Federal Democratic Republic Of Ethiopia

CENTRAL AGRICULTURAL CENSUS COMMISSION

ETHIOPIAN AGRICULTURAL SAMPLE ENUMERATION, 2001/02(1994 E.C.)

Results for Harari Region



STATISTICAL REPORT ON SOCIO-ECONOMIC CHARACTERISTICS OF THE POPULATION IN AGRICULTURAL HOUSEHOLDS, LAND USE, AREA AND PRODUCTION OF CROPS, FARM MANAGEMENT PRACTICES, LIVESTOCK AND FARM IMPLEMENTS

Addis Ababa
July, 2003

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July, 2003

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FOREWORD

An agricultural census, which would serve as a source of a benchmark data for the sector has not been conducted in Ethiopia. However, in order to provide basic agricultural information to data users, annual agricultural sample surveys have been carried-out since 1980/81 by the Central Statistical Authority (CSA). Although, these annual sample surveys have some limitations in terms of scope, coverage and level of disaggregation, these surveys have served as a means of narrowing the data gap in the sector.

Considering the importance of the agricultural sector and the need for a comprehensive data, the CSA has requested the concerned government authority to initiate the undertaking of a National Agricultural Census several times. That is, it has submitted a project proposal immediately after the launching of the 1984 National Population and Housing Census. Moreover, it has also attempted to materialize this census in late 1980's and in early 1990's i.e. immediately after the undertaking of the 1994 National Population and Housing Census. The attempt continued till CSA got a positive response from the government in 1998. Hence, the CSA has been carrying out the Agricultural Census preparatory activities from September 1999, to August 2001.

Thus, in order to overcome the above-mentioned limitations on the data generated from the Annual Agricultural Sample Surveys and provide a benchmark data on the agriculture sector, the CSA launched the fieldwork of the first ever Ethiopian Agricultural Sample Enumeration in September 2001. Prior to launching the sample enumeration a number of preparatory activities such as the preparation of the census documents, undertaking the pretests and the pilot censuses, ...etc were also carried-out.

The 2001/02 Ethiopian Agricultural Sample Enumeration was launched under the auspices of the Ethiopian Agricultural Census Commission that was set up

under Proclamation No. 238/2001. The Commission is chaired by the Prime Minister and the members of the Commission are drawn from various relevant Federal Ministries and other government organizations. The Central Statistical Authority serves as the Secretariat Office of the Commission. Hence the collection, processing, evaluation and analysis of the census data as well as its dissemination are the responsibilities of this office.

The 2001/02 Ethiopian Agricultural Sample Enumeration is a huge nation wide operation, which could not be undertaken by a single organization. Hence, in order to enhance and facilitate the census enumeration activities Regional, Zonal, and Wereda Census Commissions have been established and Census Committies were set-up at Kebele levels. In the conduct of this census, full cooperation and assistance of governmental and non-governmental organizations, external donor agencies and the public in general have been obtained.

It is worth mentioning that the 2001/02 Crop Production Forecast Report, which is the first phase of the Agricultural Census was prepared, printed and disseminated to agricultural data users in December, 2001.

On the other hand, the census data on area under crop, production and yield of temporary crops consisted of cereals, pulses, oil seeds, vegetables and root crops for Meher Season was processed, compiled, evaluated and a report has been prepared and printed. This report entitled as a "Report on the Preliminary Results of Area, Production and Yield of Temporary Crops" (Meher Season, Private Peasant Holdings) is the Second Census Report so far published printed and disseminated to agricultural data users in October, 2002. It should be noted that during the census, huge sets of data on agriculture and related topics were collected. Given the limited resources (skilled manpower, computers...) available at the head quarters, data processing and summarization of results require quite longer period, than originally expected.

Since the release of the above mentioned Census Preliminary Report, the CSA, have put all the necessary efforts and made all the available resources, (skilled manpower computers,...) at the disposal of the census data processing activities. Consequently, the Authority has reached a stage where the agricultural census data processing activities have advanced to a stage where the data can be evaluated, reports can be prepared and released at regional levels and eventually at national level.

Thus, the Agricultural Census Report on Harari Region is the sixth series of this census report. This regional report is a comprehensive one and it consists all the agricultural data collected during the 2001/02 Ethiopian Agricultural Sample Enumeration. These data include: the socio-economic characteristics of the population in agricultural households; land use; area, production and yield of temporary and permanent crops; farm management practices; livestock, poultry and beehives; and farm implements, draught animals and storage facilities. Similar comprehensive reports for the other regions will follow and would be released consecutively.

The Office of the Ethiopian Agricultural Census Commission would like to thank all government and non-government agencies who participated in the organization of the census, the supervision of the field work, the data collection, and the respondents who participated in providing the necessary census data. The Ethiopian government has given huge financial and unreserved administrative support in undertaking the 2001/02 Ethiopian Agricultural Sample Enumeration. This indicates the continuous commitment and high priority offered by the Ethiopian Government for the development of the agricultural sector statistics as well as the other socio-economic and demographic statistics.

Finally, the Office would also like to take this opportunity to express its many thanks to the United States Agency for International Development (USAID) for its generous financial and technical assistance for the census. Moreover, thanks are due to the European Union (EU) for its financial assistance and the British Department for International Development (DFID) for its material assistance for the census.

Abdulahi . Hassen (Ph.D.)

Member and Secretary,

Central Agricultural Census Commission

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CHAPTER I

BACKGROUND

1. INTRODUCTION

A nation has to feed its people adequately to have healthy and wealthy citizens for the promotion of its development and growth. A government concerned with the well being of its people and aiming at the rectification of the national economy makes agriculture its top priority for the achievement of the above goals. Policy making and decision taking are essential in this regard. But there are recognized constraints such as the availability of adequate and comprehensive statistical data on agriculture that guides policies and decisions for attaining development targets in the agricultural sector.

In recognition of these constraints, and in an effort to provide accurate, reliable and timely data on the nation's agriculture that policies and decisions entail, the Central Statistical Authority (CSA) has been conducting annual agricultural sample surveys since 1980/81 (1973 E.C.). As a result, data on area, production and yield of major crops, farm management practices, land use, livestock, poultry and beehives have been produced at country, regional and zonal levels for both Meher and Belg seasons on a yearly basis.

Despite this effort, the economic policy has recently focused on agricultural sector and data users became more sophisticated demanding for various data in greater detail on timely basis, with improved accuracy and reliability and highly disaggregated to levels where project planning and implementation take place. Hence, the existing data that has resulted from the regular annual agricultural sample survey could not meet these demands. Accordingly, these needs led the CSA to reappraise the agricultural data it has produced so far and realized the gap between the demand for agricultural data and the data supplied is widening. Thus, as an organization situated between the data and its users, the CSA was prompted by the gravity of the demand for more detailed data to embark upon a census of agriculture in the year 2001/02 and narrow the existing data gap.

Development and monitoring of the agricultural sector require data on a wide range of indicators. A census of agriculture is the leading source of such data. It provides an image of a nation's farming and agricultural activity at a particular point in time (an agricultural production year) for the data disaggregated at the lowest level of reporting.

In Ethiopia, prospects and policies regarding agriculture have evolved significantly over recent years. Economic problems have been the major factor in development and implementation of these policies and programs. The agricultural policies and programs are targeted at ensuring that food crops will be made available to those who need it and don't obtain enough of it or guaranteeing everyone access to safe and nutritious food. To put it in a nutshell: it is to create and maintain food security. The realization of this goal requires the implementation of the policies and programs at woreda level and make available agricultural statistics at corresponding administrative level. It is against this background that the census was conducted to monitor the trends and the changing patterns in agricultural production with the acquisition of agricultural statistics at wereda, zonal, regional and country levels.

2. OBJECTIVES OF THE CENSUS

There are fundamental problems prevailing in the agricultural sector that are especially affecting the rural population and often perceived as the maladies of the Ethiopian economy. In order to solve these problems gradually but steadily, the Ethiopian government has been developing various agricultural programs and schemes. To effect these programs and meet other objectives, the census is the appropriate method of data collection for providing much needed and more detailed statistical information on agriculture.

2.1 The general objectives are to: -

- Provide benchmark data on the structure of agriculture for planning, policy making and other uses during intercensal years,
- Provide detailed data at lower administrative level,

- Use the census as a vehicle for developing the national agricultural statistics system,
- Secure data for items whose production is limited (rare crops),
- Secure benchmark data for improving the annual agricultural sample survey in the future,
- Make use of the census experience and trained personnel for capacity building and strengthening the Ethiopian Statistical Authority in the field of agricultural statistics, and
- Develop data bank with facility for updating consistency checks and retrieval of data in various forms tailored to the needs of the users.

2.2 The specific objectives are to provide: -

- Basic information on the country's agriculture to the government for formulating and implementing timely food security measures and to alert policy makers about the food situation in the country,
- Information to the government to develop and monitor farm programs, study historical trends, appraise current conditions and plan for the future,
- Information for the government to design and allocate funding for extension service projects, and
- Data for the private sector in order to execute the effective production and distribution system in the agricultural sector.

This report presents the Agricultural Sample Enumeration results for Harari Regional State. It comprises of eight chapters: Chapter I presents the Background and the Objectives of the Census, Chapter II discusses the Census Methodology and Operations which is composed of Scope and Coverage of the Census, Sampling Frame, Sample Design, Sample Selection, Organization of Field Work, Training of Field Staff, Method of Enumeration, Concepts and Definitions and Data Processing. Chapter III deals with Socio-Economic Characteristics of the Population in Agricultural Households. Chapter IV covers Land Utilization and Chapter V deals with Area and Production of Crops and Crop Utilization .

Moreover, Chapter VI treats Farm Management Practices. Further, in Chapter VII of this report, Size, Characteristics and Purpose of Livestock and Livestock Products are discussed. Finally, in Chapter VIII the census results are presented on Farm Implements, Draught Animals and Storage Facilities.

Also, the report encompasses Appendix I that shows the Estimation Procedures of Totals, Ratios and Sampling Errors and Appendix II shows the Agricultural Sample Enumeration Questionnaires. Moreover, tables that show the Standard Errors (S.E.) and Coefficients of Variation (C.V.) are given as an annex at the end of the relevant chapters.

CHAPTER II

CENSUS METHODOLOGY AND OPERATIONS

1. INTRODUCTION

As explained in the introductory chapter of this publication, the census of Agriculture is a large-scale, periodic statistical operation for the collection of quantitive information on the structure of agriculture. Such a huge operation demands sequence of standard activities. In order to collect, process and produce reliable and internationally comparable data, the different technical procedures and operations that have to be applied during the census should follow what has been globally recommended.

Hence, this chapter highlights what has been exercised before and during the census operations in areas of subject and area coverage, census methodology, (such as sampling frame, sample design, listing and selection of primary sampling units and households), and census operations that included organization of field work, training, method of enumeration, quality control and data processing.

The scope of the agricultural census concerns the type and dimension of data to be collected. When the CSA has launched the planning of the census, it solicited the demand of data from various government and non-government organizations which are the major users of the resulting census data. The response was just overwhelming and put the CSA in an awkward position to decide on the scope. The decision on the range and extent of data items to be dealt with by the census is really hard to make given the size of the country's population engaged in agriculture, the limited human and financial resources, and the magnitude of the census work. The CSA had to strike a balance between the scope on the one hand and the available resources and time on the other hand so that there was a trade-off between the two.

Since the census of agriculture is not a frequent data collection activity, it is best suited for collecting more data on various characteristics relating to area and production of crops. It lends the opportunity of capturing as much data as possible, especially when it is conducted for the first time. But agricultural census is not a practical means of providing all data. Not all agricultural statistics can be collected through a census of agriculture. Hence, there was caution against overloading the agricultural census forms with extensive scope. Thus, with regard to the scope, the census had to be restricted to a coherent and manageable range of data items.

In this census the data collected include: demographic and economic characteristics of population in agricultural households and holders during the reference period; area, production and yield of both temporary and permanent crops harvested in the farming of Meher as well as Belg Seasons; farm management practices envisaged during both seasons; land use under major categories; and livestock, poultry and beehives. It also includes data on farm tools, implements, draught animals and storage facilities. The data collection on the production of vegetables and root crops, which was not covered by the annual agricultural sample survey, was also included in this census.

The cost of data collection is one of the most important factors in the planning and execution of a census. In a country like Ethiopia including the Amhara Region, where in addition to the problems mentioned above, transportation and communications are poor and the resources available are limited to meet the cost of a census tend to be major problems. The problem is more pronounced when deciding on the extent of census coverage.

A decision whether to carry out a complete enumeration or to plan a sample enumeration of holdings depends on the availability of resources and the level at which the census results are required. This holds true whether the results will be provided at wereda level or higher administrative hierarchies. With these constraints and extremely large number of holdings in the country's agricultural system and considering the huge cost required and timely production of the data, with the aim of providing the results at wereda level where almost all the agriculture is undertaken by small holders, a census of agriculture on the basis of

sample enumeration was adopted by the CSA. In a census that aims in securing data on more agricultural items with reasonable accuracy at wereda level, a well-defined sample enumeration is more manageable, efficient and is expected to produce equal or better quality data than a complete enumeration and is able to provide results in a more timely fashion.

Harari is a regional state with an estimated population of 172 thousand in July 2002 and an area of 311.25 sq. kms. Agriculture is the dominant sector in the region and biggest employer of the economically active population. The sector in the Region is further characterized by extremely small holdings, mostly private peasant holdings, dispersion of cropland holdings, traditional farming and low level of literacy among the holders.

The Harari Region Agricultural Sample Enumeration has covered adequately representative and sufficiently large number of units (holdings) engaged in agriculture both in rural and urban areas to produce relatively reliable data at wereda level. For the purpose of this census, three farming categories have been identified: rural private holdings, urban private holdings and commercial farms. All the categories have been treated in the census on sample bases except the last one that was enumerated completely. These farming categories were enumerated at different times of the census year in order to capture the data as the events happened. The census data collection operation took about six months for Meher seasons and 2 months for Belg season to cover the rural private holdings, about 10 days to cover the urban private holdings and about one month to cover the commercial farms.

In order to improve the coverage, there has been extensive census publicity in the census operation exercise. This helped to sensitize and gain the cooperation of the respondents during data collection. In these efforts, adhoc census committees have been established and replicated to the lowest level of administration that is Farmers Associations and this helped the smooth conduct of the census and raising public awareness to achieve the intended coverage.

2. CENSUS METHODOLOGY

2.1 Scope and Coverage

The 2001/02 (1994 E.C.) Ethiopian Agricultural Sample Enumeration (EASE) was designed to cover the rural and urban parts of all weredas in the country on a large-scale sample basis. This coverage encompasses 460 weredas in 58 administrative zones of the country excluding the pastoralist areas of the Afar and Somali Regional States. In these weredas the originally selected primary sampling units amounted to 11,292 rural and 4,378 urban Enumeration Areas (EA's). These EAs were selected at wereda level to be covered in the EASE, in order to provide data on agriculture at these administrative levels in the country.

Harari Regional State consists of two reporting domains; urban and rural. The rural parts of the region have a total of 65 EAs while the urban parts have a total of 109 EAs. In this region, all sampled rural and all EAs numbering 50 were covered. With respect to ultimate sampling units (agricultural households), it was planned to cover 750 agricultural households in rural areas and 570 in urban areas but about 738 rural and 569 urban agricultural households were actually covered. Based on the results of the census, in the rural parts of the region, the response rate of sampled agricultural households was 98.4 percent. The response rate in the urban domain was nearly 100 percent. The coverage of sampled EA's and agricultural households are given in Appendix II.

TABLE II:1 AREA COVERAGE OF THE 2001/02 (1994 E.C.) AGRICULTURAL SAMPLE ENUMERATION IN HARARI REGION

Harari Region				EA's Covered		Agricultural Households			
Total		Covered				Sampled		Covered	
Wereda	Town	Wereda	Town	Rural	Urban	Rural	Urban	Rural	Urban
1	1	1	1	25	25	750	570	738	569
Total				25	25	750	570	738	569

2.2 Sampling Frame

The list of enumeration areas was compiled from the 1994 Ethiopian Population and Housing Census cartographic work for Harari Region and was used as the frame for the selection of the Primary Sampling Units (PSU). The 1994 Population and Housing Census enumeration maps of the region for the sample EAs were updated, and the EA boundaries and descriptions were further clarified to reflect the current physical situation. The sampling frame used for the selection of ultimate sampling units (agricultural households) was a fresh list of households, which was prepared by the enumerator assigned in the sample EAs using a prescribed listing instruction at the beginning of the launching of the census enumeration.

2.3 Sample Design

In order to meet the objectives and requirements of the EASE, a stratified two-stage cluster sample design was used for the selection of ultimate sampling units. Thus, in the region, urban - rural domain was treated as stratum for which major findings of the sample census are reported. The primary sampling units are enumeration areas and agricultural households are the secondary (ultimate) sampling units. Finally, after the selection of sample households, the various census forms were administered to all agricultural holders within the sampled agricultural households.

For the private peasant holdings a fixed number (25) of sample EAs in each urban and rural domain, and 30 agricultural households in each EA were randomly selected (determined). The sample size determination in each domain and thereby in each EA was based upon the required precision level of the major estimates and the cost consideration. The pilot survey and the previous year annual agricultural sample survey results were used to determine the required sample sizes per urban - rural domain.

2.4 Sample Selection of Primary Sampling Units

Within each wereda (stratum) in the region, the selection of EAs was carried out using probability proportional to size. In this case, size being total number of agricultural

households in each EA obtained from the listing exercise undertaken in the 1994 Ethiopian Population and Housing Census of the region.

2.5 Listing of Households and Selection of Agricultural Households

In each sampled enumeration area of the region, a complete and fresh listing of households was carried out by canvassing the households in the EA. After a complete listing of the households and screening of the agricultural households during the listing operation in the selected EA, the agricultural households were serially numbered. From this list, a total of 30 agricultural households were selected systematically using a random start from the pre-assigned column table of random numbers. The sampling interval for each EA was determined by dividing the total number of agricultural households by 30. For crop cutting exercise purposes (rural domain) a total of 20 agricultural households were randomly selected from the 30 sampled agricultural households. The systematic random sampling technique was employed in this case, because its application is simple and flexible, and it can easily yield a proportionate sample.

In urban domain, 25 EA's in Harer town were covered. Then, the listing of households in each sampled EA was carried-out. In the listing exercise households that are considered agricultural households were identified. Then, the agricultural households listed in the E.A. amounted upto 30, all such households were covered in the enumeration. However, if such households exceeded 30, then 30 households were systematically selected among the listed and identified agricultural households in the EA and were covered in the enumeration.

Estimation procedure of parameters of interest like total, yield and ratio and their sampling errors is presented in Appendix I. Standard Errors and Coefficients of Variation of estimates for selected variables are given as an annex at the end of the relevant chapter.

3. CENSUS OPERATIONS

3.1 Organization of Field Work

The magnitude of the census operation was a challenge to the CSA to organize and mobilize human, material and financial resources. But the CSA's capacity was enhanced to

cope with these limitations, especially the logistics involved in the operation by the issuance of the Agricultural Census Act and establishment of adhoc structures.

Since the census operation was too large to direct and control effectively from the Head Quarters, field organization was used as a link between the sources of data and the central office. Field organization comprised the branch statistical office in the region constituting an office in Harer. This office was augmented with supervisors, enumerators, other support staff, logistics and the temporary structures. The temporary structures included the establishment of census committees at the regional, and at the lowest administrative hierarchies, i.e. to the peasant association levels in order to enlist support and cooperation from the local people.

In addition to the committees, commendable cooperation and assistance were also extended by other governmental and non-governmental organizations in the region at different stages of the census.

The field organization was required for the data collection operations and for the strict control and supervision of the fieldwork. The enumerators were the responsible field staff for data collection. They were full time enumerators hired on a contract basis. Most of them were recruited from localities in which they were assigned to undertake the data collection activities. At country level, for census undertaking in the rural parts of the region, a total of 12,398 enumerators were recruited, trained and hired for the census data collection and 1,199 of whom were held as reserve. Moreover, for undertaking the census in the urban parts of the country, a total of 4,378 enumerators were selected from those who were hired for the rural parts of the country. Of this total, the Harari Region had a share of 27 enumerators, where 2 of them were held as reserves. For undertaking the census in the urban parts of the region the same enumerators who were assigned in the rural EA's were used. The enumerators had an educational background of grade 12 and above. During the data collection operation, the enumerators lived in their places of assignment i.e. the sample EA. During the census, each enumerator was accompanied by a guide and an assistant who are familiar with the people and well informed about the agricultural practices in the area.

The CSA permanent supervisors in the region were responsible for recruitment, selection, and training of enumerators, and census supervisors. Moreover, they were responsible for supervision of data collection, remuneration, retrieving and dispatching the completed forms to their respective Branch Statistical Offices. They were also responsible for handling administrative and other technical problems. At country level, a total of 2,240 supervisors were involved in the census. The supervisor-enumerator ratio was 1:5 and supervision was carried out on regular basis. The supervision was coordinated and monitored by professional staff of the CSA. The logistics equipment of the census included programmable calculators, field compasses, measuring tapes and kitchen balances each numbering about 14,000. Moreover, it included 273 four wheel drive vehicles and numerous other instruments. Each enumerator was provided with all the necessary logistics equipment for the data collection. In Harari Region, a total of 5 supervisors and 27 enumerators were involved and various field equipment were given to these field staff. The equipment used include one field vehicle, 26 programmable calculators, 26 field compasses, 26 measuring tapes, 26 kitchen balances, ... etc.

3.2 Training

The success of a census operation and data quality depend on the type of training given to the enumerators and supervisors. The training helps the enumerators and supervisors secure a common understanding of the tasks to be performed and the standard procedures to be followed in census undertaking. Good data quality is assured when the training meets its objectives and the enumerators and supervisors show a sense of responsibility and enthusiasm in the exercise of the census operation.

In view of the above point, the CSA organized a two stage training programme, that is, training of trainers followed by training of the field staff. The first stage training was given at the CSA Head Quarters in Addis Ababa, to the trainers consisting of professional staff from the CSA Head Quarters and the CSA Branch Statistical Offices and other relevant federal, regional and zonal government organizations and senior CSA supervisors. The

training that lasted for 30 days, included classroom sessions, field practices and demonstrations 550 trainers took part in the training.

The first stage training was then followed by the second stage training, which took place in 47 training centers located in different zones and the training exercises for the region were held in Harer Town. Extensive training was given to the field staff. The instructions in the training focused more on the procedures and techniques of data collection and the responsibility shouldered both by the enumerators and the supervisors. The instructions, details of techniques and procedures of enumeration were covered in the manual. The manual served as an instruction text and a reference guide. The rigorous theoretical training was emphasized by a series of field practice and demonstrations. After about 50 days of training and field practice, a regorous examination prepared at the census headquarters, in Addis Ababa, was given to the enumerators and supervisors at each training center. Based on the examination results only those enumerators who passed the exam were hired and assigned to their enumeration areas.

3.3 Method of Enumeration

In Ethiopia, where a significant number of the farming population live in remote and inaccessible areas, data collection is time consuming and cumbersome. The problem is further aggravated by the large number of peasant holding operators, their geographical spread, high level of illiteracy among the operators and scattered land holdings. In such a situation where the agricultural statistics system has not been fully developed, besides the above problems, the appropriate enumeration method is house to house interviewing of holders and objective measurement of their holdings and crop yields.

Accordingly, most of the information on crop area and yield was elicited from the holders through interview and the remaining information was obtained by physically measuring the data items of interest. This was done by enumerators who identified the selected holders, interviewed them, measured all their crop fields using measuring tapes, field compasses, and scientific calculators. Moreover, they harvested and weighed the yields obtained using kitchen balances from plots of randomly selected crop fields.

As in many countries, a phased approach to the census was also used in Ethiopia in order to make the workload of manageable size and capture the data as the events unfolded. The first phase of the census was collection of data on demographic and economic characteristics of the rural peasant household; the second one was farm management practices of these rural peasant households using an interview method for both seasons. Data on crop area and yield of temporary and permanent crops was collected in the third phase of the census by visiting the farm operators and physically measuring the crop fields since the farmers are not familiar with standard units.

All crop fields of the randomly selected holders in each enumeration area were measured using the FAO recommended method. That is, first by identifying the boundaries of the fields, determining their shape which was mostly irregular and taking compass bearings of each side with respect to the north. This is followed by measuring the length of each side of the field and using a programmable calculator to arrive at both the area of the field and the closure error. The objective of arriving at the closure error is to find out how well the field was measured.

The responses to the interview and results of the measurement were recorded on a structured questionnaire. The interview method helped on the spot clarification of objectives, concepts and form of information sought from the respondents during the interview.

Since crop production is a function of area and yield, yield measurement was done using the crop-cutting method. The method involved crop-cutting from small subplots of rectangular shape of different sizes randomly placed in the selected crop field for each crop type and subsequent threshing, drying and weighing and recording the weight of the harvest. The crop cutting was performed for a sub-sample of 20 out of the 30 households selected in each enumeration area. A 4x4 meter plot was randomly demarcated for cereals, pulses, and oil seeds and one square meter or 1 meter x 2 rows plot was designated for vegetables and root crops for the crop-cutting exercise.

The yields harvested from the plots were immediately weighed (green weight) and /or weighed again after two weeks of drying to conform to the normal holder harvesting and drying practices. The green and dry weights were recorded on the appropriate form.

Data collection activity on livestock, poultry and beehives in the rural areas; all agricultural data in urban areas; commercial farms, and farm implements including miscellaneous items were the fourth, the fifth, the sixth and the seventh phases of the census, respectively, where subjective approach was applied for all these phases. However, the Belg season area, production and farm management practices data, which was the eighth phase of the census, involved both objective and subjective methods, i.e., fields under temporary crops were objectively measured while the production and farm management practices data were collected by interviewing the sample agricultural holders.

3.4 Census Forms And Field Equipment

3.4.1 Census Forms

Forms and equipment are instrumental in gathering information from various sources. The census forms are the vehicle and basic document for collecting the desired data. These include general-purpose forms covering farm management practices, demographic and economic characteristics, area, production of both temporary and permanent crops; livestock, poultry and beehives, ...etc. These forms are formulated for recording data generated through interview as well as objective measurements.

Although the planning, organization and execution of the census were the responsibilities that rested within the CSA, development of the census forms was a tedious task that involved the formation of a working group composed of members of government and non-government organizations who are major users of agricultural data. Members of the working group were given the opportunity to identify their data requirements, define the needs of others and determine the specific questions that the forms should contain. The working group included the staff of the organizations that are involved in agricultural

planning, collection of agricultural statistics and the use of data within the agricultural sector.

The working group designed different forms for the various data items on crop area, production, and other variables of interest to meet the needs of current data users and also considered the future expectations. Attempt was made to make the content of the forms of acceptable length by distributing the variables to be collected in the different census forms. As can be observed in the census questionnaires presented in Appendix III, the rural census questionnaires/forms include:-

- The listing forms 94/0 and 94/1 that are used to record all households in the enumeration area, identify the agricultural households and select the units to be covered by the census.

- Form 94/2 is developed to list all the members of the sampled agricultural households and record the demographic and economic characteristics of each of the members.

- Forms 94/3A, 94/3B, 94/3C and 94/3D *[1] are prepared to enumerate crop data through interview and objective measurement.

- Form 94/5 is designed to record crop area data via the physical or objective measurement of crop fields.

- Form 94/6 is used to list all the fields under crop and select a crop field for each type of crop randomly for crop cutting exercise.

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* *Form 94/4 was the questionnaire used for collecting data on crop production forecast for 2001/02 and the data collected using this form was published in December 2001*

- Forms 94/7A, 94/7B, and 94/7C are developed for recording yield data on cereals, oil seeds, pulses, vegetables root crops and permanent crops by weighing their yields obtained from sub-plots and/or trees selected for crop-cuttings.

- Form 94/8 is prepared to enumerate livestock, poultry and beehives data by type, age, sex and purpose including products through interview (subjective approach).

- Forms 94/9, 94/10 and 94/11 are used to collect data on crop and livestock product usage; miscellaneous items and farm tools, implements, draught animals and storage facilities, in that order, by interviewing the sample holders.

- The last but not least forms are the Belg season questionnaires identified as :- 94/12A and 94/12B that are used to record data on farm management practices of the season subjectively, while 94/12C is for recording Belg season crop area through objective measurement and volume of production through interview approach.

- On the other hand, the census questionnaires/forms used in the urban areas include:-

- Form U-94/1 which used to record all households in the EA, identify the agricultural households and select the units to be covered by the census.

- Form U-94/2 is developed to list all the members of the sampled agricultural household and record the demographic and economic characteristics of each of the members.

- From U-94/3 is prepared to enumerate crop data through interview method.

- Form U-94/4 is prepared to enumerate livestock, poultry and beehives data by type, sex, age and purpose including products through interview (subjective approach).

- Form U-94/5 is used to collect data on crop and livestock usage.

The clarity of the forms was reinforced by the enumerators' as well as the supervisors' instruction manuals that dealt with an extensive elaboration on data collection with regard to the variables in the various forms.

3.4.2 Field Equipment

A census of agriculture involves the coverage of a large number of variables. Moreover, most of the data (variables) needed are of quantitative nature. But, as in most developing countries where illiteracy is high, in Ethiopia and thereby in the region, holders neither keep the records of the size of their holdings' and amount of their crop production, nor do they know standard units to measure the size of land they operate and volume of crop they produce. Under such circumstances, collecting data only through an interview has many limitations and it is not easy for an enumerator to obtain relatively accurate information on the volume of production and area under crops.

In order to overcome these shortcomings in the census, quantitave data on area under crop and yield of crops have been collected through objective measurements from designated plots of crop field. Fields under crops were measured by compass traversing. That is, by measuring the lengths of the sides of each crop field and taking compass bearings. Measuring tapes each 20-50 meters, compasses with a half degree precision, metal pegs and programmable calculators for computing the area were used. Besides the above equipment, balance scales and bags made of cloth were used for yield measurements and drying. Area and yield measurements were the most cumbersome and time consuming aspects of the census as the enumerators had to visit all the fragmented and scattered crop fields of the holders.

3.5 Quality Control in Data Collection

The quality of official agricultural statistics should be relatively high in order to provide maximum benefit to users. The CSA, as a producer of statistics, has been concerned about the quality of the data right from the conception of the agricultural census. It has made

every endeavor to maintain the data quality by lending more attention to those aspects of the census that affect the quality of the data.

Nearly all census activities starting from the designing of the questionnaires to data processing have significant impact on the quality of data. Efforts have been put into each activity of the census to assure data quality. Forms were designed sufficiently in advance of the commencement of the census enumeration in the field in order to have ample time for pre-testing, under-taking the pilot census and providing training to the enumerators. The forms were pre-tested in different parts of the country for about three times in addition to their application in the pilot census. Concepts and definitions used in the forms were expounded in the instruction manual. Attempts were made to formulate the questions with clarity and logical order. Questions about different subjects were written on different forms to avoid the mix of issues and restrict the length of the forms.

An enumerators' instruction manual was prepared and used as a training and reference guide to help the enumerators in understanding clearly all the details and procedures followed in the census and answer questions raised during the interviews. It contained questions on the forms with explanations, concepts, definitions, techniques of interviewing, duties and obligations of enumerators. A separate instruction manual was also prepared for supervisors in a similar fashion to all intents and purposes of supervision.

Training and supervision are also factors that affect data quality. The standard of training given to enumerators and supervisors is well reflected in the census results. With this in mind, the CSA offered a rigorous and thorough training to the enumerators and supervisors. Ample time has been allotted to it to help the trainees grasp the theoretical and practical aspects of data collection. The training sessions were repeatedly supplemented by field practice and demonstrations to reinforce the trainees understanding of the course. A written examination was given to all the trainees to screen and assign the best ones for the census. The supervisors have had a separate training in supervision in which the responsibilities of supervisors, field supervision, checking and editing completed forms and preparations of progress reports were reiterated. The supervisors reviewed the enumerators' work, re-

interviewed samples of holders and re-measured samples of fields as part of supervision to verify the enumerators' work.

Data quality is also contingent on the cooperation and willingness of the holders to provide the desired information. In order to seek the cooperation of the holders (respondents) promotional efforts have been made using the electronic and print media. Thus, regarding the census publicity, poems, dramas and other programs were presented on the country's TV, Radio and the Press. The CSA prepared, customized and distributed census materials such as brochures, fact sheets, posters, caps with census emblem, calendars and other items to relevant institutions and government officials. Moreover, with respect to the progress of the census operations, CSA gave a number of press releases to foster public support and cooperation. Branch offices and supervisors worked with local officials and adhoc committees to obtain written and verbal support of the census operations in their speeches and public appearances.

3.5.1 Concepts and Definitions

Information on all items of agriculture is not useful until the items are distinctly defined and understood. The procedure of stating data items and related terms is a prerequisite for making standards and definitions for collection and compilation of agricultural data. The intent of using standard concepts and definitions is not only to provide quality data but also to ensure that the right items are enumerated and measured accurately to reflect the agricultural situation.

Standard concepts and definitions used in a census setup provide clear linkages between various tables of the census and previous surveys and maintain consistent enumeration and measurement of variables of interest. To this end, the CSA has put a lot of efforts into communicating concepts and definitions to the census field staff through training and instruction manuals. The concepts and definitions used in the census were made to conform to the FAO standard with a slight adaptation of a few of them to suit the agricultural situation in Ethiopia. The concepts and definitions used in the census included the following: -

Enumeration Area (EA): an enumeration area in the rural parts of the country is a locality that is in most of the cases less than and only in some cases equal to a farmers' association in geographical area and usually consists of 150-200 households.

Household: a household may be either:

a) a one person household, that is a person who makes provisions for his own living without combining with any other person to form part of a multi-person household or

b) a multi-person household, that is, a group of two or more persons who live together and make common provisions for food and other essentials of living. The persons in the group may pool their incomes and have a common budget to a greater or lesser extent. They may be related or unrelated persons, or a combination of both. These persons are taken as members of the household.

Agriculture: the growing of crops and/or raising of animals for own consumption and/or sale.

Agricultural Household: a household is considered an agricultural household when at least one member of the household is engaged in growing crops and/or raising livestock in private or in combination with others.

Holding: a holding is all the land and/or livestock kept, which is used wholly or partly for agricultural production and is operated as one legal entity by one person alone, or with others without regard to management, organization, size or location.

Holder: a holder is a person who exercises management control over the operation of the agricultural holding and makes the major decision regarding the utilization of the available resources. He/she has primary technical and economic responsibility for the holding. He/she may operate the holding directly as an owner or a manager. Under conditions of

traditional agricultural holding the holder may be regarded as the person, who with or without the help of others, operates land and/or raises livestock in his/her own right, i.e. the person who decides on which, where, when, and how to grow crops or raise livestock or both and has the right to determine the utilization of the products.

Parcel: a parcel of holding is any piece of land entirely surrounded by land and/or water and/or road and/or forest, . . .etc which is not part of the holding. It may consist of one or more cadastral units, plots or fields adjacent to each other.

Field: a field is defined as any plot of land which is a parcel or part of a parcel under the same or mixed crops or any other form of private holding.

Crop: includes cereals, pulses, oilseeds, vegetables, root crops, fruits, coffee, enset, chat, hops, sugar cane, cotton, tobacco, . . . etc produced for food, making drinks, stimulation and making fabrics or clothings.

Crop production: the processes of growing and harvesting of the above crops for own consumption and/or sale.

Temporary Crops/Annual: Annual temporary crops are crops which are grown in less than a year's time, sometimes only a few months with an objective to sow or replant again for additional production following the current harvest. Continuously grown crops planted in rotation are also considered as temporary crops since each is harvested and destroyed by ploughing in preparation for each successive crop.

Permanent Crops: Crops which are grown and occupy land for a long period of time, not requiring replanting for several years after each harvest, are considered as permanent crops. All fruit trees (i.e., oranges, mandarin, banana, ...etc.) and trees for beverages (i.e., coffee, tea, Gesho, ... etc.) are considered permanent crops but meadows and pastures are excluded.

Meher (main) Season Crop: any crop harvested between Meskerem (September) and Yekatit (February) is considered as Meher season crop.

Belg Season Crop: Any crop harvested during the months of March (Megabit) and August (Nehase) is considered to be Belg season crop.

Fallow Land: land which has been or intended to be kept at rest for at least one agricultural year and a maximum idleness of less them five years is considered fallow land.

Grazing Land: Land used for growing herbaceous forage crops, either through cultivation or naturally is considered to be grazing land.

Wood Land: All tracts of timber, natural or planted as part of the holding, which has a value as wood, timber, other wood products and/or used for protection. Forest land used for recreational purposes would not be included as Wood land.

Other Land Uses: Land occupied by the holders' houses and/or buildings, parking areas, gardens, barn, wells and ponds would be included as other land uses.

Irrigated Area: refers to the area of land purposely and actually provided with water, other than by rain, for improving the production of crops. The uncontrolled flooding of land by the over flow of rivers or streams is not categorized as irrigation practice although sometimes farmers use this incidence for production.

Improved Seed: is defined as crop variety which gives significantly higher yield, better quality and/or better benefit compared to traditional varieties of seeds, and usually produced by the Ethiopian Seed Enterprise (ESE) in Ethiopia.

Fertilizer: refers to anything added to the soil intended to increase the amount of plant nutrients available for crop growth. Usually, fertilizers are divided into two parts, natural and commercial. Examples of natural fertilizers are farmyard manure, wood ashes,...etc.,

while commercial fertilizers are DAP (Di- Ammonium Phosphate), UREA (Ammonium Nitrate), …etc.

Pesticides: pesticides are chemicals useful for mitigation, control or elimination of pests which are troublesome or harmful to crops. Insecticides, herbicides and fungicides are all considered as pesticides.

Draught Animal: Refers to animals that are engaged in activities such as ploughing, threshing, …etc

Dairy Cow: Refers to any type of cow used to give milk previously and/or provide milk currently or have never given milk before and pregnant now. Heifers are not included in this category.

Milking Cow: Refers to cows actually milked during the reference period, i.e. February 10, 2001 to February 9, 2002.

Laying Hens: Refers to all hens and pullets of all types which have laid eggs during the reference period, i.e., Feb 10, 2001 to Feb 9,2002.

Extension Package Programs: Are outreach programs operating in rural areas for private holdings aiming to transfer modern agricultural technologies to increase crop and livestock productivity.

4. DATA PROCESSING

4.1 Editing, Coding and Verification

In the 2001/2002 Ethiopian Agricultural Sample Enumeration (EASE), the filled-in forms that were retrieved from 47 Branch Statistical Offices were primarily received and systematically registered at the documentation unit of the CSA head quarters in Addis Ababa. Before launching the actual editing and coding activities, the Natural Resources and Agricultural Statistics Department staff gave adequate training to the 157 editors and

coders. These editors and coders carried out the manual editing, coding and verification of the filled-in EASE questionnaires in two shifts.

At the outset, the editing and coding activities for the filled-in forms on area and agricultural practices took place, this was followed up by the editing and coding of the forms on the production of temporary crops (cereals, pulses, oil seeds, vegetables and root crops), livestock, farm implements, permanent crops, Belg and miscellaneous questionnaires region by region. For the filled-in forms on area and agricultural practices, verification was carried out on 100% basis for the first five weeks from the launching of the activity and then considering the quality performance of editor-coders the activity was dropped to 66% of the forms gradually. On the other hand, the verification activity has been carried out on 100% basis for the filled-in forms on production of the temporary and permanent crops, livestock, farm implements and all other completed forms.

For Harari region, the editing, coding and verification of the filled-in forms in general took about 1.3 working days. That is, the editing, coding and verification of the filled-in forms for area, agricultural practice, the production of the temporary and permanent crops, and livestock took about 0.6 working days, while that of the filled-in forms on farm implements, demographic characteristics, Belg season and the urban forms took around 0.7 working days.

4.2 Data Entry, Cleaning and Tabulation

About 144 data encoders were assigned to undertake the data entry activity of 2001/02 EASE and it has been carried out on two-shift basis. Before the starting of the data entry operation data encoders were trained for about 5 days using computer programs developed by the Data Processing Department staff. The Programmers prepared the data entry programs using CENTRY, which is a data entry module of IMPS (Integrated Microcomputer Processing System).

The data entry exercise has been carried out using 76 personal computers (PC's). Like that of the manual editing and coding activity, the filled-in forms on area and agricultural

practices were entered first and this was followed by entry of the filled-in forms on the production of temporary crops, livestock, farm implements, permanent crops, Belg and miscellaneous questionnaires region by region.

In order to ensure the quality of the data entry work, verification exercise was carried out. The entry of the filled-in forms on area and agricultural practices were verified on 100% basis. Then the verification exercise was dropped to 66% from the 6th week of the launching of the operation and was further reduced to 50% from the 10th week onwards by observing and assessing the magnitude of the percentage of errors. Later on verification process was carried out on 100% basis for the filled-in forms on the production of temporary and permanent crops, livestock, farm implements and all other completed forms. The verification activity was carried out through the process of re-entering the data.

For Harari region, the whole data entry process of the filled-in forms on area, agricultural practice, the production of the temporary and permanent crops, and livestock took around 0.7 working days, while that of the filled-in forms on farm implements, demographic characteristics, Belg season and the urban forms took about 1 working day.

Data entered into the computer needs to be checked for completeness, consistency and validity. For this purpose programmers using CONCOR, which is the editing module of IMPS, prepared computer edit programs. Using printouts from these programs and referring to the filled-in census forms, corrections were made by nine trained manual data-cleaning technicians. Moreover, nine other data-cleaning computer operators were involved in making the actual corrections of the data on the computer.

Additionally, an intermediate set of instructions or programs were made available and applied on the data to prepare information suitable for tabulation. These programs were prepared using CSPro and IMPS softwares. Like IMPS Software, CSPro is used as a tool for entering, editing and tabulating data. CSA used the CSPro software for data editing and calculation of CVs.

Data made ready for tabulation through the process of cleaning and intermediate programs was finally used to generate the required tables. This was done using tabulation programs developed by the senior programmers of the Data Processing Department. The CENTS software, a tabulation component of IMPS, was used in producing the 2001/02 EASE results.

5. MEASURES OF PRECISION

These are measures that indicate the variable error that may be expected in the estimates derived from the sample. The common measures are variances, standard errors and coefficients of variation (CV). Out of these measures, the results of standard errors and coefficients of variation of estimates for selected variables are presented as an annex at the end of each chapter.

For comparing the variability of different crop estimates or of the same crop estimates in different reporting domains, the coefficient of variation (the standard deviation expressed as a percentage of the estimate), should be used since it is a unit-less measure.

In general, estimates with CV less than 30% are considered as reliable estimates (assuming no bias). Estimates between the ranges of 30% to 50% CV's are considered less reliable and users are advised to use them cautiously. This is due to the fact that the higher the CV the more unreliable the estimate will be. Estimates with CV greater than 50% are not shown or were suppressed, and instead they are marked with asterisk (*), because these estimates (with CV > 50%) are not reliable to be used for any demand.

CHAPTER III

SOCIO-ECONOMIC CHARACTERISTICS OF THE POPULATION IN AGRICULTURAL HOUSEHOLDS

1 INTRODUCTION

Population as a producer and consumer is closely related with agriculture. On the one hand, population affects production in general and agricultural outputs in particular by furnishing the required labour. On the other hand, the size of a population and its anticipated growth is the main factor determining food consumption requirements. Regarding the balance between population and consumption, if more people are to be fed than the food or services produced, saving and capital investments will be negatively affected. Moreover, population growth also negatively influences agriculture by putting pressure on the environment, such as water, fertility of land . . . etc. Population size further influence productivity mainly through the diversification and specialization of the economy, the size of the market and the importance of foreign trade.

Not only the size, but also the socio-economic characteristics of the population of the agricultural households are important to the agricultural production. Study of the nature of the agricultural sector of a country will not be complete without proper understanding of the socio-economic characteristics of the population engaged in it. The population statistics of the agricultural households can be used to describe the characteristics and distribution of the population in space, its density and degree of concentration, the fluctuation in its rate of growth and the movement from one area to another. Data on population and agriculture will also help in finding out what percentage of resources will be needed at a particular time for the meeting of basic needs of the people and what amount of socially useful and productive labour is available in the country, regardless of whether labour or capital intensive techniques will suit the nation's economy.

Generally, an analysis of statistical data on population residing in agricultural households is important to assess the size, structure and characteristics of the human resources involved in

and supported by the sector. Such kind of information will provide the human background for planners and policy makers in their attempt to formulate policies that helps improve the sector's output as well as the living conditions of the rural population.

Cognizant of this fact, the 2001/2002 Ethiopian Agricultural Sample Enumeration has collected basic social and economic characteristics of the population in agricultural households in October 2001. This chapter assesses the resulting data related to the size, the structure and distribution of the population in agricultural households with some selected variables. These variables include size and age-sex structure, household size, relationship to the head of the household, marital status, literacy, educational level, working status, reason for not working, type of occupation, and employment status. In the Annex to this chapter are given tables showing Estimates, Standard Errors (S.E) and Coefficient of Variation (C.V.) for some relevant variables.

2 SIZE AND AGE-SEX STRUCTURE OF THE POPULATION IN AGRICULTURAL HOUSEHOLDS

In this section, the size and age-sex composition of the population in agricultural households of Harari Region will be assessed. The population in agricultural households comprises of all persons residing in households with at least one agricultural holder, where a holder is defined as a person who exercises management and control over the operation of the agricultural holding such as land and livestock and makes the major decision regarding the utilization of the available resources (detailed explanation of holder and holdings are provided in Chapter II of this report in the section that deals with concepts and definitions). Whenever is appropriate the assessment will be done separately for non-holders, holders and type of holding.

2.1 Size of the Population in Agricultural Households

Summary Table III.1 presents the estimated population size of the agricultural households in Harari Region classified by sex, place of residence and holding status. According to the result of this sample enumeration, the population in agricultural households of the region is

estimated to be 73,172. Of the total the population in agricultural households, 66,894 are residing in rural areas and the remaining 6278 that is, only 8.6 percent of the population in agricultural households are residing in urban areas.

The enumeration results show that there were 15,358 agricultural holders in the region, making up 21 percent of the total population residing in agricultural households. Further breakdown of agricultural holder by type of holding is presented in Summary Table III.2. Accordingly, holders practicing crop and livestock agriculture constitute the largest proportion (76.6 percent) of the total holders. Holders practicing crop only farms make up about 16 percent, while those practicing livestock only are 7.4 percent of the total holders.

The enumeration result further shows that the proportion of holders among the males to be significantly higher than their female counterparts. In the rural and the urban areas the proportions of the holders among the males are more than five times and two times higher than that of the females, respectively.

Summary Table III.1 Size of Population in Agricultural Households by Sex, Holding Status and Place of Residence

Place of Residence/ Sex	Total Population in Agricultural Households		Holders		Members Other Than Holders	
	No.	%	No.	%	No.	%
Rural + Urban						
Both Sexes	73,172	100	15,358	21.0	57,814	79.0
Male	36,452	100	12,511	34.3	23,941	65.7
Female	36,720	100	2,847	7.8	33,873	92.2
Rural						
Both Sexes	66,894	100	14,101	21.1	52,793	78.9
Male	33,296	100	11,659	35.0	21,637	65.0
Female	33,598	100	2,442	7.3	31,156	92.7
Urban						
Both Sexes	6,278	100	1,258	20.0	5,020	80.0
Male	31,156	100	853	2.7	30,303	97.3
Female	3,122	100	405	13.0	2,717	87.0

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Summary Table III.2 Size of Population in Agricultural Holders by Sex, Type of Holding and Place of Residence

Place of Residence/ Sex	Total Holders		Crop Only		Livestock Only		Crop and Livestock	
	No.	%	No.	%	No.	%	No.	%
Rural + Urban								
Both Sexes	15,359	100	2,465	16.0	1,135	7.4	11,759	76.6
Male	12,512	100	1,810	14.5	473	3.8	10,229	81.8
Female	2,847	100	655	23.0	662	23.3	1,530	53.7
Rural								
Both Sexes	14,100	100	2,116	15.0	688	4.9	11,296	80.1
Male	11,659	100	1,578	13.5	199	1.7	9,882	84.8
Female	2,441	100	539	22.1	489	20.0	1,413	57.9
Urban								
Both Sexes	1,257	100	348	27.7	446	35.5	463	36.8
Male	853	100	232	27.2	274	32.1	347	40.7
Female	405	100	116	28.6	172	42.5	117	28.9

2.2 Age-Sex Structure of the Population in Agricultural Households

Age and sex are among the important factors that determine the status of individuals in their community in general and their involvement in production process in particular. The age-sex composition of a population of an area is the product of past fertility, mortality and migration trends. Age and sex structure are important for the functioning of the economy including the agricultural economy, since these two attributes constitute main criteria for determining entrance into the work force and the division of labour. It is also important for several purposes. Among others, age-sex data is useful for in-depth analysis of socio-economic characteristics of a given population. Also, age-sex data is vital for making component and sartorial projections.

The percentage distribution of the population in agricultural households by sex, age group, place of residence, and holding status and type is presented in Summary Table III.3. Also, the single year age and five years age distribution of the population in agricultural households are presented in Figure III.1 and Figure III.2, respectively. The population in agricultural households in both rural and urban areas are characterized by young age. As the data in the table shows, 54.4 percent and 43.5 percent of rural and urban population in agricultural households are under 18 years of age. Those persons aged 60 years and above constitute only small proportion (4.6 percent in rural and 7.9 percent in urban areas). According to the age

pyramid the age pattern of the region's population in agricultural households appears to be fluctuating (See Figures III.1 to III.3). This can be observed in these figures, particularly from the distortion at age group 25-29 years. As can be seen from Fig III.3, holders are concentrated in the age groups 30 - 39 years for males and 60 and above years for females.

The majority of holders of crop only farms and crop and livestock farms concentrated in the age group 25-49 years, with a peak at age group 30-39 years. The involvement of young population who are under age 18 years is found to be negligible and statistical insignificant. Among those practicing only livestock agriculture it is less common to found young persons less than 25 years and the highest proportion of population engaged in this activity are in the age group 60 and above (30.5percent). The same pattern holds true for males. In the region a significant proportion of women appear to be holder starting at age 25-29 years and tends to increase as their age advances (See Summary Table III.3)

The sex distribution of a population can be studied using indices called "sex ratios" that are calculated as a ratio of males per 100 females. When the ratio is over 100, the males are in excess and when less than 100 the females predominate. The sex ratio of the population in agricultural households by holding status and type of holding are calculated and presented at the bottom of Summary Table III.3. In a population where there is no sex selective migration, the overall sex ratio is expected to be around 100. In addition, sex ratio for the population in agricultural households will be affected by movements of people between agricultural and non-agricultural households within the region itself. For the population in agricultural households of Harari Region the overall sex ratio is found to be 99.3, showing slight excess of females over males. The situation in urban areas where the result shows a sex ratio of 101.1 is, however, different from that of rural areas (99.1) indicating that there are more males than females in urban areas.

The table further shows a sex ratio of 439.4 for agricultural holders. That is, for every 100 female holders there are 439 male holders. The excess of male holders over female holders is extremely large among those practicing both crop and livestock holding. On the other hand, females exceed males among livestock holders. The pattern observed at regional level also holds true in rural areas, with very low (40.7) sex ratio for holders practicing livestock only. However, the excess of females over males observed for rural areas is not the case in urban areas. Besides the difference between male and female holders in urban areas is not as extreme as that observed in rural areas.

Fig.III.1 Distribution of Population of Agricultural households by Sex and age in single year (Urban + Rural)

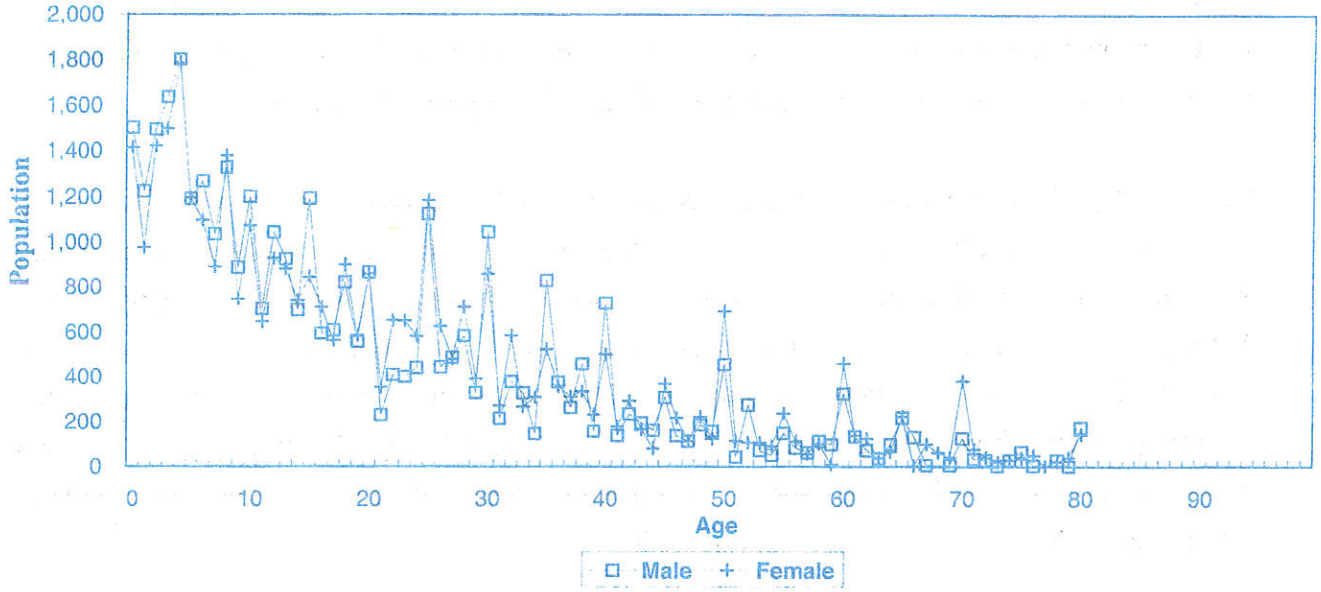


Figure III.2 Age-Sex Distribution of Population in Agricultural Households (urban + rural)

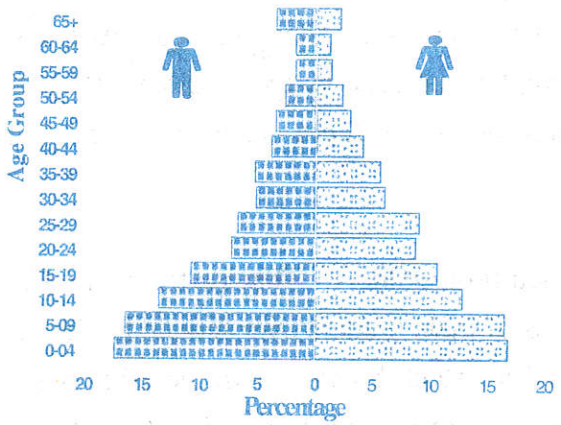
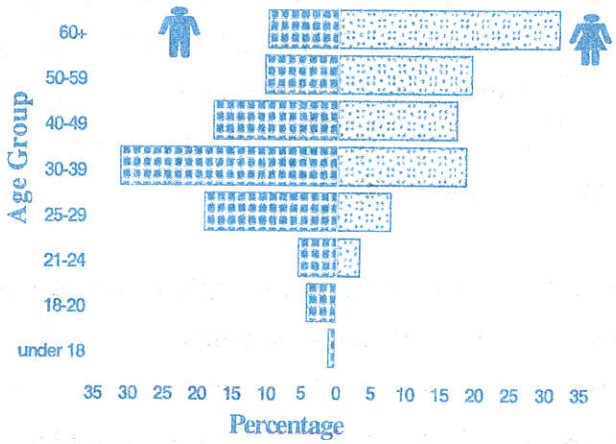


Figure III.3 Age-Sex Distribution of Population of Agricultural Holders (urban + rural)



Summary Table III.3 Distribution of Population in Agricultural Households by Sex, Age Group, Holding Status, Type of Holding and Place of Residence

Age Group And Sex	Rural + Urban					Rural					Urban				
	Total Population In Agricultural HHs	Total Holders	Holders by Type of Holding			Total Population In Agricultural HHs	Total Holders	Holders by Type of Holding			Total Population In Agricultural HHs	Total Holders	Holders by Type of Holding		
			Crop Only	Livestock Only	Crop and Livestock			Crop Only	Livestock Only	Crop and Livestock			Crop Only	Livestock Only	Crop and Livestock
Both Sexes															
All Ages	73172	15358	2465	1135	11759	66894	14101	2116	688	11296	6278	1258	348	446	463
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Under 18	53.5	1.2	*	*	*	54.4	1.3	*	*	*	43.5	0.5	-	1.3	-
18 - 20	6.3	3.5	3.9	1.3	3.6	6.0	3.7	4.3	-	3.8	9.1	1.7	*	3.4	*
21 - 24	5.1	5.1	7.4	*	4.8	4.9	5.3	8.0	*	4.9	7.3	2.9	3.7	3.6	1.7
25 - 29	8.7	17.0	24.7	14.4	15.7	8.7	17.8	26.6	18.9	16.2	8.7	7.9	12.9	7.6	4.3
30 - 39	11.2	28.9	25.7	15.4	30.9	11.3	29.7	25.8	*	31.5	10.1	20.0	25.0	17.9	18.1
40 - 49	6.3	17.8	14.3	10.1	19.3	6.2	17.5	14.4	*	18.9	7.7	21.1	13.8	18.4	29.2
50 - 59	4.1	12.2	8.0	15.9	12.7	3.9	11.6	7.2	*	12.5	5.8	18.8	12.9	24.0	18.4
60+	4.9	14.2	15.1	30.5	12.4	4.6	13.0	12.6	*	11.8	7.9	27.0	29.9	24.0	27.9
Male															
All Ages	36452	12511	1810	473	10229	33296	11659	1578	199	9882	3156	853	232	274	347
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Under 18	55.7	1.1	*	*	*	56.8	1.1	*	*	*	44.5	0.7	-	2.2	-
18 - 20	6.2	4.3	5.3	2.5	4.2	5.7	4.4	5.8	-	4.3	10.5	2.3	*	4.4	*
21 - 24	4.1	5.5	8.9	*	4.8	3.7	5.6	9.6	*	4.9	7.4	3.4	*	*	2.3
25 - 29	8.1	19.1	29.4	19.2	17.3	8.2	19.9	31.1	*	17.7	7.9	9.4	18.1	6.2	5.8
30 - 39	11.5	31.3	30.1	13.3	32.3	11.7	31.8	29.6	*	32.7	9.1	23.8	33.2	16.1	23.6
40 - 49	6.5	17.9	14.1	10.4	19.0	6.4	17.7	14.1	-	18.6	7.4	21.6	13.8	17.9	29.4
50 - 59	3.8	10.6	4.0	16.3	11.5	3.7	10.1	*	*	11.3	5.2	17.1	11.2	21.9	17.0
60+	4.2	10.2	6.9	19.7	10.3	3.8	9.3	5.4	*	9.9	8.0	21.8	16.8	27.0	21.0
Female															
All Ages	36720	2847	655	662	1530	33598	2442	539	489	1413	3122	405	116	172	117
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Under 18	51.1	*	-	*	-	51.9	*	-	*	-	42.5	-	-	-	-
18 - 20	6.4	*	-	*	-	6.3	-	-	-	-	7.6	*	-	*	-
21 - 24	6.1	3.4	*	*	*	6.0	3.6	*	-	*	7.1	*	*	*	-
25 - 29	9.2	7.8	11.6	10.9	*	9.2	8.3	*	*	*	9.5	4.9	*	9.9	-
30 - 39	11.0	18.6	13.6	*	21.4	11	19.7	*	*	23.0	11.0	12.1	8.6	20.9	*
40 - 49	6.1	17.3	15	10	21.6	5.9	16.9	15.2	*	21.0	8.1	20.0	13.8	19.2	28.2
50 - 59	4.4	19.3	18.9	15.9	21	4.2	18.8	19.7	*	20.9	6.3	22.5	15.5	27.3	22.2
60+	5.6	31.8	37.7	*	26.5	5.4	30.8	33.6	*	24.8	7.8	38.0	56.0	19.2	47.0
Sex Ratio	99.3	439.4	276.3	71.5	668.6	99.1	477.4	292.8	40.7	699.4	101.1	210.6	200.0	159.3	296.6

2.3 Household Size

Size of household refers to the entire number of persons- related or unrelated who comprise one private household. In this survey a household is defined as either single person who makes provisions for his own or a group of two or more persons who live together and make common provisions for food and other essentials of living.

Summary Table III.4 presents the distribution of the agricultural households by number of persons per household and average household size for male and female-headed households. According to the sample enumeration, on September 2001 there were 14,696 agricultural households in Harari Region. These households all together accommodate 73,172 persons, resulting in average household size of 5.0 persons per agricultural household. Regarding the distribution of persons per household, the data in the table shows that, the majority of households have 4-5 persons (34.0 percent) followed by those with 6-9 persons (33.7 percent) and 2-3 persons (25.6 percent). Single person households and households with 10 and more persons each comprise about 3 percent.

Summary Table III.4 Distribution of Agricultural Households by Household Size, Sex of Head and Place of Residence

Rural/ Urban and Sex of Head	Total Population in Agricultural HHs	Total Agricultural Households		Household Sizes					Average Household Size
		Nº	%	One Member HHs	2-3 Members HHs	4-5 Members HHs	6-9 Members HHs	10 & above Members HHs	
Rural + Urban									
Total	73172	14696	100	3.3	25.6	34.0	33.7	3.4	5.0
Male Head	64159	12228	100	1.7	21.3	36.3	37.0	3.8	5.2
Female Head	9013	2469	100	11.4	47.0	22.7	17.5	*	3.7
Rural									
Total	66894	13444	100	3.2	25.7	34.1	33.7	3.4	5.0
Male Headed	59459	11353	100	1.5	21.4	36.5	36.8	3.8	5.2
Female Head	7435	2092	100	12.2	49.0	20.8	16.6	*	3.6
Urban									
Total	6278	1252	100	4.4	24.8	32.9	34.0	3.8	5.0
Male Head	4701	875	100	3.3	20.0	32.8	39.0	4.9	5.4
Female Head	1578	377	100	6.9	36.1	33.2	22.5	1.3	4.2

Average household size for agricultural households in urban areas is the same as that of rural areas. The enumeration results further show that the size of households differs by the sex of head. In both rural and urban areas, male-headed agricultural households appear to have larger household size, with the difference slightly higher in rural areas. As can be observed in Summary Table III.4, on average, male-headed agricultural households in rural and urban areas of the region have about 2 and 3 more persons, respectively. In rural areas, about 12 percent of female headed agricultural households are occupied by women living alone.

3 SOCIO-ECONOMIC CHARACERTITICS OF THE POPULATION IN AGRICULTURAL HOUSEHOLDS

In addition, the 2001/2002 Ethiopian Agricultural Sample Enumeration has collected some basic social and economic characteristics of the population residing in agricultural households. The information collected included relationship to the head of the household, marital status, literacy status and educational level, work status, employment status and type of occupation. In this respect, this section of the chapter presents some of the major findings of the sample census.

3.1 Relationship with the Head of Household

Relationship to the head of the household is an important measure of household formation and hence it is a pivot on which modern method of projecting households and families turns. Relationship to the head of the household is considered in this report for its influence on agricultural holding status and certain decision to be taken related to agricultural activities. In the sample census, the head of a household is any member of the household who is recognized as a head by the other members.

Summary Table III.5 presents the distribution of the population in agricultural households by sex, relationship to the head of the household, holding status and type of holdings for Harari Region. Among both the males and the females the majority of the population in

Summary Table III.5 Size of Population in Agricultural Households by Sex, Relationship to the Head of Household, Holding Status and Type of Holding

Sex and Relationship to The Head	Rural + Urban					Rural					Urban				
	Total Population in Agricultural Households	Total Holders	Holders by Type of Holding			Total Population in Agricultural Households	Total Holders	Holders by Type of Holding			Total Population in Agricultural Households	Total Holders	Holders by Type of Holding		
			Crop Only	Livestock Only	Crop and Livestock			Crop Only	Livestock Only	Crop and Livestock			Crop Only	Livestock Only	Crop and Livestock
Both Sexes															
All Persons	73172	15358	2465	1135	11759	66894	14101	2116	688	11296	6278	1258	348	446	463
Head	20.1	94.4	95.3	53.6	98.1	20.1	94.3	94.8	31.4	98.1	19.9	94.4	98.0	88.1	98.1
Spouse	15.6	1.4	*	*	*	15.8	*	*	*	*	12.4	2.9	*	6.7	*
Children	54.7	1.6	*	*	1.1	54.9	1.6	*	*	1.1	53	1.7	-	3.8	*
Mother/Father	2.1	0.5	-	*	*	2.2	*	-	*	*	1.0	*	-	*	-
Sister/Brother	2.2	*	*	*	-	2.2	*	*	*	-	2.2	*	*	-	-
Other Relatives	4.3	*	*	*	*	3.9	*	*	*	*	8.6	0.5	-	*	*
Non-Relative	1.0	-	-	-	-	0.8	-	-	-	-	2.9	-	-	-	-
Male															
All Persons	36452	12511	1810	473	10229	33296	11659	1578	199	9882	3156	853	232	274	347
Head	33.5	97.3	95.4	81	98.4	34.1	97.4	94.9	64.8	98.4	27.7	96.8	98.7	93.1	98.8
Spouse	0.4	*	-	-	*	0.3	*	-	-	*	0.7	-	-	-	-
Children	58.9	1.5	*	*	1.1	59.1	1.4	*	*	1.1	56.7	2.5	-	6.2	*
Mother/Father	0.6	-	-	-	-	0.5	-	-	-	-	0.7	-	-	-	-
Sister/Brother	1.9	*	*	*	-	1.9	*	*	*	-	1.9	*	*	-	-
Other Relatives	3.7	*	-	*	*	3.1	*	-	-	*	9.6	*	-	*	-
Non-Relative	1.0	-	-	-	-	0.8	-	-	-	-	2.7	-	-	-	-
Female															
All Persons	36720	2847	655	662	1530	33598	2442	539	489	1413	3122	405	116	172	117
Head	6.7	81.2	94.8	34	95.9	6.2	79.9	94.2	*	96	12.1	89.4	96.6	80.2	94.9
Spouse	30.6	6.4	*	*	*	31.2	*	*	*	-	24.3	8.9	*	17.4	*
Children	50.5	*	-	*	*	50.6	*	-	*	*	49.3	-	-	0.0	-
Mother/Father	3.7	2.9	-	*	*	3.9	*	-	*	*	1.4	*	-	*	-
Sister/Brother	2.4	*	-	*	-	2.4	*	-	*	-	2.4	-	-	-	-
Other Relatives	4.9	*	*	*	*	4.7	*	*	*	-	7.7	*	-	*	*
Non-Relative	1.1	-	-	-	-	0.9	-	-	-	-	2.9	-	-	-	-

agricultural households are children of heads. Next to children of heads are the heads (20.1 percent) and the spouses (15.6 percent). The proportion of heads among the males is substantially higher than that of the females, reflecting the fact that males in most societies assume execution of the major roles of the agricultural activities and the head is considered as the main bread winner in the household as well as the one who merely bear responsibility.

The overwhelming majority of both male and female holders (97.3 percent and 81.2 percent, respectively) are heads of households and this dominancy of heads of households is highly pronounced in the crop and livestock and crop only holdings. Children, spouses and relatives of heads have no significant contribution among all types of holdings and this phenomenon is more pronounced in the rural areas than urban areas.

3.2 Marital Status

This section presents the level and pattern of marital status of the population in the agricultural households in Harari region. In addition to being one of the important proximate determinants of fertility, marriage has economic and social implications. Generally, marriage is basic to family formation. In countries like Ethiopia, where the agriculture is subsistence farming, families play central role in the production processes, income maintenance, economic status, ...etc.

In the census questionnaire, information was collected on the marital status of the population 10 years of age and older. The marital status was categorized into four main groups, namely never married (single), married, divorced and widowed. A person who had never been married is considered to be single, whereas married persons include couples

who are living together bonded by any kind of marital engagement at the time of the census (traditional, religious or civil marriage). Separated couples are also considered to be married, unless they had dissolved their marriage agreement legally. A person who had been married but whose marriage was dissolved through divorce before the census day is categorized as divorced, and a person whose marriage was dissolved through the death of the spouse is categorized as widowed.

Summary Table III.6 presents the distribution of the population in agricultural households by marital status and broad age group. As the data in the table indicates, almost half of the population in the agricultural households in the region are in marital union at the time of the enumeration. Those who never married constitute about 37 percent while 10.7 percent have dissolved their marriage due to divorce or the death of the spouse. The data further shows that a higher proportion of the males to be in single-hood status while the incidence of dissolution of marriage are significantly higher among the females than the males. Regarding the marital status of the agricultural holders in the region, the data in the table shows that, the majority (77.6 percent) is currently in marital union at the time of the census.

A higher proportion, i.e., about 97 percent and 93 percent of the young (age10-17 years) male and female population in agricultural households are single, indicating relatively late start of marriage in the region's population. Further, marriage is universal in the region as evidenced by the fact that at age 50 and over the proportion of single are insignificant for both the males and the females.

Summary Table III.6a Population Aged 10 Years and Over in Agricultural Households by Sex, Age Group, Marital Status* and Holding Status, In Harari Region

Age Group and Holding Status	Total			Never Married			Married			Divorced			Widowed		
	M + F	M	F	M + F	M	F	M + F	M	F	M + F	M	F	M + F	M	F
All Population in Agricultural HHs															
All Ages	47411	23090	24320	37.3	43.2	31.8	51.7	52.1	51.4	2.7	2.3	3.1	8.0	2.1	13.6
10 - 17	13334	6954	6379	95.1	96.9	93.1	4.1	2.2	6.1	*	-	*	*	*	*
18 - 29	14649	6684	7964	30.9	43.9	19.9	63.2	51.5	73.1	5.0	4.2	5.6	0.9	*	1.4
30 - 49	12828	6537	6291	3.0	3.6	2.4	85.9	90.8	80.8	3.6	3.3	3.9	7.5	2.2	13.0
50+	6600	2914	3686	*	*	*	55.8	85.4	32.4	1.2	*	*	40.5	10.3	64.4
Holders															
All Ages	15288	12488	2800	4.6	5.3	*	77.6	89.3	25.5	2.7	2.7	3.0	15.1	2.7	70.5
10 - 17	116	116	-	*	*	-	*	*	-	-	-	-	-	-	-
18 - 29	3939	3617	322	10.0	10.1	*	83.1	83.9	73.9	5.0	5.3	*	2.0	*	*
30 - 49	7182	6159	1023	2.1	2.4	*	85.2	93.1	37.8	2.8	2.2	6.2	9.9	2.3	55.8
50+	4051	2595	1455	*	*	*	60.2	90.6	6.0	0.6	0.2	1.2	37.4	6.4	92.6

Summary Table III.6b Population Aged 10 Years and Over in Agricultural Households by Sex, Age Group, Marital Status* and Holding Status, In Rural Areas

Age Group and Holding Status	Total			Never Married			Married			Divorced			Widowed		
	M + F	M	F	M + F	M	F	M + F	M	F	M + F	M	F	M + F	M	F
All Population in Agricultural HHs															
All Ages	42553	20643	21910	35.7	41.4	30.2	53.5	54.1	53.1	2.6	2.3	2.9	7.9	1.8	13.6
10-17	12024	6258	5766	94.8	96.7	92.6	4.4	2.3	6.6	*	-	*	-	-	-
18-29	13077	5871	7206	26.0	38.5	15.8	67.8	56.5	77.1	5.2	4.5	5.7	1	*	1.5
30-49	11710	6017	5693	2.3	2.8	*	87.3	92.2	82.0	3.2	3.2	3.3	7.2	1.8	12.9
50+	5742	2497	3245	*	*	*	55.2	86.0	31.5	*	*	*	41.5	9.8	65.9
Holders															
All Ages	14031	11636	2395	4.6	5.4	*	78.7	89.6	25.8	2.5	2.7	*	14.2	2.4	71.7
10-17	110	110	-	*	*	-	*	*	-	-	-	-	-	-	-
18-29	3780	3489	291	9.8	9.9	*	83.3	84.1	74.2	4.9	5.4	-		*	
30-49	6665	5773	892	2.1	2.5	-	86.3	93.5	39.8	2.4	2.1	*	9.2	1.9	56.2
50+	3475	2264	1211	*	*	-	60.5	90.8	*	-	-	-	37.5	6.2	96.1

Summary Table III.6c Population Aged 10 Years and Over in Agricultural Households by Sex, Age Group, Marital Status* and Holding Status, In Urban Areas

Age Group and Holding Status	Total			Never Married			Married			Divorced			Widowed		
	M + F	M	F	M + F	M	F	M + F	M	F	M + F	M	F	M + F	M	F
All Population in Agricultural HHs															
All Ages	4857	2447	2411	52.2	58.6	45.6	35.5	35.2	35.8	3.5	2.1	4.9	8.8	4.0	13.7
10-17	1310	696	614	97.9	97.8	98.0	1.5	*	1.5	-	-	-	*	*	*
18-29	1572	813	759	71.3	82.8	59.0	24.9	15.1	35.6	3.2	2.0	4.5	0.5	*	0.8
30-49	1118	520	598	10.6	13.8	7.7	71.3	74.4	68.6	7.4	5.2	9.4	10.7	6.5	14.4
50+	858	417	441	1.5	2.2	*	60.1	81.8	39.7	4.3	2.4	6.3	33.9	13.4	53.3
Holders															
All Ages	1258	853	405	3.6	4.5	*	65.8	85.9	23.2	5.8	2.8	12.1	24.8	6.7	63.0
10-17	6	6	-	100.0	100.0	-	-	-	-	-	-	-	-	-	-
18-29	159	128	30	14.5	15.6	*	78.0	79.7	73.3	*	*	*	*	-	*
30-49	517	386	130	1.7	1.8	*	71.2	87.0	24.6	7.7	3.4	20.8	19.1	*	53.1
50+	576	332	244	1.0	*	*	58.2	88.9	16.4	4.2	1.8	7.4	36.6	8.1	75.4

*Percentages of persons who do not state their marital status are not shown in the table.

3.3 Level of Education of the Population in Agricultural Households

Education is another important social characteristic that affect the well being of individuals or societies in general. Level of education is associated with the participation as well as the productivity of agriculture. Education improves knowledge and use of agricultural practices and applied technology in agricultural operations. Therefore, compiling and analyzing data on the educational attainment of the population in the agricultural households is essential for development planning.

The 2001/02 Agriculture Sample Enumeration of Ethiopia provides two types of data regarding education, namely, literacy status and educational attainment of persons aged 5 years or more. In the census a person is considered as literate if he/she can read and write simple sentence in any language. Educational attainment was obtained by asking individuals who can read and write concerning the highest grade completed and response were classified as non formal education and grades completed in the formal school system. Formal education /regular school/ is used to describe the educational system that provides a ladder by which individuals may progress from primary school through universities. On the other hand, the non-formal education that are entertained in this census includes those persons that were not in the formal schools such as self directed, or religious/socially directed learning or teachings to read and write, with any of the languages.

The population in the agricultural households aged 10 years and over in Harari Region classified by sex, literacy status and level of education, holding status and type of holding and place of residence is presented in Summary Table III. 7. The level of education in this table is classified as: primary level education which include grades 1-6, and above primary level education.

The data in the table reveals that 33.8 percent of the population in the agricultural households of Harari Region to be literate. The literacy level among the urban dwellers (74.8 percent) is more than two and half times compared to that of rural areas (29.1 percent). The census result also shows that, relatively, more males than females are found to be literate in both rural and

urban areas. For instance, in rural areas, 44.9 of males against 14.8 percent of females were literate.

About 7 percent and 5 percent, respectively, of the rural and the urban population aged 10 years and over in agricultural households were able to read and write through non-formal education. Those who attained primary level education make up 19.4 percent and 32.2 percent of the population in agricultural households of the rural and urban areas, respectively. On the other hand, very small proportion (only 2.2 percent) of the population in the rural areas of agricultural households and a substantial proportion (37.7 percent) of the population in the urban agricultural households have attained an educational level of above primary school.

The proportion of literates did not show much variation among the agricultural holders and non-holders. On the other hand, those who are only livestock holders are relatively better off in terms of level of education than those engaged in crop only and those practicing crop and livestock.

Summary Table III.7 Distribution of Population in Agricultural Household Aged 10 Years and Over by Sex, Literacy Status and Educational Level, Holdings Status, Type of Holding and Place of Residence

Level of Education and Sex	Total Population in Agricultural HHs	Non-Holders	All Holders	Type of Holding		
				Crop Only	Livestock Only	Crop & Livestock
Rural + Urban						
Male + Female						
Total	47,411	32,122	15,289	2,465	1,065	11,759
	100	100	100	100	100	100
Illiterate	66.2	64.5	69.7	71.8	62.8	69.9
Non-Formal	6.9	4.3	12.5	9	3.6	14
Primary	20.9	24.2	14	13.8	16.4	13.8
Above Primary	5.9	6.9	3.9	5.4	17.1	2.3
Male						
Total	23,091	10,602	12,489	1,810	450	10,229
	100	100	100	100	100	100
Illiterate	51.3	35.9	64.3	62.5	37.3	65.8
Non-Formal	10.9	6.3	14.7	11.9	4.7	15.7
Primary	29.1	43.7	16.6	18.5	27.3	15.8
Above Primary	8.8	14	4.3	7.1	30.4	2.6

Summary Table III.7 (Cont'd)

Level of Education and Sex	Total Population in Agricultural HHs	Non-Holders	All Holders	Type of Holding		
				Crop Only	Livestock Only	Crop & Livestock
Female						
Total	24,320	21,520	2,800	655	615	1,530
	100	100	100	100	100	100
Illiterate	80.4	78.6	93.7	97.6	81.6	96.9
Non-Formal	3	3.3	0.8	0.8	2.8	*
Primary	12.9	14.6	*	*	*	-
Above Primary	3.2	3.4	1.6	*	7.3	*
Rural						
Male + Female						
Total	42,554	28,523	14,031	2,116	619	11,296
	100	100	100	100	100	100
Illiterate	70.9	70.2	72.2	76.4	85.8	70.7
Non-Formal	7.2	4.4	12.7	8.8	-	14.1
Primary	19.4	22.8	12.6	12	*	13.4
Above Primary	2.2	2.5	1.4	*	-	1.8
Male						
Total	20,644	9,008	11,636	1,578	176	9,882
	100	100	100	100	*	100
Illiterate	55.1	41.1	66	68.3	*	66.8
Non-Formal	11.5	7	15	11.9	-	15.8
Primary	28	44.5	15.2	16.1	*	15.4
Above Primary	4.2	7.4	1.7	*	-	2
Female						
Total	26,831	24,436	2,395	539	443	1,413
	100	100	100	100	1000	100
Illiterate	84.0	82.7	97.4	100	93.0	97.8
Non-Formal	4.2	4.6	*	-	-	*
Primary	11.3	12.4	*	-	*	-
Above Primary	*	*	-	-	-	-
Urban						
Male + Female						
Total	4,857	3,600	1,257	348	446	463
	100	100	100	100	100	100
Illiterate	25.2	19.4	41.6	44	30.9	50.1
Non-Formal	4.9	3.3	9.7	9.5	8.5	11
Primary	32.2	35.7	22.2	25	19.7	22.5
Above Primary	37.7	41.6	26.5	21.6	40.8	16.4
Male						
Total	2,447	1,594	853	232	274	347
	100	100	100	100	100	100
Illiterate	13.9	6.6	27.4	22.8	17.5	38.3
Non-Formal	5.4	2.5	10.7	12.1	7.7	12.1
Primary	35.9	39.3	29.5	34.9	24.5	30
Above Primary	44.8	51.6	32.2	30.2	50	19.6
Female						
Total	2,411	2,006	405	116	172	117
	100	100	100	100	100	100
Illiterate	36.6	29.6	71.4	86.2	52.3	84.6
Non-Formal	4.5	3.8	7.9	4.3	9.9	8.5
Primary	28.2	32.8	5.2	*	12.2	-
Above Primary	29.9	33.7	11.1	*	26.2	*

3.4 Work Status of the Population in Agricultural Households

All persons aged 10 years and over who are members of the agricultural households in both urban and rural areas were asked whether or not they have been engaged in productive activity during most of the 12 months prior to the census date. In the census economic or productive activity was defined in terms of production of goods and services that fall within the United Nations System of National Accounts (SNA) production boundary (ILO, 1990). Hence, in the 2001/2002 Agricultural Sample Enumeration, economic activity or productive activity is defined as a work that involves the production of goods and/or services for sale or exchange and production of certain products for own consumption. According to the above general definition, economic activity covers production of goods and services intended for sale on the market, production of other goods and services such as government activities; production and processing of primary products (agriculture, hunting, fishing, forestry and logging; and mining and quarrying) for own consumption, processing of primary products by the producers themselves, production of other commodities where part of it is sold on the market; and own account construction and fixed asset formation (expected life use of one year or more). Such economic activities could be performed for an individual, family or private enterprise, government establishment or public organization. The remuneration may be on daily, weekly, monthly, yearly or contract basis.

For a person to be counted as working during most of the last 12 months, he/she has to be engaged in any kind of economic activity at least for half of the reference year. In the case of persons engaged in agriculture, it was decided to consider them as being engaged in economic activity during most of the last 12 months if they have worked during most of the main agricultural season of the reference year. The distribution of the population aged 10 years and over in agricultural households of Harari Region classified by sex, age group work status, and is presented in Summary Table III.8. According to the census result, out of the total 47,372 persons aged 10 years and over who are members of the agricultural households in the region, 60.3 percent were reported to have engaged in some kind of productive activity

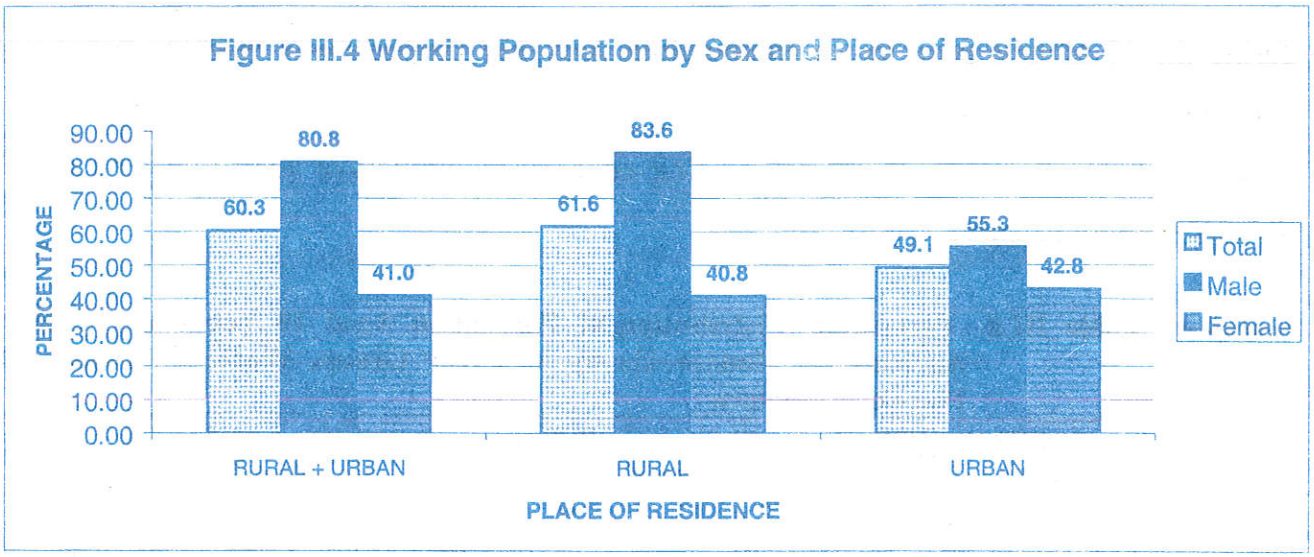
during the 12 months prior to the enumeration date. The proportion of working population among the male is about double compared to that of females, that is, 81 percent of the males against 41 percent among the females being engaged in productive activity during the 12 months prior to the survey date.

Summary Table III.8 Percentage Distribution of Population Aged 10 Years and Over in Agricultural Households by Sex, Age Group, Working Status* and Place of Residence

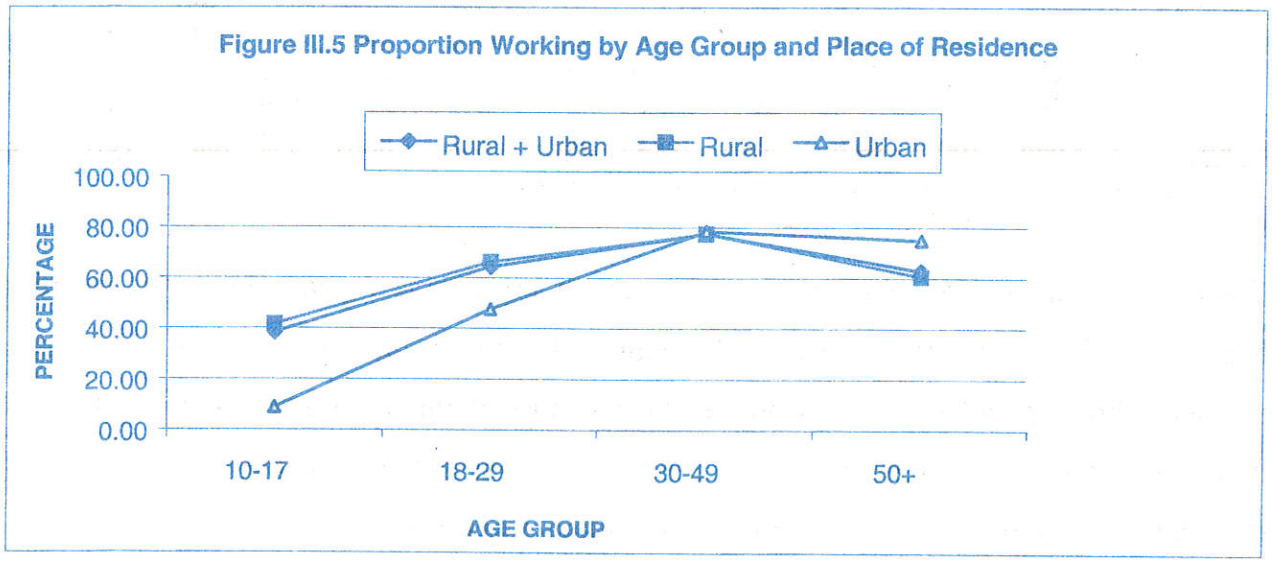
Sex/Age Group	RURAL + URBAN				RURAL				URBAN			
	Total		Percent Working	Percent Not Working	Total		Percent Working	Percent Not Working	Total		Percent Working	Percent Not Working
	No	%			No	%			No	%		
Both Sexes												
All Ages	47,372	100	60.3	39.7	42,553	100	61.6	38.3	4,857	100	49.1	50.9
10-17	13,316	100	38.4	61.6	12,024	100	41.6	58.3	1,310	100	8.9	90.9
18-29	14,649	100	64.2	35.8	13,077	100	66.2	33.8	1,572	100	47.5	52.5
30-40	12,828	100	77.5	22.5	11,710	100	77.5	22.5	1,118	100	78.4	21.6
50+	6,580	100	62.7	37.3	5,742	100	60.6	39.1	858	100	74.9	24.8
Male												
All Ages	23,053	100	80.8	19.2	20,643	100	83.6	16.2	2,447	100	55.3	44.7
10-17	6,937	100	57.2	42.8	6,258	100	61.9	37.8	696	100	12.9	87.1
18-29	6,684	100	87.8	12.2	5,871	100	92.6	7.4	813	100	53.6	46.4
30-40	6,537	100	96.5	3.5	6,017	100	96.7	3.3	520	100	94.4	5.6
50+	2,895	100	85.5	14.5	2,497	100	85.7	13.6	417	100	80.3	19.4
Female												
All Ages	24,319	100	41.0	59.0	21,910	100	40.8	59.2	2,411	100	42.8	57.2
10-17	6,378	100	18.0	82.0	5,766	100	19.5	80.5	614	100	4.6	95.3
18-29	7,965	100	44.3	55.7	7,206	100	44.7	55.3	759	100	40.8	59.2
30-40	6,291	100	57.8	42.2	5,693	100	57.1	42.9	598	100	64.4	35.6
50+	3,686	100	44.8	55.2	3,245	100	41.3	58.7	441	100	70.1	29.9

*Percentages of persons who do not state their work status are not shown in the table.

Consistent with previous surveys, engagement in productive activity in the rural areas is higher than that of the urban areas of the region. In the rural areas more than three-fifths of the agricultural population was working during most of the 12 months prior to the survey date. Whereas, the working persons in urban areas constituted almost half (49.1 percent) of the population in question. In both rural and urban areas, the proportion working among the males is higher than that of the females with a wider gender disparity in rural areas (see Figure III.4).



As can be seen from Figure III.5, engagement in productive activity is highest for persons of middle age (30 -49 years). As expected, the proportion working is lowest for the children aged 10-17 years. This phenomenon holds true for both the males and the females in rural as well as in urban areas. One special feature in urban areas is that the proportion of working children aged 10-17 years is very low compared to those persons in the upper age groups (see Figure III.5).



3.5 Reason for Not Working

The distribution of non-working population in agricultural households by main reason for not working and selected background variables is presented in Summary Table III.9. In both the rural and the urban areas of the region, the two most important reasons for not working are homemaking and attending school or being a student, together constituting 86.1 percent (29.7% + 56.4%). About one in ten non-working persons reported old age/pension as a reason. Disability or illness has very little contribution. The patterns, in the urban and the rural areas are different in that being student is leading reason in urban areas, while homemaking is the most important reason for rural areas.

The distribution of reasons for not working among the male population is different from that of the females. Students make up the overwhelming majority (75 percent) among non-working males while homemaking is the major (72 percent) reason for not working among the females.

The pattern of reason for not working varies as age increases. As expected, students make up the majority (56.9 percent) of non working population aged 10-17 years, while homemakers lead students by a wider gap among those aged 18-29 years. On the other hand, homemakers constitute the majority (88.1 percent) of non-working population aged 30-49 years, while old age/pension is the major reason for not working among those aged 50 years and above.

Summary Table III.9 Population in Agricultural Households by Reason for Not Working and Some Background Variables

Back ground Variables	Total not Working	Reason for not Working				
		Student	Home Maker	Disabled /ill	Old Age/ Pension	Others
All Persons	18,787	29.7	56.4	0.8	9.4	3.7
Place of Residence						
Rural	16,315	24.5	61.6	0.7	10.0	3.1
Urban	2,472	63.9	22.4	*	5.0	7.5
Sex						
Male	4,434	75.0	6.1	1.4	7.7	9.8
Female	14,353	15.7	72	0.6	9.9	1.8
Age						
10 - 17	8,199	56.9	39.9	*	*	1.8
18 - 29	5,250	17.0	79.1	*	-	3.8
30 - 49	2,881	*	88.1	*	*	9.3
50+	2,457	*	26.1	*	68.6	3.5

3.6 Type of Occupation for Working Population

Data on type of occupation was collected for all persons who have reported to have been engaged in productive activity during most of the last 12 months. The response to the question is classified as fully agricultural, partially agricultural and non-agricultural. This information provides the extent to which the agricultural population is engaged in other activities.

Summary Table III.10 presents the distribution of the population aged 10 years and over in the agricultural households who are engaged in productive activity by type of occupation and background variables. The census result shows that little above three fourths of the population in agricultural households aged 10 years and over was engaged in fully agricultural activities, while only about 10.6 percent of the population was engaged in partially agricultural activities. The proportion of population engaged only in non-agricultural activities was not negligible, amounting about 13 percent. As expected, in urban areas the proportion engaged in partial or non-agricultural activities is much higher than those who engaged in fully agricultural activities.

Some variation in the pattern of type of occupation was observed among the males and the females. Besides, among females the proportion engaged in non-agricultural activities is twice as large as that engaged in partially agricultural activities while the reverse order is true among males. Higher proportion of females than males tend to get engaged in partially agricultural activities as well as non-agricultural activities. Engaging in fully agricultural activities appear to increase as the age of person's increases.

Summary Table III.10 Percentage Distribution of Population who were Engaged in Productive Activities by Type of Occupation and Some Background Variables

Back ground Variables	Total Working		Fully Agricultural	Partially Agricultural	Non Agricultural
	No.	%			
All Persons	28,585	100	76.5	10.6	12.9
Place of Residence					
Rural	26,202	100	81.2	7.6	11.2
Urban	2,383	100	24.3	44.0	31.7
Sex					
Male	18,619	100	87.8	8.0	4.1
Female	9,966	100	55.3	15.5	29.2
Age					
10 - 17	5,117	100	84.0	6.7	9.2
18 - 29	9,399	100	69.3	9.8	20.9
30 - 49	9,947	100	77.5	11.7	10.7
50+	4,123	100	81.0	14.7	4.3

3.7 Employment Status of Population Engaged in Agricultural Activities

Employment status of working population indicates the level of involvement and degree of decision-making in the respective activities. In this sample enumeration persons engaged in fully or partially agricultural activities were asked to report the employment status in that activity.

According to the data presented in Summary Table III.11, own account workers constituted the highest proportion (53.1 percent) of the population in agricultural households who are engaged in agricultural activities. About 43 percent of the population were unpaid family workers working in their farms alone or with the help of family members but with out hiring labor. The proportion who hire others in their farm are only 2.6 percent, showing the low capacity of the region's agricultural industry to create employment opportunity for non-holders. On the other hand, only 1.2 percent of the population in agricultural households engaged in agricultural activities were employees.

Summary Table III.11 Percentage Distribution of Population in Agricultural Households Engaged in Agricultural Activities by Employment Status and Some Background Variables

Place of Residence Age/Sex	Total Engaged in Agricultural Activities		Employer	Own Account Worker	Employee	Unpaid Family Worker
	No	%				
All Persons	24,906	100	2.6	53.1	1.2	42.8
Place of Residence						
Rural	23,278	100	2.4	52.1	1.1	44.1
Urban	1,628	100	6.2	67.3	2.2	24.4
Sex						
Male	17,847	100	1.8	64.4	1.4	32.0
Female	7,059	100	4.7	24.6	*	70.0
Age						
10 - 17	4,645	100	-	2.0	*	95.3
18 - 29	7,438	100	1.1	49.0	1.4	48.3
30 - 49	8,878	100	3.7	72.2	1.2	22.7
50+	3,944	100	6.2	78.0	*	15.7

The situations in urban and rural areas are different, where the tendency to work for the family without payment is less common in urban areas. Also, being employer is relatively more pronounced in the urban areas than the rural areas. The overwhelming majority (70 percent) of female respondents in agricultural households who are engaged in agricultural activities are unpaid family workers, while self-employment (own account) is the common type of employment status (64.4 percent) among males, showing the dominance of males over female in the tradition/culture of the society.

ANNEX TABLES PRESENTING ESTIMATES, STANDARD ERRORS AND COEFFICIENTS OF VARIATION FOR SELECTED SOCIO-ECONOMIC CHARACTERISTICS OF THE POPULATION IN AGRICULTURAL HOUSEHOLDS VARIABLES

Annex Table 3.1

Annex Table 3.1 Distribution of Population in Agricultural Household by Status and Type of Holding, Percent Female, Rural and Urban Areas, Zone and Wereda

Geographic Area	Total Agricultural Population			All Non-Holders			Agricultural Holders											
							All Holders			Type of Holdings								
										Crop Only			Livestock only			Crop & Livestock		
	Total	SE	CV	Total	SE	CV	Total	SE	CV	Total	SE	CV	Total	SE	CV	Total	SE	CV
Harari Region																		
Rural + Urban	73,172	2,478	3	57,814	2058	4	15,358	533	3	2,465	290	12	1,135	232	20	11,759	454	4
Rural	66,894	2,412	4	52,794	2006	4	14,101	521	4	2,116	285	13	688	225	33	11,296	447	4
Urban	6,278	569	9	5,021	458	9	1,258	115	9	348	52	15	446	55	12	463	74	16

CHAPTER IV

LAND UTILIZATION

1. INTRODUCTION

From agricultural point of view, land is an indispensable factor for production of crops, raising of livestock and other ancillary agricultural activities. The proper utilization of land holdings under different components will contribute to the development of the nation's agricultural products. In order to scrutinize this development as well as farmers' attitude towards land use practices, a timely and comprehensive land use data has paramount importance for governmental, non-governmental and private sector data users. According to the international recommendations for Agricultural Census, the total land use is categorized into five main land use types, which are land under temporary crops, land under permanent crops, grazing land, fallow land, woodland and land for other purposes. Based on these major land use categories, the 2001/02 (1994 E.C.) Ethiopian Agricultural Sample Enumeration (EASE) provides quantitative information on land utilization at Regional, Zonal and Wereda levels.

The 2001/02(1994 E.C.) EASE covered all land holdings i.e., rural and urban holdings. In urban areas, size of land holdings was restricted to only cropland area and urban agricultural households were required to have a minimum size of 250 square meters in order to be covered in the census. On the other hand, in the rural areas land use data were collected without any size limitation of land holdings.

The coverage of land use data items in rural private holdings included all the categories of land used. However, in urban private holdings, the coverage of land use data item is limited to cropland area, which includes land under temporary and permanent crops. To have consistent and comparable land use information, a standard concepts and definitions were applied for the aforementioned data items.

In the 2001/02 EASE, a number of land use data was collected based on objective and subjective methods of enumeration. That is, in rural private holdings land area was obtained by forwarding relevant questions on size of land to the holder and by objective area

measurement using compass, measuring tape and programmable calculator. On the other hand, in urban private holdings data on land area was collected subjectively by interviewing the holder /responsible operator/ in standard or metric units (in some cases, local measuring units were reported).

This chapter deals with the data on land holding for rural and urban private holdings on land use findings from the results of the agricultural census for Harari Region. It covers data on farm holdings by type and size of land holdings; population in agricultural households both in rural and urban areas of private holding that are disaggregated by size of land holdings; land area and fragmentation by type of land use and size of holding; cropland area by crop categories and finally it treats data on area under land tenure systems.

Furthermore, since Harari is a small region without zone and wereda, tables providing different regional results are presented in statistical Tables 4.1-4.7. Moreover, estimates, standard errors (SE) and coefficient of variations (CV) are given in Annex Tables 4.1-4.4.2 for some variables.

2. FARM HOLDINGS BY TYPE AND SIZE OF LAND HOLDINGS

Farm holding is referred to all land or livestock holdings, which are mainly used for both crop and livestock production. Depending on the type of activities, an agricultural holder is engaged with farm holding has been categorized into three groups. These are "crop only" (crop production), "livestock only" and " both crop and livestock" (the production of both crop and livestock). All three types of holdings are practiced in both rural and urban private holdings. Furthermore, the total area of land holdings under different uses is classified into seven-area size of holdings in hectare. The classification is given as follows:

i- Under 0.10 hectare
ii- 0.10-0.50 hectare
iii- 0.51-1.00 hectare
iv- 1.01-2.00 hectares
v- 2.01-5.00 hectares
vi- 5.01-10.00 hectares

vii- Above 10 hectares

Hence, the number of agricultural holders is disaggregated by type and previous size of land holdings. From this point of view, one can realize that the total number of farm holdings within a given size of land holding is equal in magnitude with the corresponding reported number of agricultural holders.

The total number of agricultural holders that are involved in all types of farm-holding activities and the reported land use of Harari Region was estimated to be about 14,357. Out of the total holders those who are engaged in crop production, and both crop and livestock production were estimated to be about 2406 (16.8%) and 11678 (81.3%), respectively. The result for "livestock only" production is not found to be reliable. In general, most of agricultural holders (45.8%) had a total size of land holdings that ranges from 0.10 to 0.50 hectare and followed by 28.4%of the total holders with area size of holding that fall between 0.51 and 1.00 hectare. Moreover, with regard to type of farm activities, holders that are engaged in "crop only", and "both crop and livestock production" are reported to have land holdings that ranges from 0.1 to 0.5 hectare (59.4% for " crop only") and the same 0.51 to 1.00 hectare (43.9% for mixed crop and livestock production), respectively (See Summary Table IV.1 and Figure IV.1).

In rural areas of Harari Region, the total number of agricultural holders was estimated to be 13545 (94.3%) and this total is composed of holders producing crop production (15.2%) and holders that are engaged in mixed crop and livestock production (82.8%). "Livestock only" production result is not reliable in this case too. In general, the majority of agricultural holders (45.7%) had a total size of land holdings that ranges from 0.10 to 0.50 hectare, followed by size of land holdings that fall within 0.51 to 1.00 hectare (29.6%). Similarly, agricultural holders that are involved in crop, and mixed crop and livestock production are estimated to have an area size of holdings that ranges from 0.10 to 0.50 hectare (60.8%"crop only") and the same 0.10 to 0.50 hectare (43.9% "crop and livestock production"), respectively (For details refer to Summary Table IV.1).

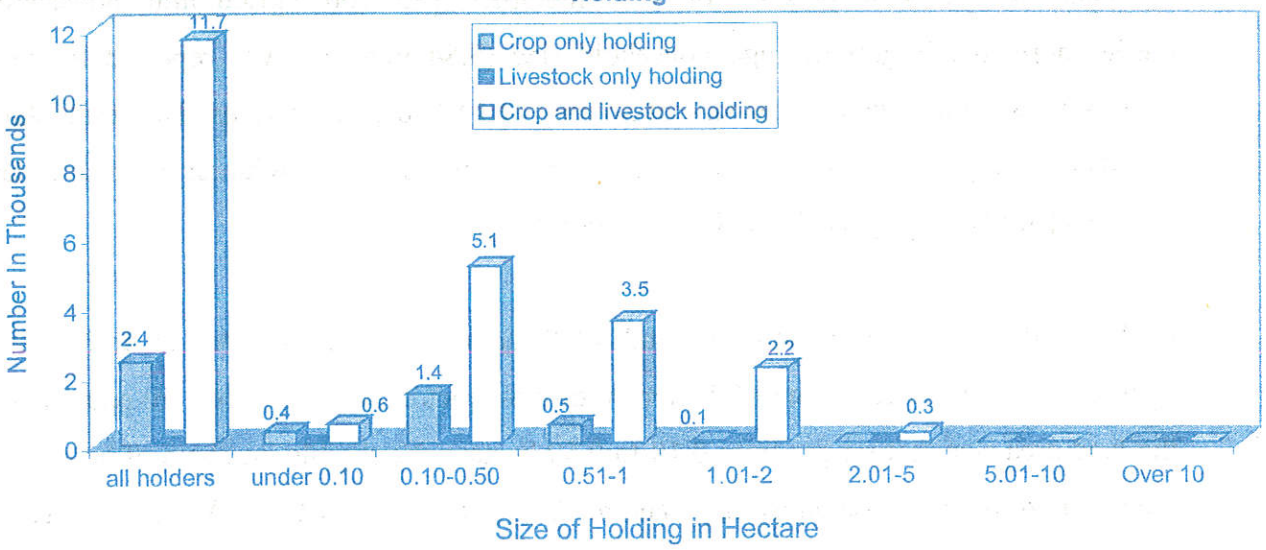
On the other hand, in urban areas of the Harari Region, the type of land use considered during the census were only crop field i.e., temporary and permanent crops. Thus, the census result indicates that 811 agricultural holders (5.7%) are reported in the urban areas of the region. Of this total, 42.9 percent are only crop growing holders while the remaining 57.1 percent are practicing mixed farming (i.e., both crop and livestock production). Most of the holders (47.5%) in the urban areas had a land holding that is between 0.1 and 0.5 hectare. Among the total 348 (42.9%) crop-producing holders, 51.2% were holders with a holding size of 0.10 to 0.50 hectare, followed by those with under 0.1hectare (43.7%). Furthermore, among holders with mixed crop and livestock production, the highest number is reported with holding size 0.1 to 0.50 hectare (44.7%) followed by holding size below 0.1 hectare (37.6%). See Summary Table IV.1.

Summary Table IV.1 Distribution Of Agricultural Holders By Type And Size Of Holdings Rural And Urban Areas For Private Holdings

Items	All Holders	Size of holding in hectare						
		Under 0.1	0.1-0.50	0.51-1.00	1.01-2.00	2.01-5.00	5.01-10	over 10
RURAL + URBAN								
All holders	14357	1177	6573	4076	2224	295	6	*
Percent..	100	8.2	45.8	28.4	15.5	2.1	0.0	*
Crop only holding	2406	351	1429	534	72	*	0	*
Percent..	16.8	14.6	59.4	22.2	3.0	*	0.0	*
Livestock only holding	*	*	*	0	0	0	0	0
Percent..	*	*	*	0.0	0.0	0.0	0.0	0.0
Crop and livestock holding	11678	571	5126	3542	2151	277	6	*
Percent..	81.3	4.9	43.9	30.3	18.4	2.4	0.1	*
RURAL								
All holders	13545	850	6188	4015	2209	283	0	0
Percent..	94.3	6.3	45.7	29.6	16.3	2.1	0.0	0.0
Crop only holding	2057	199	1251	522	*	*	0	0
Percent..	15.2	9.7	60.8	25.4	*	*	0.0	0.0
Livestock only holding	*	*	*	0	0	0	0	0
Percent..	*	*	*	0.0	0.0	0.0	0.0	0.0
Crop and livestock holding	11215	397	4918	3492	2140	267	0	0
Percent..	82.8	3.5	43.9	31.1	19.1	2.4	0.0	0.0
URBAN								
All holders	811	326	385	61	15	12	6	*
Percent..	5.7	40.2	47.5	7.5	1.9	1.5	0.7	*
Crop only holding	348	152	178	*	*	*	0	*
Percent..	42.9	43.7	51.2	*	*	*	0.0	*
Crop and livestock holding	463	174	207	50	*	*	6	*
Percent..	57.1	37.6	44.7	10.8	*	*	1.3	*

Note: *Those holders with "livestock only" reported land holding that might include grazing land, woodland or land for other purposes.*

Figure IV.1: Distribution Of Agricultural Holders By Type And Size of Holdings, For private Holding



3. POPULATION IN AGRICULTURAL HOUSEHOLDS AND SIZE OF LAND HOLDING

The census data shows that the total population in agricultural households that depend on agricultural holdings are estimated and classified by area size of holdings. However, the total area size of holdings that are associated with agricultural households does not necessarily indicate the owner of the land, since the total land holding might include other land tenure systems at the time of enumeration.

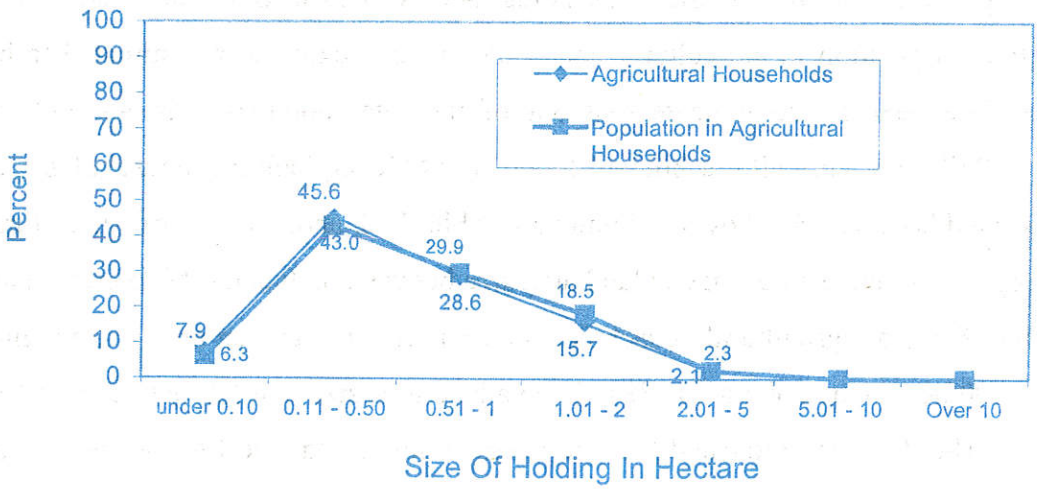
The population in agricultural households is composed of agricultural and non-agricultural holders residing within the agricultural households. As the data in Summary Table IV.2 depicts, the total population in agricultural households in the region were estimated to be about 71003. The results also indicate that out of the total population in agricultural households, 14357 were agricultural holders found in 14256 agricultural households that have reported land holding. As shown in Summary Table IV.2, about 45.6% of agricultural households reported to have an estimated land area size between 0.10 and 0.50 hectare. This is followed by 28.6% of agricultural households who reported to have an area size ranging from 0.51 to 1.00 hectare and about 15.7% to have a land area size that fall between 1.01 to 2.00 hectares. The data also indicated that the average household size for the region was

estimated to be 4.98 persons or 498 members per 100 agricultural households. Furthermore, the largest average household size (5.84 persons) was reported for those households with an average area size of holding of 1.01 to 2.00 hectares. The result shows that there is a general trend of increase in average household size with an increase in land holdings (See Summary Table IV.2 and Figure IV.2).

In the rural areas of the region, the total (66,894) population is reported to be in 13,444 agricultural households. About 45.5 percent of the agricultural households are operating on the land area size that ranges from 0.10 to 0.50 hectare. Negligible numbers of households are reported to operate on an average land holding of over 5.0 hectares. As can be observed in Summary Table IV.2, here also there is a general trend that as the land area size increases the average household size also increases. Also the average household size in the rural area is estimated to be 4.98 persons.

The contribution of urban areas to the total agricultural households and population in agricultural households is estimated to be 5.7% and 5.8%, respectively. Unlike the rural area, large numbers of urban agricultural households (about 40.2%) are reported to operate on land area size of below 0.1 hectare. Furthermore, the average household size of urban area is 5.07 persons which is higher than that reported in the rural areas (See Summary Table IV.2).

Figure IV.2: Percentage Distribution Of Population in Agricultural Households And Households By Size Of Holdings, For Private Holding



Summary Table IV.2: Distribution Of Population In Agricultural Households And Agricultural Households By Size Of Holdings In Rural And Urban Areas, For Private Holdings

Items	Size of Holding (Hectares)							
	All Holdings	Under 0.1	0.10-0.50	0.51-1.00	1.01-2.00	2.01-5.00	5.01-10.00	over 10
RURAL + URBAN								
Agricultural households.....	14256	1132	6498	4078	2242	295	6	*
Percent..	100	7.9	45.6	28.6	15.7	2.1	0.0	*
Population in Agricultural Households	71003	4459	30530	21193	13100	1662	*	*
Percent..	100	6.3	43.0	29.9	18.5	2.3	*	*
Average members per household....	4.98	3.94	4.70	5.20	5.84	5.63	*	*
RURAL								
Agricultural households.....	13444	805	6113	4016	2226	283	0	0
Percent..	94.3	6.0	45.5	29.9	16.6	2.1	0.0	0.0
Population in Agricultural Households	66894	2907	28575	20805	13015	1592	0	0
Percent..	94.2	4.4	42.7	31.1	19.5	2.4	0.0	0.0
Average members per household....	4.98	3.61	4.67	5.18	5.85	5.63	-	-
URBAN								
Agricultural households.....	811	326	385	61	15	12	6	*
Percent..	5.7	40.2	47.5	7.5	1.9	1.5	0.7	*
Population in Agricultural Households	4108	1553	1955	387	*	70	*	*
Percent..	5.8	37.8	47.6	9.4	*	1.7	*	*
Average members per household....	5.07	4.76	5.08	6.34	*	5.83	*	*

Note: *In the urban areas, the number of agricultural households, holders and all members presented in Chapter III are considered as agricultural households whether they have or do not have land holdings. Whereas in this chapter the number of agricultural households are those who reported to have land holdings. Due to this reason estimates of agricultural households, holders and all members are slightly different in these two chapters.*

4. LAND AREA AND FRAGMENTATION BY TYPE OF LAND USE AND SIZE OF HOLDING

Land area is referred to area under all private holdings. In general, the total area of a holding consists of land in the following classifications:

i. Agricultural land (that includes land under temporary as well as permanent crops, fallow land and grazing land)

ii. Woodland or forest

iii. All other land that is, unused and undeveloped potentially productive land, homestead, etc.

On the other hand, land fragmentation is the breaking down of land holdings into parts with some distance apart from one another. Land fragmentation is measured by the number of parcels that are reported in the total land holdings of a holder. In general, a parcel of a holding is any pieces of land entirely surrounded by other land, water, road, forest or other boundaries that are not part of the holding.

4.1. Land Area By Type Of Land Use

As presented in Summary Table IV.3, the total land holding area under different land uses was estimated to be about 8,944 hectares, in the region. This area is composed of 96.6% of the rural holdings and 3.4% of the urban holdings. Of this land, area under temporary crop accounted for 6,213 hectares (69.5%); land under permanent crops estimated to be 2,167 hectares (24.2%); grazing land amount to be 76 hectares (0.9%); fallow land is reported to be 171 hectares (1.9%) and land for other uses is estimated to be 251 hectares (2.8%). The result for woodland is unreliable, hence, not stated here.

The census result indicated that out of the total estimated holders (14,357) almost all (14,002) used their holding to cultivate temporary crops, which is followed by 13,446 holders who had used their holding for other land purposes. It was also reported that 12,459 holders used their land for cultivating permanent crops and 2,489 holders left their land as fallow during the census year. On the other hand, number of holders reported grazing and woodland account for about 1,040 and 1,036, respectively. In general, the regional average size of land holding per holder was estimated to be 0.62 hectare. The result also shows that the highest average size of land holding area per holder is ascribed for the cultivation of temporary crops that was estimated as 0.44 hectare and followed by permanent crops, which is about 0.17 hectare. (For details, refer to Summary Table IV.3 and Figure IV.3).

In rural private holdings, the total land area under different land uses was estimated to be 8,638 hectares contributing 96.6% to the regional total land area. Out of this total land area, the highest (69.4%) and lowest (0.9%) proportion of areas were used for cultivating temporary crops and as grazing land, respectively. The average size of land holding was

estimated to be 0.64 hectare per holder. Moreover, the highest average size of land holding per holder was reported as area under temporary crops (0.45 hectare), followed by land under permanent, which is about 0.17 hectare (See Summary Table IV.3).

Summary Table IV.3. Distribution of Area and Holders by Type of Land Use in Rural And Urban Areas, For Private Holdings

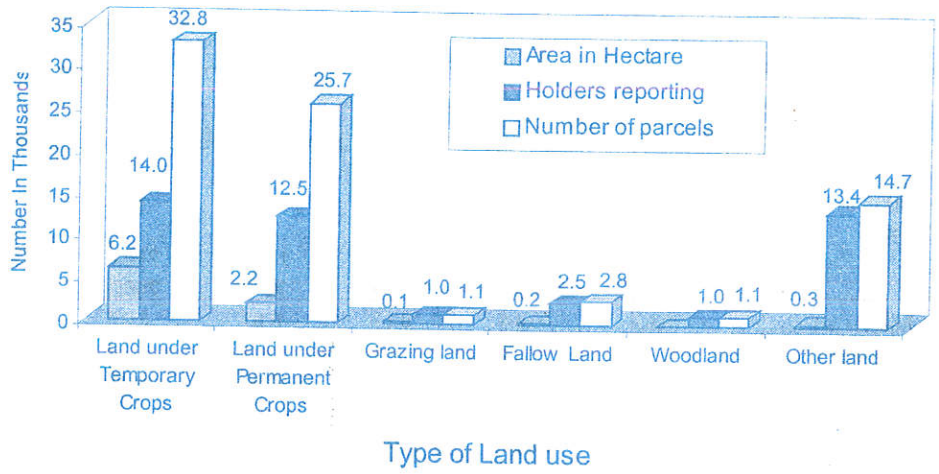
Items	Total Number	Land Area Under					
		Temporary Crops	Permanent Crops	Grazing	Fallow Land	Woodland	Other Land
RURAL + URBAN							
Area in hectares (ha)	8944	6213	2167	76	171	*	251
Percent..	100	69.5	24.2	0.9	1.9	*	2.8
All parcels	41928	32832	25713	1107	2781	1072	14739
Holders reporting	14357	14002	12459	1040	2489	1036	13446
Average area per holder (ha)	0.62	0.44	0.17	0.07	0.07	*	0.02
Average parcels per holder	3	2	2	1	1	1	1
Average area per parcel (ha)	0.21	0.19	0.08	0.07	0.06	*	0.02
RURAL							
Area in hectares (ha)	8638	5995	2078	76	171	*	251
Percent..	96.6	69.4	24.1	0.9	2.0	*	2.9
All parcels	40631	31647	25230	1107	2781	1072	14739
Holders reporting	13545	13221	12075	1040	2489	1036	13446
Average area per holder (ha)	0.64	0.45	0.17	0.07	0.07	*	0.02
Average parcels per holder	3	2	2	1	1	1	1
Average area per parcel (ha)	0.21	0.19	0.08	0.07	0.06	*	0.02
URBAN							
Area in hectares (ha)	307	217	90				
Percent..	3.4	70.7	29.3				
All parcels	1297	1185	483				
Holders reporting	811	780	384				
Average area per holder (ha)	0.38	0.28	0.23				
Average parcels per holder	2	2	1				
Average area per parcel (ha)	0.24	0.18	0.19				

Note: *The number of holders and parcels that reported under land use classification are not mutually exclusive.*

On the other hand, in urban private holdings, the total land area under both temporary and permanent crops was estimated to be 307 hectares contributing 3.4% to the regional total land area. Out of which temporary crops accounted for 217 (70.7%) hectares and permanent crops accounted for only 90 (29.3%) hectares. From the census data one can observe that the majority of urban holders in Harari Region tend to use most of their land for growing temporary crops (780), which is followed by permanent crops (384). In general, the average size of land area per holder was estimated to be 0.38 hectare. With

regards to temporary and permanent crops, average size of land holding per holder was estimated to be 0.28 hectare and 0.23 hectare, respectively (See Summary Table IV.3).

Figure IV.3: Distribution of Area, Holders and Parcels by Type of Land use, For Private Holdings



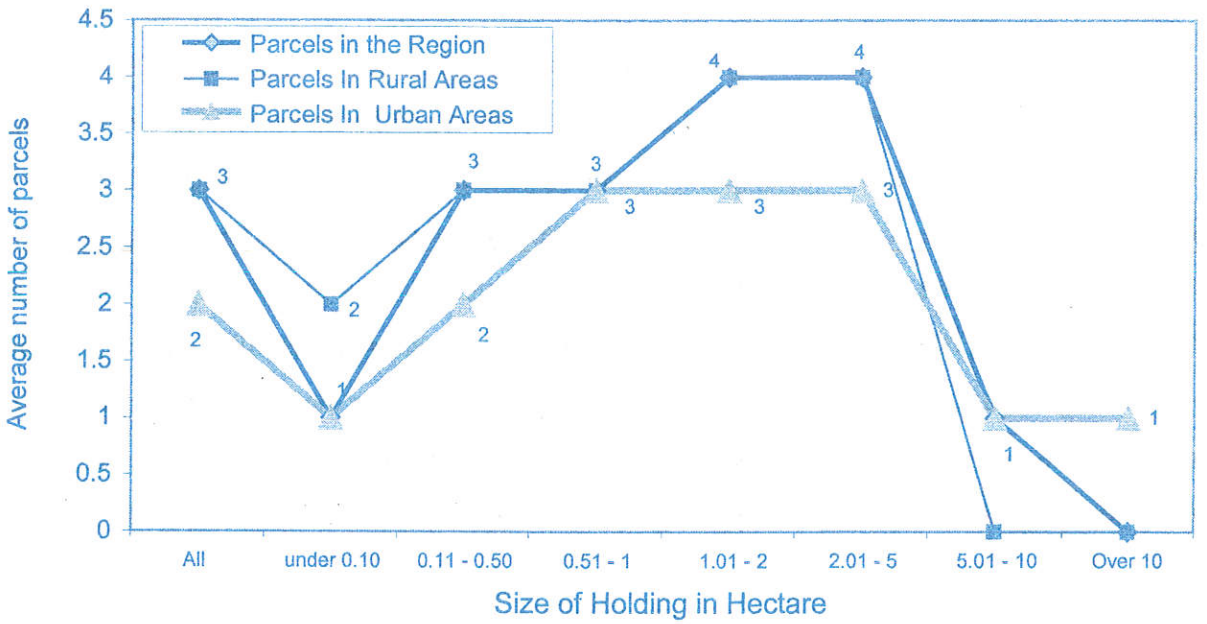
4.2. Land Fragmentation By Size Of Holding

Providing information on land fragmentation is important to show how farmers waste their valuable working time, energy and other resources when the number of parcels are many and very far apart from one another. Taking this into consideration in the 2001/2002 EASE, data on number of parcels was collected for private holding in rural and urban areas of the region. Accordingly, the census result indicates that 41,928 parcels were estimated under the total land holdings in the region, which constituted 96.9% of rural holdings and 3.1% of urban holdings. Of this total parcels, the highest and smallest number of parcels or fragmentation of land are reported in area size of holding 0.1 to 0.50 hectare (41.1%) and 5.01 to 10 hectares (0.0%), respectively. Generally, temporary and permanent crops were cultivated on 32,832 parcels and 25,713 parcels, respectively. Moreover, grazing land, fallow land, woodland and land for other purpose were found on 1,107 parcels, 2,781 parcels, 1,072 parcels and 14,739 parcels, respectively. However, the number of parcels reported by land use categories is not mutually exclusive. The average size of land area per parcel and average number of parcels per holder were estimated to be about 0.21 hectare and three parcels, respectively (See Summary Table IV.3, Summary Table IV.4 and Figure IV.4).

Summary Table IV.4. Distribution Of Parcels By Size Of Holdings In Rural And Urban Areas, For Private Holdings

Items	All Number	Size of holding in hectare						
		Under 0.1	0.1-0.50	0.51-1.00	1.01-2.00	2.01-5.0	5.01-10	over 10
RURAL + URBAN								
All parcels	41928	1758	17226	13295	8331	1307	6	*
Percent..	100	4.2	41.1	31.7	19.9	3.1	0.0	*
All holders	14357	1177	6573	4076	2224	295	6	*
All area in hectare	8944	58	1899	2969	3120	796	39	*
Average parcels per holder	3	1	3	3	4	4	1	*
Average area per parcels	0.21	0.03	0.11	0.22	0.37	0.61	6.5	*
RURAL								
All parcels	40631	1360	16587	13125	8287	1272	0	0
Percent..	96.9	3.4	40.8	32.3	20.4	3.1	0.0	0.0
All holders	13545	850	6188	4015	2209	283	0	0
All area in hectare	8638	42	1817	2929	3096	754	0	0
Average parcels per holder	3	2	3	3	4	4	-	-
Average area per parcels	0.21	0.03	0.11	0.22	0.37	0.59	-	-
URBAN								
All parcels	1297	398	639	170	44	35	6	5
Percent..	3.1	30.7	49.3	13.1	3.4	2.7	0.5	0.4
All holders	811	326	385	61	15	12	6	5
All area in hectare	307	16	82	41	25	42	39	63
Average parcels per holder	2	1	2	3	3	3	1	1
Average area per parcels	0.24	0.04	0.13	0.24	0.57	1.2	6.5	12.6

Figure IV.4: Average Number Of Parcels By Size Of Holdings In Rural And Urban Areas, For Private Holdings



In rural areas, the average number of parcels per holder was estimated at 3 parcels and the average area per parcel was 0.21 hectare. On the other hand, in urban areas, the extent of

land fragmentation is estimated and the average number of parcels per holder is found to be two while the average size of land area per parcel is 0.24 hectare. For details refer to Summary Table IV.4.

5. CROPLAND AREA BY CROP CATEGORIES

The 2001/02 (1994 E.C.) Agricultural Sample Enumeration covered the area under temporary and permanent crops in Meher/main and Belg seasons. In general, cropland area is described as part of the total land area, which comprises land under temporary and permanent crops.

5.1. Cropland Area Under Meher/Main Season

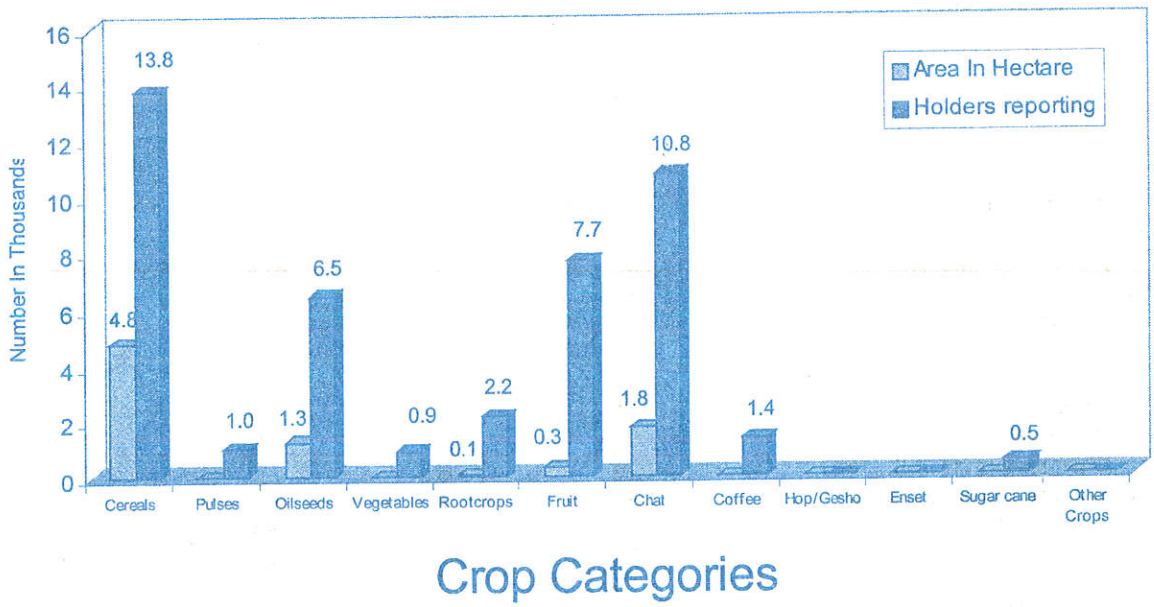
The data in Summary Table IV.5 illustrates that the total cropland area for Meher/ main season in the region was estimated to be 8,380 hectares, which consisted of 96.3% in rural and 3.7% in urban areas of private holdings. Out of the total cropland, area under temporary crops accounted to 74.1% and the remaining was the share of permanent crops. Considering the area under temporary crops, cereals, followed by oilseeds, which accounted for 77.4% and 20.4%, respectively, covered the highest proportions. Of all the area under permanent crops, chat took the largest area, which account for 1,752 hectares (80.9%) and the smallest was area under coffee, which covered about 35 hectares (1.6%). Among the total holders in the region who grows temporary crops (14,002) the largest number of holders (13,762) was cultivating cereals followed by holders (6,450) producing oilseeds. Similarly, among all holders (12,459) that are involved in growing permanent crops, the highest number (10,771) are growing chat while the lowest number of holders (502) are cultivating sugar cane. The overall average cropland area per holder in the region was estimated to be 0.6 hectare while area under temporary and permanent was estimated to be 0.44 hectare and 0.17 hectar, respectively. (See Summary Table IV.5 and Figure IV.5).

In rural areas, temporary and permanent crops contribute about 74.3% and 25.7%, for private holdings, respectively. Out of the total area under temporary crops, the largest cultivated area was under cereal crops, followed by oilseeds, which contribute about 4,625 hectares (77.2%) and 1,249 hectares (20.8%), respectively. The number of holders

producing these crops was estimated to be about 12,995 and 6,260 with corresponding average size of land area per holder of about 0.36 hectare and 0.2 hectare, respectively. (For details, refer to Summary Table IV.5).

In urban areas, the total cropland area is estimated to be 307 hectares, of which temporary crops and permanent crops accounted for 70.7% and 29.3%, for private holdings, respectively. Considering the total areas under temporary crops, cereals accounted for 186 hectares (85.7%) and the corresponding holders that cultivated cereal crops are estimated to be 767. Among land under permanent crops, chat crops took the highest cultivated area i.e., 86 hectares (95.6%) and operated by 326 holders. Unlike the rural areas, holders in urban area did not have Enset, Hops and other permanent crops (See Summary Table IV.5).

Figure IV.5: Distribution of Cropland Area And Holders By Crop Categories For Private Holdings, Meher Season



Summary Table IV.5. Distribution Of Cropland Area And Holders By Crop Categories In Rural And Urban Areas, For Private Holdings

Crop Categories	Area in Hectare		Holders Reporting	Average Area per Holder(in Hectare)
	Number	Percent		
RURAL + URBAN				
All cropland	8380		14084	0.60
All temporary crops	6213	100.0	14002	0.44
Cereals	4811	77.4	13762	0.35
Pulses	30	0.5	1013	0.03
Oilseeds	1270	20.4	6450	0.20
Vegetables	11	0.2	936	0.01
Root crops	90	1.5	2159	0.04
Other temporary	*	*	*	*
All permanent crops	2167	100.0	12459	0.17
Fruit crops	338	15.6	7680	0.04
Chat	1752	80.9	10771	0.16
Coffee	35	1.6	1363	0.03
Hops (Gesho)	*	*	*	*
Enset	*	*	*	*
Sugar cane	*	*	502	*
Other permanent	*	*	*	*
RURAL				
All cropland	8073		13273	0.61
All temporary crops	5995	100.0	13221	0.45
Cereals	4625	77.2	12995	0.36
Pulses	26	0.4	977	0.03
Oilseeds	1249	20.8	6260	0.20
Vegetables	7	0.1	871	0.01
Root crops	88	1.5	2136	0.04
Other temporary	*	*	*	*
All permanent crops	2078	25.7	12075	0.17
Fruit crops	335	100.0	7592	0.04
Chat	1666	80.2	10444	0.16
Coffee	34	1.6	1358	0.03
Hops (Gesho)	*	*	*	*
Enset	*	*	*	*
Sugar cane	*	*	501	*
Other permanent	*	*	*	*
URBAN				
All cropland	307		811	0.38
All temporary crops	217	100.0	780	0.28
Cereals	186	85.7	767	0.24
Pulses	*	*	*	*
Oilseeds	21	9.7	190	0.11
Vegetables	*	*	65	*
Root crops	*	*	23	*
Other temporary	0	0.0	0	-
All permanent crops	90	100.0	384	0.23
Fruit crops	3	3.3	88	0.03
Chat	86	95.6	326	0.26
Coffee	*	*	6	*
Hops(Gesho)	0	0.0	0	-
Enset	0	0.0	0	-
Sugar cane	*	*	*	*
Other permanent	0	0.0	0	-

Note: *Holders that reported by crop categories are not mutually exclusive.*

5.2. Cropland Area Under Belg Season

The census result indicated that in the rural private holdings about 989 hectares of land was cultivated under temporary crops during Belg season and the estimated total number of holders practicing Belg season crops were found to be 3,275. Of the total temporary cropland area, pulses took the highest share of the cultivated area (45.0%). The overall average area per holder during Belg season was estimated at 0.3 hectare (See Summary Table IV.6).

Summary Table IV.6: Area Under Crop Categories And Number Of Holders- Belg season

Type of Crop Categories	Area in Hectare		Holders reporting	Average area per holder
	Number	%		
RURAL				
All temporary crops	989	100.0	3275	0.30
Cereals	*	*	1590	*
Pulses	445	45.0	2628	0.17
Oilseeds	*	*	*	*
Vegetables	*	*	*	*
Root crops	*	*	372	*
Other temporary crops	0	0	0	-

Note: Data users should not attempt to sum up cropland area under Belg season to the total land use area since the Belg season cropland area is part of the total land use area. However, providing Belg season information in this section is to show only how the holders shift the Meher/main season cropland area, fallow land and/or any other land into Belg season. On the other hand, data on Belg season crops of the urban area was not covered in the census.

6. AREA UNDER LAND TENURE SYTEMS

Land tenure refers to the arrangements or rights under which the holder uses or owns the land of the holding. In this Agricultural Sample Census, tenure system is classified in to three categories. The first is land owned or held in owner like possession having recognition from local government/Kebele; the second is land rented from other person either in cash or proper share of the produce or other rental agreement and the third is land possession in other forms (neither owned nor rented such as land given temporarily to others without any

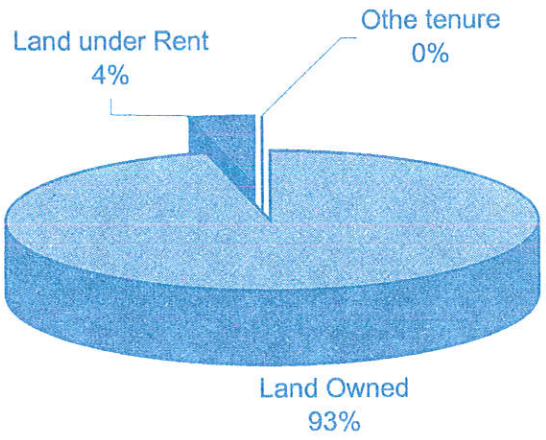
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rental agreement or any other means). Based on this concept, data on land tenure systems was collected and the result indicates that, of the total land area (8,944 hectares), land owned by the operators accounted for 8,528 hectares (95.4%) and land rented from other person accounted for 341 hectares (3.8%) in the region. Information for land obtained from other system was not reliable and hence not sited here. Of the total holders (14,357) in the region, 14,270 holders owned the land they operated, while 1,444 holders operated the land by rental agreement and 389 holders used the land in other system of tenure. The average size of area per holder by type of tenure is estimated to be 0.6 hectare (for land owned) and 0.24 hectare (for rented land). The result for other tenure in this case is also not reliable. (Refer Summary Table IV.7 and Figure IV.6).

Similarly in rural private holdings, of the total area (8,638 hectares), most of the land area was accounted to the title of ownership, which is estimated to be 8,244 hectares (95.4%) and operated by 13,522 holders. The average size of land area per holder under land owned and rented is 0.61 hectares and 0.23 hectare, respectively. While the figure for other tenure systems is not reliable (See Summary Table IV.7).

In urban private holdings, the tenure system is more or less similar to the rural except that reliable information could also be given for other tenure system. The proportion of land owned is 92.2%, that of rented land is 6.8% and other tenure system is 1.0%. On the other hand, the average size of land holding by type of tenure is estimated to be about 0.38 hectare, 0.29 hectare and 0.13hectare per holder for land owned, land under rent and land under other tenure system, respectively. In urban areas the average size of rented land area per holder (0.29 hectare) is greater than that reported in rural areas (0.23 hectare) (See Summary Table IV.7).

Figure IV.6: Percentage Distribution Of Total Area By Tenure Systems, For Private Holdings



Summary Table IV.7: Distribution of Land Area and Holders by Tenure Systems In Rural And Urban Areas, For Private Holdings

Items	All Number	Type of Land Tenure Systems		
		Land Owned	Land Rented	Other Tenure
RURAL + URBAN				
All area in hectare	8944	8528	341	*
Percent	100	95.4	3.8	*
All holder	14357	14270	1444	389
Average area per holder	0.62	0.6	0.24	*
RURAL				
All area in hectare	8638	8244	320	*
Percent	96.6	95.4	3.7	*
All holder	13545	13522	1371	365
Average area per holder	0.64	0.61	0.23	*
URBAN				
All area in hectare	307	283	21	3
Percent	3.4	92.2	6.8	1.0
All holder	811	748	73	24
Average area per holder	0.38	0.38	0.29	0.13

Note: *Since holders in each tenure systems are not mutually exclusive, holders that reported different type of land tenure systems should not be summed up to get the total number of holders.*



STATISTICAL TABLES PRESENTING RESULTS AT REGIONAL LEVEL

Tables 4.1 - 4.7

TABLE 4.1 NUMBERS OF AGRICULTURAL HOLDERS BY TYPE AND SIZE OF HOLDING

BOTH RURAL AND URBAN HOLDINGS

TYPE OF HOLDING	All Number	Number of holders by size of holdings (In hectares)						
		Under 0.10	0.1 - 0.50	0.51 - 1.00	1.01 - 2.00	2.01 - 5.00	5.01 - 10	Over 10
All	14357	1177	6573	4076	2224	295	6	*
Crop Only	2406	351	1429	534	72	*	-	*
Livestock Only	*	*	*	-	-	-	-	-
Crop and Livestock	11678	571	5126	3542	2151	277	6	*

TABLE 4.1.1 RURAL HOLDINGS

TYPE OF HOLDING	All Number	Number of holders by size of holdings (In hectares)						
		Under 0.10	0.1 - 0.50	0.51 - 1.00	1.01 - 2.00	2.01 - 5.00	5.01 - 10	Over 10
All	13545	850	6188	4015	2209	283	-	-
Crop Only	2057	199	1251	522	*	*	-	-
Livestock Only	*	*	*	-	-	-	-	-
Crop and Livestock	11215	397	4918	3492	2140	267	-	-

TABLE 4.1.2 URBAN HOLDINGS

TYPE OF HOLDING	All Number	Number of holders by size of holdings (In hectares)						
		Under 0.10	0.1 - 0.50	0.51 - 1.00	1.01 - 2.00	2.01 - 5.00	5.01 - 10	Over 10
All	811	326	385	61	15	12	6	*
Crop Only	348	152	178	*	*	*	-	*
Crop and Livestock	463	174	207	50	*	*	6	*

TABLE 4.2 NUMBERS OF AGRICULTURAL HOUSEHOLD MEMBERS AND AGRICULTURAL HOOUSEHOLDS BY SIZE OF HOLDING

BOTH RURAL AND URBAN HOLDINGS

Size of Holdings	All		Number of Households				
	Number of Members	Number of Household s	Households with One Member	Households with 2-3 Members	Households with 4-5 Members	Households with 6-9 Members	Households with 10 or More Members
All Holdings	71003	14256	462	3659	4846	4795	493
Under 0.10 Hectare	4459	1132	97	422	445	157	*
0.10 – 0.50 Hectare	30530	6498	299	1913	2057	2037	192
0.51 – 1.00 Hectare	21193	4078	*	789	1633	1471	138
1.01 – 2.00 Hectares	13100	2242	*	450	649	991	133
2.01 – 5.00 Hectares	1662	295	*	*	*	133	*
5.01 – 10.00 Hectares	*	6	-	*	*	*	-
Over 10 Hectares	*	*	-	*	-	*	-

TABLE 4.2.1 RURAL HOLDINGS

Size of Holdings	All		Number of Households				
	Number of Members	Number of Household s	Households with One Member	Households with 2-3 Members	Households with 4-5 Members	Households with 6-9 Members	Households with 10 or More Members
All Holdings	66894	13444	430	3450	4583	4528	454
Under 0.10 Hectare	2907	805	85	322	335	*	-
0.10 – 0.50 Hectare	28575	6113	280	1825	1920	1916	173
0.51 – 1.00 Hectare	20805	4016	*	779	1622	1438	131
1.01 – 2.00 Hectares	13015	2226	*	447	645	984	133
2.01 – 5.00 Hectares	1592	283	-	*	*	*	*
5.01 – 10.00 Hectares	-	-	-	-	-	-	-
Over 10 Hectares	-	-	-	-	-	-	-

TABLE 4.2.2 URBAN HOLDINGS

Size of Holdings	All		Number of Households				
	Number of Members	Number of Household s	Households with One Member	Households with 2-3 Members	Households with 4-5 Members	Households with 6-9 Members	Households with 10 or More Members
All Holdings	4108	811	33	210	263	267	39
Under 0.10 Hectare	1553	326	12	100	110	94	*
0.10 – 0.50 Hectare	1955	385	19	88	136	122	19
0.51 – 1.00 Hectare	387	61	-	*	11	33	*
1.01 – 2.00 Hectares	*	15	-	*	*	*	-
2.01 – 5.00 Hectares	70	12	*	*	-	*	*
5.01 – 10.00 Hectares	*	6	-	*	*	*	-
Over 10 Hectares	*	*	-	*	-	*	-

TABLE 4.3. NUMBER OF HOLDERS, AREA OF HOLDING AND NUMBER OF PARCELS BY LAND USE AND SIZE OF HOLDING

BOTH RURAL AND URBAN HOLDINGS

Land Use By Size Of Holdings	Number Of Holders	Holding Area in Hectares	Number Of Parcels
Holdings Of All Sizes			
All	14357	8944	41928
Land Under Temporary Crops	14002	6213	32832
Land Under Permanent Crops	12459	2167	25713
Grazing Land	1040	76	1107
Fallow Land	2489	171	2781
Woodland	1036	*	1072
All Other Land	13446	251	14739
Holdings Under 0.10 Hectares Sizes			
All	1177	58	1758
Land Under Temporary Crops	895	37	1117
Land Under Permanent Crops	540	14	663
Grazing Land	*	*	*
Fallow Land	*	*	*
Woodland	-	-	-
All Other Land	805	6	824
Holdings Of 0.10-0.50 Hectares Sizes			
All	6573	1899	17226
Land Under Temporary Crops	6535	1246	13546
Land Under Permanent Crops	5658	520	10367
Grazing Land	186	6	202
Fallow Land	817	30	865
Woodland	366	9	366
All Other Land	6150	88	6517
Holdings Of 0.51-1.00 Hectares Sizes			
All	4076	2969	13295
Land Under Temporary Crops	4043	2078	10666
Land Under Permanent Crops	3814	723	8617
Grazing Land	315	14	333
Fallow Land	968	59	1068
Woodland	486	17	509
All Other Land	3999	78	4479
Holdings Of 1.01-2.00 Hectares Sizes			
All	2224	3120	8331
Land Under Temporary Crops	2224	2243	6559
Land Under Permanent Crops	2150	702	5350
Grazing Land	423	41	439
Fallow Land	583	66	709
Woodland	129	*	141
All Other Land	2209	63	2590
Holdings Of 2.01-5.00 Hectares Sizes			
All	295	796	1307
Land Under Temporary Crops	295	569	934
Land Under Permanent Crops	288	147	706
Grazing Land	*	*	*
Fallow Land	*	*	*
Woodland	*	*	*
All Other Land	283	*	329
Holdings Of 5.01-10.00 Hectares			
All	6	39	6
Land Under Temporary Crops	6	*	6
Land Under Permanent Crops	*	*	*
Grazing Land	-	-	-
Fallow Land	-	-	-
Woodland	-	-	-
All Other Land	-	-	-
Holdings Over 10.00 Hectares			
All	*	*	*
Land Under Temporary Crops	*	*	*
Land Under Permanent Crops	*	*	*
Grazing Land	-	-	-
Fallow Land	-	-	-
Woodland	-	-	-
All Other Land	-	-	-

TABLE 4.3.1 RURAL HOLDINGS

Land Use By Size Of Holdings	Number Of Holders	Holding Area in Hectares	Number Of Parcels
Holdings Of All Sizes			
All	13545	8638	40631
Land Under Temporary Crops	13221	5995	31647
Land Under Permanent Crops	12075	2078	25230
Grazing Land	1040	76	1107
Fallow Land	2489	171	2781
Woodland	1036	*	1072
All Other Land	13446	251	14739
Holdings Under 0.10 Hectares Sizes			
All	850	42	1360
Land Under Temporary Crops	596	22	761
Land Under Permanent Crops	449	12	563
Grazing Land	*	*	*
Fallow Land	*	*	*
Woodland	-	-	-
All Other Land	805	6	824
Holdings Of 0.10-0.50 Hectares Sizes			
All	6188	1817	16587
Land Under Temporary Crops	6152	1175	12956
Land Under Permanent Crops	5438	508	10106
Grazing Land	186	6	202
Fallow Land	817	30	865
Woodland	366	9	366
All Other Land	6150	88	6517
Holdings Of 0.51-1.00 Hectares Sizes			
All	4015	2929	13125
Land Under Temporary Crops	3981	2045	10506
Land Under Permanent Crops	3764	716	8540
Grazing Land	315	14	333
Fallow Land	968	59	1068
Woodland	486	17	509
All Other Land	3999	78	4479
Holdings Of 1.01-2.00 Hectares Sizes			
All	2209	3096	8287
Land Under Temporary Crops	2209	2222	6517
Land Under Permanent Crops	2140	698	5333
Grazing Land	423	41	439
Fallow Land	583	66	709
Woodland	129	*	141
All Other Land	2209	63	2590
Holdings Of 2.01-5.00 Hectares Sizes			
All	283	754	1272
Land Under Temporary Crops	283	531	906
Land Under Permanent Crops	283	143	687
Grazing Land	*	*	*
Fallow Land	*	*	*
Woodland	*	*	*
All Other Land	283	*	329
Holdings Of 5.01-10.00 Hectares			
All	-	-	-
Land Under Temporary Crops	-	-	-
Land Under Permanent Crops	-	-	-
Grazing Land	-	-	-
Fallow Land	-	-	-
Woodland	-	-	-
All Other Land	-	-	-
Holdings Over 10.00 Hectares			
All	-	-	-
Land Under Temporary Crops	-	-	-
Land Under Permanent Crops	-	-	-
Grazing Land	-	-	-
Fallow Land	-	-	-
Woodland	-	-	-
All Other Land	-	-	-

TABLE 4.3.2 URBAN HOLDINGS

Land Use By Size Of Holdings	Number Of Holders	Holding Area in Hectares	Number Of Parcels
Holdings Of All Sizes			
All	811	307	1297
Land Under Temporary Crops	780	217	1185
Land Under Permanent Crops	384	90	483
Holdings Under 0.10 Hectares Sizes			
All	326	16	398
Land Under Temporary Crops	298	15	355
Land Under Permanent Crops	91	1	100
Holdings Of 0.10-0.50 Hectares Sizes			
All	385	82	639
Land Under Temporary Crops	384	71	590
Land Under Permanent Crops	220	11	261
Holdings Of 0.51-1.00 Hectares Sizes			
All	61	41	170
Land Under Temporary Crops	61	33	160
Land Under Permanent Crops	50	8	77
Holdings Of 1.01-2.00 Hectares Sizes			
All	15	25	44
Land Under Temporary Crops	15	21	42
Land Under Permanent Crops	9	4	17
Holdings Of 2.01-5.00 Hectares Sizes			
All	12	42	35
Land Under Temporary Crops	12	38	28
Land Under Permanent Crops	5	4	19
Holdings Of 5.01-10.00 Hectares			
All	6	39	6
Land Under Temporary Crops	6	23	6
Land Under Permanent Crops	4	15	4
Holdings Over 10.00 Hectares			
All	5	63	5
Land Under Temporary Crops	4	16	4
Land Under Permanent Crops	5	47	5

TABLE 4.4 NUMBER OF HOLDERS AND AREA OF HOLDING BY TYPE OF CROP AND SIZE OF HOLDING

BOTH RURAL AND URBAN HOLDINGS

Type of Crop	Number Of Holders Reporting	All Area In Hectare	Area By Size Of Holdings (In Hectare)						
			Under 0.10	0.1 - 0.50	0.51 - 1.00	1.01 - 2.00	2.01 - 5.00	5.01 - 10	Over 10
Total Cropland	14084	8380	71	1860	2901	2823	623	39	*
Temporary Crops	14002	6213	47	1317	2161	2157	490	*	*
Grain Crops	13947	6112	45	1284	2135	2124	484	*	*
Cereals	13762	4811	42	1066	1667	1690	307	*	*
Barley	445	20	*	9	*	*	*	-	-
Maize	9311	765	21	224	207	190	100	*	*
Millet	*	*	*	-	*	-	*	-	-
Oats/'Aja'	*	*	-	*	*	*	-	-	-
Rice	*	*	-	*	-	-	-	-	-
Sorghum	12899	3916	19	797	1417	1463	204	*	*
Teff	*	*	-	*	*	-	-	-	-
Wheat	1610	105	*	34	33	34	*	-	-
Pulses	1013	30	*	9	11	4	*	-	-
Chick Peas	334	*	*	*	*	*	*	-	-
Fenugreek	*	*	-	-	*	*	-	-	-
Field Peas	*	*	-	*	*	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Haricot beans	438	13	*	2	7	4	-	-	-
Horse beans	90	1	-	*	*	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Other Pulses	-	-	-	-	-	-	-	-	-
Oilseeds	6450	1270	3	208	457	429	*	-	-
Groundnuts	6435	1260	3	206	456	426	*	-	-
Linseed	-	-	-	-	-	-	-	-	-
Neug	-	-	-	-	-	-	-	-	-
Rape seed	-	-	-	-	-	-	-	-	-
Sesame	192	*	-	*	*	*	*	-	-
Sufflower	-	-	-	-	-	-	-	-	-
Other Grains	*	*	-	*	-	-	-	-	-
Vegetables	936	11	1	5	4	1	-	-	-
Head Cabbage	*	*	-	-	*	-	-	-	-
Green peppers	*	*	-	*	-	*	-	-	-
Ethiopian	61	*	*	*	*	*	-	-	-
Lettuce	33	*	*	*	*	-	-	-	-
Red peppers	*	*	*	-	-	*	-	-	-
Swiss chard	*	*	*	*	*	-	-	-	-
Tomatoes	-	-	-	-	-	-	-	-	-
Other vegetables	775	6	*	3	2	*	-	-	-
Root Crops	2159	90	*	28	22	32	*	-	-
Beet root	*	*	-	*	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Garlic	-	-	-	-	-	-	-	-	-
Taro/'Godere'	-	-	-	-	-	-	-	-	-
Onion	*	*	-	-	-	*	-	-	-
Potatoes	421	*	*	*	*	*	-	-	-
Sweet Potatoes	1721	63	*	21	16	19	*	-	-
Other root	*	*	-	*	*	-	-	-	-
Permanent Crops	12459	2167	24	543	739	666	133	*	*
Fruit crops	7680	338	2	68	106	123	*	-	-
Avocados	*	*	-	*	*	*	-	-	-
Bananas	1029	12	*	3	*	*	-	-	-
Guavas	2535	69	*	15	18	35	*	-	-
Lemons	324	2	-	1	*	*	*	-	-
Mangoes	4507	199	1	34	67	71	25	-	-
Oranges	146	*	-	*	*	*	*	-	-
Papayas	1914	40	*	12	5	*	*	-	-
Pineapples	-	-	-	-	-	-	-	-	-
Other fruits	1099	14	*	4	5	*	*	-	-
Stimulant crops	11021	1790	22	473	620	519	93	*	*
Chat	10771	1752	21	464	607	509	90	*	*
Coffee	1363	35	*	9	13	7	*	-	-
Hops/'Gesho'	*	*	-	-	-	*	-	-	-
Other stimulants	-	-	-	-	-	-	-	-	-
Other permanent	649	39	-	*	*	*	*	-	-
Enset	*	*	-	*	*	-	-	-	-
Sugar Cane	502	*	-	-	*	*	*	-	-
Other s	*	*	-	*	*	*	-	-	-

TABLE 4.4.1 RURAL HOLDINGS

Type of Crop	Number Of Holders Reporting	All Area In Hectare	Area By Size Of Holdings (In Hectare)						
			Under 0.10	0.1 - 0.50	0.51 - 1.00	1.01 - 2.00	2.01 - 5.00	5.01 - 10	Over 10
Total Cropland	13273	8073	56	1778	2860	2798	581	-	-
Temporary Crops	13221	5995	33	1247	2128	2136	452	-	-
Grain Crops	13179	5900	31	1215	2104	2103	448	-	-
Cereals	12995	4625	29	1007	1639	1671	279	-	-
Barley	431	18	-	9	*	*	-	-	-
Maize	8726	668	14	200	195	176	*	-	-
Millet	*	*	-	-	*	*	-	-	-
Oats/'Aja'	*	*	-	*	*	*	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Sorghum	12374	3835	14	763	1404	1457	197	-	-
Teff	*	*	-	-	*	-	-	-	-
Wheat	1570	100	*	34	31	34	*	-	-
Pulses	977	26	*	8	10	*	*	-	-
Chick Peas	334	*	*	*	*	*	-	-	-
Fenugreek	*	*	-	-	*	*	-	-	-
Field Peas	*	*	-	*	*	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Haricot beans	411	11	*	*	6	*	-	-	-
Horse beans	*	*	-	*	*	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Other Pulses	-	-	-	-	-	-	-	-	-
Oilseeds	6260	1249	*	200	455	429	*	-	-
Groundnuts	6245	1240	*	198	453	426	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Neug	-	-	-	-	-	-	-	-	-
Rape seed	-	-	-	-	-	-	-	-	-
Sesame	192	*	-	*	*	*	*	-	-
Sufflower	*	*	-	*	-	-	-	-	-
Other Grains	*	*	-	*	-	-	-	-	-
Vegetables	871	7	*	3	2	1	-	-	-
Head Cabbage	*	*	-	*	*	*	-	-	-
Green peppers	*	*	-	*	-	-	-	-	-
Ethiopian	-	-	-	-	-	-	-	-	-
Lettuce	-	-	-	-	-	-	-	-	-
Red peppers	*	*	*	-	-	*	-	-	-
Swiss chard	-	-	-	-	-	-	-	-	-
Tomatoes	-	-	-	-	-	-	-	-	-
Other vegetables	775	6	*	3	2	*	-	-	-
Root Crops	2136	88	*	28	22	32	*	-	-
Beet root	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Garlic	-	-	-	-	-	-	-	-	-
Taro/'Godere'	-	-	-	-	-	-	-	-	-
Onion	-	-	-	-	-	-	-	-	-
Potatoes	420	*	*	*	*	*	-	-	-
Sweet Potatoes	1703	61	*	21	16	18	*	-	-
Other root	*	*	-	*	*	-	-	-	-
Permanent Crops	12075	2078	23	532	732	662	129	-	-
Fruit crops	7592	335	2	67	105	122	*	-	-
Avocados	*	*	-	*	*	*	-	-	-
Bananas	1014	11	*	3	*	*	-	-	-
Guavas	2507	69	*	15	18	35	*	-	-
Lemons	324	2	-	1	*	*	-	-	-
Mangoes	4470	198	1	34	67	71	25	-	-
Oranges	146	*	-	*	*	*	*	-	-
Papayas	1884	*	*	11	5	*	*	-	-
Pineapples	-	-	-	-	-	-	-	-	-
Other fruits	1088	13	*	4	5	*	*	-	-
Stimulant crops	10692	1704	21	463	613	516	90	-	-
Chat	10444	1666	20	453	600	506	*	-	-
Coffee	1358	34	*	9	13	7	*	-	-
Hops/'Gesho'	*	*	-	-	-	*	-	-	-
Other	-	-	-	-	-	-	-	-	-
Other permanent	648	39	-	*	*	*	-	-	-
Enset	*	*	-	*	*	-	-	-	-
Sugar Cane	501	*	-	*	*	*	-	-	-
Other s	*	*	-	*	*	*	-	-	-

TABLE 4.4.2 URBAN HOLDINGS

Type of crop	Number Of Holders Reporting	All Area In Hectare	Area By Size Of Holdings (In Hectare)						
			Less Than 0.10	0.1 - 0.50	0.51 - 1.00	1.01 - 2.00	2.01 - 5.00	5.01 - 10	Over 10
Total Cropland	811	307	16	82	41	25	42	39	*
Temporary Crops	780	217	15	71	33	21	38	*	*
Grain Crops	768	211	14	69	31	21	37	*	*
Cereals	767	186	13	59	27	19	28	*	*
Barley	14	*	*	*	*	-	*	-	-
Maize	585	98	7	24	12	*	*	*	*
Millet	*	*	*	-	-	-	-	-	-
Oats/'Aja'	-	-	-	-	-	-	-	-	-
Rice	*	*	-	*	-	-	-	-	-
Sorghum	524	82	6	34	13	*	*	*	*
Teff	-	-	-	-	-	-	-	-	-
Wheat	40	5	*	1	*	*	*	-	-
Pulses	*	*	*	*	*	*	-	-	-
Chick Peas	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Field Peas	*	*	-	*	*	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Haricot beans	*	*	*	*	*	*	-	-	-
Horse beans	*	*	-	*	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Other Pulses	-	-	-	-	-	-	-	-	-
Oilseeds	190	21	*	9	*	-	*	-	-
Groundnuts	190	21	*	9	*	-	*	-	-
Linseed	-	-	-	-	-	-	-	-	-
Neug	-	-	-	-	-	-	-	-	-
Rape seed	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Sufflower	-	-	-	-	-	-	-	-	-
Other Grains	-	-	-	-	-	-	-	-	-
Vegetables	65	*	*	*	*	*	-	-	-
Head Cabbage	-	-	-	-	-	-	-	-	-
Green peppers	-	-	-	-	-	-	-	-	-
Ethiopian	61	*	*	1	*	*	-	-	-
Lettuce	33	*	*	*	*	*	-	-	-
Red peppers	-	-	-	-	-	-	-	-	-
Swiss chard	*	*	*	*	*	-	-	-	-
Tomatoes	-	-	-	-	-	-	-	-	-
Other vegetables	-	-	-	-	-	-	-	-	-
Root Crops	23	*	*	*	*	*	*	-	-
Beet root	*	*	*	*	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Garlic	-	-	-	-	-	-	-	-	-
Taro/'Godere'	-	-	-	-	-	-	-	-	-
Onion	*	*	-	-	-	*	-	-	-
Potatoes	*	*	-	*	-	-	-	-	-
Sweet Potatoes	18	*	*	*	*	*	*	-	-
Other root	-	-	-	-	-	-	-	-	-
Permanent Crops	384	90	1	11	8	4	*	*	*
Fruit crops	88	3	*	1	*	*	*	-	-
Avocados	*	*	-	-	-	*	-	-	-
Bananas	15	*	*	*	*	*	-	-	-
Guavas	28	*	*	*	*	-	*	-	-
Lemons	-	-	-	-	-	-	-	-	-
Mangoes	37	*	*	*	*	*	-	-	-
Oranges	-	-	-	-	-	-	-	-	-
Papayas	30	*	*	*	*	*	*	-	-
Pineapples	-	-	-	-	-	-	-	-	-
Other fruits	11	*	*	*	-	*	*	-	-
Stimulant crops	329	87	1	10	7	*	*	*	*
Chat	326	86	1	10	7	*	*	*	*
Coffee	6	*	*	*	-	-	*	-	-
Hops/'Gesho'	-	-	-	-	-	-	-	-	-
Other stimulants	-	-	-	-	-	-	-	-	-
Other permanent	*	*	-	-	-	-	*	-	-
Enset	-	-	-	-	-	-	-	-	-
Sugar Cane	*	*	-	-	-	-	*	-	-
Other s	-	-	-	-	-	-	-	-	-

TABLE 4.5 NUMBER OF HOLDERS UNDER ALL LAND TENURE SYSTEMS BY LAND USE AND SIZE OF HOLDING

BOTH RURAL AND URBAN HOLDINGS

Land Use By Size of Holding	All Holders	Number of Holders By Type of Land Tenures		
		Land Owned	Land Rented	Other Tenure
Holdings Of All Sizes				
All	14357	14270	1444	389
Land Under Temporary Crops	14002	13764	1403	260
Land under Permanent Crops	12459	12293	691	*
Grazing Land	1040	998	*	*
Fallow Land	2489	2423	*	*
Woodland	1036	1036	-	*
All Other Land	13446	13351	*	125
Holdings Under 0.10 Hectares Sizes				
All	1177	1144	25	*
Land Under Temporary Crops	895	859	23	*
Land under Permanent Crops	540	537	*	-
Grazing Land	*	*	-	*
Fallow Land	*	*	-	-
Woodland	-	-	-	-
All Other Land	805	805	-	-
Holdings Of 0.10-0.50 Hectares Sizes				
All	6573	6551	668	169
Land Under Temporary Crops	6535	6410	663	125
Land under Permanent Crops	5658	5585	311	*
Grazing Land	186	186	-	-
Fallow Land	817	817	-	-
Woodland	366	366	-	-
All Other Land	6150	6105	-	*
Holdings Of 0.51-1.00 Hectares Sizes				
All	4076	4069	500	*
Land Under Temporary Crops	4043	3990	465	*
Land under Permanent Crops	3814	3751	258	*
Grazing Land	315	315	-	-
Fallow Land	968	926	*	*
Woodland	486	486	-	*
All Other Land	3999	3985	*	*
Holdings Of 1.01-2.00 Hectares Sizes				
All	2224	2199	222	*
Land Under Temporary Crops	2224	2199	222	*
Land under Permanent Crops	2150	2125	117	-
Grazing Land	423	399	*	-
Fallow Land	583	560	*	-
Woodland	129	129	-	-
All Other Land	2209	2172	*	*
Holdings Of 2.01-5.00 Hectares Sizes				
All	295	295	*	-
Land Under Temporary Crops	295	295	*	-
Land under Permanent Crops	288	287	*	-
Grazing Land	*	*	-	-
Fallow Land	*	*	-	-
Woodland	*	*	-	-
All Other Land	283	283	-	-
Holdings Of 5.01-10.00 Hectares				
All	6	6	-	-
Land Under Temporary Crops	6	6	-	-
Land under Permanent Crops	*	*	-	-
Grazing Land	-	-	-	-
Fallow Land	-	-	-	-
Woodland	-	-	-	-
All Other Land	-	-	-	-
Holdings Over 10.00 Hectares				
All	*	*	-	-
Land Under Temporary Crops	*	*	-	-
Land under Permanent Crops	*	*	-	-
Grazing Land	-	-	-	-
Fallow Land	-	-	-	-
Woodland	-	-	-	-
All Other Land	-	-	-	-

TABLE 4.5.1 RURAL HOLDINGS

Land Use By Size of Holding	All Holders	Number of Holders By Type of Land Tenures		
		Land Owned	Land Rented	Other Tenure
Holdings Of All Sizes				
All	13545	13522	1371	365
Land Under Temporary Crops	13221	13051	1337	236
Land under Permanent Crops	12075	11927	670	*
Grazing Land	1040	998	*	*
Fallow Land	2489	2423	*	*
Woodland	1036	1036	-	*
All Other Land	13446	13351	*	125
Holdings Under 0.10 Hectares				
All	850	850	-	*
Land Under Temporary Crops	596	596	-	-
Land under Permanent Crops	449	449	-	-
Grazing Land	*	*	-	*
Fallow Land	*	*	-	-
Woodland	-	-	-	-
All Other Land	805	805	-	-
Holdings Of 0.10-0.50 Hectares				
All	6188	6188	638	162
Land Under Temporary Crops	6152	6050	638	118
Land under Permanent Crops	5438	5374	298	*
Grazing Land	186	186	-	-
Fallow Land	817	817	-	-
Woodland	366	366	-	-
All Other Land	6150	6105	-	*
Holdings Of 0.51-1.00 Hectares				
All	4015	4015	489	*
Land Under Temporary Crops	3981	3936	455	*
Land under Permanent Crops	3764	3703	256	*
Grazing Land	315	315	-	-
Fallow Land	968	926	*	*
Woodland	486	486	-	*
All Other Land	3999	3985	*	*
Holdings Of 1.01-2.00 Hectares				
All	2209	2186	216	*
Land Under Temporary Crops	2209	2186	216	*
Land under Permanent Crops	2140	2117	116	-
Grazing Land	423	399	*	-
Fallow Land	583	560	*	-
Woodland	129	129	-	-
All Other Land	2209	2172	*	*
Holdings Of 2.01-5.00 Hectares				
All	283	283	*	-
Land Under Temporary Crops	283	283	*	-
Land under Permanent Crops	283	283	-	-
Grazing Land	*	*	-	-
Fallow Land	*	*	-	-
Woodland	*	*	-	-
All Other Land	283	283	-	-
Holdings Of 5.01-10.00 Hectares				
All	-	-	-	-
Land Under Temporary Crops	-	-	-	-
Land under Permanent Crops	-	-	-	-
Grazing Land	-	-	-	-
Fallow Land	-	-	-	-
Woodland	-	-	-	-
All Other Land	-	-	-	-
Holdings Over 10.00 Hectares				
All	-	-	-	*
Land Under Temporary Crops	-	-	-	-
Land under Permanent Crops	-	-	-	-
Grazing Land	-	-	-	-
Fallow Land	-	-	-	-
Woodland	-	-	-	-
All Other Land	-	-	-	*

TABLE 4.5.2 URBAN HOLDINGS

Land Use By Size of Holding	All Holders	Number of Holders By Type of Land Tenures		
		Land Owned	Land Rented	Other Tenure
Holdings Of All Sizes				
All	811	748	73	24
Land Under Temporary Crops	780	712	66	24
Land under Permanent Crops	384	367	21	-
Holdings Under 0.10 Hectares Sizes				
All	326	294	25	*
Land Under Temporary Crops	298	263	23	*
Land under Permanent Crops	91	87	*	-
Holdings Of 0.10-0.50 Hectares Sizes				
All	385	363	30	7
Land Under Temporary Crops	384	359	25	7
Land under Permanent Crops	220	211	13	-
Holdings Of 0.51-1.00 Hectares Sizes				
All	61	54	11	*
Land Under Temporary Crops	61	54	11	*
Land under Permanent Crops	50	48	*	-
Holdings Of 1.01-2.00 Hectares Sizes				
All	15	14	*	-
Land Under Temporary Crops	15	14	*	-
Land under Permanent Crops	9	8	*	-
Holdings Of 2.01-5.00 Hectares Sizes				
All	12	12	*	-
Land Under Temporary Crops	12	12	*	-
Land under Permanent Crops	5	*	*	-
Holdings Of 5.01-10.00 Hectares				
All	6	6	-	-
Land Under Temporary Crops	6	6	-	-
Land under Permanent Crops	*	*	-	-
Holdings Over 10.00 Hectares				
All	*	*	-	-
Land Under Temporary Crops	*	*	-	-
Land under Permanent Crops	*	*	-	-

TABLE 4.6. AREA OF HOLDINGS UNDER ALL LAND TENURE SYSTEMS BY LAND USE AND SIZE OF HOLDING

BOTH RURAL AND URBAN HOLDINGS

Land Use By Size of Holding	Total Area	Area In Hectares By Type of Land Tenures		
		Land Owned	Land Rented	Other Tenure
Holdings Of All Sizes				
All	8944	8528	341	*
Land Under Temporary Crops	6213	5885	268	*
Land under Permanent Crops	2167	2086	68	*
Grazing Land	76	74	*	*
Fallow Land	171	168	*	*
Woodland	*	*	-	*
All Other Land	251	248	*	*
Holdings Under 0.10 Hectares Sizes				
All	58	55	1	*
Land Under Temporary Crops	37	35	1	*
Land under Permanent Crops	14	14	*	-
Grazing Land	*	*	-	*
Fallow Land	*	*	-	-
Woodland	-	-	-	-
All Other Land	6	6	-	-
Holdings Of 0.10-0.50 Hectares Sizes				
All	1899	1792	94	13
Land Under Temporary Crops	1246	1154	81	11
Land under Permanent Crops	520	505	13	*
Grazing Land	6	6	-	-
Fallow Land	30	30	-	-
Woodland	9	9	-	-
All Other Land	88	88	-	*
Holdings Of 0.51-1.00 Hectares Sizes				
All	2969	2812	107	*
Land Under Temporary Crops	2078	1957	84	*
Land under Permanent Crops	723	689	23	*
Grazing Land	14	14	-	-
Fallow Land	59	58	*	*
Woodland	17	16	-	*
All Other Land	78	77	*	*
Holdings Of 1.01-2.00 Hectares Sizes				
All	3120	2991	118	*
Land Under Temporary Crops	2243	2148	85	*
Land under Permanent Crops	702	672	*	-
Grazing Land	41	40	*	-
Fallow Land	66	64	*	-
Woodland	*	*	-	-
All Other Land	63	62	*	*
Holdings Of 2.01-5.00 Hectares Sizes				
All	796	776	*	-
Land Under Temporary Crops	569	552	*	-
Land under Permanent Crops	147	144	*	-
Grazing Land	*	*	-	-
Fallow Land	*	*	-	-
Woodland	*	*	-	-
All Other Land	*	*	-	-
Holdings Of 5.01-10.00 Hectares				
All	39	39	-	-
Land Under Temporary Crops	*	*	-	-
Land under Permanent Crops	*	*	-	-
Grazing Land	-	-	-	-
Fallow Land	-	-	-	-
Woodland	-	-	-	-
All Other Land	-	-	-	-
Holdings Over 10.00 Hectares				
All	*	*	-	-
Land Under Temporary Crops	*	*	-	-
Land under Permanent Crops	*	*	-	-
Grazing Land	-	-	-	-
Fallow Land	-	-	-	-
Woodland	-	-	-	-
All Other Land	-	-	-	-

TABLE 4.6.1 RURAL HOLDINGS

Land-Use By Size of Holding	Total Area	Area In Hectares By Type of Land Tenures		
		Land Owned	Land Rented	Other Tenure
Holdings Of All Sizes				
All	8638	8244	320	*
Land Under Temporary Crops	5995	5687	252	*
Land under Permanent Crops	2078	2001	64	*
Grazing Land	76	74	*	*
Fallow Land	171	168	*	*
Woodland	*	*	-	*
All Other Land	251	248	*	*
Holdings Under 0.10 Hectares Sizes				
All	42	41	-	*
Land Under Temporary Crops	22	22	-	-
Land under Permanent Crops	12	12	-	-
Grazing Land	*	*	-	*
Fallow Land	*	*	-	-
Woodland	-	-	-	-
All Other Land	6	6	-	-
Holdings Of 0.10-0.50 Hectares Sizes				
All	1817	1716	89	12
Land Under Temporary Crops	1175	1089	76	10
Land under Permanent Crops	508	494	13	*
Grazing Land	6	6	-	-
Fallow Land	30	30	-	-
Woodland	9	9	-	-
All Other Land	88	88	-	*
Holdings Of 0.51-1.00 Hectares Sizes				
All	2929	2777	102	*
Land Under Temporary Crops	2045	1930	79	*
Land under Permanent Crops	716	682	23	*
Grazing Land	14	14	-	-
Fallow Land	59	58	*	*
Woodland	17	16	-	*
All Other Land	78	77	*	*
Holdings Of 1.01-2.00 Hectares Sizes				
All	3096	2970	115	*
Land Under Temporary Crops	2222	2129	83	*
Land under Permanent Crops	698	670	*	-
Grazing Land	41	40	*	-
Fallow Land	66	64	*	-
Woodland	*	*	-	-
All Other Land	63	62	*	*
Holdings Of 2.01-5.00 Hectares Sizes				
All	754	740	*	-
Land Under Temporary Crops	531	517	*	-
Land under Permanent Crops	143	143	-	-
Grazing Land	*	*	-	-
Fallow Land	*	*	-	-
Woodland	*	*	-	-
All Other Land	*	*	-	-
Holdings Of 5.01-10.00 Hectares				
All	-	-	-	-
Land Under Temporary Crops	-	-	-	-
Land under Permanent Crops	-	-	-	-
Grazing Land	-	-	-	-
Fallow Land	-	-	-	-
Woodland	-	-	-	-
All Other Land	-	-	-	-
Holdings Over 10.00 Hectares				
All	-	-	-	-
Land Under Temporary Crops	-	-	-	-
Land under Permanent Crops	-	-	-	-
Grazing Land	-	-	-	-
Fallow Land	-	-	-	-
Woodland	-	-	-	-
All Other Land	-	-	-	-

TABLE 4.6.2 URBAN HOLDINGS

Land Use By Size of Holding	Total Area	Area In Hectares By Type of Land Tenures		
		Land Owned	Land Rented	Other Tenure
Holdings Of All Sizes				
All	307	283	21	3
Land Under Temporary Crops	217	198	16	3
Land under Permanent Crops	90	85	*	-
Holdings Under 0.10 Hectares Sizes				
All	16	14	1	*
Land Under Temporary Crops	15	13	1	*
Land under Permanent Crops	1	1	*	-
Holdings Of 0.10-0.50 Hectares Sizes				
All	82	76	5	1
Land Under Temporary Crops	71	65	5	1
Land under Permanent Crops	11	11	*	-
Holdings Of 0.51-1.00 Hectares Sizes				
All	41	35	5	*
Land Under Temporary Crops	33	27	5	*
Land under Permanent Crops	8	8	*	-
Holdings Of 1.01-2.00 Hectares Sizes				
All	25	21	*	-
Land Under Temporary Crops	21	19	*	-
Land under Permanent Crops	4	*	*	-
Holdings Of 2.01-5.00 Hectares Sizes				
All	42	36	*	-
Land Under Temporary Crops	38	*	*	-
Land under Permanent Crops	*	*	*	-
Holdings Of 5.01-10.00 Hectares				
All	39	39	-	-
Land Under Temporary Crops	*	*	-	-
Land under Permanent Crops	*	*	-	-
Holdings Over 10.00 Hectares				
All	*	*	-	-
Land Under Temporary Crops	*	*	-	-
Land under Permanent Crops	*	*	-	-

TABLE 4.7. NUMBER OF HOLDERS AND AREA OF HOLDING UNDER ALL CROPLAND AND SIZE OF HOLDING

RURAL HOLDINGS-BELG SEASON

TYPE OF CROP	Number Of Holders Reporting	All Area In Hectare	Area By Size Of Holdings in Hectare						
			Under 0.10	0.1 - 0.50	0.51 - 1.00	1.01 - 2.00	2.01 -	5.01 - 10	Over 10
Temporary Crops	3275	989	49	399	306	*	-	-	-
Grain Crops	3182	950	44	377	293	*	-	-	-
Cereals	1590	*	*	134	*	*	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Maize	1378	226	*	95	*	*	-	-	-
Millet	-	-	-	-	-	-	-	-	-
Oats/'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Sorghum	*	*	*	*	*	*	-	-	-
Teff	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Pulses	2628	445	24	243	131	*	-	-	-
Chick Peas	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Field Peas	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Haricot beans	2628	445	24	243	131	*	-	-	-
Horse beans	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Other Pulses	-	-	-	-	-	-	-	-	-
Oilseeds	*	*	-	-	*	*	-	-	-
Groundnuts	*	*	-	-	*	*	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Neug	-	-	-	-	-	-	-	-	-
Rape seed	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Sufflower	-	-	-	-	-	-	-	-	-
Other Grains	-	-	-	-	-	-	-	-	-
Vegetables	*	*	*	*	*	-	-	-	-
Head Cabbage	-	-	-	-	-	-	-	-	-
Green peppers	-	-	-	-	-	-	-	-	-
Ethiopian Cabbage	*	*	-	*	*	-	-	-	-
Lettuce	-	-	-	-	-	-	-	-	-
Red peppers	-	-	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-	-	-
Tomatoes	*	*	*	*	-	-	-	-	-
Other vegetables	-	-	-	-	-	-	-	-	-
Root Crops	372	*	*	*	*	*	-	-	-
Beet root	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Garlic	-	-	-	-	-	-	-	-	-
Taro/'Godere'	-	-	-	-	-	-	-	-	-
Onion	*	*	-	*	-	-	-	-	-
Potatoes	305	*	*	*	*	-	-	-	-
Sweet Potatoes	*	*	-	*	-	*	-	-	-
Other root	-	-	-	-	-	-	-	-	-

ANNEX TABLES PRESENTING ESTIMATES, STANDARD ERRORS AND COEFFICIENTS OF VARIATION FOR SELECTED LAND USE VARIABLES

Annex Tables 4.1 - 4.4.2

Annex Table 4.1: Estimates of Agricultural holders by Type of holdings and their Standard errors and Coefficients of Variation

Both Rural and Urban holdings

Type of holding	All Numbers			Size of Holding In Hectare								
				Under 0.10			0.10-0.50			0.51-1.00		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
All	14356	412	3	1177	194	16	6573	540	8	4076	325	8
Crop only	2405	289	12	351	70	20	1429	240	17	534	121	23
Livestock only	273	152	56	254	150	59	19	20	105	-	-	-
Crop and Livestock	11677	413	4	571	117	20	5126	460	9	3542	279	8

Table 4.1 Continued

Type of holding	Size of Holding In Hectare											
	1.01-2.00			2.01-5.00			5.01-10.00			Over 10		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
All	2224	337	15	295	121	41	6	3	47	5	3	57
Crop only	72	35	49	18	17	96	-	-	-	1	1	85
Livestock only	-	-	-	-	-	-	-	-	-	-	-	-
Crop and Livestock	2151	328	15	277	117	42	6	3	47	4	2	60

Annex Table 4.1.1 Rural holdings

Type of holding	All Numbers			Size of Holding In Hectare								
				Under 0.10			0.10-0.50			0.51-1.00		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
All	13545	397	3	850	184	22	6188	537	9	4015	324	8
Crop only	2057	285	14	199	63	32	1251	238	19	522	121	23
Livestock only	273	152	56	254	150	59	19	20	105	-	-	-
Crop and Livestock	11214	407	4	397	109	28	4918	458	9	3492	279	8

Table 4.1.1 Continued

Type of holding	Size of Holding In Hectare											
	1.01-2.00			2.01-5.00			5.01-10.00			Over 10		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
All	2209	337	15	283	121	43	-	-	-	-	-	-
Crop only	68	35	52	17	17	103	-	-	-	-	-	-
Livestock only	-	-	-	-	-	-	-	-	-	-	-	-
Crop and Livestock	2140	327	15	267	117	44	-	-	-	-	-	-

Annex Table 4.1.2 Urban holdings

Type of holding	All Numbers			Size of Holding In Hectare								
				Under 0.10			0.10-0.50			0.51-1.00		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
All	810	108	13	326	59	18	385	64	17	61	19	31
Crop only	348	52	15	152	30	20	178	32	18	12	6	53
Livestock only	-	-	-	-	-	-	-	-	-	-	-	-
Crop and Livestock	463	74	16	174	41	23	207	41	20	50	15	30

Table 4.1.2 Continued

Type of holding	Size of Holding In Hectare											
	1.01-2.00			2.01-5.00			5.01-10.00			Over 10		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
All	15	6	42	12	6	47	6	3	47	5	3	57
Crop only	4	2	61	1	1	85	-	-	-	1	1	85
Livestock only	-	-	-	-	-	-	-	-	-	-	-	-
Crop and Livestock	11	6	55	11	6	53	6	3	47	4	2	60

Annex Table 4.2 : Estimates of Agricultural holders, Area of holding and number of parcels by Type of Land use and their Standard errors and Coefficients of Variation

Both Rural and Urban holdings

Land Use By Size Of Holding	Number of Holders			Holding Area in Hectare			Number Of Parcels		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
Holdings Of All Sizes									
All	14357	412	3	8944	682	8	41928	2062	5
Land Under Temporary Crops	14002	399	3	6213	580	9	32832	1813	6
Land Under Permanent Crops	12459	479	4	2167	186	9	25713	1801	7
Grazing Land	1040	270	26	76	26	34	1107	290	26
Fallow Land	2489	323	13	171	32	18	2781	362	13
Woodland	1036	243	23	67	38	57	1072	256	24
All Other Land	13446	403	3	251	20	8	14739	470	3
Holdings Under 0.10 Hectares									
All	1177	194	16	58	10	18	1758	311	18
Land Under Temporary Crops	895	155	17	37	6	17	1117	235	21
Land Under Permanent Crops	540	141	26	14	4	30	663	202	31
Grazing Land	38	35	94	1	1	95	38	35	94
Fallow Land	54	32	59	-	-	59	54	32	59
Woodland	-	-	-	-	-	-	-	-	-
All Other Land	805	171	21	6	1	22	824	173	21
Holdings Of 0.10-0.50 Hectares									
All	6573	540	8	1899	149	8	17226	1600	9
Land Under Temporary Crops	6535	535	8	1246	93	7	13546	1380	10
Land Under Permanent Crops	5658	556	10	520	75	14	10367	1316	13
Grazing Land	186	66	35	6	3	41	202	74	36
Fallow Land	817	212	26	30	9	30	865	228	26
Woodland	366	130	36	9	4	41	366	130	36
All Other Land	6150	535	9	88	11	12	6517	575	9
Holdings Of 0.51-1.00 Hectares									
All	4076	325	8	2969	234	8	13295	1228	9
Land Under Temporary Crops	4043	324	8	2078	188	9	10666	1045	10
Land Under Permanent Crops	3814	339	9	723	85	12	8617	958	11
Grazing Land	315	102	32	14	6	42	333	108	32
Fallow Land	968	191	20	59	16	28	1068	220	21
Woodland	486	124	26	17	7	42	509	129	25
All Other Land	3999	323	8	78	8	11	4479	366	8
Holdings Of 1.01-2.00 Hectares									
All	2224	337	15	3120	491	16	8331	1304	16
Land Under Temporary Crops	2224	337	15	2243	383	17	6559	1027	16
Land Under Permanent Crops	2150	324	15	702	113	16	5350	905	17
Grazing Land	423	157	37	41	18	45	439	162	37
Fallow Land	583	129	22	66	21	32	709	166	23
Woodland	129	52	41	5	3	57	141	61	43
All Other Land	2209	337	15	63	12	20	2590	407	16
Holdings Of 2.01-5.00 Hectares									
All	295	121	41	796	332	42	1307	596	46
Land Under Temporary Crops	295	121	41	569	232	41	934	388	41
Land Under Permanent Crops	288	121	42	147	60	41	706	265	37
Grazing Land	79	46	58	14	12	91	95	58	60
Fallow Land	67	40	60	16	13	85	85	52	61
Woodland	56	54	96	36	38	105	56	54	96
All Other Land	283	121	43	15	10	64	329	146	44
Holdings Of 5.01-10.00 Hectares									
All	6	3	47	39	18	47	6	3	47
Land Under Temporary Crops	6	3	47	23	14	59	6	3	47
Land Under Permanent Crops	4	2	60	15	12	80	4	2	60
Grazing Land	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-
Holdings Over 10.00 Hectares									
All	5	3	57	63	36	57	5	3	57
Land Under Temporary Crops	4	2	60	16	14	84	4	2	60
Land Under Permanent Crops	5	3	57	47	28	60	5	3	57
Grazing Land	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-

Annex Table 4.2.1 Rural Holdings

Land Use By Size Of Hólding	Number of Holders			Holding Area in Hectare			Number Of Parcels		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
Holdings Of All Sizes									
All	13545	397	3	8638	679	8	40631	2054	5
Land Under Temporary Crops	13221	384	3	5995	579	10	31647	1804	6
Land Under Permanent Crops	12075	476	4	2078	182	9	25230	1799	7
Grazing Land	1040	270	26	76	26	34	1107	290	26.
Fallow Land	2489	323	13	171	32	18	2781	362	13
Woodland	1036	243	23	67	38	57	1072	256	24
All Other Land	13446	403	3	251	20	8	14739	470	3
Holdings Under 0.10 Hectares									
All	850	184	22	42	10	23	1360	303	22
Land Under Temporary Crops	596	143	24	22	5	25	761	224	29
Land Under Permanent Crops	449	140	31	12	4	33	563	201	36
Grazing Land	38	35	94	1	1	95	38	35	94
Fallow Land	54	32	59	-	-	58	54	32	59
Woodland	-	-	-	-	-	-	-	-	-
All Other Land	805	171	21	6	1	23	824	173	21
Holdings Of 0.10-0.50 Hectares									
All	6188	537	9	1817	148	8	16587	1595	10
Land Under Temporary Crops	6152	531	9	1175	92	8	12956	1375	11
Land Under Permanent Crops	5438	554	10	508	75	15	10106	1315	13
Grazing Land	186	66	35	6	3	41	202	74	36
Fallow Land	817	212	26	30	9	30	865	228	26
Woodland	366	130	36	9	4	41	366	130	36
All Other Land	6150	535	9	88	11	12	6517	575	9
Holdings Of 0.51-1.00 Hectares									
All	4015	324	8	2929	234	8	13125	1227	9
Land Under Temporary Crops	3981	324	8	2045	188	9	10506	1044	10
Land Under Permanent Crops	3764	339	9	716	85	12	8540	958	11
Grazing Land	315	102	32	14	6	42	333	108	32
Fallow Land	968	191	20	59	16	28	1068	220	21
Woodland	486	124	26	17	7	42	509	129	25
All Other Land	3999	323	8	78	8	11	4479	366	8
Holdings Of 1.01-2.00 Hectares									
All	2209	337	15	3096	491	16	8287	1304	16
Land Under Temporary Crops	2209	337	15	2222	383	17	6517	1027	16
Land Under Permanent Crops	2140	324	15	698	113	16	5333	905	17
Grazing Land	423	157	37	41	18	45	439	162	37
Fallow Land	583	129	22	66	21	32	709	166	23
Woodland	129	52	41	5	3	57	141	61	43
All Other Land	2209	337	15	63	12	20	2590	407	16
Holdings Of 2.01-5.00 Hectares									
All	283	121	43	754	332	44	1272	596	47
Land Under Temporary Crops	283	121	43	531	231	43	906	387	43
Land Under Permanent Crops	283	121	43	143	60	42	687	264	38
Grazing Land	79	46	58	14	12	91	95	58	60
Fallow Land	67	40	60	16	13	85	85	52	61
Woodland	56	54	96	36	38	105	56	54	96
All Other Land	283	121	43	15	10	64	329	146	44
Holdings Of 5.01-10.00 Hectares									
All	-	-	-	-	-	-	-	-	-
Land Under Temporary Crops	-	-	-	-	-	-	-	-	-
Land Under Permanent Crops	-	-	-	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-
Holdings Over 10.00 Hectares	-	-	-	-	-	-	-	-	-
All	-	-	-	-	-	-	-	-	-
Land Under Temporary Crops	-	-	-	-	-	-	-	-	-
Land Under Permanent Crops	-	-	-	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-

Annex Table 4.2.2 Urban Holdings

Land Use By Size Of Holding	Number of Holders			Holding Area in Hectare			Number Of Parcels		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
Holdings Of All Sizes									
All	811	108	13	307	60	20	1297	180	14
Land Under Temporary Crops	780	108	14	217	40	18	1185	176	15
Land Under Permanent Crops	384	58	15	90	39	44	483	75	16
Holdings Under 0.10 Hectares									
All	326	59	18	16	3	20	398	73	18
Land Under Temporary Crops	298	58	20	15	3	21	355	71	20
Land Under Permanent Crops	91	18	20	1	-	25	100	21	21
Holdings Of 0.10-0.50 Hectares									
All	385	64	17	82	14	16	639	120	19
Land Under Temporary Crops	384	64	17	71	12	17	590	116	20
Land Under Permanent Crops	220	41	19	11	3	24	261	49	19
Holdings Of 0.51-1.00 Hectares									
All	61	19	31	41	13	31	170	47	28
Land Under Temporary Crops	61	19	31	33	11	32	160	45	28
Land Under Permanent Crops	50	18	35	8	3	44	77	25	32
Holdings Of 1.01-2.00 Hectares									
All	15	6	42	25	10	41	44	18	41
Land Under Temporary Crops	15	6	42	21	9	45	42	18	43
Land Under Permanent Crops	9	4	43	4	2	46	17	8	45
Holdings Of 2.01-5.00 Hectares									
All	12	6	47	42	18	44	35	16	46
Land Under Temporary Crops	12	6	47	38	18	47	28	13	45
Land Under Permanent Crops	5	2	48	4	2	62	19	12	62
Holdings Of 5.01-10.00 Hectares									
All	6	3	47	39	18	47	6	3	47
Land Under Temporary Crops	6	3	47	23	14	59	6	3	47
Land Under Permanent Crops	4	2	60	15	12	81	4	2	60
Holdings Over 10.00 Hectares									
All	5	3	57	63	36	57	5	3	57
Land Under Temporary Crops	4	2	60	16	14	84	4	2	60
Land Under Permanent Crops	5	3	57	47	28	60	5	3	57

Annex Table 4.3: Estimates of Agricultural holders by Type of Land tenure systems and Land use and their Standard errors and Coefficients of Variation

Both Rural and Urban holdings

Land Use By Size Of Holding	All Number			Number of Holders By Tenure Systems								
				Land Owned			Land Rented			Other Tenure		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
Holdings Of All Sizes												
All	14357	412	3	14270	405	3	1444	312	22	389	103	27
Land Under Temporary Crops	14002	399	3	13764	386	3	1403	311	22	260	85	33
Land Under Permanent Crops	12459	479	4	12293	475	4	691	174	25	107	69	64
Grazing Land	1040	270	26	998	261	26	23	24	102	19	19	101
Fallow Land	2489	323	13	2423	312	13	43	31	72	23	24	106
Woodland	1036	243	23	1036	243	23	-	-	-	23	25	105
All Other Land	13446	403	3	13351	413	3	41	30	74	125	55	44
Holdings Under 0.10 Hectares												
All	1177	194	16	1144	193	17	25	8	33	34	21	62
Land Under Temporary Crops	895	155	17	859	154	18	23	8	36	15	9	62
Land Under Permanent Crops	540	141	26	537	141	26	3	2	56	-	-	-
Grazing Land	38	35	94	19	19	101	-	-	-	19	19	101
Fallow Land	54	32	59	54	32	59	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	805	171	21	805	171	21	-	-	-	-	-	-
Holdings Of 0.10-0.50 Hectares												
All	6573	540	8	6551	540	8	668	148	22	169	75	44
Land Under Temporary Crops	6535	535	8	6410	531	8	663	148	22	125	54	43
Land Under Permanent Crops	5658	556	10	5585	557	10	311	85	27	38	28	74
Grazing Land	186	66	35	186	66	35	-	-	-	-	-	-
Fallow Land	817	212	26	817	212	26	-	-	-	-	-	-
Woodland	366	130	36	366	130	36	-	-	-	-	-	-
All Other Land	6150	535	9	6105	529	9	-	-	-	59	43	73
Holdings Of 0.51-1.00 Hectares												
All	4076	325	8	4069	325	8	500	176	35	140	71	51
Land Under Temporary Crops	4043	324	8	3990	311	8	465	175	38	87	65	75
Land Under Permanent Crops	3814	339	9	3751	327	9	258	106	41	69	64	93
Grazing Land	315	102	32	315	102	32	-	-	-	-	-	-
Fallow Land	968	191	20	926	179	19	20	20	102	23	24	106
Woodland	486	124	26	486	124	26	-	-	-	23	25	105
All Other Land	3999	323	8	3985	326	8	18	20	109	52	32	61
Holdings Of 1.01-2.00 Hectares												
All	2224	337	15	2199	337	15	222	69	31	47	27	58
Land Under Temporary Crops	2224	337	15	2199	337	15	222	69	31	33	24	72
Land Under Permanent Crops	2150	324	15	2125	324	15	117	53	45	-	-	-
Grazing Land	423	157	37	399	157	39	23	24	102	-	-	-
Fallow Land	583	129	22	560	124	22	23	24	102	-	-	-
Woodland	129	52	41	129	52	41	-	-	-	-	-	-
All Other Land	2209	337	15	2172	336	15	23	24	102	13	14	103
Holdings Of 2.01-5.00 Hectares												
All	295	121	41	295	121	41	31	30	98	-	-	-
Land Under Temporary Crops	295	121	41	295	121	41	31	30	98	-	-	-
Land Under Permanent Crops	288	121	42	287	121	42	1	1	80	-	-	-
Grazing Land	79	46	58	79	46	58	-	-	-	-	-	-
Fallow Land	67	40	60	67	40	60	-	-	-	-	-	-
Woodland	56	54	96	56	54	96	-	-	-	-	-	-
All Other Land	283	121	43	283	121	43	-	-	-	-	-	-
Holdings Of 5.01-10.00Hectares							-	-	-	-	-	-
All	6	3	47	6	3	47	-	-	-	-	-	-
Land Under Temporary Crops	6	3	47	6	3	47	-	-	-	-	-	-
Land Under Permanent Crops	4	2	60	4	2	60	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-	-	-	-
Holdings Over 10.00 Hectares							-	-	-	-	-	-
All	5	3	57	5	3	57	-	-	-	-	-	-
Land Under Temporary Crops	4	2	60	4	2	60	-	-	-	-	-	-
Land Under Permanent Crops	5	3	57	5	3	57	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-	-	-	-

Annex Table 4.3.1 Rural holdings

Land Use By Size Of Holding	All Number			Number of Holders By Tenure Systems								
				Land Owned			Land Rented			Other Tenure		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
Holdings Of All Sizes												
All	13545	397	3	13522	391	3	1371	311	23	365	103	28
Land Under Temporary Crops	13221	384	3	13051	371	3	1337	311	23	236	84	36
Land Under Permanent Crops	12075	476	4	11927	472	4	670	174	26	107	69	64
Grazing Land	1040	270	26	998	261	26	23	24	102	19	19	101
Fallow Land	2489	323	13	2423	312	13	43	31	72	23	24	106
Woodland	1036	243	23	1036	243	23	-	-	-	23	25	105
All Other Land	13446	403	3	13351	413	3	41	30	74	125	55	44
Holdings Under 0.10 Hectares												
All	850	184	22	850	184	22	-	-	-	19	19	101
Land Under Temporary Crops	596	143	24	596	143	24	-	-	-	-	-	-
Land Under Permanent Crops	449	140	31	449	140	31	-	-	-	-	-	-
Grazing Land	38	35	94	19	19	101	-	-	-	19	19	101
Fallow Land	54	32	59	54	32	59	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	805	171	21	805	171	21	-	-	-	-	-	-
Holdings Of 0.10-0.50 Hectares												
All	6188	537	9	6188	537	9	638	148	23	162	75	46
Land Under Temporary Crops	6152	531	9	6050	528	9	638	148	23	118	53	45
Land Under Permanent Crops	5438	554	10	5374	555	10	298	85	28	38	28	74
Grazing Land	186	66	35	186	66	35	-	-	-	-	-	-
Fallow Land	817	212	26	817	212	26	-	-	-	-	-	-
Woodland	366	130	36	366	130	36	-	-	-	-	-	-
All Other Land	6150	535	9	6105	529	9	-	-	-	59	43	73
Holdings Of 0.51-1.00 Hectares												
All	4015	324	8	4015	324	8	489	176	36	138	71	51
Land Under Temporary Crops	3981	324	8	3936	311	8	455	175	38	85	65	77
Land Under Permanent Crops	3764	339	9	3703	327	9	256	106	41	69	64	93
Grazing Land	315	102	32	315	102	32	-	-	-	-	-	-
Fallow Land	968	191	20	926	179	19	20	20	102	23	24	106
Woodland	486	124	26	486	124	26	-	-	-	23	25	105
All Other Land	3999	323	8	3985	326	8	18	20	109	52	32	61
Holdings Of 1.01-2.00 Hectares												
All	2209	337	15	2186	337	15	216	69	32	47	27	58
Land Under Temporary Crops	2209	337	15	2186	337	15	216	69	32	33	24	72
Land Under Permanent Crops	2140	324	15	2117	324	15	116	53	46	-	-	-
Grazing Land	423	157	37	399	157	39	23	24	102	-	-	-
Fallow Land	583	129	22	560	124	22	23	24	102	-	-	-
Woodland	129	52	41	129	52	41	-	-	-	-	-	-
All Other Land	2209	337	15	2172	336	15	23	24	102	13	14	103
Holdings Of 2.01-5.00 Hectares												
All	283	121	43	283	121	43	28	30	106	-	-	-
Land Under Temporary Crops	283	121	43	283	121	43	28	30	106	-	-	-
Land Under Permanent Crops	283	121	43	283	121	43	-	-	-	-	-	-
Grazing Land	79	46	58	79	46	58	-	-	-	-	-	-
Fallow Land	67	40	60	67	40	60	-	-	-	-	-	-
Woodland	56	54	96	56	54	96	-	-	-	-	-	-
All Other Land	283	121	43	283	121	43	-	-	-	-	-	-
Holdings Of 5.01-10.00 Hectares												
All	-	-	-	-	-	-	-	-	-	-	-	-
Land Under Temporary Crops	-	-	-	-	-	-	-	-	-	-	-	-
Land Under Permanent Crops	-	-	-	-	-	-	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-	-	-	-
Holdings Over 10.00 Hectares												
All	-	-	-	-	-	-	-	-	-	-	-	-
Land Under Temporary Crops	-	-	-	-	-	-	-	-	-	-	-	-
Land Under Permanent Crops	-	-	-	-	-	-	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-	-	-	-

Annex Table 4.3.2 Urban holdings

Land Use By Size Of Holding	All Number			Number of Holders By Tenure Systems								
				Land Owned			Land Rented			Other Tenure		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
Holdings Of All Sizes												
All	811	108	13	748	105	14	73	15	21	24	10	41
Land Under Temporary Crops	780	108	14	712	106	15	66	13	20	24	10	41
Land Under Permanent Crops	384	58	15	367	58	16	21	5	26	-	-	-
Holdings Under 0.10 Hectares												
All	326	59	18	294	56	19	25	8	33	15	9	62
Land Under Temporary Crops	298	58	20	263	56	21	23	8	36	15	9	62
Land Under Permanent Crops	91	18	20	87	19	21	3	2	56	-	-	-
Holdings Of 0.10-0.50 Hectares												
All	385	64	17	363	64	18	30	8	25	7	3	45
Land Under Temporary Crops	384	64	17	359	64	18	25	6	23	7	3	45
Land Under Permanent Crops	220	41	19	211	41	19	13	5	36	-	-	-
Holdings Of 0.51-1.00 Hectares												
All	61	19	31	54	18	33	11	4	40	2	1	82
Land Under Temporary Crops	61	19	31	54	18	33	11	4	40	2	1	82
Land Under Permanent Crops	50	18	35	48	18	37	2	2	81	-	-	-
Holdings Of 1.01-2.00 Hectares												
All	15	6	42	14	6	47	5	3	63	-	-	-
Land Under Temporary Crops	15	6	42	14	6	47	5	3	63	-	-	-
Land Under Permanent Crops	9	4	43	8	4	50	1	1	81	-	-	-
Holdings Of 2.01-5.00 Hectares												
All	12	6	47	12	6	47	2	1	57	-	-	-
Land Under Temporary Crops	12	6	47	12	6	47	2	1	57	-	-	-
Land Under Permanent Crops	5	2	48	4	2	61	1	1	81	-	-	-
Holdings Of 5.01-10.0 Hectares												
All	6	3	47	6	3	47	-	-	-	-	-	-
Land Under Temporary Crops	6	3	47	6	3	47	-	-	-	-	-	-
Land Under Permanent Crops	4	2	60	4	2	60	-	-	-	-	-	-
Holdings Over 10.00 Hectares												
All	5	3	57	5	3	57	-	-	-	-	-	-
Land Under Temporary Crops	4	2	60	4	2	60	-	-	-	-	-	-
Land Under Permanent Crops	5	3	57	5	3	57	-	-	-	-	-	-

Annex Table 4.4 Estimates of Area of holdings by Type of Land tenure systems and Land use and their Standard errors and Coefficients of Variation

Both Rural and Urban holdings

Land Use By Size Of Holding	Area in Hectare			Area of Holding In hectare By Tenure Systems								
				Land Owned			Land Rented			Other Tenure		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
Holdings Of All Sizes												
All	8944	682	8	8528	661	8	341	93	27	76	41	54
Land Under Temporary Crops	6213	580	9	5885	557	9	268	71	27	59	30	51
Land Under Permanent Crops	2167	186	9	2086	183	9	68	23	34	13	11	85
Grazing Land	76	26	34	74	25	34	1	1	103	1	1	102
Fallow Land	171	32	18	168	32	19	3	3	88	-	-	111
Woodland	67	38	57	66	38	58	-	-	-	1	1	105
All Other Land	251	20	8	248	20	8	1	-	73	2	1	52
Holdings Under 0.10 Hectares												
All	58	10	18	55	10	18	1	-	31	1	1	57
Land Under Temporary Crops	37	6	17	35	6	18	1	-	32	1	-	52
Land Under Permanent Crops	14	4	30	14	4	30	-	-	67	-	-	-
Grazing Land	1	1	95	-	-	100	-	-	-	1	1	102
Fallow Land	-	-	59	-	-	59	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	6	1	22	6	1	22	-	-	-	-	-	-
Holdings Of 0.10-0.50 Hectares												
All	1899	149	8	1792	146	8	94	22	23	13	6	43
Land Under Temporary Crops	1246	93	7	1154	87	8	81	20	24	11	5	44
Land Under Permanent Crops	520	75	14	505	74	15	13	4	34	1	1	72
Grazing Land	6	3	41	6	3	41	-	-	-	-	-	-
Fallow Land	30	9	30	30	9	30	-	-	-	-	-	-
Woodland	9	4	41	9	4	41	-	-	-	-	-	-
All Other Land	88	11	12	88	11	12	-	-	-	-	-	83
Holdings Of 0.51-1.00 Hectares												
All	2969	234	8	2812	209	7	107	36	33	50	40	79
Land Under Temporary Crops	2078	188	9	1957	168	9	84	31	37	37	29	77
Land Under Permanent Crops	723	85	12	689	80	12	23	10	43	12	11	96
Grazing Land	14	6	42	14	6	42	-	-	-	-	-	-
Fallow Land	59	16	28	58	16	28	-	-	102	-	-	111
Woodland	17	7	42	16	7	43	-	-	-	1	1	105
All Other Land	78	8	11	77	8	11	-	-	109	1	1	68
Holdings Of 1.01-2.00 Hectares												
All	3120	491	16	2991	480	16	118	54	46	11	8	69
Land Under Temporary Crops	2243	383	17	2148	373	17	85	35	41	10	8	75
Land Under Permanent Crops	702	113	16	672	111	16	29	18	61	-	-	-
Grazing Land	41	18	45	40	18	46	1	1	103	-	-	-
Fallow Land	66	21	32	64	21	33	3	3	102	-	-	-
Woodland	5	3	57	5	3	57	-	-	-	-	-	-
All Other Land	63	12	20	62	12	20	-	-	100	1	1	103
Holdings Of 2.01-5.00 Hectares												
All	796	332	42	776	322	41	20	16	77	-	-	-
Land Under Temporary Crops	569	232	41	552	221	40	18	15	86	-	-	-
Land Under Permanent Crops	147	60	41	144	60	41	3	2	81	-	-	-
Grazing Land	14	12	91	14	12	91	-	-	-	-	-	-
Fallow Land	16	13	85	16	13	85	-	-	-	-	-	-
Woodland	36	38	105	36	38	105	-	-	-	-	-	-
All Other Land	15	10	64	15	10	64	-	-	-	-	-	-
Holdings Of 5.01-10.00 Hectares												
All	39	18	47	39	18	47	-	-	-	-	-	-
Land Under Temporary Crops	23	14	59	23	14	59	-	-	-	-	-	-
Land Under Permanent Crops	15	12	80	15	12	80	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-	-	-	-
Holdings Over 10.00 Hectares												
All	63	36	57	63	36	57	-	-	-	-	-	-
Land Under Temporary Crops	16	14	84	16	14	84	-	-	-	-	-	-
Land Under Permanent Crops	47	28	60	47	28	60	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-	-	-	-

Annex Table 4.4.1 Rural Holdings

Land Use By Size Of Holding	Area in Hectare			Area of Holding In hectare By Tenure Systems								
				Land Owned			Land Rented			Other Tenure		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
Holdings Of All Sizes												
All	8638	679	8	8244	658	8	320	93	29	73	41	56
Land Under Temporary Crops	5995	579	10	5687	555	10	252	71	28	56	30	54
Land Under Permanent Crops	2078	182	9	2001	179	9	64	23	36	13	11	85
Grazing Land	76	26	34	74	25	34	1	1	102	1	1	101
Fallow Land	171	32	18	168	32	19	3	3	88	-	-	106
Woodland	67	38	57	66	38	58	-	-	-	1	1	105
All Other Land	251	20	8	248	20	8	1	-	74	2	1	52
Holdings Under 0.10 Hectares												
All	42	10	23	41	10	24	-	-	-	1	1	101
Land Under Temporary Crops	22	5	25	22	5	25	-	-	-	-	-	-
Land Under Permanent Crops	12	4	33	12	4	33	-	-	-	-	-	-
Grazing Land	1	1	95	-	-	101	-	-	-	1	1	101
Fallow Land	-	-	58	-	-	58	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	6	1	23	6	1	23	-	-	-	-	-	-
Holdings Of 0.10-0.50 Hectares												
All	1817	148	8	1716	145	8	89	22	25	12	6	46
Land Under Temporary Crops	1175	92	8	1089	86	8	76	20	26	10	5	48
Land Under Permanent Crops	508	75	15	494	74	15	13	4	35	1	1	73
Grazing Land	6	3	41	6	3	41	-	-	-	-	-	-
Fallow Land	30	9	30	30	9	30	-	-	-	-	-	-
Woodland	9	4	41	9	4	41	-	-	-	-	-	-
All Other Land	88	11	12	88	11	12	-	-	-	-	-	83
Holdings Of 0.51-1.00 Hectares												
All	2929	234	8	2777	208	8	102	36	35	49	40	81
Land Under Temporary Crops	2045	188	9	1930	167	9	79	31	39	36	29	80
Land Under Permanent Crops	716	85	12	682	80	12	23	10	43	12	11	96
Grazing Land	14	6	42	14	6	42	-	-	-	-	-	-
Fallow Land	59	16	28	58	16	28	-	-	102	-	-	106
Woodland	17	7	42	16	7	43	-	-	-	1	1	105
All Other Land	78	8	11	77	8	11	-	-	109	1	1	68
Holdings Of 1.01-2.00 Hectares												
All	3096	491	16	2970	480	16	115	54	47	11	8	69
Land Under Temporary Crops	2222	383	17	2129	373	18	83	35	42	10	8	75
Land Under Permanent Crops	698	113	16	670	111	17	28	18	63	-	-	-
Grazing Land	41	18	45	40	18	46	1	1	102	-	-	-
Fallow Land	66	21	32	64	21	33	3	3	102	-	-	-
Woodland	5	3	57	5	3	57	-	-	-	-	-	-
All Other Land	63	12	20	62	12	20	-	-	102	1	1	103
Holdings Of 2.01-5.00 Hectares												
All	754	332	44	740	321	43	14	15	106	-	-	-
Land Under Temporary Crops	531	231	43	517	220	43	14	15	106	-	-	-
Land Under Permanent Crops	143	60	42	143	60	42	-	-	-	-	-	-
Grazing Land	14	12	91	14	12	91	-	-	-	-	-	-
Fallow Land	16	13	85	16	13	85	-	-	-	-	-	-
Woodland	36	38	105	36	38	105	-	-	-	-	-	-
All Other Land	15	10	64	15	10	64	-	-	-	-	-	-
Holdings Of 5.01-10.0 Hectares												
All	-	-	-	-	-	-	-	-	-	-	-	-
Land Under Temporary Crops	-	-	-	-	-	-	-	-	-	-	-	-
Land Under Permanent Crops	-	-	-	-	-	-	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-	-	-	-
Holdings Over 10.00 Hectares												
All	-	-	-	-	-	-	-	-	-	-	-	-
Land Under Temporary Crops	-	-	-	-	-	-	-	-	-	-	-	-
Land Under Permanent Crops	-	-	-	-	-	-	-	-	-	-	-	-
Grazing Land	-	-	-	-	-	-	-	-	-	-	-	-
Fallow Land	-	-	-	-	-	-	-	-	-	-	-	-
Woodland	-	-	-	-	-	-	-	-	-	-	-	-
All Other Land	-	-	-	-	-	-	-	-	-	-	-	-

Annex Table 4.4.2 Urban Holdings

Land Use By Size Of Holding	Area in Hectare			Area of Holding In hectare By Tenure Systems								
				Land Owned			Land Rented			Other Tenure		
	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %	Estimate	S.E	C.V In %
Holdings Of All Sizes												
All	307	60	20	283	60	21	21	7	33	3	1	40
Land Under Temporary Crops	217	40	18	198	40	20	16	4	26	3	1	40
Land Under Permanent Crops	90	39	44	85	39	46	4	3	71	-	-	-
Holdings Under 0.10 Hectares												
All	16	3	20	14	3	21	1	-	31	1	-	52
Land Under Temporary Crops	15	3	21	13	3	23	1	-	32	1	-	52
Land Under Permanent Crops	1	-	25	1	-	26	-	-	82	-	-	-
Holdings Of 0.10-0.50 Hectares												
All	82	14	16	76	13	18	5	1	28	1	-	46
Land Under Temporary Crops	71	12	17	65	12	18	5	1	29	1	-	46
Land Under Permanent Crops	11	3	24	11	3	25	-	-	39	-	-	-
Holdings Of 0.51-1.00 Hectares												
All	41	13	31	35	12	34	5	2	45	1	1	82
Land Under Temporary Crops	33	11	32	27	10	38	5	2	45	1	1	82
Land Under Permanent Crops	8	3	44	8	3	44	-	-	81	-	-	-
Holdings Of 1.01-2.00 Hectares												
All	25	10	41	21	10	46	3	2	66	-	-	-
Land Under Temporary Crops	21	9	45	19	9	49	2	1	60	-	-	-
Land Under Permanent Crops	4	2	46	3	2	58	1	1	81	-	-	-
Holdings Of 2.01-5.00 Hectares												
All	42	18	44	36	18	49	6	4	68	-	-	-
Land Under Temporary Crops	38	18	47	35	18	51	3	2	61	-	-	-
Land Under Permanent Crops	4	2	61	1	1	81	3	2	81	-	-	-
Holdings Of 5.01-10.00 Hectares												
All	39	18	47	39	18	47	-	-	-	-	-	-
Land Under Temporary Crops	23	14	59	23	14	59	-	-	-	-	-	-
Land Under Permanent Crops	15	12	81	15	12	81	-	-	-	-	-	-
Holdings Over 10.00 Hectares												
All	63	36	57	63	36	57	-	-	-	-	-	-
Land Under Temporary Crops	16	14	84	16	14	84	-	-	-	-	-	-
Land Under Permanent Crops	47	28	60	47	28	60	-	-	-	-	-	-

CHAPTER V

AREA AND PRODUCTION OF CROPS AND CROP UTILIZATION

1 INTRODUCTION

Ethiopian farming largely produces only enough food for the peasant holder and his family for consumption, leaving little to sell. This inadequate volume of production is ascribed to the tardy progress in the farming methods and scattered pieces of land holdings. Under this traditional sector, agriculture is practiced on public land and most of the produce is mainly for own consumption. The diverse climate of the country and the multiple utilizations of crops have prompted the vast majority of agricultural holders to grow various temporary and permanent crops. Despite the variation in the volume of production, the relative importance and pattern of growth of these crops are largely similar across many of the regions. This similarity is well observed and demonstrated in the statistical tables presented in this report. In some regions there seems to be a shift in choice of crops grown. Teff, barley and wheat do not figure prominently. Instead, maize, groundnuts, sorghum & sweet potatoes are grown in greater volume than these crops. Harari, is a case in this regard.

There is a general agreement that the performance of an agricultural system should achieve a steady supply of food to the people of a country. But, unless special attention is focused on agriculture its performance can be impeded by vagaries of nature, population growth and scarcity and fragmentation of land, thus, affecting food supply and posing a challenge to the federal and regional governments. This situation calls for an overhaul of the agricultural system in the country or the regions.

In order to have a flourishing agriculture, which sustains reliable food supply, the federal and regional governments have to formulate and implement farm

programs that ensure food security. The preparation, execution, monitoring and assessment of these programs entail statistics on agriculture particularly crop production since it is the prime target that national or regional agricultural policies aim at.

The collection of data on crop production should encompass all crop seasons in the agricultural calendar and farming activities in both rural and urban areas. It should also include the wide range of crops that are grown and embodied in the food security system, which are indispensable for a sustained provision of staple diet and other cash crops like coffee and Chat.

In view of this, crop production data for private peasant holdings for both Meher and Belg seasons in both rural and urban areas were collected in the census to provide the basis for decision making in the process of implementing timely food security measures and to make policy makers aware of the food situation in the country.

Thus, in this chapter the census data on production of temporary crops/annual crops such as cereals, pulses, oilseeds, vegetables and root crops are presented in Section 2. Also production of permanent crops that included fruit crops, stimulant crops and other permanent crops are dealt with in Section 3. Moreover, the utilization of temporary crops as well as permanent crops for various purposes such as household consumption, seed, sale, paying wages in kind ...etc are indicated in Section 4. Furthermore standard error (S.E.) and Coefficient of Variation (C.V.) are provided as an annex to this chapter.

2. PRODUCTION OF TEMPORARY / ANNUAL CROPS

The types of temporary crops on which data were collected during the census are those that food security embraces: that is, the crops that are the staple diets in the country. In the statistical tables, these crops have been categorized into five groups for simplicity of description and comparison purposes. The groups are cereals, pulses, oilseeds, vegetables and root crops. The crops within each group have some similarity, which made the categorization necessary.

2.1 Cereals

These are crops that are produced in greater volume compared to the other crops because these are the principal staple crops every year and export commodities at times of bumper harvest in the country. Between the months of September 2001 and August 2002 it was learned that 242,794 quintals of cereals worth 106,028,521 Birr was exported from Ethiopia to various countries. (CSA,External Trade Statistics).

Cereals are grown in almost all regions of Ethiopia with notable variation in the extent of areas planted and the volume of production obtained. This variation is seemingly caused by a shift in choice of crops by the holders and difference in weather conditions. Summary Tables V-1 and V-2 and figures V-1 and V-2 reinforce this thought further by giving a highlight on the size of area planted to sorghum, maize, and groundnuts and volume of production of these crops harvested in Harari Region when compared to Teff, barley and wheat produced in the same region.

Summary Tables V-1 and V-2 show that 75.08% of the regional grain crop area was devoted to cereals and 76.6% of the grain production was that of cereals. Out of all area under grain, sorghum, groundnuts & maize took up 59.2%, 18.07% and 14.04%, yielding 59.98%, 20.68% and 15.2% of the regional grain production, respectively.

As the census result depicts, agricultural households in urban areas of the region contributed 2.99% and 4.76% of the regional grain crop area and grain production, respectively. Out of the total area and production under cereals, 3.51% and 5.1% were added by urban agricultural households, in the same order. The pattern of the principal crops is the same for both rural and urban holders.

2.2 Pulses

These crops are essential part of the dietary requirements for most Ethiopians. These crops also form a significant commodity group of export, earning a considerable amount of foreign exchange for the country and cash for peasant farmers. In 2001/02 (1994) E.C, between the months of September and August, 1,229,366 quintals of pulses valued at 351,997,759 Birr was exported from Ethiopia to various countries. (CSA,External Trade Statistics). These are some of the grounds for growing various pulses in all regions of the country with varying quantities. There is no doubt that economic benefits can accrue to the country from the production and export of more pulses if the agriculture in Ethiopia is given due attention in this regard.

A view of Summary Tables V-1 and V-2 enables to detect that only 6.72% of the regional grain crop area was under pulses and 2.57% of the grain production consisted of the same crops. Of the regional area under grain crops,

6.48%, was planted to haricot beans, & the remaining area was under other pulses. The production obtained from haricot beans, was 2.44% of the regional grain total. Out of the total area under Belg season grain crops,46.81% was allotted to haricot beans.

2.3 Oilseeds

These crops are also of paramount importance as a source of cooking oil used to provide the fat required in the food consumed by the residents in the region. Moreover, oil crops have become a major commodity of export earning a great deal of foreign exchange. Between September 2001 and August 2002, Ethiopia exported 953,088 quintals of oilseeds valued at 351,952,634 Birr signaling that an increase in the production and export of these crops will definitely generate more money. (CSA,External Trade Statistics).

Summary Tables V-1 and V-2 indicate that 18.2 % of the regional grain crop area was under oilseeds and 20.83 % of the regional grain production was that of the oil seeds. Of the total area under grain crops and grain production in Harari Region, 18.07% went for groundnuts. Urban holders planted 0.3% of the grain crop area to oil crops and obtained 0.85% of the grain production from oil crops. Groundnuts grown by urban holders accounted for 0.30% of regional area under grain crops. Groundnuts produced by urban holders contributed 0.85% to the regional grain production.

2.4 Vegetables

These crops like fruits are also a good source of nourishment necessary for the healthy growth of humans. Dieticians often advise people to eat more of vegetables for their nutritional values. Vegetables are relatively cheaper and better available than other farm products in urban centers because these crops are usually grown as garden produces sometimes using irrigation. It may be

worth to know that a certain amount of foreign exchange is drawn from vegetable exports. For instance between September 2001 - August 2002 Ethiopia exported 61,070 quintals of vegetables worth 11,543,144 Birr to various countries. Thus, on the grounds that vegetables are nutritionally and economically important, it is worth expanding vegetable farming. When one looks at Summary Tables V-1 – V-2 to have a picture of the vegetable production in Harari region one realizes that a lot has to be done in this regard.

Summary Tables V-1 and V-2 show that only 0.31 % of the regional crop area is under vegetables.

2.5 Root Crops

Some root crops like onion and garlic are indispensable part of the daily meal of the Ethiopian population. These crops are essential to improve the taste and scent of the food. Potato, which is one of nature's precious gifts, is also very common in the dishes of most Ethiopians. This importance necessitated the growth and production of many of the root crops throughout the year often via the use of irrigation. Root crops are also a good source of cash and foreign exchange for the growers and the country, respectively. In 2001/02 (1994 E.C), the country has acquired a sum of 22,423,972 million Birr by exporting 120,497 quintals of root crops. (CSA,External Trade Statistics). The economic and nutritional importance of root crops has been a factor for practicing the agriculture in all the regions and growing the crops more than one time in a year.

Summary Tables V-1 and V-2 indicate the root crop situation in Harari Region. As the tables show, root crops covered only 1.55 % of the regional crop area and 12.44% of the production volume. Sweet potatoes shared 57.01 of the regional root crop area. The same crop added 54.74% to the regional volume of root crop production.

SUMMARY TABLE V-1 AREA UNDER TEMPORARY CROPS BY CROP TYPE FOR PRIVATE PEASANT HOLDINGS

Harari Region

Crop	All		Rural		Urban
			Area (HA)		Area (HA)
	Area (HA)	%	Meher	Belg	Meher
All	7194.23		5987.84	989.27	217.12
Grain Crops	7060.51	100	5899.62	949.72	211.17
Cereals	5300.74	75.08	4624.92	*	186.11
Teff	*	*	*	-	-
Barley	20.15	0.29	18.04	-	*
Wheat	104.74	1.48	99.94	-	4.8
Maize	991.14	14.04	667.56	225.95	97.63
Sorghum	4179.82	59.2	3834.52	*	81.55
Finger Millet	*	*	*	-	*
Oats/"Aja"	*	*	*	-	-
Rice	-	-	-	-	-
Pulses	474.48	6.72	25.69	444.59	*
Horse beans	1.42	0.02	*	-	*
Field peas	*	*	*	-	*
Haricot beans	457.8	6.48	10.62	444.59	*
Chick-peas	*	*	*	-	-
Lentils	-	-	-	-	-
Vetch	-	-	-	-	-
Soya beans	-	-	-	-	-
Fenugreek	*	*	*	-	-
Gibto	-	-	-	-	-
Oilseeds	1285.3	18.2	1249.01	*	20.87
Neug	-	-	-	-	-
Linseed	-	-	-	-	-
Groundnuts	1275.9	18.07	1239.61	-	20.87
Sunflower	-	-	-	*	-
Sesame	*	*	*	-	-
Rapeseed	-	-	-	-	-
Vegetables	22.32	100	*	*	*
Lettuce	*	*	-	*	*
Head cabbage	*	*	*	-	-
Ethiopian cabbage	*	*	-	-	*
Tomatoes	*	*	-	*	-
Green peppers	*	*	*	*	-
Red peppers	*	*	*	-	-
Swiss chard	*	*	-	-	*
Root crops	111.41	100	87.81	*	*
Beetroot	-	-	-	*	-
Carrot	-	-	-	-	-
Onion	*	*	-	-	-
Potatoes	*	*	*	*	-
Garlic	-	-	-	*	-
Taro/'Godere'	-	-	-	-	-
Sweet potatoes	63.52	57.01	61.1	*	*

SUMMARY TABLE V-2 PRODUCTION UNDER TEMPORARY CROPS BY CROP TYPE FOR PRIVATE PEASANT HOLDINGS

Harari Region

Crop	All		Rural		Urban
			Production(QT)		Production (QT)
	Production(QT)	%	Meher	Belg	Meher
All	69633.67		63592.36	*	3472.59
Grain Crops	60418.21	100	56063.33	*	2877.13
Cereals	46283.2	76.6	43859.47	*	2359.68
Teff	*	*	*	-	-
Barley	*	*	*	-	4.79
Wheat	695.4	1.15	549.11	-	*
Maize	9186.14	15.2	8267.4	*	854.69
Sorghum	36241.56	59.98	34892.12	-	1349.44
Finger Millet	*	*	-	-	*
Oats/"Aja"	*	*	*	-	-
Rice	*	*	-	-	*
Pulses	1550.56	2.57	130.21	1413.7	*
Horse beans	*	*	*	-	*
Field peas	*	*	*	-	*
Haricot beans	1472.02	2.44	55.59	1413.7	*
Chick-peas	*	*	*	-	-
Lentils	-	-	-	-	-
Vetch	-	-	-	-	-
Soya beans	-	-	-	-	-
Fenugreek	*	*	*	-	-
Gibto	-	-	-	-	-
Oilseeds	12584.35	20.83	12073.66	*	510.69
Neug	-	-	-	-	-
Linseed	-	-	-	-	-
Groundnuts	12494.18	20.68	11983.49	*	510.69
Sunflower	-	-	-	-	-
Sesame	*	*	*	-	-
Rapeseed	-	-	-	-	-
Vegetables	*	*	*	-	*
Lettuce	*	*	-	-	*
Head cabbage	-	*	-	-	-
Ethiopian cabbage	*	*	-	-	*
Tomatoes	-	*	-	-	-
Green peppers	*	*	*	-	-
Red peppers	-	*	-	-	-
Swiss chard	*	*	-	-	*
Root crops	8663.17	100	7510.22	*	61.97
Beetroot	*	*	-	-	*
Carrot	-	-	-	-	-
Onion	*	*	-	-	*
Potatoes	*	*	*	*	*
Garlic	-	-	-	-	-
Taro/'Godere'	-	-	-	*	-
Sweet potatoes	4741.87	54.74	4705.86	*	*

Figure V-1 Area Under Temporary Crops for Private Peasant Holdings

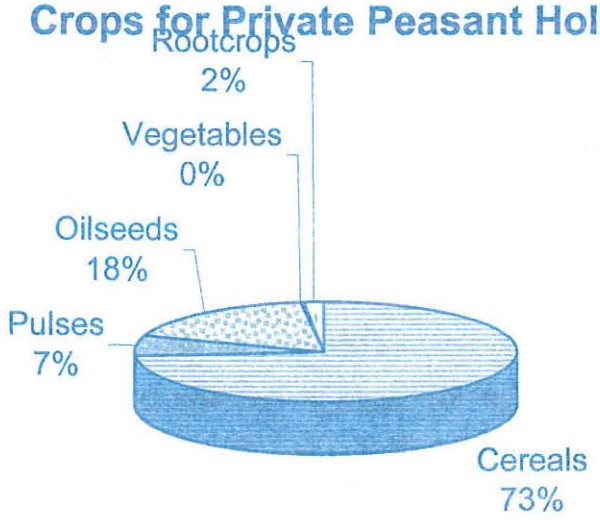
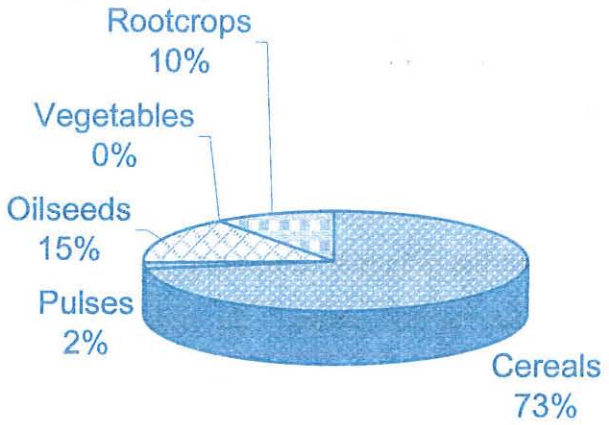


Figure V-2 Production Of Temporary Crops for Private Peasant Holdings



3. PRODUCTION OF PERMANENT CROPS

Permanent crops are long term crops that occupy the field planted for a long period of time and largely harvested every year and do not have to be replanted for several years after each harvest. These include tree crops such as coffee, Enset, Chat, oranges, mangoes, bananas, papayas, avocados... etc. The trees that yield fruits like oranges; mangoes, papayas, apples and others are also known as fruit trees.

Permanent crops are a good source of cash both for the holders and the country generating handsome income and foreign exchange at the best of times. For instance, between September 2001 and August 2002 Ethiopia exported 53,142 quintals of fruits and nuts and 91,705 quintals of Chat valued at16.5 and 426.7 million Birr, respectively. (CSA,External Trade Statistics). With these bits of information and the dietary and economic importance of the crops in mind, it is not difficult to project the profits that can be reaped from the permanent crops if the farming in this regard is well developed and managed.

Fruits are not only a source of cash but are also a reliable source of nutrition that is essential for the health and growth of humans. There has even been an oft-repeated advice from health authorities that we should include fruits in our daily meals to make it nutritious. The two points made on the importance of permanent crops underscore the fact that fruit farming should be encouraged and expanded to have a steady supply of the desired products.

It is possible to conjecture that permanent crops in Ethiopia are not as well developed as they are in other countries. But the potential to develop them is great as Ethiopia is blessed with diverse climate conducive to the crops. In order to direct efforts towards the development of permanent crops, one requires statistical data regarding this sector of the agriculture. Adequate data on type and volume of production, area under permanent crops and their distribution have not been available. Hence, to bridge up this gap and alleviate the chagrin to data users the CSA has collected data on permanent crops.

Prior to the census, the CSA surveyed the situation about permanent crops in the country and then decided on the types of permanent crops, range of data items and method of enumeration to be included in the census. Hence, only major permanent crops were covered during the census. Data on the types of crops were collected by holder interview while area and yield data were recorded by objective measurements. The numbers of Enset, Hops (Gesho) and fruit trees with the exception of pineapple were determined by counting the plants excluding seedlings.

In estimating the production of permanent crops, area, yield per unit area, yield per tree and number of fruit bearing trees are essential ingredients. These inputs were determined by physically measuring the area under crops in question, picking fruits, coffee berries and Chat produce from randomly demarcated plots or selected trees. The method involved crop cutting from small plots of rectangular shape of different sizes randomly placed in the selected crop field and a tree of fruit bearing age selected from all fruit bearing trees for each crop type and subsequent husking, drying weighing and recording the weight of the harvest of permanent crops. The crop cutting was performed for a sub sample of 20 households of the 30 households selected in each enumeration area. A 4m X 4m plot was demarcated for coffee and Chat and a 2m X 2m for pineapple and 1m X 1m plot for sugar cane were designated for the crop cutting exercise. The yields harvested from these plots and trees were immediately weighed (green weight) and/or weighed again after two weeks of drying to conform to the normal holder harvesting and drying practices. The coffee weight registered was that of clean coffee beans and the hops (Gesho) weight taken was that of the dry one. The green and dry weights were recorded on the appropriate forms.

For simplicity of description of the statistical tables and comparison purposes permanent crops have been grouped into three categories. Each category has a semblance of similarity, which necessitated the categorization. The categories are fruit crops, stimulant crops and other permanent crops. These categories include only permanent crops on which yield data have been collected.

3.1. Fruit Crops

Various kinds of fruit crops grow in different regions of the country yielding varying quantities of fruits within the private peasant holdings in the traditional way. There are also a few fruit farms that are run by enterprises in the modern way. The volume of fruit production obtained from the peasant farms is small signalling the absence of development in fruit farming. A look at the tables helps to crystallize this point.

In Harari Region, fruit crops constituted 15.06% of the permanent crop area. Mangoes, guavas, and papayas shared 61.29%, 21.33% and 12.46 % of the fruit crop area . Urban agricultural holders added 4.14% to the regional permanent crop area. For details, refer to Summary Table V-3 and figures V-3 and V-4.

3.2. Stimulant Crops:

This category embraces cash crops like coffee and Chat, which are extensively grown in many parts of the country. It is needless work to verify by quoting statistical evidences that coffee is a major foreign exchange earner. It may not be even surprising to hear that Chat farming is becoming a rapidly expanding phenomenon in Ethiopia because of its economic importance. As the census covered a wide range of crops, the statistics on Chat would perhaps be more tantalizing than the others. Summary Table V-3 shows the situation in which coffee, Chat, are found in Harari Region.

The data in the table demonstrates, more than three fourth, ie, 83.2% of the regional permanent crop area is under stimulant crops. Of the total area under stimulant crops in the region, 97.88% is that of chat resulting in 99.45% of the volume of stimulant crop production. About 97.80% of the regional stimulant crop area and 99.43% of the production were that of Chat in the rural parts of the region. Chat grown by urban holders accounted for 4.81% of the stimulant crop area and 3.16% of the stimulant crop production in the region.

3.3. Other Permanent Crops

This group includes Enset and sugar cane on which yield data have been collected. Enset is a principal staple crop extensively grown in S.N.N.P and Oromiya Regions. The growers draw a substantial amount of money from the sale of Enset products. Though, sugar cane is an industrial crop it looks that it is not widely practiced by the private peasant holders, as the statistics seem to indicate. It is produced on a small scale by private peasant holders in some pockets of the country and usually does not end up in sugar cane processing plants. The sugar factories in Ethiopia run extensive sugar cane plantations. As the statistics indicate 660,146 quintals of sugar worth 111,773,918 Birr was exported between September 2001 and August 2002. (CSA,External Trade Statistics).

SUMMARY TABLE V-3 AREA AND PRODUCTION OF PERMANENT CROPS BY CROP TYPE FOR PRIVATE PEASANT HOLDINGS

Harari Region

Crop type	All				Rural		Urban	
	Area in Crop (HA)	%	Production (QT)	%	Area in Crop (HA)	Production (QT)	Area in Crop (HA)	Production (QT)
All	2151.62				2062.61		89.01	
Fruit Crops	324.12	100	*	*	321.78	*	2.34	35.05
Avocados	*	*	*	*	*	*	*	*
Bananas	11.6	3.58	213.66	*	11.1	212.12	*	*
Guavas	69.12	21.33	*	*	68.84	*	*	*
Lemons	2.01	0.62	*	*	2.01	*	-	-
Mangoes	198.65	61.29	228.79	*	198.25	222.29	0.4	*
Oranges	0.44	0.14	43.06	*	0.44	43.06	-	-
Papayas	40.4	12.46	*	*	*	*	*	15.3
Pineapples	-	-	-	-	-	-	-	-
Stimulant Crops	1790.12	100	27488.75	100	1703.6	26620.75	86.52	868
Chat	1752.23	97.88	27337.43	99.45	1666.07	26469.51	86.16	867.92
Coffee	34.55	1.93	151.32	0.55	34.19	151.24	0.36	*
Hops	*	*	-	-	*	-	-	-
Other Permanent	*	*	*	*	*	*	*	-
Sugar cane	*	*	*	*	*	*	*	-

Figure V-3 Area Under Permanent Crops

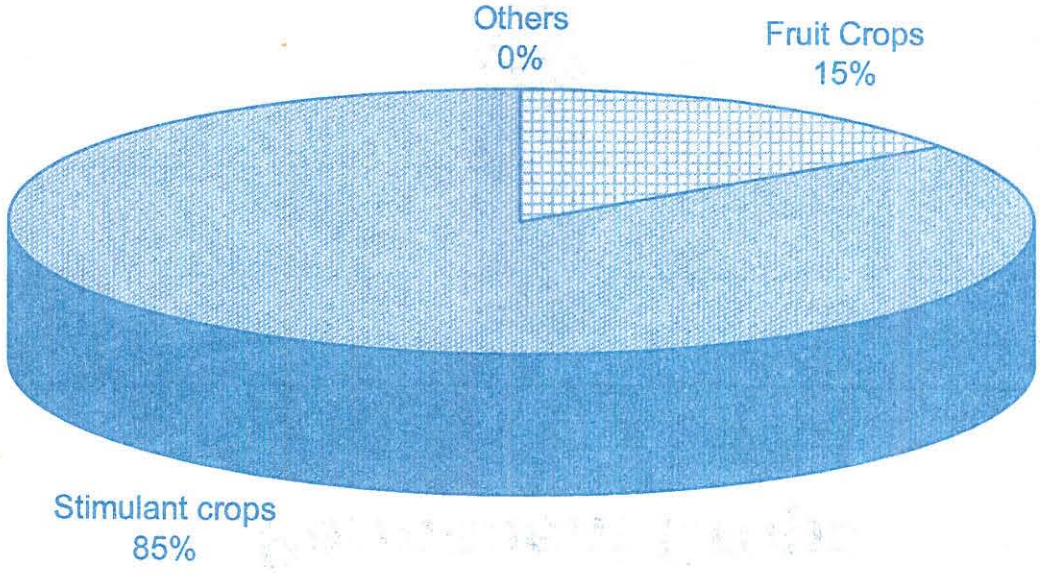
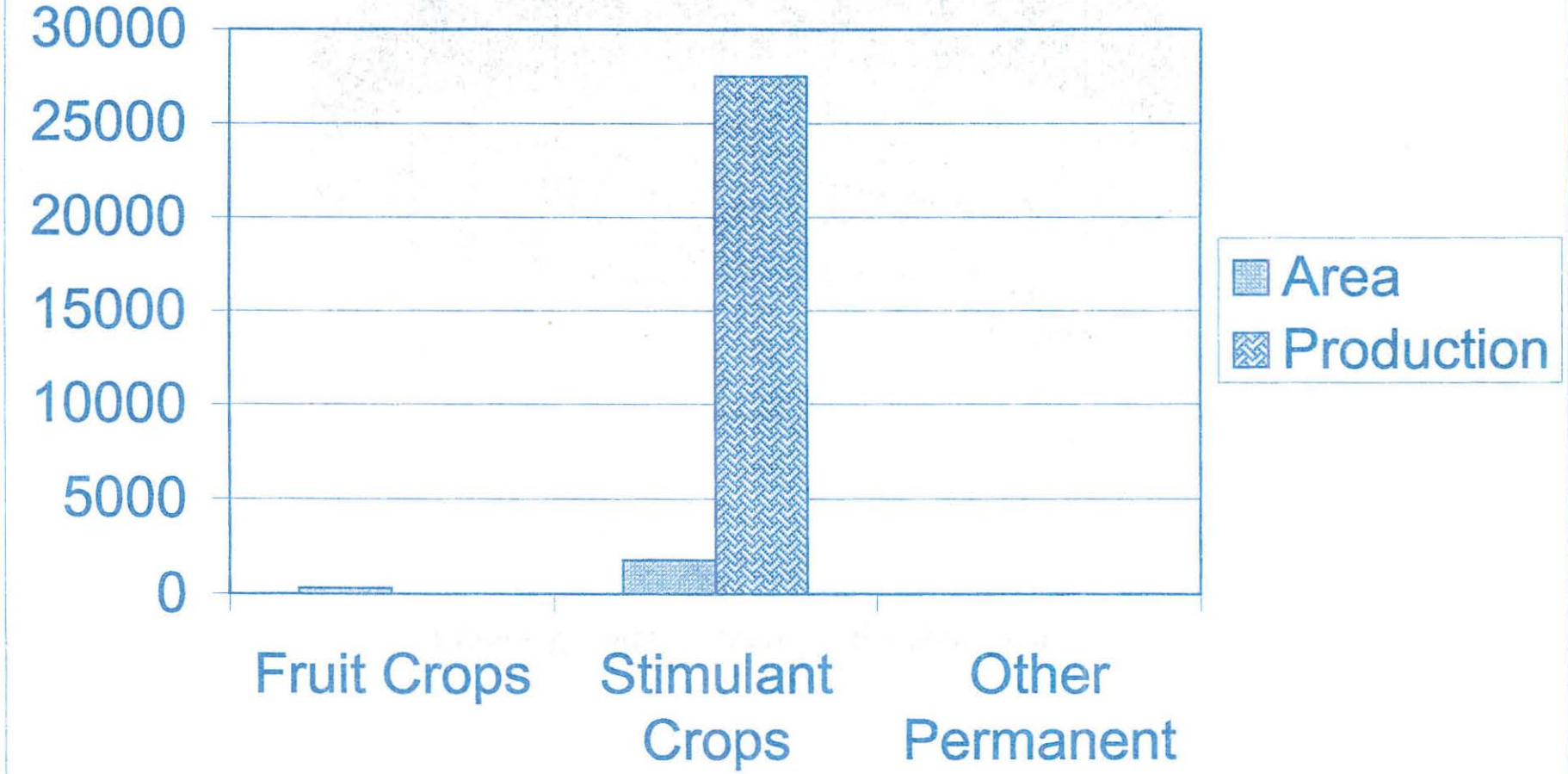


Figure V-4 Area and Production Under Permanent Crops



4. CROP UTILIZATION

Agriculture is the livelihood of the overwhelming majority of the Ethiopians. It is the source of food and cash for those who are engaged in the sector and others. Most agricultural holders acquire the food they consume and the cash they need to cover other expenses only from farming activities. Since farming in Ethiopia is often precarious and usually at the mercy of nature, it is invariably an arduous struggle for the holders to make ends meet. This, it often transpires, is true to the frequent shortfalls in the volume of production that occur in the country.

It is often said that what most Ethiopian agricultural holders produce is only enough to live, ie,subsistence. This would be better said if it was statistically substantiated. There is plenty of information on the volume of crops produced within the private peasant holdings. But there is hardly any information on how the peasants utilize the crops they produce which will be indicative of the fact whether the holders have enough or little to sell in order to meet other expenses for living. Hence data on crop utilization was collected in 2001/02 Ethiopian Agricultural sample Enumeration. Thus in the census taking, crop utilization was defined as the amount of agricultural produce used for own consumption, sale, seed, and wages in kind, animal feed and other purposes.

In light of this information gap, the CSA has collected some data on how holders use their agricultural produce in the agricultural year to provide some information on the subject. The data were collected by interviewing the holders. They were asked to quantify their yearly crop utilization experience in percent based on common practice. Summary Table V-4 convey this information to shed some light on how holders utilize their crop produce. Information was sought for each crop type produced during the census year. The resulting data may help users to have some idea about crop usages by agricultural holders. In order to detect the differences in utilization of the various crops, it is better to look into the data by group of crops as categorized in the summary tables for simplicity and analogy.

Needless to say, as Summary Table V-4 points out, most of the cereal crops produced were used for household consumption. In Harari Region more than 82% of the cereals produced were used for household consumption. About 11 % and 2 % were used for seed and sale, respectively. The remaining 5 % of the cereals produced was used for other purposes like wages, animal feed, etc. When the utilization is considered by crop type, it is easy to realize that between 41 % and 95 % of the crops in the cereals group were used for own consumption and between 1 % and 43 % of these crops were used for sale. Moreover, between 5 % and 15 % of the same crops in the same group were used for seed.

The pattern of utilization of pulses isn't much different either. As shown in Summary Table V-4 about 88 % of pulses were used for household consumption, 8 % for seed and 2 % for sale. The remaining 2 % of pulses were used for wages, animal feed and others. Considering utilization by crop type within the pulses group, between 59 % and 100 % of the crops were utilized for household consumption and between 2 % and 4 % in the pulse group were sold in 2001/02 (1994 E.C.). Moreover, between 4% and 41 % of these crops in the pulses group were also used for seed in the same year.

The picture of oilseeds utilization is distinctly different from that of cereals and pulses as portrayed in Summary Table V-4. About 53 %, 28 % and 16 % were used for sale, household consumption and seed, respectively. Taking utilization by crop type into account, between 28 % and 91 % of each crop type in the oilseeds category were used for household consumption, between 54 % for sale and between 8% and 16 % for seed. It may reasonably be summed up that more of the oilseeds produced are used for sale or as cash crops.

The percentage of vegetables consumed at home is less than that of cereals and pulses. About 53 % and 40 % of the vegetables produced were used for household consumption and sale, respectively. The remaining percent were used for seed, wages, animal feed and others. The percent used by crop type with in the vegetables group were 23 %-91 % for household consumption, 55 % and 74% for sale and 3 % for seed. For details, refer to Summary Table V-4.

The utilization of root crop production follows similar trend with that of vegetables as indicated in the regional Summary Table V-4. About 73 % of the root crops were used for household consumption, 19 % for sale and about 2 % for seed. The ranges of percent utilized by crop type within the root crops category fall between 30 % and 46 % for consumption, 49 % and 70 % for sale and 5\% for seed.

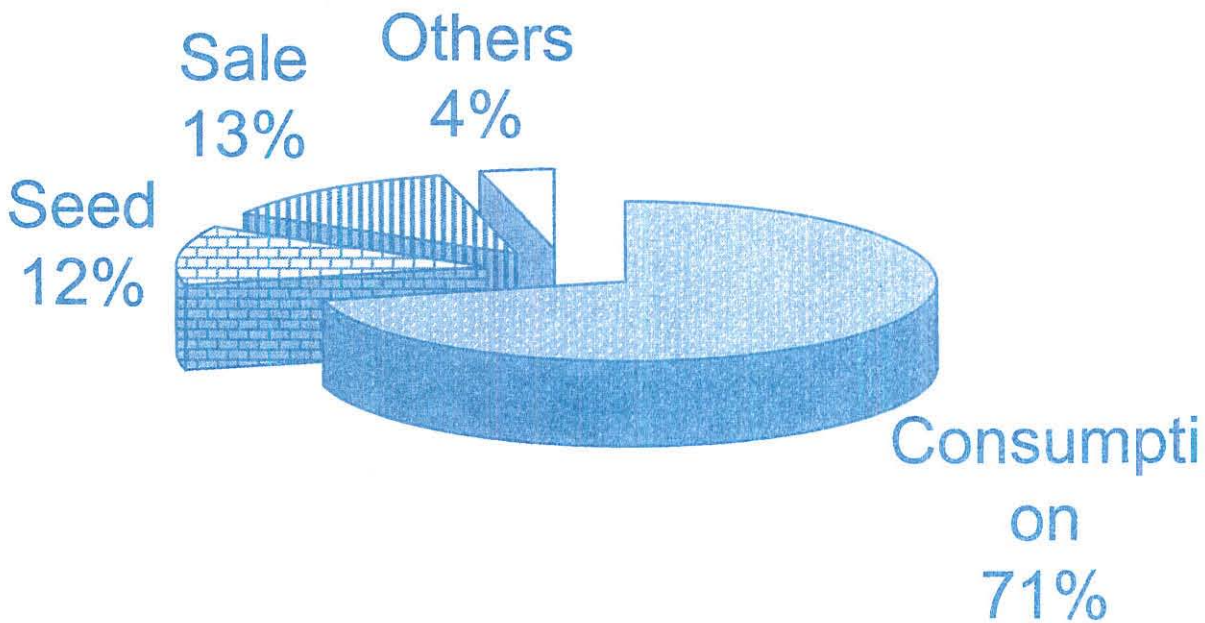
The permanent crop utilization is also different from that of cereals, pulses, vegetables and root crops. Thus, about 33 % of the crop was used for consumption at home and about 59 % for sale. The utilization by crop type within the permanent crop group ranges between 8 % and 75 % for household consumption and between 10% and 87% for sale. Permanent crops are also used as cash crops like oilseeds. It is rational to conclude by looking at Summary Table V-4 that the peasant farmers sell most of what they produce leaving little to consumption.

SUMMARY TABLE V-4 CROP PRODUCTION AND PERCENT OF UTILIZATION
ALL HOLDINGS

Harari Region

Type of Crop	Total Production (Quintal)	Percent Utilized For					
		Household Consumption	Seed	Sale	Wages In kind	Animal Feed	Others
Total	69633.67						
Grain Crops	60418.21	71.18	12.3	12.52	0.12	0.71	3.17
Cereals	46283.2	82.26	11.36	2.04	0.14	0.93	3.28
Teff	*	79.99	10.71	9.3	-	-	-
Barley	*	70.14	4.54	22.62	-	2.55	0.14
Wheat	695.4	84.95	7.85	5.24	0.07	0.48	1.4
Maize	9186.14	84.49	9.75	1.16	0.12	1.34	3.15
Sorghum	36241.56	80.98	13.01	1.5	0.17	0.66	3.68
Finger millet	*	95.1	4.9	-	-	-	-
Oats "Aja"	*	41.45	15.44	43.11	-	-	-
Rice	*	-	-	-	-	-	-
Pulses	21550.56	87.88	8.44	1.88	-	-	1.8
Horse beans	*	58.56	41.44	-	-	-	-
Field peas	*	91.8	8.2	-	-	-	-
Haricot beans	1472.02	91.64	3.99	2.43	-	-	1.94
Chick – peas	*	84.98	7.43	3.52	-	-	4.07
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-
Fenugreek	*	100	-	-	-	-	-
Gibto	-	-	-	-	-	-	-
Oilseeds	12584.35	28.11	16.26	52.6	0.05	-	2.97
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Groundnuts	12494.18	26.56	16.47	53.89	0.05	-	3.02
Safflower	-	-	-	-	-	-	-
Sesame	*	91.28	7.61	-	-	-	1.1
Rapeseed	-	-	-	-	-	-	-
Vegetables	*	53.26	1.64	40.49	-	-	4.61
Lettuce	*	23.18	-	74.32	-	-	2.51
Head cabbage	-	-	-	-	-	-	-
Ethiopian cabbage	*	39.89	1.57	55.41	-	-	3.13
Tomatoes	-	-	-	-	-	-	-
Green peppers	*	90.92	3.02	-	-	-	6.06
Red peppers	-	-	-	-	-	-	-
Swiss chard	*	23.03	-	69.16	-	-	7.81
Root Crops	8663.17	73.02	2.14	18.91	-	3.85	2.08
Beetroot	*	30.08	-	69.92	-	-	-
Carrot	-	-	-	-	-	-	-
Onion	*	-	-	-	-	-	-
Potatoes	*	45.68	4.82	49.07	-	-	0.43
Garlic	-	-	-	-	-	-	-
Taro / Godere	-	-	-	-	-	-	-
Sweet potatoes	4741.87	80.72	1.39	10.41	-	4.93	2.54
Permanent crops	37953.76	33.41	0.63	58.99	0.24	0.06	6.66
Avocados	93.89	74.81	-	24.65	-	-	0.54
Bananas	213.66	73.3	-	22.74	0.03	-	3.93
Guavas	1213.07	29.71	1.15	61.32	0.4	0.01	7.41
Lemons	50.32	23.75	-	75.63	-	-	0.62
Mangoes	228.79	-	-	-	-	-	-
Oranges	43.06	-	-	-	-	-	-
Papayas	5354.82	52.81	-	36.45	0.01	0.02	10.72
Pineapple	-	16.42	-	80.74	-	-	2.85
Chat	27337.43	20.79	-	74.78	0.11	-	4.31
Coffee	151.32	82.1	-	10.21	-	-	7.69
Hops	-	62.84	-	30.81	0.01	-	6.34
Enset	-	-	-	-	-	-	-
Sugar Cane	2659.14	8.04	-	86.71	-	2.39	2.86

Figure V-5 Percent Of Grain Crops Utilized





STATISTICAL TABLES PRESENTING RESULTS AT REGIONAL LEVEL

Tables 5.5 – 5.10

TABLE 5.1- ESTIMATE OF HOLDERS, AREA, PRODUCTION AND YIELD OF TEMPORARY CROPS FOR PRIVATE PEASANT HOLDINGS FOR MEHER SEASON

RURAL HOLDINGS

Harari Region

Crop	Number of Holders	Area		Production		Yield
		Hectares	%	Quintals	%	QT / HA
TOTAL	13221	5987.84	100	63592.36	100	
Grain Crops	13179	5899.62	98.53	56063.33	88.16	
Cereals	12995	4624.92	77.24	43859.47	68.97	
Teff	*	*	*	*	*	*
Barley	431	18.04	0.3	*	*	*
Wheat	1570	99.94	1.67	549.11	0.86	5.49
Maize	8726	667.56	11.15	8267.4	13	12.38
Sorghum	12374	3834.52	64.04	34892.12	54.87	9.1
Finger Millet	*	*	*	-	-	-
Oats / "Aja"	*	*	*	*	*	*
Rice	-	-	-	-	-	-
Pulses	977	25.69	0.43	130.21	0.2	
Horse beans	*	*	*	*	*	*
Field peas	*	*	*	*	*	*
Haricot beans	411	10.62	0.18	55.59	0.09	5.23
Chick – peas	334	*	*	*	*	*
Lentils	-	-	-	-	-	-
Vetch	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-
Fenugreek	*	*	*	*	*	*
Gibto.	-	-	-	-	-	-
Oilseeds	6260	1249.01	20.86	12073.66	18.99	
Neug.	-	-	-	-	-	-
Linseed	-	-	-	-	-	-
Groundnuts	6245	1239.61	20.7	11983.49	18.84	9.67
Safflower	-	-	-	-	-	-
Sesame	192	*	*	*	*	*
Rapeseed	-	-	-	-	-	-
Vegetables	126	*	*	*	*	
Lettuce	-	-	-	-	-	-
Head cabbage	*	*	*	-	-	-
Ethiopian cabbage	-	-	-	-	-	-
Tomatoes	-	-	-	-	-	-
Green peppers	*	*	*	*	*	*
Red peppers	*	*	*	-	-	-
Swiss chard	-	-	-	-	-	-
Root Crops	2031	87.81	1.47	7510.22	11.81	
Beetroot	-	-	-	-	-	-
Carrot	-	-	-	-	-	-
Onion	-	-	-	-	-	-
Potatoes	420	*	*	*	*	*
Garlic	-	-	-	-	-	-
Taro / "Godere"	-	-	-	-	-	-
Sweet potatoes	1703	61.1	1.02	4705.86	7.4	77.02

TABLE 5.2- ESTIMATES OF HOLDERS, AREA PRODUCTION AND YIEDL OF TEMPORARY CROP FOR PRIVATE PEASANT HOLDERS FOR BELG SEASON 2001/02 (1994 E.C.) RURAL.

Harari Region

Crop	Holders	Area Hectares	%	Quintals	%	Production Yield QT/HA
TOTAL	3275	989.27		*		
Grain Crop	3182	949.72	100	*	*	
Cereals	1590	*	*	*	*	
Teff	-	-	-	-	*	-
Barley	-	-	-	-	*	-
Wheat	-	-	-	-	*	-
Maize	1378	225.95	23.79	*	*	*
Sorghum	*	*	*	-	*	-
Finger Millet	-	-	-	-	*	-
Oats/'Aja'	-	-	-	-	*	-
Rice	-	-	-	-	*	-
Pulses	2628	444.59	46.81	1413.7	*	
Horse beans	-	-	-	-	*	-
Field peas	-	-	-	-	*	-
Haricot beans	2628	444.59	46.81	1413.7	*	3.18
Chick-peas	-	-	-	-	*	-
Lentils	-	-	-	-	*	-
Vetch	-	-	-	-	*	-
Soya bean	-	-	-	-	*	-
Fenugreek	-	-	-	-	*	-
Gibto	-	-	-	-	*	-
Oilseeds	*	*	*	-	*	
Neug	-	-	-	-	*	-
Linseed	-	-	-	-	*	-
Groundnut	*	*	*	-	*	-
Sunflower	-	-	-	-	*	-
Sesame	-	-	-	-	*	-
Rapeseed	-	-	-	-	*	-
Vegetables	*	*	*	-	-	
Lettuce	-	-	*	-	-	-
Head Cabbage	-	-	*	-	-	-
Ethiopian	*	*	*	-	-	-
Tomatoes	*	*	*	-	-	-
Green pepper	-	-	*	-	-	-
Red pepper	-	-	*	-	-	-
Swiss chan	-	-	*	-	-	-
Root crops	372	*	*	*	*	
Beetroot	-	-	*	-	*	-
Carrot	-	-	*	-	*	-
Onion	*	*	*	-	*	-
Potatoes	305	*	*	*	*	*
Garlic	-	-	*	-	*	-
Taro/Godere	-	-	*	-	*	-
Sweet potatoes	*	*	*	*	*	*

TABLE 5.3- ESTIMATE OF HOLDERS, AREA, PRODUCTION AND YIELD OF TEMPORARY CROPS FOR PRIVATE PEASANT HOLDINGS FOR MEHER SEASON

URBAN HOLDINGS

Harari Region

Crop	Number of Holders	Area		Production		Yield
		Hectares	%	Quintals	%	QT / HA
TOTAL	780	217.12		3472.59		
Grain Crops	768	211.17	100	2877.13	100	
Cereals	767	186.11	88.13	2359.68	82.02	
Teff	-	-	-	-	-	-
Barley	14	*	*	4.79	0.17	*
Wheat	40	4.8	2.27	*	*	*
Maize	585	97.63	46.23	854.69	29.71	8.75
Sorghum	524	81.55	38.62	1349.44	46.9	16.55
Finger Millet	*	*	*	*	*	*
Oats / 'Aja'	-	-	-	-	-	-
Rice	*	-	-	*	*	-
Pulses	*	*	*	*	*	
Horse beans	*	*	*	*	*	*
Field peas	*	*	*	*	*	*
Haricot-beans	*	*	*	*	*	*
Chick – peas	-	-	-	-	-	-
Lentils	-	-	-	-	-	-
Vetch	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-
Gibto	-	-	-	-	-	-
Oilseeds	190	20.87	9.88	510.69	17.75	
Neug	-	-	-	-	-	-
Linseed	-	-	-	-	-	-
Groundnuts	190	20.87	9.88	510.69	17.75	24.47
Safflower	-	-	-	-	-	-
Sesame	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-
Vegetables	65	*	*	*	*	
Lettuce	33	*	*	*	*	*
Head cabbage	-	-	*	-	*	-
Ethiopian cabbage	61	*	*	*	*	*
Tomatoes	-	-	*	-	*	-
Green peppers	-	-	*	-	*	-
Red peppers	-	-	*	-	*	-
Swiss chard	*	*	*	*	*	*
Root Crops	23	*	*	61.97	100	
Beetroot	*	-	*	*	*	-
Carrot	-	-	*	-	-	-
Onion	*	-	*	*	*	-
Potatoes	*	-	*	*	*	-
Garlic	-	-	*	-	-	-
Taro / 'Godere'	-	-	*	-	-	-
Sweet potatoes	18	*	*	*	*	*

TABLE 5.4 - ESTIMATE OF HOLDERS, AREA, PRODUCTION AND YIELD OF TEMPORARY CROPS FOR PRIVATE

PEASANT HOLDINGS FOR BOTH SEASONS

ALL HOLDINGS

Harari Region

Crop	Number of Holders	Area		Production		Yield
		Hectares	%	Quintals	%	QT / HA
TOTAL	14153	7194.23		69633.67		
Grain Crops	14070	7060.51	100	60418.21	100	
Cereals	13870	5300.74	75.08	46283.2	76.6	
Teff	*	*	*	*	*	*
Barley	445	20.15	0.29	*	*	*
Wheat	1610	104.74	1.48	695.4	1.15	6.64
Maize	9824	991.14	14.04	9186.14	15.2	9.27
Sorghum	12916	4179.82	59.2	36241.56	59.98	8.67
Finger Millet	*	*	*	*	*	*
Oats / "Aja"	*	*	*	*	*	*
Rice	*	-	-	*	*	-
Pulses	3362	474.48	6.72	1550.66	2.57	
Horse beans	90	1.42	0.02	*	*	*
Field peas	*	*	*	*	*	*
Haricot beans	2910	457.8	6.48	1472.02	2.44	3.22
Chick – peas	334	*	*	*	*	*
Lentils	-	-	-	-	-	-
Vetch	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-
Fenugreek	*	*	*	*	*	*
Gibto.	-	-	-	-	-	-
Oilseeds	6450	1285.3	18.2	12584.35	20.83	
Neug.	-	-	-	-	-	-
Linseed	-	-	-	-	-	-
Groundnuts	6435	1275.9	18.07	12494.18	20.68	9.79
Safflower	-	-	-	-	-	-
Sesame	192	*	*	*	*	*
Rapeseed	-	-	-	-	-	-
Vegetables	391	22.32	100	*	*	
Lettuce	33	*	*	*	*	*
Head cabbage	*	*	*	-	*	-
Ethiopian cabbage	148	*	*	*	*	*
Tomatoes	*	*	*	-	*	-
Green peppers	*	*	*	*	*	*
Red peppers	*	*	*	-	*	-
Swiss chard	*	*	*	*	*	*
Root Crops	2181	111.41	100	8663.17	100	
Beetroot	*	-	-	*	*	-
Carrot	-	-	-	-	-	-
Onion	*	*	*	*	*	*
Potatoes	620	*	*	*	*	*
Garlic	-	-	-	-	-	-
Taro / "Godere"	-	-	-	-	-	-
Sweet potatoes	1721	63.52	57.01	4741.87	54.74	74.65

TABLE 5.5 - ESTIMATE OF HOLDERS, AREA, PRODUCTION AND YIELD OF PERMANENT CROPS FOR PRIVATE PEASANT HOLDINGS

RURAL HOLDINGS

Harari Region

PERMANENT CROPS	NUMBER OF HOLDERS REPORTING	AREA IN CROP (HA)	%	TOTAL NUMBER OF TREES	NUMBER OF TREES PER HECTARE	NUMBER OF TREES BEARING	PRODUCTION (QT)	%	YIELD (QT / HA)
ALL	12060	2062.61							
Fruit Crops	7277	321.78	100	85300	265	71452	*	*	
Avocados	*	*	*	*	*	*	*	*	*
Bananas	1014	11.1	3.45	4170	376	2901	212.12	*	19.11
Guavas	2507	68.84	21.39	10674	155	8838	*	*	*
Lemons	324	2.01	0.62	510	254	496	*	*	*
Mangoes	4470	198.25	61.61	26298	133	19118	222.29	*	1.12
Oranges	146	0.44	0.14	181	411	166	43.06	*	97.86
Papayas	1884	*	*	*	*	*	*	*	*
Pineapples	-	-	-	-	-	-	-	-	-
Stimulant Crops	10692	1703.6	100	26221	15	26115	26620.75	100	
Chat	10444	1666.07	97.8				26469.51	99.43	15.89
Coffee	1358	34.19	2.01				151.24	0.57	4.42
Hops (Gesho)	*	*	*	*	*	-	-	-	-
Other Permanent	533	*	*	547	*	514	*	*	
Sugar Cane	501	*	*		*	514	*	*	*

TABLE 5.6 - ESTIMATE OF HOLDERS, AREA, PRODUCTION AND YIELD OF PERMANENT CROPS FOR PRIVATE PEASANT HOLDINGS

URBAN HOLDINGS

Harari Region

PERMANENT CROPS	NUMBER OF HOLDERS REPORTING	AREA IN CROP (HA)	%	TOTAL NUMBER OF TREES	NUMBER OF TREES PER HECTARE	NUMBER OF TREES BEARING	PRODUCTION (QT)	%	YIELD (QT / HA)
ALL	381	89.01							
Fruit Crops	85	2.34	100	*	*	416	35.05	100	
Avocados	*	*	*	*	*	*	*	*	*
Bananas	15	*	*	*	*	*	*	*	*
Guavas	28	*	*	*	*	*	*	*	*
Lemons	-	-	-	-	-	-	-	-	-
Mangoes	37	0.4	17.09	47	118	21	*	*	*
Oranges	-	-	-	-	-	-	-	-	-
Papayas	30	*	*	*	*	*	15.3	43.65	*
Pineapples	-	-	-	-	-	-	-	-	-
Stimulant Crops	329	86.52	100	7520	87	5757	868	100	
Chat	326	86.16	99.58				867.92	99.99	10.07
Coffee	6	0.36	0.42				*	*	*
Hops (Gesho)	-	-	-	-	-	-	-	-	-
Other Permanent	*	*	*	*	*	*	-	-	
Sugar Cane	*	*	*		*	*	-	-	-

TABLE 5.7 - ESTIMATE OF HOLDERS, AREA, PRODUCTION AND YIELD OF PERMANENT CROPS FOR PRIVATE PEASANT HOLDINGS

ALL HOLDINGS

Harari Region

PERMANENT CROPS	NUMBER OF HOLDERS REPORTING	AREA IN CROP (HA)	%	TOTAL NUMBER OF TREES	NUMBER OF TREES PER HECTARE	NUMBER OF TREES BEARING	PRODUCTION (QT)	%	YIELD (QT / HA)
ALL	12441	2151.62							
Fruit Crops	7362	324.12	100	86670	267	71868	*	*	
Avocados	*	*	*	*	*	*	*	*	*
Bananas	1029	11.6	3.58	5110	441	2946	213.66	*	18.42
Guavas	2535	69.12	21.33	10719	155	8883	*	*	*
Lemons	324	2.01	0.62	510	254	496	*	*	*
Mangoes	4507	198.65	61.29	26345	133	19139	228.79	*	1.15
Oranges	146	0.44	0.14	181	411	166	43.06	*	97.86
Papayas	1914	40.4	12.46	*	*	*	*	*	*
Pineapples	-	-	-	-	-	-	-	-	-
Stimulant Crops	11021	1790.12	100	33741	19	31872	27488.75	100	
Chat	10771	1752.23	97.88				27337.43	99.45	15.6
Coffee	1363	34.55	1.93				151.32	0.55	4.38
Hops (Gesho)	*	*	*	*	*	-	-	-	-
Other Permanent	534	*	*	782	*	735	*	*	
Enset	*	*	*	*	*	-	-	-	-
Sugar Cane	502	*	*		*	735	*	*	*

TABLE 5.8 - CROP PRODUCTION AND PERCENT OF UTILIZATION
RURAL HOLDINGS

Harari Region

Type of Crop	Total Production (Quintal)	Percent Utilized For					
		Household Consumption	Seed	Sale	Wages In kind	Animal Feed	Others
Total	63952.36						
Grain Crops	56063.33	71.21	12.4	12.52	0.05	0.69	3.13
Cereals	43859.47	82.47	11.45	1.88	0.07	0.9	3.22
Teff	*	79.99	10.71	9.3	-	-	-
Barley	*	69.81	4.25	23.31	-	2.63	-
Wheat	549.11	85	7.89	5.28	-	0.45	1.39
Maize	8267.4	85.02	9.79	0.81	0.03	1.33	3.03
Sorghum	34892.12	81.06	13.13	1.4	0.11	0.64	3.67
Finger millet	-	-	-	-	-	-	-
Oats/aja	*	41.45	15.44	43.11	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	130.21	87.6	8.67	1.89	-	-	1.84
Horse beans	*	58.56	41.44	-	-	-	-
Field peas	*	91.5	8.5	-	-	-	-
Haricot beans	55.59	91.41	4.18	2.43	-	-	1.98
Chick – peas	*	84.98	7.43	3.52	-	-	4.07
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-
Fenugreek	*	100	-	-	-	-	-
Gibto	-	-	-	-	-	-	-
Oilseeds	12073.66	28.27	16.34	52.44	-	-	2.95
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Groundnuts	11983.49	26.68	16.56	53.76	-	-	3
Safflower	-	-	-	-	-	-	-
Sesame	*	91.28	7.61	-	-	-	1.1
Rapeseed	-	-	-	-	-	-	-
Vegetables	*	90.92	3.02	-	-	-	6.06
Lettuce	-	-	-	-	-	-	-
Head Cabbage	-	-	-	-	-	-	-
Ethiopian cabbage	-	-	-	-	-	-	-
Tomatoes	-	-	-	-	-	-	-
Green Peppers	*	90.92	3.02	-	-	-	6.06
Red peppers	-	-	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-
Root Crops	11.81	72.94	2.15	18.93	-	3.89	2.08
Beetroot	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-
Onion	-	-	-	-	-	-	-
Potatoes	*	45.73	4.77	49.06	-	-	0.43
Garlic	-	-	-	-	-	-	-
Taro/Godere	-	-	-	-	-	-	-
Sweet potatoes	7.4	80.63	1.41	10.42	-	4.99	2.54
Permanent crops	7162.56	33.38	0.64	59.03	0.22	0.06	6.67
Avocados	92.46	76	-	24	-	-	-
Bananas	212.12	74	-	22.03	-	-	3.98
Guavas	1202.79	29.76	1.18	61.2	0.37	-	7.49
Lemons	50.32	23.4	-	75.97	-	-	0.62
Mangoes	222.29	-	-	-	-	-	-
Oranges	43.06	-	-	-	-	-	-
Papayas	5339.52	52.62	-	36.67	-	-	10.7
Pineapple	-	16.42	-	80.74	-	-	2.85
Chat	26469.51	20.7	-	74.9	0.11	-	4.29
Coffee	759.5	82.1	-	10.21	-	-	7.69
Hops	-	62.87	-	30.98	-	-	6.16
Enset	-	-	-	-	-	-	-
Sugar Cane	2659.14	8.04	-	86.71	-	2.39	2.86

TABLE 5.9 - CROP PRODUCTION AND PERCENT OF UTILIZATION

URBAN HOLDINGS

Harari Region

Type of Crop	Total Production (Quintal)	Percent Utilized For					
		Household Consumption	Seed	Sale	Wages In kind	Animal Feed	Others
Total	3472.59						
Grain Crops	2877.13	70.42	9.99	12.68	1.58	1.14	4.19
Cereals	2359.68	78.01	9.58	5.12	1.61	1.34	4.34
Teff	-	-	-	-	-	-	-
Barley	4.79	80.82	14.34	-	-	-	4.84
Wheat	*	83.3	6.71	3.92	2.64	1.56	1.86
Maize	854.69	76.48	9.09	6.44	1.43	1.53	5.04
Sorghum	1349.44	79.01	10.22	4	1.75	1.18	3.84
Finger millet	*	95.1	4.9	-	-	-	-
Oats/aja		-	-	-	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	*	96.79	0.95	1.56	-	-	0.7
Horse beans	*	-	-	-	-	-	-
Field peas	*	97.23	2.77	-	-	-	-
Haricot beans	*	96.56	-	2.37	-	-	1.06
Chick – peas	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-
Oilseeds	510.69	22.95	13.59	57.98	1.66	0.09	3.74
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Groundnuts	510.69	22.95	13.59	57.98	1.66	0.09	3.74
Safflower	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-
Vegetables	*	32.45	0.88	62.87	-	-	3.81
Lettuce	*	23.18	-	74.32	-	-	2.51
Head Cabbage	-	-	-	-	-	-	-
Ethiopian cabbage	*	39.89	1.57	55.41	-	-	3.13
Tomatoes	-	-	-	-	-	-	-
Green Peppers	-	-	-	-	-	-	-
Red peppers	-	-	-	-	-	-	-
Swiss chard	*	23.03	-	69.16	-	-	7.81
Root Crops	61.97	79.02	1.24	17.31	-	0.4	2.04
Beetroot	*	30.08	-	69.92	-	-	-
Carrot	-	-	-	-	-	-	-
Onion	*	-	-	-	-	-	-
Potatoes	*	29.73	19.82	50.45	-	-	-
Garlic	-	-	-	-	-	-	-
Taro/Godere	-	-	-	-	-	-	-
Sweet potatoes	*	86.88	-	10.3	-	0.46	2.36
Permanent crops		35.05	-	56.69	1.57	0.36	6.34
Avocados	*	9.79	-	60.14	-	-	30.07
Bananas	*	9.97	-	87.47	2.56	-	-
Guavas	*	-	-	-	-	-	-
Lemons	-	-	-	-	-	-	-
Mangoes	*	59.69	-	28.14	-	-	12.17
Oranges	-	-	-	-	-	-	-
Papayas	-	65.53	-	19.12	0.46	0.8	14.09
Pineapple	15.3	-	-	-	-	-	-
Chat	-	27.72	-	65.92	1.88	0.31	4.17
Coffee	*	100	-	-	-	-	-
Hops	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-

TABLE 5.10 - CROP PRODUCTION AND PERCENT OF UTILIZATION

ALL HOLDINGS

Harari Region

Type of Crop	Total Production (Quintal)	Percent Utilized For					
		Household Consumption	Seed	Sale	Wages In kind	Animal Feed	Others
Total	69633.67						
Grain Crops	60418.21	71.18	12.3	12.52	0.12	0.71	3.17
Cereals	46283.2	82.26	11.36	2.04	0.14	0.93	3.28
Teff	*	79.99	10.71	9.3	-	-	-
Barley	*	70.14	4.54	22.62	-	2.55	0.14
Wheat	695.4	84.95	7.85	5.24	0.07	0.48	1.4
Maize	9186.14	84.49	9.75	1.16	0.12	1.34	3.15
Sorghum	36241.56	80.98	13.01	1.5	0.17	0.66	3.68
Finger millet	*	95.1	4.9	-	-	-	-
Oats "Aja"	*	41.45	15.44	43.11	-	-	-
Rice	*	-	-	-	-	-	-
Pulses	21550.56	87.88	8.44	1.88	-	-	1.8
Horse beans	*	58.56	41.44	-	-	-	-
Field peas	*	91.8	8.2	-	-	-	-
Haricot beans	1472.02	91.64	3.99	2.43	-	-	1.94
Chick – peas	*	84.98	7.43	3.52	-	-	4.07
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-
Fenugreek	*	100	-	-	-	-	-
Gibto	-	-	-	-	-	-	-
Oilseeds	12584.35	28.11	16.26	52.6	0.05	-	2.97
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Groundnuts	12494.18	26.56	16.47	53.89	0.05	-	3.02
Safflower	-	-	-	-	-	-	-
Sesame	*	91.28	7.61	-	-	-	1.1
Rapeseed	-	-	-	-	-	-	-
Vegetables	*	53.26	1.64	40.49	-	-	4.61
Lettuce	*	23.18	-	74.32	-	-	2.51
Head cabbage	-	-	-	-	-	-	-
Ethiopian cabbage	*	39.89	1.57	55.41	-	-	3.13
Tomatoes	-	-	-	-	-	-	-
Green peppers	*	90.92	3.02	-	-	-	6.06
Red peppers	-	-	-	-	-	-	-
Swiss chard	*	23.03	-	69.16	-	-	7.81
Root Crops	8663.17	73.02	2.14	18.91	-	3.85	2.08
Beetroot	*	30.08	-	69.92	-	-	-
Carrot	-	-	-	-	-	-	-
Onion	*	-	-	-	-	-	-
Potatoes	*	45.68	4.82	49.07	-	-	0.43
Garlic	-	-	-	-	-	-	-
Taro / Godere	-	-	-	-	-	-	-
Sweet potatoes	4741.87	80.72	1.39	10.41	-	4.93	2.54
Permanent crops	37953.76	33.41	0.63	58.99	0.24	0.06	6.66
Avocados	93.89	74.81	-	24.65	-	-	0.54
Bananas	213.66	73.3	-	22.74	0.03	-	3.93
Guavas	1213.07	29.71	1.15	61.32	0.4	0.01	7.41
Lemons	50.32	23.75	-	75.63	-	-	0.62
Mangoes	228.79	-	-	-	-	-	-
Oranges	43.06	-	-	-	-	-	-
Papayas	5354.82	52.81	-	36.45	0.01	0.02	10.72
Pineapple	-	16.42	-	80.74	-	-	2.85
Chat	27337.43	20.79	-	74.78	0.11	-	4.31
Coffee	151.32	82.1	-	10.21	-	-	7.69
Hops	-	62.84	-	30.81	0.01	-	6.34
Enset	-	-	-	-	-	-	-
Sugar cane	2659.14	8.04	-	86.71	-	2.39	2.86

ANNEX TABLES PRESENTING ESTIMATES, STANDARD ERRORS AND COEFFICIENTS OF VARIATION FOR SELECTED AREA AND PRODUCTION VARIABLES

Annex Tables 5.1 - 5.2

Annex Table 5.1

Estimate of Area, Production and their Standard Errors and Coefficients of Variation for Temporary Crops

All Holdings

Harari Region

Crop	Holders	S.E.	C.V.	Area	S.E.	C.V	Production	S.E.	C.V.
Total	14153	416	3	7194.23	758	11	68255.32	7741	11
Grain Crops	14070	403	3	7060.51	748	11	59039.85	7383	13
Cereals	13870	407	3	5300.74	555	10	46283.2	5332	12
Teff	48	28	58	3.42	2	68	17.11	12	68
Barley	445	173	39	20.15	9	44	136.43	74	54
Wheat	1610	493	31	104.74	34	33	695.4	209	30
Maize	9824	621	6	991.14	134	14	9186.14	1231	13
Sorghum	12916	409	3	4179.82	473	11	36241.56	4763	13
Finger millet	44	30	67	0.73	1	69	0.17	0	82
Oats / 'Aja'	44	27	60	0.74	1	70	2.08	1	70
Rice	4	5	115	-	-	-	4.3	5	115
Pulses	3362	588	17	474.48	113	24	172.31	41	24
Horse beans	90	43	49	1.42	1	49	1.11	1	57
Field peas	194	110	57	4.57	2	53	43.34	28	64
Haricot beans	2910	601	21	457.8	114	25	93.67	25	27
Chick-peas	334	129	39	9.87	5	56	31.77	18	56
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	61	47	76	0.81	1	75	2.43	2	75
Gibto	-	-	-	-	-	-	-	-	-
Oilseeds	6450	889	14	1285.3	295	23	12584.35	2983	24
Neug	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Groundnuts	6435	887	14	1275.9	294	23	12494.18	2960	24
Safflower	-	-	-	-	-	-	-	-	-
Sesame	192	79	41	9.4	5	54	90.16	55	61
Rapeseed	-	-	-	-	-	-	-	-	-
Vegetables	391	129	33	22.32	10	46	552.3	420	76
Lettuce	33	11	33	0.95	1	56	62.83	50	79
Head cabbage	23	24	106	0.07	0	100	-	-	-
Ethiopian cabbage	148	54	36	11.7	6	53	407.44	320	79
Tomatoes	113	103	91	8.89	8	92	-	-	-
Green peppers	71	41	58	0.19	0	74	18.81	14	77
Red peppers	32	24	75	0.16	0	106	-	-	-
Swiss chard	21	11	56	0.36	0	78	63.22	51	81
Root crops	2181	414	19	111.41	32	29	8663.17	2955	34
Beet root	1	1	95	-	-	-	0.07	0	86
Carrot	-	-	-	-	-	-	-	-	-
Onion	31	30	97	0.13	0	108	0.15	0	100
Potatoes	620	262	42	47.76	28	59	3921.09	2832	72
Garlic	-	-	-	-	-	-	-	-	-
Taro / 'Godere'	-	-	-	-	-	-	-	-	-
Sweet potatoes	1721	347	20	63.52	16	25	4741.87	1121	24

Annex Table 5.2

Estimates of Holders, Area, Production and their Standard Errors and Coefficients of Variations for Permanent crops

All Holdings

Harari Region

Crop	Holders	S.E.	C.V.	Area	S.E	C.V	Production	S.E.	C.V.
Avocados	12441	481	4	2152	185	9	37345.49	6783	18
Bananas	7362	569	8	324	53	16	7197.61	5250	73
Guavas	158	113	72	2	2	79	93.89	69	73
Lemons	1029	214	21	12	5	42	213.66	72	33
Mangoes	2535	372	15	69	15	22	1213.07	713	59
Oranges	324	122	38	2	1	42	50.32	26	51
Papayas	4507	684	15	199	44	22	228.79	53	23
Pineapples	146	61	42	-	-	48	43.06	21	48
Chat	1914	305	16	40	20	49	5354.82	4731	88
Coffee	-	-	-	-	-	-	-	-	-
Hops	11021	734	7	1790	201	11	27488.75	4214	15
Enset	10771	743	7	1752	201	11	27337.43	4215	15
Sugar cane	1363	373	27	35	10	29	151.32	46	30

CHAPTER VI

FARM MANAGEMENT PRACTICES

1 INTRODUCTION

Ethiopia is endowed with abundant resources 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 country's 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 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 points 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.

Till recently traditional practice such as use of animal dung and crop residue crop rotation and expanding cultivable crop land had helped a lot to increase productivity, however, 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 and other related problems 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.

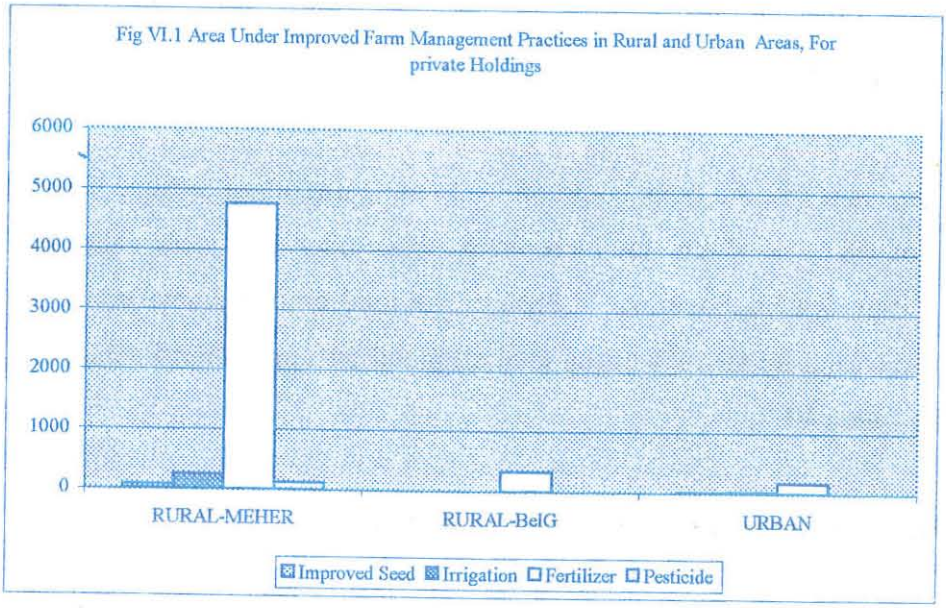
This chapter is therefore, deals with the agricultural census data that indicates the type of inputs applied, quantity of inputs applied, the irrigated cropland area, estimates of cropland area damage, number of holders who applied different agricultural inputs and farm management practices, and number of holders covered by extension package programs in Harari Region. 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 for some relevant variables.

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 Harari Region. 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 Harari Region are briefly discussed.

The census data show that Harari Region predominantly produces grain crops and the major crops either in terms of the magnitude of area and volume of production includes sorghum, maize and wheat, that accounted for about 56.36% 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

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 Harari Region, fertilizers were applied on 5272 hectares (56.27%) of the total cultivated cropland area. Of this total area fertilized cropland, the share of rural and urban

areas was found to be 96.72% and 3.28%, respectively. Moreover, the proportion of total fertilized cropland areas in rural areas for Meher season was 4768 hectares (90.00%) as compared to only 356 hectares (6.72%) 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 and Fig VI.1.

Furthermore, out of the total fertilized cropland areas, 60.49% were under cereals, 3.19% under pulses, 8.36% under oil seeds, 1.48% under vegetables and root crops, and 26.45% under permanent crops where fruits and stimulants contributed 3.10% and 23.45%, respectively. 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 48.62% of the total cropland area under fertilizers. The second important fertilized crop is Chat covering 23.88% of the total cropland area under fertilizers. Maize ranks third taking up 10.95% 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 169 hectares. Of the total cropland areas treated with pesticides, the share of rural areas was found to be 71.60% while the rest is the share of urban areas. 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 permanent crop (about 52.67%), where as about 34.91% of the fields under cereal, pulses, oilseeds, vegetables and root crops were treated with pesticides. Out of all cropland areas on which

pesticides are applied, Chat accounts for about 87 hectares followed by sorghum and maize, accounting for about 41 and 18 hectares, respectively. 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 9369 hectares. Of this total, only 89 hectares (0.95%) was sown with improved variety of seeds. The share of rural and urban areas was found to be 85.39 percent and 14.61 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 was also found to be negligible (See Fig VI.1)

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 82.02% while the remaining 17.98% 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 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 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 reported to be 315 hectares which accounted for about three percent of the total cropland areas. Of the total irrigated cropland areas, the share of the rural and urban areas was found to be 92.06% and 9.74%, 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 share of Meher season constituted 78.10 percent compared to 21.90 percent for Belg season.

As indicated in Summary Table VI.1, out of the total irrigated cropland areas in the region 45.40% were under cereals and 27.62% under stimulants while pulses, oil seeds vegetables and root crops covered the remaining 26.98% of the total irrigated area.

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

In 2001/02 Agricultural Sample Enumeration, the total number of holders applying fertilizers in Harari Regional State, is estimated to be about 12,459. Of these total private holders, about 12,035 holders (96.60%) were in rural and about 3.40% in urban areas. The application of fertilizers in Meher and Belg seasons for private holdings in rural areas shows a great variation, that is, 85.97% of the holders applied fertilizers in Meher season while only 10.63 percent applied in Belg season (See Summary Tables VI.3 and VI.4).

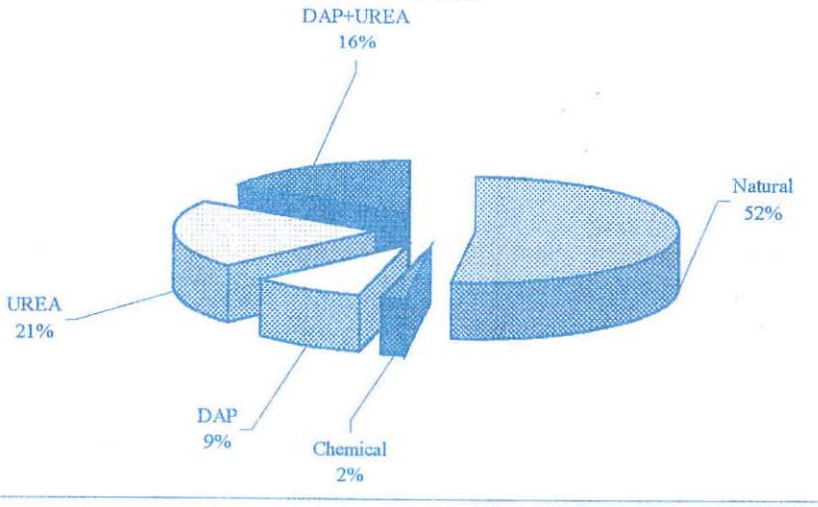
With regard to the type of fertilizers applied, the great majority of holders applied natural fertilizers (8973). When we come to the utilization of chemical fertilizers, about 5472 holders were reported to apply commercial fertilizers in the 2001/02 crop year. However, the application of chemical fertilizers for Belg season was not reported in census

enumeration. In urban areas for private holdings, a total of 554 holders applied natural and chemical fertilizers. Among the types of fertilizers used, natural fertilizers were applied in a larger cultivated area of cropland, which is about 2742 hectares (that is, 52% of fertilized cropland area).

Next to natural fertilizers, considerable amount of cropland area was covered by UREA which is 1095 hectares (20.77%) and a mixture of DAP and UREA was applied on 846 hectares (16.04) (See Fig VI.2 and Summary Table VI.3)

Furthermore, the data in Summary Table VI.3 indicated that the total quantity of chemical fertilizers applied by holders in the rural areas was estimated at about 1145 quintals, of which, the share of the DAP and UREA mixture was the highest accounting for about 49.08 percent of the total volume of chemical fertilizers applied. This is followed by UREA accounting for about 35.02 percent (See Fig VI.3 and Summary Table VI.3)

FiG VI.2 Fertilizers Applied Area by type in Rural and Urban Areas For Private Holdings

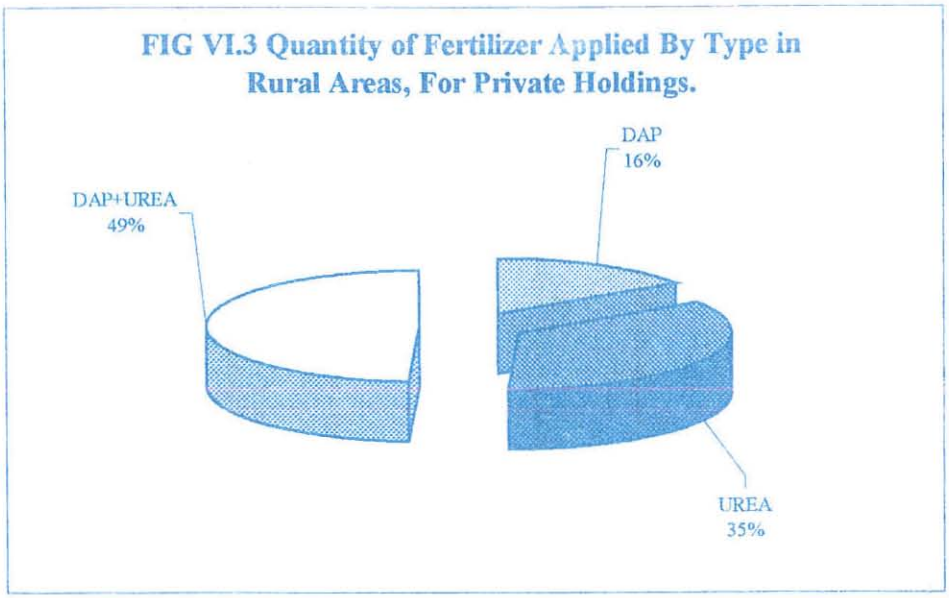


SUMMARY TABLE VI.1: Total Area Under Improved Farm Management Practices by Crop Categories in Rural and Urban Areas, Both Seasons, for Private Holdings.

ITEM	Area in Hectares									
	Total	Grains				Vegetables	Root Crops	Permanent Crops		
		Cereals	Pulses	Oilseeds	Others			Fruits	Stimulant	Other
Total Area										
Rural and Urban	9369	5301	475	1285	*	29	112	338	1790	39
Rural	9062	5115	470	1264	*	25	110	335	1704	39
Meher	8073	4625	26	1249	*	7	88	335	1704	39
Belg	989	*	445	*	-	*	*	-	-	-
Urban (Meher)	307	186	*	21	-	*	*	3	87	*
Improved Seeds										
Rural and Urban	89	73	-	*	*	*	*	*	*	-
Percent	100	82.02	-	*	*	*	*	*	*	-
Rural	76	61	-	*	-	*	*	*	*	-
Percent	85.39	86.61	5.6	*	-	*	*	*	*	-
Meher	76	61	-	*	-	*	-	*	*	*
Percent	91.87	80.26	-	*	-	*	-	*	*	*
Belg	*	-	-	-	-	-	-	-	-	-
Percent	*	-	-	-	-	-	-	-	-	-
Urban (Meher)	13	13	*	*	-	*	-	*	*	-
Percent	14.61	-	-	*	-	*	-	*	*	-
Irrigation										
Rural and Urban	315	143	*	*	*	*	*	*	87	-
Percent	100	45.40	*	*	*	*	*	*	25.71	-
Rural	290	133	*	*	*	*	*	*	87	*
Percent	92.06	45.86	*	*	*	*	*	*	27.93	*
Meher	246	97	*	*	*	*	*	*	81	*
Percent	78.10	39.43	*	*	*	*	*	*	32.93	*
Belg	*	*	-	-	-	*	-	-	-	-
Percent	*	*	-	-	-	-	-	-	-	-
Urban (Meher)	25	11	*	*	-	*	*	*	6.9	*
Percent	7.62	45.83	*	*	-	*	*	*	28.75	*
Fertilizer										
Rural and Urban	5298	3205	169	443	*	13	65	164	1237	*
Percent	100	60.49	3.19	8.36	*	0.25	1.23	3.10	23.35	*
Rural	5124	3100	165	437	*	12	64	163	1179	*
Percent	96.72	60.50	3.22	8.53	*	0.23	1.25	3.18	23.01	*
Meher	4768	2920	12	433	*	5	52	163	1179	*
Percent	90.00	61.24	0.25	9.08	*	0.10	1.09	3.42	24.73	*
Belg	356	*	153	*	*	*	*	*	*	*
Percent	6.72	*	42.98	*	*	*	*	*	*	*
Urban (Meher)	174	105	*	5	*	*	*	*	58	*
Percent	3.28	60.34	*	2.87	*	*	*	*	33.33	*
Pesticides										
Rural and Urban	169	59	*	*	*	*	*	*	88	*
Percent	100	34.91	*	*	*	*	*	*	52.07	-
Rural	121	46	*	*	*	*	*	*	*	*
Percent	71.60	38.02	*	*	*	*	*	*	*	*
Meher	117	45	*	*	*	*	*	*	*	*
Percent	69.23	38.46	-	-	-	-	-	-	-	-
Belg	*	*	*	*	*	*	*	*	*	*
Percent	*	*	*	*	*	*	*	*	*	*
Urban (Meher)	*	13	*	*	*	*	*	*	*	*
Percent	*	*	*	*	*	*	*	*	*	*

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	9369	89	0.95	315	3.36	5272	56.27	169	1.8
Grain Crops	7061	88	1.25	148	2.1	3801	53.83	77	1.09
Cereals	5301	73	1.38	143	2.7	3205	60.46	59	1.11
Teff	*	-	-	-	-	*	*	-	-
Barley	20	-	-	-	-	13	65	*	*
Wheat	105	*	*	*	*	87	82.86	*	*
Maize	991	46	4.64	*	*	580	58.53	18	1.82
Sorghum	4180	17	0.41	*	*	2523	60.36	41	0.98
Finger millet	*	*	*	-	-	*	*	-	-
Oats ('Aja')	*	-	-	-	-	*	*	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulses	474	-	-	*	*	153	32.28	*	*
Horse beans	1	-	-	*	*	*	*	-	-
Field peas	*	-	-	-	-	2	*	*	*
Haricot beans	458	-	-	*	*	147	32.1	*	*
Chick peas	*	-	-	-	-	*	*	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-	-
Fenugreek	*	-	-	-	-	*	*	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil Seeds	1285	*	*	*	*	442	34.4	*	*
Neug	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	1276	*	*	*	*	440	34.48	*	*
Sufflower	-	-	-	-	-	-	-	-	-
Sesame	*	-	-	-	-	*	*	-	-
Rapeseed	-	-	-	-	-	-	-	-	-
Other Grains	*	-	-	*	*	*	*	-	-
Vegetables	29	*	*	*	*	11	37.93	*	*
Lettuce	*	*	*	*	*	*	*	-	-
Head cabbage	*	*	*	*	*	*	*	-	-
Kale	*	*	*	*	*	*	*	-	-
Tomatoes	*	-	-	*	*	-	-	*	*
Green peppers	*	-	-	-	-	*	*	-	-
Red peppers	*	-	-	-	-	*	*	-	-
Swiss chard	*	-	-	*	*	-	-	-	-
Others	6	-	-	-	-	5	83.33	-	-
Root Crops	112	*	*	*	*	57	50.89	*	*
Beet root	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Onions	*	*	*	*	*	-	-	-	-
Potatoes	*	-	-	-	-	*	*	*	*
Garlic	-	-	-	-	-	-	-	-	-
Taro	-	-	-	-	-	-	-	-	-
Sweet potatoes	64	-	-	*	*	30	46.88	-	-
Others	*	-	-	-	-	*	*	-	-
Permanent Crops	2167	*	*	145	6.69	1404	64.79	89	4.11
Fruit Crops	338	*	*	*	*	164	48.52	*	*
Avocado	*	-	-	*	*	*	*	-	-
Bananas	12	-	-	1	8.33	*	*	*	*
Guava	69	*	*	*	*	39	56.52	-	-
Lemons	2	-	-	*	*	1	50	-	-
Mangoes	199	-	-	*	*	89	44.72	*	*
Oranges	*	-	-	*	*	*	*	-	-
Papayas	40	*	*	*	*	15	37.5	-	-
Pineapples	-	-	-	-	-	-	-	-	-
Others	14	*	*	*	*	11	78.57	-	-
Stimulant Crops	1790	*	*	87	4.86	1237	69.11	88	4.92
Chat	1752	*	*	84	4.79	1212	69.18	87	4.97
Coffee	35	*	*	*	*	22	62.86	*	*
Hops	*	-	-	-	-	*	*	-	-
Others	-	-	-	-	-	-	-	-	-
Other Permanent	39	-	-	*	*	*	*	*	*
Enset	*	-	-	-	-	*	*	-	-
Sugar Cane	*	-	-	*	*	*	*	-	-
Others	*	-	-	-	-	*	*	*	*



3.1 Application of Natural Fertilizers in the Rural and Urban Areas

According to the census findings, about 8749 holders in rural areas and 224 holders in urban areas applied natural fertilizers on 2742 hectares of cropland (comprising 52% 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 44.38 and 6.28 percent, respectively. Moreover, of the total land area on which natural fertilizers are applied 54.67% was under cereals, 5.29% under pulses, and 10.76% under oilseeds, 0.11% under vegetables, 0.77% under root crops, 3.72% under fruits and 16.59% under stimulants. For details, refer to Summary Tables VI.3.

3.2 Application of DAP in the Rural Areas

As illustrated in Summary Table VI.3, about 5348 holders in rural areas have applied chemical fertilizers on a total of 2488 hectares of cultivated crop land area, of which DAP on about 487 hectares, which is about 9.24% of the total fertilized land area. The application of DAP quantity varied markedly from one group of crops to another, i.e., 56.06% of the total DAP was applied for cereals, while 7.60 3.08 and 29.36% of the total DAP were

applied for oil seeds, fruits and stimulants in that order. Variations with respect to specific crops are also considerable, i.e., relatively higher for sorghum at 213 hectares and Chat at 141 hectares (For details, refer to Summary Tables VI.3 and VI.4).

Furthermore, the total quantity of DAP applied in rural areas is estimated to be about 182 quintals, which is 15.90% of the total quantity of chemical fertilizers applied. In general, the quantity of DAP applied was the highest for cereals which was about 98 quintals followed by stimulant crops that amounted to 42 quintals and then fruit amounted 15 quintals.

3.3 Application of UREA in the Rural Areas

Since chemical fertilizers have been widely promoted, about 2774 holders in rural areas have applied UREA, and the cropland areas under UREA application occupied 1095 hectares, which is 20.77% of the total fertilizers applied. Out of this total UREA applied area, it is reported that 60.82 % was under cereals 6.12% under oil seeds, 2.92% was under fruits and 29.32% under stimulants. Among all crops, the largest UREA applied area was under sorghum at 536 hectares and then 312 and 109 hectares under Chat and maize respectively. Moreover, the data in the table show that the total quantity of UREA applied was about 401 quintals in which the highest amount was applied for cereals at 239 quintals followed by stimulants at 100 quintals and the fruits at 27 quintals (See Summary Table VI.3)

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

The census findings depicts the fact that quite significant number of holders have applied a mixture of DAP and UREA on their crop fields. As presented in Summary Table VI.5 there were about 2015 holders in rural areas who applied a mixture of DAP and UREA on 846 hectares, which is 16.04% of the total area on which fertilizers were applied. The application of a mixture of DAP and UREA to cereals and stimulants was on 525 and 261 hectares respectively. It was observed that the application of a mixture of UREA and DAP is low in other crops relative to cereals and stimulants. For instance, the application of a mixture of

other crops relative to cereals and stimulants. For instance, the application of a mixture of DAP and UREA for pulses, oilseeds, root crops and fruit crops were only 2, 34, 8, and 15 hectares, respectively.

In addition, out of the total quantity of chemical fertilizers applied, the amount of a mixture of DAP and UREA was 562 quintals, which is 49.13% of the total quantity of chemical fertilizers. The application of a mixture of DAP and UREA to cereals, fruits and stimulants crops amounted to about 484,14 and 50 quintals, in that order. Of the total quantity of mixed chemical fertilizers applied, maize took the highest proportion accounting for about 6.05% (34 quintals). For details, refer to Summary Table VI.3.

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 cereals, pulses and oil seeds are presented in Summary Table VI.6.

4.1 Number of Holders using Improved Seeds.

As presented in Summary Table VI.6 the use of improved seeds is limited to only 840 in rural and 83 holders in urban areas of the region. Of the total holders using improved seeds, 54.88% utilized improved maize seed, 22.62% improved sorghum seed, 17.62% improved variety of ground nuts.

4.2 Quantity of Improved Seeds Used

Information on quantity of improved varieties of seeds is also limited to grain crops. As can be seen from Summary Table VI.6, the total quantity of improved seeds was estimated to be 45 quintals. The total quantity of improved seeds used has been low for private holdings in

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	Total	Grains				Vegetables	Root Crops	Permanent Crops		
		Cereals	Pulses	Oilseeds	Others			Fruits	Stimulant	Other
	Number of Holders Applying Fertilizer by Type									
Rural and Urban.....	12459	11460	1776	3441	*	708	1378	4805	8197	*
Percent..	100									
Natural	8973	7388	1521	2261	*	466	643	3232	4475	*
Chemical	5472	5366	275	1210	*	240	747	1993	4477	*
Urban	424	395	*	63	*	13	10	22	162	*
Percent..	3.40									
Natural	224	188	*	34	*	11	*	18	66	*
Chemical	332	219*		19*	*		52	8	43*	
Rural Meher	10711	10359	565	3378*		695	1368	4783	8035*	
Percent..	85.97									
Natural	7425	6494	310	2261	*	455	643	3214	4409	*
Chemical	5348	5253	275	1210	*	240	747	1993	4434	*
DAP	1373	1224	*	294	*	*	*	484	1011	*
UREA	2774	2741	*	661	*	149	215	928	2251	*
DAP+UREA.....	2015	1871	108	270	*	*	307	628	1689	*
Rural Belg	1324	706	1211	*	*	*	*	*	*	*
Natural	1324	706	1211	*	*	*	*	*	*	*
Percent..	10.63									
	Area in Hectares									
Rural and Urban.....	5273	3025	150	439	*	5	52	163	1237	*
Percent..	100	57.37	2.84	8.33	*	0.09	0.99	3.09	23.46	*
Natural	2742	1499	145	295	*	3	21	102	455	*
Percent..	52.00	54.67	5.29	10.76	*	0.11	0.77	3.72	16.59	*
Chemical	2488	1490*	*	*	*	*	*	*	*	*
Percent..	47.18	59.89*	*	*	*	*	*	*	*	*
Urban	174	105	*	5	*	*	*	*	58	*
Percent..	3.30	60.34	*	2.87	*	*	*	*	33.33	*
Natural	71	43	*	*	*	*	*	*	*	*
Percent..	1.35	60.56	*	*	*	*	*	*	*	*
Chemical (Urban)	60	26	*	*	*	*	*	*	*	*
Percent..	1.14	43.33	*	*	*	*	*	*	*	*
Rural Meher	4768	2920	12	434	*	5	52	163	1179	*
Percent..	90.42	61.24	0.25	9.10	*	0.10	1.09	3.42	24.73	*
Natural	2340	1456	7	295	*	3	21	102	455	*
Percent..	44.38	62.22	0.30	12.61	*	0.13	0.90	4.36	19.44	*
Chemical	2428	1464	2	138	*	*	12	62	725	*
Percent..	46.05	60.30	0.08	5.68	*	*	0.49	2.55	29.86	*
DAP	487	273	*	37	*	*	*	15	143	*
Percent..	9.24	56.06	*	7.60	*	*	*	3.08	29.36	*
UREA.....	1095	666	*	67	*	*	4	32	321	*
Percent..	20.77	60.82	*	6.12	*	*	0.37	2.92	29.32	*
DAP+UREA...	846	525	2	34	*	*	8	15	261	*
Percent..	16.04	62.06	0.24	4.02	*	*	0.95	1.77	30.85	*
Rural Belg	331	*	138	*	*	*	*	*	*	*
Natural	331	*	138	*	*	*	*	*	*	*
Percent..	6.28	*	41.69	*	*	*	*	*	*	*
	Quantity in Quintals									
Rural Meher	1145	821	*	*	*	*	*	56	192	*
Percent..	100	71.70	*	*	*	*	*	4.89	16.77	*
DAP	182	98	*	*	*	*	*	15	42	*
Percent..	15.90	53.85	*	*	*	*	*	8.24	23.08	*
UREA	401	239	*	21	*	4	6	27	100	*
Percent..	35.02	59.60	*	5.24	*	1.00	1.50	6.73	24.94	*
DAP+UREA.....	562	484	*	*	*	*	*	14	50	*
Percent..	49.08	86.12	*	*	*	*	*	2.49	8.90	*

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.

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				
			Natural		Chemical – DAP		
	Holders	Hectares	Holders	Hectares	Holders	Hectares	Quintals
TOTAL	11243	5298	8207	2742	1429	508	202
Grain Crops	10956	3816	7473	2126	1255	323	113
Cereals	10803	3205	7029	1679	1224	273	98
Teff	*	*	-	-	*	*	*
Barley	323	13	*	*	*	*	*
Wheat	1327	87	103	4	211	*	*
Maize	7367	580	4408	314	653	41	19
Sorghum	9658	2523	5919	1356	993	213	61
Finger millet	*	*	*	*	-	-	-
Oats ('Aja')	*	*	*	*	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	1653	169	1459	145	*	*	*
Horse beans	*	*	-	-	*	*	*
Field peas	118	2	*	*	-	-	-
Haricot beans	1391	162	1292	143	*	*	*
Chick peas	*	*	*	*	-	-	-
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-
Fenugreek	*	*	-	-	-	-	-
Gibto	-	-	-	-	-	-	-
Oil Seeds	3458	442	2312	302	294	37	*
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Ground nuts	3458	440	2312	302	294	37	*
Sufflower	-	-	-	-	-	-	-
Sesame	*	*	*	*	-	-	-
Rapeseed	-	-	-	-	-	-	-
Other Grains	*	*	-	-	-	-	-
Vegetables	773	12	503	9	*	*	*
Lettuce	6	*	6	*	-	-	-
Head cabbage	*	*	-	-	-	-	-
Kale	*	*	*	*	-	-	-
Tomatoes	*	*	-	-	-	-	-
Green peppers	*	*	*	*	-	-	-
Red peppers	*	*	*	*	-	-	-
Swiss chard	*	*	*	*	-	-	-
Others	615	5	439	3	*	*	*
Root Crops	1457	65	672	26	*	*	*
Beet root	*	*	*	*	-	-	-
Carrot	-	-	-	-	-	-	-
Onions	*	*	-	-	-	-	-
Potatoes	464	*	140	*	*	*	*
Garlic	-	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-
Sweet potatoes	1011	30	525	19	*	*	*
Others	*	*	*	*	-	-	-
Permanent Crops	9143	1404	5835	581	1080	157	58
Fruit Crops	4805	164	3232	102	483	15	15
Avocado	*	*	*	*	*	*	*
Bananas	688	*	475	2	-	-	-
Guava (Zeytuna)	1374	39	653	22	125	1	*
Lemons	189	1	108	*	*	*	*
Mangoes	1944	89	1338	60	184	*	*
Oranges	*	*	*	*	-	-	-
Papayas	1339	15	952	12	*	*	*
Pineapples	-	-	-	-	-	-	-
Others	855	11	572	4	*	*	*
Stimulant Crops	8197	1237	4474	478	1011	142	42
Chat	7949	1212	4260	464	950	141	40
Coffee	878	22	533	13	*	*	*
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	2774	1099	406	2015	846	562	226	102
Grain Crops	2741	738	266	1871	562	488	214	67
Cereals	2741	666	239	1871	525	484	214	62
Teff	-	-	-	-	-	-	-	-
Barley	*	*	*	104	2	*	13	*
Wheat	430	18	11	632	46	*	33	3
Maize	1720	109	78	1200	87	34	165	28
Sorghum	2234	536	147	1711	390	*	160	29
Finger millet	*	*	-	-	-	-	-	-
Oats ('Aja')	-	-	-	*	*	*	-	-
Rice	-	-	-	-	-	-	-	-
Pulses	163	*	*	108	2	*	*	*
Horse beans	*	*	*	-	-	-	-	-
Field peas	*	*	*	*	*	-	*	*
Haricot beans	*	*	*	*	*	*	*	*
Chick peas	*	*	*	*	*	*	-	-
Lentils	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-
Fenugreek	*	*	*	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil Seeds	661	67	21	270	34	*	29	2
Neug	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	661	66	21	270	34	*	29	2
Sufflower	-	-	-	-	-	-	-	-
Sesame	*	*	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-
Other Grains	-	-	-	*	*	-	-	-
Vegetables	177	*	6	*	*	*	*	*
Lettuce	-	-	-	-	-	-	-	-
Head cabbage	*	*	*	-	-	-	-	-
Kale	-	-	-	-	-	-	*	*
Tomatoes	*	*	*	-	-	-	-	-
Green peppers	-	-	-	*	*	*	-	-
Red peppers	*	*	*	-	-	-	-	-
Swiss chard	-	-	-	-	-	-	-	-
Others	109	*	*	*	*	*	-	-
Root Crops	215	4	6	307	8	*	*	*
Beet root	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-
Onions	-	-	-	-	-	-	*	*
Potatoes	*	*	*	*	*	*	-	-
Garlic	-	-	-	-	-	-	-	-
Taro	-	-	-	-	-	-	-	-
Sweet potatoes	177	*	5	229	5	*	*	*
Others	-	-	-	*	*	*	-	-
Permanent Crops	2386	354	128	1787	276	64	101	*
Fruit Crops	928	32	27	628	15	14	*	-
Avocado	*	*	*	*	*	*	-	-
Bananas	*	*	*	*	*	*	-	-
Guava	441	13	9	154	*	*	*	-
Lemons	*	*	*	-	-	-	-	-
Mangoes	228	*	*	247	8	*	*	-
Oranges	*	*	*	-	-	-	-	-
Papayas	244	1	5	*	*	*	-	-
Pineapples	-	-	-	-	-	-	-	-
Others	*	*	*	136	*	*	-	-
Stimulant Crops	2251	321	100	1689	261	50	98	*
Chat	2158	312	93	1658	260	49	98	*
Coffee	*	*	*	84	*	*	-	-
Hops	*	*	*	-	-	-	-	-
Others	-	-	-	-	-	-	-	-
Other Permanent	*	*	*	*	*	-	-	-
Enset	*	*	*	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-	-
Others	*	*	*	*	*	-	-	-

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 Harari Region 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 (71.58% in rural and 47.60 % in urban areas) were found to be illiterate while 13.29% in rural and 10.48% in urban areas have participated in informal education. Moreover, the data shows that 13.21% of the holders in rural and 23.3% of holders in urban areas have completed grades 1 to 6 and only 1.04% of the holders in rural and 16.89 % 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 due to 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 657, which is only about 4.60 percent of the total holders in the region. Of the total holders participating in the extension programs, 657 were in Meher season. The distribution of extension package program participants by educational status shows that 63.77% were illiterate, and 0.15% have each completed grades 1 to 6 and grade 7 - 12.

SUMMARY TABLE VI.6: Number of Holders Utilizing Improved Seeds and Quantity of Improved Seeds Applied by Crop Type in Rural and Urban Areas, for Private Holdings

Type of Crop	Holders Applying Improved Seeds					Quantity in Quintals			
	Total	%	Rural		Urban	Rural	%	Meher	Belg
			Meher	Belg	Meher				
Total	923	100.00	812	*	83	45	100.00	45	-
Grain Crops	809	87.65	733	-	76	45	100.00	45	-
Cereals	734	79.52	658	-	76	44	97.78	44	-
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	86	9.32	*	-	*	*	*	*	-
Maize	532	57.64	461	-	71	21	46.67	21	-
Sorghum	206	22.32	190	-	16	*	*	*	-
Finger millet	*	*	*	-	-	*	*	-	-
Oats ('Aja')	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulses	-	-	-	-	-	-	-	-	-
Horse beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	-	-	-	-	-	-	-	-	-
Chick peas	-	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Oil Seeds	157	17.01	148	-	8	*	*	*	-
Neug	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	157	17.01	148	-	8	*	*	*	-
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 ('Godere')	-	-	-	-	-	-	-	-	-
Sweet potatoes	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-
Permanenet Crops	*	*	*	-	*	*	-	-	-
Fruit Crops	-	-	*	-	*	-	-	-	-
Avocado	-	-	-	-	-	-	-	-	-
Bananas	*	*	-	-	-	-	-	-	-
Guava (Zeytuna)	-	-	-	-	*	-	-	-	-
Lemons	-	-	-	-	-	-	-	-	-
Mangoes	-	-	-	-	-	-	-	-	-
Oranges	*	*	-	-	-	*	-	-	-
Papayas	-	-	*	-	*	-	-	-	-
Pineapples	*	*	-	-	-	*	-	-	-
Others	-	-	*	-	-	-	-	-	-
Stimulant Crops	*	*	*	-	*	*	-	-	-
Chat	-	-	-	-	-	-	-	-	-
Coffee	-	-	*	-	*	-	-	-	-
Other Permanent Crops	-	-	-	-	-	-	-	-	-

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, 67.82, 64.58, 69.23 and 58.21 percents were illiterate, respectively (For details, refer to Summary Table VI.6).

6 DAMAGED CROPLAND AREAS AND SIZE OF HOLDINGS IN RURAL AREAS

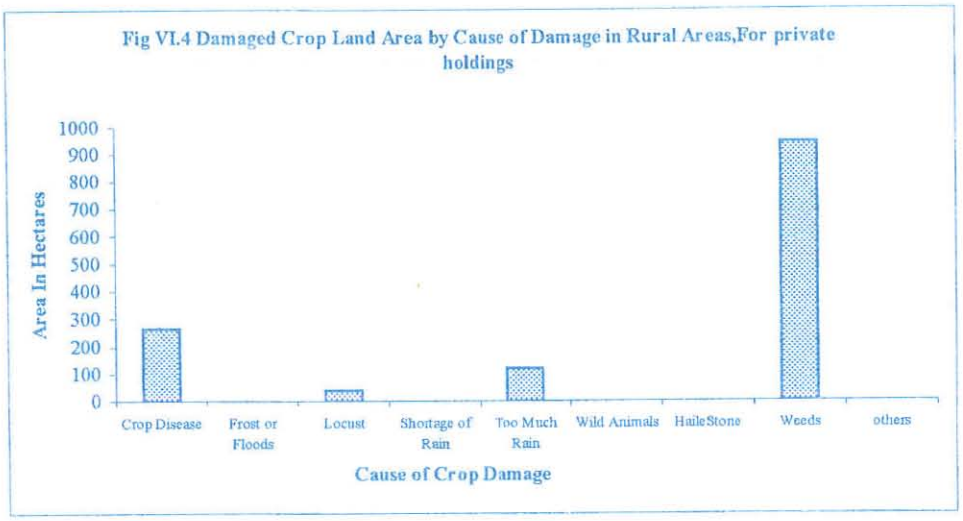
This section of the chapter deals with the estimates of damaged cropland areas by size of holdings in Harari Region. Cropland area damage includes any cropland planted or sown with intension to harvest crops, but failed to produce crop partly or fully due to various reasons. Out of the total cultivated cropland area, 15.21% in Meher and less than one percent in Belg seasons were affected by crop damage. The cropland area damage that accounted for 35.74% fall under holders in rural areas who had holding size that ranges from 0.51 to 1 hectares. On the other hand, holders in rural areas who had holding size of between 1.01 and 2 hectare accounted for 34.28 % of the total cropland area damaged. With regard to the causes of crop damage, it is reported that 65.51% was damaged due to weeds, 18.50% was caused by crop disease, 8.34% was due to too much rain, 2.78 due to locust (For details see Summary Table VI.7 and Fig VI.3).

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

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	
	Numb	%	Number	%	Numbe	%	Numbe	%	Number	%	Number	%
All Crop Holders												
Rural and Urban	14220	100	9983	70.20	1866	13.12	1962	13.80	339	2.38	*	*
Rural	13408	100	9597	71.58	1782	13.29	1771	13.21	140	1.04	*	*
Meher	13273	100	9574	72.13	1669	12.57	1771	13.34	140	1.05	*	*
Belg	3275	100	1928	58.87	665	20.31	398	12.15	1	0.03	*	*
Urban	811	100	386	47.60	85	10.48	189	23.30	137	16.89	*	*
Improved Seeds												
Rural and Urban	923	6.49	626	67.82	98	10.62	11	1.19	7	0.76	*	*
Rural	840	6.26	598	71.19	86	10.24	1	0.12	1	0.12	*	*
Meher	812	6.12	598	73.65	86	10.59	1	0.12	1	0.12	*	*
Belg	*	*	*	*	*	*	1	*	1	*	*	*
Urban	83	10.23	28	33.73	12	14.46	11	13.25	7	8.43	*	*
Irrigation												
Rural and Urban	1722	12.11	1112	64.58	304	17.65	1	0.06	14	0.81	*	*
Rural	1602	11.95	1061	66.23	291	18.16	1	0.06	1	0.06	*	*
Meher	1377	10.37	949	68.92	179	13.00	1	0.07	1	0.07	*	*
Belg	*	*	*	*	*	*	1	*	1	*	*	*
Urban	119	14.67	51	42.86	*	*	16	13.45	14	11.76	*	*
Fertilizer												
Rural and Urban	11243	79.06	7783	69.23	1541	13.71	1612	14.34	184	1.64	*	*
Rural	10820	80.70	7607	70.30	1501	13.87	1489	13.76	140	1.29	*	*
Meher	10711	80.70	7573	70.70	1477	13.79	1436	13.41	140	1.31	*	*
Belg	1324	40.43	637	48.11	321	24.24	86	6.50	1	0.08	*	*
Urban	424	52.28	176	41.51	41	9.67	116	27.36	68	16.04	*	*
Pesticides												
Rural and Urban	828	5.82	482	58.21	132	15.94	1	0.12	1	0.12	*	*
Rural	767	5.72	468	61.02	128	16.69	1	0.13	1	0.13	*	*
Meher	692	5.21	422	60.98	*	*	1	0.14	1	0.14	*	*
Belg	*	*	*	*	*	*	1	*	1	*	*	*
Urban	61	7.52	14	22.95	*	*	1	1.64	1	1.64	*	*
Extension Program												
Rural	657	4.62	419	63.77	*	*	1	0.15	1	0.15	*	*
Meher	657	4.90	419	63.77	*	*	1	0.15	1	0.15	*	*
Belg	*	*	*	*	*	*	1	*	1	*	*	*



programs, as well as use of credit and/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.9. 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 Harari Region. 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 crop holder in the rural areas only 18.81% reported to have used irrigation practices. Among these holders who practice different sources of water 45.5 percent and 17.19 percent of the holders have used rivers and ponds, respectively. Utilization of other sources of water for irrigation is very 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 house holds 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, the 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 asses 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 V1.9. The data in the table shows that only 14.67 percent of the total holders reported as practicing irrigation during the Meher season and of these holders the sources of water for irrigation for 7.77, 2.71, 0.99 and 1.11 percent were from rivers, lakes, tap water and other sources, respectively. However, holders that use well are very few. In the same summary table, out of the total holders, it is found that only 104 (12.82 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 10.08% have reported practicing crop rotation, while very few holders reported practicing burning of soil as their main method for improving soil fertility.

7.3 Application of Chemical Fertilizer and reason 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

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	1438	8	291	514	493	*	-	-
Percent,,	100	0.56	20.24	35.74	34.28	*	-	-
Crop Disease	266	*	47	99	75	*	-	-
Percent..	18.50	*	17.67	37.22	28.20	*	-	-
Frost or Floods	*	-	*	6	*	-	-	-
Percent,,	*	-	*	*	*	-	-	-
Locust	40	*	6	13	*	*	-	-
Percent,,	2.78	*	15.00	32.50				
Shortage of Rain	*	-	*	*	*	*	-	-
Percent,,	*	-	*	*	*	*	-	-
Too Much Rain	120	*	17	59	*	*	-	-
Percent,,	8.34		14.17	49.17				
Wild Animals	*	*	*	*	*	-	-	-
Percent,,	*	*	*	*	*	-	-	-
Birds	-	-	-	-	-	-	-	-
Percent,,	-	-	-	-	-	-	-	-
Hailstone	*	-	-	*	-	-	-	-
Percent,,	*	-	-	*	-	-	-	-
Pests and Insects	*	-	-	*	*	-	-	-
Percent,,	*	-	-	*	*	-	-	-
Weeds	942	6	215	317	330	*	-	-
Percent,,	65.51	0.64	22.82	33.65	35.03			
Others	*	-	-	*	-	-	-	-
Percent,,	*	-	-	*	-	-	-	-
	Meher Season							
Total	1425	8	285	510	493	*	-	-
Crop Disease	260	*	43	99	75	*	-	-
Frost or Floods	*	-	*	6	*	-	-	-
Locust	38	-	6	13	*	*	-	-
Shortage of Rain	*	-	*	*	*	*	-	-
Too Much Rain	120	*	17	59	*	*	-	-
Wild Animals	*	*	*	*	*	-	-	-
Birds	-	-	-	-	-	-	-	-
Hailstone	*	-	-	*	-	-	-	-
Pests and Insects	*	-	-	*	*	-	-	-
Weeds	936	6	213	314	330	*	-	-
Others	*	-	-	*	-	-	-	-
	Belg Season							
Total	*	*	*	-	-	-	-	-
Crop Disease	*	*	*	-	-	-	-	-
Frost or Floods	-	-	-	-	-	-	-	-
Locust	*	*	*	-	-	-	-	-
Shortage of Rain	-	-	-	-	-	-	-	-
Too Much Rain	-	-	-	-	-	-	-	-
Wild Animals	-	-	-	-	-	-	-	-
Birds	-	-	-	-	-	-	-	-
Hailstone	-	-	-	-	-	-	-	-
Pests and Insects	-	-	-	-	-	-	-	-
Weeds	*	*	*	-	-	-	-	-
Others	-	-	-	-	-	-	-	-

Various reasons. A total of about 5433 holders which is the highest did not use chemical fertilizers due to shortage of money, about 1290 holders due to high cost of fertilizers 664 holders due to lack of knowledge about the advantage, about 174 holders due to insufficient supply of fertilizers in their area, 140 holders reported suspecting the efficiency of the fertilizers and about 1003 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 (46.73%) reported to have used hand digging method and 15.46% of the holders that used ox/horse driven ploughing methods. Neverthless, holders who used both hand dug and ox/horse driven methods accounted for about 33%.

7.5 Methods Used for Soil Conservation

According to the data in Summary Table VI.9, the majority of the holders reported using different methods of soil conservation. Of which, 60, 13.55, 5.62 and 1.45 percent of holders have practiced terracing, water catchments, plowing along the contour and afforstation, respectively. On the other hand only few 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 package, rain abundant areas packages, post harvest technology packages, ...etc. Thus, the data showed that about 2.34% of the agricultural holders were covered by rain abundant 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 28.55% of the holders reported shortage of money, 31.01% reported no knowledge about the advantage, 7.49% reported program not available, 8.66% each were suspicious of its efficiency and other reasons, and 12.12% reported not sufficient arable land available and 4.58% due to other reasons.

In the rural Ethiopia, 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 providing 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 17.19 percent of the holders have obtained advice on agricultural practices on the other hand the number of holders reporting the use of credit services was insignificant showing that the use of credit and advisory services were limited in scope.

7.7 SOURCES AND COST OF CHEMICAL FERTILIZERS.

As illustrated in Summary Table V1.11, it is estimated that a total of 3955 holders (29.20%) reported "Government" as their major sources of chemical fertilizers, while about 2875 (21.27%) and 178 (1.32%) holders mentioned traders and private organization as their major

sources of chemical fertilizers, respectively. Regardless of the source, the average cost was 277.89 Birr/Quintal for DAP and 248.05 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 Table VI.11. Accordingly, about 565 holders have been participating in crop specific package, that is, sorghum, followed by about 206 and 128 holders who considered maize and ground nut, respectively.

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 a total of 95 hectares (1.01% of the total cropland area) was under extension package programs. Out of the total cropland area under extension package programs, 61.05% was observed under sorghum while maize, ground nut, potato and sweet potatoes contributed about 38.95% altogether. For details, see Summary Table VI.11.

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	13516	100
Source of Water for Irrigation		
Holders who Practice Irrigation	2542	18.81
River	1158	45.55
Lake	*	*
Pond	437	17.19
Other	*	*
Method to Improve Soil Fertility		
Crop Rotation	1363	10.08
Burning of Soil	*	*
Reason for Not Using Chemical Fertilizer		
Do Not Know Advantages	664	
Too Expensive	1290	
Shortage of Money	5433	
Insufficient Supply	174	
No Credit Service	-	
Suspicious of Efficacy	140	
Other	1003	
Method of Plowing		
Hand Dug	6316	46.73
Ox/Horse Driven	2090	15.46
Tractor	*	*
Hand Dug and Ox/Horse Driven	4416	32.67
Tractor and Ox/Horse Driven	*	*
Method of Soil Conservation		
Terracing	8109	60
Water Catchments	1831	13.55
Afforestation	196	1.45
Plowing Along the Contour	760	5.62
Others	*	*
All Holders	14039	100
Participation in Extension Package by Type		
Rain Shortage Areas Package	*	*
Rain Abundant Areas Package	328	2.34
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	4353	31.01
Shortage of Money	4008	28.55
Suspicious of Efficacy	1216	8.66
Programs Not Available	1052	7.49
Not Sufficient Arable Land	1702	12.12
Others	643	4.58
Use of Credit or Advisory Services		
Credit Services	*	*
Advisory Services	437	17.19

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.....	811	100.00
Holders who Practice Irrigation	119	14.67
Sources		0.00
River.....	63	7.77
Lake.....	22	2.71
Well.....	*	*
Tap Water.....	8	0.99
Others.....	9	1.11
Not Stated.....	*	*
Those who Practice Belg from 1999/2000 to 2001/02		
Crop Holders.....	811	100
Holders who Practice Belg.....	104	12.82
Male.....	67	8.26
Female.....	37	4.56

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.....	13516	100
Sources		
Government.....	3955	29.26
Private Organization	178	1.32
Traders.....	2875	21.27
Others.....	-	
Do not Buy.....	6414	47.45
Not Reported.....	-	
Type of Fertilizers	**Cost in Birr/Quintal**	
DAP.....	277.89	
UREA.....	248.05	

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.

Area in Hectares

Ext. Package by Crop	Rural				Meher		Belg	
	Holder	%	Area	%	Holder	Area	Holder	Area
Total	657	100.00	95	100.00	657	95	-	-
Teff	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-
Wheat	*	*	*	*	*	*	-	-
Maize	206	31.35	*	*	206	*	-	-
Sorguhm	565	86.00	58	61.05	565	58	-	-
Rice	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	-	-	-	-	-	-	-	-
Chick peas	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	128	19.48	*	*	128	*	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-
Other Grains	-	-	-	-	-	-	-	-
Tomatoes	-	-	-	-	-	-	-	-
Red Papper	-	-	-	-	-	-	-	-
Onion	-	-	-	-	-	-	-	-
Potatoes	*	*	*	*	*	*	-	-
Sweet potatoes	*	*	*	*	*	*	-	-
Enset	-	-	-	-	-	-	-	-
Other Permanent	-	-	-	-	-	-	-	-

STATISTICAL TABLES PRESENTING RESULTS AT REGIONAL LEVEL

Tables 6.1 – 6.5.4

TABLE 6.1: AREA OF CROPLAND UNDER IMPROVED FARM MANAGEMENT PRACTICES BY TYPE 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	9062	76	0.84	290	3.2	5124	56.54	120	1.32
Grain Crops	6850	75	1.09	136	1.99	3703	54.06	62	0.91
Cereals	5115	61	1.19	133	2.6	3100	60.61	46	0.9
Teff	*	-	-	-	-	*	*	-	-
Barley	18	-	-	-	-	*	*	-	-
Wheat	100	*	*	*	*	83	83	-	-
Maize	894	37	4.14	*	*	525	58.72	*	*
Sorghum	4098	14	0.34	*	*	2478	60.47	36	0.88
Finger millet	*	*	*	-	-	*	*	-	-
Oats ('Aja')	*	-	-	-	-	*	*	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulses	470	-	-	*	*	165	35.11	*	*
Horse beans	*	-	-	*	*	*	*	-	-
Field peas	*	-	-	-	-	*	*	-	-
Haricot beans	455	-	-	-	-	160	35.16	*	*
Chick peas	*	-	-	-	-	*	*	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-	-
Fenugreek	*	-	-	-	-	*	*	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil Seeds	1264	*	*	*	*	437	34.57	*	*
Neug	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	1255	*	*	*	*	435	34.66	*	*
Sufflower	-	-	-	-	-	-	-	-	-
Sesame	*	-	-	-	-	*	*	-	-
Rapeseed	-	-	-	-	-	-	-	-	-
Other Grains	*	-	-	*	*	*	*	-	-
Vegetables	25	*	*	*	*	12	48	*	*
Lettuce	-	-	-	-	-	-	-	-	-
Head cabbage	*	*	*	*	*	*	*	-	-
Kale	*	-	-	-	-	*	*	-	-
Tomatoes	*	-	-	*	*	*	*	*	*
Green peppers	*	-	-	-	-	*	*	-	-
Red peppers	*	-	-	-	-	*	*	-	-
Swiss chard	-	-	-	-	-	-	-	-	-
Others	6	-	-	-	-	5	83.33	-	-
Root Crops	110	*	*	*	*	64	58.18	*	*
Beet root	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Onions	*	*	*	*	*	-	-	-	-
Potatoes	*	-	-	-	-	*	*	*	*
Garlic	-	-	-	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-	-	-
Sweet potatoes	62	-	-	*	*	28	45.16	-	-
Others	*	-	-	-	-	*	*	-	-
Permanent Crops	2078	*	*	137	6.59	1345	64.73	56	2.69
Fruit Crops	335	*	*	*	*	163	48.66	*	*
Avocado	*	-	-	*	*	*	*	-	-
Bananas	11	-	-	*	*	*	*	*	*
Guava (Zeytuna)	69	-	-	*	*	39	56.52	-	-
Lemons	2	-	-	*	*	1	50	-	-
Mangoes	198	-	-	*	*	89	44.95	*	*
Oranges	*	-	-	*	*	*	*	-	-
Papayas	*	*	*	*	*	15	*	-	-
Pineapples	-	-	-	-	-	-	-	-	-
Others	13	*	*	*	*	10	76.92	-	-
Stimulant Crops	1704	*	*	81	4.75	1179	69.19	*	*
Chat	1666	-	-	78	4.68	1154	69.27	*	*
Coffee	34	*	*	*	*	22	64.71	*	*
Hops	*	-	-	-	-	*	*	-	-
Others	-	-	-	-	-	-	-	-	-
Other Permanent Crops	39	-	-	*	*	*	*	*	*
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	8073	76	0.94	246	3.05	4768	59.06	117	1.45
Grain Crops	5900	75	1.27	101	1.71	3366	57.05	61	1.03
Cereals	4625	61	1.32	97	2.1	2920	63.14	45	0.97
Teff	*	-	-	-	-	*	*	-	-
Barley	18	-	-	-	-	*	*	-	-
Wheat	100	*	*	*	*	83	83	-	-
Maize	668	37	5.54	*	*	458	68.56	*	*
Sorghum	3835	14	0.37	*	*	2366	61.69	35	0.91
Finger millet	*	*	*	-	-	*	*	-	-
Oats ('Aja')	*	-	-	-	-	*	*	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulses	26	-	-	*	*	12	46.15	-	-
Horse beans	*	-	-	*	*	*	*	-	-
Field peas	*	-	-	-	-	*	*	-	-
Haricot beans	11	-	-	-	-	7	63.64	-	-
Chick peas	*	-	-	-	-	*	*	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-	-
Fenugreek	*	-	-	-	-	*	*	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil Seeds	1249	*	*	*	*	433	34.67	*	*
Neug	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	1240	*	*	*	*	431	34.76	*	*
Sufflower	-	-	-	-	-	-	-	-	-
Sesame	*	-	-	-	-	*	*	-	-
Rapeseed	-	-	-	-	-	-	-	-	-
Other Grains	*	-	-	*	*	*	*	-	-
Vegetables	7	*	*	*	*	5	71.43	-	-
Lettuce	-	-	-	-	-	-	-	-	-
Head cabbage	*	*	*	*	*	*	*	-	-
Kale	-	-	-	-	-	-	-	-	-
Tomatoes	-	-	-	-	-	-	-	-	-
Green peppers	*	-	-	-	-	*	*	-	-
Red peppers	*	-	-	-	-	*	*	-	-
Swiss chard	-	-	-	-	-	-	-	-	-
Others	6	-	-	-	-	5	83.33	-	-
Root Crops	88	-	-	*	*	52	59.09	-	-
Beet root	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-
Onions	-	-	-	-	-	-	-	-	-
Potatoes	*	-	-	-	-	*	*	-	-
Garlic	-	-	-	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-	-	-
Sweet potatoes	61	-	-	*	*	28	45.9	-	-
Others	*	-	-	-	-	*	*	-	-
Permanent Crops	2078	*	*	137	6.59	1345	64.73	56	2.69
Fruit Crops	335	*	*	*	*	163	48.66	*	*
Avocado	*	-	-	*	*	*	*	-	-
Bananas	11	-	-	*	*	*	*	*	*
Guava (Zeytuna)	69	-	-	*	*	39	56.52	-	-
Lemons	2	-	-	*	*	1	50	-	-
Mangoes	198	-	-	*	*	89	44.95	*	*
Oranges	*	-	-	*	*	*	*	-	-
Papayas	*	*	*	*	*	15	*	-	-
Pineapples	-	-	-	-	-	-	-	-	-
Others	13	*	*	*	*	10	76.92	-	-
Stimulant Crops	1704	*	*	81	4.75	1179	69.19	*	*
Chat	1666	-	-	78	4.68	1154	69.27	*	*
Coffee	34	*	*	*	*	22	64.71	*	*
Hops	*	-	-	-	-	*	*	-	-
Others	-	-	-	-	-	-	-	-	-
Other Permanent Crops	39	-	-	*	*	*	*	*	*
Enset	*	-	-	-	-	*	*	-	-
Sugar Cane	*	-	-	*	*	*	*	-	-
Others	*	-	-	-	-	*	*	*	*

TABLE 6.1.2: RURAL BELG

TYPE OF CROP	Total Crop	Improved Seed		Irrigation		Fertilizer		Pesticide	
	Hectares	Hectares	%	Hectares	%	Hectares	%	Hectares	%
TOTAL	989	*	*	*	*	356	36	*	*
Grain Crops	950	-	-	*	*	338	35.58	*	*
Cereals	*	-	-	*	*	*	*	*	*
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	226	-	-	*	*	68	30.09	-	-
Sorghum	*	-	-	-	-	*	*	*	*
Finger millet	-	-	-	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulses	445	-	-	-	-	153	34.38	*	*
Horse beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	445	-	-	-	-	153	34.38	*	*
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 ('Godere')	-	-	-	-	-	-	-	-	-
Sweet potatoes	*	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-

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	307	13	4.23	24	7.82	174	56.68	*	*
Grain Crops	211	12	5.69	12	5.69	113	53.55	15	7.11
Cereals	186	12	6.45	11	5.91	105	56.45	13	6.99
Teff	-	-	-	-	-	-	-	-	-
Barley	*	-	-	-	-	*	*	*	*
Wheat	5	*	*	*	*	4	80	*	*
Maize	98	9	9.18	7	7.14	54	55.1	8	8.16
Sorghum	82	2	2.44	4	4.88	45	54.88	5	6.1
Finger millet	*	-	-	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulses	*	-	-	*	*	*	*	*	*
Horse beans	*	-	-	-	-	-	-	-	-
Field peas	*	-	-	-	-	*	*	*	*
Haricot beans	*	-	-	*	*	*	*	*	*
Chick peas	-	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil Seeds	21	*	*	*	*	5	23.81	*	*
Neug	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	21	*	*	*	*	5	23.81	*	*
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 ('Godere')	-	-	-	-	-	-	-	-	-
Sweet potatoes	*	-	-	*	*	*	*	-	-
Others	-	-	-	-	-	-	-	-	-
Permanent Crops	90	*	*	8	8.89	59	65.56	*	*
Fruit Crops	3	*	*	*	*	*	*	-	-
Avocado	*	-	-	-	-	-	-	-	-
Bananas	*	-	-	*	*	*	*	-	-
Guava (Zeytuna)	*	*	*	*	*	*	*	-	-
Lemons	-	-	-	-	-	-	-	-	-
Mangoes	*	-	-	-	-	-	-	-	-
Oranges	-	-	-	-	-	-	-	-	-
Papayas	*	*	*	*	*	*	*	-	-
Pineapples	-	-	-	-	-	-	-	-	-
Others	*	-	-	*	*	*	*	-	-
Stimulant Crops	87	*	*	6	6.9	58	66.67	*	*
Chat	86	*	*	6	6.98	58	67.44	*	*
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				
			Natural		Chemical – DAP·		
	Holders	Hectares	Holders	Hectares	Holders	Hectares	Quintals
TOTAL	10820	5124	7983	2670	1429	508	202
Grain Crops	10552	3703	7276	2080	1255	323	113
Cereals	10409	3100	6840	1636	1224	273	98
Teff	*	*	-	-	*	*	*
Barley	309	*	*	*	*	*	*
Wheat	1292	83	101	4	211	*	*
Maize	7084	525	4288	289	653	41	19
Sorghum	9375	2478	5794	1340	993	213	61
Finger millet	*	*	*	*	-	-	-
Oats ('Aja')	*	*	*	*	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	1631	165	1452	145	*	*	*
Horse beans	*	*	-	-	*	*	*
Field peas	111	*	*	*	-	-	-
Haricot beans	1376	160	1288	143	*	*	*
Chick peas	*	*	*	*	-	-	-
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-
Fenugreek	*	*	-	-	-	-	-
Gibto	-	-	-	-	-	-	-
Oil Seeds	3395	437	2278	299	294	37	*
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Ground nuts	3395	435	2278	299	294	37	*
Sufflower	-	-	-	-	-	-	-
Sesame	*	*	*	*	-	-	-
Rapeseed	-	-	-	-	-	-	-
Other Grains	*	*	-	-	-	-	-
Vegetables	760	12	492	9	*	*	*
Lettuce	-	-	-	-	-	-	-
Head cabbage	*	*	-	-	-	-	-
Kale	*	*	*	*	-	-	-
Tomatoes	*	*	-	-	-	-	-
Green peppers	*	*	*	*	-	-	-
Red peppers	*	*	*	*	-	-	-
Swiss chard	-	-	-	-	-	-	-
Others	615	5	439	3	*	*	*
Root Crops	1448	64	669	25	*	*	*
Beet root	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-
Onions	-	-	-	-	-	-	-
Potatoes	464	*	140	*	*	*	*
Garlic	-	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-
Sweet potatoes	1006	28	523	18	*	*	*
Others	*	*	*	*	-	-	-
Permanent Crops	8966	1345	5757	557	1080	157	58
Fruit Crops	4783	163	3214	101	483	15	15
Avocado	*	*	*	*	*	*	*
Bananas	687	*	474	2	-	-	-
Guava (Zeytuna)	1364	39	645	22	125	1	*
Lemons	189	1	108	*	*	*	*
Mangoes	1928	89	1327	60	184	*	*
Oranges	*	*	*	*	-	-	-
Papayas	1335	15	948	12	*	*	*
Pineapples	-	-	-	-	-	-	-
Others	851	10	568	4	*	*	*
Stimulant Crops	8035	1179	4408	455	1011	142	42
Chat	7787	1154	4194	441	950	141	40
Coffee	877	22	531	13	*	*	*
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	2774	1099	406	2015	846	562
Grain Crops	2741	738	266	1871	562	488
Cereals	2741	666	239	1871	525	484
Teff	-	-	-	-	-	-
Barley	*	*	*	104	2	*
Wheat	430	18	11	632	46	*
Maize	1720	109	78	1200	87	34
Sorghum	2234	536	147	1711	390	*
Finger millet	*	*	-	-	-	-
Oats ('Aja')	-	-	-	*	*	*
Rice	-	-	-	-	-	-
Pulses	163	*	*	108	2	*
Horse beans	*	*	*	-	-	-
Field peas	*	*	*	*	*	*
Haricot beans	*	*	*	*	*	*
Chick peas	*	*	*	*	*	*
Lentils	-	-	-	-	-	-
Vetch	-	-	-	-	-	-
Soya	-	-	-	-	-	-
Fenugreek	*	*	*	-	-	-
Gibto	-	-	-	-	-	-
Oil Seeds	661	67	21	270	34	*
Neug	-	-	-	-	-	-
Linseed	-	-	-	-	-	-
Ground nuts	661	66	21	270	34	*
Sufflower	-	-	-	-	-	-
Sesame	*	*	-	-	-	-
Rapeseed	-	-	-	-	-	-
Other Grains	-	-	-	*	*	-
Vegetables	177	*	6	*	*	*
Lettuce	-	-	-	-	-	-
Head cabbage	*	*	*	-	-	-
Kale	-	-	-	-	-	-
Tomatoes	*	*	*	-	-	-
Green peppers	-	-	-	*	*	*
Red peppers	*	*	*	-	-	-
Swiss chard	-	-	-	-	-	-
Others	109	*	*	*	*	*
Root Crops	215	4	6	307	8	*
Beet root	-	-	-	-	-	-
Carrot	-	-	-	-	-	-
Onions	-	-	-	-	-	-
Potatoes	*	*	*	*	*	*
Garlic	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-
Sweet potatoes	177	*	5	229	5	*
Others	-	-	-	*	*	*
Permanent Crops	2386	354	128	1787	276	64
Fruit Crops	928	32	27	628	15	14
Avocado	*	*	*	*	*	*
Bananas	*	*	*	*	*	*
Guava (Zeytuna)	441	13	9	154	*	*
Lemons	*	*	*	-	-	-
Mangoes	228	*	*	247	8	*
Oranges	*	*	*	-	-	-
Papayas	244	1	5	*	*	*
Pineapples	-	-	-	-	-	-
Others	*	*	*	136	*	*
Stimulant Crops	2251	321	100	1689	261	50
Chat	2158	312	93	1658	260	49
Coffee	*	*	*	84	*	*
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				
			Natural		Chemical – DAP		
	Holders	Hectares	Holders	Hectares	Holders	Hectares	Quintals
TOTAL	10820	5124	7983	2670	1429	508	202
Grain Crops	10552	3703	7276	2080	1255	323	113
Cereals	10409	3100	6840	1636	1224	273	98
Teff	*	*	-	-	*	*	*
Barley	309	*	*	*	*	*	*
Wheat	1292	83	101	4	211	*	*
Maize	7084	525	4288	289	653	41	19
Sorghum	9375	2478	5794	1340	993	213	61
Finger millet	*	*	*	*	-	-	-
Oats ('Aja')	*	*	*	*	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	1631	165	1452	145	*	*	*
Horse beans	*	*	-	-	*	*	*
Field peas	111	*	*	*	-	-	-
Haricot beans	1376	160	1288	143	*	*	*
Chick peas	*	*	*	*	-	-	-
Lentils	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-
Fenugreek	*	*	-	-	-	-	-
Gibto	-	-	-	-	-	-	-
Oil Seeds	3395	437	2278	299	294	37	*
Neug	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-
Ground nuts	3395	435	2278	299	294	37	*
Sufflower	-	-	-	-	-	-	-
Sesame	*	*	*	*	-	-	-
Rapeseed	-	-	-	-	-	-	-
Other Grains	*	*	-	-	-	-	-
Vegetables	760	12	492	9	*	*	*
Lettuce	-	-	-	-	-	-	-
Head cabbage	*	*	-	-	-	-	-
Kale	*	*	*	*	-	-	-
Tomatoes	*	*	-	-	-	-	-
Green peppers	*	*	*	*	-	-	-
Red peppers	*	*	*	*	-	-	-
Swiss chard	-	-	-	-	-	-	-
Others	615	5	439	3	*	*	*
Root Crops	1448	64	669	25	*	*	*
Beet root	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-
Onions	-	-	-	-	-	-	-
Potatoes	464	*	140	*	*	*	*
Garlic	-	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-
Sweet potatoes	1006	28	523	18	*	*	*
Others	*	*	*	*	-	-	-
Permanent Crops	8966	1345	5757	557	1080	157	58
Fruit Crops	4783	163	3214	101	483	15	15
Avocado	*	*	*	*	*	*	*
Bananas	687	*	474	2	-	-	-
Guava (Zeytuna)	1364	39	645	22	125	1	*
Lemons	189	1	108	*	*	*	*
Mangoes	1928	89	1327	60	184	*	*
Oranges	*	*	*	*	-	-	-
Papayas	1335	15	948	12	*	*	*
Pineapples	-	-	-	-	-	-	-
Others	851	10	568	4	*	*	*
Stimulant Crops	8035	1179	4408	455	1011	142	42
Chat	7787	1154	4194	441	950	141	40
Coffee	877	22	531	13	*	*	*
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	2774	1099	406	2015	846	562
Grain Crops	2741	738	266	1871	562	488
Cereals	2741	666	239	1871	525	484
Teff	-	-	-	-	-	-
Barley	*	*	*	104	2	*
Wheat	430	18	11	632	46	*
Maize	1720	109	78	1200	87	34
Sorghum	2234	536	147	1711	390	*
Finger millet	*	*	-	-	-	-
Oats ('Aja')	-	-	-	*	*	*
Rice	-	-	-	-	-	-
Pulses	163	*	*	108	2	*
Horse beans	*	*	*	-	-	-
Field peas	*	*	*	*	*	-
Haricot beans	*	*	*	*	*	*
Chick peas	*	*	*	*	*	*
Lentils	-	-	-	-	-	-
Vetch	-	-	-	-	-	-
Soya	-	-	-	-	-	-
Fenugreek	*	*	*	-	-	-
Gibto	-	-	-	-	-	-
Oil Seeds	661	67	21	270	34	*
Neug	-	-	-	-	-	-
Linseed	-	-	-	-	-	-
Ground nuts	661	66	21	270	34	*
Sufflower	-	-	-	-	-	-
Sesame	*	*	-	-	-	-
Rapeseed	-	-	-	-	-	-
Other Grains	-	-	-	*	*	-
Vegetables	177	*	6	*	*	*
Lettuce	-	-	-	-	-	-
Head cabbage	*	*	*	-	-	-
Kale	-	-	-	-	-	-
Tomatoes	*	*	*	-	-	-
Green peppers	-	-	-	*	*	*
Red peppers	*	*	*	-	-	-
Swiss chard	-	-	-	-	-	-
Others	109	*	*	*	*	*
Root Crops	215	4	6	307	8	*
Beet root	-	-	-	-	-	-
Carrot	-	-	-	-	-	-
Onions	-	-	-	-	-	-
Potatoes	*	*	*	*	*	*
Garlic	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-
Sweet potatoes	177	*	5	229	5	*
Others	-	-	-	*	*	*
Permanent Crops	2386	354	128	1787	276	64
Fruit Crops	928	32	27	628	15	14
Avocado	*	*	*	*	*	*
Bananas	*	*	*	*	*	*
Guava (Zeytuna)	441	13	9	154	*	*
Lemons	*	*	*	-	-	-
Mangoes	228	*	*	247	8	*
Oranges	*	*	*	-	-	-
Papayas	244	1	5	*	*	*
Pineapples	-	-	-	-	-	-
Others	*	*	*	136	*	*
Stimulant Crops	2251	321	100	1689	261	50
Chat	2158	312	93	1658	260	49
Coffee	*	*	*	84	*	*
Hops	*	*	*	-	-	-
Others	-	-	-	-	-	-
Other Permanent Crops	*	*	*	*	*	-
Enset	*	*	*	-	-	-
Sugar Cane	-	-	-	-	-	-
Others	*	*	*	*	*	-

TABLE 6.3.2: RURAL BELG

CROP	Application of total Fertilizers		Application of Fertilizers by Type and Quantity				
			Natural		Chemical – DAP		
	Holders	Hectares	Holders	Hectares	Holders	Hectares	Quintals
TOTAL	1465	356	1324	331	*	*	*
Grain Crops	1357	338	1310	322	*	*	*
Cereals	705	*	705	*	-	-	-
Teff	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-
Maize	555	68	555	68	-	-	-
Sorghum	450	*	450	*	-	-	-
Finger millet	-	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-
Pulses	1257	153	1211	138	*	*	*
Horse beans	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-
Haricot beans	1257	153	1211	138	*	*	*
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 ('Godere')	-	-	-	-	-	-	-
Sweet potatoes	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Permanent Crops	1465	356	1324	331	*	*	*
Fruit Crops	1357	338	1310	322	*	*	*
Avocado	705	*	705	*	-	-	-
Bananas	-	-	-	-	-	-	-
Guava (Zeytuna)	-	-	-	-	-	-	-
Lemons	-	-	-	-	-	-	-
Mangoes	555	68	555	68	-	-	-
Oranges	450	*	450	*	-	-	-
Papayas	-	-	-	-	-	-	-
Pineapples	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-
Stimulant Crops	1257	153	1211	138	*	*	*
Chat	-	-	-	-	-	-	-
Coffee	-	-	-	-	-	-	-
Hops	1257	153	1211	138	*	*	*
Others	-	-	-	-	-	-	-
Other Permanent Crops	-	-	-	-	-	-	-
Enset	-	-	-	-	-	-	-
Sugar Cane	-	-	-	-	-	-	-
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 DAP		Chemical	
	Holders	Hectares	Holders	Hectares	Holders	Hectares	Holders	Hectares
TOTAL	424	174	224	71	124	60	108	43
Grain Crops	403	113	197	46	113	28	106	39
Cereals	395	105	188	43	113	25	106	37
Teff	-	-	-	-	-	-	-	-
Barley	14	*	*	*	7	*	*	*
Wheat	35	4	*	*	28	2	*	*
Maize	283	54	120	26	74	8	93	20
Sorghum	283	45	126	16	77	15	88	14
Finger millet	-	-	-	-	-	-	-	-
Oats ('Aja')	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulses	*	*	*	*	*	*	*	*
Horse beans	-	-	-	-	-	-	-	-
Field peas	*	*	*	*	*	*	-	-
Haricot beans	*	*	*	*	*	*	*	*
Chick peas	-	-	-	-	-	-	-	-
Lentils	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-
Soya	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil Seeds	63	5	34	*	*	*	19	*
Neug	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	63	5	34	*	*	*	19	*
Sufflower	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-
Other Grains	-	-	-	-	-	-	-	-
Vegetables	13	*	11	*	*	*	-	-
Lettuce	6	*	6	*	-	-	-	-
Head cabbage	-	-	-	-	-	-	-	-
Kale	11	*	*	*	*	*	-	-
Tomatoes	-	-	-	-	-	-	-	-
Green peppers	-	-	-	-	-	-	-	-
Red peppers	-	-	-	-	-	-	-	-
Swiss chard	*	*	*	*	-	-	-	-
Others	-	-	-	-	-	-	-	-
Root Crops	9	*	*	*	*	*	-	-
Beet root	*	*	*	*	-	-	-	-
Carrot	-	-	-	-	-	-	-	-
Onions	*	*	-	-	*	*	-	-
Potatoes	-	-	-	-	-	-	-	-
Garlic	-	-	-	-	-	-	-	-
Taro ('Godere')	-	-	-	-	-	-	-	-
Sweet potatoes	*	*	*	*	*	*	-	-
Others	-	-	-	-	-	-	-	-
Permanent Crops	177	59	78	*	46	*	55	*
Fruit Crops	22	*	18	*	*	-	*	-
Avocado	-	-	-	-	-	-	-	-
Bananas	*	*	*	*	-	-	-	-
Guava (Zeytuna)	*	*	*	*	-	-	*	-
Lemons	-	-	-	-	-	-	-	-
Mangoes	*	*	*	*	*	-	*	-
Oranges	-	-	-	-	-	-	-	-
Papayas	4	*	4	*	-	-	-	-
Pineapples	-	-	-	-	-	-	-	-
Others	4	*	4	*	-	-	-	-
Stimulant Crops	162	58	66	*	43	*	55	*
Chat	162	58	66	*	43	*	55	*
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 andUrban Areas, for Private Holdings

EDUCATIONAL ATTAINMENT	All Crop Holders		Holders Applying Agricultural Inputs								Number and Percentage of Holders Participating in Agriculture Extension Programs	
			Improved Seed		Irrigation		Fertilizer		Pesticide			
	Holders	%	Holders	%	Holders	%	Holders	%	Holders	%	Holders	%
ALL.....	14220	100	923	6.49	1721	12.1	11243	79.06	828	5.82	657	4.62
Illiterate.....	9982	70.20	626	6.27	1112	11.14	7783	77.97	481	4.82	419	4.2
Literate, but no formal Education	1866	13.12	98	5.25	304	16.29	1541	82.58	132	7.07	*	*
Completed Grade 1..	269	1.89	*	*	*	*	254	94.42	*	*	*	*
Completed Grade 2..	225	1.58	*	*	*	*	219	97.33	*	*	-	-
Completed Grade 3..	354	2.49	*	*	*	*	265	74.86	*	*	-	-
Completed Grade 4..	515	3.62	*	*	*	*	416	80.78	*	*	*	*
Completed Grade 5..	297	2.09	10	3.37	*	*	239	80.47	*	*	*	*
Completed Grade 6..	301	2.12	*	*	*	*	220	73.09	*	*	*	*
Completed Grade 7..	200	1.41	*	*	4	2	171	85.5	*	*	*	*
Completed Grade 8..	113	0.79	*	*	*	*	*	*	*	*	-	-
Completed Grade 9..	*	*	*	*	*	*	*	*	*	*	*	-
Completed Grade 10	*	*	*	-	-	*	*	*	*	-	-	*
Completed Grade 11	*	*	*	-	-	-	-	-	-	-	-	-
Completed Grade 12	25	0.18	6	24	9	36	12	48	-	-	-	-
Above Grade 12.....	*	*	*	-	-	*	*	*	*	*	*	-
Not Reported.....	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 6.5.1: RURAL HOLDINGS

EDUCATIONAL ATTAINMENT	All Crop Holders		Number of Holders Applying Agricultural Inputs								Number and Percentage of Holders Participating in Agriculture Extension Programs	
			Improved Seed		Irrigation		Fertilizer		Pesticide			
	Holders	%	Holders	%	Holders	%	Holders	%	Holder	%	Holders	%
ALL.....	13408	100	840	6.26	1602	11.95	10820	80.7	767	5.72	657	4.9
Illiterate.....	9597	71.58	598	6.23	1061	11.06	7606	79.25	468	4.88	419	4.37
Literate, but no formal Education.....	1782	13.29	86	4.83	291	16.33	1501	84.23	128	7.18	*	*
Completed Grade 1 .	267	1.99	-	-	*	*	252	94.38	*	*	*	*
Completed Grade 2 .	213	1.59	*	*	*	*	213	100	*	-	-	
Completed Grade 3 .	321	2.39	-	-	*	*	241	75.08	*	*	-	-
Completed Grade 4 .	487	3.63	*	*	*	*	404	82.96	*	*	*	*
Completed Grade 5 .	234	1.75	-	-	*	*	196	83.76	*	*	*	*
Completed Grade 6 .	248	1.85	*	*	*	*	183	73.79	*	*	*	*
Completed Grade 7 .	140	1.04	*	*	-	-	140	100	-	*	*	
Completed Grade 8 .	*	*	*	-	-	-	-	*	*	-	-	-
Completed Grade 9 .	*	*	*	-	-	-	-	*	*	-	-	-
Completed Grade 10	*	*	*	-	-	-	-	*	*	-	-	*
Completed Grade 11	-	-	-	-	-	-	-	-	-	-	-	-
Completed Grade 12	-	-	-	-	-	-	-	-	-	-	-	-
Above Grade 12.....	-	-	-	-	-	-	-	-	-	-	-	-
Not Reported	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 6.5.2: RURAL MEHER

EDUCATIONAL ATTAINMENT	All Crop Holders		Number of Holders Applying Agricultural Inputs								Number and Percentage of Holders Participating in Agriculture Extension Programs	
			Improved Seed		Irrigation		Fertilizer		Pesticide			
	Holders	%	Holders	%	Holders	%	Holders	%	Holders	%	Holders	%
ALL	13273	100	812	6.12	1377	10.37	10711	80.7	692	5.21	657	4.95
Illiterate.....	9574	72.13	598	6.25	949	9.91	7573	79.1	422	4.41	419	4.38
Literate, but no formal Education.....	1669	12.57	86	5.15	179	10.72	1477	88.5	*	*	*	*
Completed Grade 1.	267	2.01	-	-	*	*	228	85.39	*	*	*	*
Completed Grade 2.	213	1.60	*	*	*	*	213	100	*	*	-	-
Completed Grade 3.	321	2.42	-	-	*	*	241	75.08	*	*	-	-
Completed Grade 4.	487	3.67	*	*	*	*	388	79.67	*	*	*	*
Completed Grade 5.	234	1.76	-	-	*	*	196	83.76	-	-	*	*
Completed Grade 6.	248	1.87	*	*	*	*	170	68.55	*	*	*	*
Completed Grade 7.	140	1.05	*	*	-	-	140	100	-	*	*	-
Completed Grade 8.	*	*	*	-	-	-	-	*	*	-	-	-
Completed Grade 9.	*	*	*	-	-	-	-	*	*	-	-	-
Completed Grade 10	*	*	*	-	-	-	-	*	*	-	-	*
Completed Grade 11	-	-	-	-	-	-	-	-	-	-	-	-
Completed Grade 12	-	-	-	-	-	-	-	-	-	-	-	-
Above Grade 12.....	-	-	-	-	-	-	-	-	-	-	-	-
Not Reported	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 6.5.3: RURAL BELG

EDUCATIONAL ATTAINMENT	All Crop Holders		Number of Holders Applying Agricultural Inputs								Number and Percentage of Holders Participating in Agriculture Extension Programs	
			Improved Seed		Irrigation		Fertilizer		Pesticide			
	Holders	%	Holders	%	Holders	%	Holders	%	Holders	%	Holders	%
ALL.....	3275	100	*	*	*	*	1465	44.73	*	*	-	-
Illiterate.....	1928	100	-	-	*	*	722	37.45	*	*	-	-
Literate, but no formal Education.....	665	100	-	-	*	*	361	54.29	*	*	-	-
Completed Grade 1 .	*	*	-	-	-	-	*	*	-	-	-	-
Completed Grade 2 .	*	*	-	-	-	-	*	*	-	-	-	-
Completed Grade 3 .	108	100	-	-	-	-	*	*	-	-	-	-
Completed Grade 4 .	155	100	-	-	-	-	*	*	-	-	-	-
Completed Grade 5 .	133	100	-	-	-	-	85	63.91	*	*	-	-
Completed Grade 6 .	*	*	*	*	*	*	*	*	-	-	-	-
Completed Grade 7 .	*	*	-	-	-	-	*	*	-	-	-	-
Completed Grade 8 .	*	*	-	-	-	-	-	-	-	-	-	-
Completed Grade 9 .	*	*	-	-	-	-	*	*	-	-	-	-
Completed Grade 10	*	*	-	-	-	-	-	-	-	-	-	-
Completed Grade 11	-	-	-	-	-	-	-	-	-	-	-	-
Completed Grade 12	-	-	-	-	-	-	-	-	-	-	-	-
Above Grade 12.....	-	-	-	-	-	-	-	-	-	-	-	-
Not Reported.....	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 6.5.4: URBAN HOLDINGS

EDUCATIONAL ATTAINMENT	All Crop Holders		Number & Percentage of Holders in Education Category who Applied: Improved Seed		Irrigation		Fertilizer		Pesticide	
	Holders	%	Holders	%	Holders	%	Holders	%	Holders	%
ALL	811	100	83	10.23	119	14.67	424	52.28	61	7.52
Illiterate	386	47.60	28	7.25	51	13.21	176	45.6	14	3.63
Literate, but no formal Education	85	10.48	12	14.12	*	*	41	48.24	*	*
Completed Grade 1	*	*	*	*	*	*	*	*	*	*
Completed Grade 2	12	1.48	-	-	*	*	*	*	*	*
Completed Grade 3	32	3.95	*	*	6	18.75	24	75	*	*
Completed Grade 4	28	3.45	*	*	*	*	12	42.86	-	-
Completed Grade 5	63	7.77	10	15.87	9	14.29	43	68.25	*	*
Completed Grade 6	53	6.54	*	*	*	*	36	67.92	*	*
Completed Grade 7	61	7.52	*	*	4	6.56	32	52.46	*	*
Completed Grade 8	25	3.08	*	*	*	*	14	56	*	*
Completed Grade 9	10	1.23	*	*	*	*	*	*	*	*
Completed Grade 10	17	2.10	-	-	*	*	9	52.94	-	-
Completed Grade 11	*	*	*	-	-	-	-	-	-	-
Completed Grade 12	25	3.08	6	24	9	36	12	48	-	-
Above Grade 12	*	*	*	-	-	*	*	*	*	*
Not Reported	-	-	-	-	-	-	-	-	-	-

ANNEX TABLES PRESENTING ESTIMATES, STANDARD ERRORS AND COEFFICIENTS OF VARIATIONS FOR SELECTED FARM MANAGEMENT PRACTICES VARIABLES

Annex Tables 6.1 and 6.2

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			Feretilizer Applied			Pesticide Applied		
	Hectare	S.E	C.V	Hectare	S.E	C.V	Hectare	S.E	C.V	Hectare	S.E	C.V
TOTAL	8073	623	8	76	22	29	246	90	37	4768	400	8
Grains Crops	5900	575	10	75	22	29	101	43	42	3366	316	9
Cereals	4625	379	8	61	18	30	97	41	42	2920	292	10
Teff	3	2	68	-	-	-	-	-	-	-	-	103
Barley	18	9	49	-	-	-	-	-	-	11	6	51
Wheat	100	34	34	9	6	65	-	-	106	83	29	35
Maize	668	78	12	37	14	37	36	19	53	458	45	10
Sorghum	3835	353	9	14	6	42	61	33	53	2366	279	12
Millet	1	1	72	-	-	108	-	-	-	1	1	72
Oats	1	1	70	-	-	-	-	-	-	1	1	84
Rice	-	-	-	-	-	-	-	-	-	-	-	-
Pulse	26	7	26	-	-	-	-	-	106	12	4	30
Horse beans	1	1	59	-	-	-	-	-	106	-	-	74
Field peas	3	2	70	-	-	-	-	-	-	1	1	53
Haricot beans	11	4	34	-	-	-	-	-	-	7	3	45
Chick peas	10	5	56	-	-	-	-	-	-	3	2	63
Lentiles	-	-	-	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-	-	-	-
Sova	-	-	-	-	-	-	-	-	-	-	-	-
Fenugreek	1	1	76	-	-	-	-	-	-	1	1	76
Gibto	-	-	-	-	-	-	-	-	-	-	-	-
Oile seed	1249	293	23	15	9	59	3	2	64	433	90	21
Nueg	-	-	-	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-	-	-	-
Ground nuts	1240	292	24	15	9	59	3	2	64	431	89	21
Sunflower	-	-	-	-	-	-	-	-	-	-	-	-
Sesame	9	5	54	-	-	-	-	-	-	2	1	73
Rapeseed.	-	-	-	-	-	-	-	-	-	-	-	-
Other Grain	1	1	84	-	-	-	1	1	109	1	1	109
Vegetables.	7	2	31	-	-	106	-	-	106	5	2	31
Lettuce	-	-	-	-	-	-	-	-	-	-	-	-
Cabbage	-	-	106	-	-	106	-	-	106	-	-	106
Kale	-	-	-	-	-	-	-	-	-	-	-	-
Tomatoes	-	-	-	-	-	-	-	-	-	-	-	-
Green pepper	-	-	77	-	-	-	-	-	-	-	-	83
Red paper	-	-	106	-	-	-	-	-	-	-	-	106
Swiss chard	-	-	-	-	-	-	-	-	-	-	-	-
Others	6	2	32	-	-	-	-	-	-	5	1	31
Root Crops	88	24	27	-	-	-	8	7	90	52	19	36
Beet root	-	-	-	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-	-	-	-
Onion	-	-	-	-	-	-	-	-	-	-	-	-
Potatoes	27	19	72	-	-	-	-	-	-	23	17	74
Garlic	-	-	-	-	-	-	-	-	-	-	-	-
Godere	-	-	-	-	-	-	-	-	-	-	-	-
Sweet potatoes	61	16	26	-	-	-	8	7	90	28	8	29
Others	-	-	69	-	-	-	-	-	-	-	-	70
Permanet crops	2078	182	9	1	1	88	137	48	35	1345	165	12
Fruit Crops	335	52	16	1	1	92	36	23	63	163	28	17
Avocado	2	1	93	-	-	-	-	-	105	-	-	72
Bannas	11	5	44	-	-	-	1	-	64	7	4	57
Guava(Zeytuna)	69	15	22	-	-	-	4	3	70	39	9	23
Lemons	2	1	42	-	-	-	-	-	102	1	1	48
Mangos	198	44	22	-	-	-	10	5	56	89	26	29
Oranges	-	-	48	-	-	-	-	-	101	-	-	60
Papayas	40	20	50	-	-	73	22	19	88	15	4	24
Pineapples	-	-	-	-	-	-	-	-	-	-	-	-
Others	13	5	35	1	1	93	-	-	95	10	4	38
Stimulant Crop	1704	197	12	-	-	106	81	34	42	1179	166	14
Chat	1666	197	12	-	-	-	78	34	43	1154	164	14
Coffee	34	10	29	-	-	106	3	2	76	22	8	35
Gesho.	3	4	108	-	-	-	-	-	-	3	4	108
Others	-	-	-	-	-	-	-	-	-	-	-	-
Other Permanent	39	19	49	-	-	-	20	14	69	2	2	65
Enset	1	1	96	-	-	-	-	-	-	1	1	105
Sugar Cane	36	19	53	-	-	-	20	14	69	1	1	101
Others	2	1	68	-	-	-	-	-	-	1	1	83

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

Type of crop	Improved Seed Applied			Irrigation			Fertilizer Applied			Pesticide Applied		
	Hectare	S.E	C.V	Hectare	S.E	C.V	Hectare	S.E	C.V	Hectare	S.E	C.V
TOTAL	307	60	20	13	3	26	24	7	27	174	37	21
Grains Crops	211	40	19	12	3	26	12	3	24	113	27	24
Cereals	186	35	19	12	3	26	11	3	25	105	26	25
Teff	-	-	-	-	-	-	-	-	-	-	-	-
Barley	2	1	60	-	-	-	-	-	-	2	1	60
Wheat	5	2	37	1	1	81	-	-	81	4	2	44
Maize	98	24	25	9	3	29	7	2	26	54	16	30
Sorghum	82	15	19	2	1	47	4	1	34	45	11	24
Millet	-	-	81	-	-	-	-	-	-	-	-	-
Oats	-	-	-	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-	-	-	-
Pulse	4	3	71	-	-	-	1	1	83	3	2	72
Horse beans	-	-	83	-	-	-	-	-	-	-	-	-
Field peas	1	1	59	-	-	-	-	-	-	1	1	62
Haricot beans	3	2	81	-	-	-	1	1	83	2	2	82
Chick peas	-	-	-	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-	-	-	-
Vetch	-	-	-	-	-	-	-	-	-	-	-	-
Sova	-	-	-	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-	-	-	-
Oile seed	21	10	47	-	-	58	-	-	83	5	2	47
Nueg	-	-	-	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-	-	-	-
Ground nuts	21	10	47	-	-	58	-	-	83	5	2	47
Sunflower	-	-	-	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-	-	-	-
Rapeseed.	-	-	-	-	-	-	-	-	-	-	-	-
Other Grain	-	-	-	-	-	-	-	-	-	-	-	-
Vegetables.	4	2	58	-	-	77	4	2	66	-	-	63
Lettuce	1	1	56	-	-	81	1	1	60	-	-	70
Cabbage	-	-	-	-	-	-	-	-	-	-	-	-
Kale	3	2	58	-	-	74	2	2	66	-	-	60
Tomatoes	-	-	-	-	-	-	-	-	-	-	-	-
Green pepper	-	-	-	-	-	-	-	-	-	-	-	-
Red paper	-	-	-	-	-	-	-	-	-	-	-	-
Swiss chard	-	-	78	-	-	-	-	-	81	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-
Root Crops	2	1	68	-	-	-	1	1	78	2	1	69
Beet root	-	-	-	-	-	-	-	-	-	-	-	-
Carrot	-	-	-	-	-	-	-	-	-	-	-	-
Onion	-	-	-	-	-	-	-	-	-	-	-	-
Potatoes	-	-	-	-	-	-	-	-	-	-	-	-
Garlic	-	-	-	-	-	-	-	-	-	-	-	-
Godere	-	-	-	-	-	-	-	-	-	-	-	-
Sweet potatoes	2	1	68	-	-	-	1	1	78	2	1	69
Others	-	-	-	-	-	-	-	-	-	-	-	-
Permanet crops	90	39	44	1	-	57	8	3	35	59	28	47
Fruit Crops	3	1	43	-	-	65	1	1	51	1	-	64
Avocado	-	-	81	-	-	-	-	-	-	-	-	-
Bannas	1	-	63	-	-	-	-	-	66	-	-	81
Guava(Zeytuna)	-	-	58	-	-	85	-	-	81	-	-	81
Lemons	-	-	-	-	-	-	-	-	-	-	-	-
Mangos	-	-	46	-	-	-	-	-	-	-	-	-
Oranges	-	-	-	-	-	-	-	-	-	-	-	-
Papayas	1	-	51	-	-	81	1	-	54	-	-	75
Pineapples	-	-	-	-	-	-	-	-	-	-	-	-
Others	1	1	72	-	-	-	-	-	81	-	-	63
Stimulant Crop	87	39	45	-	-	57	6	2	35	58	28	48
Chat	86	39	46	-	-	83	6	2	36	58	28	48
Coffee	-	-	45	-	-	81	-	-	56	-	-	81
Gesho.	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-
Other Permanent	-	-	81	-	-	-	-	-	81	-	-	81
Enset	-	-	-	-	-	-	-	-	-	-	-	-
Sugar Cane	-	-	81	-	-	-	-	-	81	-	-	81
Others	-	-	-	-	-	-	-	-	-	-	-	-

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

	Cattle on Both Rural and Urban Holdings						Cattle on Rural Holdings						Cattle on Urban Holdings					
	Total		Male		Female		Total		Male		Female		Total		Male		Female	
Age,Breed,and Purpose	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
Cattle by Breed																		
Total	34,008	100	13434	39.50	20574	60.50	33094	97.31	13105	38.54	19990	58.78	914	2.69	329	0.97	584	1.72
Indigenous	33,724	99.16	13,322	39.17	20,401	59.99	32995	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
Aged 3-10 Years by Purpose																		
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	*	*	*	*	*	*
Dairy Animals																		
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			9401	100	9158	97.42			9,158	97.42	243	2.65			243	2.65

FIGURE VII.1 DISTRIBUTION OF CATTLE BY AGE AND SEX

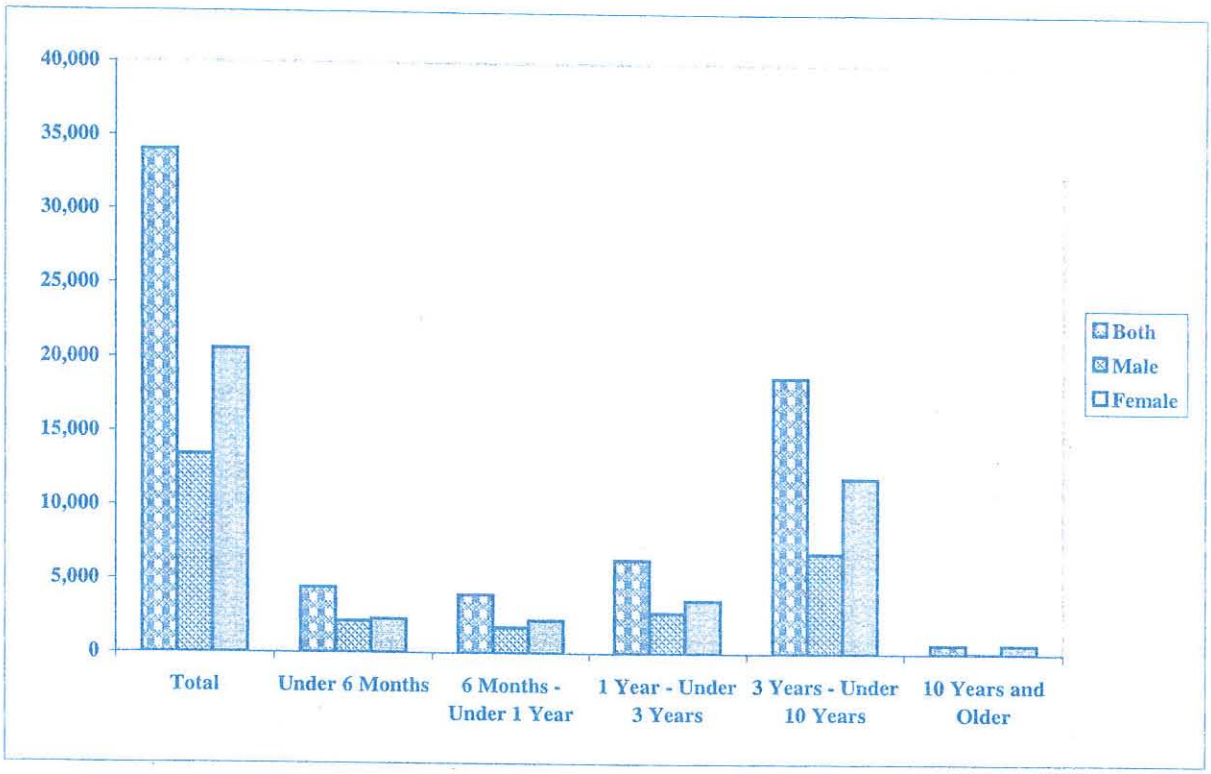
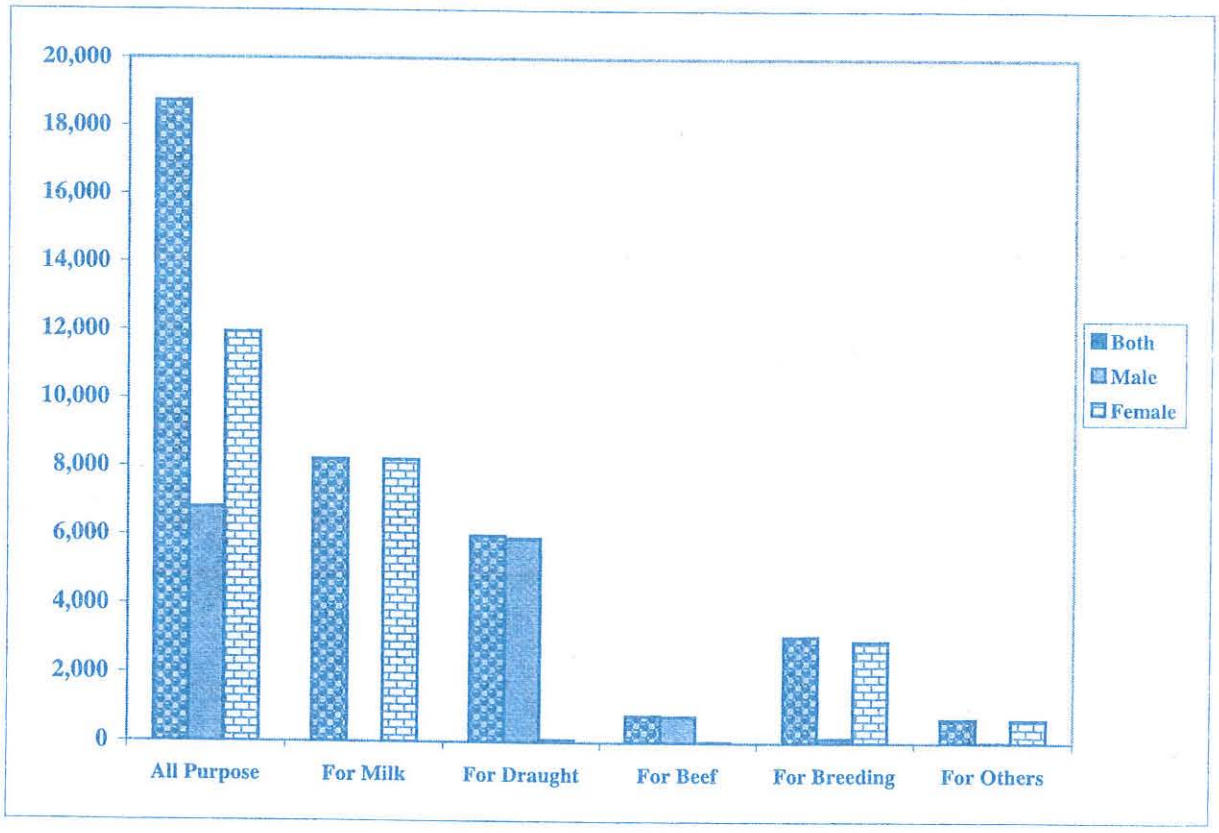


FIGURE VII.2 DISTRIBUTION OF CATTLE AGED 3 AND UNDER 10 YEARS BY PURPOSE AND SEX



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[1] is estimated to be about 8,202 and milking-cows[2] 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.

---

1 A *Dairy Cow refers to a cow that primarly 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.*

2 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

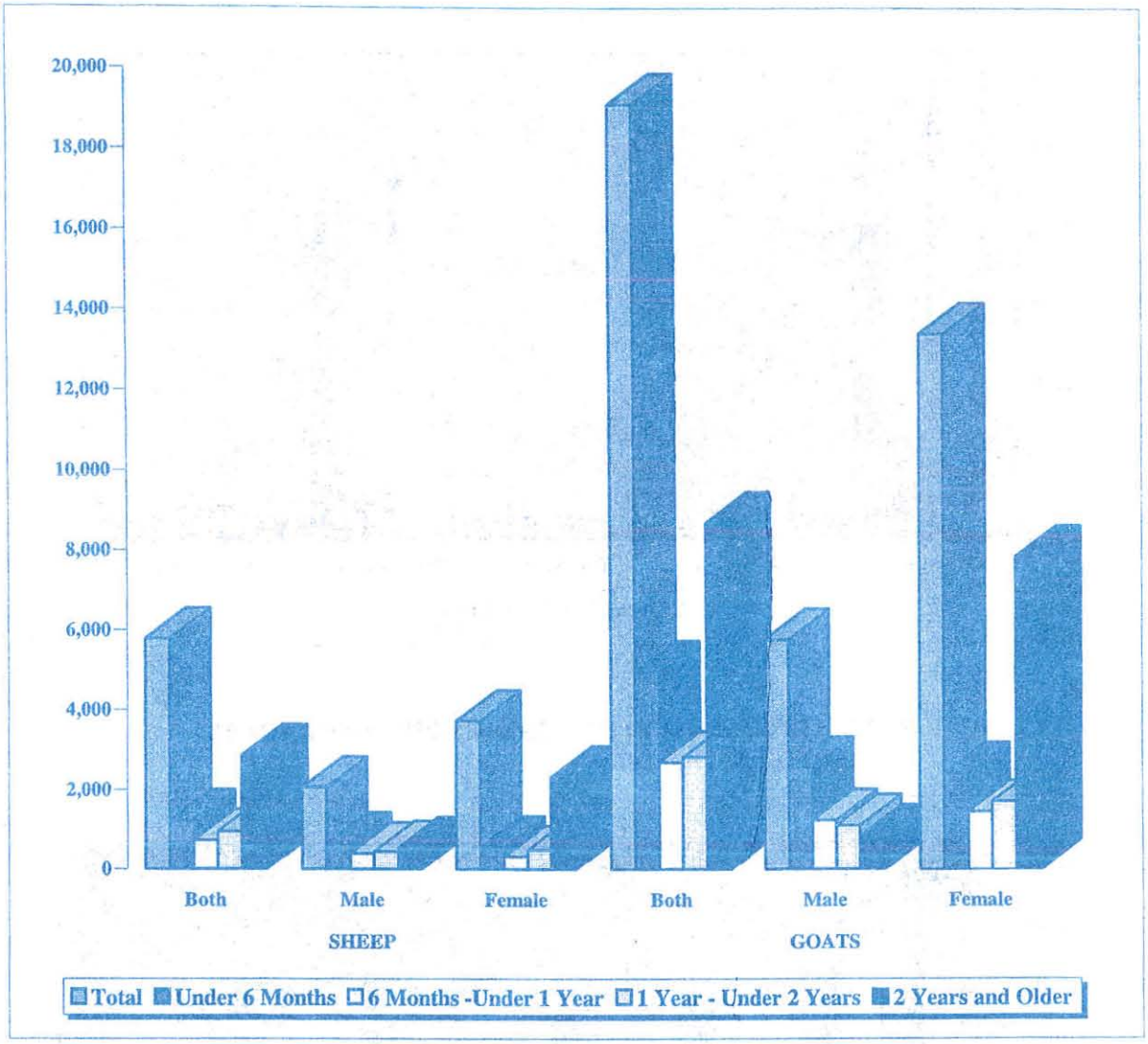


FIGURE VII.4 DISTRIBUTION OF SHEEP BY PURPOSE AND SEX
AGED 2 AND OLDER

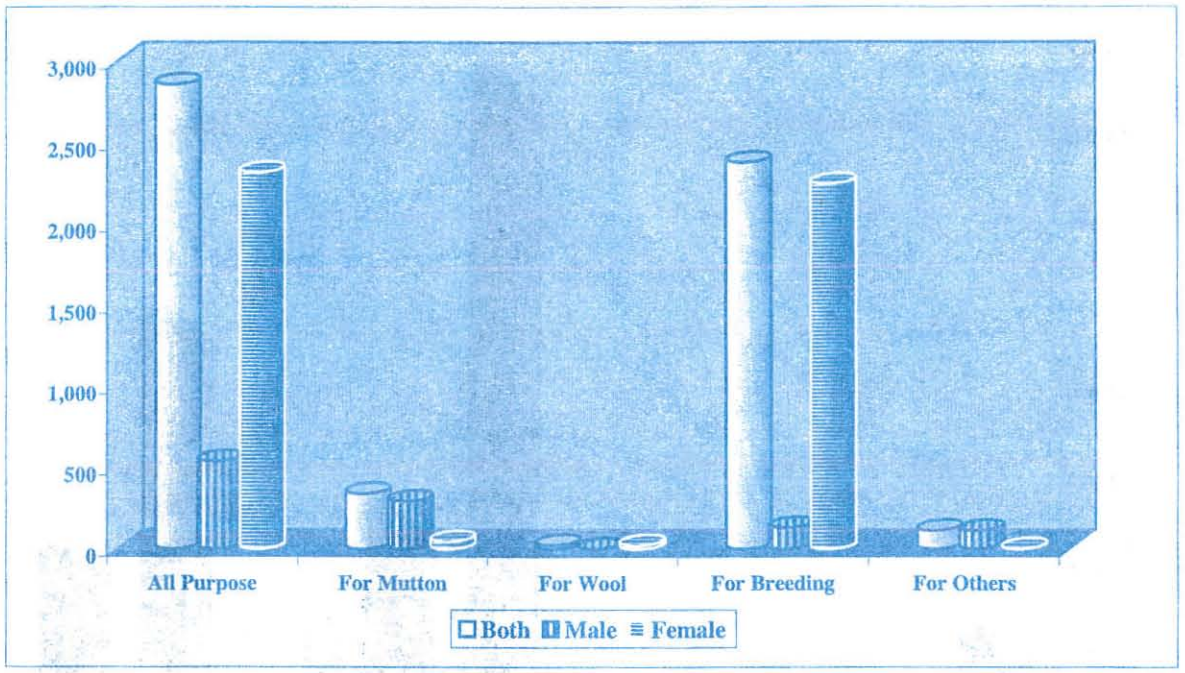
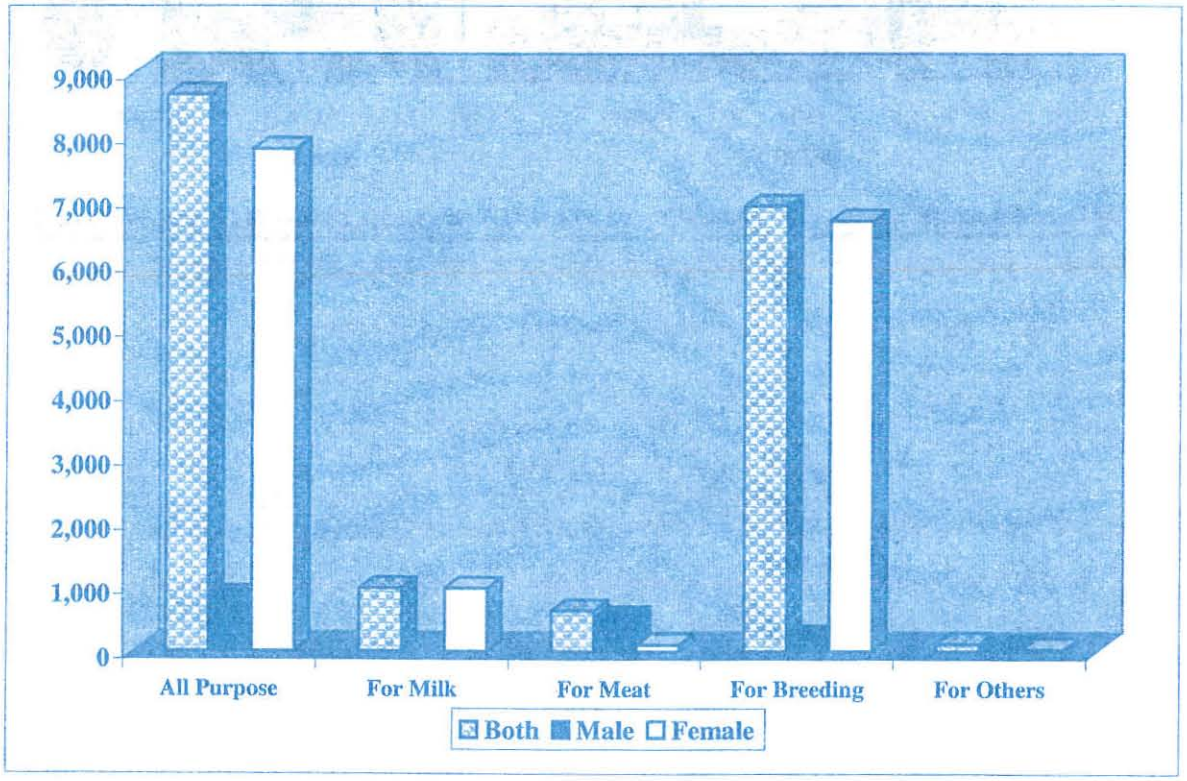


FIGURE VII.5 DISTRIBUTION OF GOATS BY PURPOSE AND SEX
AGED 2 AND OLDER



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 nd 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)

SUMMARY TABLE VII.3: Estimated Number of Horses, Asses, Mules and Camels 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 Horses.....	*	*	*	*	-	-	-		-		-	-	*	*	*	*	-	-
Under 3 Years	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 years and older	*	*	*	*	-	-	-	-	-	-	-	-	*	*	*	*	-	-
Horses Aged 3 years and Older by Purpose																		
All Uses	*	*	*	*	-	-	-	-	-	-	-	-	*	*	*	*	-	-
Transportation	*	*	*	*	-	-	-	-	-	-	-	-	*	*	*	*	-	-
Draught	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Uses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Asses	6,203	100	3,780	60.94	2,423	39.06	6,060	97.69	3,645	58.76	2,415	38.93	143	2.31	135	2.18	*	*
Under 3 Years	904	14.57	476	7.67	428	6.90	896	14.44	469	7.56	427	6.88	*	*	*	*	*	*
3 years and older	5,299	85.43	3,304	53.26	1,995	32.16	5,164	83.25	3,175	51.18	1,988	32.05	135	2.18	128	2.06	*	*
Asses Aged 3 Years and older by Purpose																		
All Uses	5,299	100	3,304	62.35	1,995	37.65	5,164	97.45	3,175	59.92	1,988	37.52	135	2.55	128	2.42	*	*
Transportation	3,179	59.99	1,887	35.61	1,291	24.36	3,107	58.63	1,816	34.27	1,291	24.36	*	*	*	*	-	-
Draught	1,889	35.65	1,317	24.85	572	10.79	1,874	35.37	1,310	24.72	565	10.66	15	0.28	*	*	*	*
Other Uses	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	-	-
Total Mules	*	*	*	*	-	-	*	*	*	*	-	-	-	-	-	-	-	-
Under 3 Years	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3 Years and older	*	*	*	*	-	-	*	*	*	*	-	-	-	-	-	-	-	-
Mules Aged 3 Years and older by Purpose																		
All Uses	*	*	*	*	-	-	*	*	*	*	-	-	-	-	-	-	-	-
Transportation.....	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Draught	*	*	*	*	-	-	*	*	*	*	-	-	-	-	-	-	-	-
Other Uses	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Camels.....	*	*	*	*	*	*	*	*	*	*	*	*	-	-	-	-	-	-
Under 4 Years	*	*	*	*	*	*	*	*	*	*	*	*	-	-	-	-	-	-
4 years and older	*	*	*	*	*	*	*	*	*	*	*	*	-	-	-	-	-	-
Camels Aged 4 Years and Older by Purpose																		
All Uses	*	*	*	*	*	*	*	*	*	*	*	*	-	-	-	-	-	-
Transportation.....	*	*	*	*	-	-	*	*	*	*	-	-	-	-	-	-	-	-
Draught	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Meat	*	*	*	*	-	-	*	*	*	*	-	-	-	-	-	-	-	-
Milk	*	*			*	*	*	*			*	*	-	-	-	-	-	-
Other Uses	*	*	-	-	*	*	*	*	*	*	-	-	-	-	-	-	-	-

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

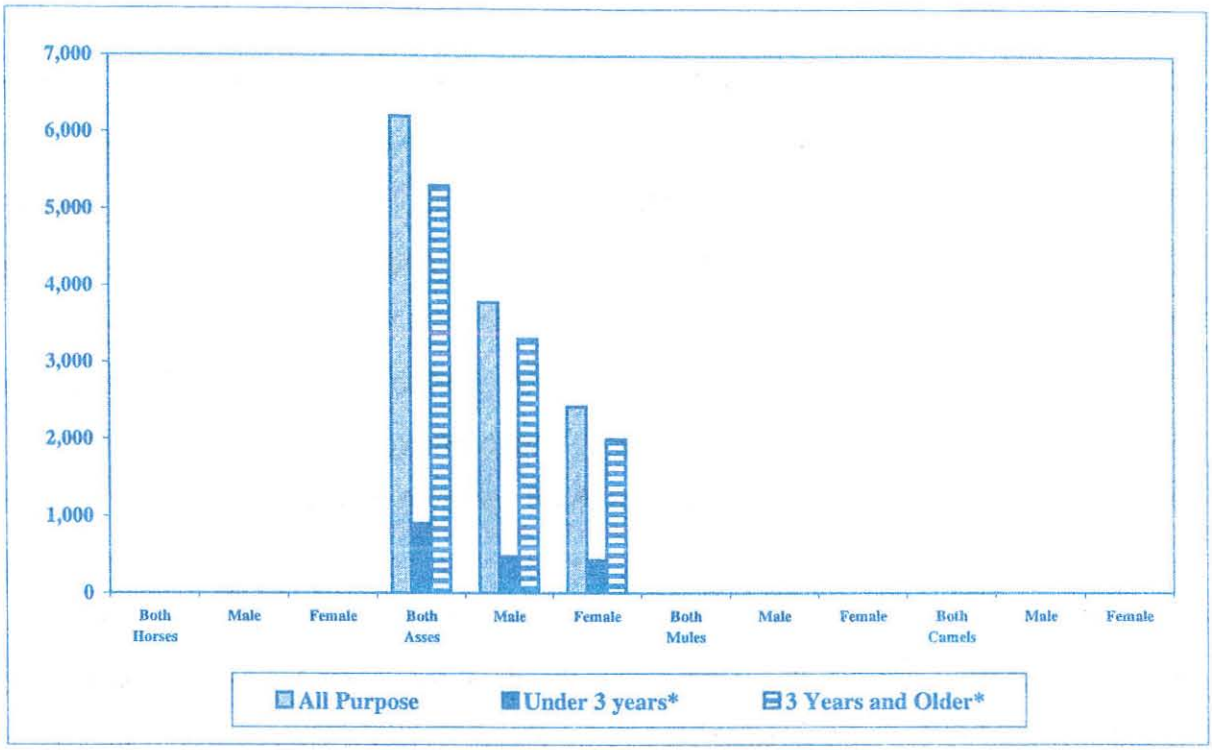
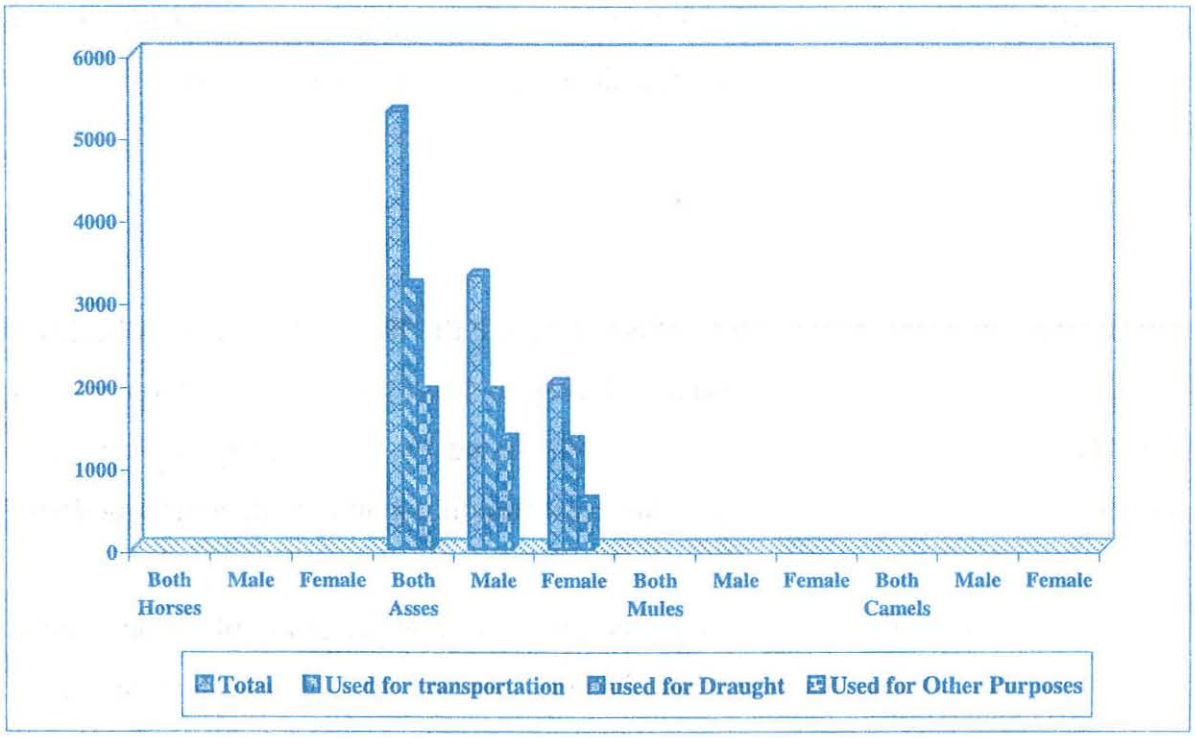


FIGURE VII.7 DISTRIBUTION OF HORSES, ASSES, MULES AND CAMELS BY PURPOSE AND SEX



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. 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 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.

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
Cow Milk			
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
Camel Milk			
Average Daily Milk Production(Liters/Camel)	3.315	3.315	-
Average Lactation Period (Months)	10	10	-
Total Milk Production(Liters)	*	*	-
Honey Production			
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

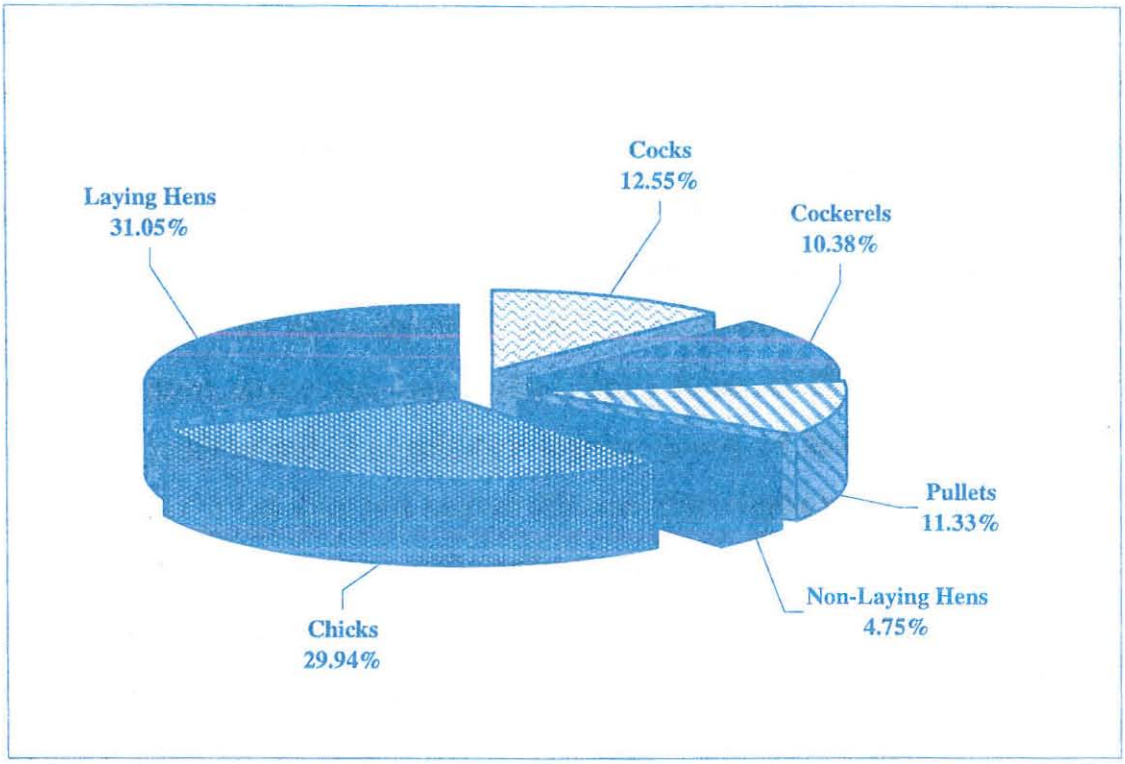
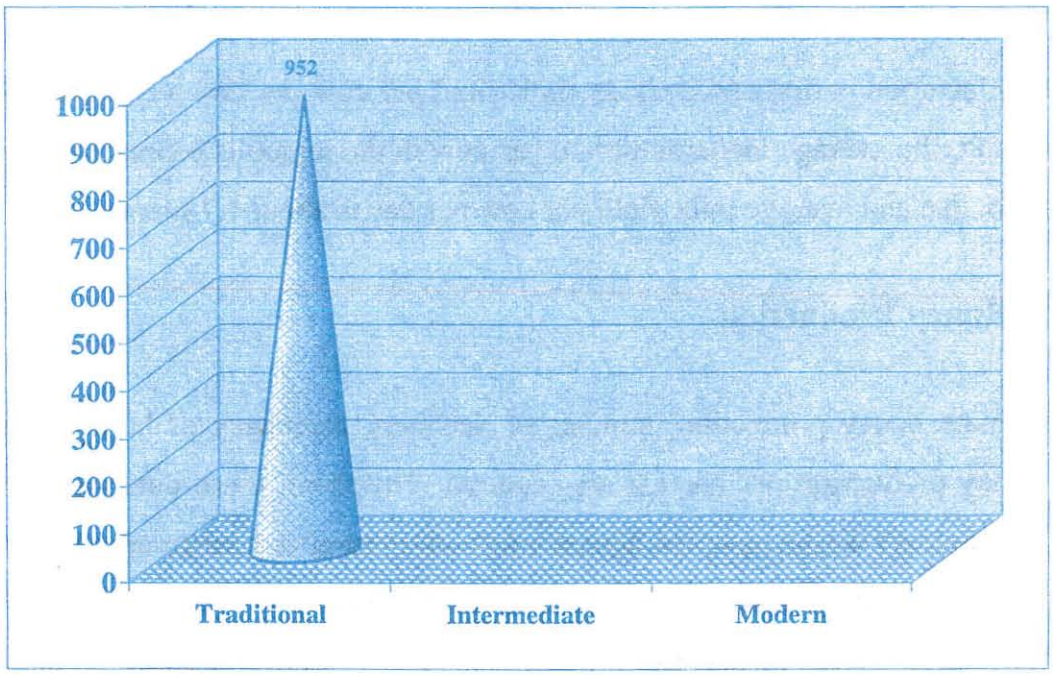


FIGURE VII. 9 DISTRIBUTION OF BEEHIVES BY TYPE



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.

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

	Rural and Urban Holdings					Rural Holdings					Urban Holdings				
		Percent of Product Utilized for:					Percent of Product Utilized for:					Percent of Product Utilized for:			
Type of Product	Total%	Household Consumption	Sale	Wages in Kind	Other	Total%	Household Consumption	Sale	Wages in Kind	Other	Total%	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

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 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 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).

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

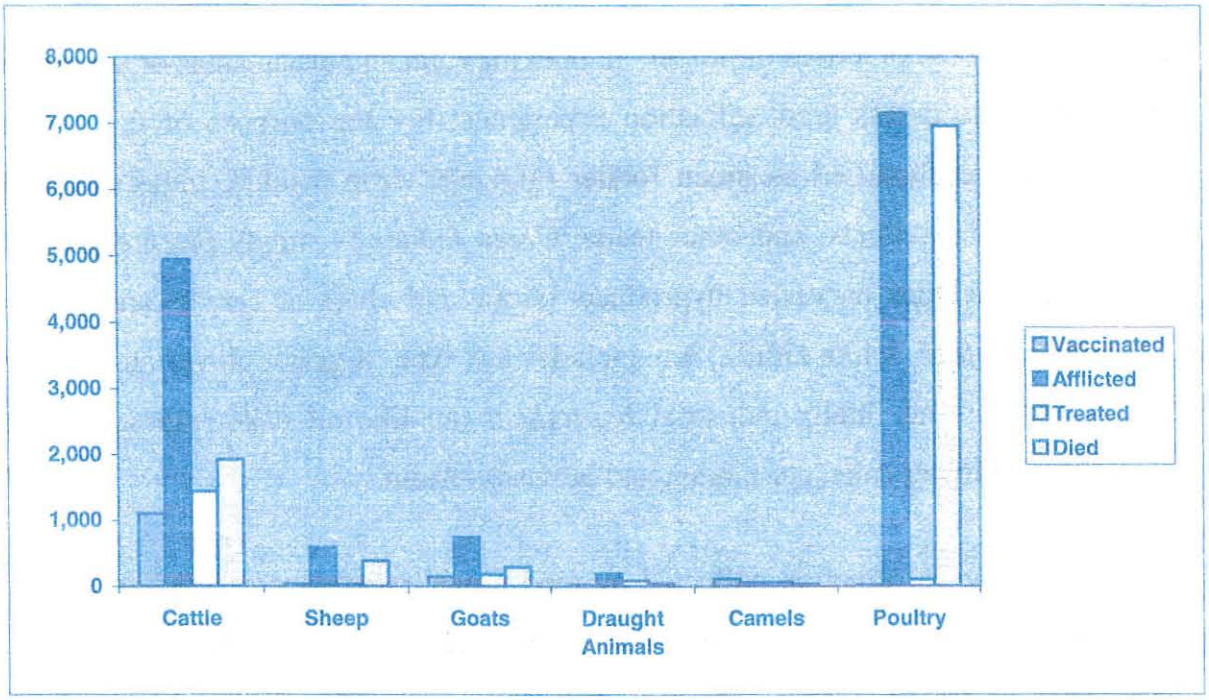
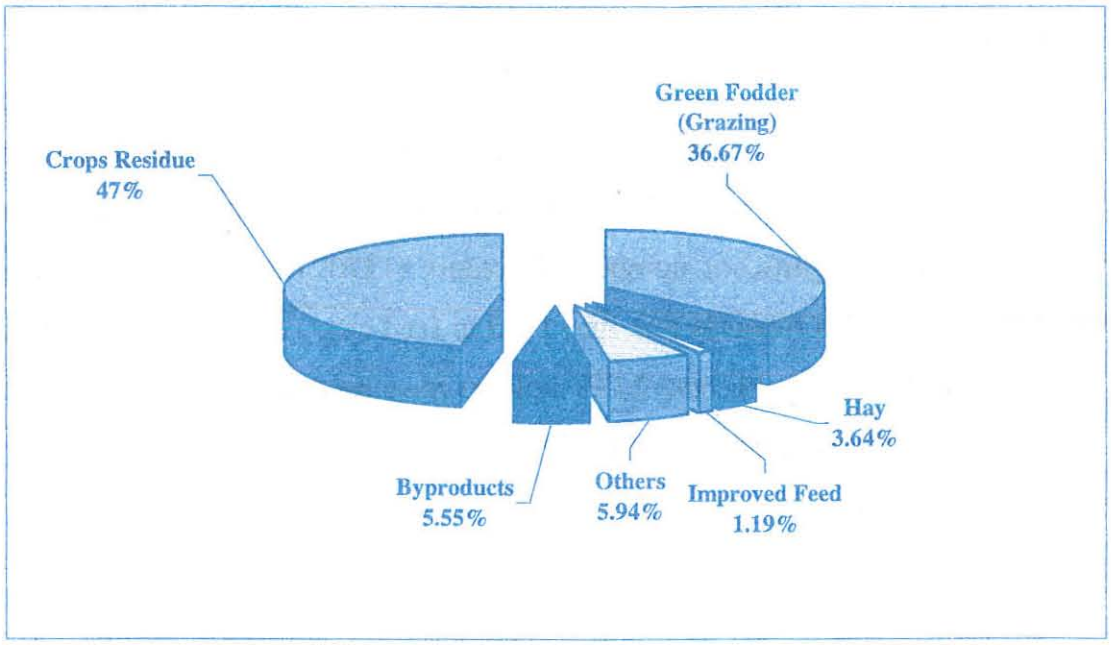


FIGURE VII.11 ANIMAL FEED PRACTICES OF HOLDERS



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 PRESENTING RESULTS AT REGIONAL LEVEL

Tables 7.1 – 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									
		HORSES					ASSES			
	ALL HORSES	MALE		FEMALE		ALL ASSES	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				
		MALE		FEMALE			MALE		FEMALE	
	All Mules	< 3 Years	3 Years and Older	< 3 Years	3 Years and Older	All Camels	<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									
		MALE				FEMALE				
	Total	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								
		MALE				FEMALE			
	Total	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			
		Meat	Breeding	Other	Meat	Milk	Breeding	Other
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 OFANIMAL 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 PRESENTING ESTIMATES, STANDARD ERRORS AND COEFFICIENTS OF VARIATION FOR SELECTED LIVESTOCK VARIABLES

Annex Tables 7.1 and 7.10

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

PLACE OF	CATTLE			SHEEP			GOATS		
RESIDENCE	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	HORSES			ASSES			MULES			CAMELS		
RESIDENCE	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	<6MONTHS			6MONTHS -<1YEAR			1-<3YEARS			3-<10YAERS			10YAERS & OLDER		
RESIDENCE	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	<6MONTHS			6MONTHS - <1YEAR			1-<3YEARS			3-<10YAERS			10YAERS & OLDER		
RESIDENCE	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	<6MONTHS			6MONTHS<-1YEAR			1-< 2YEARS			2 YEARS & OLDER		
RESIDENCE	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	<6MONTHS			6MONTHS<-1YEAR			1-<2YEARS			2 YEARS & OLDER		
RESIDENCE	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	<6MONTHS			6MONTHS - <1YEAR			1- <2YEARS			2 YEARS & OLDER		
RESIDENCE	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	<6MONTHS			6MONTHS - <1YEAR			1-<2YEARS			2 YEARS & OLDER		
RESIDENCE	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	MALE						FEMALE					
RESIDENCE	<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	MALE						FEMLAE					
RESIDENCE	<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	MALE						FEMALE					
RESIDENCE	<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	MALE						FEMALE					
RESIDENCE	<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	Total Poultry			Cocks			Cockerels			Pullets			Non Laying Hens			Chicks			Laying Hens		
RESIDENCE	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	ALL BEEHIVES			TRADITIONAL			INTERMEDIATE			MODERN		
RESIDENCE	Number	SE	CV	Number	SE	CV	Number	SE	CV	Number	SE	CV
Harari Region	969	223	23	952	221	23	-	-	-	17	20	113

CHAPTER VIII

FARM IMPLEMENTS, DRAUGHT ANIMALS AND STORAGE FACILITIES

1. INTRODUCTION

Agriculture is the single largest sector in the Ethiopian economy. The position of the agricultural sector for the past few decades does not only concern the peasants, but on account of the extent of its inputs, outputs and its function as a largest employer of labour has a profound impact on the entire economy. It is worth to point-out that Ethiopia has large resources in terms of land, agricultural labour, draught animals,... etc.

Despite all these facts, the average yield of the main food crops and livestock products attained by private peasant holders is very low and it is not adequate to feed the ever-growing population. Because of such prevailing condition in the agricultural sector, the economy remained at subsistence level. Among the factors that hampered the country not to prosper is the use of primitive farm implements and tools by the peasants to operate their land and to raise livestock.

The role of improved agricultural implements and tools in raising the standard of farming efficiency and increasing average yield of production has been recognized for many years. Land preparation requires modern power source that results in considerable farm efficiency and expansion of production. Seeding and fertilization are among the agricultural operations where animal and tractor drawn machines appear to be capable of greater efficiency than only hand method. Power-driven line sowing and fertilization are more efficient than hand spreading and this is usually expected to result in higher yield for the same amount of fertilizers and seeds.

The traditional unimproved farm implements used by the peasants and the poor condition of the draught animals are considered to be among the main factors that retarded the agricultural productivity in the country. On the other hand, the development of farm implements can also be crippled by small land size holding, abundant labour in rural area and non-availability of adequate access to modern farm implements, which the

private peasant holders can afford to rent or buy. In general, effective development of farm implements and machineries takes place when land is abundant and labour is being rapidly absorbed by non-agricultural sector, (WB, 1984)

Since development programmes are in progress in Ethiopia, data generated from census and sample surveys on different types of agricultural outputs and inputs are necessary for assessments, evaluation and formulation of programmes and policies in the sector. One of the objectives of this census was to provide benchmark data that can help to assess the growth, quantity, quality and value of farm implements and other farm equipment used by the private peasant holders so as to easily identify the implements that are abundant and those that are in short supply. The structural characteristics of these farm implements and other farm equipment do not change much from year to year and such data are usually obtained from a census of agriculture, which is conducted every 5 or 10 years. Data on farm implements and other farm equipment was not collected in Ethiopia and much is not known about the status and growth of these implements. Thus, in the Ethiopian agricultural census conducted in 2001/2002, data was collected on farm implements and other farm equipment. These farm implements include, implements used for clearing land, cultivation, harvesting, threshing and others.

In this census draught animals comprises animals engaged specifically in ploughing, threshing and farm transport facilities. Replacement value was one of the variables covered by this census. Replacement value is the amount it would cost to replace farm implement, equipment, draught animal and storage facilities with those that are similar in terms of origin, age, quality or condition.

In this chapter the classification of farm implements, farm equipment, draught animals and storage facilities are presented in Section 2. Brief discussions of data on Summary Table VIII.1 to VIII.4 are also provided in Section 3. Finally, the estimates, Standard Errors (S.E.) and Cofficients of Variation (C.V.) on number of holders reporting, number of farm implements reported and total value are presented in the Annex Table.

2. CLASSIFICATION OF FARM IMPLEMENTS, OTHER FARM EQUIPMENT AND DRAUGHT ANIMALS

The farm implements and draught animals reported were classified into the following eight groups: -

- Implements used for clearing land,
- Implements used for cultivation,
- Parts for traditional plough,
- Implements used for harvesting,
- Implements used for threshing,
- Other farm equipment,
- Draught animals for farm activity, and
- Storage facilities.

These eight groups further broken down to include the following implements and other farm equipment:

2.1 Implements used for clearing land

a) Axes,

b) 'Gejera '(Chopper), and

c) Shovel.

2.2 Implements used for cultivation

a) Hoe,

b) 'Mekeskesha',

c) Pick-Axe, and

d) Tractor.

2.3 Parts for traditional plough

a) 'Diger',

b) ' Erfe',

c) Plough-Beam,

d) Plough-Tip, and

e) 'Wegel'-Tip.

2.4 Implement used for harvesting

a) Sickle.

2.5 Implements used for harvesting and threshing

a) Hay- Fork (metal or wood),

c) Threshing stick, and

d) Winnower (metal or wood).

2.6 Other farm equipment

a) Cart (hauling),

b) Sprayer (hand operated),

c) Sprayer (power operated),

d) Tying Tool, and

e) Wheelbarrow.

2.7 Draught animals

a) Animals deployed specifically in ploughing.

- Ass/Donkey,
- Camel,
- Horse,
- Mule, and
- Ox.

b) Animals deployed in threshing or transportation:-

- Ass/Donkey,
- Camel,
- Cattle (Working Age),
- Horse, and
- Mule.

2.8 Storage facilities

a) 'Debignit'(Local storage),

b) 'Gottera' (Local storage),

c) 'Gudguad'(Local storage), and

d) Modern storage.

Definitions of storage facilities

'Debignit':- Is a round vessel of earthenware storage attached with the wall of a house. The shape of 'Debignit' is similar to the shape of a barrel. Debignit is usually around 1 metre high and 0.5-1metres wide.

'Gottera':- Is a storage made of bamboo plant. The bamboo is split and then crisscrossed and woven like a giant basket. Finally, it is laminated with a mixture of animal dung and dry grass. 'Gottera' is usually about 1-3 metres high and about 1 metre wide.

'Gudguad': - Is an underground storage, which is formed by digging the ground with certain depth and radius. The wall of 'Gudguad' is usually laminated with animal dung.

Modern storage: - Is a storage that has a better quality in protecting grains from humidity and pests than the above mentioned storages.

3. ESTIMATES OF FARM IMPLEMENTS, DRAUGHT ANIMALS AND STORAGE FACILITIES

The type, quality and quantity of tools and implements in use usually indicate the level of farming practice and agricultural development of a country. Hence, the results of this census can give us some highlights to evaluate the farming system in the region. In this report farm implements are grouped in terms of their operation and this can help to make appropriate comparisons.

3.1 Farm Implements and Tools

The data in Summary Table VIII.1 indicates that the number of holders reporting axe was the highest followed by shovel. In Harari Region it is estimated that there were about 13,516 crop holders in rural areas, of which about 12,363 (91.47%) reported to own shovel, about 11,299(83.6%) reporting to own axe. Among the farm implements used for clearing land, the number of observation for shovel was highest, however the total value for axe was the higest followed by shovels. The expected duration of service of implements in years for an axe and shovel was estimated to be 8 and 2, respectively.

One of the labour and power intensive farm activities is cultivation. It comprises digging, ploughing, sowing and weeding. In order to accomplish such operations, the Ethiopian peasants use hoe, 'Mekeskesha', pick-axe, and traditional plough. Among these farm implements and tools hoe was the highest in terms of number of holders reporting, total number of implements reported and total value. The second highest was pick-axe while 'Mekeskesha' was the lowest. The data in Summary Table VIII.4 revealed that the percentage distribution of the number of crop holders in rural areas that owned one, two, three, four and five hoes was 61.36%, 20.09%, 2.38%, 1.10% and 0.47% respectively. It is also shown that sickle is reported as the only harvesting tool. For details, see Summary Table VIII.1.

3.2 Draught Animals

Peasants in Ethiopia use domestic animals for draught purpose. In several parts of the country where holdings are far from residence: asses, horses, mules and camels are used to transport various types of goods and agricultural products from holding to residence and vice-versa. As it is indicated in Summary Table VIII.2 among the domestic animals that are used for ploughing, ox was the highest in terms of number of holders reporting, number of oxen reported and total value which amounted to 4.6 million Birr. About 4,840 holders (35.8% of the total rural crop holders in the region) reported 7,771 cattle (working age cattle) used for threshing and these cattle had a value of over 4.7 million Birr and the average replacement value of a working age cattle was about 385.17 Birr. It was also indicated that asses were used by holders for transportation.

The estimated number and percentage distribution of crop holders in rural areas that owned implements, equipment and draught animals are shown in Summary Table VIII.4. In Harari region the census result shows that there were about 13,516 crop holders in rural areas. Among these 16.88%, 18.13%, and 0.92% holders owned one, two, and three oxen respectively. On the other hand about 64.08% of the holders did not own ox. For details, see Summary Table VIII.4.

3.3 Storage Facilities

One of the methods that minimaize post harvest production losses is the usage of modern storage facilites. During the census, data was collected on modern storage facilities and the unimproved local storage facilities such as 'Debignit', 'Gotera' and 'Gudguad'. In this census, building or any structure used as storage facilities and other containers that have better storage quality to protect agricultural products from humidity and pests are considered as modern storage facilities.

The data in Summary Table VIII.3 shows the number of holders reporting storage facilities and number of such facilities. Thus, the data in the table reveals, 'Gudguad' was reported by the highest number of holders. The total value of all reported storage facilities was assessed to be 299,988 Birr, of which 99.1% and 0.86% comprises of 'Gudguad' and Debigint, respectively. The percentage distribution of the number of crop holders that owned 'Gudguad' and 'Debigint' is also presented in Summary Table VIII.4.

SUMMARY TABLE VIII.1:-Number and Percentage of Holders Reporting implements and Other Farm Equipment by type, Quantity Reported, Replacement Value, and Duration of Implement, for Private Holdings

Implements and Equipment	Number of Holders Reporting	Percent of Total Holders	Number of Implements and Equipment		Total Value (Birr)	Average Replacement Value Per Imp. & Eq. (Birr)	Average Duration of Service of Imp. & Eq. (Years)
			Total Reported	# Average Per Holder			
Used for Clearing Land							
Axes	11,299	83.60	17,726	1.31	183,991	6.42	8
'Gejeras' (Choppers)	*	-	*	*	*	*	*
Shovels	12,363	91.47	18,591	1.38	147,649	5.12	2
Used for Cultivation							
Hoes	11,533	85.33	15,571	1.15	240,044	11.09	5
'Mekeskeshas'	192	1.42	192	0.01	*	*	*
Pick-Axes	401	2.97	529	0.04	6,878	9.14	7
Tractors	-	-	-	-	-	-	-
Parts for traditional Plough							
'Degers'	4,739	35.06	14,232	1.05	28,070	0.95	2
'Erfes'	4,651	34.41	5,578	0.41	16,096	2.41	2
Plough-Beams	4,937	36.53	5,192	0.38	72,479	13.03	5
Plough-Tips	5,714	42.28	7,756	0.57	71,976	6.39	3
'Wegel'-Tips	4,726	34.97	6,105	0.45	23,804	3.13	3
Yokes	5,075	37.55	5,231	0.39	61,891	11.26	5
Used for Harvesting							
Sickles	6,666	49.32	8,258	0.61	70,298	7.01	6
Used for Threshing							
Hay-Forks (metal)	665	4.92	689	0.05	8,914	12.46	10
Hay-Forks (wood)	3,260	24.12	3,496	0.26	13,678	3.63	4
Threshing Sticks	6,241	46.17	10,538	0.78	24,568	1.59	2
Winnowers (metal)	*	-	*	*	*	*	*
Winnowers (wood)	2,768	20.48	3,427	0.25	28,403	6.37	7
Other farm Equipment							
Carts	*	-	*	*	*	*	*
Sprayers (Hand operated)	403	2.98	403	0.03	67,409	167.27	8
Sprayers (Power operated)	-	-	-	-	-	-	-
Tying Tools	-	-	-	-	-	-	-
Wheelbarrows	397	2.94	397	0.03	42,714	107.59	7

Average per holder is the ratio of total number of each implement reported to total number of crop holders in rural areas in the region.

- Total number of crop holders comprises, holders participated in crop production only and both crop production and livestock rearing.

SUMMARY TABLE VIII.2:-Number and Percentage of Holders Reporting Draught Animals, Quantity Reported, Replacement Value, and Average Age of Animal, for Private Holdings

Animals	Number of Holders Reporting	Percent of Total Holders	Number of Animals		Total Value of Animals (Birr)	Average Replacement Value Per Animal (Birr)	Average Age of Animal (Years)
			Total Reported	# Average Per Holder			
Used for Ploughing							
Asses	*	-	*	*	*	*	*
Camels	-	-	-	-	-	-	-
Horses	-	-	-	-	-	-	-
Muels	-	-	-	-	-	-	-
Oxen	4,855	35.92	7,554	0.56	4,692,484	401.36	4
Used for Threshing or Transportation							
Asses	4,174	30.88	4,554	0.34	1,191,515	240.01	9
Camels	*	-	*	*	*	*	*
Cattle	4,840	35.81	7,771	0.57	4,793,856	385.17	4
Horses	-	-	-	-	-	-	-
Muels	-	-	-	-	-	-	-

Average per holder is the ratio of total number of each draught animal reported to total number of crop holders in rural areas in the region.
- Total number of crop holders comprises, holders participated in crop production only and both crop production and livestock rearing.

SUMMARY TABLE VIII.3: - Number and Percentage of Holders Reporting Storage facilities, Quantity Reported, Replacement Value, and Storage Capacity, for Private Holdings.

Sorage Structure	Number of Holders Reporting	Percent of Total Storage Holders	Number of Storages		Total Value of Storages (Birr)	Average Replacement Value Per Storage (Birr)	Average Storage Capacity Per Storage (Quintal)
			Total Reported	# Average Per Holder			
'Debignits'	196	1.45	256	0.02	2,597	8.85	7
'Gotteras'	-	-	-	-	-	-	-
'Gudguads	7,390	54.68	7,711	0.57	297,391	37.15	8
Modern Storage Structures	-	-	-	-	-	-	-

Average per holder is the ratio of total number of each storage structure reported to total number of crop holders in rural areas in the region.
- Total number of crop holders comprises, holders participated in crop production only and both crop production and livestock rearing.

SUMMARY TABLE VIII.4:-Number of Crop Holders that Owned Farm Implement, Equipment and Draught Animals.

Name of Implement Equipment Draught Animal	Number of Crop holders that owned											
	No Implement, Equipment, or Draught Animal		One Implement, Equipment, and Draught Animal		Two Implements, Equipment, and Draught Animals		Three Implements, Equipment, and Draught Animals		Four Implements, Equipment, and Draught Animals		Five and above Implements, Equipment, and Draught Animals	
	Holders	%	Holders	%	Holders	%	Holders	%	Holders	%	Holders	%
Used for Clearing Land												
Axes	2,217	16.40	6,80	50.34	3,208	23.73	969	7.17	123	0.91	195	1.44
'Gejera'	13,396	99.11	12	0.89	-	-	-	-	-	-	-	-
Shovel	1,152	8.52	7,63	56.46	3,646	26.98	738	5.46	286	2.12	63	0.47
Used for Cultivation												
Hoes	1,983	14.67	8,29	61.36	2,715	20.09	322	2.38	149	1.10	54	0.40
'Mekeskeshas'	13,324	98.58	19	1.42	-	-	-	-	-	-	-	-
Pick- Axes	13,115	97.03	30	2.23	72	0.53	28	0.21	-	-	-	-
Tractors	13,516	100.00		-	-	-	-	-	-	-	-	-
Parts for traditional Plough												
'Degers'	8,778	64.95	1,63	12.12	1,034	7.65	244	1.81	831	6.15	991	7.33
'Erfes' (Handle)	8,865	65.59	3,83	28.39	716	5.30	81	0.60	17	0.13	-	-
Plough-Beam.	8,579	63.47	4,69	34.76	222	1.64	17	0.13	-	-	-	-
Plough -Tips	7,803	57.73	4,02	29.80	1,459	10.79	128	0.95	82	0.61	16	0.12
'Wegel' -Tips	8,790	65.03	3,75	27.76	648	4.79	247	1.83	79	0.58	-	-
Yokes	8,442	62.46	4,91	36.39	156	1.15	-	-	-	-	-	-
Used for Harvesting												
Sickies	6,851	50.69	5,45	40.35	1,014	7.50	138	1.02	26	0.19	33	0.24
Used for Threshing												
Hay-Forks (Metal)	12,851	95.08	64	4.75	23	0.17	-	-	-	-	-	-
Hay-Forks (Wood)	10,256	75.88	3,06	22.71	160	1.18	18	0.13	13	0.10	-	-
Threshing Sticks	7,275	53.83	4,02	29.74	1,142	8.45	497	3.68	373	2.76	209	1.55
Winnowers (Metal)	13,468	99.64	4	0.36	-	-	-	-	-	-	-	-
Winnowers (Wood)	10,748	79.52	2,14	15.85	610	4.51	-	-	16	0.12	-	-
Other Farm Equipment												
Carts	13,468	99.64	3	0.23	-	-	17	0.13	-	-	-	-
Sprayers (Hand Operated)	13,113	97.02	40	2.98	-	-	-	-	-	-	-	-
Sprayers (Power Operated)	13,516	100.00		-	-	-	-	-	-	-	-	-
Tying Tools	13,516	100.00		-	-	-	-	-	-	-	-	-
Wheelbarrows	13,119	97.06	39	2.94	-	-	-	-	-	-	-	-
Animals Used for Ploughing												
Asses	13,516	100.00		-	*	-	*	-	-	-	-	-
Camels	13,516	100.00		-	-	-	-	-	-	-	-	-
Horses	13,516	100.00		-	-	-	-	-	-	-	-	-
Mules	13,516	100.00		-	-	-	-	-	-	-	-	-
Oxen	8,661	64.08	2,28	16.88	2,450	18.13	124	0.92	-	-	-	-
AnimalsUsed for Threshing or Transportation												
Asses	13,493	99.83		-	23	0.17	-	-	-	-	-	-
Camels	13,432	99.38	8	0.62	-	-	-	-	-	-	-	-
Cattle	8,676	64.19	2,13	15.76	2,503	18.52	194	1.44	13	0.10	-	-
Horses	13,516	100.00		-	-	-	-	-	-	-	-	-
Mules	13,516	100.00		-	-	-	-	-	-	-	-	-
Storage Structure												
'Dibignits'	13,320	98.55	16	1.23	-	-	30	0.22	-	-	-	-
'Gotteras'	13,516	100.00		-	-	-	-	-	-	-	-	-
'Gudguads'	6,127	45.33	7,09	52.46	278	2.06	21	0.16	-	-	-	-
Modern Storages	13,516	100.00		-	-	-	-	-	-	-	-	-

ANNEX TABLES PRESENTING ESTIMATES, STANDARD ERRORS AND COEFFICIENT OF VARIATION FOR SELECTED FARM IMPLEMENT VARIABLES

Annex Tables 8.1

ANNEX TABLE 8.1: - Standard Errors and Coefficient of Variations For the Number of Holders Reporting, Quantity Reported and Total Value, for Private Holdings, Harari Region.

Implements, Equipment, Farm animals and Storage facilities	Number of Holders			Number of Implements, Equipment, Farm animals and Storages			Total Value		
	Reporting	S.E	C.V	Reported	S.E	C.V	(Birr)	S.E	C.V
Used for Clearing Land									
Axes	11,299	537.70	4.76	17,726	1,214.04	6.85	183,991	2,086,607.76	11.34
'Gejera'	*	*	*	*	*	*	*	*	*
Shovel	12,363	519.66	4.20	18,591	1,103.74	5.94	147,649	1,946,089.36	13.18
Used for Cultivation									
Hoes	11,533	526.52	4.57	15,571	999.92	6.42	240,044	2,818,047.03	11.74
'Mekeskeshas'	192	93.88	48.82	192	93.88	48.82	*	*	*
Pick Axes	401	117.57	29.33	529	164.32	31.08	6,878	254,543.23	37.01
Tractors	-	-	-	-	-	-	-	-	-
Parts for traditional Plough									
'Degers'	4,739	883.13	18.63	14,232	4,164.73	29.26	28,070	654,718.91	23.32
'Erfes' (Handle)	4,651	847.12	18.21	5,578	1,130.81	20.27	16,096	344,625.40	21.41
Plough-Beam'.	4,937	883.45	17.90	5,192	935.40	18.02	72,479	1,419,241.25	19.58
Plough -Tips (Metal)	5,714	882.95	15.45	7,756	1,338.99	17.26	71,976	1,801,547.85	25.03
'Wegel' -Tips	4,726	858.21	18.16	6,105	1,265.02	20.72	23,804	504,592.33	21.20
Yokes	5,075	893.88	17.61	5,231	921.50	17.62	61,891	1,162,314.38	18.78
Used for Harvesting									
Sickles	6,666	652.47	9.79	8,258	923.14	11.18	70,298	1,083,036.32	15.41
Used for Threshing									
Hay-Forks (Metal)	665	174.62	26.25	689	184.04	26.73	8,914	260,085.79	29.18
Hay-Forks (Wood)	3,260	520.78	15.98	3,496	547.83	15.67	13,678	251,794.81	18.41
Threshing Sticks	6,241	725.71	11.63	10,538	1,430.82	13.58	24,568	431,065.44	17.55
Winnowers (Metal)	*	*	*	*	*	*	*	*	*
Winnowers (Wood)	2,768	519.99	18.79	3,427	674.91	19.70	28,403	726,352.98	25.57
Other Farm Equipment									
Carts (Hauling)	*	*	*	*	*	*	*	*	*
Sprayers (Hand Operated)	403	110.94	27.55	403	110.94	27.55	67,409	2,983,841.80	44.27
Sprayers (Power Operated)	-	-	-	-	-	-	-	-	-
Tying Tools	-	-	-	-	-	-	-	-	-
Wheelbarrows	397	118.14	29.76	397	118.14	29.76	42,714	1,399,674.42	32.77
Animals Used for Ploughing									
Asses	*	*	*	*	*	*	*	*	*
Camels	-	-	-	-	-	-	-	-	-
Horses	-	-	-	-	-	-	-	-	-
Mules	-	-	-	-	-	-	-	-	-
Oxen	4,855	761.73	15.69	7,554	1,308.59	17.32	4,692,484	77,465,423.02	16.51
Animals Used for Threshing or Transportation									
Asses	4,174	609.92	14.61	4,554	658.02	14.45	1,191,515	19,144,629.13	16.07
Camels	*	*	*	*	*	*	*	*	*
Cattle	4,840	767.57	15.86	7,771	1,326.96	17.08	4,793,856	79,054,070.64	16.49
Horses	-	-	-	-	-	-	-	-	-
Mules	-	-	-	-	-	-	-	-	-
Storage Structure									
'Debignits'	196	64.23	32.72	256	90.19	35.17	2,597	112,885.93	43.47
'Gotteras'	-	-	-	-	-	-	-	-	-
'Gudguads'	7,390	790.63	10.70	7,711	813.97	10.56	297,391	5,727,450.01	19.26
Modern Storages	-	-	-	-	-	-	-	-	-

APPENDIXES

APPENDIX I - Estimation Procedures of Totals , Ratios and Sampling Errors

APPENDIX II - Census Questionnaires

APPENDIX I:

Estimation Procedures of Totals, Ratios and Sampling Errors

The following formulas were used to estimate total land under specific crop, production and yield of specific crop, and totals (for other variables) in a stratum (Wereda).

1. Estimation of Total Area of Land under Specific Crop:

$$\hat{A}_h = \sum_{i=1}^{n_h} W_{hi} a_{hi}$$

in which, $W_{hi} = \frac{M_h H_{hi}}{n_h m_{hi} h_{hi}}$ is the basic weight

Where:

h represents the stratum

n_h is the total number of sample EAs successfully covered in the h^{th} stratum.

M_h is the measure of size of the h^{th} stratum as obtained from the sampling frame.

m_{hi} is the measure of size of the i^{th} sample EA in the h^{th} stratum obtained from the sampling frame.

H_{hi} is the total number of agricultural households of the i^{th} sample EA in the h^{th} stratum.

h_{hi} is number of sample agricultural households successfully covered in the i^{th} sample EA in the h^{th} stratum.

a_{hi} is the sample total of values of area in the i^{th} EA in the h^{th} stratum under a specific crop.

$\hat{A}_h$ is estimate of total area under specific crop in the h^{th} stratum.

2. Estimation of Total Production:

$$\hat{P}_h = \sum_{i=1}^{n_h} W_{hi} P_{hi}$$

in which, $P_{hi} = a_{hi} * \bar{Y}_{hi}$

Where, $\bar{Y}_{hi}$ is average yield per square meter of a specific crop in the i^{th} EA in the h^{th} stratum as defined in the table below for different crops.

Crop	Formula for $\overline{Y}_{hi}$
Cereals, pulses, oilseeds, chat and coffee	$\overline{Y}_{hi}=\frac{Y_{hi}}{16C_{hi}}$
Pineapple	$\overline{Y}_{hi}=\frac{Y_{hi}}{4C_{hi}}$
Root-crops and vegetables (broadcast type), and sugar cane	$\overline{Y}_{hi}=\frac{Y_{hi}}{C_{hi}}$
Root-crops and vegetables (row type)	$\overline{Y}_{hi}=\frac{Y_{hi}}{d_{hi}\cdot C_{hi}}$
Other permanent crops	$\overline{Y}_{hi}=\frac{Y_{hi}}{b_{hi}\cdot C_{hi}}$

Where, d_{hi} is average sample area of root crop or vegetable (row type) used for crop-cutting in the i^{th} EA in the h^{th} stratum, or $d_{hi}=\frac{r}{n-1}$

r is distance measured from Row 1 to Row n in meter.

n is number of rows ($2 \le n \le 5$).

b_{hi} is average area of a fruit bearing tree in the i^{th} EA in the h^{th} stratum.

Y_{hi} is sampled total of production of a specific crop from defined area of land for crop cutting of crop in the i^{th} EA in the h^{th} stratum.

C_{hi} is number of crop cutting of a specific crop in the i^{th} EA in the h^{th} stratum.

$\overline{Y}_{hi}$ is average yield per square meter of a specific crop in the i^{th} EA in the h^{th} stratum.

P_{hi} is estimate of total production of a specific crop in the i^{th} EA in the h^{th} stratum.

$\hat{P}_h$ is estimate of total production quantity of a specific crop in the h^{th} stratum.

3. Estimate of Yield of a Specific Crop in Stratum h is given by:

$$\hat{Y}_h=\frac{\hat{P}_h}{\hat{A}_h}$$

4. Estimation of Totals (Livestock, Agricultural practices, etc.)

$$\hat{y}_h=\sum_{i=1}^{m_h}\frac{M_hH_{hi}}{n_hh_{hi}}\hat{y}_{hi}$$

5. Sampling Variance of Estimates:

Sampling variance of estimate of stratum total of area, production and yield for a specific crop, and totals for other variables are estimated by the following formulas, respectively.

$$Var(\hat{A}_h)=(1-f_h)\frac{n_h}{n_h-1}\sum_{i=1}^{n_h}\left(\hat{A}_{hi}-\frac{\hat{A}_h}{n_h}\right)^2+f_h\sum_{i=1}^{n_h}(1-f_{hi})\left(\frac{h_{hi}}{h_{hi}-1}\right)\sum_{j=1}^{h_{hi}}\left(\hat{A}_{hij}-\frac{\hat{A}_{hi}}{h_{hi}}\right)^2$$

$$Var(\hat{P}_h)=(1-f_h)\frac{n_h}{n_h-1}\sum_{i=1}^{n_h}\left(\hat{p}_{hi}-\frac{\hat{p}_h}{n_h}\right)^2+f_h\sum_{i=1}^{n_h}(1-f_{hi})\left(\frac{h_{hi}}{h_{hi}-1}\right)\sum_{j=1}^{h_{hi}}\left(\hat{P}_{hij}-\frac{\hat{P}_{hi}}{h_{hi}}\right)^2$$

$$Var(\hat{Y}_h)=\frac{1}{\hat{A}_h^2}[Var(\hat{P}_h)+\hat{Y}_h^2Var(\hat{A}_h)-2\hat{Y}_hCov(\hat{P}_h,\hat{A}_h)]$$

Where, $Cov(\hat{P}_h,\hat{A}_h)=(1-f_h)\frac{n_h}{n_h-1}\sum_{i=1}^{n_h}(\hat{A}_{hi}-\frac{\hat{A}_h}{n_h})(\hat{P}_{hi}-\frac{\hat{P}_h}{n_h})$

$$+f_h\sum_{i=1}^{n_h}(1-f_{hi})\left(\frac{h_{hi}}{h_{hi}-1}\right)\sum_{j=1}^{h_{hi}}\left(\hat{A}_{hij}-\frac{\hat{A}_{hi}}{h_{hi}}\right)\left(\hat{P}_{hij}-\frac{\hat{P}_{hi}}{h_{hi}}\right).$$

$$Var(\hat{y}_h)=(1-f_h)\frac{n_h}{n_h-1}\sum_{i=1}^{n_h}\left(\hat{y}_{hi}-\frac{\hat{y}_h}{n_h}\right)^2+f_h\sum_{i=1}^{n_h}(1-f_{hi})\left(\frac{h_{hi}}{h_{hi}-1}\right)\sum_{j=1}^{h_{hi}}\left(\hat{y}_{hij}-\frac{\hat{y}_{hi}}{h_{hi}}\right)^2$$

f_h = average first stage probability of selection of EAs within Wereda *h*.

$f_{hi}=\frac{h_{hi}}{H_{hi}}$ = average second stage probability of selection within the i^{th} sample EA in Wereda *h*.

Since all strata are independent, the total variance at zonal and regional is computed by aggregating the result obtained at wereda level, i.e.

$$Var(\hat{Y})=\sum_h^L Var(\hat{Y}_h), Var(\hat{P})=\sum_h^L Var(\hat{P}_h) \text{ and } Var(\hat{A})=\sum_h^L Var(\hat{A}_h)$$

Where, L is the number of strata (Weredas).

In estimating the sampling variance by the above formula, selection of EAs within a stratum is assumed to be with replacement. By so doing the variance estimate may be slightly over estimated but it greatly simplifies the estimation procedure.

6. Coefficient of Variation (CV) of Estimates:

Coefficient of Variation (CV), in percentage, of estimate of stratum total of area, production and yield for a specific crop (other totals) are given respectively by:

$$CV(\hat{A}_h)=\frac{\sqrt{Var(\hat{A}_h)}}{\hat{A}_h}*100$$

$$CV(\hat{P}_h)=\frac{\sqrt{Var(\hat{P}_h)}}{\hat{P}_h}*100$$

$$CV(\hat{Y}_h)=\frac{\sqrt{Var(\hat{Y}_h)}}{\hat{Y}_h}*100$$

7. Ninety-five percent confidence interval (CI) of stratum total is:

$$\hat{Y}_h \pm 1.96 * S.E(\hat{Y}_h)$$

Where, $S.E(\hat{Y}_h)=\sqrt{Var(\hat{Y}_h)}$

APPENDIX II

Rural

FORM EASE -R- 94/2

Ethiopian Agricultural Sample Enmeration- Socio Economic characteristics of Population in Agricultural Households - 2001 /2002 (1994 E.C.)

PART I- IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7
Region	Zone	Wereda		Farmers' Association	Enumeration Area	Household ID Number

PART II - DEMOGRAPHIC CHARACTERISTICS OF EACH MEMBER OF THE AGRICULTURAL HOUSEHOLD (STARTING WITH THE HEAD OF THE HOUSEHOLD)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
								5 YEARS AND ABOVE		10 YEARS AND ABOVE			
SR. NO.	FULL NAME	IS MEMEBER OF THE HOUSEHOLD A HOLDER Yes =1 No =2	If Column 3, Code 1 HOLDER ID	TYPE OF HOLDING CROP =1 LIVESTOCK =2 BOTH =3	SEX MALE = 1 FEMALE = 2	RELATION TO THE HEAD OF HOUSEHOLD	AGE (IN COMP-LETED YEARS)	EDUCATIONAL ATTAINMENT (Highest Grade Completed)	MARITAL STATUS NEVER MARRIED = 1 CURRENTLY MARRIED= 2 DIVORCED = 3 WIDOWED = 4	WERE YOU ENGAGED IN ECONOMIC ACTIVITY DURING THE LAST 12 MONTHS? Yes =1 No =2	IF NOT ENGAGED (IN COL. 11 COD2 ECOMOMIC ACTIVITY WHAT WAS THE MAIN REASON? STUDENT =1 HOME MAKERS =2 HANDICAP =3 OLD AGE/PENSION =4 OTHERS =5	IF ENGAGED IN ECONOMIC ACTIVITY WHAT WAS THE MAJOR ACTIVITY? FULLY AGRICULTURE = 1 PARTLY AGRICULTURE = 2 Fully in others =3	IF IN COLUMN 13, CODE 1 OR 2, EMPLOYMENT STATUS EMPLOYER = 1 OWN-ACCOUNT WORKER = 2 EMPLOYEE = 3 UNPAID FAMILY WORKER = 4 OTHERS =5
			code			Code	Code	Code	Code	Code	Code	Code	Code
0	1												
0	2												
0	3												
0	4												
0	5												
0	6												
0	7												
0	8												
0	9												
1	0												

Head	= 1
Spouse	= 2
Son/Daughter of head & spouse	= 3
Son/Daughter of head	= 4
Son/Daughter of spouse	= 5
Mother/Father of head/spouse	= 6
Sister/Brother of head/spouse	= 7
Other relatives	= 8
Non relatives	= 9

Illiterate	= 1
Informal Education	= 2
Grade 1 Completed	= 3
Grade 2 Completed	= 4
Grade 3 Completed	= 5
Grade 4 Completed	= 6
Grade 5 Completed	= 7
Grade 6 Completed	= 8
Grade 7 Completed	= 9
Grade 8 Completed	= 10
Grade 9 Completed	= 11
Grade 10 Completed	= 12
Grade 11 Completed	= 13
Grade 12 Completed	= 14
Grade 12 +	= 15

Form EASE-94/3A

RURAL

Ethiopian Agricultural Sample Enumeration

List of Fields Under Temporary Crops (Including Vegetables and Root Crops) and Agricultural Practices (Mehere Season) - 2001/02 (1994 E.C.)

Part 1- IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11
Region	zone	Wereda	Farmers Association	Enumeratio Areas	Household Number		Holder Name	Age	Sex male →1 Female →2	Type of Holding Crop →1 Livestack →2 Both →3

Part II - Area Under Temporary Crops and Agricultural Practice

1	2	3	4	5	6
Sr. No.	Questions	Parcel No / Field No. / crop name code	Parcel No. / filed NO. / crop name code	Parcel No. / filed NO. / crop name code	Parcel No. / filed NO. / crop name code
01	Type of Holding Private → 1 Others → 3 Rnted /contract → 2				
02	Crop Area in local unit	Name / code / Area	Name / code / Area	Name / code / Area	Name / code / Area
03	Have the field been included in the extention Package program Yes → 1 No → 2				
04	Was the field Irrigated? Yes → 1 No → 2				
05	Variety of seeds used Improved → 1 Indignores → 2				
06	(For Cereals,Pulses and Oil seeds only) If indiginous seed was used, What was the total quantity	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram
07	(For Cereals,Pulses and Oil seeds only) If Improved seed was used, what was the total quantity	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram
08	(For Cereals,Pulses and Oil seeds only) If Improved seed was used what was the cost /price	Birr cent	Birr cent	Birr cent	Birr cent
09	Was the crop Damaged Yes →1 No → 2				
10	If yes, what was the major cause of damage	Reason code	Reason code	Reason code	Reason code
11	Percentage of damage				
12	Any control/protection measure taken for crop damage? Yes → 1 No → 2				
13	If yes, what Type of measure? Chemical → 1 Both → 3 Non chemical → 2				
14	If chemical Insecticide → 1 1&3 → 5 Herbicide → 2 2&3 → 6 Fungicide → 3 All → 7 1&2 → 4				
15	Was the field fertilized? Yes → 1 No → 2				
16	If fertilized what type ? Natural → 1 Bothe → 3 Chemical → 2				
17	One main reason for not using chemical fertilizer	Reason Code	Reason Code	Reason	Reason Code
18	If chemical fertilizer used 18.1 Type Urea → 1 Both → 3 Dap → 2				
	18.2 Quantity in K.g	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram
19	If natural fertilizer used mainly What type? Manure → 1 Both → 3 compost → 2 Others → 4 / If others specify/ →				

RURAL

Ethiopian Agricultural Sample Enumeration

Form EASE-94/3B

List of Fields Under Permanent Crops and their Agricultural Practices (Mehere Season) - 2001/02 (1994 E.C.)

Part 1 IDENTICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11
Region	Zone	Wereda	Farmers' Association	Enumeration Areas	Household Number	Holder Number	Holder's Name	Age	Sex: male → 1, Female → 2	Type of Holding: crop → 1, Livestock → 2, Both → 3

Part II - Area Under Permanent Crops and Agricultural Practice

1	2 Question	3	4	5	6
		parcel No / Field No / Crop Name (code)	parcel No / Field No / Crop Name (code)	parcel No / Field No / Crop Name (code)	parcel No / Field No / Crop Name (code)
01	Type of Holding: Private → 1, Others → 3; Rented/ contract → 2				
02	Crop Area in Local unit	Name / Area	Name / Code / Area	Name / Code / Area	Name / Code / Area
03	Has the field been included in the extention package program: Yes → 1, No → 2				
04	Total number of trees in the field. (Excluding Coffe,Chat,Pineapple,Sugar-cane)	Quantity	Quantity	Quantity	Quantity
05	Number of trees of fruit bearing age (Excluding Coffe,Chat,Pineapple,Sugar-cane)	Quantity	Quantity	Quantity	Quantity
06	Was the field Irrigated: Yes → 1, No → 2				
07	Variety of seeds used: Improve → 1, Indiginous → 2				
08	Was the crop Damaged: Yes → 1, No → 2				
09	If yes, what was the major cause of damage	Reason (code)	Reason (code)	Reason (code)	Reason (code)
10	Persontage of Damage				
11	Any control /proventina measure taken for crop Damage: Yes → 1, No → 2				
12	Chemical → 1, Non chemical → 2, Both → 3				
13	If chemica: Incectide → 1, Herbicid → 2, Fungicids → 3, 1&2 → 4, 1&3 → 5, 2&3 → 6, All → 7				
14	Was the field fertilized: Yes → 1, No → 2				
15	If fertilized what type? Natural → 1, Chemical → 2, Both → 3				
16	Reason for not using chemical fertilizer	Reason (Code)	Reason (Code)	Reason (Code)	Reason (Code)
17	If chemical (comercial) fertilizer used: 17.1 Type — Urea → 1, Dap → 2, Both → 3				
	17.2 Quantity in Kg.	Kg. Gram	Kg. am	Kg. Gram	Kg. Gram
18	If natural fertilizer used mainly what type? Manure → 1, Compost → 2, Both → 3, Others → 4; /If others specify/ →				

RURAL

Ethiopian Agricultural Sample Enumeration

List of Fields Under Mixed Crops and their Agricultural Practices

(Mehere Season) - 2001/02 (1994 E.C.)

Form EASE-94/3c

Part 1- IDENTIFICATION PARTICULARS

1 Region	2 Zone	3 Wereda	4 Farmers' Association	5 Enumeration Areas	6 Household Number	7 Holder Number	8 Holders' Name	9 Age	10 Sex (male → 1, Femal → 2)	11 Type of Holding (Crop → 1, Livestock → 2, Bothe → 3)

Part II - Area Under Mixed Crops and Agricultural Practice

1	2 Questions	3 Parcel No. / Field No. — Crop Name / code			4 Parcel No. / Field No. — Corp Name / code		
		Crop Name	Corp Name	Crop Name	Corp Name	Corp Name	Corp Name
		code	code	code	code	code	code
01	Type of Holding Private → 1 Others → 3 Rented/contract → 2						
02	Total mixed corp area in local unit	Name of Local Unit / code / Area			Name of Local Unit / code / Area		
03	Was the field been included in the extention pakage program Yes → 1 No → 2						
04	Area in percentag share for Each crop						
05	Number of trees for permanent crop (Excluding Coffee, Chat, Pinapple, Sugar-cane)	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity
06	Number of trees of fruit of permanent crop (Excluding Coffee, Chat, Pinapple, Sugar-cane)	Quantity	Quantity	Quantity	Quantity	Quantity	Quantity
07	was the field Irrigated yes → 1 No → 2						
08	Variety of seeds used Improved → 1 Indiginous → 2						
09	If Indignous seed was used what was the quantity (for Cereals, Pulses & Oilseeds only)	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram
10	If Improved seed was used, what was the quantity (for Cereals, Pulses & Oilseeds only)	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram
11	If Improved seed was used what was the cost/price (for Cereals, Pulses & Oilseeds only)	Birr sent	Birr sent	Birr sent	Birr sent	Birr sent	Birr sent
12	was the crop Damaged Yes → 1 No → 2						
13	If, yes, what was the major cause of Damage	Reason Code	Reason Code	Reason Code	Reason Code	Reason Code	Reason Code
14	percentage of Damage						
15	Any control/ preventive measure Taken for crop damage → 1 → 2						
16	If yes, what type of measure Chemical → 1 Both → 3 Non-chemical → 2						
17	If chemical Insecticide Insecticide → 1 1&3 → 5 Herbicide → 2 2&3 → 6 Fungicide → 3 All → 7 1&2 → 4						
18	Was the field fertilized yes → 1 No → 2						
19	If fertilized what type? Natural → 1 Both → 3 Chemical → 2						
20	One main Reson for not using Chemical fertilizer	Reason Code			Reason Code		
21	If chemical fertilizer used 21.1 Type Urea → 1 Both → 3 Dap → 2						
	21.2 Quantity in kg.	Kg. Gram			Kg. Gram		
22	If natural fertilizer used mainly what type Manure → 1 Both → 3 Compost → 2 Others → 4 / If others specify/						

RURAL

Form EASE -94/3D

Ethiopian Agricultural Sample Enumeration
List of Fields Under Other Land Use (Fields not occupied by any type of Crop)
(Mehere Season) - 2001/02 (1994 E.C.)

part I- IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11
Region	Zone	Wereda	Farmer's Association	Enumeration Areas	Household Nubber	Holder Number	Holder's Name	Age	Sex male → 1 Female → 2	Type of Holding Crop → 1 Crop → 2 Crop → 3

Part II - Other Land UTILIZATION and Local Area Measurment units

1		2	3	4	5	6	7	8	9	10	
sr. NO.		Parcel	Land Use	Type of Land use	code	Type of owner ship Private → 1 Rented/contrat → 2 Other → 3	code	Area in Local unit Local unit NAME	code	Area	
0	1										
0	2										
0	3										
0	4										
0	5										
0	6										
0	7										
0	8										
0	9										
1	0										

From EASE 94/4

Rural

Ethiopian Agricultral Sample Enumeration
Assessment of Crop Conditions - 2001/02 (1994 E.C.)

NOTE:- This Form should be Filled Out For Mixed Crops According to their Type in Pure Stands

Part I - Identification Particulars

1	2	3	4	5	6
Region	Zone	Wereda	Farmers' Association	Enumeration Area	Crop Name

Part II - Assessment of Crop Conditions (For Meher Season)

1	2	3	4	5	6	7	8	9		10	11
					Crop Productivity Compared to Last Year						
Sr. No.	Name of Holder	Household ID Number	Holder ID Number	Number of Fields	Increase =1 Equal / No change =2 Decrease =3	If Increase Quantity in Percent	If Decrease: Quantity In Percent	If Decrease: One Major Reason for Decrease	Code	Change In Percent	Remarks
0 1											
0 2											
0 3											
0 4											
0 5											
0 6											
0 7											
0 8											
0 9											
1 0											
1 1											
1 2											
1 3											
1 4											
1 5											
1 6											
1 7											
1 8											

FORM EASE-94/5

Rural

Ethiopian Agricultural Sample Enumeration
Area under Crop Fields and Other Land Uses
(1994 E.C)

Part 1: Identification Particular

1	2	3	4	5	6	7	8
Kilil	Zone	Wereda	FA	EA	Household ID NO	Holder ID.No.	Name of Holder

9	10	11	12	13	14	15	16
Parcel No.	Field No.	The Field or other land used Field Under Temp/Veg/Root Crops → 1 Permanent → 2 Mixed → 3 Other land use → 4 cod	SR. No.	Name of Crop or Type of Land use	If in col.11 code 1,2 or 3 Quantity of prod. In Local unit Identification particulars		Area in Percentage share for each Crop (If in Col. 11 Code 3)
				code	Name / Code / Quantity		
			1				
			2				
			3				

Part II. Area Measurement Result

1		2	3		4	5
The field or other land use Date of measurement		Area in Sq.m.	Area in Local Units			Reason if area Measurment not conducted
Date	Month		Name of Local Area Unit	code	Area	Code

Part III. Bearing and Distances of the Measured Area

Side ID	A-B	B-C	C -	D -	E -	F-	G-
Bearing							
Distanse of							
Side ID	**H -**	**I -**	**J -**	**K -**	**L -**	**M-**	**N-**
Bearing							
Distances of							
Side ID	**O -**	**P-**	**Q-**	**R-**	**S-**	**T-**	**U-**
Bearing							
Distance of							

Rural

FORM EASE-R-94/6

Ethiopian Agricultural Sample Enumeration
List and Selection of Crop Fields - 2001/02 (1994 E.C.)

Part I- Identification Particulars

1	2	3	4	5	6	7	8	9	10	9
Region	Zone	Wereda	Farmers Association	Enumeration Area	Household ID Number	Holder ID Number	Holder Name	Age	Sex Male =1 Female =2	Type of Holding Crop =1 Livestock =2 Both =3

Part II- Selection of Fields for and Crop Cutting Experiment

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Serial No. of		Type of Crop Temporary =1 Vegetable/ Root =2 Permanent =3 Mixed =4	Crop Name*	Name of Crops																			
Parcel	Field		CODE	FIELD No.	SL.FIEL No.	FIELD No.	SL.FIEL No.	FIELD No.	SL.FIELD No.	FIEL No.	SL.FIEL No.	FIELD No.	SL.FIELD No.	FIELD No.	SL.FIEL No.	FIELD No.	SL.FIEL No.	FIEL No.	SL.FIEL No.	FIELD No.	SL.FIEL No.	FIELD No.	SL.FIELD No.

*NOTE:- * ALL FIELDS UNDER ANY TYPE OF CROP SHOULD BE LISTED*

Rural

Form EASE-R- 94/7A

Ethiopian Agricultural Sample Enumeration
Crop Cutting Results - Temporary Crops 2001/02 (1994 E.C.)
(Peasant Holdings)

Part I - Identification particulars

1	2	3	4	5	6	7	8	9	10	11
Region	Zone	Wereda	Farmers Association	Enumeration Area	Household ID Number	Holder ID Number	Name of Holder	Age	Sex Male =1 Female =2	Type of Holding Crop = 1 Livestock = 2 Both = 3

Part II - Details of Crop Cutting (For Temporary Crops only) (Excluding Vegetables and Root Crops)

1	2	3	4	5	6	7	8	9	10	11
Serial No. Of		Crop Name	Date of Harvest	Fresh Weight	Date of Recording Dry Weight	Dry Weight	Was Crop Damaged?			Type of Crop Stand
Parcel	Field						Yes =1 No =2	If yes, Reason for Damage	Percentage Damaged	Pure =1 Mixed =2
		Code	Day Month	Kg. Grams	Day Month	Kg. Grams		Code		

Rural

Form EASE-R- 94/7B

Ethiopian Agricultural Sample Enumeration
Crop Cutting Results - Vegetables and Root Crops - 2001/02 - (1994 E.C)
(Peasant Holding)

PART I - IDENTIFICATION PARTICULARS

1	2	3	4	5	*	7	8	9	10	11
Region	Zone	Wereda	Farmers' Association	Enumeration Area	Household ID Number	Holder ID Number	Name of Holder	Age	Sex Male =1 Female =2	Type of Holding Crop = 1 Livestock = 2 Both = 3

PART II - DETAILS OF CROP CUTTING OF PLOT PERPARATION (FOR VEGETABLES AND ROOT CROPS)

1	2	3	4	5	6	7	8	9	10	11	12	13
					For Rows only			For Broad Cast only				
				Planting Pattern	Selected Random Rows		Random Distance in Meter for the Selected Rows from Starting Point		Random Distance in Meter for the Largest Side from Starting Point	Shortest Side Distance in Meter	From starting point to the center of the field	
Ser. No.	Parcel No.	Field No.	Crop Name Code	Rows =1 Broad cast=2	Serial N0	Distance in meter		Largest Field Side in meter			Shortest Side Random Distance in Meter	Shortest Side Bearing
01												
02												
03												
04												
05												
06												
07												
08												
09												
10												

PART III - CROP CUTTING RESULT (FOR VEGETABLES AND ROOT CROPS)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
					For Rows Only			From 1m x 1m (for Broad cast) or 1m x 2 Rows (for Rows) Plot No. of Fruits and Quantity Harvested							
				Planting Pattern	Distance Between five or Below five Rows		Plant Category A = 1 Catatory B = 2	First Visit		Second Visit		Third visit		Grand Total	
				Row =1 Broad cast=2	No. of Rows	Total distance in Meter		No. of Fruits		No. of Fruits		No. of Fruits		No. of Fruits	
Line No.	Parcel No.	Field No.	Crop Name Code				Code	Quantity	Weight in Kg.	Quantity	Weight in Kg.	Quantity	Weight in Kg.	Quantity	Weight in Kg.
01															
02															
03															
04															
05															
06															
07															
08															
09															
10															

FORM EASE -U- 94/2

URBAN

Agricultural Households Demographic Characteristics - 2001 /2002 (1994 E.C.)

PART I- IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8
REGION	ZONE	WEREDA	TOWN	HIGHER/WEREDA	KEBELE	ENUMERATION AREA	HOUSEHOLD ID NO.

PART II - DEMOGRAPHIC CHARACTERISTICS OF EACH MEMBER OF THE AGRICULTURAL HOUSEHOLD (STARTING WITH THE HEAD OF THE HOUSEHOLD)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
								5 YEARS AND ABOVE		10 YEARS AND ABOVE			
SR. NO.	FULL NAME	IS MEMEBER OF THE HOUSEHOLD A HOLDER Yes =1 No =2	HOLDER ID	TYPE OF HOLDING CROP =1 LIVESTOCK =2 BOTH =3	SEX MALE = 1 FEMALE = 2	RELATION TO THE HEAD OF HOUSEHOLD	AGE (IN COMP-LETED YEARS)	EDUCATIONAL ATTAINMENT (Highest Grade Completed)	MARITAL STATUS NEVER MARRIED = 1 CURRENTLY MARRIED= 2 DIVORCED = 3 WIDOWED = 4	WERE YOU ENGAGED IN ECONOMIC ACTIVITY DURING THE LAST 12 MONTHS? Yes =1	IF NOT ENGAGED (IN COL. 11 COD2) ECOMOMIC ACTIVITY WHAT WAS THE MAIN REASON? STUDENT =1 HOME MAKERS =2 HANDICAP =3 OLD AGE/PENSION =4 OTHERS =5	IF ENGAGED IN ECONOMIC ACTIVITY WHAT WAS THE MAJOR ACTIVITY? FULLY AGRICULTURE = 1 PARTLY AGRICULTURE = 2 Fully in others =3	IF IN COLUMN 13, CODE 1 OR 2, EMPLOYMENT STATUS EMPLOYER =1 OWN-ACCOUNT WORKER = 2 EMPLOYEE =3 UNPAID FAMILY WORKER = 4 OTHERS =5
			code		code	Code	Code	Code	Code	Code No =2	Code	Code	Code
0 1													
0 2													
0 3													
0 4													
0 5													
0 6													
0 7													
0 8													
0 9													
1 0													

Head	= 1
Spouse	= 2
Son/Daughter of head & spouse	= 3
Son/Daughter of head	= 4
Son/Daughter of spouse	= 5
Mother/Father of head/spouse	= 6
Sister/Brother of head/spouse	= 7
Other relatives	= 8
Non relatives	= 9

Illiterate	= 1
Informal Education	= 2
Grade 1 Completed	= 3
Grade 2 Completed	= 4
Grade 3 Completed	= 5
Grade 4 Completed	= 6
Grade 5 Completed	= 7
Grade 6 Completed	= 8
Grade 7 Completed	= 9
Grade 8 Completed	= 10
Grade 9 Completed	= 11
Grade 10 Completed	= 12
Grade 11 Completed	= 13
Grade 12 Completed	= 14
Grade 12 +	= 15

FORM EASE -U- 94/2

URBAN

Agricultural Households Demographic Characteristics - 2001 /2002 (1994 E.C.)

PART I- IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8
REGION	ZONE	WEREDA	TOWN	HIGHER/WEREDA	KEBELE	ENUMERATION AREA	HOUSEHOLD ID NO.

PART II - DEMOGRAPHIC CHARACTERISTICS OF EACH MEMBER OF THE AGRICULTURAL HOUSEHOLD (STARTING WITH THE HEAD OF THE HOUSEHOLD)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
								5 YEARS AND ABOVE		10 YEARS AND ABOVE			
SR. NO.	FULL NAME	IS MEMEBER OF THE HOUSEHOLD A HOLDER Yes =1 No =2	HOLDER ID	TYPE OF HOLDING CROP =1 LIVESTOCK =2 BOTH =3	SEX MALE = 1 FEMALE = 2	RELATION TO THE HEAD OF HOUSEHOLD	AGE (IN COMP-LETED YEARS)	EDUCATIONAL ATTAINMENT (Highest Grade Completed)	MARITAL STATUS NEVER MARRIED = 1 CURRENTLY MARRIED= 2 DIVORCED = 3 WIDOWED = 4	WERE YOU ENGAGED IN ECONOMIC ACTIVITY DURING THE LAST 12 MONTHS? Yes =1	IF NOT ENGAGED (IN COL. 11 COD2) ECOMOMIC ACTIVITY WHAT WAS THE MAIN REASON? STUDENT =1 HOME MAKERS =2 HANDICAP =3 OLD AGE/PENSION =4 OTHERS =5	IF ENGAGED IN ECONOMIC ACTIVITY WHAT WAS THE MAJOR ACTIVITY? FULLY AGRICULTURE = 1 PARTLY AGRICULTURE = 2 Fully in others =3	IF IN COLUMN 13, CODE 1 OR 2, EMPLOYMENT STATUS EMPLOYER =1 OWN-ACCOUNT WORKER = 2 EMPLOYEE =3 UNPAID FAMILY WORKER = 4 OTHERS =5
			code		code	Code	Code	Code	Code	Code No =2	Code	Code	Code
0 1													
0 2													
0 3													
0 4													
0 5													
0 6													
0 7													
0 8													
0 9													
1 0													

Head	= 1
Spouse	= 2
Son/Daughter of head & spouse	= 3
Son/Daughter of head	= 4
Son/Daughter of spouse	= 5
Mother/Father of head/spouse	= 6
Sister/Brother of head/spouse	= 7
Other relatives	= 8
Non relatives	= 9

Illiterate	= 1
Informal Education	= 2
Grade 1 Completed	= 3
Grade 2 Completed	= 4
Grade 3 Completed	= 5
Grade 4 Completed	= 6
Grade 5 Completed	= 7
Grade 6 Completed	= 8
Grade 7 Completed	= 9
Grade 8 Completed	= 10
Grade 9 Completed	= 11
Grade 10 Completed	= 12
Grade 11 Completed	= 13
Grade 12 Completed	= 14
Grade 12 +	= 15

Form EASE -R- 94/7C

Ethiopian Agricultural Sample Enumeration
Crop Cutting Results - Permanent Crops 2001/02 (1994 E.C.)

Part I- Identification Particulars

1	2	3	4	5	6	7	8	9	10	11
Region	Zone	Wereda	Farmers' Association	Enumeration Area	Household ID Number	Holder ID Number	Name of Holder	Age	Sex Male =1 Female =2	Type of Holding Crop = 1 Livestock = 2 Both = 3

Part II- Details of Crop-Cutting (For Permanent Crops) (Excluding Coffee, Chat and Gesho)

1	2	3		4	5	6		7	8	9		10	11	12		13	14	15		16	17	18		19	20	
Serial No. Of		Fruit Type Picked		FIRST VISIT				SECOND VISIT				THIRD VISIT				FOURTH VISIT				FIFTH VISIT				TOTAL		
Parcel	Field		Code	Date	Number	Weight Kg.	Weight Gm.	Date	Number	Weight Kg.	Weight Gm.	Date	Number	Weight Kg.	Weight Gm.	Date	Number	Weight Kg.	Weight Gm.	Date	Number	Weight Kg.	Weight Gm.	Number	Weight Kg.	Weight Gm.
		Orange	47																							
		Banana	42																							
		Lemon	44																							
		Papaya	48																							
		Mango	46																							
		Guava	65																							
		Avocado	84																							
		Sugar cane	76																							
		Pineapple	49																							

PART III- DETAILS OF CROP-CUTTING FOR COFFEE, CHAT AND GESHO

1	2	3		4	5	6	7	8	9	10	11	12	13	14
					WEIGHT OF COFFEE FRUITS DRIED AND BEANS (KG)									
SERIAL No. OF		FRUIT / TWIGS PICKED		NUMBER OF TREES PICKED	FIRST VISIT DATE / /		SECOND VISIT DATE / /		THIRD VISIT DATE / /		FOURTH VISIT DATE / /		TOTAL	
					DATE WEIGHED / /		DATE WEIGHED / /		DATE WEIGHED / /		DATE WEIGHED / /			
					FRUITS	BEANS	FRUITS	BEANS	FRUITS	BEANS	FRUITS	BEANS	FRUITS	BEANS
PARCE	FIELD		CODE		KG. GRAMS	KG. GRAMS	KG. GRAMS	KG. GRAMS	KG. GRAMS	KG. GRAMS	KG. GRAMS	KG. GRAMS	KG. GRAMS	KG. GRAMS
		COFFEE	72											
					WEIGHT OF FRESH AND DRY TWIGS (KG)									
					FIRST VISIT		SECOND VISIT		THIRD VISIT		FOURTH VISIT		TOTAL	
					DATE / /	DATE / /	DATE / /	DATE / /	DATE / /	DATE / /	DATE / /	DATE / /		
					FRESH	DRY	FRESH	DRY	FRESH	DRY	FRESH	DRY	FRESH	DRY
		GESHO	75											
					Date / /		Date / /		Date / /		Date / /		Date / /	
		CHAT	71											

14. Honey production per beehive per year (Feb. 9, 2001 - Feb. 8, 2002) in Kg.

	None		
a. Average honey production from traditional beehive per season per beehive		237	
Frequency of production per year per beehive.		238	
b. Average honey production from intermediate beehive per season per beehive		239	
Frequency of production per year per beehive.		240	
c. Average honey production from modern beehive per season per beehive		241	
Frequency of production per year per beehive.		242	

15. Livestock diseases & treatment Feb. 9, 2001-Feb. 8,2002)

1	2	3	4	5	6	7			8
Sr. No.	Type of **Livestock**	Total Vaccinated	Total Affected	Total Treated	Total Died	Major cause of death	Code 271	Code 272	Remark
1	Cattle								
2	Sheep								
3	Goats								
4	Equines								
5	Camels								
6	Pigs								
7	Chickens								

16. Source of Livestock feed

1	2		3		4
Sr. No.	TYPE OF FEED	Code	USE YES = 1 NO = 2	Code	IF YES, PERCENT
1	Natural grazing	1			
2	Crop Residue	2			
3	Improved pasture	3			
4	Hay	4			
6	Oil seed(noug cake)	5			
7	Other	6			

Rural

Form EASE-R- 94/11

Ethiopian Agricultural Sampe Enumeration
Farm Implements, Work Animals And Storage Facilities - 2001/02 (1994 E.C.)

PART I- IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11
Region	Zone	Wereda	Farmers' Association	Enumeration Area	Household ID No.	Holder ID No.	Name of Holder	Age	Sex Male =1 Female =2	Type of Holding Crop =1 Livestock =2 Both =3

PART II- FARM IMPLEMENTS, WORK ANIMALS, AND STORAGE FACILITIES

2.1 Farming Implements

1	2		3	4		5		6	7	8	
Line No.	Name of Implement	Code	Number Owned	Replacement Value (cost per unit) Birr	Ct.	Total Value Birr	Ct.	Average Age of Service (years)	Do you rent Farm Implements? Yes =1 No =2	If Yes,enter Rate /day Birr	Ct.
0 1	Axe	0 1									
0 2	"Gejera"	0 2									
0 3	Hoe	0 4									
0 4	Shovel	0 5									
0 5	Pick axe	0 3									
0 6	Plow beam	0 6									
0 7	Yoke	0 7									
0 8	" Deger"	0 8									
0 9	Plow tip (Metal)	0 9									
1 0	"Wagel" tip	1 0									
1 1	"Erfe" (handle)	1 1									
1 2	Harrow	1 2									
1 3	Sprayer (hand operated)	1 7									
1 4	Reaper (sickle)	1 9									
1 5	Trashing stick	2 0									
1 6	Rake (all wood)	2 3									
1 7	Rake (any Metal)	2 4									
1 8	Winnower (wood)	2 5									
1 9	Winnower (Metal)	2 6									
2 0	Wheelbarrow	2 7									
2 1	Carts (hauling)	2 8									
2 2	Other (specify _____)										
2 3	Other (specify _____)										
2 4	Other (specify _____)										
2 5	Other (specify _____)										

2.2 Work Animals (including those used for transport)

1	2		3	4		5		6	7	8	
Line No.	Name of animal	Code	Number owned	Replacement Value (Cost Per Animal) Birr	Ct.	Total Value Birr	Ct.	Average age of animal? (Years)	Do you rent Work Animals? Yes=1 No=2	If yes rate per day Birr	Ct.
26	Oxen (all including cows)	42									
27	Donkeys	43									
28	Horses	44									
29	Mules	45									
30	Camels	46									
31	Other (specify _____)										
32	Other (specify _____)										
33	Other (specify _____)										
34	Other (specify _____)										

2.3 Work Animals used specifically for plowing

35	Oxen for plowing	42									
36	Other for plowing										
37	Other (specify _____)										
38	Other (specify _____)										
39	Other (specify _____)										

2.4 Storage Facilities (Buildings)

1	2		3	4		5		6	7	8	
Line No.	Storage facilities	Code	Number owned	Replacement Value (cost per building) Birr	Ct.	Total Value Birr	Ct.	Average storage capacity of buildings? (in Quintals)	Do you rent storage facilities? Yes =1 No =2	if yes, enter rate per month Birr	Ct.
40	Modern buildings	32									
41	" Gottera"	33									
42	" Debegnet"	34									
43	Under ground	35									
44	Other (specify _____)										
45	Other (specify _____)										
46	Other (specify _____)										
47	Other (specify _____)										

Note :- *Sack, 'Silicha', 'Akumada', Plastic sack etc not used as storage facilities*

Form EASE-R-94/12A

RURAL

Ethiopian Agricultural Sample Enumeration

List of Fields Under Temporary Crops (Including Vegetables and Root Crops) and Agricultural Practices (Belg Season) - 2001/02 (1994 E.C.)

Part 1- IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11
Region	zone	Wereda	Farmers Association	Enumeratio Areas	Household Number	Holder Number	Holder Name		Sex	Type of Holding
								Age	male →1 Female →2	Crop →1 Livestack →2 Both →3

Part II - Area Under Temporary Crops and Agricultural Practice

1	2	3	4	5	6
Sr. No.	Questions	Parcel No / Field No. / crop name (code)	Parcel No. / filed NO. / crop name (code)	Parcel No. / filed NO. / crop name (code)	Parcel No. / filed NO. / crop name (code)
01	Type of Holding Private →1 Others →3 Rnted /contract →2				
02	Field Area in local unit	Local Unit / code / Area	Local Unit / code / Area	Local Unit / code / Area	Local Unit / code / Area
03	Production in Local Unit	Local Unit / code / Area	Local Unit / Code / Area	Local Unit / code / Area	Local Unit / code / Area
04	Have the field been included in the extention Package program Yes →1 No →2				
05	Was the field Irrigated? Yes →1 No →2				
06	Variety of seeds used Improved →1 Indignores →2				
07	(For Cereals,Pulses and Oil seeds only) If indiginous seed was used, What was the total quantity	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram
08	(For Cereals,Pulses and Oil seeds only) If Improved seed was used, what was the total quantity	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram
09	(For Cereals,Pulses and Oil seeds only) If Improved seed was used what was the cost /price	Birr cent	Birr cent	Birr cent	Birr cent
10	Was the crop Damaged Yes →1 No →2				
11	If yes, what was the major cause of damage	Reason (code)	Reason (code)	Reason (code)	Reason (code)
12	Percentage of damage				
13	Any control/protection measure taken for crop damage? Yes →1 No →2				
14	If yes, what Type of measure? Chemical →1 Both →3 Non chemical →2				
15	If chemical Insecticide →1 1&3 →5 Herbicide →2 2&3 →6 Fungicide →3 All →7 1&2 →4				
16	Was the field fertilized? Yes →1 No →2				
17	If fertilized what type ? Natural →1 Bothe →3 Chemical →2				
18	One main reason for not using chemical fertilizer	Reason (Code)	Reason (Code)	Reason	Reason (Code)
19	If chemical fertilizer used 19.1 Type Urea →1 Both →3 Dap →2				
	19.2 Quantity in K.g	Kg. Gram	Kg. Gram	Kg. Gram	Kg. Gram
20	Manure →1 Both →3 compost →2 Others →4 / If others specify/ →				

RURAL

Ethiopian Agricultural Sample Enumeration

List of Fields Under Mixed Crops and their Agricultural Practices (Belg Season) - 2001/02 (1994 E.C.)

Form EASE-R-94/12B

Part 1- IDENTIFICATION PARTICULARS

1 Region	2 Zone	3 Wereda	4 Farmers' Association	5 Enumeration Areas	6 Household Number	7 Holder Number	8 Holders' Name	9 Age	10 Sex (male → 1, Femal → 2)	11 Type of Holding (Crop → 1, Livestock → 2, Bothe → 3)

Part II - Area Under Mixed Crops and Agricultural Practice

1		2 Questions	3 Parcel No. / Field No.		4 Parcel No. / Field No.	
			Crop Name / code	Corp Name / code	Corp Name / code	Corp Name / code
0	1	Type of Holding Private → 1 Others → 3 Rented/contract → 2				
0	2	Have the field been included in the extention pakage program Yes → 1 No → 2				
0	3	Total Mixed Crop Area in Local Unit	Name of Local Unit / code / Area		Name of Local Unit / code / Area	
0	4	Production in Local Unit	Production Unit (Local Unit, Code) / Quantity		Production Unit (Local Unit, Code) / Quantity	
0	5	Percentage shere of Area	Quantity		Quantity	
0	6	was the field Irrigated yes → 1 No → 2				
0	7	Variety of seeds used Improved → 1 Indiginous → 2				
0	8	If Indignous seed was used what was (for Cereals, Pulses & Oilseeds) the quantity	Kg. / Gram		Kg. / Gram	
0	9	If Improved seed was used, (for Cereals, Pulses & Oilseeds) what was the quantity	Kg. / Gram		Kg. / Gram	
1	0	If Improved seed was used (for Cereals, Pulses & Oilseeds) what was the cost/price	Birr / Cent		Birr / Cent	
1	1	was the crop Damaged Yes → 1 No → 2				
1	2	If, yes, what was the major cause of Damage	Reason / Code		Reason / Code	
1	3	percentage of Damage				
1	4	Any control/ preventive measure Taken for crop damage → 1 → 2				
1	5	If yes, what type of measure Chemical → 1 Both → 3 Non-chemical → 2				
1	6	If chemical in 16, Insecticid → 1 1&3 → 5 Herbicide → 2 2&3 → 6 Fungicide → 3 All → 7 1&2 → 4				
1	7	Was the field fertilized yes → 1 No → 2				
1	8	If fertilized what type? Natural → 1 Both → 3 Chemical → 2				
1	9	One main Reson for not using Chemical fertilizer	Reason / Code		Reason / Code	
2	0	If chemical fertilizer used 20.1 Type Urea → 1 Both → 3 Dap → 2				
		20.2 Quantity in Kilo gram	Kg. / Gram		Kg. / Gram	
2	1	If natural fertilizer used mainly what type ? Manure → 1 Both → 3 Compost → 2 Others → 4 / If others specify/ →				

Number of Horses, Asses,Mules & Camels in Age and Purpose (Feb. 9,2001-Feb. 8, 2002)

	None		Total		Male		Female	
*5. **HORSES of all ages**			139		140		141	
a. Horses <3 years old			142		143		144	
b. Horses 3 Years and older			145		146		147	
b1) Horses used primarily for draft purpose			148		149		150	
b2) Horses for Transportation			151		152		153	
b3) Horses for other purpose			154		155		156	
6. MULES of all ages			157		158		159	
a. Mules <3 years old			160		161		162	
b. Mules 3 years older			163		164		165	
b1) Mules used primarily for draft purpose			166		167		168	
b2) Mules for Transportation purposes			169		170		171	
b3) Mules for Other Purpose			172		173		174	
7. ASSES of all ages			175		176		177	
a. Asses <3 years old			178		179		180	
b. Asses 3 years and older			181		182		183	
b1) Asses used for draft purpose			184		185		186	
b2) Asses for Transportation purposes.			187		188		189	
b3) Asses for Other Purpose			190		191		192	
8. CAMELS of all ages			193		194		195	
a. Camels <4 years old			196		197		198	
b. Camels 4 years and older			199		200		201	
b1) Camels for slaughter			202		203		204	
b2) Camels used for draft purpose			205		206		207	
b3) Camels for milk purpose			208				209	
b4) Camels for Transportation purposes			210		211		212	
b5) Camels for other purposes			213		214		215	

Number of Sheep in Age & Purpose on February 8/2002

	None	Total	Male	Female
2. SHEEP of all ages on February 8, 2002		47	48	49
a. Sheep < 6 months		50	51	52
b. Sheep 6 months & < 1 years old		53	54	55
c. Sheep 1 year to < 2 years old		56	57	58
d. Sheep 2 years and older		59	60	61
(1) Sheep for meat (slaughter purpose)		62	63	64
(2) Sheep for wool only		65	66	67
(3) Sheep for breeding purpose only		68	69	70
(4) Sheep for other purposes		71	72	73
e. Grand Total		74	75	76
1. Total Local breed		77	78	79
2. Total Exotic		80	81	82
3. Total Hybrid		83	84	85

Number of Goats in Age & Purpose on February 8/2002

	None	Total	Male	Female
3. GOATS of all ages on February 8, 2002		86	87	88
a. Goats < 6 months		89	90	91
b. Goats 6 months & < 1 year old		92	93	94
c. Goats 1 year to < 2 years old		95	96	97
d. Goats 2 years and older		98	99	100
(1) Goats for meat (slaughter purpose)		101	102	103
(2) Dairy Goats		104		105
(3) Goats for breeding purpose only		106	107	108
(4) Goats for other purposes		109	110	111
e. Grand Total		112	113	114
1. Total Local breed		115	116	117
2. Total Exotic		118	119	120
3. Total Hybrid		121	122	123

Number of Pigs by age & purpose on February 8, 2002

	None	Total	Male	Female
4. Total Pigs		124	125	126
a. below 6 months		127	128	129
b. 6 months & above		130	131	132
b.1. For meat Purpose		133	134	135
b.2. Pigs for other purpose		136	137	138

CHICKENS

	None		
9. CHICKENS Total on February 8, 2002		216	
a. Laying hens (over 20 weeks old)		217	
b. Non-laying hens (over 20 weeks old)		218	
c. Cocks - males (over 20 weeks old)		219	
d. Cockerels (8 weeks to 20 weeks old)		220	
e. Pullets (8 weeks to 20 weeks old)		221	
f. Chicks (below 8 weeks old)		222	

Question No II: Did you have livestock, chickens, and/or beehives for the last 12 months (Feb. 9, 2001-Feb.8,2002)?

Yes ⟶1 Complet question below ☐

No ⟶2 Complet question No. 11 'c' and 'g' only

10. HONEY BEE COLONIES on February 8, 2002	None		
		223	
a. Traditinal beehives		224	
b. Intermediate beehives		225	
c. Modern beehives		226	

MILK, EGG AND HONEY PRODUCTION FOR THE LAST 12 MONTHS (Feb. 9, 2001-Feb. 8, 2002)

11. Dairy cows & camels	None		
a. Dairy cows gave milk		227	
b. Lactation period of cows (in months)		228	
c. Average milking month in a caw (traditional)		229	
d. Milk production - per day per dairy cow in litres		230	
e. Dairy camels gave milk		231	
f. Lactation period of camels (in months)		232	
g. Average milking month in a camel (traditional)		233	
h. Milk production - per day per camel in litres		234	

	None		
12. Egg production - per hen per clutch			
'In nearest hole number of eggs		235	
13. Average number of clutches (in days)		236	

14. Honey production per beehive per year (Feb. 9, 2001 - Feb. 8, 2002) in Kg.

	None		
a. Average honey production from traditional beehive per season per beehive		237	
Frequency of production per year per beehive.		238	
b. Average honey production from intermediate beehive per season per beehive		239	
Frequency of production per year per beehive.		240	
c. Average honey production from modern beehive per season per beehive		241	
Frequency of production per year per beehive.		242	

15. Livestock diseases & treatment Feb. 9, 2001-Feb. 8,2002)

1	2	3	4	5	6	7			8
Sr. No.	Type of **Livestock**	Total Vaccinated	Total Affected	Total Treated	Total Died	Major cause of death	Code 271	Code 272	Remark
1	Cattle								
2	Sheep								
3	Goats								
4	Equines								
5	Camels								
6	Pigs								
7	Chickens								

16. Source of Livestock feed

1	2		3		4
Sr. No.	TYPE OF FEED	Code	USE YES = 1 NO = 2	Code	IF YES, PERCENT
1	Natural grazing	1			
2	Crop Residue	2			
3	Improved pasture	3			
4	Hay	4			
6	Oil seed(noug cake)	5			
7	Other	6			

Rural

Form EASE -R- 94/9

Ethiopian Agricultural Sample Enumeration
Use of Crop, Livestock and Products - 2000/01 (1994 E.C.)
(Peasant Holding)

Job ID	1	2	3

Part I - Identification Particulars

1	2	3	4	5	6	7	8	9	10	11
Region	Zone	Wereda	Farmers' Association	Enumeration Area	Household ID. No.	Holder ID No.	Name of Holder	Age	Sex Male =1 Female =2	Type of Holding Crop =1 Livestock =2 Both =3

Part II - Crop Usage Proportions (Percentages)

1	2		3	4	5	6	7	8	9
Sr. No.	Name of Crop	Code	Proportions of Total Product For Household Consumption	Seed	Sale*	Wages in Kind	Animal Feed	Other (Gifts ...)	Total
01									
02									
03									
04									
05									
06									
07									
08									
09									
10									
11									
12									
13									
14									
15									

Part III - Livestock Product Usage Proportions (Percentages)

1	2		3	4	5	6	7
SR. No.	Name of Livestock & Livestock Products	Code	Proportions in Percentage Household Consumptio	Sale*	Wages in Kind	Others (Gifts ...)	Total
01							
02							
03							
04							
05							
06							
07							
08							
09							
10							
11							
12							
13							
14							
15							

*For sale includes the part of products that the holder sold for purchase of agricultural inputs, family clothings, ... etc.

Form NASE 94/10

Ethiopian Agricultural Sample Enumeration
Miscellaneous Questions - 2001/02 (1994 E.C.)

PART I- IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11
Region	Zone	Wereda	Farmers' Association	Enumeration Area	Household ID No.	Holder ID No.	Name of Holder	Age	Sex Male =1 Female =2	Type of Holding Crop =1 Livestock =2 Both =3

PART II - MISCELLANEOUS QUESTIONS

Q. No		Code
1.	Do you practice crop rotation on your holding? Yes = 1 No = 2	
2.	Do you practice burning of soil to increase fertility of the soil on your holding? Yes = 1 No = 2	
3.	If practice irrigation, what is the source of irrigation water? River = 1 Lake = 2 Pond = 3 Others =4 Not Used = 5	
4.	Have you used hired labour on you holding during this agricultural year? (last 12 months) Yes = 1 No = 2	
5.	How many persons were engaged on the holding other than the holder ? (Last 12 /mths)	Number: Male / Female / Total
	5.1 permanent paid workers (full time)	
	5.2 Temporary (seasonal paid workers)	
	5.3 Unpaid family workers	
	5.4 partners (share holders paid/ unpaid)	
	5.5 Total persons engaged at any time of the year	
6.	Which ploughing practice do you use on your holding? 6.1 Hand dug = 1 6.2 Oxen /horse driven /pulling = 2 6.3 Mechanized /Tractor = 3 6.4 Both hand dug & oxen/ Horse driven = 4 6.5 Both Oxen/Horse driven & Mechanized = 5	
7.	What method do you practice to, preserve soil against degradation or erosion? Terracing = 1 Water catchment = 2 Afforestation = 3 Ploughing along the contour = 4 Others /Specify/ = 5 Do not practice = 6	
8.	Have you ever been included in the extension package program? Yes = 1 No = 2 ERR	
9.	If yes in 8, which extension package? Rain abundant areas extension package = 1 Rain shortage areas extension package = 2 Post harvest technology " " = 3 Economically important crops " " = 4 Livestock development " " = 5 Any two of the above = 6	

Q. No		Code
10.	If the answer is 6 in 9, specify	
11.	If Yes in 8, when? Specify	
12.	What percentage of your holding is under the extension package/ (excluding livestock)	
13.	For which crop are you useing the extension package? specify	
14.	If No in 8, why? specify	
15.	Are you beneficiary of Credit facilities for agricultural activities Yes =1 No = 2	
16	Advisory services Yes = 1 No = 2	
17	Where do you get chemical fertilizer? Government Enterprise =1 Private Enterprise =2 Private Seller =3 Others (Specify) =4 Not Purchased =5	
18	How much do you buy 50 kg Urea?	Birr / Cent
19	How much do you buy 50 kg Dap?	Birr / Cent
20	How far do you go to Purchase Fertilizer?	kilo meter
21	How much time do man & women spend in the household on each of the following agricultural activities? use the codes given below the table*.	Male / Female
	21.1 Tilling	
	21.2 Sowing	
	21.3 Weeding	
	21.4 Harvesting	
	21.5 Feeding /Treating	
	21.6 Milking	
	21.7 Marketing of agricultural products	
	* Not Participated = 1 One fourth of the time (1/4) = 2 One half of the time (1/2) = 3 Three fourth of the time (3/4) = 4 Full time = 5 Not applicable = 6	

14. Honey production per beehive per year (Feb. 9, 2001 - Feb. 8, 2002) in Kg.

	None		
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Frequency of production per year per beehive.		238	
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15. Livestock diseases & treatment Feb. 9, 2001-Feb. 8,2002)

1	2	3	4	5	6	7			8
Sr. No.	Type of **Livestock**	Total Vaccinated	Total Affected	Total Treated	Total Died	Major cause of death	Code 271	Code 272	Remark
1	Cattle								
2	Sheep								
3	Goats								
4	Equines								
5	Camels								
6	Pigs								
7	Chickens								

16. Source of Livestock feed

1	2		3		4
Sr. No.	TYPE OF FEED	Code	USE YES = 1 NO = 2	Code	IF YES, PERCENT
1	Natural grazing	1			
2	Crop Residue	2			
3	Improved pasture	3			
4	Hay	4			
6	Oil seed(noug cake)	5			
7	Other	6			

14. Honey production per beehive per year (Feb. 9, 2001 - Feb. 8, 2002) in Kg.

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16. Source of Livestock feed

1	2		3		4
Sr. No.	TYPE OF FEED	Code	USE YES = 1 NO = 2	Code	IF YES, PERCENT
1	Natural grazing	1			
2	Crop Residue	2			
3	Improved pasture	3			
4	Hay	4			
6	Oil seed(noug cake)	5			
7	Other	6			

FORM EASE-U-94/3

URBAN

ETHIOPIAN AGRICULTURAL SAMPLE ENUMERATION

LIST OF FIELDS UNDER TEMPORARY AND PERMANENT CROPS AND AGRICULTURAL PRACTICES- MEHER SEASON

2001/02 (1994 E.C)

PART I-IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9	10	11	12	13	14
REGION	ZONE	WEREDA	TOWN	HIGHER/ WEREDA	KEBELE	ENUMERATION AREA	HOUSEHOLD ID. NUMBER	HOLDER ID. NUMBER	HOLDER'S NAME	AGE	SEX M→1 F→2	TYPE OF HOLDING CROP → 1 LIVESTOCK →2 BOTH → 3	DID YOU PRODUCE CROP IN BELG SEASON YES → 1 NO → 2

PART II- AREA UNDER TEMPORARY CROPS AND AGRICULTURAL PRACTICES

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
					Use of Agricultural Inputs							If column 12 is blank			If column 15 is blank	
			Type of Tenure Own → 1 Rented→ 2 Others → 3	Location of field in Urban Boundary Within→ 1 Outside→ 2	Type of seeds used Improved seed→ 1 Local seed→ 2	Use of fertilizer Did you use Fertilizer Yes → 1 No → 2	If yes in column 7 Type of fertilizer Natural→ 1 Chemical→ 2 Both → 3	Use of Irrigation Did you apply Irrigation Yes→1 No →2	If yes in Column 9 Source of water River → 1 Lake → 2 Pool → 3 Pipe water→ 4 Others → 5	Did you use pesticides Yes → 1 No → 2	Field Area in Square Meters	Area in local units		Production in kilograms	Production In Local units	
Parcel Number	Field Number	Name of crops										Name of Local Units	Area		Name of Local units	Quantity
		CODE										code			Code	

Continued