

# Population Dynamic Production Statistics of Horse and Ass in Ethiopia: A Review

Mearg Fitsum<sup>1\*</sup> Kirmani Monzur Ahmed<sup>2</sup>

1.Tigray Agricultural Research institute Axum Agricultural Research Center, P.O .Box. 230, Axum, Tigray, Ethiopia

2.Jimma University College of Agriculture and Veterinary Medicine, P.O. Box 307, Jimma, Ethiopia  
Email: meargf@yahoo.com

## Abstract

Related research results and facts of population dynamic production statistics of horse and ass in and out of Ethiopia were reviewed with the aim of delivering information to the improved production and management plan of a country. The study revealed that Ethiopia has large horse and donkey resources approximately 6.21million donkeys, which is 32% of Africa's and 10% of the world's donkey population and 2 million horses which is 33.5% of Africa population. Donkeys are the cheapest option for the Ethiopian family. They are relatively inexpensive to buy in comparison to horses, mules and oxen. The study also showed that donkey and horse number in Ethiopia increased during the 2000-2012 period at an average annual rate of 4.55% and 3.33% respectively. But donkey number declined during 2002 by an average rate of 2.6%. As a conclusion, improved management practices and feeding regimes and the delivery of accessible, sustainable and affordable equine health services are required to enhance equine performance and welfare.

**Keywords:** Trend, Donkey, Global

## 1. Introduction

Ethiopia is endowed with abundant agricultural resources. With altitudes ranging from 148 meters below sea level to 4,620 meters above it, the country has 18 major and 49 sub agro-ecological zones, each with its own agricultural and biological potential. Thus the country possesses one of the largest and most diverse genetic resources in the world. Ethiopia holds large potential for equine production. In addition, the country enjoys diverse topographic and climatic conditions favorable for them. These consist of a high central plateau ranging from 1,800 to 3,000 meters above sea level, a rift valley that divides the country from north to south with altitudes ranging from 1,000 to 1,800 meters above sea level and lowland plain areas of less than 1,000 meters above sea level in altitude. Depending on the altitude difference, temperature ranges from less than 10 °C in alpine areas to 35 °C and more in lowland areas. Moreover, rainfall in most of the country is adequate for crop and pasture production (Zerihun, 1999; MoA, 2000).

Horses, donkeys and mules belong to the equine group. They are found mainly in temperate, semi-arid or highland areas. The Ethiopian domestic donkey is indigenous to Africa. Its ancestors are the Nubian wild ass, *Equus asinus africanus* and the Somali wild ass, *Equus asinus somaliensis*. Ethiopia has approximately 6.21million donkeys, which is 32% of Africa's and 10% of the world's donkey population and 2 million horses which is 33.5% of Africa population. Donkeys are the cheapest option for the Ethiopian family. They are relatively inexpensive to buy in comparison to horses, mules and oxen. On average, a donkey costs 240 birr (Kidanmariam, 2000) and lives for an average of nine years (The Donkey Sanctuary, 2003). The donkey is able to survive on poor quality food and many families leave their donkeys to scavenge on what plant matter is available. Donkeys are hardy, and will live longer than other species in the same conditions. Since they are native to Africa and have adapted to the arid climate they have the ability to cope with high temperatures and only small amounts of water. They are able to withstand up to 30% dehydration (Yousef, 1991; Blakeway, 1994).

Donkeys and horses are herd animals and will happily live in groups with donkeys or animals of a different species such as, sheep and goats. Donkeys and horse are very friendly animals and enjoy the company of humans. They are easily trained and are suitable for handling by children especially donkey. Before the development of firearms, the horse was crucial to warfare and before the invention of the steam engine, it was the fastest and most reliable form of land transport. Today its importance has scarcely diminished in parts of South America, Asia, Africa and Eastern Europe, and even elsewhere it is of great economic importance to sport and leisure industries. A donkey can be very protective and have been used for many years to protect sheep, goats and young horses (Berry & Kokas, 1998); their loud bray is a useful warning to their owner that there is a predator amongst their animals.

Improving the productivity of horse and ass through breeding and improved managements will result in increasing opportunities of profit or income for the households of rural areas of Ethiopia. Therefore, reviewing the research results of Population dynamic production statistics of horse and ass will enable the delivering of good information that will also be helpful for the future planning of the strategic breeding and management programs, and generally for improved horse and ass production projects of the country. Based on this outlined

background, the objective of this paper was to review the research findings of the Population dynamic production statistics of horse and ass of the country, and thereby to deliver information for improved management and breeding programs of horse and ass.

## **2. Methodology**

Most of the research findings that have relation with population dynamic production statistics of horse and ass in Ethiopia and some related issues from the countries were reviewed. Reports of research findings that focused on population dynamic production statistics were reviewed at times of the original data collections. Findings of horse and ass production trend and their distribution rates were also reviewed, depicted and sourced. The study is based upon the secondary data obtained from diverse sources. District level data pertaining to different aspects of horse and donkey were collected from the Livestock Census, 2010/11 and FAOSTATA, 2014.

### **2.1. Global horse and donkey production and distributions**

According the FAOSTAT, 2012 data the global population of horse were 58.9 million. Out of this 6.03million were in Africa 32.5 million were in America 14.2 million were in Asia 5.8 million were in Europe and 4.1 million were in Oceania (Table 1). Horse animals constituting an increasing percentage of global livestock biomass (FAOSTAT, 2014). This trend is more marked for the continent of America as a whole. Globally between 2000 and 2012, number of horse increased by 2.03% from 57,702,698 to 58,900,392 with an average annual growth rate of 1.6%. (FAOSTAT, 2014). However, number of horse declined during 2001, 2003, 2004, 2008, 2011 period at an average rate of 1.09% per annum (Fig 1).

According the FAOSTAT, 2012 data the global population of donkey were 44 million. Out of this 19.6 million were in Africa 6.7 million were in America 17.1 million were in Asia 5.3 million were in Europe and 0.9 million were in Oceania (FAOSTATA 2014) (Table 2). Donkey animals constituting an increasing percentage of global livestock biomass (FAOSTAT, 2014). this trend is more marked for the continent of Africa as a whole. The number of donkey was also increase from 2000 to 2012 by 5.4% with 2,377,850 numbers. But the numbers of donkey were declined during 2001, 2002, 2003, by an average rate of 0.42% (Fig 2).

### **2.2. Ethiopian horse and donkey production and distributions**

According to the FAOSTAT, 2014 statistics the donkey and horse number in Ethiopia increased during the 2000-2012 period at an average annual rate of 4.55% and 3.33% respectively. But the numbers of donkey were declined during 2002 by an average rate of 2.6% (Table 3). Between 2000 and 2012, number of horse increased by 2.03% from 1,144,290 to 1,907,047 with an average annual growth rate of 1.66%. (FAOSTAT, 2014). However, number of horse declined during 2011 and 2012 period at an average rate of 3.45 and 2.55 % per annum (Fig 3). Between 2000 and 2012, number of donkey increased by 2.03% from 3,063,130 to 6,748,357 with an average annual growth rate of 2.2% (FAOSTAT, 2014). However, number of donkey declined during 2003 period at an average rate of 2.6 % per annum (Fig 4).

### **2.3. Uses of horse and donkey in Ethiopia**

In the livestock sector equines play an important role in the economy of the nation. They are the engines that power rural as well as urban economic development. The most important feature of animal transport in Ethiopia is the use of donkeys and horses as pack animals, for pulling carts and for riding especially horses. They transport a huge diversity of loads ranging from people, agricultural produce, food and water to building materials, such as timber, stone, bricks and even iron sheets and girders. They have multiple functions, which are not limited to economic aspects, but are also related to socio-cultural issues. Horse and donkey have reduced the domestic transport burden of rural people, especially women, and have created employment and income-generation opportunities for many people.

In Ethiopia of 61.46% donkey and 61.32 % horse was used for transportation and very few were intended for draught and other purposes (CSA 2010/11). The Central Statistics Authority report 2010 indicates that 17.84 % of the horses were under 3 year and the rest 82.16% were 3 years and older 61.32% were used for transportation, and only 10.62 % was for draught purposes. On the other hand, the number of donkey under 3 year covers 21.34 % and the rest 78.66 % were 3 years and older 61.32%.

### **2.4. Distribution of horse and donkey across different regions**

The changing profile of horse and donkey sector in relation with its sustainability has been studied in Ethiopia. The share of each region in major livestock has shown a significant change during the decade of 2000-2012, though variation in concentration of horse and ass across different regions is clearly visible. Increase in proportion of some species and decrease in others in the state seem to have influenced the speed of intensification across different regions.

The distribution of major horse and donkey species across the three administration state regions of Ethiopia is documented in Table 5 .According livestock census (CSA 2010/11) Oromia has highest horse population (1, 176301) which is 58% of the total horse population of the country followed by SNNP 451,799 which is 22.27% and Amhara region which has 396231, 19% and least in Tigray region. But the other region of Ethiopia has no number of horses. However donkeys are distribute throughout the country which are found highest in Oromia 42.1%, Amhara 36.1%, Tigray 9.2 % and SNNP 8.5%. But the other region has in small percentage of donkey (Table 5).

### 3. Conclusion and Recommendation

Ethiopia holds large potential for equine production. Horses, donkeys and mules belong to the equine group. They are found mainly in temperate, semi-arid or highland areas. The Ethiopian domestic donkey is indigenous to Africa. Its ancestors are the Nubian wild ass, *Equus asinus africanus* and the Somali wild ass, *Equus asinus somaliensis*. Ethiopia has approximately 6.21million donkeys, which is 32% of Africa’s and 10% of the world’s donkey population and 2 million horses which is 33.5% of Africa population. Donkeys are the cheapest option for the Ethiopian family. They are relatively inexpensive to buy in comparison to horses, mules and oxen.

Horse animals’ shows an increasing percentage of global livestock biomass (FAOSTATA, 2014).This trend is more marked for the continent of America as a whole. Donkey and horse number in Ethiopia increased during the 2000-2012 period at an average annual rate of 4.55% and 3.33% respectively. But donkey number declined during 2002 by an average rate of 2.6%.

Nevertheless, despite the great contributions made by horse and donkey in Ethiopia to the daily life and livelihoods of the people who solely or partly depend on them, they suffer the negative impact of feed shortage, poor health, low social status and poor management. Improvement of management practices, deliverable, accessible, sustainable and affordable horse and donkey health services as well as adequate feed are required to improve the performance of equines.

### References

- Blakeway S J, 1994, ‘The Welfare of Donkeys’, M.Sc. Dissertation, Edinburgh University, England.  
 Berry C, Kokas J A, 1998, Donkey Business III, pp. 307-317, NSW, Australia.  
 CSA (Central Statistics Authority). 2010. Agricultural sample survey 2010/11. Report on livestock and livestock characteristics, 2. Statistical Bulletin No. 468. Addis Ababa, Ethiopia  
 CSA, Central Statistics Authority. 2011. Agricultural sample survey 2010-2011. Report on livestock and livestock characteristics, Vol. II. Statistical Bulletin No. 505. Addis Ababa, Ethiopia.  
 FAOSTAT (2014). Ethiopia *Faculty of Veterinary Medicine, Addis Ababa University, PO Box 34, Debre Zeit, Ethiopia*  
 Kidanmariam G, 2000. ‘The use of donkeys for transport in Amhara Region, Ethiopia’, in *Donkeys people and development*.  
 Starkey P & Fielding D, pp. 53-56, web version for ATNESA, 2004.  
 Ministry of Agriculture (MoA) 2000. Agro ecological Zonations of Ethiopia. Addis Ababa, Ethiopia.  
 Powell K, 2003, ‘Donkeys and their importance to people in the world today’, Editorial, The Donkey Sanctuary, Sidmouth, England.  
 The Donkey Sanctuary, 2003, ‘Ethiopia’, Fact sheet, The Donkey Sanctuary, Sidmouth, England.  
 Zerihun Woldu (1999): Vegetation map of Ethiopia. Addis Ababa University Addis Ababa, Ethiopia

**Table1. Global population trend of Horse in million (2000-2012)**

| Globe          | year     |          |          |          |          |          |          |          |          |          |          |          |          |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                | 2000     | 2001     | 2002     | 2003     | 2004     | 2005     | 2006     | 2007     | 2008     | 2009     | 2010     | 2011     | 2012     |
| Africa         | 4269217  | 4556953  | 4808263  | 4922154  | 4999317  | 5096242  | 5300940  | 5596496  | 5763963  | 6034671  | 6102692  | 6034851  | 6037314  |
| Americas       | 29427302 | 29956883 | 30044338 | 31151343 | 32114503 | 33279887 | 33448822 | 33385763 | 33301120 | 33655945 | 33494548 | 32388727 | 32510448 |
| Asia           | 16638800 | 15988808 | 15002562 | 14641126 | 14395838 | 14213782 | 14081245 | 14075625 | 13912789 | 13804448 | 13525684 | 13775516 | 14164966 |
| Europe         | 6997790  | 6929136  | 6657828  | 6630189  | 6561462  | 6386614  | 6374457  | 6360888  | 6426786  | 6328296  | 6113306  | 5833659  | 5783491  |
| Oceania        | 369589   | 373099   | 372460   | 377011   | 372680   | 369657   | 402793   | 411336   | 403256   | 403607   | 404350   | 398767   | 404173   |
| World          | 57702698 | 57804879 | 56885451 | 57721823 | 58443800 | 59346182 | 59608257 | 59830108 | 59807914 | 60226967 | 59640580 | 58431520 | 58900392 |
| Annual changes |          | 0.95     | -0.17    | 1.22     | -1.15    | -0.81    | 8.96     | 2.12     | -1.96    | 0.09     | 0.18     | -1.38    | 1.36     |

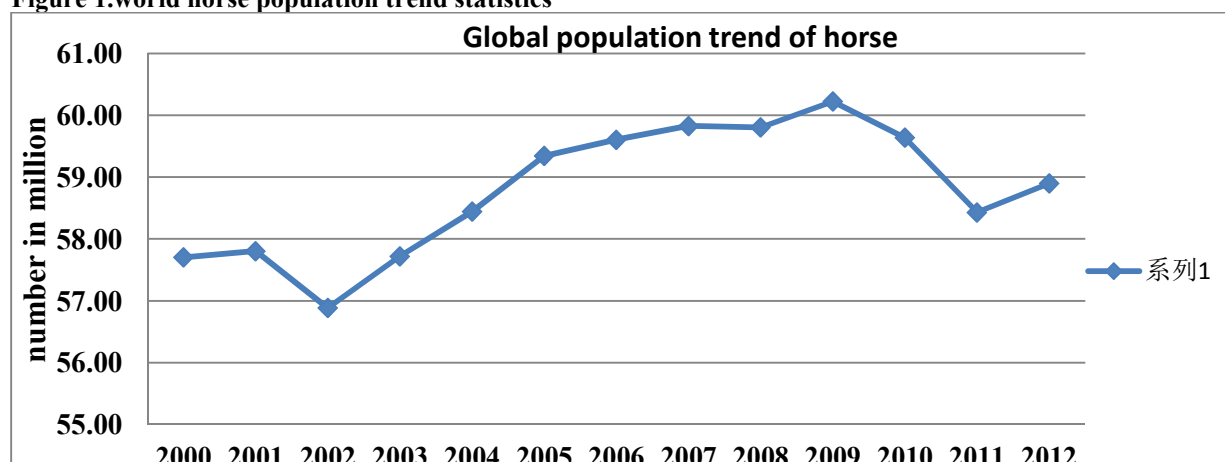
Source FAOSTAT | © FAO Statistics Division 2014

**Table 2. Global population trend of donkey (2000-2012)**

| Globe          | year     |          |          |          |          |          |          |          |          |          |          |          |          |
|----------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                | 2000     | 2001     | 2002     | 2003     | 2004     | 2005     | 2006     | 2007     | 2008     | 2009     | 2010     | 2011     | 2012     |
| Africa         | 14637142 | 14844693 | 15339072 | 15413337 | 15632780 | 16331450 | 16610855 | 17138490 | 17754478 | 18172995 | 18792889 | 19146521 | 19564165 |
| Americas       | 7422838  | 7431286  | 7282773  | 7307927  | 7241389  | 7241854  | 7292539  | 7229950  | 7135236  | 7022251  | 6954372  | 6879636  | 6794981  |
| Asia           | 18783967 | 18610915 | 18207740 | 17895813 | 17622610 | 17345697 | 17281107 | 16836217 | 16632493 | 16599259 | 16478970 | 16487963 | 17130815 |
| Europe         | 800029   | 765340   | 702091   | 666666   | 633178   | 619011   | 593951   | 574470   | 557894   | 551335   | 540417   | 539957   | 531865   |
| Oceania        | 9000     | 9000     | 9000     | 9000     | 9000     | 9000     | 9000     | 9000     | 9000     | 9000     | 9000     | 9000     | 9000     |
| World          | 41652976 | 41661234 | 41540676 | 41292743 | 41138957 | 41547012 | 41787452 | 41788127 | 42089101 | 42354840 | 42775648 | 43063077 | 44030826 |
| Annual changes |          | 0.02     | -0.29    | -0.60    | -0.36    | 1.00     | 0.58     | 0.00     | 0.72     | 0.62     | 1.02     | 0.65     | 2.25     |

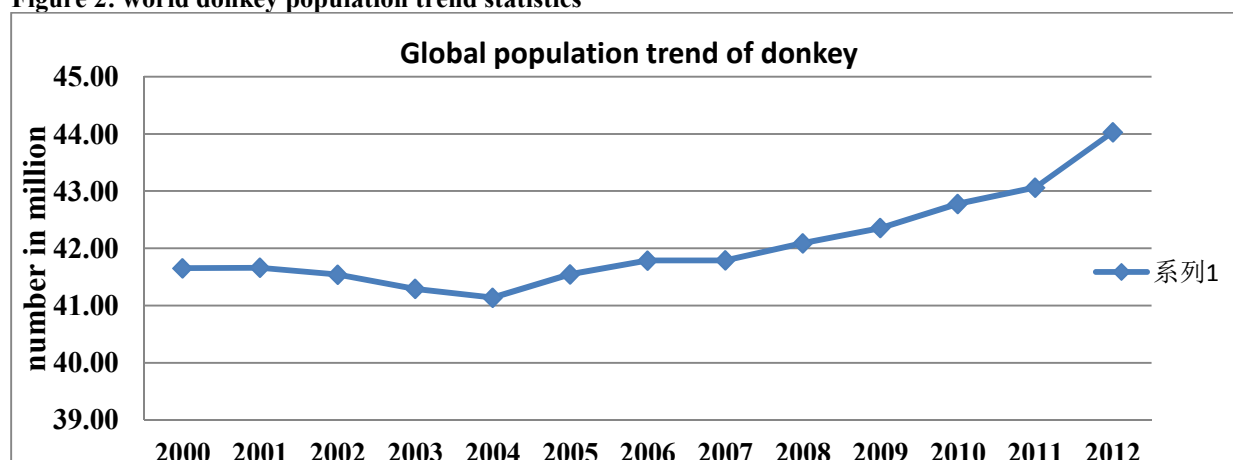
Source FAOSTAT | © FAO Statistics Division 2014

**Figure 1. world horse population trend statistics**



Source FAOSTAT | © FAO Statistics Division 2014

**Figure 2: world donkey population trend statistics**



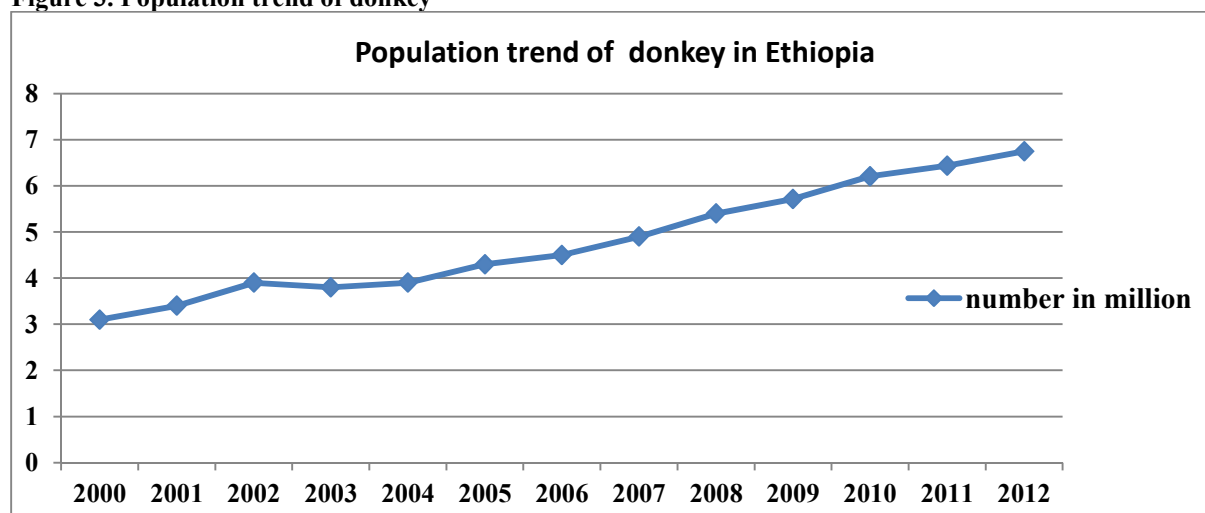
Source FAOSTAT | © FAO Statistics Division 2014

**Table 3. Population trend of horse and donkey in Ethiopia (2000-2012)**

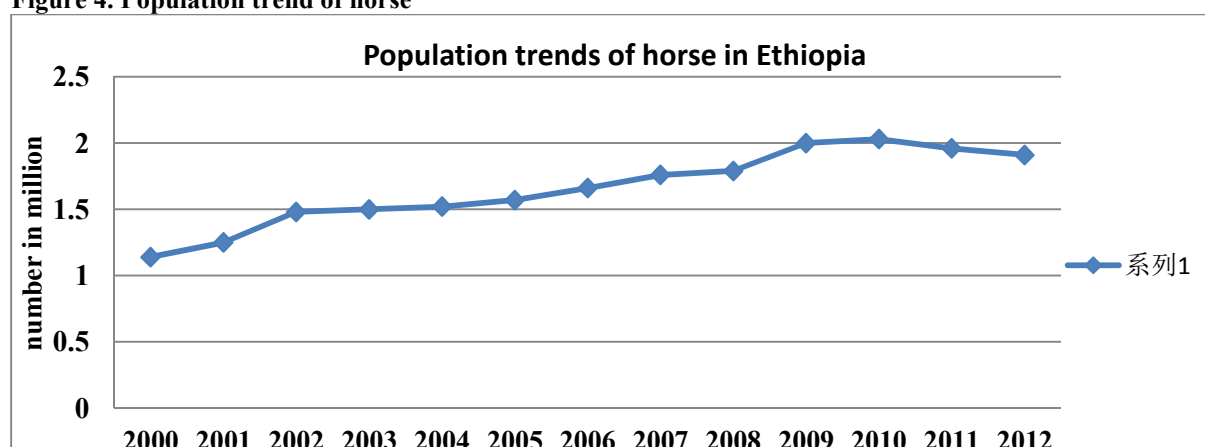
| Animal        | Year    |         |         |         |         |         |         |         |         |         |         |         |         |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
|               | 2000    | 2001    | 2002    | 2003    | 2004    | 2005    | 2006    | 2007    | 2008    | 2009    | 2010    | 2011    | 2012    |
| Horse         | 1144290 | 1253950 | 1483440 | 1500000 | 1517585 | 1569350 | 1655383 | 1762898 | 1786000 | 1995306 | 2028233 | 1961949 | 1907047 |
| Annual change | -       | 9.65    | 18.40   | 1.35    | 1.33    | 3.29    | 5.73    | 6.02    | 1.70    | 11.73   | 1.50    | -3.45   | -2.55   |
| Donkey        | 3063130 | 3414000 | 3901210 | 3800000 | 3914480 | 4265194 | 4498390 | 4935760 | 5421700 | 5715129 | 6209665 | 6438435 | 6748357 |
| Annual change | -       | 9.7     | 14.7    | -2.6    | 2.6     | 10.3    | 4.7     | 8.9     | 10.2    | 5.8     | 8.7     | 3.7     | 4.8     |

Source FAOSTAT | © FAO Statistics Division 2014

**Figure 3. Population trend of donkey**



**Figure 4. Population trend of horse**



Source FAOSTAT | © FAO Statistics Division 2014

**Table 4: Estimated Numbers of Horses and Donkeys by Sex, Age, and Purpose, Ethiopia - 2010/11**

| Age, Breed, and Purpose | Total     |       | Male     |       | Female    |       |
|-------------------------|-----------|-------|----------|-------|-----------|-------|
|                         | Number    | %     | Number   | %     | Number    | %     |
| <b>Total Horses</b>     | 2,028,233 | 100   | 1,005,15 | 49.56 | 1,023,075 | 50.44 |
| Under 3 Years           | 361,879   | 17.84 | 177,439  | 8.75  | 184,440   | 9.09  |
| 3 years and older       | 1,666,353 | 82.16 | 827,719  | 40.81 | 838,634   | 41.35 |
| All Uses                | 1,666,353 | 82.16 | 827,719  | 40.81 | 838,634   | 41.35 |
| Transportation          | 1,243,742 | 61.32 | 705,016  | 34.76 | 538,727   | 26.56 |
| Draught                 | 215,378   | 10.62 | 105,176  | 5.19  | 110,202   | 5.43  |
| Other Uses.             | 207,233   | 10.22 | 17,527   | 0.86  | 189,706   | 9.35  |
| <b>Total Donkeys</b>    | 6,209,665 | 100   | 2,921,97 | 47.06 | 3,287,693 | 52.94 |
| Under 3 Years           | 1,325,375 | 21.34 | 664,381  | 10.7  | 660,993   | 10.64 |
| 3 years and older       | 4,884,291 | 78.66 | 2,257,59 | 36.36 | 2,626,700 | 42.3  |
| All Uses                | 4,884,291 | 78.66 | 2,257,59 | 36.36 | 2,626,700 | 42.3  |
| Transportation          | 3,816,236 | 61.46 | 1,842,16 | 29.67 | 1,974,071 | 31.79 |
| Draught                 | 833,419   | 13.42 | 345,381  | 5.56  | 488,038   | 7.86  |
| Other Uses              | 234,636   | 3.78  | 70,046   | 1.13  | 164,590   | 2.65  |

Source: livestock census (CSA 2010/11)

**Table 5: Number of horse and donkey by Region in 2010/11**

| <b>Geographical area</b> | <b>Horse</b> | <b>%</b> | <b>Donkey</b> | <b>%</b> |
|--------------------------|--------------|----------|---------------|----------|
| Ethiopia                 | 2,028,233    | 100      | 6,209,665     | 100      |
| Tigray                   | 2,108        | 0.10     | 568,121       | 9.2      |
| Afar                     | -            |          | 65,951        | 1.1      |
| Amhara                   | 396,231      | 19.53    | 2,241,741     | 36.1     |
| Oromia                   | 1,176,301    | 58       | 2,617,107     | 42.1     |
| Somale                   | -            |          | 100,367       | 1.6      |
| Benshangul-gumuz         |              |          | 64,639        | 1.0      |
| SNNP                     | 451,799      | 22.27    | 526,621       | 8.5      |
| Harari                   | -            |          | 9,679         | 0.6      |
| Dire Dawa                | -            |          | 14,992        | 0.2      |

Source: livestock census (CSA 2010/11)

The IISTE is a pioneer in the Open-Access hosting service and academic event management. The aim of the firm is Accelerating Global Knowledge Sharing.

More information about the firm can be found on the homepage:

<http://www.iiste.org>

## CALL FOR JOURNAL PAPERS

There are more than 30 peer-reviewed academic journals hosted under the hosting platform.

**Prospective authors of journals can find the submission instruction on the following page:** <http://www.iiste.org/journals/> All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Paper version of the journals is also available upon request of readers and authors.

## MORE RESOURCES

Book publication information: <http://www.iiste.org/book/>

Academic conference: <http://www.iiste.org/conference/upcoming-conferences-call-for-paper/>

## IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digital Library, NewJour, Google Scholar

