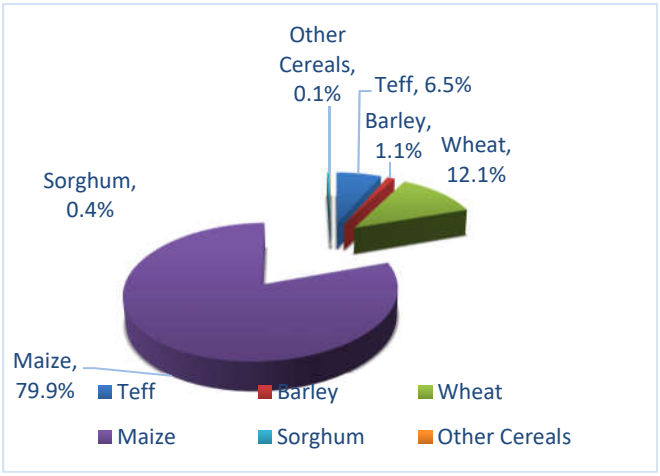


Figure 15: Percentage share of improved seed area of cereal crops from total cereal area under improved seed, PSHF, main season 2016/17

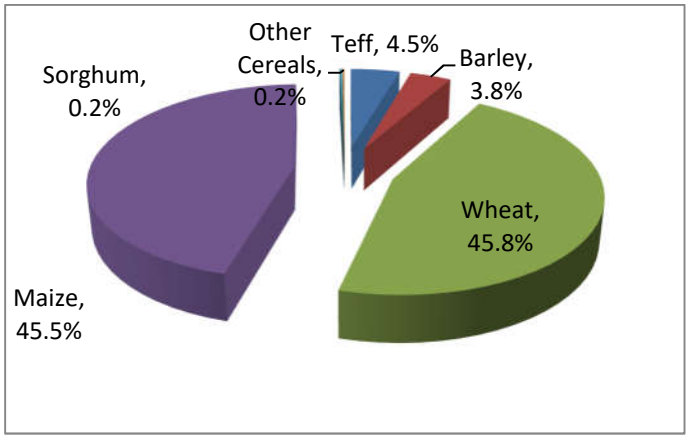


Figure 16: Percentage of improved seed quantity of cereal crops from total cereal improved seed, PSHF, main season 2016/17

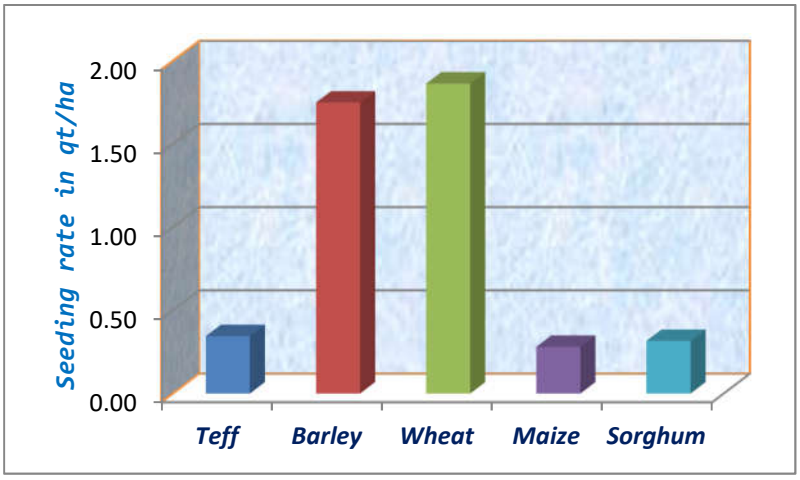


Figure 17: Improved seed seeding rate for major cereal crops, PSHF, main season 2016/17

2.3. Pesticide Applied

The total pesticide applied area for the year 2016/17(2009 E.C.) main production season was more than 3.5 million hectares. The majority of the pesticide applied cultivated land was on cereal crops. About 23.6 % and 31.5 % of the total land area and cereal-cropped area were applied pesticides (Fig 18).

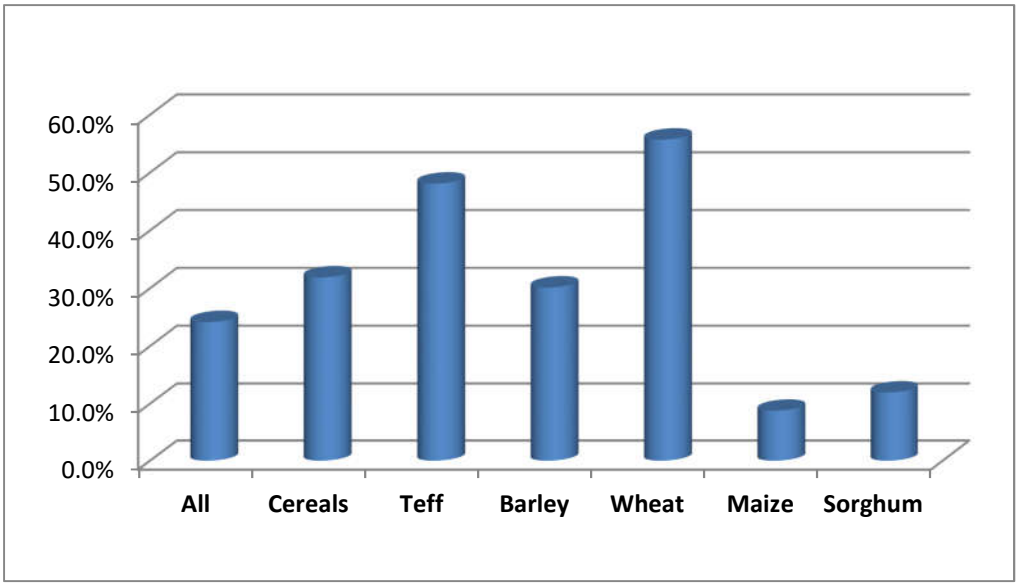


Figure 18: Percentage distribution of pesticide applied area by crop type

2.4. Extension Package Program

As the findings of the survey indicate, around 37 percent of the cultivated land under cereal crops was covered by extension package program (See Fig 19). In 2016/17 main cropping season, the number of holders participating in various crop extension packages estimated to be more than 8.4 million.

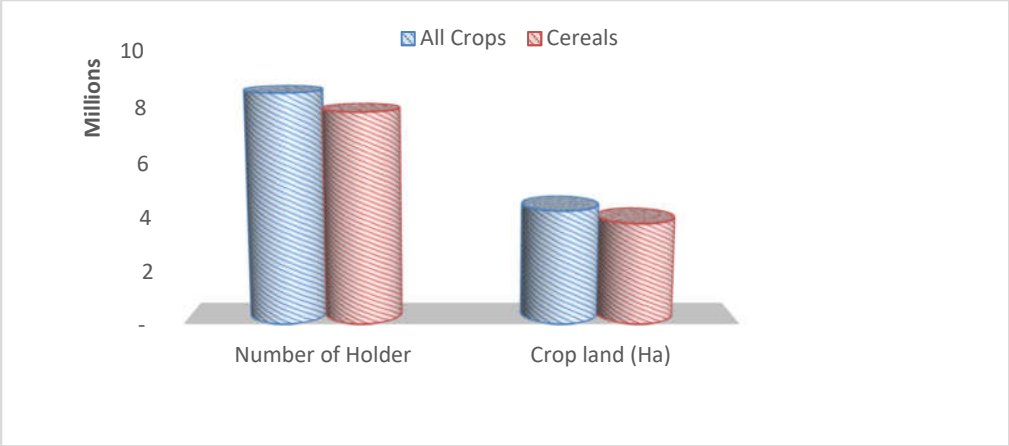


Figure 19: Distribution of holder & cropped land area with extension package, PSHF, main season 2016/17

2.5. Agricultural Credit and Extension Advice Service

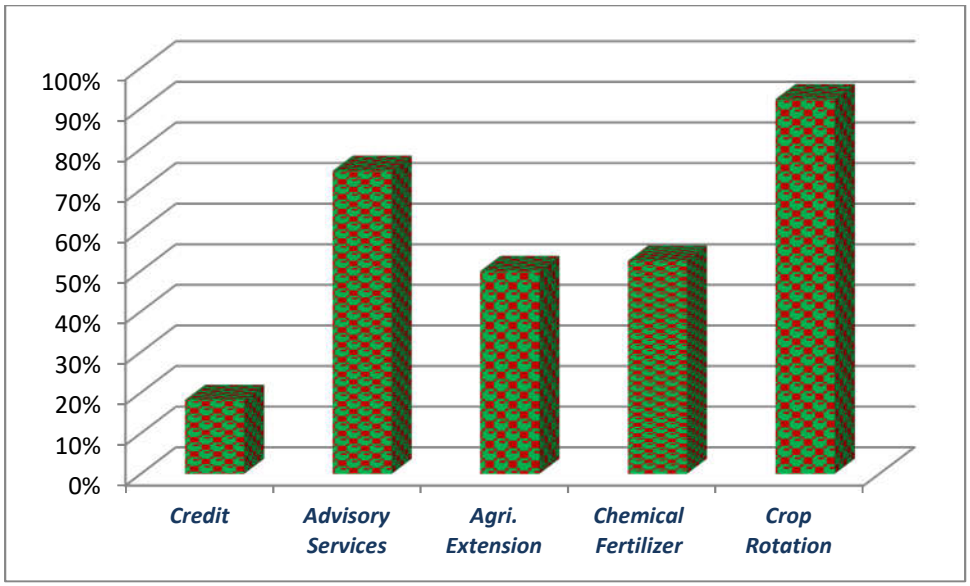
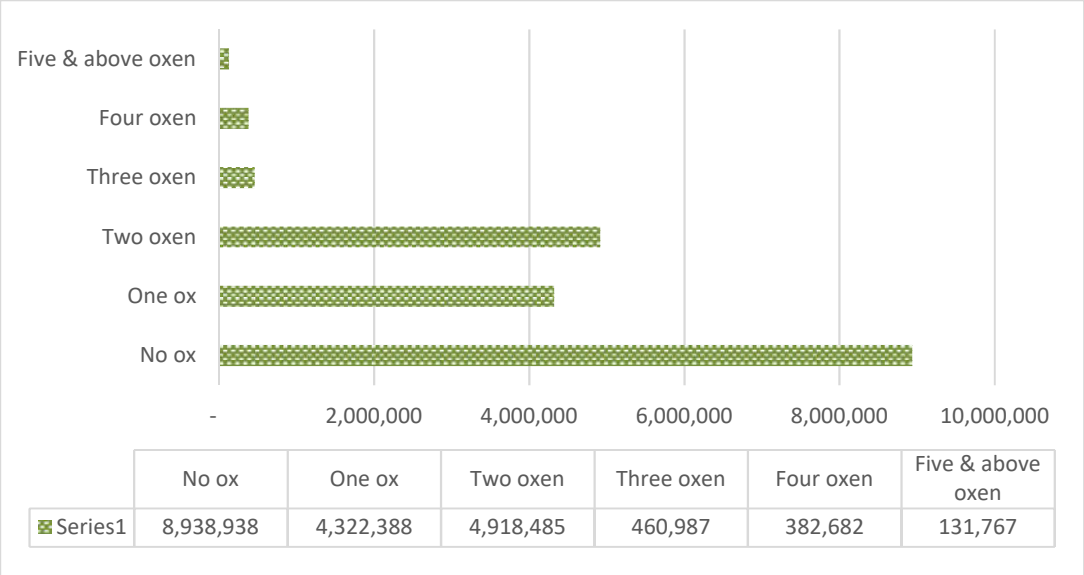


Figure 20: percentage distribution of holders by agricultural services/ practices, PSHF, main season 2016/17



	No ox	One ox	Two oxen	Three oxen	Four oxen	Five & above oxen
Series1	8,938,938	4,322,388	4,918,485	460,987	382,682	131,767

Figure 21 : Distribution of holders by number of oxen ownership, PSHF, main season 2016/17

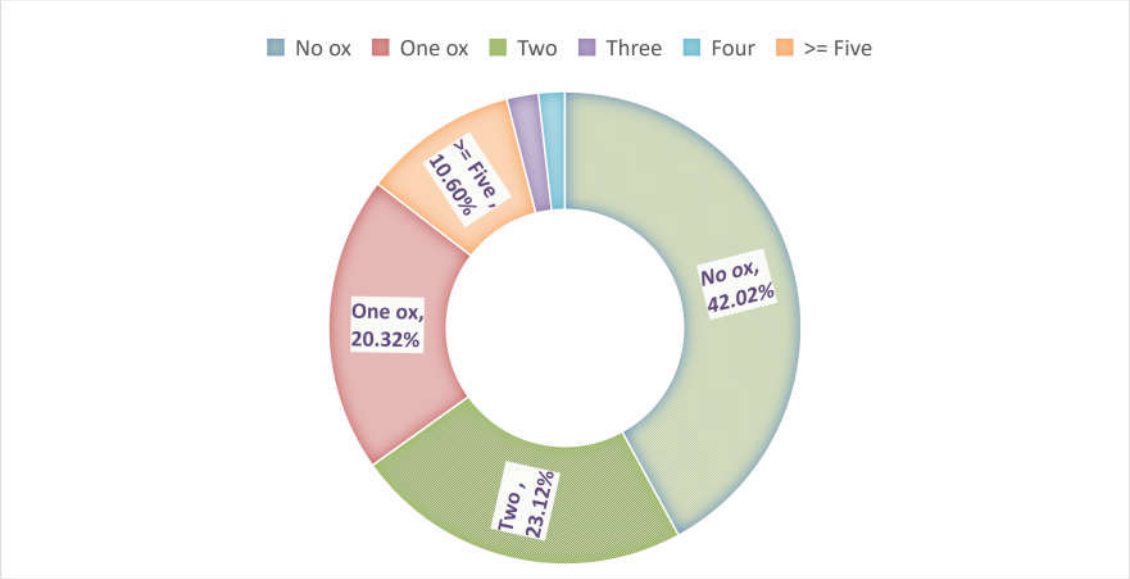


Figure 22 : Percentage distribution of holders by number of oxen ownership, PSHF, main season 2016/17

1. Agricultural Land Use

One of the objectives of the annual AgSS survey is to estimate the total land use, which is operated by rural private smallholder farmers and commercial farms in the country. The Survey report contains results land use by type, average holding size per households, holding size per holders, sex, education and land tenure status of smallholder farmers. According to the result more than 19 million hectares of land was used in different types of land use by smallholder farmers during the major season of the survey year. The percent distribution of the land use by different types of land uses shown in Fig 23 below. About 77 percent of the land operated by smallholder farmers was allocated to crops, both temporary and permanent crops while 11.5% of the land used for grazing land.

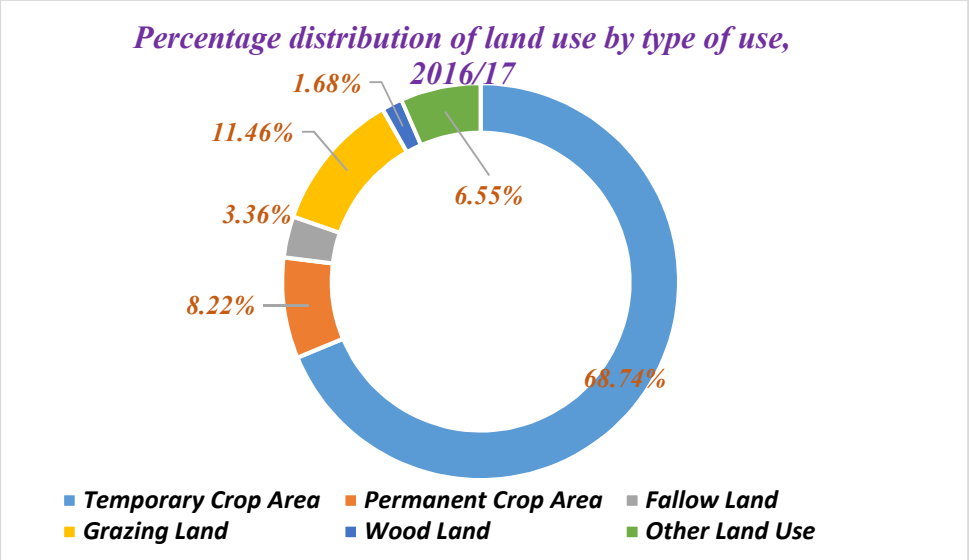


Figure 23: Percentage distribution land utilization, Main season 2016/17

The survey result also shows that there were 21 million agricultural holders and about 20 million agricultural households all over the country. About 13 million agricultural holders have land holdings less than a hectare. Figure 24 presents the percentage distribution of agricultural holders by size of holdings.

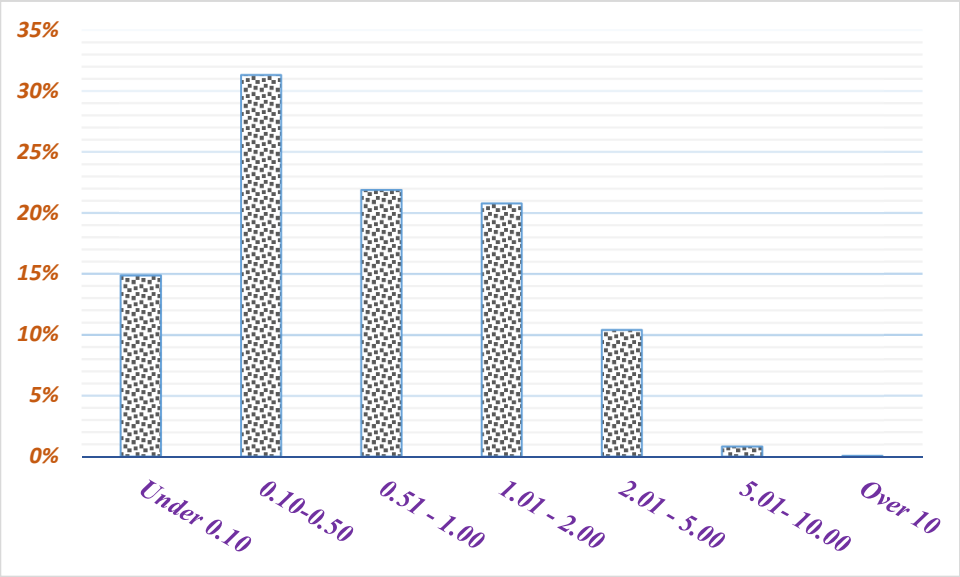


Figure 24: Percentage distribution of agricultural holders by size of holding, Main season 2016/17

4. Livestock Characteristics

The Annual Livestock[5] Sample Survey covered the rural agricultural population in all the regions of the country except the non-sedentary population of three zones of Afar and six zones of Somali regions.

4.1. Number of livestock[6]

During the survey year (2016/17), the total estimated number of total cattle, sheep and goats, and other animals (Horses, donkeys, mules and camels), at country level are indicated in Figure 25 & 26 below.

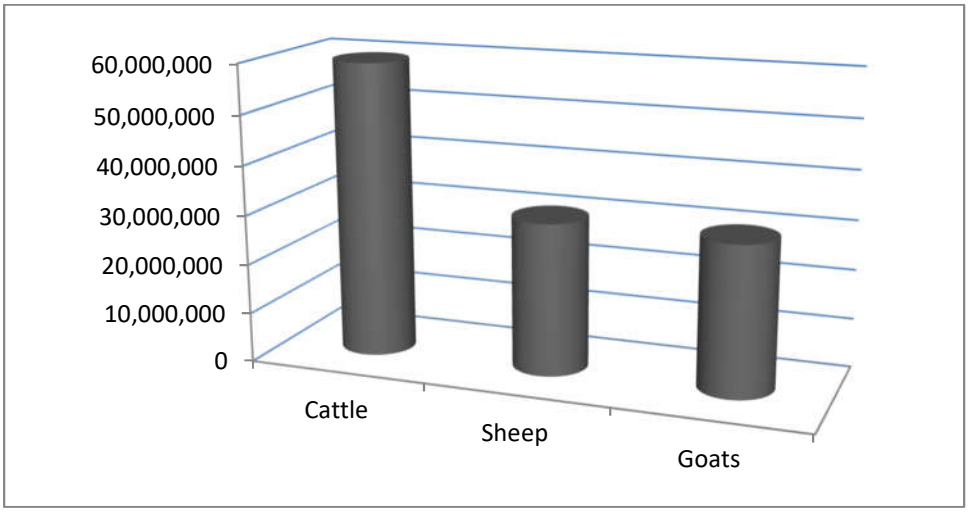


Figure 25: Total number of cattle, sheep and Goat, main season 2016/17

[6] *Note: The number of livestock and its products shown in all tables do not include large-scale dairy farms, fattening, etc. owned by investors, cooperatives and other institutions. It also excludes urban area livestock numbers and its products*

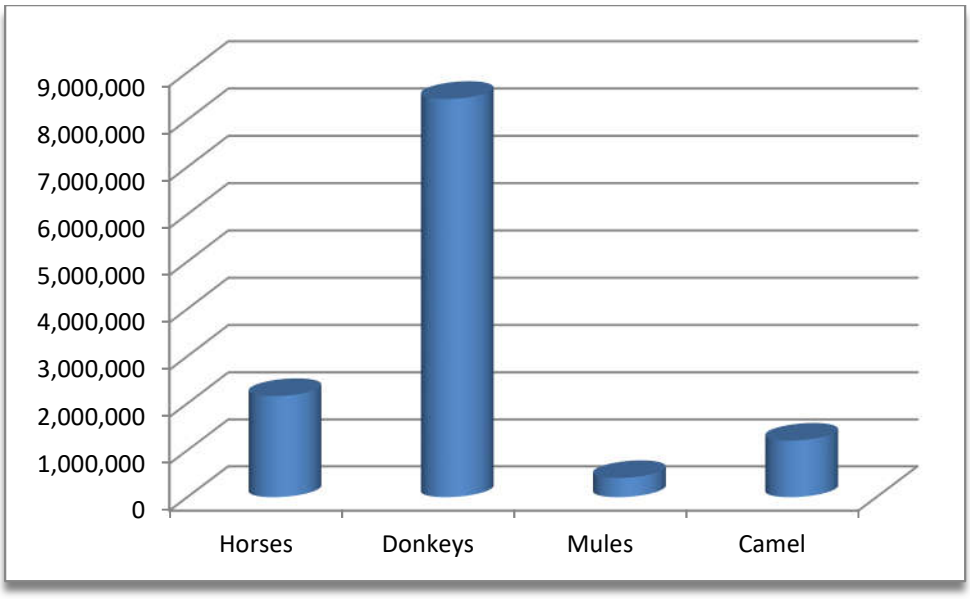


Figure 26: Total number of Horse, Donkeys and Camels, PSHF main season 2016/17

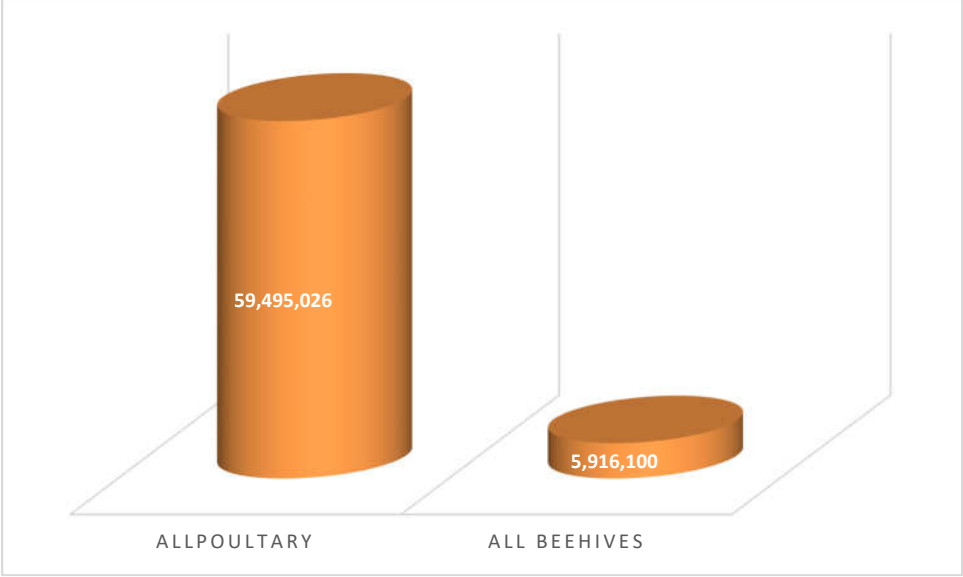


Figure 27: Total number of Poultry and all behaves, PSHF main season 2016/17

4.2. Production of Livestock Products

Although, there are various animal products such as milk and milk products, meat, hides & skins, wools and eggs, due to difficulty and unease of obtaining the data at smallholder levels in the country traditional agricultural sector, the survey obliged to collect data on milk, egg and honey productions only.

Milk Production

Estimation of milk production entails three components, namely number of milking cows/camels, number of months milking cows/camels actually milked within the reference period and average milk production per cow/camel per day. Milk production is estimated based on the concept of "net production"[7], as indicated in Table 7 the estimate of total cow milk production for the rural sedentary areas of the country was about 3 billion liters. On the other hand, the estimate of camel milk for the same areas of the country was about 179 million liters.

Honey and egg production

The survey result shows that more that 47.71 million kilograms of honey produced during the survey year, while the total number of eggs produced was about 127.57 million during the survey year.

Table 7: Total production of Milk, Eggs and Honey, PSHF main season 2016/17

Livestock Products	Quantity produced
Milk Production in liters	
Cow milk	3,134,181,317
Camel milk	179,658,966
Honey Production in kilo grams	47,706,101
Egg Production (number)	127,566,103

[7] Net production" consists of whole milk actually milked and milk fed to other animals but excludes milk sucked by young animals.