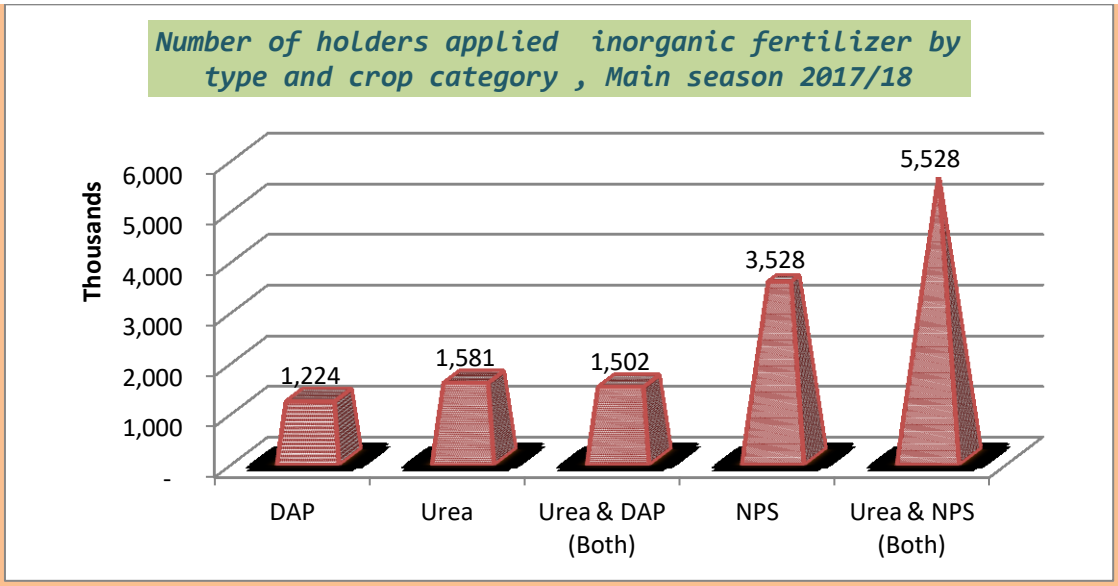
# THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
# CENTRAL STATISTICAL AGENCY

## *KEY FINDINGS OF THE 2017/2018 (2010 E.C)*
## *AGRICULTURAL SAMPLE SURVEYS*




## *COUNTRY SUMMARY*

*ADDIS ABABA*

*September, 2018*

## *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 eestimates 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 small holder 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.*

*The Annual Agricultural Sample Survey covered the entire rural parts of the country except the non-sedentary population of three zones of Afar & six zones of Somali regions. 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 and regional levels.The survey methodology of the annual AgSS is sound and up on international standard[1]. 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 small holder farms survey about 1,583 sampled enumeration areas (EAs) and about 23,263 sampled agricultural households were covered by the survey. More than three thousand large & medium scale farms were actually covered for the commercial farms survey.[2]*

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

[2] *For detailed information of the survey results of all components of the 2017/18 (2010 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.*

# *Part II:*

# *Highlights on the Key Findings of the 2017/18 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 small holder framers in Ethiopia. Even though, intensity of cultivation & production of grain crops varies seasonally across regions and zones these crops are widely grown all parts of the country by small holder farmers in both seasons (Mehere & Belege seasons), dry season irrigation farms and by commercial farms.

At country level, grain crops constitute the majority of the annual total agricultural crop production. For the private small holder farmers more than half of (62%) the share of total agricultural crop output was accounted by grain crops during the 2017/18 (2010 E.C) production year.

For the survey year, the total crop cultivated land area and production of grain crops were 15,270,526 hectares and 342,174,543 quintals.The figures include all grain crops produced by private small holder farmers (both mehere&Belge seasons), private small holder dry season irrigation farms and commercial farms. The result shows that about 95% of the total grain production comes from private small holder farmers.

*Table 1:* **Grain Crop Production and cultivated area by farm type, 2017/18**

| *Production farm* | *Grain Crops* | |
|---|---|---|
| | *Area (ha)* | *Production (qt)* |
| **Private small holder (Belge&Mehere Seasons)** | 14,543,439.47 | 326,055,850.35 |
| **Private small holder dry season irrigation farms** | 85,299.25 | 2,875,249.14 |
| **Commercial farms** | 641,786.88 | 13,243,443.61 |
| **Total** | **15,270,525.60** | **342,174,543.10** |

*Table 2: Private Small Holder farmers grain crops production & area by Season, 2017/18*

| Crop Type | Private Small Holder Farms | | | | | |
|---|---|---|---|---|---|---|
| | Mehere season | | Belge Season | | Total | |
| | Area (ha) | Production (qt) | Area (ha) | Production (qt) | Area (ha) | Production (qt) |
| **Grain Crops** | **12,677,882** | **306,126,383** | **1,865,557** | **19,929,467** | 14,543,439 | 326,055,850 |
| **Cereals** | 10,232,582 | 267,789,764 | 1,377,749 | 16,132,720 | 11,610,331 | 283,922,484 |
| **Pulses** | 1,598,807 | 29,785,881 | 454,751 | 3,748,955 | 2,053,557 | 33,534,836 |
| **Oilseeds** | 846,494 | 8,550,738 | 33,057 | 47,793 | 879,551 | 8,598,531 |

*Table 3: Private Small Holder farmers dry season irrigation farm grain crops production & area by Season, 2017/18*

| Crop Category | Area (ha) | Production (qt) |
|---|---|---|
| **Grain Crops** | 85,299.25 | 2,875,249.14 |
| **Cereals** | 70,355.25 | 2,620,068.32 |
| **Pulses** | 14,838.12 | 253,954.19 |
| **Oilseeds** | 105.88 | 1,226.63 |

For the private small holder farmers Meher & Belge season production cereals, pulses and oilseeds covered about 11,610,331; 2,053,557 and 879,551 hectares of cultivated land, from which 283,922,484; 33,534,836 and *8,598,531* quintals were harvested, in their respective order.

Cereals take almost the majority of the total grain crops cultivated land and production for small holder farmers. As indicated in fig(1) 80% and 87% of grain crop area and production were cereals, respectively. While the percentage share of pulses and oil seeds were 14% &10% for pulses and 6%&3% for oil seed, respectively.

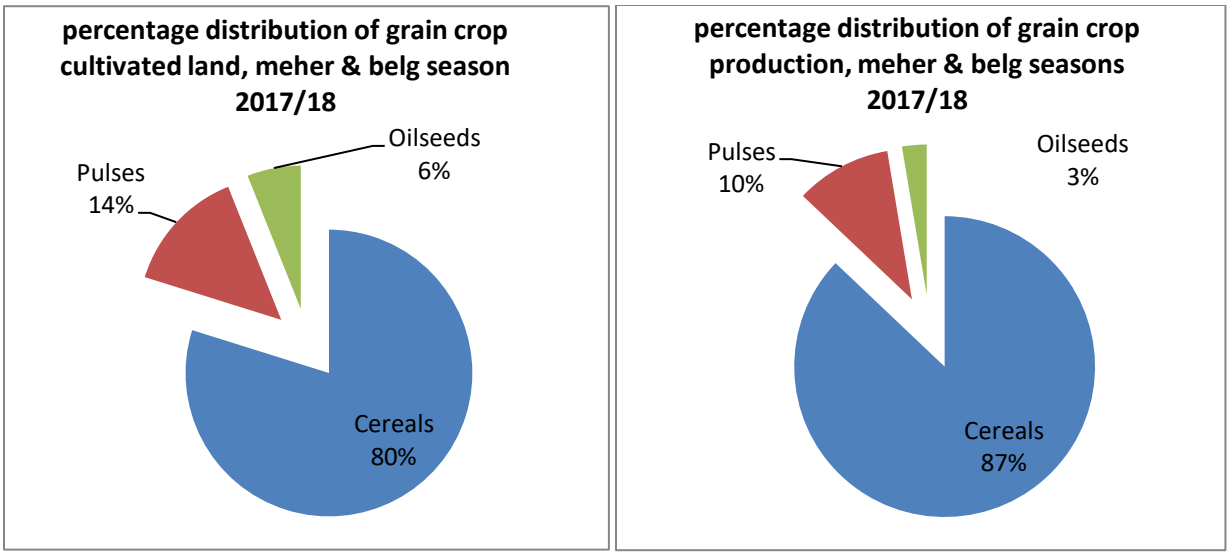



***Figure 1:*** *Area and production share of grain crops for private small holder farmers, 2017/18*

For the commercial farms the total grain crop cultivated land and production were 641,787 hectare and 12,243,444 quintals during the survey year. The survey result shows for commercial farms the share of cereals from the total grain cropped area was about 46%. For these farms the highest share of total grain cropped area was covered by cereal crops followed by oil seeds.

***Table 4***: Cultivated area and Production of grain crops for commercial farms, 2017/18

| *Crop Category* | *Area (ha)* | *Production (qt)* |
|---|---|---|
| ***Grain Crops*** | *641,786.88* | *13,243,443.61* |
| ***Cereals*** | *296,529.01* | *9,702,259.60* |
| ***Pulses*** | *58,762.33* | *1,111,722.30* |
| ***Oilseeds*** | *286,495.54* | *2,429,461.71* |

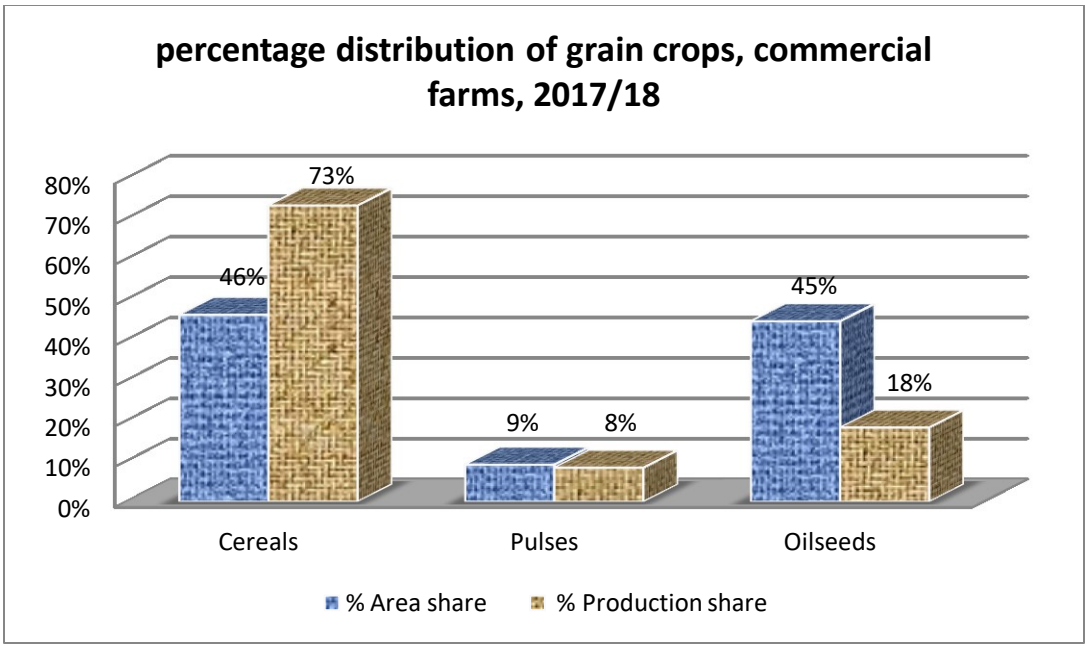



*Figure 2:* **Area and Production share of grain crops for commercial farms, 2017/18**

## 1.2. Vegetables, Root and Permanent Crops

During the survey year a total of 2,794,745 hectares of land were covered by vegetables, root crops and permanent crops both in small holder farmers and commercial farms. The total crop output for these crops was found 269,831,343 quintals (See Table 5).

*Table 5:* **Area and production of Vegetables, root and permanent crops by Private small holder farms[3]& Commercial Farms, 2017/18**

| *Crop Category* | *Private small holder farms* | | *Commercial farms* | |
|---|---|---|---|---|
| | *Area (ha)* | *Production (qt)* | *Area (ha)* | *Production (qt)* |
| *Vegetables* | 431,815.41 | 35,404,745.43 | 8,879.19 | 1,046,769.43 |
| *Root Crops* | 848,966 | 135,517,078 | 1,250.82 | 318,155.46 |
| *Permanent Crops* | 1,157,327 | 28,594,876 | 346,506.13 | 68,949,718.83 |

[3] *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 counties 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 small holder farms at plot level and in commercial farms.

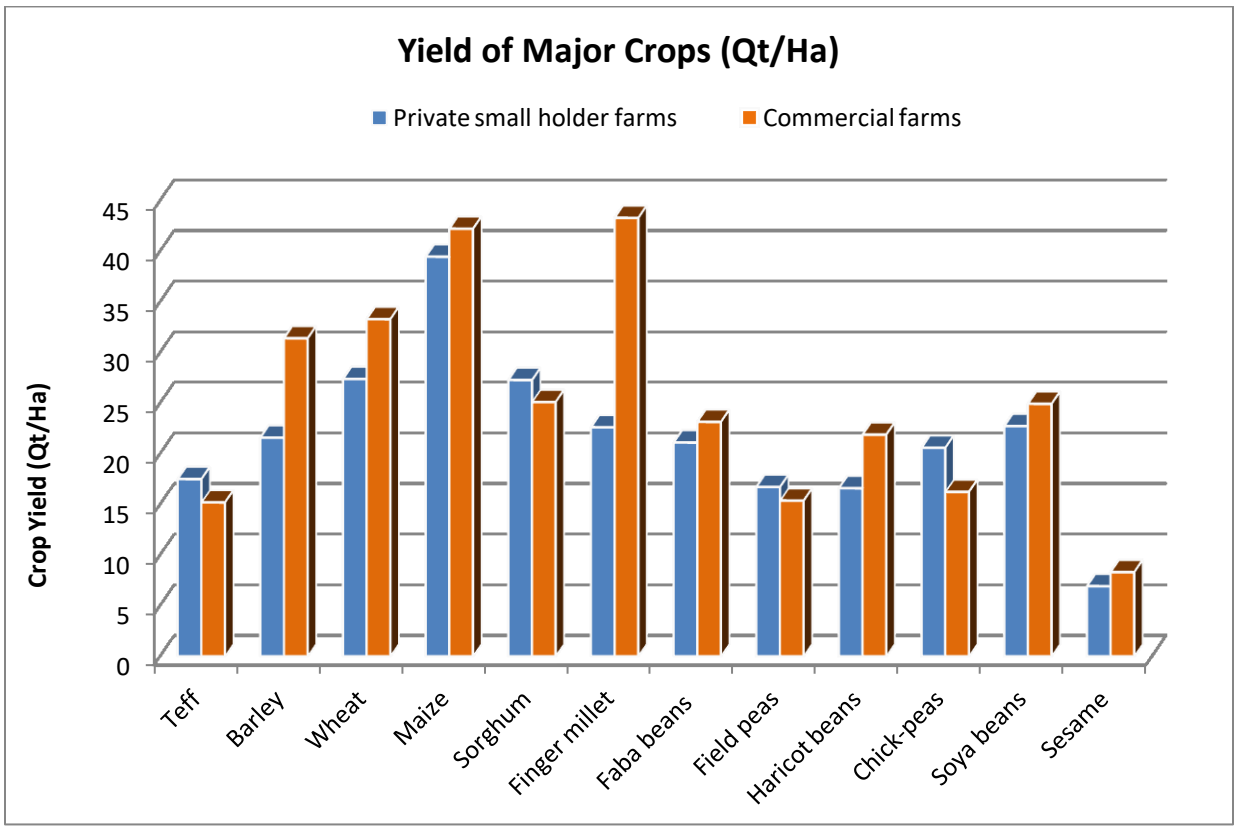



*Figure 3:* ***Crop Yield for Selected Major Grain Crops for (Private Small holdings & Commercial farms, main season, 2017***

## 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 very low in Ethiopia. In this summary report a short summing up of the major findings regarding application and use of fertilizers, improved seed, pesticides, irrigation, etc… are presented for the survey year.

### 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 is elicited on two types of fertilizers (Natural and Chemical). The Natural fertilizer consists of the farm yard 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 more than 12.2 million quintals for private smallholder farmers during the main season of survey year 2017/18(Table 6).

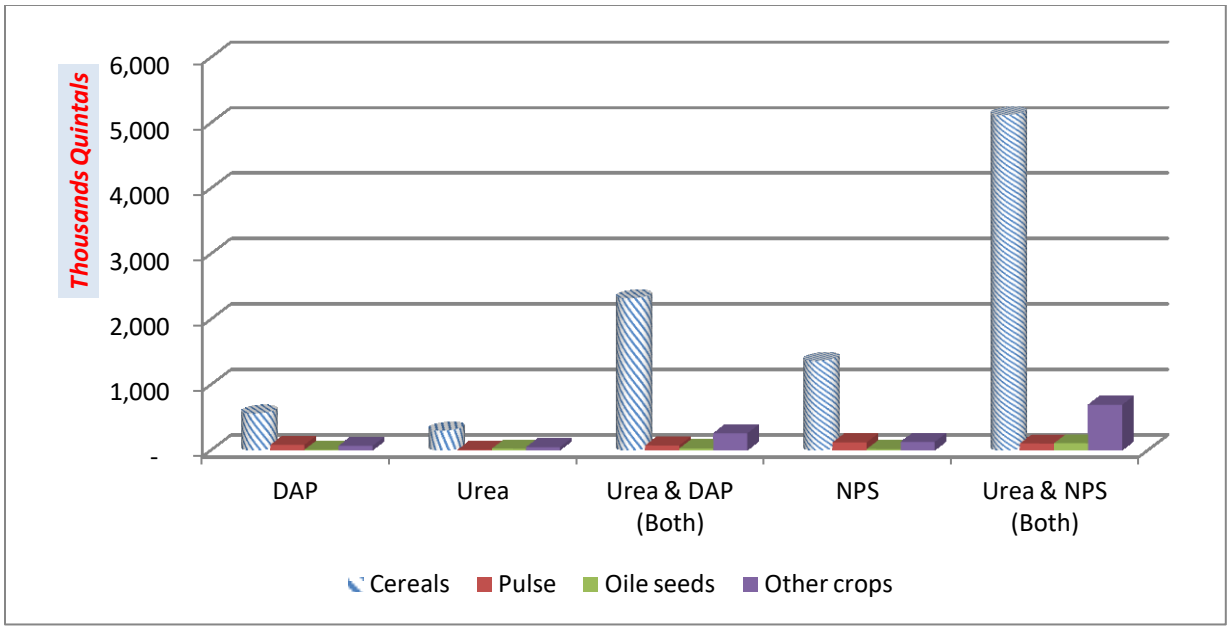



*Figure 4: Quantity of inorganic fertilizer by type and crop category, Private smallholder farms, main season 2017/18*

More than half of the total cultivated land has fertilized either organically or inorganically. The total fertilized cultivated crop land was found 8,277,524 hectares, of which 6,900,628 hectares of land were fertilized inorganically and accounted 83.4 % of the total fertilized land area. The survey result shows that the proportion of cultivated land under chemical fertilizer was about 57 % of the total cultivated cropped area at country level, which was higher from the previous survey year.

*Table 6:* **Cultivated land and fertilized crop land by fertilizer & Crop category, small holders farmers, main season 2017/18**

| *Crop Type* | *All Cultivated land area(Ha)* | *All Fertilized area (Ha)* | *Organic fertilizer (Ha)* | *Inorganic fertilizer(Ha)* |
|---|---|---|---|---|
| *All* | *14,582,195* | *8,277,524* | *1,376,896* | *6,900,628* |
| *Cereals* | *10,232,582* | *6,981,097* | *749,786* | *6,231,311* |
| *Pulse* | *1,598,807* | *448,569* | *121,150* | *327,419* |
| *Oil seeds* | *846,494* | *103,957* | *33,258* | *70,699* |
| *Other Crops* | *1,904,312* | *743,901* | *472,702* | *271,199* |

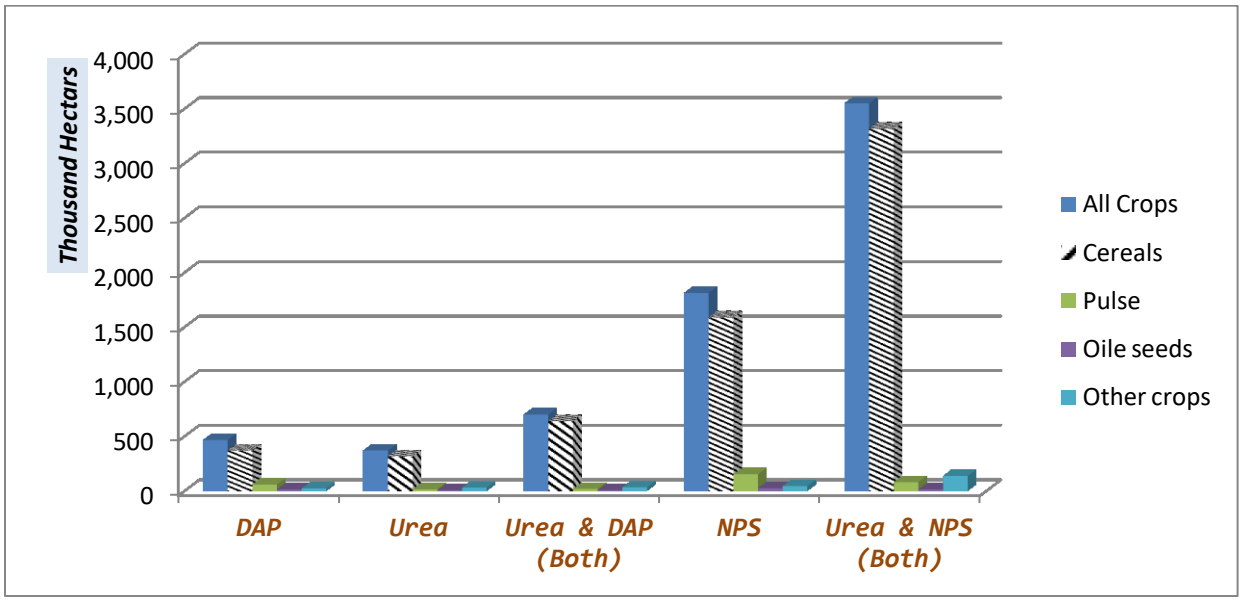



*Figure 5: Area of inorganically fertilized land by type & crop category, Private small holder farms, main season 2017/18*

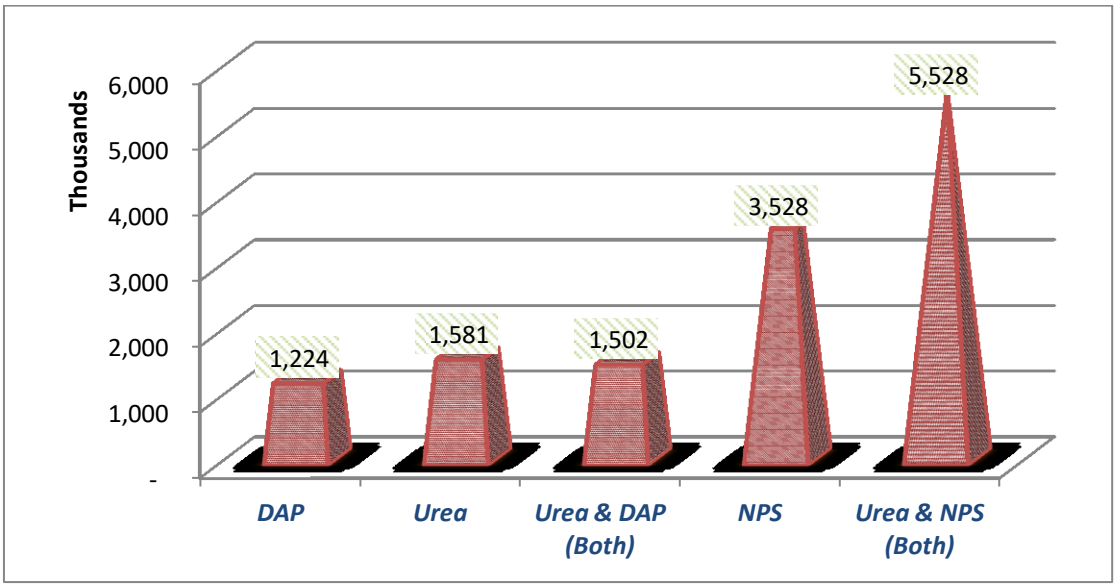



*Figure 6: Number of holders applied inorganic fertilizer by type, Private smallholder farms, Main season 2017/18*

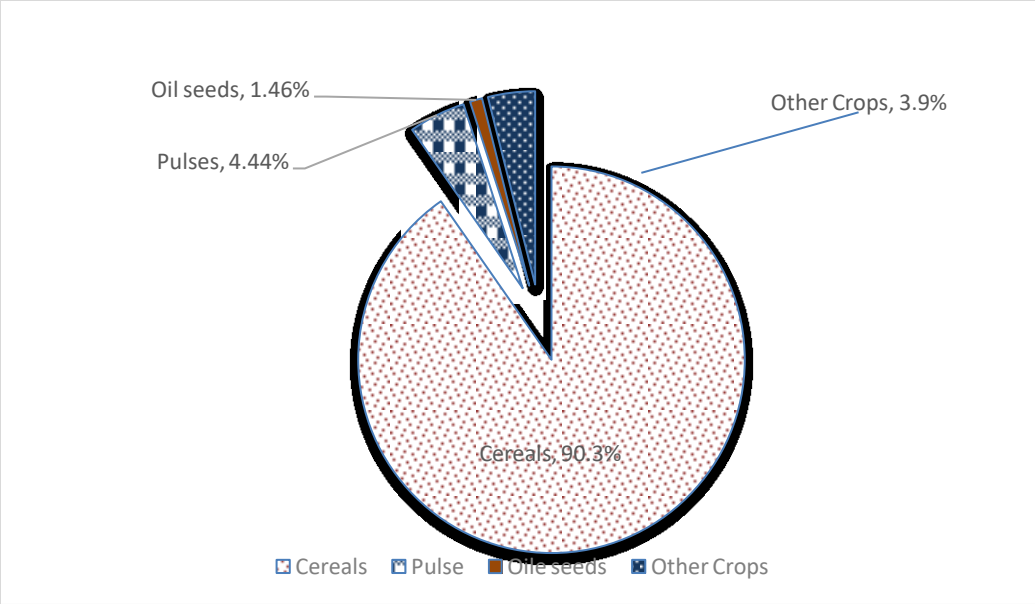



*Figure 7: Percentage distribution of inorganically fertilized land by crop category, Private smallholder farms, main season 2017/18*

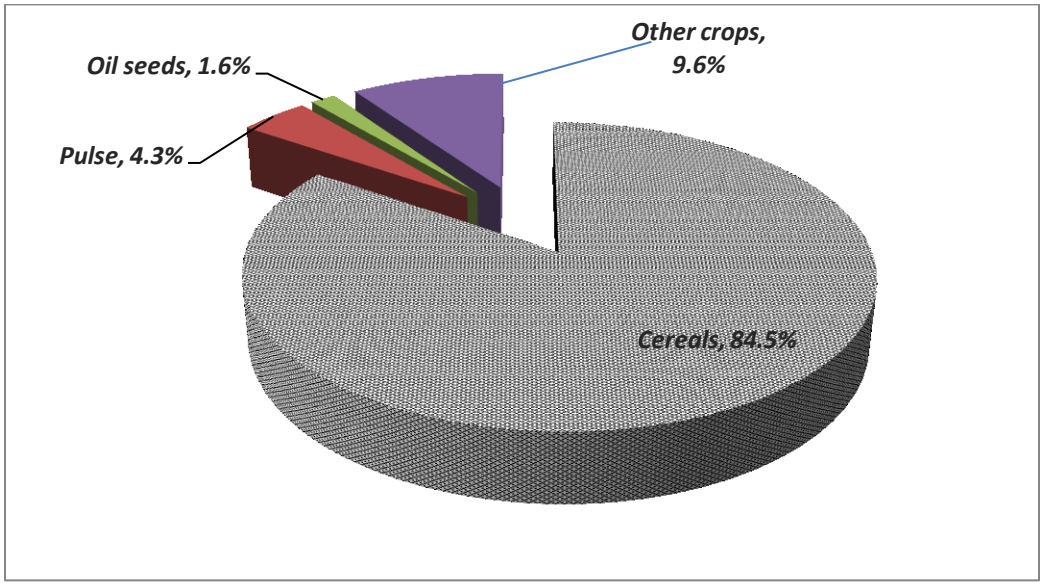



*Figure 8: Percentage distribution of total quantity of inorganic fertilizer by crop category, main season 2017/18*

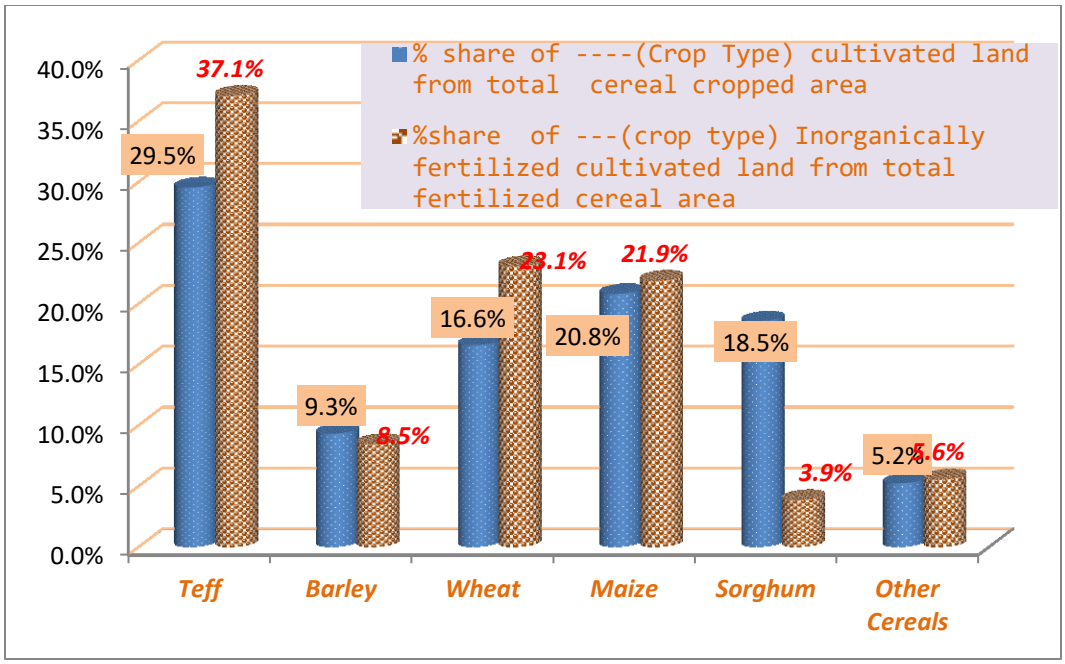



*Figure 9: Percentage share of major cereals from total cultivated & fertilized cereal land, Private smallholder farms, main season 2017/18*

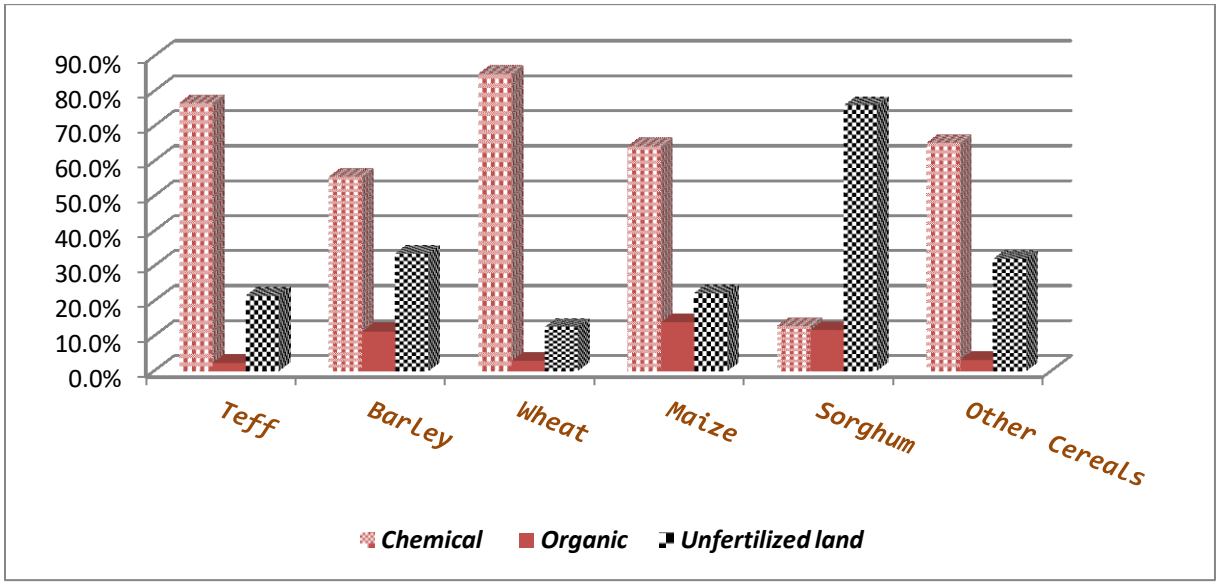



*Figure 10: Percentage distribution of fertilized cultivated land by cereal crop type, PSHF, main season 2017/18*

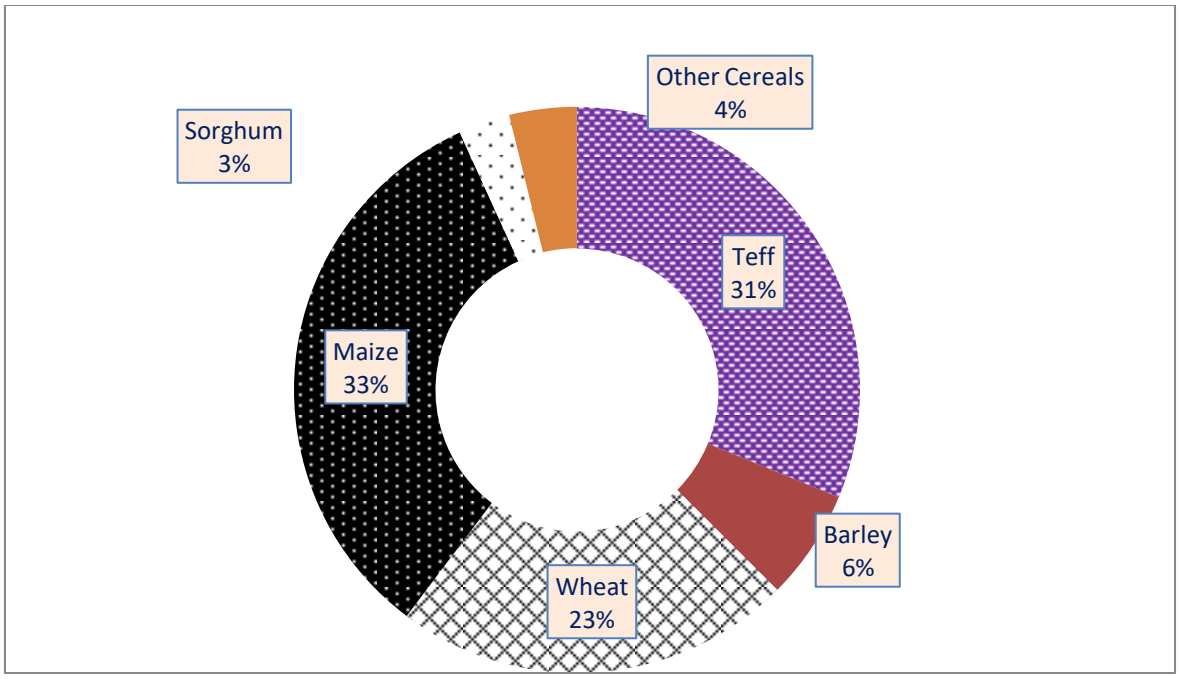



*Figure 11: percentage distribution of quantity of inorganic fertilizer for cereals, PSHF, main season 2017/18*

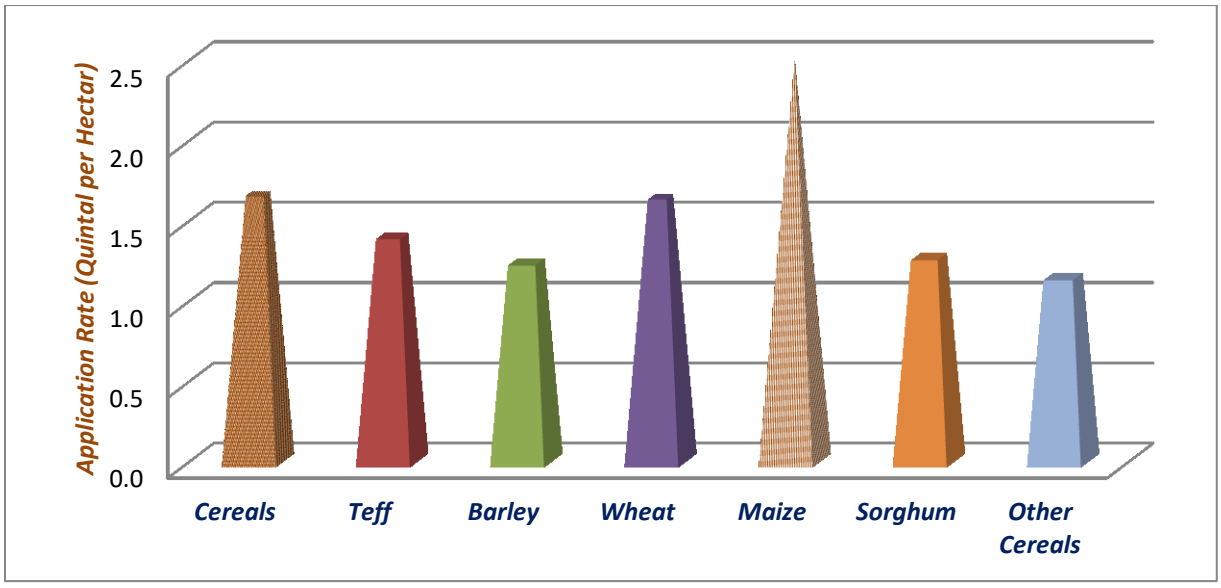



*Figure 12: Chemical fertilized application rate (Qt/Ha) for cereals, PSHF, main season, 2017/18*

## 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. Compared to the other inputs it has not been widely practiced by smallholder farmers. The amount of improved seed was lower from the previous production years.

Only 13 percent of the total cereal cropped area is covered by improved seed. While the figure for pulses and oil seeds was 0.8% and 1.6% 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.

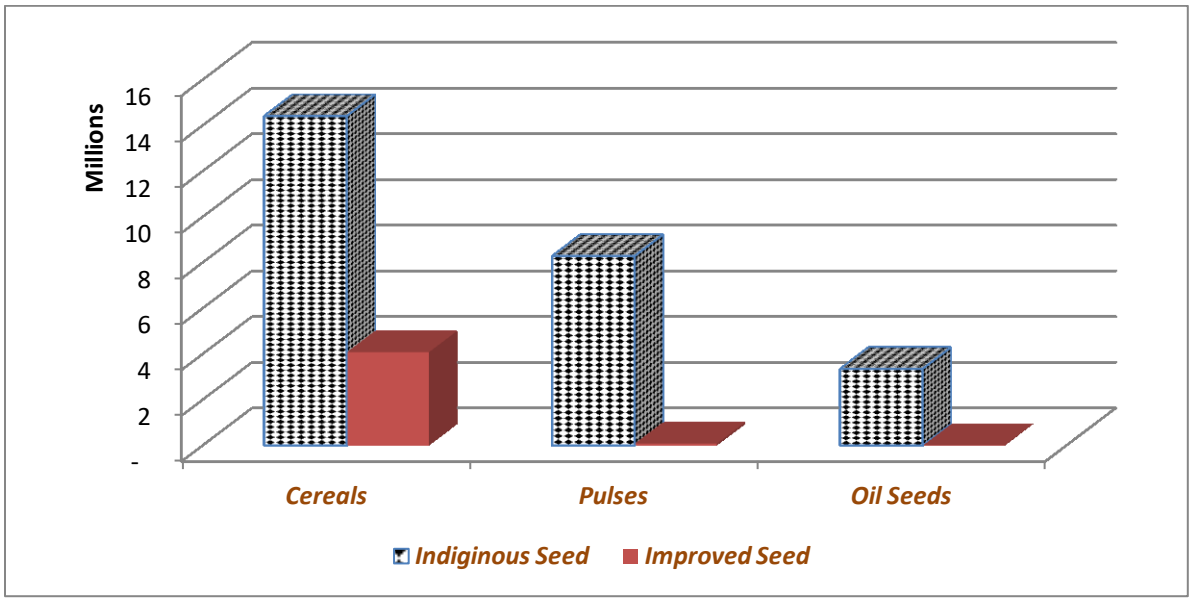



*Figure 13: Distribution of Number of holders by seed type & grain crops, PSHF main season 2017/18*

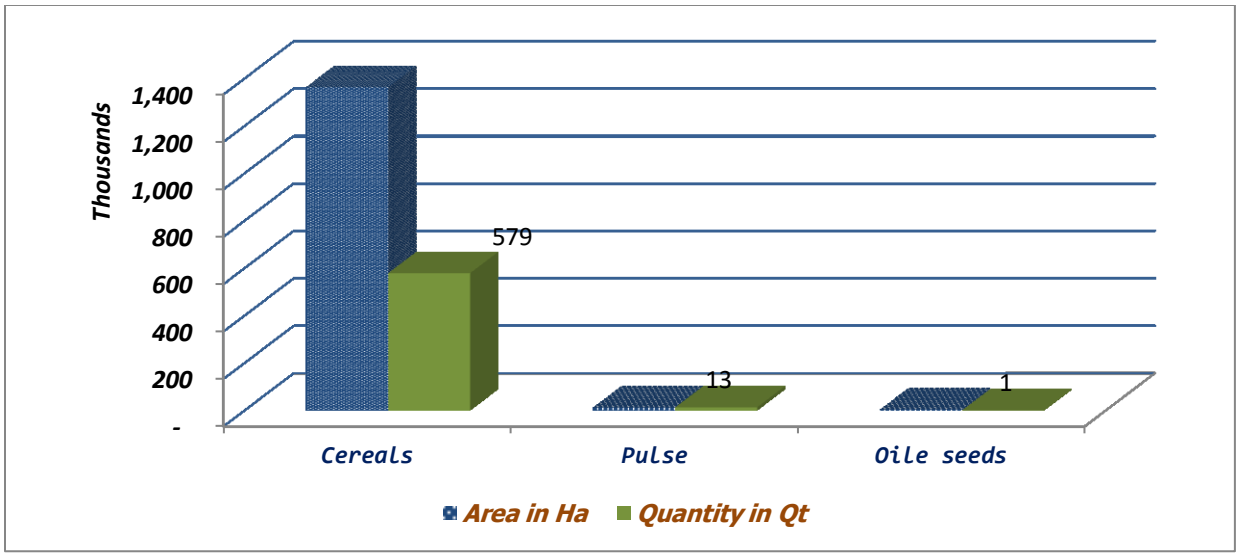



*Figure 14: Distribution of quantity of improved seed & area for grain crops, PSHF main season 2017/18*

As shown in Figure 14 from the total area under improved seed allocated to cereals 85.5% covered by maize. The share for wheat, teff and Barely were 8.2%, 4.1% and 1.4%, 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 was found for barley and wheat 2.4 & 1.8 quintal per hectare, respectively and the lowest application rate was for sorghum (0.23 quintal per hectare). The application rate for *teff* and maize were 0.35 quintal per hectare and 0.27 quintal per hectare of cultivated land, respectively, See Fig. 16.

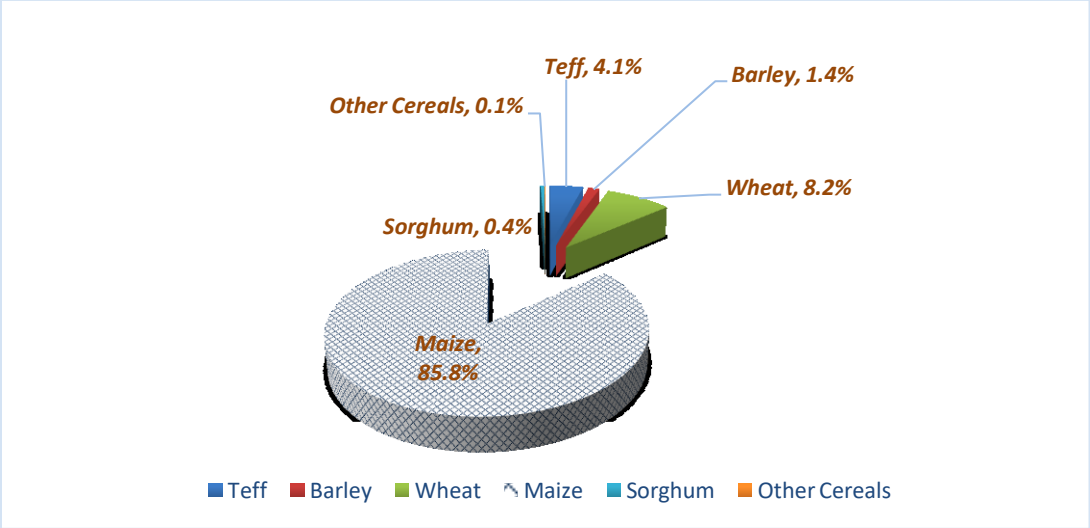



*Figure 15: Percentage share improved seed area of cereal crops from total cereal area under improved seed, PSHF, main season 2017/18*

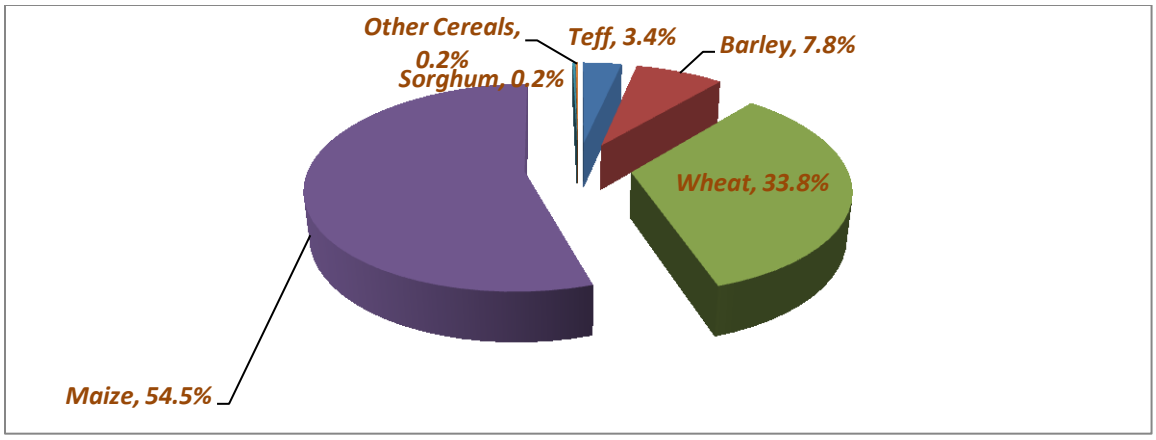



*Figure 16: Percentage distribution improved seed quantity of cereal crops from total cereal improved seed, PSHF, main season 2017/18*

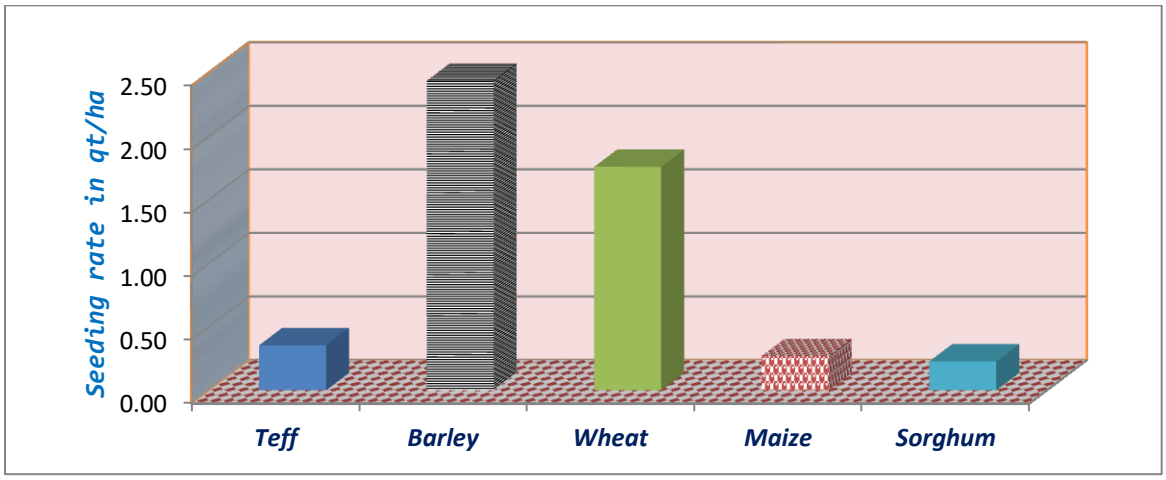



*Figure 17: Improved seed seeding rate for major cereal crops, PSHF, main season 2017/18*

## 2.3. Pesticide Applied

The total pesticide applied area for the year 2017/18(2010 E.C.) main production season was 3.9 million hectares. The majority of the pesticide applied cultivated land was on cereal crops. About 27 % and 34 % of the total crop land area and cereal-cropped area were applied pesticides (Fig 17).

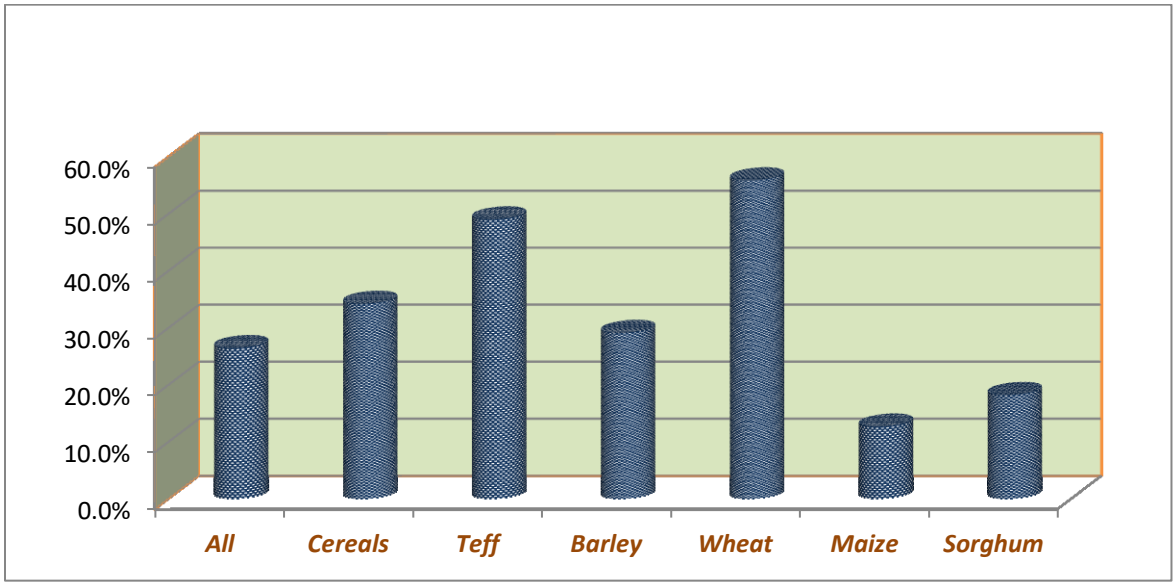



*Figure 18: Percentage distribution of pesticide applied area by crop type*

## 2.4. Extension Package Program

As the findings of the survey indicate, around 31 percent of the cultivated land under cereal crops was covered by extension package program (See Fig 18). In 2017/18 main cropping season, the number of holders participating in various crop extension packages was estimated to be more than 8 million.

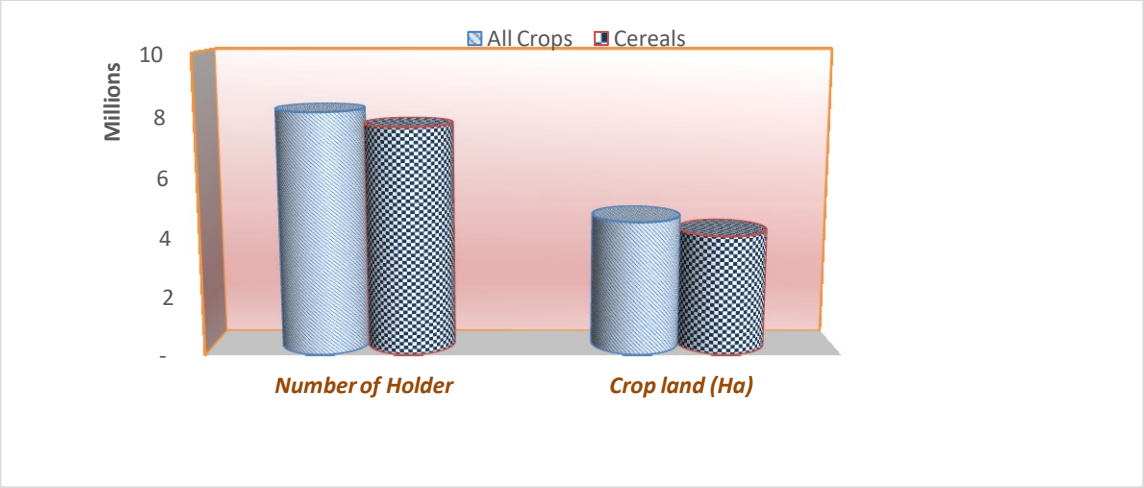



*Figure 19: Distribution of holder & cropped land area with extension package, PSHF, main season 2017/18*

## 2.5. Agricultural Services & Practices

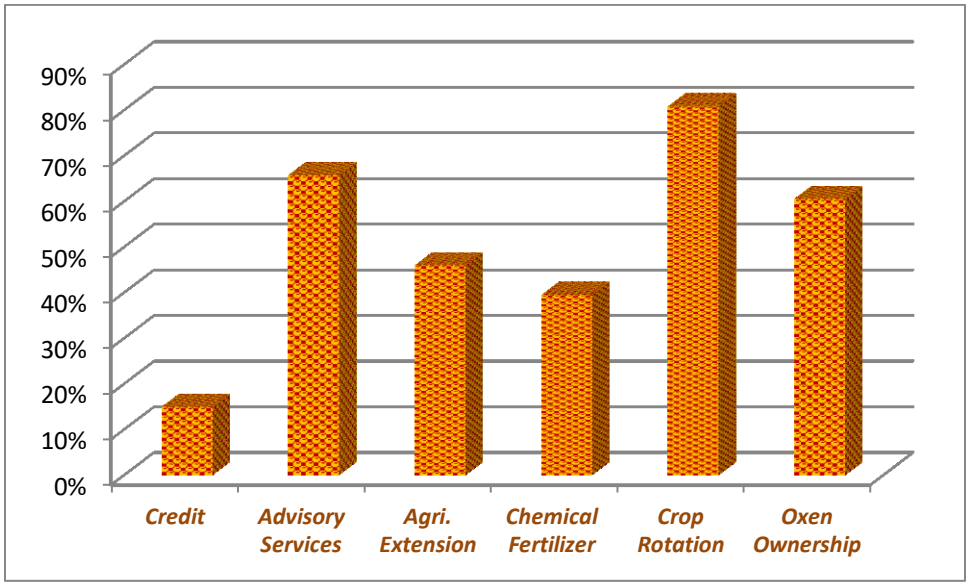
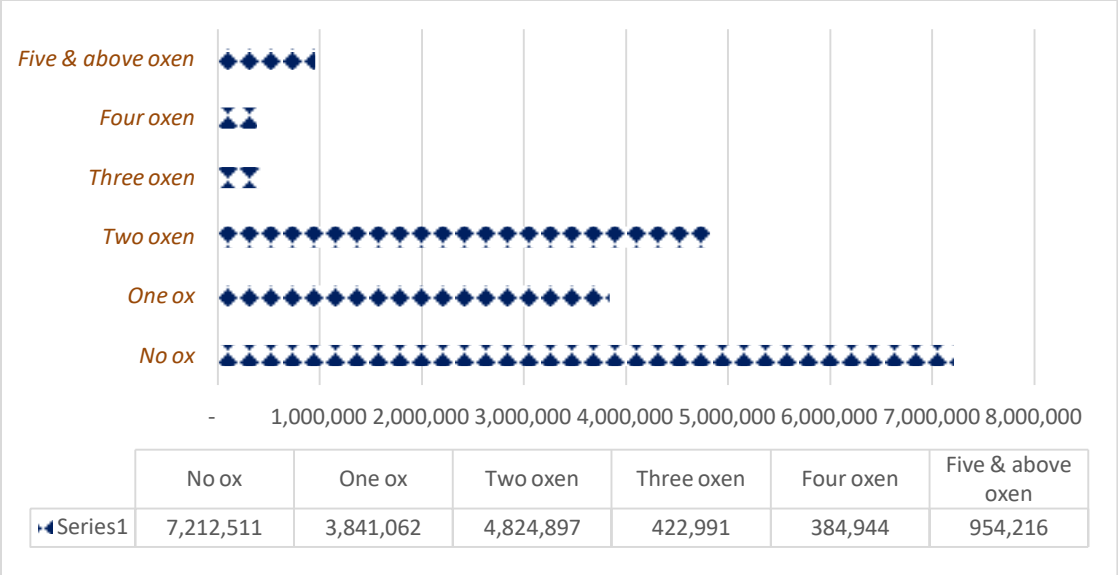



*Figure 20: percentage distribution of holders by agricultural services/ practices, PSHF, main season 2017/18*




| | No ox | One ox | Two oxen | Three oxen | Four oxen | Five & above oxen |
|---|---|---|---|---|---|---|
| Series1 | 7,212,511 | 3,841,062 | 4,824,897 | 422,991 | 384,944 | 954,216 |

*Figure 21 : Distribution of holders by number of oxen ownership, PSHF, main season 2017/18*

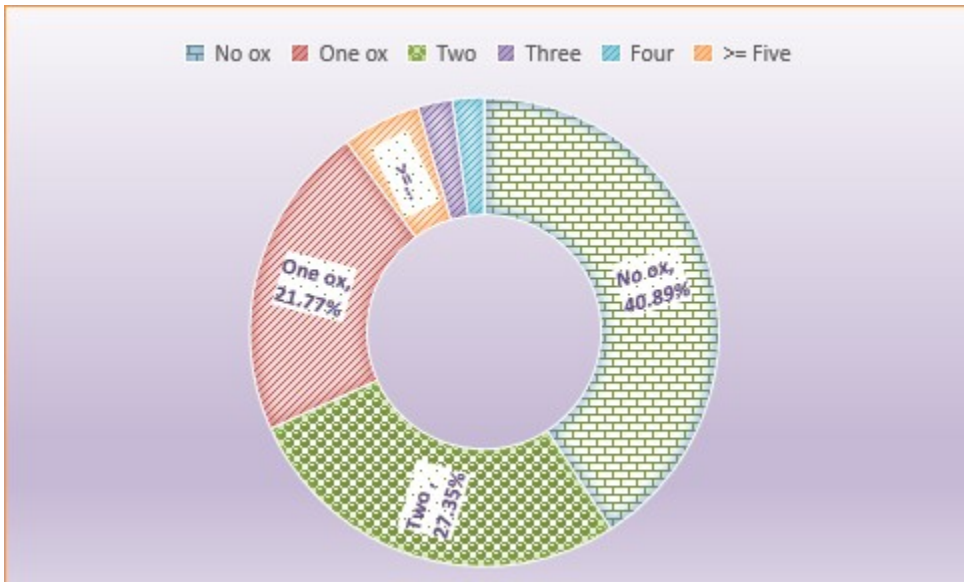



*Figure 22 : Percentage distribution of holders by number of oxen ownership, PSHF, main season 2017/18*

## *3. 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 17.9 million hectares of land was used in different types of land use by small holder 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 21 below. About 82 percent of the land operated by small holder farmers was allocated to crops, both temporary and permanent crops while 10.4% of the land used for grazing land.

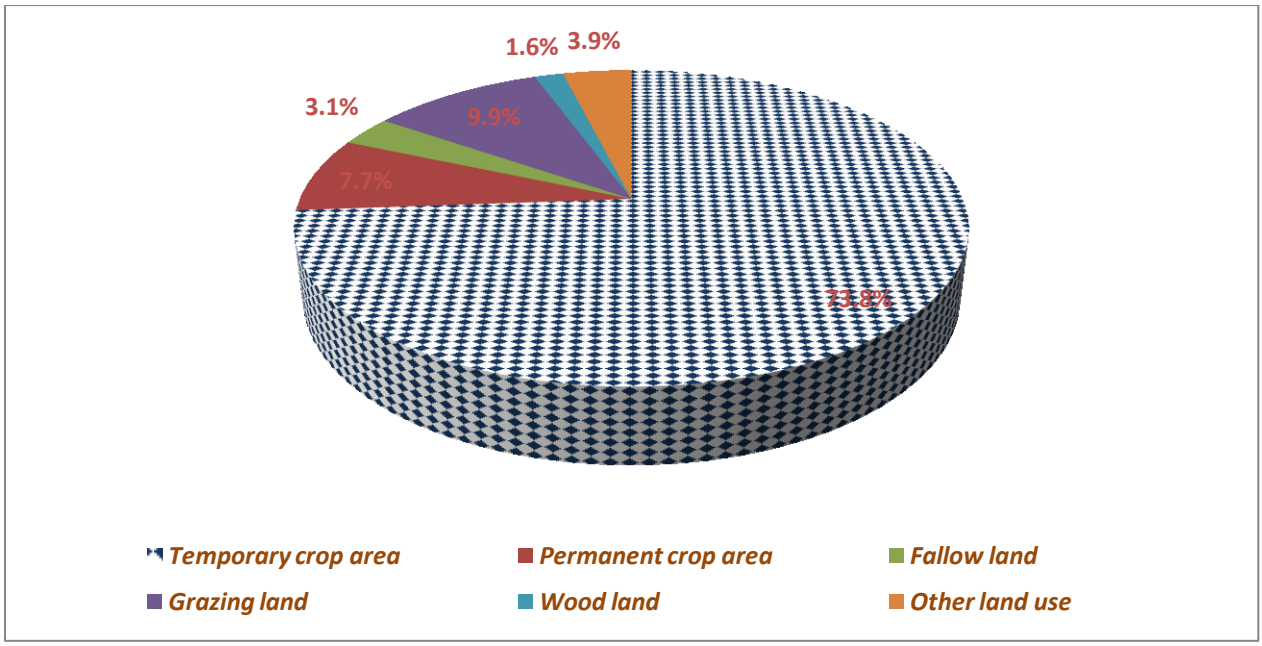



**Figure 23: Percentage distribution land utilization, Main season 2017/18**

The survey result also shows that there were 17.6 million agricultural holders and about 17.2 million agricultural households all over the country. About 11 million agricultural holders have land holdings less

than a hectare. The average holding sizes per household and per holder were 1.04 hectare and 1.01 hectare during the survey year in each respective order. The average holding size for cropped area was 0.89 and 0.87 hectares, for these household *and holders, respectively.*

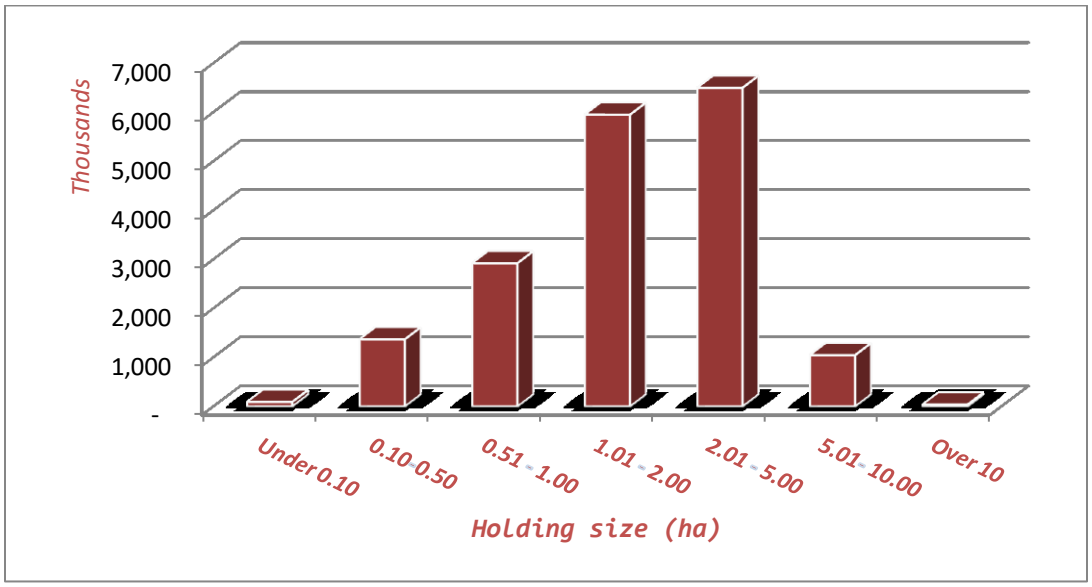



*Figure 24: Percentage distribution of agricultural holders by size of holding, Main season 2017/18*

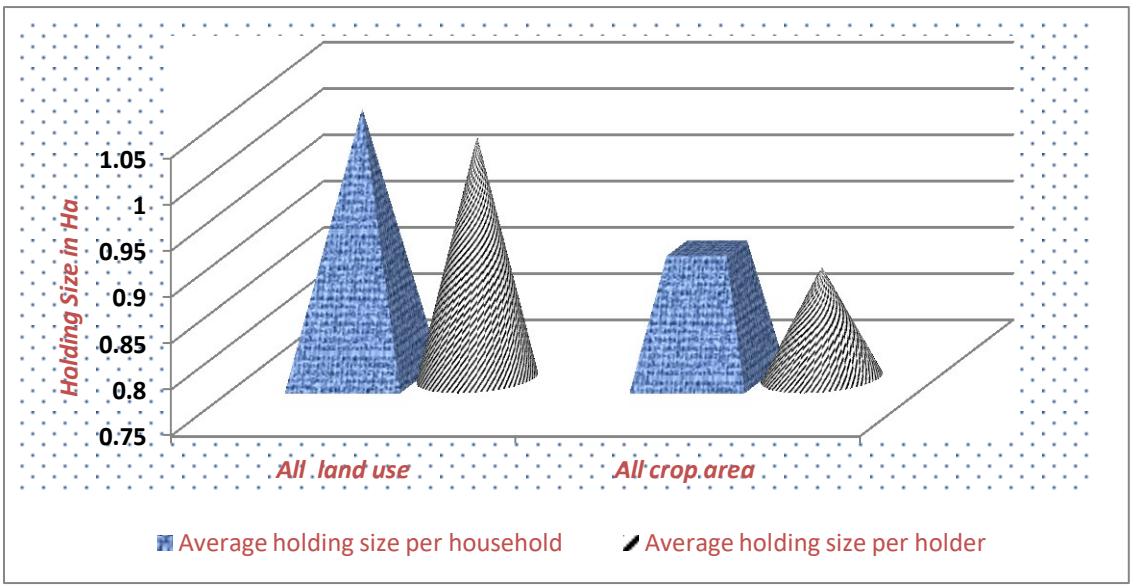



*Figure 25: Agricultural Households & holders average holding size, PAHF main season 2017/18*

## 4 Livestock and Livestock Characteristics

*The use of studying livestock survey is to provide quantitative information on the size and characteristics of livestock in rural sedentary areas at zonal level. And it gives us data on livestock number by type, age, sex, purpose and breed; livestock products particularly milk, egg and honey; livestock disease and vaccination; and animal feed were collected from sampled agricultural household in rural sedentary areas.*

### 1. Number of Livestock

*During the survey year (2017/18) the total estimated number of total cattle, sheep and goats, and other animals (horses, donkeys, mules and camels), at country level are indicated in Fig. 1 & 2 below.*

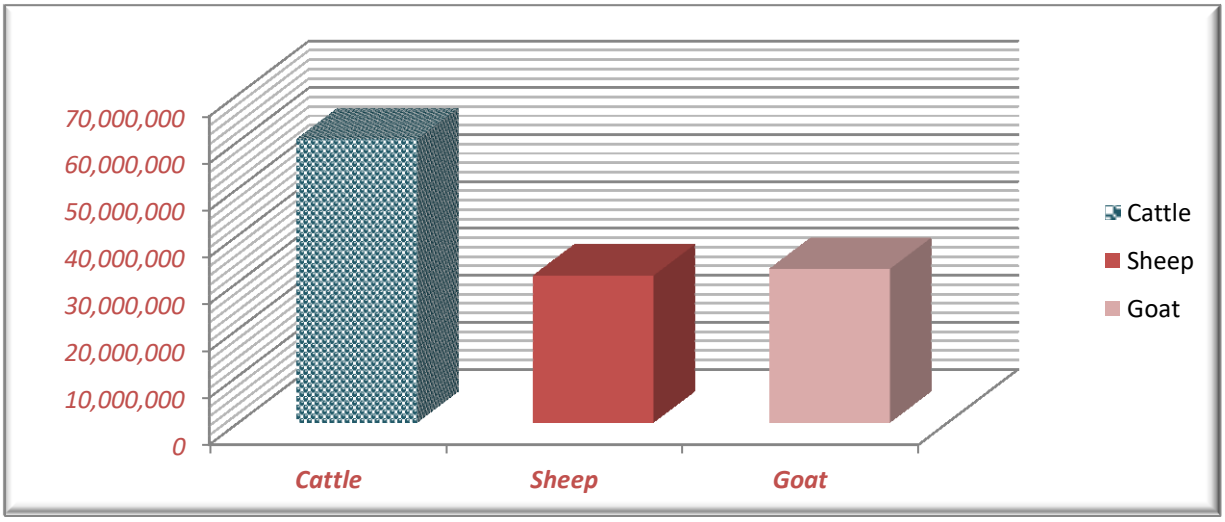



**Figure 26: Total number of Cattle, Sheep and Goat, main season 2017/18**

***** The numbers include the livestock belonging to the holding but temporarily away or in transit at the time of the enumeration.*

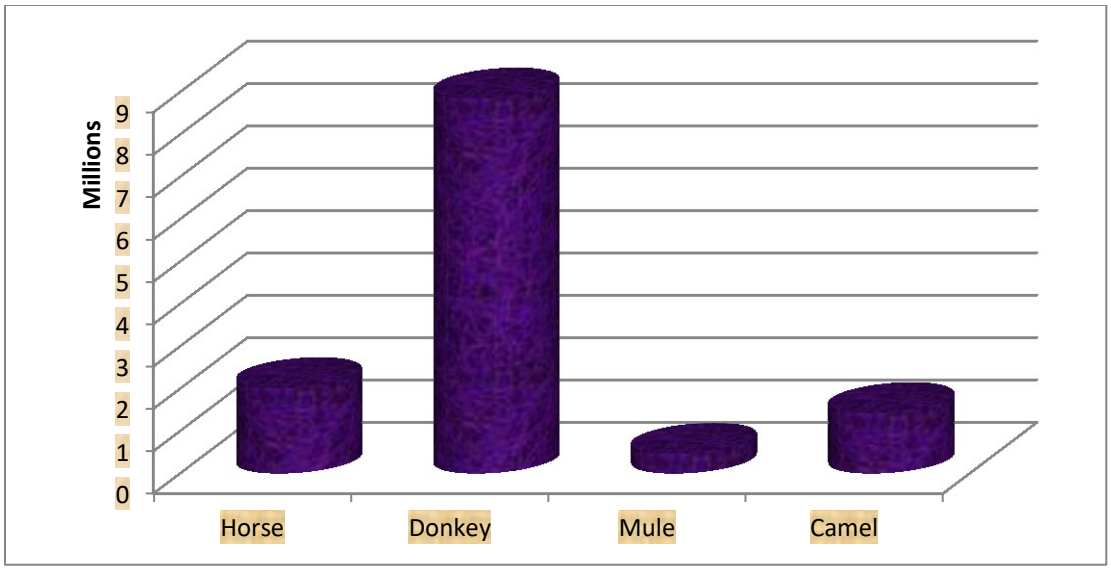



Figure 27 Total numbers of Horse, Donkey, Mule and Camel, main season 2017/18

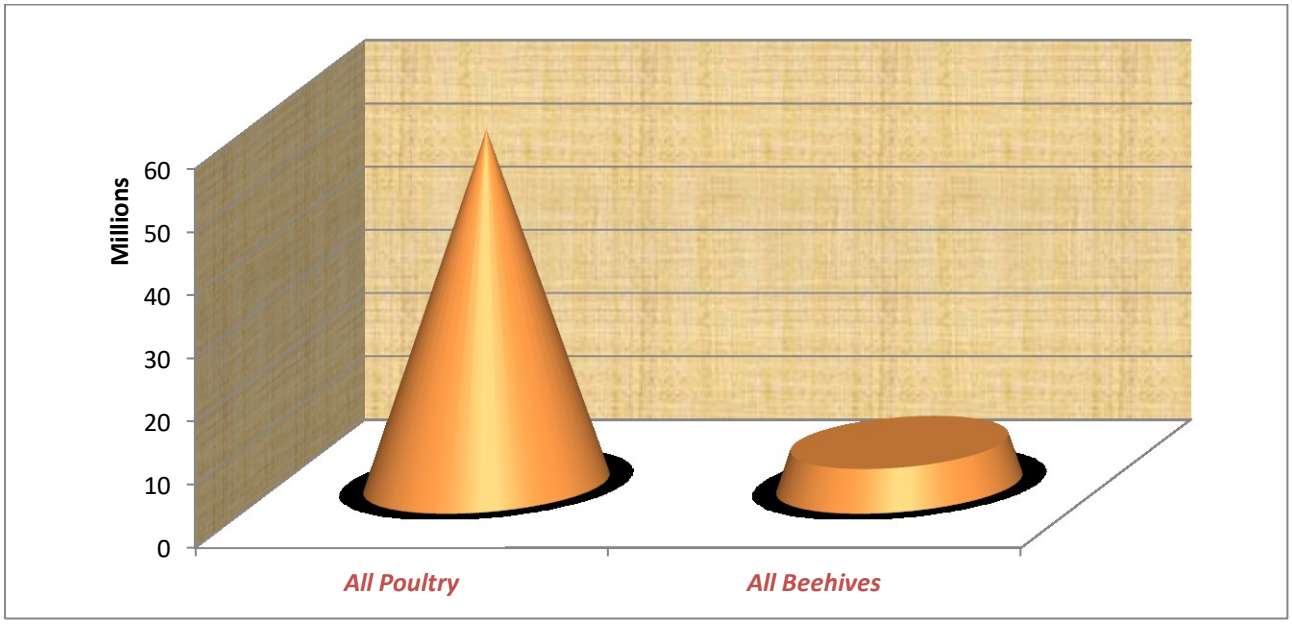



Figure 28 Total numbers of Poultry and Beehive, main season 2017/18

## 2. Livestock Product Production

*The various animal products include milk and milk products, eggs, wool, meat, hides and skins. Although data on such livestock products are not easily obtainable in the Ethiopian traditional agricultural sector, an endeavor was made to collect data on milk and honey productions.*

### *2.1. Milk Production*

*Estimation of milk production entails three components, namely number of milking cows, number of months milking cows actually milked within the reference period and average milk production per cow per day. Milk production is estimated based on the concept of "Net production"[4] as indicate table 1 the estimate of total cow milk production for rural sedentary areas of country was about 3 billion. On the other hand, the estimate of camel milk for the same areas of the country was about 327 million.*

### *2.2. Honey and Egg Production*

*As a survey result, the estimate of total honey production is about 66 million kilograms and the estimate of total number of egg produced during the year is about 136 million.*

| Livestock Products | Quantity produced |
|---|---|
| Milk Production in liters | |
| Cow milk | 3,317,786,694 |
| Camel milk | 327,638,287 |
| Honey Production in kilo grams | 66,221,823 |
| Egg Production (number) | 136,764,110 |

*Table 7: Total production of Milk, Eggs and Honey, main season 2017/18*

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