

## **CHAPTER VII**

### **SIZE, CHARACTERISTICS AND PURPOSE OF LIVESTOCK AND USE OF LIVESTOCK PRODUCTS**

#### **1. INTRODUCTION**

Ethiopia is one of the most populous countries in Africa, having an estimated population of about 67.2 million in July 2002 with annual growth rate of 2.9%. This growing population demands much better economic performance than in the past, at least to ensure food security and other basic needs. The dominant economic feature of the country is the agriculture sector of which livestock is a very important and essential component. The highlanders raise livestock together with crop cultivation for their livelihood whereas the lowlanders or the ‘pastoralists’ subsistence is based mainly on livestock and livestock products. Consequently, the government should give due attention to this sector in order to take advantage of its contribution to the economic growth and as a result to meet the needs of the expanding population.

The livestock sector has been contributing significant portion to the economy of Ethiopia, but still has great potential to assist the economic development of this country. It is well known that livestock products and byproducts in the form of meat, milk, honey, eggs, cheese, and butter supply the needed animal protein that contribute to the improvement of the nutritional status of the people. Livestock also plays an important role in providing export commodities, such as live animals, hides and skins to earn foreign exchanges to the country. On the other hand, draught animals provide power for the cultivation of the small holdings and for crop threshing virtually all over the country and are also essential modes of transport to take holders and their families long-distances, to convey their agricultural products to the market places and bring back their domestic necessities. Livestock as well confer a certain degree of security in times of crop failure, as they are a “near-cash” capital stock. Furthermore, livestock

provides farmyard manure that is commonly applied to improve soil fertility and also used as a source of energy.

By virtue of the important role that the livestock sector plays in the economy of the country, formulation of development plan regarding the sector is vital. It is therefore imperative that livestock development plans should be formulated on the basis of reliable statistical data, and hence, timely and accurate livestock data are required for the formulation, implementation, monitoring, and evaluation of development plan and program in the sector. These livestock data can be generated more often than not using surveys and censuses. The Central Statistical Authority (CSA) has been generating livestock data through sample surveys since 1981 (1973 E.C.). However, based on the results of these surveys, CSA was not able to satisfy the growing demand of the data users regarding the sector. Realizing this fact, CSA proposed and conducted the first agricultural census in the year 2001/02.

As mentioned earlier in Chapter II, agricultural censuses are classified into two categories: censuses conducted by complete enumeration or conducted by sample enumeration. In agricultural censuses conducted by complete enumeration, data are collected from all holders and the result for each variable is obtained by totaling the values of the respective variable from all holders. On the other hand, agricultural censuses conducted based on sample enumeration are probability sample surveys for which a sample is selected and the method of estimation for each census variable permits establishing its statistical precision. Therefore, conducting complete enumeration is more expensive, time consuming and requires large number of personnel. Likewise, quantity of data to be processed is very large (FAO, 1996). By considering these realities and the economic condition of the country, the sample enumeration was favored.

The livestock census was carried-out as part of the agricultural census. The general objective of the livestock census is to establish benchmark data that could be used for development planning and policy formulation regarding the sector, and the specific

objectives are to purvey quantitative information on the size and characteristics of the livestock in rural and urban areas at wereda level, and to provide estimates on size and characteristics of livestock for pastoral areas and commercial farms. In order to meet these objectives, data on: livestock number by type, age, sex, purpose and breed; livestock products particularly milk, egg, and honey, livestock diseases and vaccination; livestock product utilization; and animal feed were collected from sampled agricultural households in rural and urban areas as well as from all commercial farms. In addition, these same data will be collected from pastoral areas in the near future.

The expected users of these data are government organizations involved in planning purposes, individuals or firms raising livestock, non-governmental organizations that provide technical and financial assistance, international organizations which are interested in livestock, and research organizations.

In this chapter of the report: estimates of livestock that include cattle, sheep, goats, draught animals (horses, mules, asses and camels), poultry and bees were made based on the information obtained from the holders within the selected agricultural households both in rural and urban areas as to the reference date (February 8,2002) and reference period (February 9,2001 to February 8, 2002). Thus, the results obtained from the livestock census for the rural and urban areas of the region as well as brief discussions made on the results are presented. Also the census results at regional level are provided in Statistical Tables 7.1 – 7.36. Moreover, the estimates, standard errors and coefficients of variation are given in Annex Tables 7.1 - 7.10 for some relevant variables.

## **2. LIVESTOCK NUMBER BY BREED, AGE, SEX, AND PURPOSE**

The livestock census is the first of its kind in the nation to supply data on the size and characteristics of livestock for rural and urban areas and commercial farms at wereda level, and also for pastoral areas though the census not yet conducted. The livestock

census that was carried-out in Harari Region was part of the national census and covered both rural and urban areas of the region on sample basis. Commercial farms that are found in the region were also covered on complete enumeration basis though the results are not presented here.

The total number of each type of livestock as well as the numbers disaggregated by breed, age, sex, and purpose possessed by holders on the reference date (February 8, 2002), irrespective of ownership, were recorded by interviewing each holder in the sampled agricultural households both in rural and urban areas of the region. The numbers also include the livestock belonging to the holding but temporarily away or in transit at the time of the enumeration.

## **2.1 Cattle**

The estimates of cattle for rural and urban areas in Harari Region are presented in Summary Table VII.1. As shown on the table, the total cattle population for the region is estimated to be 34,008. Out of this total cattle population, the female cattle constitute about 60.5 percent (20,574) and the remaining 39.5 percent (13,434) are male cattle. The majority (97.3 percent) of the cattle population is found in rural areas, while small proportion is accounted for urban areas (2.7 percent).

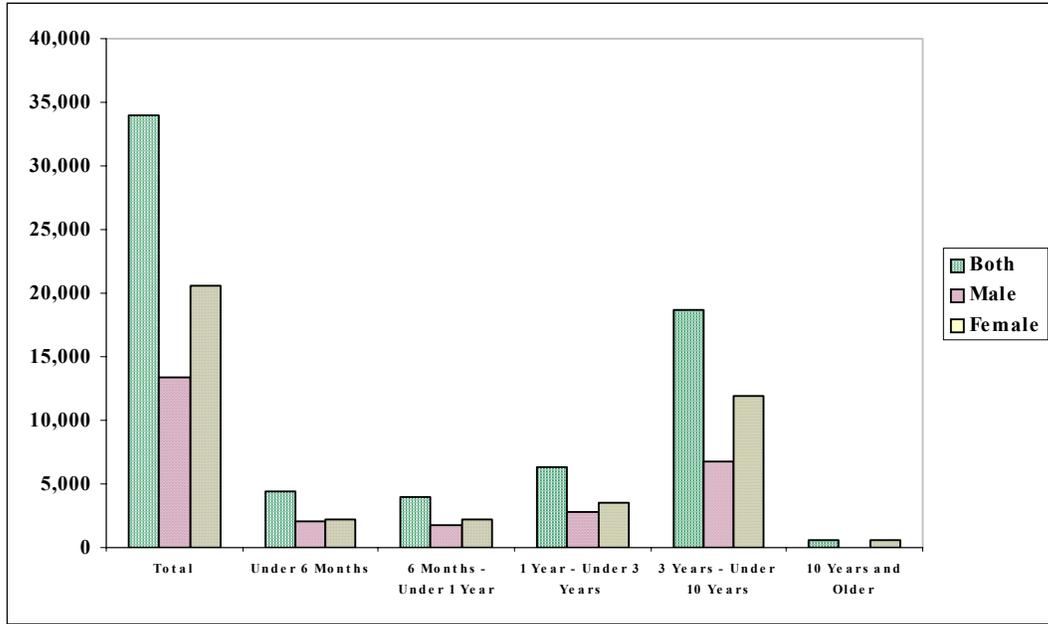
Regarding age groups, the majority of the cattle population (that is about 55.1 percent) is in the 3 years and under 10 years age category, with about 20 percent male and about 35.1 percent female. Moreover, about 43.1 percent are under three years and small portion, which is 1.8 percent, is in 10 years and older category. (also see Fig VII.1). On the other hand, according to the results obtained, only 0.48 percent of exotic breeds are reported in the region. As a result, almost all cattle in the regions are local breeds.

The distribution of cattle by purpose is indicated in the same table. Among cattle aged three years and under ten years, those used for draught purposes accounted for 31.9

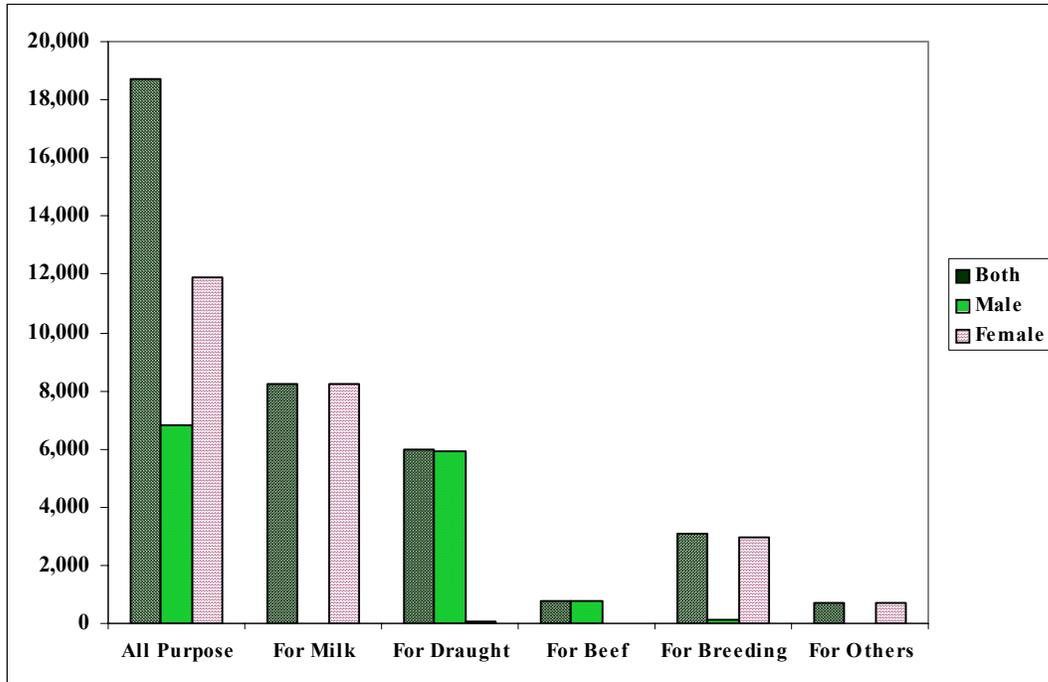
**SUMMARY TABLE VII.1: Estimated Number of Cattle by Sex, Age, Breed, and Purpose for Rural and Urban Holdings**

Age, Breed, and Purpose	Cattle on Both Rural and Urban Holdings						Cattle on Rural Holdings						Cattle on Urban Holdings					
	Total		Male		Female		Total		Male		Female		Total		Male		Female	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Total.....	34,008	100	13,434	39.50	20,574	60.50	33,094	97.31	13,105	38.54	19,990	58.78	914	2.69	329	0.97	584	1.72
Under 6 months	4,396	12.93	2,127	6.25	2,269	6.67	4,310	12.67	2,081	6.12	2,228	6.55	86	0.25	46	0.14	40	0.12
6 months-under 1 year .....	3,929	11.55	1,734	5.10	2,195	6.45	3,846	11.31	1,690	4.97	2,156	6.34	83	0.24	44	0.13	39	0.11
1 year-under 3 years .....	6,340	18.64	2,759	8.11	3,580	10.53	6,121	18.00	2,677	7.87	3,444	10.13	218	0.64	82	0.24	136	0.40
3 years-under 10 years .....	18,724	55.06	6,797	19.99	11,927	35.07	18,215	53.56	6,640	19.52	11,576	34.04	509	1.50	157	0.46	351	1.03
10 years and older .....	620	1.82	*	*	603	1.77	602	1.77	*	*	586	1.72	18	0.05	-	-	18	0.05
<b>Cattle by Breed</b>																		
Total .....	34,008	100	13,434	39.50	20,574	60.50	33,094	97.31	13,105	38.54	19,990	58.78	914	2.69	329	0.97	584	1.72
Indigenous .....	33,724	99.16	13,322	39.17	20,401	59.99	32,995	97.02	13,051	38.38	19,944	58.65	729	2.14	272	0.80	457	1.34
Hybrid .....	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Exotic .....	163	0.48	68	0.20	95	0.28	*	*	*	*	-	-	148	0.44	52	0.15	95	0.28
<b>Aged 3-10 Years by Purpose</b>																		
Total .....	18,724	100	6,797	36.30	11,927	63.70	18,215	97.28	6,640	35.46	11,576	61.82	509	2.72	157	0.84	351	1.87
Used for Milk .....	8,202	43.80			8,202	43.80	7,984	42.64			7,984	42.64	218	1.16			218	1.16
Used for Draught .....	5,981	31.94	5,911	31.57	*	*	5,884	31.42	5,814	31.05	*	*	96	0.51	96	0.51	-	-
Used for Beef .....	774	4.13	755	4.03	*	*	737	3.94	717	3.83	*	*	38	0.20	38	0.20	-	-
Used for Breeding ...	3,078	16.44	126	0.67	2,952	15.77	2,941	15.71	*	*	2,832	15.12	137	0.73	18	0.10	119	0.64
Used for Other .....	689	3.68	*	*	683	3.65	669	3.57	-	-	669	3.57	*	*	*	*	*	*
<b>Dairy Animals</b>																		
Dairy Cows .....	8,202	100			8,202	100	7,984	97.34			7,984	97.34	218	2.73			218	2.73
Milking Cows .....	9,401	100			9,401	100	9,158	97.42			9,158	97.42	243	2.65			243	2.65

**FIGURE VII.1 DISTRIBUTION OF CATTLE BY AGE AND SEX**



**FIGURE VII.2 DISTRIBUTION OF CATTLE AGED 3 AND UNDER 10 YEARS BY PURPOSE AND SEX**



percent and the percentage share of cattle used for other purposes is the lowest that is about 3.7 percent. Beef cattle here refer to all cattle reared exclusively for meat that is used either for home consumption or for sale. Further, the number of dairy-cows<sup>1</sup> is estimated to be about 8,202 and milking-cows<sup>2</sup> are about 9,401 (See Fig. VII.2).

## 2.2 Sheep and Goats

The estimated numbers and percentage distributions of sheep and goats for rural and urban areas are given in Summary Table VII.2. As pointed out in this table, about 5,774 sheep are estimated to be found in the region, out of which about 64.4 percent are females, and about 35.6 percent are males. Moreover, according to the census result, large number of goats is reported in the region, and it is estimated to be about 19,098. Out of these total goats, 70 percent are females and 30 percent are males. (See Fig. VII.3).

Among these totals reported in the region, 85.7 percent of the sheep and 93.5 percent of the goats are found in the rural areas. Urban areas accounted for only 14.3 percent and 6.5 percent of the sheep and goats, respectively.

Pertaining to the age distribution of both the sheep and the goats, the largest portions are in the age group of two years and older (49.5 percent and 45.3 percent, in that order), followed by the young stock under six months for both sheep and goats, that is 21.2 percent and 25.9 percent, respectively. (See Figures VII.3)

With respect to breed, all the sheep, (5,774) and goats, (19,098) are indigenous. The share of male sheep and male goats are 35.6 percent (2,056) and 30 percent (5,731) while the female sheep and female goats accounted for 64.4 percent (3,718) and 70 percent (13,368 ), respectively.

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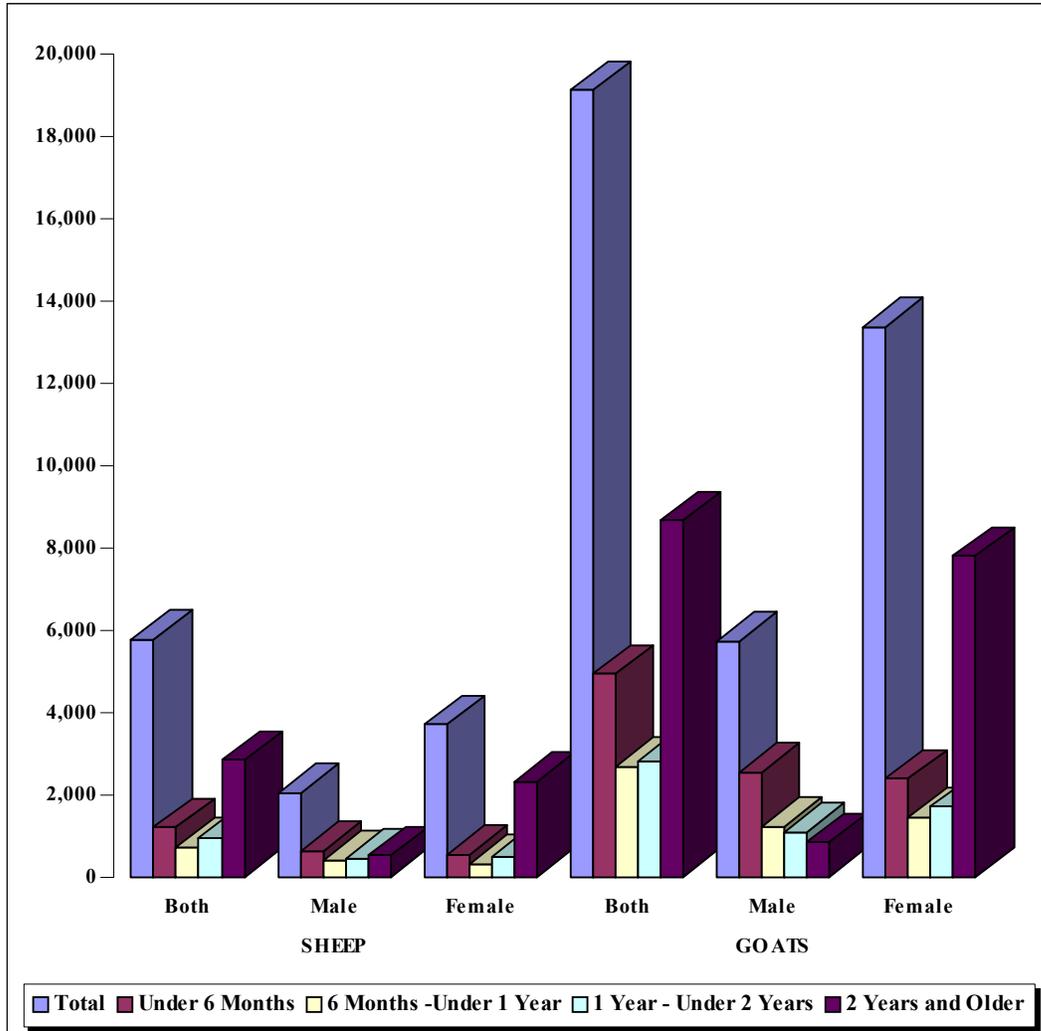
<sup>1</sup> A Dairy Cow refers to a cow that primarily kept for milk and has milked previously and/or milking at the time of enumeration or has never been milked before but expected to be milked in the future or pregnant at the time of enumeration.

<sup>2</sup> A Milking Cow refers to any type of cow that actually milked during the reference period (February 9, 2001 to February 8, 2002).

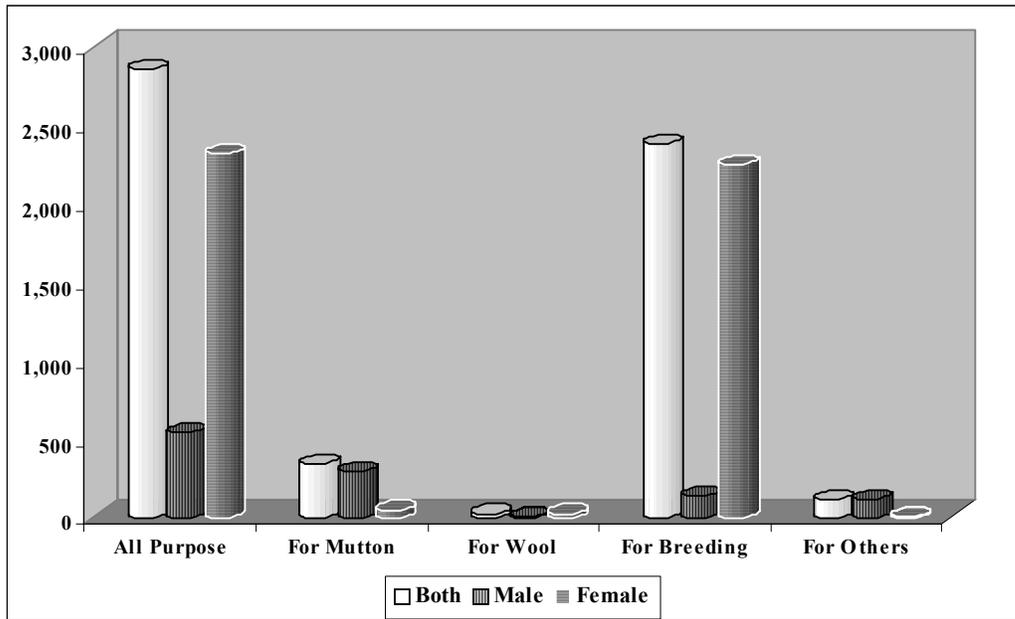
**SUMMARY TABLE VII.2: Estimated Number of Sheep and Goats by Sex, Age, Breed, and Purpose for Rural and Urban Holdings**

Age,Breed,and Purpose	Both Rural and Urban Holdings						Rural Holdings						Urban Holdings					
	Total		Male		Female		Total		Male		Female		Total		Male		Female	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Total Sheep.....	5,774	100	2,056	35.61	3,718	64.39	4,949	85.71	1,840	31.87	3,109	53.84	824	14.27	216	3.74	609	10.55
Under 6 months	1,222	21.16	655	11.34	567	9.82	1,025	17.75	569	9.85	456	7.90	197	3.41	86	1.49	111	1.92
6 months-under 1 year .....	739	12.80	408	7.07	331	5.73	613	10.62	344	5.96	268	4.64	126	2.18	63	1.09	63	1.09
1 year-under 2 years .....	957	16.57	453	7.85	503	8.71	854	14.79	419	7.26	435	7.53	103	1.78	34	0.59	69	1.20
2 years and older	2,856	49.46	540	9.35	2,316	40.11	2,458	42.57	508	8.80	1,950	33.77	399	6.91	33	0.57	366	6.34
Sheep by Breed																		
Total	5774	100	2056	35.61	3,718	64.39	4949	85.71	1840	31.87	3109	53.84	824	14.27	216	3.74	609	10.55
Indigenous .....	5,774	100	2,056	35.61	3,718	64.39	4,949	85.71	1,840	31.87	3,109	53.84	824	14.27	216	3.74	609	10.55
Hybrid .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exotic .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sheep Aged 2 Years and Older by Purpose																		
Total .....	2,856	100	540	18.91	2,316	81.09	2,458	86.06	508	17.79	1,950	68.28	399	13.97	33	1.16	366	12.82
Used for Mutton .....	341	11.94	295	10.33	*	*	327	11.45	284	9.94	*	*	14	*	11	0.39	*	*
Used for Wool .....	*	*	*	*	*	*	*	*	-	-	*	*	*	*	*	*	*	*
Used for Breeding .....	2,379	83.30	132	4.62	2,247	78.68	2,003	70.13	111	3.89	1,892	66.25	376	13.17	20	0.70	355	12.43
Used for Other .....	114	3.99	113	3.96	*	*	113	3.96	113	3.96	-	-	*	*	-	-	*	*
Total Goats .....	19,098	100.00	5,731	30.01	13,368	70.00	17,850	93.47	5,330	27.91	12,520	65.56	1,248	6.53	401	2.10	848	4.44
Under 6 months .....	4,939	25.86	2,541	13.31	2,399	12.56	4,616	24.17	2,389	12.51	2,228	11.67	323	1.69	152	0.80	171	0.90
6 months-under 1 year .....	2,688	14.07	1,234	6.46	1,453	7.61	2,496	13.07	1,149	6.02	1,348	7.06	191	1.00	86	0.45	105	0.55
1 year-under 2 years .....	2,819	14.76	1,111	5.82	1,709	8.95	2,664	13.95	1,050	5.50	1,614	8.45	155	0.81	61	0.32	95	0.50
2 years and older .....	8,652	45.30	845	4.42	7,807	40.88	8,073	42.27	743	3.89	7,330	38.38	579	3.03	102	0.53	477	2.50
Goats by Breed																		
Total .....	19,098	100	5731	30.01	13,368	70.00	17850	93.47	5330	27.91	12520	65.56	1248	6.53	401	2.10	848	4.44
Indigenous .....	19,098	100	5,731	30.01	13,368	70.00	17,850	93.47	5,330	27.91	12,520	65.56	1,248	6.53	401	2.10	848	4.44
Hybrid .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exotic .....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Goats Aged 2 Years and Older by Purpose																		
Total .....	8,652	100	845	9.77	7,807	90.23	8,073	93.31	743	8.59	7,330	84.72	579	6.69	102	1.18	477	5.51
Used for Milk .....	980	11.33			980	11.33	943	10.90			943	10.90	37	0.43			37	0.43
Used for Meat .....	633	7.32	531	6.14	*	*	579	6.69	476	5.50	*	*	54	0.62	54	0.62	-	-
Used for Breeding .....	6,920	79.98	232	2.68	6,688	77.30	6,432	74.34	184	2.13	6,248	72.21	488	5.64	48	0.55	440	5.09
Used for Other .....	*	*	*	*	*	*	*	*	*	*	*	*	-	-	-	-	-	-

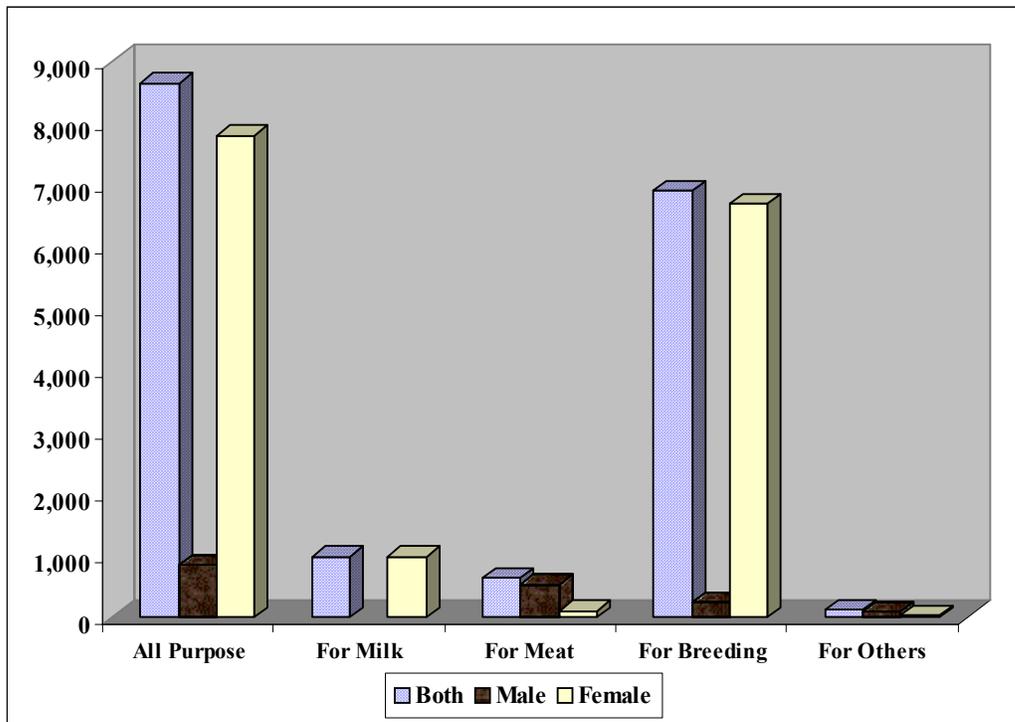
**FIGURE VII.3 DISTRIBUTION OF SHEEP AND GOATS BY AGE AND SEX**



**FIGURE VII.4 DISTRIBUTION OF SHEEP BY PURPOSE AND SEX AGED 2 AND OLDER**



**FIGURE VII.5 DISTRIBUTION OF GOATS BY PURPOSE AND SEX AGED 2 AND OLDER**



Summary Table VII.2 also discloses the numbers and percentages of sheep and goats raised for different purposes in the region. The percentages of both sheep and goats kept for mutton and meat are significantly higher for males. Moreover, the data reveals that female sheep and female goats are primarily kept for breeding purposes. Among the sheep flock two years and older, 2,379 (83.3 percent) are kept for breeding; about 12 percent for mutton and small number of sheep were kept for wool production. Likewise, amid the goats population aged two years and older, goats kept for breeding account for about 80 percent (6,920) while goats kept for meat account for about seven percent only. (See Figure VII.4 and VII.5).

### **2.3. Horses, Asses, Mules And Camels**

Summary Table VII.3 shows the estimates of horses, asses, mules and camels for the rural and urban areas of the region for private holdings. According to the census result, the number of horses, mules and camels reported are insignificant and not reliable. On the other hand, 6,203 asses, are reported in Harari Region. The table as well shows that high proportions of asses about 6,060 (97.7 percent) are found in the rural areas.

As indicated in the same table, asses are the overwhelming majority in the region compared with the other draught animals. Out of the total asses population in the region, 3,780 (61 percent) are males and 2,423 (39 percent) are females. With respect to age distribution, the majority of the asses are in the age group of 3 years and older category.

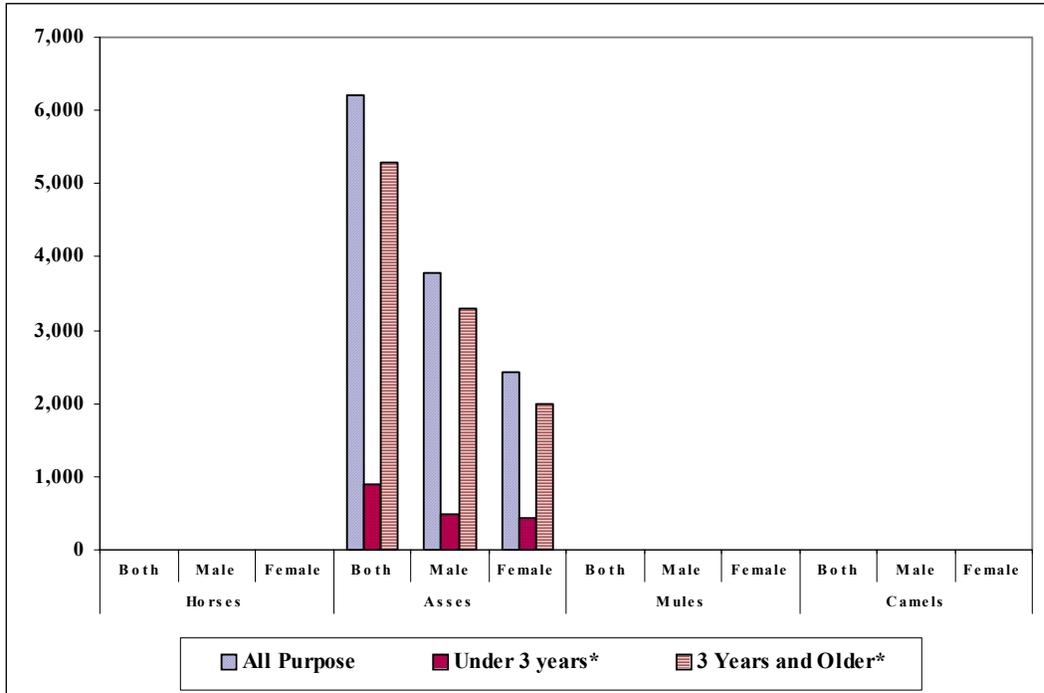
The estimates of these animals (aged 3 years and older) by sex and purpose are also given in Summary Table VII.3. As indicated in the table, among the asses aged three years and older, 3,179 (60 percent) were used for transportation, 1,889 (35.7percent) were used for draught purposes. ( See also Figures VII.6 and VII.7)

### **2.4 Poultry**

Data on poultry population are collected as part of the livestock census, and the total poultry population in Harari Region is estimated to be about 33,046. In this report, poultry includes cocks, cockerels, pullets, laying hens, non-laying hens and chicks.

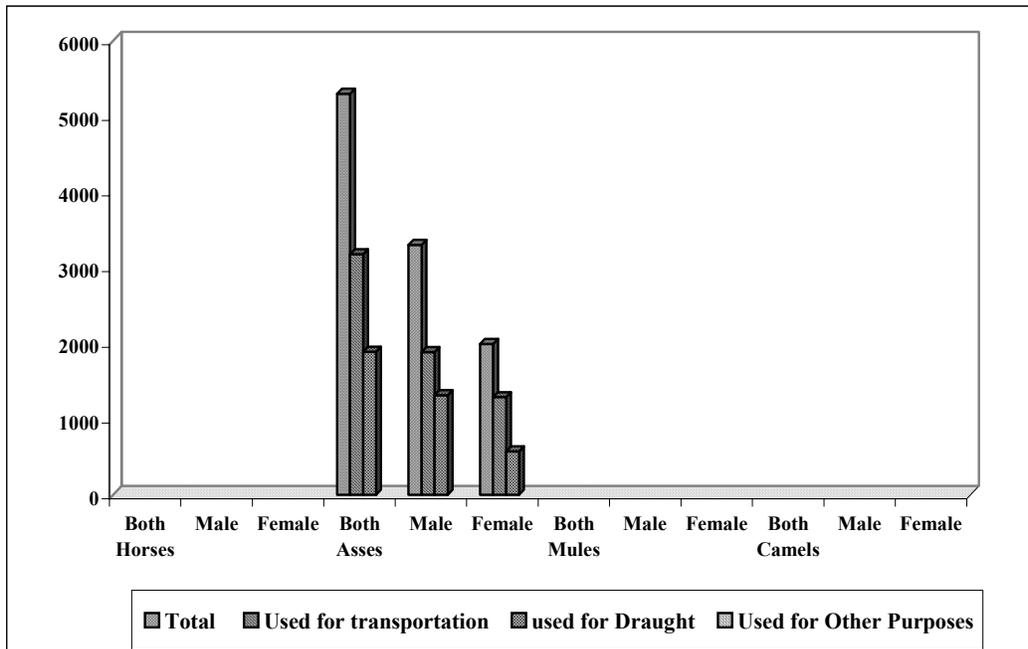


**FIGURE VII.6 DISTRIBUTION OF HORSES, ASSES, MULES AND CAMELS BY AGE AND SEX**



\* Note :- for camels the age Categories are under 4 years and 4 years & older.

**FIGURE VII.7 DISTRIBUTION OF HORSES, ASSES, MULES AND CAMELS BY PURPOSE AND SEX**



Consequently, as shown in Summary Table VII.4 and Figure VII.8, most of the poultry are laying hens (10,260), followed by chicks (9,893). Pullets are estimated to be 3,745 in the region. Cocks, non-laying hens and cockerels are also estimated separately, and are 4,148, 1,569 and 3,430, respectively. Urban areas constitute 12.4 percent of the total poultry and rural areas share was 87.6 percent.

Moreover, average egg-laying period per hen and average number of eggs laid per hen during this period are estimated based on the data collected. Consequently, average egg-laying period per hen is estimated to be about 18 days while average number of eggs laid per hen per egg-laying period is about 12 eggs in the region. Egg laying period and number of eggs laid per period are slightly higher in urban than in rural areas and could possibly attributed to raising a better breed in urban areas.

## **2.5 Beehives**

Information on beehives was also collected during the livestock census. A beehive is enumerated if and only if it produced honey at least once in the reference period (February 9, 2001 to February 8, 2002). As stated by the Ministry of Agriculture, there are three types of beehives, and these are traditional, intermediate and modern.

*Traditional [Fixed comb] Hive* is a hollow structure made of cheap materials like clay, straw, bamboo, false banana leaves, barks of tree, logs and animal dung. The bees fill all the available space with honeycombs from the top to down wards. The honeycombs cannot be removed since they are attached to the top and the sides of the hive. The honey can be removed only by removing one wall of the hive and breaking or cutting out the honeycomb (Reihard Fichtl and Admasu, 1994; Gezahegn Taddesse, 1993 E.C.).

*Intermediate [Transitional] Hive* is a long trough-shaped box with sloping sidewalls covered with bars of a fixed width. The hive consists of a bottom board, two sidewalls and front and back walls. One opening is made in the front wall to serve as flight entrance. The cover of the hive can be made from

SUMMARY TABLE VII.4: Estimated number of Poultry by Type for Rural and Urban Holdings

Type of Poultry	Rural and Urban Holdings		Rural Holdings		Urban Holdings	
	Number	%	Number	%	Number	%
All Poultry .....	33,046	100	28936	87.56	4,109	12.43
Cocks .....	4,148	12.55	3621	10.96	527	1.59
Cockerels .....	3,430	10.38	3077	9.31	353	1.07
Pullets .....	3,745	11.33	3271	9.90	474	1.43
Non-Laying Hens .....	1,569	4.75	1373	4.15	196	0.59
Chicks .....	9,893	29.94	8706	26.35	1,188	3.59
Laying Hens	10,260	31.05	8888	26.90	1,372	4.15
Average Number Days/Clutch.....	18		18		19	
Average Eggs/Hen/Clutch.....	12		11		13	

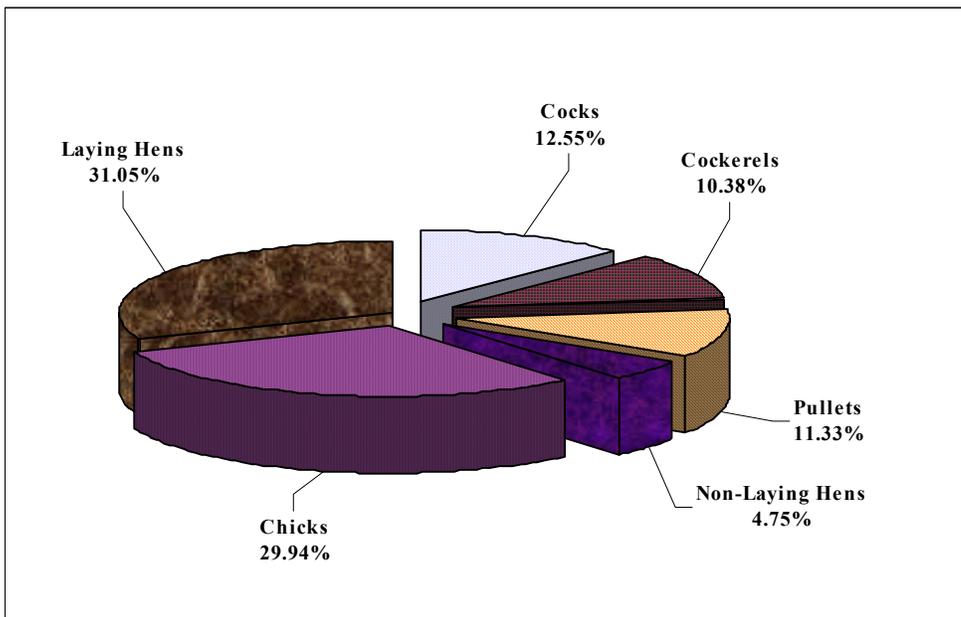
SUMMARY TABLE VII.5: Estimated number of Beehives by Type for Rural and Urban Holdings

Type of Beehive	Rural and Urban Holdings		Rural Holdings		Urban Holdings	
	Number	%	Number	%	Number	%
All Beehives .....	969	100	969	100	-	-
Traditional Beehives .....	952	98	952	98	-	-
Intermediate Beehives .....	-	-	-	-	-	-
Modern Beehives .....	*	*	*	*	-	-

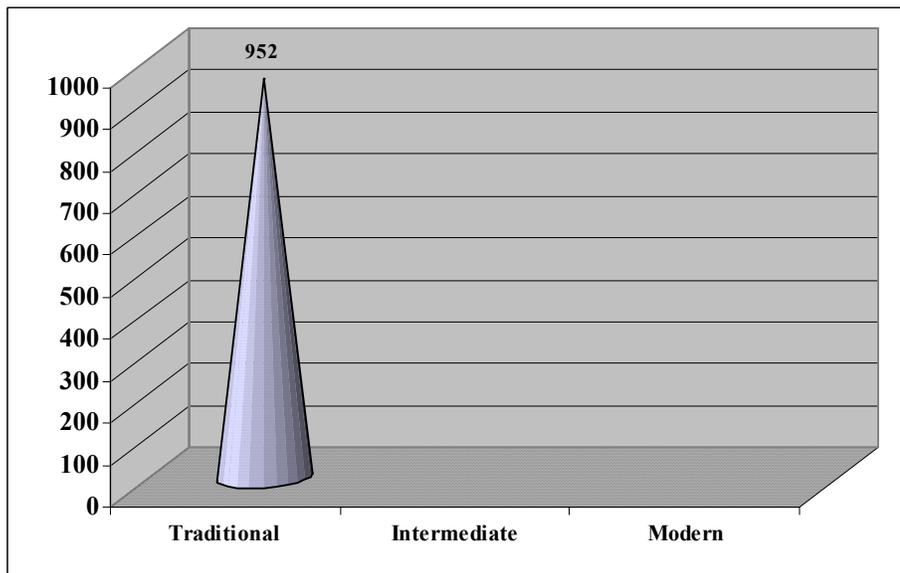
SUMMARY TABLE VII.6 : Milk and Honey Production for Rural and Urban Holdings

Item	Quantity Produced and Frequency		
	Rural and Urban Holdings	Rural Holdings	Urban Holdings
<b>Cow Milk</b>			
Average Daily Milk Producton(Liters/Cow)	1.706	1.671	3.116
Average Lactation Period (Months) .....	8	8	8
Total Milk Production(Liters) .....	3,134,486	2,981,204	153,283
<b>Camel Milk</b>			
Average Daily Milk Production(Liters/Camel)	3.315	3.315	-
Average Lactation Period (Months) .....	10	10	-
Total Milk Production(Liters) .....	*	*	-
<b>Honey Production</b>			
All Types of Beehives			
Production (Kilograms).....	4,696	4,696	-
Average Frequency (Harvest/Year) .....		1	-
Traditional Beehives			
Production (Kilograms).....	4,487	4,487	-
Average Frequency(Harvest./Year)...		1	-
Intermediate Beehives			
Production (Kilograms).....	-	-	-
Average Frequency(Harvest/Year)...			-
Modern Beehives			
Production (Kilograms).....	*	*	-
Average Frequency(Harvest/Year)...		1	-

**FIGURE VII. 8 DISTRIBUTION OF POULTRY BY TYPE**



**FIGURE VII. 9 DISTRIBUTION OF BEEHIVES BY TYPE**



any material, which gives adequate protection against light, sun, and rain (Gezahegn Taddesse, 1993 E.C.; P.Seegeren et al, 1996).

*Modern Hive [Hive with Frames]* is a brood (offspring) chamber (box) with a fixed bottom board and flight board. In the bottom board there is a ventilation hole of size (15cmx30cm), which can be covered with fine wire mesh or other suitable material. The brood chamber holds ten frames, which are kept separately at the right distance by means of side bar, or nails. Queen excluder (not necessary) placed horizontally on top of the brood chamber (Gezahegn Taddesse, 1993 E.C.; P.Seegeren et al, 1996).

Any type of these beehives that produced honey at least once during the reference period (February 9, 2001 to February 8, 2002) was enumerated. Accordingly, the result of the census revealed that a total of 969 beehives are estimated to be found in Harari Region in which 952 are traditional beehives. Moreover, as indicated in Summary Table VII.5, all the beehives are reported from rural areas.

### **3. LIVESTOCK PRODUCTS**

This section summarizes results on livestock products. 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. The data were collected subjectively from the holders in the sampled households and the results obtained are briefly discussed below.

#### **3.1 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. Hence, data on these components have been collected and the total milk production in the region is estimated by multiplying these three components. However, two basic concepts about milk production should be mentioned here. “Gross production”, which includes whole fresh milk actually milked and milk sucked by young

animals and also milk fed to other animals. “Net production” consists of whole milk actually milked and milk fed to other animals but excludes milk sucked by young animals. Therefore, in our case, milk production is estimated based on the concept “net production”, and as indicated in Summary Table VII.6, the estimate of total milk production for rural and urban areas in Harari Region during the reference period, is about 3.1 million liters of which 2.9 million liters (95.1 percent) is attributed to rural areas. A total of about 153 thousand liters of milk was as well estimated for urban areas.

Data on lactation period and average milk yield per cow per day were also collected. As a result, the average lactation period per cow in the region is estimated to be about eight months, and average milk yield per cow per day is about 1.7 liters.

### **3.2. Honey Production**

To estimate honey production, number of beehives, frequency of honey production and honey production per harvest are required. Therefore, these data were collected from the holders within sampled households both in rural and urban areas. As a result, the estimate of total honey production is about 4,696 kilograms in which 95.5 percent of the honey is harvested from traditional hives (See Summary Table VII.6). According to the results, rural areas are the purveyor of honey in the region. In addition, As can be seen from the census data, honey was harvested only once in a year from traditional and modern beehives in rural areas.

## **4. UTILIZATION OF LIVESTOCK PRODUCTS**

Data on the utilization of animal products were also collected during the census to assess product usage experience of holders. The products for which utilization data intended to be collected were milk, egg, honey, meat, hides and skins, wool and byproducts such as butter, cheese, and wax. It is commonly accepted that these products are often used for household consumption and/or sold to finance the purchase of basic household commodities such as coffee, salt, cooking oil, sugar, etc. The products are sometimes used as payments and gifts to others. The census data on the utilization of animal products in the rural and urban areas are presented in Summary Table VII.7. The census result reveals that out of the total annual milk production, 54.9 percent was used for household consumption, 40 percent was sold and about

SUMMARY TABLE VII.7: Livestock Product Utilization - Percentage of Uses for Rural and Urban Holdings

Type of Product	Rural and Urban Holdings					Rural Holdings					Urban Holdings				
	Total%	Percent of Product Utilized for:				Total%	Percent of Product Utilized for:				Total%	Percent of Product Utilized for:			
		Household Consumption	Sale	Wages in Kind	Other		Household Consumption	Sale	Wages in Kind	Other		Household Consumption	Sale	Wages in Kind	Other
Milk	100	54.9	40.03	0.01	5.06	100	54.82	40.17	-	5	100	57.33	35.45	0.27	6.95
Butter	100	84.86	10.39	-	4.75	100	85.06	10.02	-	4.92	100	80.19	18.97	-	0.84
Cheese	100	96.61	-	-	3.39	100	96.57	-	-	3.43	100	100	-	-	-
Beef	100	59.59	40.41	-	-	100	60.01	39.99	-	-	100	50	50	-	-
Mutton/Goat Meat	100	93.48	1.95	-	4.56	100	95.48	-	-	4.52	100	80.31	14.81	-	4.87
Eggs	100	22.76	41.33	0.01	35.9	100	19.7	43.91	-	36.38	100	46.2	21.52	0.07	32.22
Honey	100	63.26	30.69	-	6.05	100	62.75	31.15	-	6.1	100	71.24	23.46	-	5.3
Bees Wax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wool	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hide	100	43.69	19.3	2.1	34.91	100	65.1	-	-	34.9	100	17.74	42.71	4.64	34.91
Skin	100	22.46	4.85	-	72.69	100	23.57	2.41	-	74.02	100	54.33	-	-	45.67

5 percent was used for other purposes. With respect to the utilization of butter 84.9 percent was used for household consumption and 10.4 percent was sold. Most of the total cheese produced was used for household consumption that is about 96.6 percent, and the rest about four percent was used for other purposes.

Of the total honey produced, about 63.3 percent was used for household consumption, 30.7 percent was sold and almost no honey was used as a payment (wage) in the region. No wax and wool products utilization was reported in the region

Concerning utilization of egg products, 41.3 percent of the total egg produced was used for sale and 22.8 percent was used for household consumption. Moreover, 35.9 percent of the total egg produced in the region was used for other purposes and that could be for hatching. Holders' utilization practices on hides, and skins were also assessed and the results showed that 43.7 percent and 72.7 percent was used for household consumption and for other purposes, respectively.

## **5. LIVESTOCK VACCINATION, DISEASE, TREATMENT AND DEATH**

Diseases have numerous negative impacts on productivity of herds i.e. death of animals, loss of weights, slow down growth, poor fertility performance, decrease in physical power and the likes. There have been many ways of fighting against diseases and among these, vaccinations (preventive measures) and treatments (curative measures) are the major ones. However, no efficient fight against disease or disease prevention is possible if descriptive data on prevalence of diseases, deaths, vaccinations, and treatments are not available. The availability of these data is also very important to set-up strategies that can assist in preventing and controlling diseases, by and large in improving veterinary services of the country. Hence, it was considered desirable to collect information on vaccinations, treatments, diseases, and deaths of animals during the census.

Data on these parameters specifically on number of vaccinated, afflicted, treated and dead animals were therefore collected and the results are shown in Summary Table VII.8. The estimated number of vaccinated animals within the reference period in rural and urban areas of

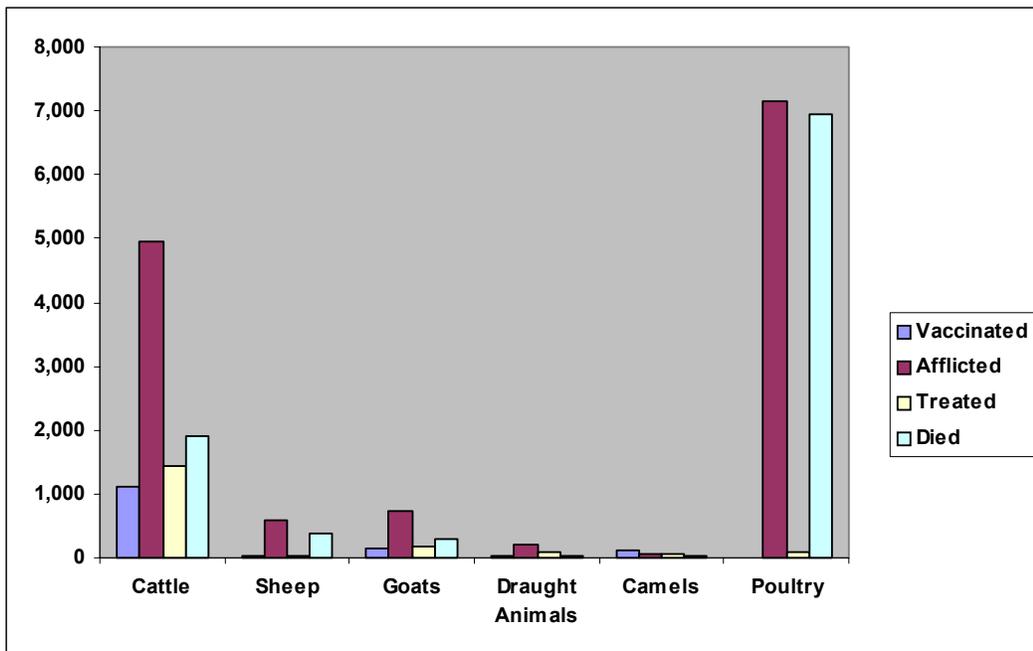
SUMMARY TABLE VII.8: Estimated number of Livestock Vaccinated, Afflicted, Treated, and Died for Rural and Urban Holdings.

Item	Rural and Urban Holdings		Rural Holdings		Urban Holdings	
	Number	%	Number	%	Number	%
Total Vaccinated	1,435	100	*	*	244	17.00
Cattle .....	1,105	77.00	*	*	108	7.53
Sheep .....	*	*	-	-	*	*
Goats .....	148	10.31	*	*	*	*
Horses,Asses, and Mules	*	*	*	*	*	*
Camels .....	*	*	*	*	-	-
Poultry .....	*	*	-	-	*	*
Total Afflicted .....	13,675	100	9,685	70.82	3,990	29.18
Cattle .....	4,945	36.16	4,878	35.67	67	0.49
Sheep .....	*	*	*	*	40	0.29
Goats	744	5.44	694	5.07	50	0.37
Horses,Asses, and Mules ...	191	1.40	182	1.33	*	*
Camels.....	*	*	*	*	-	-
Poultry .....	7,151	52.29	3,327	24.33	3,824	27.96
Total Treated .....	1,875	100	1,651	88.05	224	11.95
Cattle .....	1,439	76.75	1,388	74.03	51	2.72
Sheep .....	27	1.44	-	-	27	1.44
Goats .....	177	9.44	*	*	43	*
Horses,Asses, and Mules	*	*	*	*	*	*
Camels .....	*	*	*	*	-	-
Poultry .....	*	*	-	-	*	*
Total Died	9,614	100	5,770	60.02	3,844	39.98
Cattle .....	1,919	19.96	1,892	19.68	28	0.29
Sheep .....	*	*	*	*	*	*
Goats .....	293	3.05	282	2.93	*	*
Horses,Asses, and Mules	*	*	*	*	*	*
Camels .....	*	*	*	*	-	-
Poultry .....	6,949	72.28	3,170	32.97	3,779	39.31

SUMMARY TABLE VII.9: Animal Feed Practices for Rural and Urban Holdings

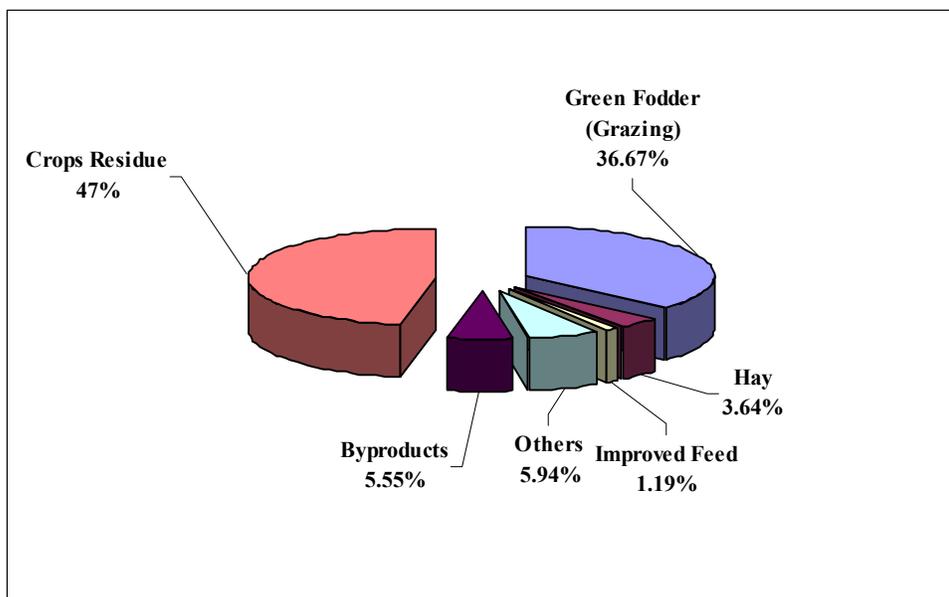
Item	Rural and Urban Holdings		Rural Holdings		Urban Holdings	
	Number Reporting	Percentage That Use:	Number Reporting	Percentage That Use:	Number Reporting	Percentage That Use:
Total		100		100		100
Green Fodder/Grazing.....	11,216	36.67	10,615	37.57	602	24.82
Crops Residue .....	12,702	47	12,122	48.47	580	27.84
Improved Feed .....	975	1.19	939	1.2	36	1.08
Hay .....	2,097	3.64	1,944	3.67	153	3.37
By-products .....	3,347	5.55	2,961	4.93	386	13.68
Others .....	4,854	5.94	4,226	4.16	629	29.22

**FIGURE VII.10 DISTRIBUTION OF ANIMALS VACCINATED, AFFLICTED, TREATED AND DIED**



Note :- Draught Animals refer to horses , asses and mules.

**FIGURE VII.11 ANIMAL FEED PRACTICES OF HOLDERS**



Harari Region is about 1,435. Out of these animals, about 77 percent were cattle followed by goats, which took only 10.3 percent shares.

In the same table, it is indicated that about 13,675 animals were diseased/afflicted by different types of diseases during the reference period and only 1,875 of them were treated. Cattle constituted about 76.8 percent of the total treated animals.

According to the census data, animals were dead in the region due to diseases of which 72.3 percent is poultry. In addition, the estimated numbers of dead cattle and dead goats in the region are about 1,919 and 293, respectively. (See Summary Table VII.8 and Figure VII.10).

## **6. ANIMAL FEED**

Data on animal feed practices of holders in both the rural and urban areas of the region were gathered to assess feed utilization experience. For the purpose of this report, animal feeds are classified as green fodder (grazing), crop residue, improved feed, hay, industrial byproducts, and other feeds. *Green fodder* is simply pasture grasses; *crop residue* includes harvested byproducts (straw and chaff of cereals and pulses, etc.); *improved feed* is like alfalfa; *hay* includes any type of grass, clover etc. cut and dried as fodder; and finally industrial *byproducts* are like oil cake (rapeseed cake, nueg cake, sunflower cake, etc.), bran, and brewery residue.

According to the information collected on feed usage experience of holders in rural and urban areas of the region, crops residue and green fodder or grazing and are the major types of feed about 47 percent and 36.7 percent, respectively. Moreover, as shown in Summary Table VII.9 and Figure VII.11 small amount of improved feed 1.2 percent, hay 3.6 percent, byproducts 5.6 percent and others about 6 percent were used as animal feed.

Summary Table VII.9 also highlights the number of holders reported each type of feed. According to the data, about 11,216 holders have used green fodder or grazing to feed their animals. Significant number of holders (12702) both in rural and urban areas of the region also reported that they used to feed crop residues for their animals. Moreover, about 4,854, 3,347 and 2,097 holders have reported the use of other types of feeds, byproducts and hay, respectively. Only 975 holders reported that they have used the improved feed.



**STATISTICAL TABLES**

**TABLE 7.1 - TABLE 7.36**

TABLE 7-1: NUMBER OF LIVESTOCK BY TYPE OF ANIMAL AND PLACE OF RESIDENCE

Place of Residence	ALL LIVESTOCK								
	CATTLE	SHEEP	GOATS	HORSES	ASSES	MULES	CAMELS	POULTRY	BEEHIVES
Rural + Urban	34,008	5,774	19,098	*	6,203	*	*	33,046	952
Rural	33,094	4,949	17,850	-	6,060	*	*	28,936	952
Urban	914	824	1,248	*	143	-	-	4,109	-

TABLE 7-2: NUMBER OF CATTLE BY AGE AND SEX AND PLACE OF RESIDENCE

Place of Residence	CATTLE										
	ALL CATTLE	MALE					FEMALE				
		< 6 Months	6 Mo < 1yr	1 - <3 yrs	3yrs - <10 yrs	10 yrs &Over	< 6 Months	6 Mo < 1yr	1 - <3 yrs	3yrs - <10 yrs	10 yrs &Over
Rural + Urban	34,008	2,127	1,734	2,759	6,797	*	2,269	2,195	3,580	11,927	603
Rural	33,094	2,081	1,690	2,677	6,640	*	2,228	2,156	3,444	11,576	586
Urban	914	46	44	82	157	-	40	39	136	351	18

TABLE 7-3: NUMBER OF SHEEP BY AGE AND SEX AND PLACE OF RESIDENCE

Place of Residence	SHEEP								
	ALL SHEEP	MALE				FEMALE			
		< 6 Months	6 Mo < 1yr	1 - <2 yrs	2 yrs &Over	< 6 Months	6 Mo < 1yr	1 - <2 yrs	2 yrs &Over
Rural + Urban	5,774	655	408	453	540	567	331	503	2,316
Rural	4949	569	344	419	508	456	268	435	1950
Urban	824	86	63	34	33	111	63	69	366

TABLE 7-4: NUMBER OF GOATS BY AGE AND SEX AND PLACE OF RESIDENCE

Place of Residence	GOATS								
	ALL GOATS	MALE				FEMALE			
		< 6 Months	6 Mo < 1yr	1 - <2 yrs	2 yrs &Over	< 6 Months	6 Mo < 1yr	1 - <2 yrs	2 yrs &Over
Rural + Urban	19,098	2,541	1,234	1,111	845	2,399	1,453	1,709	7,807
Rural	17,850	2,389	1,149	1,050	743	2,228	1,348	1,614	7,330
Urban	1,248	152	86	61	102	171	105	95	477

TABLE 7-5: NUMBER OF HORSES AND ASSES BY AGE AND SEX AND PLACE OF RESIDENCE

Place of Residence	HORSES AND ASSES									
	ALL HORSES	HORSES				ALL ASSES	ASSES			
		MALE		FEMALE			MALE		FEMALE	
		< 3 Years	3 Yrs & more	< 3 Years	3 Yrs & more		< 3 Years	3 Yrs & more	< 3 Years	3 Yrs & more
Rural + Urban	*	-	*	-	6,203	476	3,304	428	1,995	
Rural	-	-	-	-	6,060	469	3,175	427	1,988	
Urban	*	-	*	-	143	*	128	*	*	

TABLE 7-6: NUMBER OF MULES AND CAMELS BY AGE AND SEX AND PLACE OF RESIDENCE

Place of Residence	MULES					CAMELS				
	All Mules	MALE		FEMALE		All Camels	MALE		FEMALE	
		< 3 Years	3 Years and Older	< 3 Years	3 Years and Older		<4 Years	4 Years and Older	<4 Years	4 Years and Older
Rural +Urban	*	-	*	-	*	*	*	*	*	
Rural	*	-	*	-	*	*	*	*	*	
Urban	-	-	-	-	-	-	-	-	-	

TABLE 7-7: CATTLE AGED 3 – 10 YEARS BY SEX AND PURPOSE AND PLACE OF RESIDENCE

Place of Residence	CATTLE AGED 3 – 10 YEARS									
	Total	MALE				FEMALE				
		Draught	Beef	Breeding	Other	Milk	Draught	Beef	Breeding	Other
Rural + Urban	18,724	5,911	755	126	*	8,202	*	*	2,952	683
Rural	18,215	5,814	717	*	-	7,984	*	*	2,832	669
Urban	509	96	38	18	*	218	-	-	119	*

TABLE 7-8: SHEEP AGED 2 AND OLDER BY SEX AND PURPOSE AND PLACE OF RESIDENCE

Place of Residence	SHEEP AGED 2 AND OLDER									
	Total	MALE				FEMALE				
		Mutton/Meat	Wool	Breeding	Other	Mutton/Meat	Wool	Breeding	Other	
Rural + Urban	2,856	295	*	132	113	*	*	2,247	*	
Rural	2,458	284	-	111	113	*	*	1,892	-	
Urban	399	11	*	20	-	*	*	355	*	



TABLE 7-9: GOATS AGED 2 AND OLDER BY SEX AND PURPOSE AND PLACE OF RESIDENCE

Place of Residence	GOATS AGED 2 AND OLDER							
	Total	MALES			FEMALES			Other
		Meat	Breeding	Other	Meat	Milk	Breeding	
Rural + Urban	8,652	531	232	*	*	980	6,688	*
Rural	8,073	0476	184	*	*	943	6,248	*
Urban	579	54	48	-	-	37	440	-

TABLE 7-10: HORSES BY SEX AND PURPOSE AND PLACE OF RESIDENCE

Place of Residence	HORSES AGED 3 AND OLDER						
	Total	MALES			FEMALES		
		Transportation	Draught	Other	Transportation	Draught	Other
Rural + Urban	*	*	-	-	-	-	-
Rural	-	-	-	-	-	-	-
Urban	*	*	-	-	-	-	-

TABLE 7-11: ASSES AGED 3 YEARS AND OVER BY SEX AND PURPOSE AND PLACE OF RESIDENCE

Place of Residence	ASSES AGED 3 YEARS AND OLDER						
	TOTAL	MALES			FEMALES		
		Transportation	Draught	Other	Transportation	Draught	Other
Rural + Urban	5,299	1,887	1,317	*	1,291	572	*
Rural	5,164	1,816	1,310	*	1,291	565	*
Urban	135	*	*	*	-	*	-

TABLE 7-12: MULES AGED 3 YEARS AND ABOVE BY SEX AND PURPOSE AND PLACE OF RESIDENCE

Place of Residence	MULES AGED 3 YEARS AND OLDER						
	TOTAL	MALES			FEMALES		
		Transportation	Draught	Other	Transportation	Draught	Other
Rural + Urban	*	-	*	-	-	-	-
Rural	*	-	*	-	-	-	-
Urban	-	-	-	-	-	-	-



TABLE 7-13: CAMELS BY SEX AND PURPOSE AND PLACE OF RESIDENCE

Place of Residence	CAMELS AGED 4 YEARS AND OLDER									
	TOTAL	MALES				FEMALES				
		Meat	Draught	Transportation	Other	Meat	Draught	Milk	Transportation	Other
Rural + Urban	*	*	-	*	-	-	-	*	-	*
Rural	*	*	-	*	-	-	-	*	-	*
Urban	-	-	-	-	-	-	-	-	-	-

TABLE 7-14: POULTRY INVENTORY AND PLACE OF RESIDENCE

Place of Residence	Total Poultry	Cocks	Cockerels	Pullets	Non-Laying Hens	Chicks	Laying Hens	Avg. Number of Clutches	Avg. Egg Production/ Hen/Clutch
Rural + Urban	33,046	4,148	3,430	3,745	1,569	9,893	10,260	18	12
Rural	28,936	3,621	3,077	3,271	1,373	8,706	8,888	18	11
Urban	4,109	527	353	474	196	1,188	1,372	19	13

TABLE 7-15: BEEHIVE INVENTORY, PRODUCTION OF HONEY AND PLACE OF RESIDENCE

Place of Residence	All Beehives		Traditional Beehives			Intermediate Beehives			Modern Beehives		
	Number of hives	Total annual honey production	Number of hives	Avg. frequency of production	Total annual honey production	Number of hives	Avg. frequency of production	Total annual honey production	Number of hives	Avg. frequency of production	Total annual honey production
Rural + Urban	969	4,696	952	1	4,487	-	-	-	*	1	*
Rural	969	4,696	952	1	4,487	-	-	-	*	1	*
Urban	-	-	-	-	-	-	-	-	-	-	-

TABLE 7-16: NUMBER OF DAIRY ANIMALS, MILK PRODUCTION , LACTATION PERIOD AND PLACE OF RESIDENCE

Place of Residence	Number Of Dairy Cows	Number Of Milking Cows	Average Daily Milk Prod.	Average Lactation Period(Mn)	Total Milk Production (Lt)	Number Of Dairy Camels	Number Of Milking Camels	Average Daily Milk Prod.	Average Lactation Period (Mn)	Total Milk Production (Lt)
	Rural + Urban	8,202	9,401	1.706	8	3,134,486	*	*	3.315	10
Rural	7,984	9,158	1.671	8	2,981,204	*	*	3.315	10	*
Urban	218	243	3.116	8	153,283	-	-	-	-	-

TABLE 7-17: NUMBER OF CATTLE BY SEX AND BREED AND PLACE OF RESIDENCE

Place of Residence	Total	MALE			FEMALE		
		Indigenous	Hybrid	Exotic	Indigenous	Hybrid	Exotic
Rural + Urban	34,008	13,322	*	68	20,401	*	95
Rural	33,094	13,051	*	*	19,944	*	-
Urban	914	272	*	52	457	*	95

TABLE 7-18: NUMBER OF SHEEP BY SEX AND BREED AND PLACE OF RESIDENCE

Place of Residence	Total	MALE			FEMALE		
		Indigenous	Hybrid	Exotic	Indigenous	Hybrid	Exotic
Rural + Urban	5,774	2,056	-	-	3,718	-	-
Rural	4,949	1,840	-	-	3,109	-	-
Urban	824	216	-	-	609	-	-

TABLE 7-19: NUMBER OF GOATS BY SEX AND BREED AND PLACE OF RESIDENCE

Place of Residence	Total	MALE			FEMALE		
		Indigenous	Hybrid	Exotic	Indigenous	Hybrid	Exotic
Rural + Urban	19,098	5,731	-	-	13,368	-	-
Rural	17,850	5,330	-	-	12,520	-	-
Urban	1,248	401	-	-	848	-	-

TABLE 7-20: ESTIMATED NUMBER OF LIVESTOCK VACCINATED BY TYPE OF ANIMAL AND PLACE OF RESIDENCE

Place of Residence	Cattle	Sheep	Goats	Draught Animals	Camels	Poultry
Rural + Urban	1,105	*	148	*	*	*
Rural	*	-	*	*	*	*
Urban	108	*	*	*	-	*

TABLE 7-21: ESTIMATED NUMBER OF LIVESTOCK AFFLICTED/DISEASED BY TYPE OF ANIMAL AND PLACE OF RESIDENCE

Place of Residence	Cattle	Sheep	Goats	Draught Animals	Camels	Poultry
Rural + Urban	4,945	*	744	191	*	7,151
Rural	4,878	*	694	182	*	3,327
Urban	67	40	50	*	-	3,824

TABLE 7-22: ESTIMATED NUMBER OF LIVESTOCK TREATED BY TYPE OF ANIMAL AND PLACE OF RESIDENCE

Place of Residence	Cattle	Sheep	Goats	Draught Animals	Camels	Poultry
Rural + Urban	1,439	27	177	*	*	*
Rural	1,388	-	*	*	*	-
Urban	51	27	43	*	-	*

TABLE 7-23: ESTIMATED NUMBER OF LIVESTOCK DIED BY TYPE OF ANIMAL AND PLACE OF RESIDENCE

Place of Residence	Cattle	Sheep	Goats	Draught Animals	Camels	Poultry
Rural + Urban	1,919	*	293	*	*	6,949
Rural	1,892	*	282	*	*	3,170
Urban	28	*	*	*	-	3,779

TABLE 7-24: ANIMAL FEED PRACTICES OF PEASNT HOLDERS – PERCENTAGE USED BY TYPE OF FEED AND PLACE OF RESIDENCE

Place of Residence	Total (%)	Green Fodder	Crop Residue	Improved Feed	Hay	By-Product	Others
Rural + Urban	100	36.67	47	1.19	3.64	5.55	5.94
Rural	100	37.57	48.47	1.2	3.67	4.93	4.16
Urban	100	24.82	27.84	1.08	3.37	13.67	29.22

TABLE 7-25: ANIMAL FEED PRACTICES OF PEASNT HOLDERS – NUMBER OF HOLDERS REPORTING BY TYPE OF FEED AND PLACE OF RESIDENCE

Place of Residence	Green Fodder	Crop Residue	Improved Feed	Hay	By-Product	Others
Rural + Urban	11,216	12,702	975	2,097	3,347	4,854
Rural	10,615	12,122	939	1,944	2,961	4,226
Urban	602	580	36	153	386	629

TABLE 7-26: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF MILK UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	100	54.9	40.03	0.01	5.06
Rural	100	54.82	40.17	-	5
Urban	100	57.33	35.45	0.27	6.95

TABLE 7-27: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF BUTTER UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	100	84.86	10.39	-	4.75
Rural	100	85.06	10.02	-	4.92
Urban	100	80.19	18.97	-	0.84

TABLE 7-28: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF CHEESE UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	100	96.61	-	-	3.39
Rural	100	96.57	-	-	3.43
Urban	100	100	-	-	-

TABLE 7-29: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF BEEF UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	100	59.59	40.41	-	-
Rural	100	60.01	39.99	-	-
Urban	100	50	50	-	-

TABLE 7-30: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF GOAT MEAT/MUTTON UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	100	93.48	1.95	-	4.56
Rural	100	95.48	-	-	4.52
Urban	100	80.31	14.81	-	4.87

TABLE 7-31: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF EGGS UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	100	22.76	41.33	0.01	35.9
Rural	100	19.7	43.91	-	36.38
Urban	100	46.2	21.52	0.07	32.22

TABLE 7-32: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF HONEY UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	100	63.26	30.69	-	6.05
Rural	100	62.75	31.15	-	6.1
Urban	100	71.24	23.46	-	5.3

TABLE 7-33: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF WAX UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	-	-	-	-	-
Rural	-	-	-	-	-
Urban	-	-	-	-	-

TABLE 7-34: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF WOOL UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	-	-	-	-	-
Rural	-	-	-	-	-
Urban	-	-	-	-	-

TABLE 7-35: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF HIDES UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	100	43.69	19.3	2.1	34.91
Rural	100	65.1	-	-	34.9
Urban	100	17.74	42.71	4.64	34.91

TABLE 7-36: LIVESTOCK PRODUCT UTILIZATION - PERCENTAGE OF USES AND PLACE OF RESIDENCE

Place of Residence	Total (%)	PERCENT OF SKIN UTILIZED FOR:			
		Household Consumption	Sale	Wages in Kind	Other
Rural + Urban	100	22.46	4.85	-	72.69
Rural	100	23.57	2.41	-	74.02
Urban	100	-	54.33	-	45.67

**Annex Tables 7.1 - 7.10**

**ESTIMATES, STANDARD ERRORS, AND COEFFICIENT OF  
VARIATIONS FOR SELECTED LIVESTOCK VARIABLES  
RURAL+ URBAN**

Annex Table 7.1- Estimates of Livestock, Standard Error and Coefficient of Variation by Type of Animal

PLACE OF RESIDENCE	CATTLE			SHEEP			GOATS		
	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	34,008	3,275	10	5,774	785	14	19,098	1,368	7

cont'd

PLACE OF RESIDENCE	HORSES			ASSES			MULES			CAMELS		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	1	1	128	6,203	827	13	52	31	61	1,519	1,077	71

Annex Table 7.2- Estimates of Cattle, Standard Error and Coefficient of Variation by Age group

**Male Cattle**

PLACE OF RESIDENCE	<6MONTHS			6MONTHS -<1YEAR			1-<3YEARS			3-<10YAERS			10YAERS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	2,127	384	18	1,734	230	13	2,759	288	10	6,797	999	15	17	18	106

**Female Cattle**

PLACE OF RESIDENCE	<6MONTHS			6MONTHS -<1YEAR			1-<3YEARS			3-<10YAERS			10YAERS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	2,269	548	24	2,195	442	20	3,580	366	10	11,927	1,144	10	603	132	22

Annex Table 7.3- Estimates of Sheep, Standard Error and Coefficient of Variation by Age group

**Male Sheep**

PLACE OF RESIDENCE	<6MONTHS			6MONTHS-<1YEAR			1-<2YEARS			2 YEARS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	655	134	20	408	108	27	453	108	24	540	131	24

**Female Sheep**

PLACE OF RESIDENCE	<6MONTHS			6MONTHS-<1YEAR			1-<2YEARS			2 YEARS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	567	155	27	331	89	27	503	111	22	2,316	301	13

Annex Table 7.4- Estimates of Goats, Standard Error and Coefficient of Variation by Age group

**Male Goats**

PLACE OF RESIDENCE	<6MONTHS			6MONTHS - <1YEAR			1- <2YEARS			2 YEARS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	2,541	297	12	1,234	189	15	1,111	178	16	845	149	18

**Female Goats**

PLACE OF RESIDENCE	<6MONTHS			6MONTHS - <1YEAR			1-<2YEARS			2 YEARS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	2,399	286	12	1,453	201	14	1,709	229	13	7,807	632	8

Annex Table 7.5- Estimates of Horses, Standard Error and Coefficient of Variation by Age group

PLACE OF RESIDENCE	MALE						FEMALE					
	<3YEARS			3YEARS & OLDER			<3YEARS			3YEARS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	-	-	-	1	1	128	-	-	-	-	-	-

Annex Table 7.6- Estimates of Asses, Standard Error and Coefficient of Variation by Age group

PLACE OF RESIDENCE	MALE						FEMALE					
	<3YEARS			3YEARS & OLDER			<3YEARS			3YEARS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	476	123	26	3,304	461	14	428	116	27	1,995	419	21

Annex Table 7.7- Estimates of Mules, Standard Error and Coefficient of Variation by Age group

PLACE OF RESIDENCE	MALE						FEMALE					
	<3YEARS			3YEARS & OLDER			<3YEARS			3YEARS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	-	-	-	52	31	61	-	-	-	-	-	-

Annex Table 7.8- Estimates of Camels, Standard Error and Coefficient of Variation by Age group

PLACE OF RESIDENCE	MALE						FEMALE					
	<4YEARS			4YEARS & OLDER			<4YEARS			4YEARS & OLDER		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	221	156	71	103	81	78	324	235	73	870	619	71



Annex Table 7.9- Estimates of Poultry, Standard Error and Coefficient of Variation By Type

PLACE OF RESIDENCE	Total Poultry			Cocks			Cockerels			Pullets			Non Laying Hens			Chicks			Laying Hens		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	33,046	3,610	11	4,148	525	13	3,430	586	17	3,745	690	18	1,569	357	23	9,893	1,482	15	10,260	1,144	11

Annex Table 7.10- Estimates of Beehives, Standard Error and Coefficient of variation by Type

PLACE OF RESIDENCE	ALL BEEHIVES			TRADITIONAL			INTERMEDIATE			MODERN		
	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	952	221	23	952	221	23	-	-	-	-	-	-

