

**THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
CENTRAL STATISTICAL AUTHORITY**

**AGRICULTURAL SAMPLE SURVEY
2003 / 2004 (1996 E.C.)**

(September 2003 – February 2004)

VOLUME I

REPORT ON

AREA AND PRODUCTION OF CROPS

(PRIVATE PEASANT HOLDINGS, MEHER SEASON)

Addis Ababa
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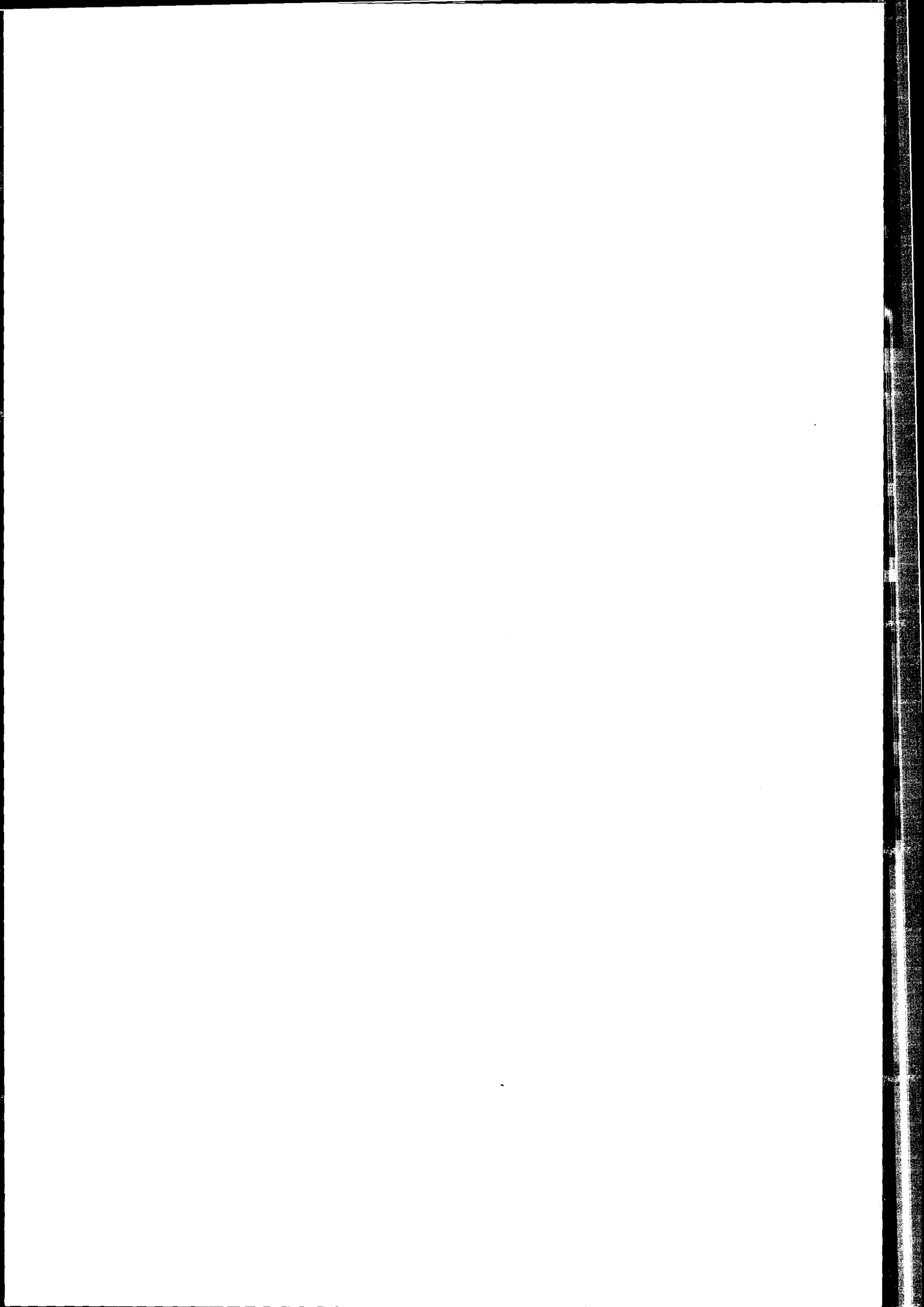
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| ABBREVIATIONS | |
| CV – COEFFICIENT OF VARIATION | |
| E.C. – ETHIOPIAN CALENDAR | |
| S.N.N.P.R. – SOUTHERN NATIONS, NATIONALITIES AND PEOPLES REGION | |



PART I

INTRODUCTION

Food security has become a burning issue in Ethiopia since it is an absolute prerequisite for political and social stability. It received national prominence in the aftermath of the recurring drought and famine and obviously became an immediate domestic policy concern.

The gap between the dire need for food and food supply is compounded by rapidly increasing population, depletion of natural resources and the existing traditional way of farming. It even requires sacrifice to provide adequate supply of food in such a situation where natural and human factors have negatively impacted on the agricultural production and resulted in recurrent droughts and sometimes in catastrophe.

Pressed by these problems and other economic factors, the Ethiopian government has centered its agricultural policy on ensuring food security by allocating more resources to increase agricultural production so as to ward off food shortage and ensure continuous adequate supply of food. To monitor and evaluate the performance of the policy and the trends in the changing patterns in agriculture, statistical information on agriculture is required as an input since agriculture is a primary activity connected with food availability.

The Central Statistical Authority (C.S.A) has been generating statistical information used as inputs in the formulation of agricultural policies by collecting processing and summarizing reliable, comprehensive and timely data on the country's agriculture. As part of this mission the 2003/04 (1996 E.C) Agricultural Sample Survey was conducted to furnish data on cropland area and production of crops within the private peasant holdings for Meher Season of the quoted year. The Survey results are presented in this bulletin and other electronic media for public and private use.

The report comprises three parts. Part I contains the objectives of this annual survey, Part II deals with coverage of the survey, sample design, field organization and method of data collection and Part III includes survey findings. Estimation procedures and formulation of estimates of totals, ratios and variance are presented in Appendix I. Estimates of the standard errors with the corresponding coefficients of variations for area and production of crops are presented in Appendix II. The number of agricultural households covered, parcels, and fields measured and number of crop cuttings performed is presented in appendix III and the survey questionnaires in appendix IV.

2. OBJECTIVES OF THE SURVEY

The general objective of CSA's Agricultural Sample Survey (AgSS) is to collect basic quantitative information on the country's agriculture that is essential for planning, policy formulation, food security, etc. The AgSS is composed of four components: Crop Production Forecast Survey, Meher Season Survey, Livestock Survey and Belg Season Survey.

The specific objectives of Meher Season Survey are to estimate the total cultivated area, production and yield of crops. Companion reports are published separately with estimates of land use area and quantity of agricultural inputs during Meher Season agriculture. All reports are based on the private peasant holdings in sedentary rural areas of the country further subdivided by regions and zones.

PART II

SURVEY METHODOLOGY AND OPERATIONS

1. SCOPE AND COVERAGE OF THE SURVEY

The range of data items that the 2003/04 (1996 E.C) Annual Agricultural Sample Survey (Meher Season) dealt with includes all cereals, pulses and oilseeds and the most commonly grown vegetables, root crops and permanent (perennial) crops. Holders growing at least one or more of these crops are also enumerated and data on cropland area and yield are also recorded, hence data on production of these crops acquired.

The survey also covered the entire rural parts of the country except three zones of Afar regional state and six zones of Somali regional state where their inhabitants are predominantly pastoralists. However, it should be noted that the crop cutting exercise part of the survey from November 2003 up to January 2004 was not done in Gambela Regional State. Hence no production estimates for the region for Meher season. Accordingly the survey took in to account all parts of Harari, Addis Ababa and Dire Dawa, and 63 additional Zones / Special weredas (that are treated as zones) of other regions.

A total of 2,072 enumeration areas were initially selected to be covered by the survey, however, due to various reasons that are beyond the control of the CSA 16 EA's were not covered and the survey was successfully carried out in 2056 (99.23 %) EA's. As regards the ultimate sampling unit, it was planned to conduct the survey on 51,800 agricultural households and 51,300 (99.03 %) households were actually covered by the Meher Season Agricultural Sample Survey. Distribution of the number of sampling units (planned and covered) by domain of estimation is tabulated in Appendix I.

2. SAMPLE DESIGN

A stratified two-stage cluster sample design was used to select the sample. Enumeration areas (EA's) were taken to be the primary sampling units (PSU's) and the secondary sampling units (SSU's) were agricultural households. Sample enumeration areas from each stratum were sub-samples of the 2001/2 (1994 E.C) Ethiopian Agricultural Sample Enumeration. They were selected using probability proportional to size systematic sampling; size being number of agricultural households obtained from the 1994 Population & Housing Census and adjusted for the sub-sampling effect. Within each sample EA a fresh list of households was prepared and 25 agricultural households from each sample EA were systematically selected at the second stage. The survey questionnaire was finally administered for those 25 agricultural households selected at the second stage. Information on area under crops and Meher season production of crops were obtained from the 25 households that were ultimately selected. It is important to note, however, that data on crop cutting were obtained from only fifteen households (the 11th-25th households selected).

The sample size for the 2003/4 agricultural sample survey was determined by taking in to account of both the required level of precision for the most important estimates within each domain and the amount of resources allocated to the survey. In order to reduce non-sampling errors manageability of the survey in terms of quality and operational control was also in addition considered.

Except Harari, Addis Ababa and Dire Dawa, where the region as a whole was taken to be the domain of estimation, each zone of a region / special wereda that is considered to be a zone by itself was adopted as a stratum for which major findings of the survey are reported.

Estimation procedure for totals & ratios and their sampling errors are given in Appendix II. Estimates of standard errors and Coefficient of Variations for selected estimates are also presented in Appendix III.

3. ORGANIZATION OF FIELD WORK

The conduct of a survey cannot be executed without the arrangement of fieldwork. In recognition of this, the organization of fieldwork has been entrusted to the Department of Field Operations that liaises between the Head Office and the 25 Branch Statistical Offices spread across the regions. All Branch Offices took part in the survey execution especially in recruiting the enumerators, organizing the the 2nd stage training, assigning the field staff to their sites of enumeration, supervising the data collection and retrieving completed questionnaires and submitting them to the Head Office for data processing.

The Branch Offices were also responsible in administering the financial and logistic aspects of the survey within their areas of operation. A total of 2154 enumerators, 442 field supervisors and 21 coordinators were involved in the data collection where on the average one supervisor was assigned to five enumeration areas for supervision of data collection. All the enumerators were supplied with the necessary survey equipment after the completion of the training to ensure the smooth operation of the survey. To facilitate the data collection activities, a total of 195 four-wheel drive vehicles were used.

4. TRAINING OF FIELD STAFF

The execution of a survey and quality of data highly depend on the type of training given to the enumerators and supervisors and the consequent understanding of the tasks to be performed and the standard procedures to be followed by the enumerators and supervisors in the survey undertaking. The quality and completeness of data is ensured when the training meets its objective of producing responsible and enthusiastic enumerators and supervisors.

In light of this point, the training was given to the field staff in two stages. The first stage training, which took place in the Head Office and lasted 10/days targeted staff from the Head Office, and senior field supervisors from Branch Statistical offices. The

staff that took part in the first stage training were then assigned to conduct similar training for the enumerations and other supervisions for fifteen days in all the twenty-five Branch Statistical Offices distributed across the country.

In the training the field staff were given detailed classroom instruction on how to collect data, method of area measurement, method of crop cutting, interviewing procedures, etc. The training also included field practice to reinforce the understanding of concepts, definitions and theories discussed in the classroom with regard to field measurement and crop cutting methods.

5.METHOD OF DATA COLLECTION

The agricultural data for the year 2003/04(1996 E.C) was collected from sedentary rural peasant households by interviewing the selected agricultural holders and physically measuring their fields and performing crop cutting procedures to gather data on crop yields and other items of interest. The data obtained were recorded in various forms designed for this purpose. Instruments like measuring tape; compass, kitchen balance, scientific calculators and others were used during data collection for a speedy and smooth acquisition of accurate data.

The procedures for measuring areas of crop fields and other fields used by the holders were performed for the twenty –five selected households from each sampled E.A. using measuring tapes and compasses. All fields under major temporary crops of each holder of the fifteen randomly selected households of the 25 sample households were classified by crop type and a crop field was randomly selected from each major crop type for crop cutting to be performed .The crop cutting procedure consists of demarcation of a four meter by four meter plot randomly located in the selected field where the crop in the demarcated plot is to be harvested.

Following the enumerator's harvest of the crop cutting plot and threshing, the crop is kept in bags with identification information (i.e. holder's number, parcel and field

numbers) The crop stored in the bag is weighed immediately (green weight) after threshing and weighed again after two weeks of drying to simulate normal holder harvesting and drying practices. Both the green and dry weights are recorded on the respective forms.

6. DATA PROCESSING

6.1 Editing Coding and verification

Statistical data editing plays an important role in ensuring the quality of the collected survey data. It minimizes the effects of errors introduced while collecting data in the field, hence the need for data editing, coding and verification. An editing, coding and verification instruction manual was prepared and reproduced. Then 65 editors-coders and verifiers were trained for two days in editing, coding and verification using the aforementioned manual as a reference and teaching aid. The completed questionnaires were edited, coded and later verified on a 100 % basis before the questioners were passed over to the data entry unit. The editing, coding and verification exercise of all questionnaires took 40 days.

6.2 Data Entry, Cleaning and Tabulation

Before data entry, the Natural Resources and Agricultural Statistics Department prepared edit specification for the survey for use on personal computers for data consistency checking purposes. The data on the edited and coded questionnaires were then entered into personal computers. The data were then checked and cleaned using the edit specifications prepared earlier for this purpose. The data entry operation involved about 64 data encoders and it took 50 days to finish the job. Finally, tabulation was done on personal computers to produce statistical tables as per the tabulation plan.

6. CONCEPTS AND DEFINITIONS

Data items of agriculture have to be distinctly defined and identified so that the information about the items becomes useful. The correct way of stating data items and

related terms is a prerequisite for making standards and definitions for the collection and compilation of agricultural data .The purpose 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 the survey help to maintain consistent enumeration and measurement of variables of interest. To achieve this, CSA communicates concepts and definitions to the field staff through training and instruction manuals. The concepts and definitions used in the survey included the following.

Enumeration Area (E.A): 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 with out 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 with out 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 with out 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, sugarcane, cotton, tobacco, etc produced for food, making drinks, stimulation and making fabrics or clothing.

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

Temporary/Annual Crops: - 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 (Perennial) 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, bananas, etc) and trees for beverages (i.e. coffee, tea, hops (Gesho), etc) are considered permanent crops but meadows and pastures are excluded.

Meher (Main) Season Crop: -any temporary crop harvested between Meskerm (September) and Yekatit (February) is considered as meher season crop.

Belg Season Crop: - any temporary crop harvested between the months of Megabit (March) and Nehase(August) is considered to be Belg Season Crop.