

CHAPTER VI

FARM MANAGEMENT PRACTICES

1 INTRODUCTION

Ethiopia is endowed with abundant resource suitable for agriculture. As result of which the agricultural activity in Ethiopia is quite varied being conditioned by such factors as climate, soils topography and...etc which had favored not only the employment of the majority of the countries population but also served as the main source of input (raw material) for the countries large and medium Scale industries as well as the main generator of the country's foreign currency earnings.

Though agriculture is the backbone of Ethiopian economy it is characterized by low level of productivity and subsistence farming system, which resulted to hand to mouth production. Nowadays the problem mentioned has become more acute as a result of two factors. First the number of people is increasing at a rate that point to a doubling of the present population of the country at the end of this century. Secondly this is occurring at a time when the area of new land suitable for cultivation is rapidly diminishing.

Even though traditional practice such as use of animal dung and crop residue crop rotation and expanding cultivable cropland had helped a lot to increase productivity, the problem mentioned above has become more acute and beyond the limits of the traditional practices which of course had already been exhausted. Hence, the scale severity and duration of the country's food problem will be so great that a massive short and long-range innovative efforts will be required to solve it.

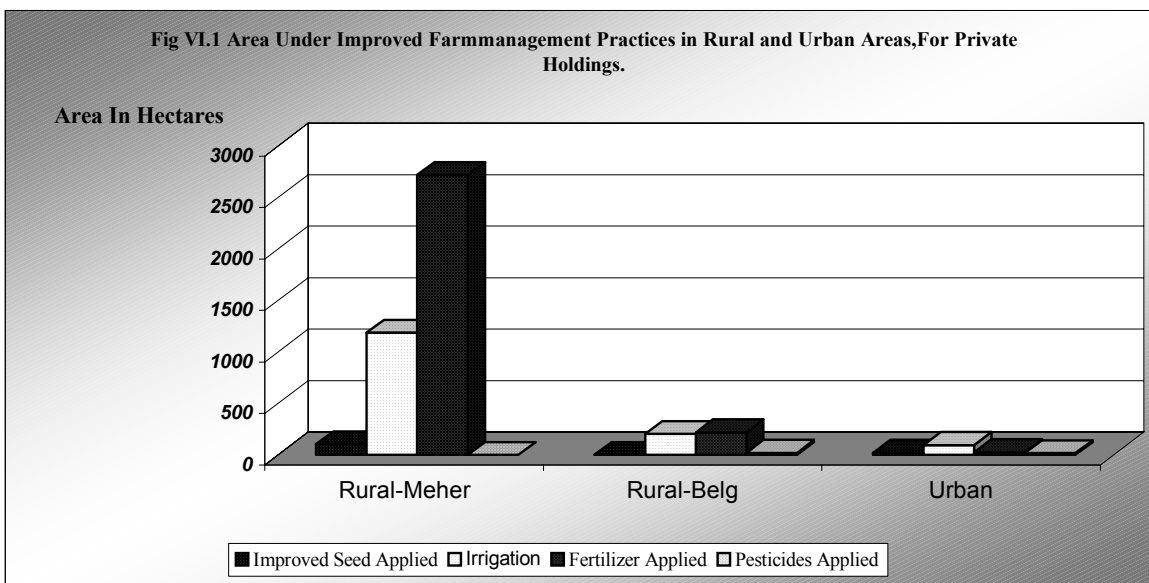
As a result, increasing productivity on various field crops is the only realistic option to raise the living standards of the rural population, and to ensure food security and poverty alleviation. There are many modern techniques and technologies of achieving enhanced crop productivity. Accordingly, the major factors behind achieving high level of crop productivity increases are greater and more efficient use of fertilizers, wide spread uses of improved variety seeds, pesticides, expanded use of irrigation and effective extension services. Thus, during the 2001/02 Agricultural Sample Enumeration, basic data on agricultural inputs and practices were collected, processed and the results are presented in this chapter.

This chapter is therefore, deals with the agricultural census data that indicates the type of inputs applied, quantity of inputs applied, the irrigated cropland area, estimates of cropland area damage, number of holders who applied different agricultural inputs and farm management practices, and number of holders covered by extension package programs in Dire Dawa Administrative Council. Data are presented for private holdings in rural areas for both Meher and Belg seasons, and urban areas of holdings for Meher season. For urban areas, data are collected and presented only to the inputs applied and the irrigated cropland area and number of holders who applied farm inputs. Moreover, estimates, standard errors (S.E) and coefficient of variation (C.V) are given in Annex Tables 6.1 and 6.2.

2 CROPLAND AREA UNDER AGRICULTURAL INPUTS AND FARM MANAGEMENT PRACTICES

This section deals with the agricultural inputs applied and the irrigated cropland area for both rural and urban areas of Dire Dawa Administrative Council. Agricultural holders in the sampled households were asked whether they have applied agricultural inputs on their fields or not and the area of all plots operated by the holders were actually measured objectively for private holdings in rural areas. While in urban areas all types of data on farm practices were obtained by interview methods. This helped to estimate area under total crop, irrigated land, fertilizers, pesticides and improved seeds used during the agricultural year. Following data on area under agricultural farm inputs for Dire Dawa Administrative Council are briefly discussed.

The census data show that Dire Dawa Administrative Council predominantly produces grain crops and the major crops either in terms of the magnitude of area and volume of production includes sorghum and maize that accounted for about 85.06% of the area cultivated under all crops (Summary Table VI.2). On the other hand, vegetables, root crops and permanent crops are not widely grown as grains in the region in terms of both area coverage and production obtained. As a result, the agricultural inputs were applied to a great extent on the area under grain crops in order to increase the volume of production. Among different types of agricultural inputs that were applied, it is found that fertilizers application had relatively high coverage of area under crops. Moreover, the census data indicate that vast majority of agricultural holders have used agricultural inputs on small size of holdings. In general, the holders in the region as a whole have practiced modern agricultural techniques and technologies but in a much smaller extent.



2.1 Fertilized Cropland Areas

The effects of fertilizers on improving the efficiency of crop production are well known and can scarcely be over emphasized. Moreover, the fertilizing materials and mixture are not restricted to in organic Chemicals but include organic substances such as crop residue animal dung and .. etc. Therefore, Fertilizers refer to anything added to the soil with the intention of increasing the amount of plant nutrients available for crop growth. In the census, data on application, type and quantity of natural and chemical fertilizers were collected. The natural fertilizers consisted of animal dung and compost while chemical fertilizers consisted of DAP (Di-Ammonium phosphate) and UREA (Ammonium Nitrate).

Although fertilizer is one of the very important agricultural inputs to increase the level of production, in Dire Dawa Administrative Council, fertilizers were applied on 2975 hectares (35.79% of the total cultivated cropland area). Of this total area fertilized cropland, the share of rural and urban areas was found to be 99.06% and 0.94%, respectively. Moreover, the proportion of total fertilized cropland areas in rural areas for Meher season was 2719 hectares (91.39%) as compared to only 227 hectares (7.63) for Belg season. Regarding private holdings in urban areas, data are collected and presented only for Meher season. For details, refer to Summary Table VI.1.

Furthermore, out of the total fertilized cropland areas, 73.55% were under cereals, 3.33% under pulses, 0.57% under oil seeds, 2.32% under vegetables and 2.69% under root crops, 3.56% under

fruits and 13.95% under stimulants. Most of the fertilized cropland areas in the region were allotted to cereals in both rural and urban areas (See Summary Table VI.1)

With regard to a specific crop, sorghum is the most important fertilized crop that comprised an area of 66.54% of the total cropland area under fertilizers. The second important fertilized crop is Chat covering 12.84% of the total cropland area under fertilizers. Maize ranks third taking up 6.96% of the total cropland area under fertilizers. For details, refer to Summary Table VI.2.

2.2 Cropland Areas Treated with Pesticides

Pesticides are chemicals that are used for the control of mitigation or elimination of pests that are detrimental to crops. Examples of pesticides are insecticides, herbicides and fungicides. Summary Table VI.1 reveals that the total cropland area treated with pesticides was estimated to be 75 hectares. Of the total cropland areas treated with pesticides, the share of rural areas was found to be 76% while the share urban areas was found to be 24%. Thus, private holdings in rural areas had the highest share, while the contribution of the urban areas to the total pesticide applied cropland area was very limited in scale.

Furthermore, most of the pesticide applied land areas in the region was under cereals (about 62.67%), whereas about 8% of the fields under vegetables and 14.67% under fruits were treated with pesticides. Out of all cropland areas on which pesticides are applied, sorghum accounts for about 37 hectares followed by maize, accounting for about 10 hectares, while the contribution of the remaining crops is in significant For Details, see Summary Tables VI.1 and VI.2.

2.3 Cropland Areas on which Improved Seeds are Used

Improved seeds are defined as crop varieties that give significantly higher yield and better quality compared to locally produced varieties of seeds. As illustrated in Summary Table VI.1, the total cultivated cropland area was estimated at 8313 hectares. Of this total, only 153 hectares (1.84%) was sown with improved variety of seeds. The share of rural and urban areas was found to be 85.62 percent and 14.38 percent of the total cropland areas on which improved seeds are used, respectively. Like other inputs, the private holdings in the rural areas during Meher season had the highest share; while the contribution of the private holdings in urban areas to the total

improved seeds applied cropland area in the region was limited in scale. The share of Belg season to the total improved seed applied cropland area is also negligible.

Summary Table VI.1 also presents the total cropland area with application of improved agricultural practices and inputs by crop category for private holdings in rural and urban areas. The data in this table indicate that the highest area under improved seed was reported for cereal that account for about 82.35% while the remaining 18% was reported to be under pulses, oil seeds vegetables, root crops and permanent crops altogether.

2.4 Cropland Areas Under Irrigation

The necessary increase in crop production, to keep pace with the increased population demand, can be achieved among others by the efficient utilization of Irrigation practices. Moreover irrigation practices make possible the full utilization of advanced technology in farming: these include the proper application of fertilizers, the adoption of good crop rotation practices and the use of best the best seed varieties.

Irrigated cropland areas, therefore, refer to the practice where an area of land is purposely and actually provided with water, other than the precipitation obtained from rain to improve the production of crops. The uncontrolled flooding of land by the overflow of rivers or streams is not considered to be as practice of irrigation.

The census data show that the cropland areas that are actually irrigated was only 1487 hectares and this accounted for about 17.89 percent of the total cropland areas. Of the total irrigated cropland areas, the share of the rural and urban areas was found to be 93.68% and 6.39%, respectively. Thus, there is large difference in the size of the total irrigated cropland area between rural and urban area. Moreover, of the total irrigated cropland areas in rural areas, the Meher season constituted 79.89 percent compared to 13.79 percent for Belg season.

As indicated in Summary Table VI.1, out of the total irrigated cropland areas in the region 63.62% were under cereals and 17.35% under stimulants while fruits, root crops and vegetables covered 8.27%, 5.38% and 4.91% of the total irrigated area respectively (See summary Tables VI.1 and VI.2).

3 HOLDERS APPLYING FERTILIZERS, AREA, AND QUANTITY OF FERTILIZERS APPLIED

In 2001/02 Agricultural Sample Enumeration, the total number of holders applying fertilizers in Dire Dawa Administrative Council is estimated to be about 8,317. Of these total private holders, about 8,176 holders (98.42%) were in rural and about 1.58% in urban areas. The application of fertilizers in Meher and Belg seasons for private holdings in rural areas shows a great variation, that is, 86.68% of the holders applied fertilizers in Meher season while only 38.09 percent applied in Belg season (See Summary Tables VI.3 and VI.4).

**SUMMARY TABLE VI.1: Total Area Under Improved Farm Management Practices
by Crop Categories in Rural and Urban Areas, Both Seasons, for Private Holdings.**

ITEM	Area in Hectares									
	Total	Grains				Vegetables	Root Crops	Permanent Crops		
		Cereals	Pulses	Oilseeds	Others			Fruits	Stimulant	Other
Total Area										
Rural and Urban..	8313	6832	204	34	*	84	161	182	815	*
Rural.....	8123	6683	204	34	*	84	160	144	813	*
Meher.....	7737	6426	204	34	*	30	86	144	813	*
Belg.....	385	257	*	*	*	54	75	*	*	*
Urban (Meher)	191	149	*	*	*	*	*	38	*	*
Improved Seeds										
Rural and Urban..	153	126	*	*	*	*	*	*	*	*
Percent..	100	82.35	*	*	*	*	*	*	*	*
Rural.....	131	108	*	*	*	*	*	*	*	*
Percent..	85.62	82.44	*	*	*	*	*	*	*	*
Meher.....	106	93	*	*	*	*	*	*	*	*
Percent..	69.28	87.74	*	*	*	*	*	*	*	*
Belg.....	*	*	*	*	*	*	*	*	*	*
Percent..	*	*	*	*	*	*	*	*	*	*
Urban (Meher)	22	*	*	*	*	*	*	*	*	*
Percent..	14.38	*	*	*	*	*	*	*	*	*
Irrigation										
Rural and Urban..	1487	946	*	*	*	73	80	123	258	*
Percent..	100	63.62	*	*	*	4.91	5.38	8.27	17.35	*
Rural.....	1393	884	*	*	*	72	79	92	258	*
Percent..	93.68	63.46	*	*	*	5.17	5.67	6.60	18.52	*
Meher.....	1188	775	*	*	*	27	28	92	258	*
Percent..	79.89	65.24	*	*	*	2.27	2.36	7.74	21.72	*
Belg.....	205	109	*	*	*	45	51	*	*	*
Percent..	13.79	53.17	*	*	*	21.95	24.88	*	*	*
Urban (Meher)	95	62	*	*	*	*	*	31	*	*
Percent..	6.39	65.26	*	*	*	*	*	32.63	*	*
Fertilizer										
Rural and Urban..	2975	2188	99	17	*	69	80	106	415	*
Percent..	100	73.55	3.33	0.57	*	2.32	2.69	3.56	13.95	*
Rural.....	2947	2173	99	17	*	69	79	94	415	*
Percent..	99.06	73.74	3.36	0.58	*	2.34	2.68	3.19	14.08	*
Meher.....	2719	2037	99	17	*	19	38	94	415	*
Percent..	91.39	74.92	3.64	0.63	*	0.70	1.40	3.46	15.26	*
Belg.....	227	136	*	*	*	50	41	*	*	*
Percent..	7.63	59.91	*	*	*	22.03	18.06	*	*	*
Urban (Meher)	28	15	*	*	*	1	*	11	*	*
Percent..	0.94	53.57	*	*	*	3.57	*	39.29	*	*
Pesticides										
Rural and Urban..	75	47	*	*	*	6	*	11	*	*
Percent..	100	62.67	*	*	*	8.00	*	14.67	*	*
Rural.....	57	40	*	*	*	6	*	*	*	*
Percent..	76	70.18	*	*	*	10.53	*	*	*	*
Meher.....	*	*	*	*	*	*	*	*	*	*
Percent..	*	*	*	*	*	*	*	*	*	*
Belg.....	20	13	*	*	*	*	*	*	*	*
Percent..	26.67	65.00	*	*	*	*	*	*	*	*
Urban (Meher)	18	8	*	*	*	*	*	*	*	*
Percent..	24	44.44	*	*	*	*	*	*	*	*

SUMMARY TABLE VI.2: Total Area Under Improved Seed, Irrigation, Fertilizer, and Pesticide
by Type of Crops in Rural and Urban Areas, for Private Holdings

TYPE OF CROP	Total Crop	Improved Seed		Irrigation		Fertilizer		Pesticide	
	Hectares	Hectares	%	Hectares	%	Hectares	%	Hectares	%
TOTAL	8313	153	1.84	1487	17.89	2974	35.78	75	0.9
Grain Crops	7071	134	1.9	953	13.48	2305	32.6	49	0.69
Cereals	6832	126	1.84	946	13.85	2188	32.03	47	0.69
Teff.....	-	-	-	-	-	-	-	-	-
Barley.....	*	-	-	*	*	*	*	-	-
Wheat.....	*	-	-	*	*	*	*	-	-
Maize.....	466	*	*	195	41.85	207	44.42	10	2.15
Sorghum.....	6358	101	1.59	750	11.8	1979	31.13	37	0.58
Finger millet.....	*	-	-	-	-	-	-	-	-
Oats ('Aja').....	*	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulses	204	*	*	*	*	99	48.53	*	*
Horse beans.....	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans ..	201	*	*	*	*	97	48.26	*	*
Chick peas.....	-	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-	-
Fenugreek	*	-	-	-	-	*	*	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil Seeds	34	-	-	*	*	17	50	-	-
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-	-	-	-
Ground nuts ..	25	-	-	-	-	14	56	-	-
Sufflower	-	-	-	-	-	-	-	-	-
Sesame	*	-	-	*	*	*	*	-	-
Rapeseed	-	-	-	-	-	-	-	-	-
Other Grains	*	-	-	*	*	*	*	-	-
Vegetables	84	*	*	73	86.9	69	82.14	6	7.14
Lettuce	-	-	-	-	-	-	-	-	-
Head cabbage..	-	-	-	-	-	-	-	-	-
Kale.....	-	-	-	-	-	-	-	-	-
Tomatoes.....	79	*	*	69	87.34	66	83.54	*	*
Green peppers..	*	-	-	*	*	*	*	*	*
Red peppers	-	-	-	-	-	-	-	-	-
Swiss chard.....	-	-	-	-	-	-	-	-	-
Others.....	*	-	-	-	-	-	-	-	-
Root Crops	161	*	*	80	49.69	80	49.69	*	*
Beet root.....	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Onions.....	48	*	*	27	56.25	28	58.33	-	-
Potatoes.....	*	-	-	*	*	*	*	*	*
Garlic	*	-	-	*	*	*	*	-	-
Taro	-	-	-	-	-	-	-	-	-
Sweet potatoes	95	-	-	41	43.16	40	42.11	*	*
Others.....	-	-	-	-	-	-	-	-	-
Permanent Crops.....	997	*	*	381	38.21	521	52.26	19	1.91
Fruit Crops	182	*	*	123	67.58	105	57.69	11	6.04
Avocado	-	-	-	-	-	-	-	-	-
Bananas.....	6	-	-	5	83.33	3	50	-	-
Guava	*	-	-	*	*	*	*	-	-
Lemons	2	*	*	*	*	*	*	-	-
Mangoes.....	15	-	-	10	66.67	*	*	*	*
Oranges	17	*	*	13	76.47	6	35.29	*	*
Papayas	45	*	*	34	75.56	37	82.22	*	*
Pineapples	-	-	-	-	-	-	-	-	-
Others.....	87	*	*	*	*	*	*	*	*
Stimulant Crops	815	*	*	258	31.66	415	50.92	*	*
Chat	753	-	-	210	27.89	382	50.73	*	*
Coffee	62	*	*	48	77.42	33	53.23	*	*
Hops	-	-	-	-	-	-	-	-	-
Others.....	-	-	-	-	-	-	-	-	-
Other Permanent	-	-	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-	-	-
Sugar Cane ..	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-

With regard to the type of fertilizers applied, the great majority of holder's applied natural fertilizers (8048). When we come to the utilization of commercial fertilizers a total of 914 holders have applied chemical fertilizers on their farm, out of which about 674 holders applied Urea followed by DAP i.e. 179 holders and then a mixture of DAP and UREA. In urban areas for private holdings, a total of 131 holders applied natural and chemical fertilizers.

Among the types of fertilizers used, natural fertilizers was applied in a larger cultivated area of cropland, which is about 2659 hectares (that is, 89.41% of fertilized cropland area). Next to natural fertilizers, chemical fertilizer covered considerable amount of cropland area. Furthermore, considerable quantity of chemical fertilizers was also applied by holders in the rural areas of Dire Dawa Administrative Council (See Summary Table VI.3)

3.1 Application of Natural Fertilizers in the Rural and Urban Areas

According to the census findings, about 7933 holders in rural areas and 115 holders in urban areas applied natural fertilizers on 2659 hectares of cropland (comprising 89.41% of the total fertilized land area). Of the total cropland area on which natural fertilizers are applied, the share of Meher and Belg seasons in rural areas was 81.24 and 7.33 percent, respectively. Moreover, of the total land area on which natural fertilizers are applied 72.58% was under cereals, 3.46% under pulses, and 0.53% under oilseeds, 2.48% under vegetables, 2.75% under root crops 3.23% under fruits and 14.59% under stimulants. For details, refer to Summary Tables VI.3 and VI.4.

3.2 Application of DAP in the Rural Areas

As illustrated in Summary Table VI.3, about 179 holders in rural areas have applied DAP and covered considerable crop land area. The applications of DAP varied markedly from one group of crops to another, i.e from cereals to permanent crops. However, the estimated DAP applied cropland area were not shown due to high coefficient of variation (For details, refer to Summary Tables VI.3 and VI.4).

3.3 Application of UREA in the Rural Areas

Although chemical fertilizers have been widely promoted, only 674 holders in rural areas have applied UREA, and the cropland areas applied occupy 176 hectares, which is 5.94% of the total

fertilizers. Out of the total area on which UREA was applied, it is reported that 80.68 % was under cereals, but the area coverage was insignificant for the remaining crop categories. Moreover, the data in the table show that the total quantity of UREA applied was about 66 quintals from which the highest amount was applied for cereals i.e 52 quintals (See Summary Table VI.3 and VI.4)

3.4 Application of a Mixture of DAP and UREA in the Rural Areas

The census findings depicts the fact that considerable number of holders have applied a mixture of DAP and UREA on their crop fields. However, the estimated DAP and UREA applied crop land area were not shown due to high coefficient of variation. For details, refer to Summary Tables VI.3 and VI.4.

4 HOLDERS UTILIZING IMPROVED SEEDS AND QUANTITY OF IMPROVED SEEDS USED

In the 2001/02 Agricultural Sample Enumeration, data on number of holders that have used improved seeds and quantity of seeds used was collected. Hence, the number of holders that have used improved variety seeds and quantity of improved cereal, pulse and oil seeds are presented in Summary Table VI.5.

4.1 Number of Holders using Improved Seeds.

As portrayed in Summary Table VI.5 the use of improved seeds is limited to only 1054 in rural and 83 holders in urban areas of the region. Of the total holders using improved seeds, 40.61% utilized improved sorghum seed, 16.51% improved maize seed, 18.60% improved variety of haricot beans.

4.2 Quantity of Improved Seeds Used

Information on quantity of improved varieties of seeds is limited to grain crops only. As can be seen from Summary Table VI.5, the total quantity of improved seeds was estimated to be 17 quintals. The total quantity of improved seeds used has been low for private holdings in rural areas of the region. As can be seen from the data, the utilization of improved seeds is very low that indicates the holders' continued reliance on low yielding local/traditional seeds.

5 FARM MANAGEMENT PRACTICES AND EDUCATIONAL ATTAINMENT OF HOLDERS

This section of the report presents data on educational attainment of holders in relation to their farm management practices. At the time of enumeration all holders in the sampled households were asked to state their educational attainment. As presented in Summary Table VI.6 data on literacy status and highest grade completed for literate holders were collected.

The census findings indicate that the level of educational attainment of the holders in Dire Dawa Administrative Council is very low and this may have a direct impact on the level of awareness of the holders with respect to improved farming activities and is a typical characteristic of peasant community in developing countries. A large number of holders (80.61% in rural and 73.41 % in urban areas) were found to be illiterate while 9.82% in rural and 13.69% in urban areas have participated in informal education.

Moreover, the data shows that 9.03% of the holders in rural and 6.69% of holders in urban areas have completed grades 1 to 6 and only 0.01% of the holders in rural and 0.16 % in urban areas have completed grades 7-12. These estimates show that holders in urban areas are relatively more literate than those in the rural areas. This could probably be attributed to

SUMMARY TABLE VI.3: Number of Holders Applying Fertilizers, Area Under Fertilizers and Quantity of Fertilizers Applied by Type in Rural and Urban Areas, for Private Holdings

Type of Fertilizer	Number of Holders Applying Fertilizer by Type									
	Total	Grains				Vegetables	Root Crops	Permanent Crops		
		Cereals	Pulses	Oilseeds	Others			Fruits	Stimulant	Other
Rural and Urban	8317	7741	1498	285	*	1715	2300	2567	4500	-
Percent..	100									
Natural	8048	7387	1371	247	*	1630	2149	2364	4293	-
Chemical.....	914	807	-	-	-	-	-	223	273	-
DAP	179	154	*	-	-	*	-	*	*	-
UREA	674	592	*	*	-	*	*	*	165	-
DAP+UREA.....	*	*	*	*	*	-	-	*	*	-
Urban	131	101	-	-	-	8	*	81	-	-
Percent..	1.58									
Natural	115	80	-	-	-	8	*	*	-	-
Chemical.....	21	21	-	-	-	-	-	*	-	-
Rural Meher	7209	6853	1498	285	*	777	1329	2486	4500	-
Percent..	86.68									
Natural	6909	6476	1371	247	*	730	1221	2290	4293	-
Chemical.....	713	713	*	*	*	*	*	217	273	-
DAP	130	130	*	-	-	-	-	*	*	-
UREA	543	543	*	*	-	*	*	*	165	-
DAP+UREA.....	*	*	*	*	*	-	-	*	*	-
Rural Belg	3168	2257	-	-	-	1338	1222	-	-	-
Percent..	38.09									
Natural	2992	2208	-	-	-	1275	1116	-	-	-
Chemical.....	*	*	-	-	-	*	*	-	-	-
DAP	*	*	-	-	-	*	-	-	-	-
UREA	*	*	-	-	-	*	*	-	-	-
DAP+UREA.....	-	-	-	-	-	-	-	-	-	-
	Area in Hectares									
Rural and Urban	2974	2188	99	17	*	69	80	105	415	-
Percent..	100	73.57	3.33	0.57	*	2.32	2.69	3.53	13.95	-
Natural	2659	1930	92	14	*	66	73	97	388	-
Percent..	89.41	72.58	3.46	0.53	*	2.48	2.75	3.65	14.59	-
Chemical.....	315	258	-	-	-	-	-	-	28	-
Percent..	10.59	81.9	-	-	-	-	-	-	8.89	-
Urban	28	15	-	-	-	1	*	11	-	-
Percent..	0.94	53.57	-	-	-	3.57	*	39.29	-	-
Natural	25	13	-	-	-	1	*	*	-	-
Percent..	0.84	52	-	-	-	4	*	*	-	-
Chemical (Urban)	3	3	-	-	-	-	-	*	-	-
Percent..	0.10	100	-	-	-	-	-	*	-	-
Rural Meher	2719	2037	99	17	*	19	38	94	415	-
Percent..	91.43	74.92	3.64	0.63	*	0.7	1.4	3.46	15.26	-
Natural	2416	1784	92	14	*	18	35	86	388	-
Percent..	81.24	73.84	3.81	0.58	*	0.75	1.45	3.56	16.06	-
Chemical.....	303	253	*	*	*	*	*	*	28	-
Percent..	10.19	83.5	*	*	*	*	*	*	9.24	-
DAP	*	*	*	-	-	-	-	*	*	-
Percent..	*	*	*	-	-	-	-	*	*	-
UREA	176	142	*	*	-	*	*	*	*	-
Percent..	5.92	80.68	*	*	-	*	*	*	*	-
DAP+UREA.....	*	*	*	*	*	-	-	*	*	-
Percent..	*	*	*	*	*	-	-	*	*	-
Rural Belg	227	136	-	-	-	50	41	-	-	-
Percent..	7.63	59.91	-	-	-	22.03	18.06	-	-	-
Natural	218	133	-	-	-	47	38	-	-	-
Percent..	7.33	61.01	-	-	-	21.56	17.43	-	-	-
Chemical.....	*	*	-	-	-	*	*	-	-	-
Percent..	*	*	-	-	-	*	*	-	-	-
DAP	*	*	-	-	-	*	-	-	-	-
Percent..	*	*	-	-	-	*	-	-	-	-
UREA	*	*	-	-	-	*	*	-	-	-
Percent..	*	*	-	-	-	*	*	-	-	-
DAP+UREA.....	-	-	-	-	-	-	-	-	-	-
Percent..	-	-	-	-	-	-	-	-	-	-

SUMMARY TABLE VI.3: Cont.

	Quantity in Quintals									
Rural Meher.....	92	69	*	*	*	*	*	*	*	*
Percent..	100	75	*	*	*	*	*	*	*	*
DAP	*	*	*	*	*	*	*	*	*	*
Percent..	*	*	*	*	*	*	*	*	*	*
UREA	66	52	*	*	*	*	*	*	*	*
Percent..	71.74	78.79	*	*	*	*	*	*	*	*
DAP+UREA	*	*	*	*	*	*	*	*	*	*
Percent..	*	*	*	*	*	*	*	*	*	*
Rural Belg.....	*	*	*	*	*	*	*	*	*	*
Percent..	*	*	*	*	*	*	*	*	*	*
DAP	*	*	*	*	*	*	*	*	*	*
Percent..	*	*	*	*	*	*	*	*	*	*
UREA	*	*	*	*	*	*	*	*	*	*
Percent..	-	*	*	*	*	*	*	*	*	*
DAP+UREA	-	-	*	*	*	*	*	*	*	*
Percent..	-	-	*	*	*	*	*	*	*	*

To avoid duplication number of holders that applied fertilizers in rural and urban areas for private holdings do not add up to the totals. Hence, the sum of estimates may not be equal to the totals.

better access to school and/or better awareness of the importance of education among the holders in the urban than those in the rural areas.

Moreover, the total number of holders participating in the agricultural extension package programs was 449, which is only about 3.04 percent of the total holders in the region. The distribution of extension package program participants by educational status shows that 71.94% were illiterate, and 0.22% has completed grades 1 to 6 and grades 7 to 12 each.

As a result of insignificant number of holders who have been exposed to extension packages as well as to education the impact of education on the use of improved farm practices was not clearly exhibited by the census data. The data indicates that out of all holders who have used improved seeds, practiced irrigation, and applied fertilizers and pesticides, 74.42, 78.10, 78.32 and, 79.69 percents were illiterate, respectively (For details, refer to Summary Table VI.6).

6 DAMAGED CROPLAND AREAS AND SIZE OF HOLDINGS IN RURAL AREAS

This section of the chapter deals with the estimates of damaged cropland areas by size of holdings in Dire Dawa Administrative Council. Cropland area damage includes any cropland planted or sown with intention to harvest crops, but failed to produce crop partly or fully due to

**SUMMARY TABLE VI.4: Number of Holders Applying Fertilizers, Fertilized Area,
and Quantity of Fertilizers by Crop Type in Rural and Urban Areas, for Private Holdings**

CROP	Application of total Fertilizers		Application of Fertilizers by Type and Quantity				
	Holders	Hectares	Natural		Chemical – DAP		
			Holders	Hectares	Holders	Hectares	Quintals
TOTAL	8317	2974	8048	2659	179	*	*
Grain Crops	7741	2305	7387	2036	154	*	*
Cereals	7741	2188	7387	1930	154	*	*
Teff	-	-	-	-	-	-	-
Barley	*	*	*	*	-	-	-
Wheat	*	*	*	*	-	-	-
Maize	3479	207	3334	193	*	*	*
Sorghum	6309	1979	5851	1735	130	*	*
Finger millet	-	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	1498	99	1371	92	*	*	*
Horse beans	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-
Haricot beans	1477	97	1349	90	*	*	*
Chick peas	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-
Fenugreek	*	*	*	*	-	-	-
Gibto	-	-	-	-	-	-	-
Oil Seeds	285	17	247	14	-	-	-
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Ground nuts	229	14	209	12	-	-	-
Sufflower	-	-	-	-	-	-	-
Sesame	*	*	*	*	-	-	-
Rapeseed	-	-	-	-	-	-	-
Other Grains	*	*	*	*	-	-	-
Vegetables	1715	69	1630	66	*	*	*
Lettuce	-	-	-	-	-	-	-
Head cabbage	*	-	*	-	-	-	-
Kale	-	-	-	-	-	-	-
Tomatoes	1708	66	1622	62	*	*	*
Green peppers	*	*	*	*	-	-	-
Red peppers	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Root Crops	2300	80	2149	73	-	-	-
Beet root	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-
Onions	792	28	683	23	-	-	-
Potatoes	*	*	302	*	-	-	-
Garlic	*	*	*	*	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-
Sweet potatoes	1445	40	1425	40	-	-	-
Others	-	-	-	-	-	-	-
Permanent Crops	5524	521	5266	485	*	*	*
Fruit Crops	2567	105	2364	97	*	*	*
Avocado	-	-	-	-	-	-	-
Bananas	319	3	319	3	-	-	-
Guava (Zeytuna)	358	*	358	*	-	-	-
Lemons	*	*	*	*	-	-	-
Mangoes	210	*	210	*	-	-	-
Oranges	135	6	128	6	-	-	-
Papayas	1585	37	1450	34	*	*	*
Pineapples	-	-	-	-	-	-	-
Others	1004	*	883	42	*	*	*
Stimulant Crops	4500	415	4293	388	*	*	*
Chat	3769	382	3584	359	*	*	*
Coffee	1460	33	1351	28	*	*	*
Hops	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Other Permanent	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-

SUMMARY TABLE VI.4 Contd.

CROP	Application of Fertilizers by Type and Quantity							
	Chemical – UREA			Chemical - DAP & UREA			Chemical (Urban)	
	Holders	Hectares	Quintals	Holders	Hectares	Quintals	Holders	Hectares
TOTAL	674	184	76	*	*	*	21	3
Grain Crops	592	150	58	*	*	*	21	3
Cereals	592	144	56	*	*	*	21	3
Teff	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-
Maize	*	*	*	*	*	*	-	-
Sorghum	494	135	*	*	*	*	21	3
Finger millet	-	-	-	-	-	-	-	-
Oats (‘Aja’)	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulses	*	*	*	*	*	*	-	-
Horse beans	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	*	*	*	*	*	-	-	-
Chick peas	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil Seeds	*	*	-	*	*	-	-	-
Neug	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	*	*	-	-	-
Sufflower	-	-	-	-	-	-	-	-
Sesame	*	*	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-
Other Grains	-	-	-	*	*	*	-	-
Vegetables	*	*	*	-	-	-	-	-
Lettuce	-	-	-	-	-	-	-	-
Head cabbage	-	-	-	-	-	-	-	-
Kale	-	-	-	-	-	-	-	-
Tomatoes	*	*	*	-	-	-	-	-
Green peppers	-	-	-	-	-	-	-	-
Red peppers	-	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-
Root Crops	*	*	*	-	-	-	-	-
Beet root	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-
Onions	*	*	*	-	-	-	-	-
Potatoes	*	*	*	-	-	-	-	-
Garlic	-	-	-	-	-	-	-	-
Taro	-	-	-	-	-	-	-	-
Sweet potatoes	*	*	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-
Permanent Crops	254	24	*	*	*	*	*	*
Fruit Crops	*	*	*	*	*	*	*	*
Avocado	-	-	-	-	-	-	-	-
Bananas	-	-	-	-	-	-	-	-
Guava	-	-	-	-	-	-	-	-
Lemons	-	-	-	-	-	-	-	-
Mangoes	-	-	-	-	-	-	-	-
Oranges	-	-	-	-	-	-	*	*
Papayas	*	*	*	-	-	-	-	-
Pineapples	-	-	-	-	-	-	-	-
Others	*	*	*	*	*	*	-	-
Stimulant Crops	165	*	*	*	*	*	-	-
Chat	140	*	*	*	*	*	-	-
Coffee	*	*	*	*	*	*	-	-
Hops	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-
Other Permanent	-	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-

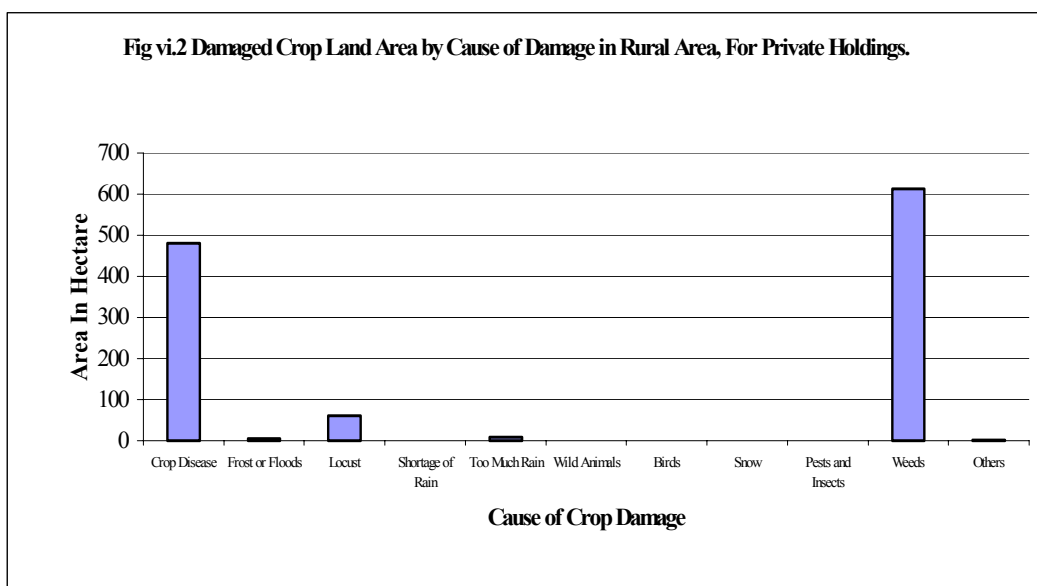
Improved Seeds Applied by Crop Type in Rural and Urban Areas, for Private Holdings

[illegible]

SUMMARY TABLE VI.6: Holders Applying Agricultural Inputs and Participating in Extension Programs by Level of Education in Rural and Urban Areas, for Private Holdings

Place of Residence/Season	Total		Educational Level of Holder									
			Illiterate		Literate, but no Formal Education		Grade 1 - 6		Grade 7 – 12		Above Grade 12	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
All Crop Holders												
Rural and Urban	14788	100	11868	80.25	1476	9.98	1338	9.05	1	0.01	*	*
Rural	14150	100	11407	80.61	1390	9.82	1278	9.03	1	0.01	*	*
Meher	14073	100	11363	80.74	1368	9.72	1265	8.99	1	0.01	*	*
Belg	4737	100	3720	78.53	487	10.28	151	3.19	1	0.02	*	*
Urban	628	100	461	73.41	86	13.69	42	6.69	1	0.16	*	*
Improved Seeds												
Rural and Urban	1122	7.59	835	74.42	*	*	1	0.09	1	0.09	*	*
Rural	1054	7.45	795	75.43	*	*	1	0.09	1	0.09	*	*
Meher	803	5.71	584	72.73	*	*	1	0.12	1	0.12	*	*
Belg	*	*	*	*	*	*	1	*	1	*	*	*
Urban	68	10.83	40	58.82	*	*	1	1.47	1	1.47	*	*
Irrigation												
Rural and Urban	6368	43.06	4979	78.19	664	10.43	331	5.20	1	0.02	*	*
Rural	6051	42.76	4750	78.50	624	10.31	303	5.01	1	0.02	*	*
Meher	5630	40.01	4445	78.95	546	9.70	95	1.69	1	0.02	*	*
Belg	2763	58.33	2326	84.18	208	7.53	1	0.04	1	0.04	*	*
Urban	318	50.64	228	71.70	40	12.58	29	9.12	1	0.31	*	*
Fertilizer												
Rural and Urban	8317	56.28	6514	78.32	918	11.04	796	9.57	*	*	*	*
Rural	8186	57.85	6412	78.33	907	11.08	790	9.65	*	*	*	*
Meher	7209	51.23	5577	77.36	801	11.11	755	10.47	*	*	*	*
Belg	3168	66.88	2569	81.09	360	11.36	217	6.85	*	*	*	*
Urban	132	21.02	102	77.27	*	*	7	5.30	*	*	*	*
Pesticides												
Rural and Urban	655	4.43	522	79.69	*	*	1	0.15	1	0.15	*	*
Rural	592	4.18	489	82.60	*	*	1	0.17	1	0.17	*	*
Meher	203	1.44	163	80.30	*	*	1	0.49	1	0.49	*	*
Belg	389	8.21	326	83.80	*	*	*	*	1	0.26	*	*
Urban	63	10.03	33	52.38	*	*	1	1.59	1	1.59	*	*
Extension Program												
Rural	449	3.04	323	71.94	*	*	1	0.22	1	0.22	*	*
Meher	*	*	*	*	*	*	1	*	1	*	*	*
Belg	*	*	*	*	*	*	*	*	1	*	*	*

various reasons. Out of the total cultivated cropland area 14.60% in Meher and 0.66 percent in Belg seasons were affected by crop damage. The cropland area damage that accounted for 41.77% fall under holders in rural areas who had holding size that ranges from 0.51 and 1 hectares. On the other hand, holders in rural areas who had holding size of between 1.01 and 2 hectare accounted for 27.34 % of the cropland area damage.



With regard to the causes of crop damage, it is reported that 48.23% was damaged due to weeds, 37.83% was caused by crop disease, 4.73% was due to Locust, 0.39% due to Frost or Floods (For details see Summary Table VI.9 and Fig VI.2)

7 FARM MANAGEMENT PRACTICES OF HOLDERS IN RURAL AREAS

In order to obtain more detailed information concerning the various types of farm practices of holders in rural areas, data were collected subjectively by interviewing sampled agricultural holders on the sources of water for irrigation schemes, method to improve soil fertility, method of plowing and soil conservation, participation in extension package programs, and use of credit or advisory services. Hence, the total number of holders reporting different farm management practices and their percentage distribution by type of farm management practices is presented in Summary Table VI.8. Following are discussions of the major findings with respect to these data.

7.1 Sources of Water for Irrigation Schemes

In a country like Ethiopia, where the amount, timing and distribution of rainfall is irregular, use of irrigation would significantly improve and raise the level of production. However, irrigation is

not extensive in Dire Dawa Administrative Council. As presented earlier, chat, sorghum and maize are relatively sizable crops that are grown by irrigation in this region. The census data reveals that of the total holder in the rural areas only 43.31% reported to have used irrigation practices. Among these holders who practice different sources of water 61.22%, 22.28% and 7.26 percent of the holders were rivers, other sources and lake, respectively. Utilization of ponds as sources of water for irrigation is limited in the region. It should be noted that data on the number of holders who practice irrigation schemes and the number of holders reporting the sources of water for irrigation were collected in different period of time during the 2001/02 agricultural activities. In an enumeration area a total of 30 households were systematically sampled that mainly resulted about 30 holders. Thus, the data on number of holders practicing irrigation was collected in September (for ten households) and December (for twenty households). However, data on the holders reporting the sources of water for irrigation was collected only in March. Hence, some discrepancy is observed in the total numbers of holders who have reported the use of irrigation practices presented in Summary Table VI.7 and VI.9. During the 2001/02 EASE, an attempt has also been made to assess the extent of irrigation practice in urban areas. Thus, sources of water for irrigation under permanent crops in urban areas for Meher season have been assessed and the data are presented in Summary Table VI.9.

The data in the table shows that only 50.64 percent of the total holders reported as practicing irrigation during the Meher season and of these holders the sources of water for irrigation was 24.84, 21.34, 3.98 and 2.55 percent were from rivers, other sources, well and lakes, tap Water and other sources, respectively.

**SUMMARY TABLE VI.7: Causes of Damage of Cropland Area by Size of Holdings and
Seasons in Rural Areas, for Private Holdings**

Cause of Damage	Size of Holding (Hectares)							
	Total	Under 0.1	0.1 – 0.5	0.51 – 1.0	1.01 – 2.0	2.01 – 5.00	5.01 – 10.0	Over 10
	Both Seasons							
Total	1269	8	316	530	347	*	-	-
Percent.,	100	0.63	24.90	41.77	27.34	*	-	-
Crop Disease	480	*	86	213	147	*	-	-
Percent.,	37.83	*	17.92	44.38	30.63	*	-	-
Frost or Floods	5	*	*	*	*	-	-	-
Percent.,	0.39	*	*	*	*	-	-	-
Locust	60	-	8	17	*	*	-	-
Percent.,	4.73	-	13.33	28.33	*	*	-	-
Shortage of Rain	*	-	*	*	*	-	-	-
Percent.,	*	-	-	-	-	-	-	-
Too Much Rain	9	*	9	*	*	-	-	-
Percent.,	*	*	100	*	*	-	-	-
Wild Animals	*	-	*	*	*	-	-	-
Percent.,	*	-	*	*	*	-	-	-
Birds	-	-	-	-	-	-	-	-
Percent.,	-	-	-	-	-	-	-	-
Hailstone	*	-	*	*	*	-	-	-
Percent.,	*	-	*	*	*	-	-	-
Pests and Insects	-	-	-	-	-	-	-	-
Percent.,	-	-	-	-	-	-	-	-
Weeds	612	4	190	255	128	*	-	-
Percent.,	48.23	-	-	-	-	-	-	-
Others	2	-	*	*	*	*	-	-
Percent.,	0.16	-	*	*	*	*	-	-
Meher Season								
Total	1214	8	297	518	341	*	-	-
Crop Disease	470	*	83	209	146	*	-	-
Frost or Floods	4	*	*	*	*	-	-	-
Locust	59	-	8	17	*	*	-	-
Shortage of Rain	*	-	*	*	*	-	-	-
Too Much Rain	*	*	*	*	*	-	-	-
Wild Animals	*	-	*	*	*	-	-	-
Birds	-	-	-	-	-	-	-	-
Hailstone	*	-	*	*	*	-	-	-
Pests and Insects	-	-	-	-	-	-	-	-
Weeds	573	4	176	249	124	*	-	-
Others	-	-	-	-	-	-	-	-
Belg Season								
Total	55	16	30	*	-	-	-	-
Crop Disease	*	3	*	-	-	-	-	-
Frost or Floods	*	*	-	-	-	-	-	-
Locust	*	*	*	-	-	-	-	-
Shortage of Rain	*	*	-	-	-	-	-	-
Too Much Rain	*	*	-	-	-	-	-	-
Wild Animals	-	-	-	-	-	-	-	-
Birds	-	-	-	-	-	-	-	-
Hailstone	*	*	-	-	-	-	-	-
Pests and Insects	-	-	-	-	-	-	-	-
Weeds	39	9	21	*	-	-	-	-
Others	2	*	*	*	-	-	-	-

However, holders that use well are very few i.e. about 0.96%. In the same summary table, out of the total holders, it was observed that only 186 (29.62 percent) holders in urban areas practiced Belg crop production in the past three years prior to 2001/02 (1994 E.C.).

7.2 Methods Used to Improve Soil Fertility

The fertility of the soil in Ethiopia is being depleted slowly as time passes because of continuous cropping. In the census, holders were asked to state their method of improving soil fertility, that is whether they use crop rotation or burning of soil. Hence, the data showed that of the total holders about 18.68% have reported practicing crop rotation, while 14.81% reported practicing burning of soil as their main method for improving soil fertility.

7.3 Application of Chemical Fertilizers and Reasons for not Applying Fertilizers

In order to gauge the attitude of holders who did not use chemical fertilizers, sampled households were asked the reasons for not using chemical fertilizers. The data in Summary Table VI.8, indicate that the majority of the holders did not use chemical fertilizers due to various reasons. A total of about 7844 holders did not use chemical fertilizers due to shortage of money, about 457 holders due to high cost of fertilizers 1663 holders due to lack of knowledge about the advantage, about 275 holders due to insufficient supply of fertilizers in their area, and about 1738 holders mentioned “other reasons” for not using chemical fertilizers.

7.4 Method of Ploughing

One aspect to increase agricultural production is through mechanization. The replacement of hand digging and ox/horse driven ploughing method by tractor is of paramount importance for increasing the volume of agricultural production. In light of this, an attempt has been made to collect some basic information on method of ploughing by the holders at the time of the census enumeration. Thus, the majority of the holders (62.63%) reported to have used both hand digging and ox/horse driven methods 26.93% reported to have used hand-digging method.

7.5 Methods Used for Soil Conservation

According to the data in Summary Table VI.8, the majority of the holders reported using different methods of soil conservation. Of which, 57.21, 34.91 and 4.36 percent of holders have practiced terracing, water catchments, and plowing along the contour, respectively. Moreover, very few numbers of holders reported that they have other methods for soil conservation.

7.6 Extension Packages, and Use of Agricultural Credit and Advisory Services

Extension packages are outreach programs operating in rural areas for private holdings aiming to transfer modern agricultural technologies to increase crop and livestock productivity. The programs are usually undertaken through close follow-up and advisory services by the agricultural development agents. A holder is said to be a participant of this program if and only if he/she obtains agricultural advices, apply the recommended inputs and other related services such as close follow up by the extension agent, supervision by wereda and zonal agricultural bureaus...etc on a regular basis. The prevalence of different types of extension packages were assessed during the enumeration, these include, rain shortage areas packages, rain abundant areas packages, post harvest technology packages, ...etc. Thus, the data showed that about 1.83% of the agricultural holders were covered by rain shortage areas extension packages. The total agricultural holders covered by all other types of extension packages listed in the table are insignificant. In response to why they have not been covered by these extension packages since the program started, holders reported the reasons as follows 33.88% of the holders reported shortage of money, 19.75% reported no knowledge about the advantage, 28.26% reported program not available, 2.45% each were suspicious of its efficiency and 3.86% due to other reasons, and 7.37% reported not sufficient arable land available.

In the country, there are institutions that provide credit and assist peasants by furnishing short and intermediate term loans for the purchase of chemical fertilizers, improved variety seeds, and pesticides. These institutions not only give great emphasis to provide loans to peasants but also aiding them with advice on farming practices. Then, data are collected by interviewing sampled holders on use of credit and advisory services and are presented in Summary Table VI.8. Thus, the data in this table showed that about 13.20 and 7.86 percent of the holders have obtained advice on agricultural practices and credit services in that order.

7.7 SOURCES AND COST OF CHEMICAL FERTILIZERS.

As illustrated in Summary Table VI.10, it is estimated that a total of 452 holders (3.20%) reported “Government” as their major sources of chemical fertilizers, while about 437 (3.10%) and 117 (0.83%) holders mentioned traders and private organization as their major sources of chemical fertilizers, respectively. Regardless of the source, the average cost was 253.63 Birr/Quintal for DAP and 219.43 Birr/Quintal for UREA.

8 USES OF CROP SPECIFIC EXTENSION PACKAGE PROGRAMS

Extension package is one of the means by which productivity improves and thereby food production increases. Moreover, Agricultural Development Agents (ADA) assist the peasants by operating demonstration plots to provide information to agricultural holders on improved seed varieties, on use of fertilizers and pesticides, and improvements in production practices to increase yields. Further, advisory services are provided to holders to those who are willing to participate in the extension package programs.

8.1 Holders Participating in Crop Specific Extension Package Programs

In rural areas the distributions of holders participating in crop specific extension package programs are presented in Summary Tables VI.11. Accordingly, about 449 holders have been participating in crop specific package.

**SUMMARY TABLE VI.8: Number of Holders by Type of Farm Management Practices
in Rural Areas, for Private Holdings**

Farm Practices	Number of Holders Reporting	Percentage
Total Crop Holders	14116	100
Source of Water for Irrigation		
Holders who Practice Irrigation	6114	43.31
River	3743	61.22
Lake	444	7.26
Pond	*	*
Other	1362	22.28
Method to Improve Soil Fertility		
Crop Rotation	2637	18.68
Burning of Soil	2090	14.81
Reason for Not Using Chemical Fertilizer		
Do Not Know Advantages	1663	
Too Expensive	457	
Shortage of Money	7844	
Insufficient Supply	275	
No Credit Service	*	
Suspicious of Efficacy	*	
Other	1738	
Method of Plowing		
Hand Dug	3801	26.93
Ox/Horse Driven	1338	9.48
Tractor	*	*
Hand Dug and Ox/Horse Driven	8841	62.63
Tractor and Ox/Horse Driven	*	*
Method of Soil Conservation		
Terracing	8076	57.21
Water Catchments	4928	34.91
Afforestation	*	*
Plowing Along the Contour	616	4.36
Others	*	*
All Holders	15367	100
Participation in Extension Package by Type		
Rain Shortage Areas Package	281	1.83
Rain Abundant Areas Package	-	-
Post Harvest Technology Package	-	-
Livestock Development Package	*	*
Economically Important Crops Package	*	*
Any Two or More Packages	*	*
Reason For Not Participating in Extension Packages		
Do Not Know the Advantages	3035	19.75
Shortage of Money	5207	33.88
Suspicious of Efficacy	376	2.45
Programs Not Available	4343	28.26
Not Sufficient Arable Land	1132	7.37
Others	603	3.92
Use of Credit or Advisory Services		
Credit Services	1208	7.86
Advisory Services	2028	13.2

Summary Table VI.9 Holders who Practice Irrigation by Sources of Water in Meher Season and Holders who Practice Belg From 1999/2000 to 2001/02 in Urban Areas

Sources of Water	Number of Holders	Percent
Those who Practice Irrigation in Meher Season (2001/02)		
Crop Holders.....	628	100.00
Holders who Practice Irrigation Sources	318	50.64
River.....	134	21.34
Lake.....	6	0.96
Well.....	25	3.98
Tap Water.....	16	2.55
Others.....	156	24.84
Not Stated.....	*	*
Those who practice Belg from 1999/2000 to 2001/02		
Crop Holders.....	628	100
Holders who practice Belg.....	186	29.62
Male.....	162	25.80
Female.....	24	3.82

Summary Table VI.10: Holders by Sources of Chemical Fertilizers and Cost of Chemical Fertilizers in Rural Areas for Private Holdings.

Sources and Type of Fertilizers	Number of Holders	Percent
Crop Holders.....	14116	100
Sources		
Government.....	452	3.20
Private Organization	117	0.83
Traders.....	437	3.10
Others.....	-	-
Do not Buy.....	12909	91.45
Not Reported.....	-	-
Type of Fertilizers	Cost in Birr/Quintal	
DAP.....	253.63	
UREA.....	219.43	

8.2 Area Under Crop Specific Extension Package Programs

In the 2001/02 EASE, data on cropland area under extension package programs was collected. Thus, Summary Table VI.11 shows that very few hectares were under extension package programs.

Summary Table VI.11: Number of Holders Participating Crop Specific Extension Package Program and Area under Crop Specific Extension Package Program
By Season in Rural Areas, for Private Holdings.

Ext. Package by Crop	Rural				Meher		Belg	
	Holder	%	Area	%	Holder	Area	Holder	Area
Total	449	100	*	*	*	*	*	*
Teff	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-
Wheat	*	*	*	*	*	*	-	-
Maize	*	*	*	*	*	*	*	*
Sorghum	*	*	*	*	*	*	-	-
Rice	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	*	*	*	*	*	*	-	-
Chick peas	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-
Sesame	*	*	*	*	*	*	-	-
Rapeseed	-	-	-	-	-	-	-	-
Other Grains	-	-	-	-	-	-	-	-
Tomatoes	*	*	*	*	-	-	*	*
Red Papper	-	-	-	-	-	-	-	-
Onion	*	*	*	*	-	-	*	*
Potatoes	-	-	-	-	-	-	-	-
Sweet potatoes	*	*	*	*	*	*	-	-
Enset	-	-	-	-	-	-	*	*
Other Permanent	-	-	-	-	-	-	-	-

OF CROPS IN RURAL AREAS, BOTH SEASONS, FOR PRIVATE HOLDINGS

TYPE OF CROP	Total Crop	Improved Seed		Irrigation		Fertilizer		Pesticide	
	Hectares	Hectares	%	Hectares	%	Hectares	%	Hectares	%
TOTAL	8122	131	1.61	1393	17.15	2947	36.28	57	0.7
Grain Crops	6922	116	1.68	891	12.87	2289	33.07	41	0.59
Cereals	6683	108	1.62	884	13.23	2173	32.52	39	0.58
Teff	-	-	-	-	-	-	-	-	-
Barley	*	-	-	*	*	*	*	-	-
Wheat	*	-	-	*	*	*	*	-	-
Maize	455	*	*	185	40.66	205	45.05	10	2.2
Sorghum	6220	84	1.35	697	11.21	1966	31.61	30	0.48
Finger millet	*	-	-	-	-	-	-	-	-
Oats ('Aja')	*	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulses	204	*	*	*	*	99	48.53	*	*
Horse beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	201	*	*	*	*	97	48.26	*	*
Chick peas	-	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-	-
Fenugreek	*	-	-	-	-	*	*	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil Seeds	34	-	-	*	*	17	50	-	-
Neug	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	25	-	-	-	-	14	56	-	-
Sufflower	-	-	-	-	-	-	-	-	-
Sesame	*	-	-	*	*	*	*	-	-
Rapeseed	-	-	-	-	-	-	-	-	-
Other Grains	*	-	-	*	*	*	*	-	-
Vegetables	83	*	*	72	86.75	69	83.13	6	7.23
Lettuce	-	-	-	-	-	-	-	-	-
Head cabbage	-	-	-	-	-	-	-	-	-
Kale	-	-	-	-	-	-	-	-	-
Tomatoes	78	*	*	68	87.18	65	83.33	*	*
Green peppers	*	-	-	*	*	*	*	*	*
Red peppers	-	-	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-	-	-
Others	*	-	-	-	-	-	-	-	-
Root Crops	160	*	*	79	49.38	79	49.38	*	*
Beet root	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Onions	47	*	*	27	57.45	28	59.57	-	-
Potatoes	*	-	-	*	*	*	*	*	*
Garlic	*	-	-	*	*	*	*	-	-
Taro ('Godere')	-	-	-	-	-	-	-	-	-
Sweet potatoes	95	-	-	41	43.16	40	42.11	*	*
Others	-	-	-	-	-	-	-	-	-
Permanent Crops	957	3	0.31	350	36.57	509	53.19	*	*
Fruit Crops	144	*	*	92	63.89	94	65.28	*	*
Avocado	-	-	-	-	-	-	-	-	-
Bananas	6	-	-	5	83.33	3	50	-	-
Guava (Zeytuna)	*	-	-	*	*	*	*	-	-
Lemons	*	*	*	*	*	*	*	-	-
Mangoes	9	-	-	5	55.56	*	*	-	-
Oranges	*	-	-	*	*	*	*	-	-
Papayas	43	*	*	32	74.42	37	86.05	*	*
Pineapples	-	-	-	-	-	-	-	-	-
Others	72	*	*	*	*	*	*	*	*
Stimulant Crops	813	*	*	258	31.73	415	51.05	*	*
Chat	752	-	-	210	27.93	382	50.8	*	*
Coffee	61	*	*	48	78.69	33	54.1	*	*
Hops	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-
Other Permanent Crops	-	-	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-

TABLE 6.1.1: RURAL MEHER

TYPE OF CROP	Total Crop	Improved Seed		Irrigation		Fertilizer		Pesticide	
	Hectares	Hectares	%	Hectares	%	Hectares	%	Hectares	%
TOTAL	7737	106	1.37	1188	15.35	2719	35.14	*	*
Grain Crops	6665	101	1.52	783	11.75	2153	32.3	*	*
Cereals	6426	93	1.45	775	12.06	2037	31.7	*	*
Teff	-	-	-	-	-	-	-	-	-
Barley	*	-	-	*	*	*	*	-	-
Wheat	*	-	-	*	*	*	*	-	-
Maize	257	*	*	108	42.02	82	31.91	-	-
Sorghum	6160	79	1.28	666	10.81	1952	31.69	*	*
Finger millet	*	-	-	-	-	-	-	-	-
Oats ('Aja')	*	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulses	204	*	*	*	*	99	48.53	*	*
Horse beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	201	*	*	*	*	97	48.26	*	*
Chick peas	-	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-	-
Fenugreek	*	-	-	-	-	*	*	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil Seeds	34	-	-	*	*	17	50	-	-
Neug	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	25	-	-	-	-	14	56	-	-
Sufflower	-	-	-	-	-	-	-	-	-
Sesame	*	-	-	*	*	*	*	-	-
Rapeseed	-	-	-	-	-	-	-	-	-
Other Grains	*	-	-	*	*	*	*	-	-
Vegetables	30	*	*	27	90	19	63.33	*	*
Lettuce	-	-	-	-	-	-	-	-	-
Head cabbage	-	-	-	-	-	-	-	-	-
Kale	-	-	-	-	-	-	-	-	-
Tomatoes	29	*	*	27	93.1	19	65.52	*	*
Green peppers	*	-	-	*	*	*	*	-	-
Red peppers	-	-	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-	-	-
Others	*	-	-	-	-	-	-	-	-
Root Crops	85	-	-	28	32.94	38	44.71	-	-
Beet root	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Onions	*	-	-	2	*	*	*	-	-
Potatoes	*	-	-	*	*	*	*	-	-
Garlic	*	-	-	*	*	*	*	-	-
Taro ('Godere')	-	-	-	-	-	-	-	-	-
Sweet potatoes	64	-	-	24	37.5	25	39.06	-	-
Others	-	-	-	-	-	-	-	-	-
Permanent Crops	957	3	0.31	350	36.57	509	53.19	*	*
Fruit Crops	144	*	*	92	63.89	94	65.28	*	*
Avocado	-	-	-	-	-	-	-	-	-
Bananas	6	-	-	5	83.33	3	50	-	-
Guava (Zeytuna)	*	-	-	*	*	*	*	-	-
Lemons	*	*	*	*	*	*	*	-	-
Mangoes	9	-	-	5	55.56	*	*	-	-
Oranges	*	-	-	*	*	*	*	-	-
Papayas	43	*	*	32	74.42	37	86.05	*	*
Pineapples	-	-	-	-	-	-	-	-	-
Others	72	*	*	*	*	*	*	*	*
Stimulant Crops	813	*	*	258	31.73	415	51.05	*	*
Chat	752	-	-	210	27.93	382	50.8	*	*
Coffee	61	*	*	48	78.69	33	54.1	*	*
Hops	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-
Other Permanent Crops	-	-	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-

TABLE 6.1.2: RURAL BELG

[illegible]

TABLE 6.2: AREA OF CROPLAND UNDER IMPROVED FARM MANAGEMENT PRACTICES BY TYPE OF CROPS IN URBAN AREAS, MEHER SEASON

TYPE OF CROP	Total Crop	Improved Seed		Irrigation		Fertilizer		Pesticide	
	Hectares	Hectares	%	Hectares	%	Hectares	%	Hectares	%
TOTAL	190	22	11.58	95	50	28	14.74	18	9.47
Grain Crops.....	149	*	*	62	41.61	15	10.07	8	5.37
Cereals.....	149	*	*	62	41.61	15	10.07	8	5.37
Teff.....	-	-	-	-	-	-	-	-	-
Barley.....	*	-	-	-	-	-	-	-	-
Wheat.....	-	-	-	-	-	-	-	-	-
Maize.....	11	*	*	9	81.82	*	*	*	*
Sorghum.....	138	*	*	52	37.68	13	9.42	7	5.07
Finger millet.....	-	-	-	-	-	-	-	-	-
Oats (‘Aja’).....	-	-	-	-	-	-	-	-	-
Rice.....	-	-	-	-	-	-	-	-	-
Pulses.....	-	-	-	-	-	-	-	-	-
Horse beans.....	-	-	-	-	-	-	-	-	-
Field peas.....	-	-	-	-	-	-	-	-	-
Haricot beans.....	-	-	-	-	-	-	-	-	-
Chick peas.....	-	-	-	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-	-	-	-
Vetch.....	-	-	-	-	-	-	-	-	-
Soya.....	-	-	-	-	-	-	-	-	-
Fenugreek.....	-	-	-	-	-	-	-	-	-
Gibto.....	-	-	-	-	-	-	-	-	-
Oil Seeds.....	-	-	-	-	-	-	-	-	-
Neug.....	-	-	-	-	-	-	-	-	-
Linseed.....	-	-	-	-	-	-	-	-	-
Ground nuts.....	-	-	-	-	-	-	-	-	-
Sufflower.....	-	-	-	-	-	-	-	-	-
Sesame.....	-	-	-	-	-	-	-	-	-
Rapeseed.....	-	-	-	-	-	-	-	-	-
Other Grains.....	-	-	-	-	-	-	-	-	-
Vegetables.....	*	*	*	*	*	1	*	-	-
Lettuce.....	-	-	-	-	-	-	-	-	-
Head cabbage.....	-	-	-	-	-	-	-	-	-
Kale.....	-	-	-	-	-	-	-	-	-
Tomatoes.....	*	*	*	*	*	1	*	-	-
Green peppers.....	-	-	-	-	-	-	-	-	-
Red peppers.....	-	-	-	-	-	-	-	-	-
Swiss chard.....	-	-	-	-	-	-	-	-	-
Others.....	-	-	-	-	-	-	-	-	-
Root Crops.....	*	-	-	*	*	*	*	-	-
Beet root.....	-	-	-	-	-	-	-	-	-
Carrot.....	-	-	-	-	-	-	-	-	-
Onions.....	*	-	-	*	*	*	*	-	-
Potatoes.....	-	-	-	-	-	-	-	-	-
Garlic.....	-	-	-	-	-	-	-	-	-
Taro (‘Godere’).....	-	-	-	-	-	-	-	-	-
Sweet potatoes.....	-	-	-	-	-	-	-	-	-
Others.....	-	-	-	-	-	-	-	-	-
Permanent Crops.....	40	*	*	31	77.5	11	27.5	*	*
Fruit Crops.....	38	*	*	31	81.58	11	28.95	*	*
Avocado.....	-	-	-	-	-	-	-	-	-
Bananas.....	-	-	-	-	-	-	-	-	-
Guava (Zeytuna).....	-	-	-	-	-	-	-	-	-
Lemons.....	*	-	-	*	*	-	-	-	-
Mangoes.....	6	-	-	5	83.33	1	16.67	*	*
Oranges.....	14	*	*	11	78.57	4	28.57	*	*
Papayas.....	*	-	-	*	*	-	-	*	*
Pineapples.....	-	-	-	-	-	-	-	-	-
Others.....	16	*	*	12	75	*	*	*	*
Stimulant Crops.....	*	-	-	*	*	-	-	*	*
Chat.....	*	-	-	*	*	-	-	-	-
Coffee.....	*	-	-	*	*	-	-	*	*
Hops.....	-	-	-	-	-	-	-	-	-
Others.....	-	-	-	-	-	-	-	-	-
Other Permanent Crops.....	-	-	-	-	-	-	-	-	-
Enset.....	-	-	-	-	-	-	-	-	-
Sugar Cane.....	-	-	-	-	-	-	-	-	-
Others.....	-	-	-	-	-	-	-	-	-

TABLE 6.3: Number of Holders Applying Fertilizers, Fertilized Area, and Quantity of Fertilizers by Crop Type IN Rural Areas FOR BOTH Season

CROP	Application of total Fertilizers		Application of Fertilizers by Type and Quantity				
	Holders	Hectares	Natural		Chemical – DAP		
			Holders	Hectares	Holders	Hectares	Quintals
TOTAL	8186	2947	7933	2634	179	*	*
Grain Crops.....	7641	2289	7307	2023	154	*	*
Cereals	7641	2173	7307	1917	154	*	*
Teff	-	-	-	-	-	-	-
Barley	*	*	*	*	-	-	-
Wheat	*	*	*	*	-	-	-
Maize	3459	205	3314	191	*	*	*
Sorghum	6219	1966	5782	1724	130	*	*
Finger millet.....	-	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	1498	99	1371	92	*	*	*
Horse beans	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-
Haricot beans.....	1477	97	1349	90	*	*	*
Chick peas	-	-	-	-	-	-	-
Lentils.....	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya.....	-	-	-	-	-	-	-
Fenugreek.....	*	*	*	*	-	-	-
Gibto.....	-	-	-	-	-	-	-
Oil Seeds.....	285	17	247	14	-	-	-
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Ground nuts.....	229	14	209	12	-	-	-
Sufflower.....	-	-	-	-	-	-	-
Sesame.....	*	*	*	*	-	-	-
Rapeseed	-	-	-	-	-	-	-
Other Grains.....	*	*	*	*	-	-	-
Vegetables	1707	69	1621	65	*	*	*
Lettuce.....	-	-	-	-	-	-	-
Head cabbage	-	-	-	-	-	-	-
Kale	-	-	-	-	-	-	-
Tomatoes.....	1701	65	1616	62	*	*	*
Green peppers.....	*	*	*	*	-	-	-
Red peppers.....	-	-	-	-	-	-	-
Swiss chard.....	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Root Crops.....	2297	79	2146	72	-	-	-
Beet root	-	-	-	-	-	-	-
Carrot.....	-	-	-	-	-	-	-
Onions	789	28	680	22	-	-	-
Potatoes	*	*	302	*	-	-	-
Garlic.....	*	*	*	*	-	-	-
Taro ('Godere').....	-	-	-	-	-	-	-
Sweet potatoes.....	1445	40	1425	40	-	-	-
Others	-	-	-	-	-	-	-
Permanent Crops.....	5443	509	5191	473	*	*	*
Fruit Crops	2486	94	2290	86	*	*	*
Avocado	-	-	-	-	-	-	-
Bananas	318	3	318	3	-	-	-
Guava (Zeytuna)	358	*	358	*	-	-	-
Lemons.....	*	*	*	*	-	-	-
Mangoes	196	*	196	*	-	-	-
Oranges.....	*	*	*	*	-	-	-
Papayas.....	1582	37	1446	34	*	*	*
Pineapples	-	-	-	-	-	-	-
Others	935	*	814	*	*	*	*
Stimulant Crops	4500	415	4293	388	*	*	*
Chat	3769	382	3584	359	*	*	*
Coffee.....	1460	33	1351	28	*	*	*
Hops	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Other Permanent Crops	-	-	-	-	-	-	-
Enset.....	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-

TABLE 6.3 CONTD.

CROP	Application of Fertilizers by Type and Quantity					
	Chemical – UREA			Chemical - DAP & UREA		
	Holders	Hectares	Quintals	Holders	Hectares	Quintals
TOTAL	674	184	76	*	*	*
Grain Crops	592	150	58	*	*	*
Cereals	592	144	56	*	*	*
Teff	-	-	-	-	-	-
Barley	-	-	-	-	-	-
Wheat	-	-	-	-	-	-
Maize	*	*	*	*	*	*
Sorghum	494	135	*	*	*	*
Finger millet	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-
Rice	-	-	-	-	-	-
Pulses	*	*	*	*	*	*
Horse beans	-	-	-	-	-	-
Field peas	-	-	-	-	-	-
Haricot beans	*	*	*	*	*	*
Chick peas	-	-	-	-	-	-
Lentils	-	-	-	-	-	-
Vetch	-	-	-	-	-	-
Soya	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-
Gibto	-	-	-	-	-	-
Oil Seeds	*	*	-	*	*	-
Neug	-	-	-	-	-	-
Linseed	-	-	-	-	-	-
Ground nuts	-	-	-	*	*	-
Sunflower	-	-	-	-	-	-
Sesame	*	*	-	-	-	-
Rapeseed	-	-	-	-	-	-
Other Grains	-	-	-	*	*	*
Vegetables	*	*	*	-	-	-
Lettuce	-	-	-	-	-	-
Head cabbage	-	-	-	-	-	-
Kale	-	-	-	-	-	-
Tomatoes	*	*	*	-	-	-
Green peppers	-	-	-	-	-	-
Red peppers	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-
Others	-	-	-	-	-	-
Root Crops	*	*	*	-	-	-
Beet root	-	-	-	-	-	-
Carrot	-	-	-	-	-	-
Onions	*	*	*	-	-	-
Potatoes	*	*	*	-	-	-
Garlic	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-
Sweet potatoes	*	*	-	-	-	-
Others	-	-	-	-	-	-
Permanent Crops	254	24	*	*	*	*
Fruit Crops	*	*	*	*	*	*
Avocado	-	-	-	-	-	-
Bananas	-	-	-	-	-	-
Guava (Zeytuna)	-	-	-	-	-	-
Lemons	-	-	-	-	-	-
Mangoes	-	-	-	-	-	-
Oranges	-	-	-	-	-	-
Papayas	*	*	*	-	-	-
Pineapples	-	-	-	-	-	-
Others	*	*	*	*	*	*
Stimulant Crops	165	*	*	*	*	*
Chat	140	*	*	*	*	*
Coffee	*	*	*	*	*	*
Hops	-	-	-	-	-	-
Others	-	-	-	-	-	-
Other Permanent Crops	-	-	-	-	-	-
Enset	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-
Others	-	-	-	-	-	-

TABLE 6.3.1 RURAL MEHER

CROP	Application of total Fertilizers		Application of Fertilizers by Type and Quantity				
	Holders	Hectares	Natural		Chemical – DAP		
			Holders	Hectares	Holders	Hectares	Quintals
TOTAL	7209	2719	6909	2416	130	*	*
Grain Crops	6853	2153	6476	1890	130	*	*
Cereals	6853	2037	6476	1784	130	*	*
Teff	-	-	-	-	-	-	-
Barley	*	*	*	*	-	-	-
Wheat	*	*	*	*	-	-	-
Maize	2459	82	2289	71	-	-	-
Sorghum	6093	1952	5656	1710	130	*	*
Finger millet	-	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	1498	99	1371	92	*	*	*
Horse beans	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-
Haricot beans	1477	97	1349	90	*	*	*
Chick peas	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-
Fenugreek	*	*	*	*	-	-	-
Gibto	-	-	-	-	-	-	-
Oil Seeds	285	17	247	14	-	-	-
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Ground nuts	229	14	209	12	-	-	-
Sunflower	-	-	-	-	-	-	-
Sesame	*	*	*	*	-	-	-
Rapeseed	-	-	-	-	-	-	-
Other Grains	*	*	*	*	-	-	-
Vegetables	777	19	730	18	-	-	-
Lettuce	-	-	-	-	-	-	-
Head cabbage	-	-	-	-	-	-	-
Kale	-	-	-	-	-	-	-
Tomatoes	771	19	725	18	-	-	-
Green peppers	*	*	*	*	-	-	-
Red peppers	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Root Crops	1329	38	1221	35	-	-	-
Beet root	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-
Onions	336	*	247	*	-	-	-
Potatoes	*	*	*	*	-	-	-
Garlic	*	*	*	*	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-
Sweet potatoes	971	25	951	25	-	-	-
Others	-	-	-	-	-	-	-
Permanent Crops	5443	509	5191	473	*	*	*
Fruit Crops	2486	94	2290	86	*	*	*
Avocado	-	-	-	-	-	-	-
Bananas	318	3	318	3	-	-	-
Guava (Zeytuna)	358	*	358	*	-	-	-
Lemons	*	*	*	*	-	-	-
Mangoes	196	*	196	*	-	-	-
Oranges	*	*	*	*	-	-	-
Papayas	1582	37	1446	34	*	*	*
Pineapples	-	-	-	-	-	-	-
Others	935	*	814	*	*	*	*
Stimulant Crops	4500	415	4293	388	*	*	*
Chat	3769	382	3584	359	*	*	*
Coffee	1460	33	1351	28	*	*	*
Hops	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Other Permanent Crops	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-

TABLE 6.3.1 CONTD.

CROP	Application of Fertilizers by Type and Quantity					
	Chemical – UREA			Chemical - DAP & UREA		
	Holders	Hectares	Quintals	Holders	Hectares	Quintals
TOTAL	543	176	66	*	*	*
Grain Crops	543	148	54	*	*	*
Cereals	543	142	52	*	*	*
Teff	-	-	-	-	-	-
Barley	-	-	-	-	-	-
Wheat	-	-	-	-	-	-
Maize	*	*	*	*	*	*
Sorghum	494	135	*	*	*	*
Finger millet	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-
Rice	-	-	-	-	-	-
Pulses	*	*	*	*	*	*
Horse beans	-	-	-	-	-	-
Field peas	-	-	-	-	-	-
Haricot beans	*	*	*	*	*	*
Chick peas	-	-	-	-	-	-
Lentils	-	-	-	-	-	-
Vetch	-	-	-	-	-	-
Soya	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-
Gibto	-	-	-	-	-	-
Oil Seeds	*	*	-	*	*	-
Neug	-	-	-	-	-	-
Linseed	-	-	-	-	-	-
Ground nuts	-	-	-	*	*	-
Sunflower	-	-	-	-	-	-
Sesame	*	*	-	-	-	-
Rapeseed	-	-	-	-	-	-
Other Grains	-	-	-	*	*	*
Vegetables	*	*	*	-	-	-
Lettuce	-	-	-	-	-	-
Head cabbage	-	-	-	-	-	-
Kale	-	-	-	-	-	-
Tomatoes	*	*	*	-	-	-
Green peppers	-	-	-	-	-	-
Red peppers	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-
Others	-	-	-	-	-	-
Root Crops	*	*	*	-	-	-
Beet root	-	-	-	-	-	-
Carrot	-	-	-	-	-	-
Onions	*	*	*	-	-	-
Potatoes	*	*	*	-	-	-
Garlic	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-
Sweet potatoes	*	*	-	-	-	-
Others	-	-	-	-	-	-
Permanent Crops	254	24	*	*	*	*
Fruit Crops	*	*	*	*	*	*
Avocado	-	-	-	-	-	-
Bananas	-	-	-	-	-	-
Guava (Zeytuna)	-	-	-	-	-	-
Lemons	-	-	-	-	-	-
Mangoes	-	-	-	-	-	-
Oranges	-	-	-	-	-	-
Papayas	*	*	*	-	-	-
Pineapples	-	-	-	-	-	-
Others	*	*	*	*	*	*
Stimulant Crops	165	*	*	*	*	*
Chat	140	*	*	*	*	*
Coffee	*	*	*	*	*	*
Hops	-	-	-	-	-	-
Others	-	-	-	-	-	-
Other Permanent Crops	-	-	-	-	-	-
Enset	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-
Others	-	-	-	-	-	-

TABLE 6.3.2 RURAL BELG

CROP	Application of Total Fertilizer		Application of Fertilizer by Type and Quantity				
			Natural		Chemical – DAP		
	Holders	Hectares	Holders	Hectares	Holders	Hectares	Quintals
TOTAL	2992	218	2992	218	-	-	-
Grain Crops	2208	133	2208	133	-	-	-
Cereals	2208	133	2208	133	-	-	-
Teff	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-
Maize	2090	119	2090	119	-	-	-
Sorghum	242	14	242	14	-	-	-
Finger millet	-	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	-	-	-	-	-	-	-
Horse beans	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-
Haricot beans	-	-	-	-	-	-	-
Chick peas	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-
Oil Seeds	-	-	-	-	-	-	-
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-
Sufflower	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-
Other Grains	-	-	-	-	-	-	-
Vegetables	1275	47	1275	47	-	-	-
Lettuce	-	-	-	-	-	-	-
Head cabbage	-	-	-	-	-	-	-
Kale	-	-	-	-	-	-	-
Tomatoes	1226	44	1226	44	-	-	-
Green peppers	*	*	*	*	-	-	-
Red peppers	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Root Crops	1116	38	1116	38	-	-	-
Beet root	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-
Onions	495	16	495	16	-	-	-
Potatoes	*	*	*	*	-	-	-
Garlic	-	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-
Sweet potatoes	582	15	582	15	-	-	-
Others	-	-	-	-	-	-	-

TABLE 6.4: NUMBER OF HOLDERS APPLYING FERTILIZERS, FERTILIZED AREA, AND QUANTITY OF FERTILIZERS BY CROP TYPE IN URBAN AREAS FOR MEHER SEASON

CROP	Application of total Fertilizers		Application of Fertilizers by Type and Quantity					
			Natural		Natural & Chemical		Chemical	
	Holders	Hectares	Holders	Hectares	Holders	Hectares	Holders	Hectares
TOTAL	131	28	115	25	*	*	11	*
Grain Crops	101	15	80	13	*	*	11	*
Cereals	101	15	80	13	*	*	11	*
Teff	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-
Maize	20	*	20	*	-	-	-	-
Sorghum	90	13	69	11	*	*	11	*
Finger millet	-	-	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulses	-	-	-	-	-	-	-	-
Horse beans	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	-	-	-	-	-	-	-	-
Chick peas	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil Seeds	-	-	-	-	-	-	-	-
Neug	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-
Sunflower	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-
Other Grains	-	-	-	-	-	-	-	-
Vegetables	8	1	8	1	-	-	-	-
Lettuce	-	-	-	-	-	-	-	-
Head cabbage	*	-	*	-	-	-	-	-
Kale	-	-	-	-	-	-	-	-
Tomatoes	7	1	7	1	-	-	-	-
Green peppers	*	-	*	-	-	-	-	-
Red peppers	-	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-
Root Crops	*	*	*	*	-	-	-	-
Beet root	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-
Onions	*	*	*	*	-	-	-	-
Potatoes	-	-	-	-	-	-	-	-
Garlic	-	-	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-	-
Sweet potatoes	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-
Permanent Crops	81	11	*	*	*	*	*	*
Fruit Crops	81	11	*	*	*	*	*	*
Avocado	-	-	-	-	-	-	-	-
Bananas	*	-	*	-	-	-	-	-
Guava (Zeytuna)	-	-	-	-	-	-	-	-
Lemons	-	-	-	-	-	-	-	-
Mangoes	13	1	13	1	-	-	-	-
Oranges	50	4	*	3	*	*	*	*
Papayas	*	-	*	-	-	-	-	-
Pineapples	-	-	-	-	-	-	-	-
Others	*	*	*	*	-	-	-	-
Stimulant Crops	-	-	-	-	-	-	-	-
Chat	-	-	-	-	-	-	-	-
Coffee	-	-	-	-	-	-	-	-
Hops	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-
Other Permanent Crops	-	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-

TABLE 6.5: Holders Applying Agricultural Inputs and Participating in Extension Programs by Level of Education in Rural and Urban Areas, for Private Holdings

[illegible]

TABLE 6.5.1: RURAL HOLDINGS

[illegible]

TABLE 6.5.2: RURAL MEHER

[illegible]

TABLE 6.5.3: RURAL BELG

[illegible]

TABLE 6.5.4: URBAN HOLDINGS

[illegible]

Annex - TABLE 6.1: AREA UNDER FARM MANAGEMENT PRACTICES WITH THEIR STANDAD ERRORS AND COEFFICIENT OF VARIATION IN RURAL AREAS FOR MEHER SEASON

Type of crop	Improved Seed Applied			Irrigation			Ferertilizer Applied			Pesticide Applied		
	Hectare	S.E	C.V	Hectare	S.E	C.V	Hectare	S.E	C.V	Hectare	S.E	C.V
TOTAL	7737	700	9	106	37	34	1188	298	25	2719	497	18
Grains Crops	6665	627	9	101	37	36	783	239	31	2153	384	18
Cereals	6426	600	9	93	35	38	775	239	31	2037	351	17
Teff	-	-	-	-	-	-	-	-	-	-	-	-
Barley	3	3	77	-	-	-	-	-	71	1	1	76
Wheat	3	2	62	-	-	-	1	1	101	1	1	75
Maize	257	56	22	14	13	93	108	37	35	82	31	37
Sorghum	6160	600	10	79	31	39	666	214	32	1952	349	18
Millet	2	2	108	-	-	-	-	-	-	-	-	-
Oats	-	-	98	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-	-	-	-
Pulse	204	60	30	8	4	55	6	3	51	99	39	39
Horse beans	-	-	-	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-	-	-	-
Haricot beans	201	60	30	8	4	55	6	3	51	97	39	40
Chick peas	-	-	-	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-	-	-	-	-
Fenugreek	2	2	93	-	-	-	-	-	-	1	1	98
Gibto	-	-	-	-	-	-	-	-	-	-	-	-
Oile seed	34	14	40	-	-	-	1	-	99	17	6	37
Nueg	-	-	-	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-	-	-	-
Ground nuts	25	12	47	-	-	-	-	-	-	14	6	43
Sunflower	-	-	-	-	-	-	-	-	-	-	-	-
Sesame	10	9	87	-	-	-	1	-	99	3	2	80
Rapeseed.	-	-	-	-	-	-	-	-	-	-	-	-
Other Grain	1	1	63	-	-	-	1	1	102	1	1	60
Vegetables.	30	10	33	3	2	58	27	9	34	19	8	44
Lettuce	-	-	-	-	-	-	-	-	-	-	-	-
Cabbage	-	-	-	-	-	-	-	-	-	-	-	-
Kale	-	-	-	-	-	-	-	-	-	-	-	-
Tomatoes	29	10	34	3	2	58	27	9	34	19	8	44
Green pepper	-	-	92	-	-	-	-	-	101	-	-	108
Red paper	-	-	-	-	-	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	107	-	-	-	-	-	-	-	-	-
Root Crops	85	23	27	-	-	-	28	10	34	38	10	27
Beet root	-	-	-	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-	-	-	-
Onion	14	9	67	-	-	-	2	1	47	9	6	65
Potatoes	7	5	77	-	-	-	1	1	62	3	2	69
Garlic	-	-	107	-	-	-	-	-	107	-	-	107
Godere	-	-	-	-	-	-	-	-	-	-	-	-
Sweet potatoes	64	18	27	-	-	-	24	9	36	25	7	28
Others	-	-	-	-	-	-	-	-	-	-	-	-
Permanet crops	957	150	16	3	1	40	350	93	27	509	128	25
Fruit Crops	144	51	35	2	1	53	92	42	46	94	42	45
Avocado	-	-	-	-	-	-	-	-	-	-	-	-
Bannas	6	3	41	-	-	-	5	2	45	3	1	43
Guava(Zeytuna)	9	5	54	-	-	-	9	5	54	5	3	58
Lemons	1	1	52	-	-	103	1	1	75	1	1	89
Mangos	9	4	46	-	-	-	5	2	46	5	3	60
Oranges	3	2	54	-	-	-	2	1	55	2	2	68
Papayas	43	17	39	1	1	77	32	15	48	37	16	44
Pineapples	-	-	-	-	-	-	-	-	-	-	-	-
Others	72	32	45	1	1	83	38	26	67	41	24	60
Stimulant Crop	813	137	17	1	1	65	258	70	27	415	118	28
Chat	752	136	18	-	-	-	210	62	29	382	118	31
Coffee	61	18	30	1	1	65	48	15	31	33	10	31
Gesho.	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-
Other Permanent	-	-	-	-	-	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-

Annex - TABLE 6.2: AREA UNDER FARM MANAGEMENT PRACTICES WITH THEIR STANDAD ERRORS AND COEFFICIENT OF VARIATION IN URBAN AREAS FOR MEHER SEASON

[illegible]