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THE AGRICULTURAL SAMPLE SURVEY IN ETHIOPIA

1980 - 1981

THE FIRST ROUND OF THE INTEGRATED FOOD AND AGRICULTURAL STATISTICS SURVEY

(ETH/79/013)

VOL I

REPORT ON

THE DESIGN AND OPERATION

PROVISIONAL MILITARY GOVERNMENT
OF SOCIALIST ETHIOPIA
NATIONAL REVOLUTIONARY DEVELOPMENT CAMPAIGN
CENTRAL PLANNING SUPREME COUNCIL
CENTRAL STATISTICAL OFFICE
ADDIS ABABA
JANUARY, 1981

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I. INTRODUCTION

1. Ethiopia has an agro-based economy. The majority of population live in rural areas. It is variably estimated that the main source of Livelihood of about 90 percent of the population is agriculture. Obviously, contribution to Gross Domestic Product of Ethiopia from agricultural sector is the highest.

2. Like all other countries, Ethiopia is making strenuous efforts to feed her population and raise living standards. In order to achieve the goal, balanced development of the country is an absolute necessity. This demands a careful formulation of agricultural development plans in a scientific manner for which basic facts of a situation in numerical terms for regions in the country and for the country as a whole are required.

3. From 1974 to 1980, five nation-wide agricultural sample surveys were conducted in Ethiopia. However, the experience gained from those surveys demonstrated that requirements for the formulation of prospective planning on a scientific basis in agriculture could not be accomplished. In view of realities of the situation, the Integrated Food and Agricultural Statistics Survey was initiated in 1980 as the first phase of the Rural Integrated Survey Programme which is a major part of the National Household Integrated Survey Programme. Accordingly, as the first round of the Integrated Food and Agricultural Statistics Survey, the Agricultural Sample Survey of 1980/81 was carries out with UNDP*/FAO** assistance.

4. The 1980/81 Agricultural Sample Survey was undertaken by the Central StatisticalOffice, Central Planning Supreme Council. It was launched in 12 regions excluding Eritrea and Tigrai. For collection of data, both an interview as well as objective methods were adopted. Field Work of the survey extended from mid-October, 1980 to mid-February, 1981.

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*UNDP= United Nations Development Programme

**FAO = Food and Agriculture Organization of the United Nations

II OBJECTIVES AND COVERAGE

5. Objectives: The objective of the 1980/81 Agricultural Sample Survey was to collect basic quantitative information about the nation's Agriculture needed in development planning, socioeconomic policy formulation and establishment of national priorities. The survey was a government-sponsored operation for the collection of data on agricultural characteristics, using the agricultural holding as the statistical unit. It aimed at obtaining reliable estimates for the regions in the country and for the country as a whole.

6. Area Coverage: It was envisaged to design the survey to cover all regions in the country. However, due to security reasons, the survey could not be conducted in Eritrea and Tigrai regions. Eventually, the coverage of the survey was an noted below:

Serial Number	Regions	Number of Awrajas			Number of Weredas		
		Total	Covered in Survey	Not Covered in Survey	Total	Covered in Survey	Not Covered in Survey
1	Arssi	3	3	-	22	21	1
2	Bale	5	3	2	25	10	15
3	Gamo Gofa	4	4	-	22	21	1
4	Gojam	7	7	-	35	35	-
5	Gonder	7	7	-	29	21	8
6	Harrarghie	13	8	5	63	36	27
7	Illubabor	5	5	-	34	30	4
8	Keffa	6	5	1	38	27	11
9	Shoa	11	11	-	105	102	3
10	Sidamo	6	6	-	34	31	3
11	Wellega	6	6	-	50	49	1
12	Wollo	12	12	-	37	36	1
	Total	85	77	8	494	419	75

The weredas not covered in the survey:

Serial No.	Region	Awrajas	Wereda
1	Arssi	1. Arbagugu	1. Golalcha
2	Bale	1. Dolo	1. Dolo Henna, 2, Arena Bulek, 3. Meda Welabu, 4. Berbere, 5. Gurana Demole
	"	2. Elkere	1. Serere, 2. Karay, 3. WabiShebele, 4. Afkere, 5. Delebay, 6. Wehbe
	"	3. Wabe	1. Liegehida, 2. Raitu
	"	4. Genale	1. Kokossa, 2. Mensibo
3	GamoGofa	1. Geleb Hamer Baco	1. Murso Boye
4	Gonder	1. Chilga	1. Kuara, 2. Metabie
	"	2. Gonder	1. Tach Armachehu
	"	3. Semien	1. Beyeda, 2. Telehet
	"	4. Wogera	1. Tegedie, 2. Walkait, 3. Setit
5	Harrarghie	1. Gursum	1. Fik, 2. Hamro
	"	2. Dere Dawa	1. Aisha
	"	3. Gijiga	1. Harshin, 2. Kebri Beyah, 3. Derbel
	"	4. Kebridehar	1. Kebridehar, 2. Sheikush , 3. Shelabo 4. Webewin
	"	5. Godie	1. Denan, 2. Ehi 3. Adadili
	"	6. Degehabur	1. Degahabur, 2. Aware 3. Degahamedo, 4. Segema, 5. Dihu, 6. Misrak Gashem
	"	7. Welwel & Warder	1. Warder, 2. Damot, 3. Geladi 4. Bah, 5. Bdigud
	"	8. Kelafo	1. Kelafo, 2. Mustahil, 3. Ferfer

Serial No.	Region	Awraja	Wereda
6	Illubabor	1. Buno	1. Sigimo, 2. Setehs
		2. Mocha	1. Yehi, 2. Gudere
7	Keffa	1. Gimira	1. Gora Farda
		2. Jimma	1. Ganjero
	"	3. Majina Gold'a	1. Mahel Maji, 2. Kunit 3. Biro, 4. Shasha, 5.Gerha 6. Tirmatid, 7. Goldia
	"	4. Keffa	1. Tiliku Cha, 2. Tinishu Gesha
8	Shoa	1. Yifat & Timuga	1. Bure Meditu
	"	2. Yerer & Keryu	1. Bereket
	"	3. Teguletina Bulga	1. Dulecha
9	Sidamo	1. Arero	1. Bury
	"	2. Sidamo	1. Awassa, 2. Arroressa
10	Wellega	1. Arjo	1. Tachi
11	Wollo	1. Lasta	1. Gugina

(It is to be noted that Gojam is the only region where all weredas were covered)

7. Population Coverage: The survey was designed to represent the local peasant holdings, co-operatives and state farms within the survey areas. However, non-agricultural holdings were excluded. The unit of observation for the survey was the agricultural holding.

8. Coverage of Items: Almost all important crops grown in the country were covered in the survey. Data on area under crops and their production in Main & Belg seasons, use of fertilizer by kind and quantity, amount of marketed production and its value by crop, area under temporary as well as permanent crops fallow land, pastoral land and number of livestock and poultry by kind, sex, and age were collected.

9. Time Reference: The data on the area under the crop related to the harvested period. Regarding the data on the number of livestock and poultry, the reference time was the date of enumeration.

III. THE SAMPLING PLAN

10. The Sample: A stratified random sampling design was adopted for the survey. The regions and awrajas were treated as geographical strata. Lists of Farmers' Associations (FAS). Settlement Areas(SAS) and number of members of the Farmers' Associations for each region or awraja were available at the Central Statistical Office. Within the awraja, a further classification of the FAS and SAS was done. In all, a total of 500 primary sampling units (PSUS), including the FAS and SAS, was randomly taken from the 12 regions (Excluding Eritrea and Tigrai).

11. Sample Allocation: The sample of 500 PSUS was allocated among the regions proportional to the number of weredas in each region. Within the awraja, a proportional allocation of the sample in each class of PSUS was done.

12. Sample Selection: The primary sampling units (PSUS) were selected without replacement. The selection of the Farmers' Associations was done with probability proportional to size, a measure of the size being the number of members in the FA. However, the settlement Areas were selected with probability proportional to the estimated size, the measure of the size being the estimated number of households in the SA.

13. All households and holdings in each selected PSU were listed and a simple random sample of 25 holdings was drown without replacement. Holders of those holdings were interviewed. Required data were collected by interrogating the holders.

14. Selection of Fields for Objective measurement: The fields with crops belonging to the selected holders in the selected PSU were grouped into three categories: Category (a) Fields with Teff, Barley and Maize. Category (b) Fields with wheat, sorghum and horse beans. Category (c) Fields with millet, chick peas, field peas, vetch and others.
Within each selected PSU, the cropped fields were classified by crop and the sample of the fields was taken from each class by following a linear systematic sampling. For the fields with teff, barley and maize, 4 was used as a sampling interval. However, 3 and 2 were the sampling intervals for the fields with the crops in category (b) and (c) respectively. For each crop an independent random start number was used.

15. Area Measurement: The fields selected as in para 14 were measured with the help of a compass, a measuring tape and ranging poles. First of all, the north-western corner of the field was located. Starting from this corner point, the distance between this point and the next north-eastern corner point was measured and the bearing of the second point from the first was read on the compass. The process was followed in a clock-wise direction.

16. Enumerators drew sketch maps of the measured fields on graph-papers indicating the measurements in chosen scales. Calculation of area of the fields was done in the field by the enumerators.
The formula used by them is noted below.

$$\text{Area of a measured field} = \frac{S.C^2}{4}$$

Where S stands for the total number of full and half or larger than half squares inside the sketch and C for the chosen scale.

Nevertheless, area calculation of the measured fields was also done by CASIO and HP calculators for editing and verification at the Central Statistical Office.

17. Selection of Fields for Crop-Cutting: A sub-sample of 50 percent of the fields selected for the area measurement was chosen from each class (Para 14) for crop-cutting. The method followed for the selection was the systematic random sampling. In each of those fields crop-cutting experiments were carried out in randomly selected two plots.

18. Location of a sample cut: The length and breadth of the selected field was measured in meters. By using a random numbers table of digits that of the 4 meters shorter length and breadth of the field, a pair of random numbers was selected. Those random numbers were used for locating a random start point of the first plot of 16 square meters in the field. With the help of framed ropes, pegs and the compass the 4 meters x 4 meters square plot was demarcated and the crop in the plot was harvested. Similarly, the second plot of 16 square meters was located and demarcated in the same field and the crop in that plot was harvested.

19. Taking weights after harvest: Immediately after threshing, grains were carried in separate bags with identification information like name of the crop, holding No., parcel and field No. and the plot number. The grains in the bags were weighed immediately after threshing if a balance-scale was available.

Other-wise, they were weighed or re-weighed after two-week drying and the weight was recored.

20. Co-operatives: The co-operatives existing in the selected 500 Farmers' Associations or settlement areas were completely enumerated. The data on the area under major crops and their production in Main and Belg seasons, use of fertilizer by kind and amount, amount of marketed production and its value by crop, area under temporary as well as permanent crops, fallow land, pastoral land and number of livestock by kind, sex and age were collected from the co-operative farmers.which were jointly operated by all members of the Farmers' Association. The area measurement and crop-cutting experiments were not conducted in the co-operative farms. The information, however, was obtained through the interview method.

21. State Farms: The required data about the state farms were compiled from the survey results (1972/73 E.C. Crop-year) published by planning Department, Agricultural Development Corporation, Ministry of State Farms in June, 1981, (Sene 1973 E.C.).

IV THE SURVEY OPERATION

22. Institutional Arrangement: The 1980/81 Agricultural Sample Survey was launched under the executing authority and general direction of the Manager, Central Statistical Office, Central Planning Supreme Council. With the assistance of FAO Experts, the Agricultural Statistics Department of the Central Statistical Office discharged its responsibility for the planning, preparation, execution, analysis and reporting of the agricultural survey. Prior to implementation, the agricultural survey programme was throughly discussed with the Statistical Planning and Methodology Department and the Inter-Departmental Technical Committee of the CSO.

23. Field Organization: Regional supervisors were stationed at the regional offices. They supervised the field supervisors based at the awraja offices. About 80 field supervisors worked full time, each supervising 6 or 7 enumerators in most cases. They were mobile and travelled between sample areas of the region and to the regional office. 500 high school graduate enumerators were locally recruited so as to ensure familiarity with the respondents' culture and language. Each of them were stationed in each of the 500 primary sampling units. The enumerator was mobile within his designated PSU, the average geographical area of which is about 800 hectares.

24. Training: All relevant materials were ready before the training was carried out. Questionnaires and instruction manuals for the supervisors as well as for the enumerators were prepared and printed. The training programme was launched in two phases. Staff of the CSO, the regional supervisors and some of the field supervisors were given intensive training, for two weeks, in concepts and statistical techniques to be followed in different phases of the survey at the Central Office, Addis Ababa. Those trained staff conducted similar training courses for the field

supervisors and enumerators at the regional offices. During the training, the purpose of the survey, methods of measurement, definition of the terms used and procedures of investigation were explained. The regional training extended for a period of about a fortnight.

25. Field Operation: The field work of the survey was carried out from mid-October, 1980 to mid-February, 1981. 12 regional supervisors, 80 field supervisors and 500 enumerators were engaged in the operation. A sample of 12,500 holdings in 500 Farmers' Associations/Settlement Areas were visited. Ground measurement of about 11,000 fields with different crops belonging to the holdings in the sample was done. About 4,000 crop-cutting experiments on temporary crops in the sub-sample of the fields were conducted.

26. Data Collection: Information on prepared schedules was collected by using a separate schedule for each holding. The data on area under different crops and their production in Main and BELG SEASONS, use of fertilizer by kind and quantity, amount of marketed production and it's value by crop, area under temporary as well as permanent crops, fallow land, pastoral land and number of livestock and poultry by kind, sex and age were collected by interrogating the holders.

27. In the main season, a sample of cropped fields was taken at random and the physical measurement of the fields was done. Yield rates were determined by conducting the crop-cutting experiments on the temporary crops in the sub-sample of the fields, when the crops were ready for harvest. Identification of the fields and visit to them were made through the holders possessing them.

28. Supervision: The regional supervisors supervised the field supervisors. The field supervisors travelled between

sample areas within the region of their assignment and to the regional office. Each of them supervised the work of 6 or 7 enumerators in most cases, the mode of transportation being mules, particularly in the areas at high altitudes. During the field work of the survey, senior officers and experienced senior supervisors from the Central Statistical Office were sent as inspectors. They inspected field activities and supervised the field staff.

29. Survey Equipments and Vehicles: 500 sets of necessary survey equipments (chain, compass, protractor, ruler, poles, ropes, measuring tape balance-scale, etc.) were made available to the enumerators. In order to facilitate the field work and to standardize the quality of the data collected, 53 vehicles were put on operation during the field work of the agricultural sample survey. The vehicles were used by the supervisory staff and also for transporting survey materials.

30. Editing and coding: The manuals of instructions for editing and coding of questionnaires were prepared. The questionnaires were edited and coded by the regular staff of the CSO. However, upon a sample check of the questionnaires belonging to the randomly selected 500 holdings, a magnitude of 37 percent error was observed. Hence, 6 university students were recruited and they were given intensive training in editing and coding procedures for four days. They re-edited and re-coded all questionnaires under two senior supervisors. Measures were taken to keep the editing and coding errors down to a minimum. The re-edited and re-coded questionnaires were inter-changed among the students for checking. Nevertheless, the sample of the work done by the students was re-checked by the senior supervisors. Accordingly, 100 percent checking at the level of the students and 40 to 50 percent checking at the level of the supervisors were accomplished.

31. Tabulation: There was a considerable range of possibilities for preparing out-put tables of the agricultural sample survey of 1980/81. However, time and cost factors and limitations due to sample size restricted the number of the tables which could be produced. Afterall, a set of the tables for presenting the statistics on cropping pattern, distribution of holdings by type and land utilization, area under and production of different crops, marketed produce, fertilizer and livestock for different size of holdings were prepared.

V. ESTIMATION PROCEDURES

32. Estimation is guided by the manner in which the sample has been selected. Sample selection, data collection and estimation are all interwoven and each has impact on the other. Having followed a set of rules for sample selection, the estimation process can not be considered independent of it.

33. Estimation of a reported characteristic in private holdings

The following formula was used for estimating a particular characteristic in an awraja. Before applying the formula, all data on the reported particular characteristic needed for estimation were converted to a common unit for the awraja. The awraja estimates were reduced to a common standard unit before adding them to get regional estimates or national estimate.

Let X_{ij} = a total of a characteristic reported by the j^{th} selected holder in the i^{th} selected FA/SA

m_i = number of holders selected in the i^{th} selected FA/SA

M_i = total number of holders in the i^{th} selected FA/SA

P_i = probability of selection of the i^{th} selected FA/SA

n = number of FAS/SAS selected in the awraja

$\bar{X}_i = \sum_{j=1}^{m_i} \frac{X_{ij}}{m_i}$ = estimate of the characteristic per private holder in the i^{th} selected FA/SA

$\hat{X} = \frac{1}{n} \sum_{i=1}^{n} \frac{M_i \bar{X}_i}{P_i}$ = estimate of the characteristic in the awraja

$$\hat{Var.}(\hat{X}) = \frac{1}{n^2(n-1)} \left[\sum_{i=1}^{n} \left(\frac{M_i \bar{X}_i}{P_i} \right)^2 - \left(\sum_{i=1}^{n} \frac{M_i \bar{X}_i}{P_i} \right)^2 \right]$$

$\hat{S.E.}(\hat{X}) = \sqrt{Var(\hat{X})}$ = Standard Error

$\hat{C.V.}(\hat{X}) = 100 \frac{\hat{S.E}(\hat{X})}{\hat{X}}$ = Relative standard error

34. Estimation of a reported characteristic in co-operatives: The formula given below was used for estimating the characteristic in an awraja. Before applying the formula, all data on the particular characteristic needed for estimation were converted to a common unit for the awraja. The awraja estimates were reduced to a standard unit before adding them to get regional estimates or national estimate.

Let X_{ij} = a total of a characteristic in the j^{th} co-operative in the i^{th} selected PA/SA

M_i = total number of co-operatives in the i^{th} selected PA/SA

p_i = probability of selection of the i^{th} selected PA/SA

n = number of PAS/SAS selected in the awraja

$$\hat{X}_i = \sum_{j=1}^{M_i} X_{ij} = \text{estimate of the characteristic in the } i^{th} \text{ selected PA/SA}$$

$$\hat{\bar{X}} = \frac{1}{n} \sum_{i=1}^{n} \frac{\hat{X}_i}{p_i} = \text{Estimate of the characteristic in the awraja}$$

$$\hat{Var.}(\hat{\bar{X}}) = \frac{1}{n^2(n-1)} \left[n \sum_{i=1}^{n} \left(\frac{\hat{X}_i}{p_i} \right)^2 - \left(\sum_{i=1}^{n} \frac{\hat{X}_i}{p_i} \right)^2 \right]$$

$$\hat{S.E.}(\hat{\bar{X}}) = \sqrt{\hat{Var}(\hat{\bar{X}})} = \text{Standard Error}$$

$$\hat{C.V.}(\hat{\bar{X}}) = 100 \frac{\hat{S.E.}(\hat{\bar{X}})}{\hat{\bar{X}}} = \text{Relative standard error}$$

35. Measured area under a crop in private holdings: The following formula was used for estimating the area under a particular crop in an awraja. Before applying the formula, all data on area needed for estimation were in a common unit for the awraja. The awraja estimates were in a standard unit such as a hectare before adding them to get regional estimates or national estimate.

Let X_{ij} = measured area of the j^{th} field with a crop in the i^{th} selected FA/SA

l_i = number of measured fields with the crop in the i^{th} selected FA/SA

L_i = total number of fields with the crop belonging to the selected holders in the i^{th} selected FA/SA

m_i = number of holders selected in the i^{th} selected FA/SA

M_i = total number of holders in the i^{th} selected FA/SA

p_i = probability of selection of the i^{th} selected FA/SA

n = number of FAS/SAS selected in the awraja

$\therefore \quad \bar{X}_i = \frac{L_i}{m_i} \sum_{j=1}^{l_i} \frac{X_{ij}}{l_i}$ = area under the crop per private holder in the i^{th} selected FA/SA

and $\hat{X}_i = M_i \bar{X}_i$ = area under the crop in the i^{th} FA/SA

$$\hat{X} = \frac{1}{n} \sum_{i=1}^{n} \frac{M_i \bar{X}_i}{p_i}$$ = area under the crop in the awraja

$$\hat{Var}.(\hat{X}) = \frac{1}{n^2(n-1)} \left[n \sum_{i=1}^{n} \left(\frac{M_i \bar{X}_i}{p_i} \right)^2 - \left(\sum_{i=1}^{n} \frac{M_i \bar{X}_i}{p_i} \right)^2 \right]$$

$\hat{S}.\hat{E}.(\hat{X}) = \sqrt{Var(\hat{X})}$ = standard error

$\hat{C}.\hat{V}.(\hat{X}) = 100 \frac{S.E.(\hat{X})}{\hat{X}}$ = Relative standard error

36. Measured Yield of a crop in private holdings: The formula used for the estimation of production of a crop for an awraja is given below. Before applying the formula, the area and the yield data from all cuts of the crop in the awraja were reduced to the same units for area and for weight.

Let Y_{ij} = yield per unit area of a crop from the j^{th} cut in the i^{th} PA/SA

n_i = number of crop-cuttings on the crop in the j^{th} selected PA/SA

X_{ij} = measured area of the j^{th} field with the crop in the i^{th} selected PA/SA

l_i = number of measured fields with the crop in the i^{th} selected PA/SA

L_i - total number of fields with the crop belonging to the selected holders in the i^{th} selected PA/SA

m_i = number of holders selected in the i^{th} selected PA/SA

M_i = total number of holders in the i^{th} selected PA/SA

p_i = probability of selection of the i^{th} PA/SA

n = number of PAS/SAS in the awraja

$\bar{X}_i = \frac{L_i}{m_i} \sum_{j=1}^{l_i} \frac{X_{ij}}{l_i}$ = area under the crop per private holder in the i^{th} selected PA/SA

and $\hat{X}_i = M_i \bar{X}_i$ = area under the crop in the i^{th} selected PA/SA

$\bar{Y}_i = \sum_{j=1}^{n_i} \frac{Y_{ij}}{n_i}$ = average yield rate for the i^{th} selected PA/SA

$\therefore \hat{P}_i = \hat{X}_i \bar{Y}_i$ = production of the crop for the i^{th} selected PA/SA

$$\hat{P} = \frac{1}{n} \sum_{i=1}^{n} \frac{\hat{P}_i}{p_i} = \text{production of the crop for the awraja}$$

$$\hat{V}ar.(\hat{P}) = \frac{1}{n^2(n-1)} \left[n \sum_{i=1}^{n} \left(\frac{\hat{P}_i}{p_i} \right)^2 - \left(\sum_{i=1}^{n} \frac{\hat{P}_i}{p_i} \right)^2 \right]$$

$$\hat{S}.\hat{E}.(\hat{P}) = \sqrt{\hat{V}ar.(\hat{P})}$$

$$\hat{C}.\hat{V}.(\hat{P}) = 100 \frac{\hat{S}.\hat{E}.(\hat{P})}{\hat{P}} = \text{Relative standard error}$$

37. For the awraja estimate, separate estimates for the FAS and SAS were worked out and then aggregated. The regional and national estimates were obtained by the total of the awraja estimates which comprised the region or nation as the case might be. The variance of the region or national estimate was calculated by adding the variances of the corresponding awraja estimates. The standard error of the estimate was the square root of the variance. The relative standard error of the estimate was obtained by dividing the standard error of the estimate by the estimate and multiplying the quotient by 100

APPENDIX I

Basic Concepts and Definitions

In order to standardise the data the same concepts and definitions should be applied during every interview. This section gives the concepts and definitions that are used in the Agricultural Sample Survey. You have to read them carefully.

HOLDER

A holder is a person who exercises management control over the operations of the agricultural holding and takes the major decision regarding the utilization of the available resources. He has technical, and economic responsibility for the holding. He may operate the holding directly as an owner or as a manager.

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

HOLDING

A holding is all the land which is used wholly or partly for agricultural production and is operated as one technical unit by one person alone, or with others, without regard to title, legal form, size or location.

HOUSEHOLD

A household may be either:

a) a one-person household, that is, a person who makes provision for his own food or other essentials for 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 provision for food or other essentials for 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. (refer also to Form ASS-1 for more detailed definition).

PARCEL

A parcel is any place of land in the holding entirely surrounded by land, water, road, forest etc. not forming part of this holding. It may consist of one or more cadastral units, plots or fields adjecent to each other.

FIELD

A field is any plot of land under the same crop which is part of the parcel.

TEMPORARY CROPS

Temporary crops are those crops which are grown with a cycle or under one year, sometimes only a few months with a view to be sown newly or planted for further production after the harvest. Similarly, crops grown in rotation are also considered temporary crops as these are destroyed when land is ploughed.

PERMANENT CROPS

Crops which occupy land for a long period of time and are not planted for several years after each harvest are considered as permanent crops. All fruit trees (e.g. oranges, mandarins, apples etc.), trees used for beverages (like coffee, cocoa, tea etc.) and other trees like coconut, olive, rubbers are considered as permanent crops. Permanent meadows and plastures, however, are excluded.

Co-operatives

A holding is said to be operated by a co-operative if it is operated by a body consituted under existing national legislation. This includes co-operative farms which are jointly operated by all members of Farmers Association.

APPENDIX II

FORMS FOR SAMPLE SELECTION

FORM - ASS - I

I - IDENTIFICATION PARTICULARS

1			2			3			4			
REGION			AWRAJA			WEREDA			FARMERS' ASSOCIATION / SETTLEMENT AREA			
	4	5		6	7		8	9		10	11	12

2 - COMPLETE LIST OF HOUSEHOLDS AND HOLDERS

1				2	3	4	5	6				7		
SERIAL NUMBER OF HOUSEHOLD				NAME OF THE HEAD OF THE HOUSEHOLD	SERIAL Nº OF HOLDER WITHIN H.H	NAME OF THE HOLDER	TYPE OF HOLDER C=1, L=2, CL=3	CONSECUTIVE SERIAL NUMBER IN FA/SA						
								HOLDERS				OTHERS		
13	14	15	16		17		18	19	20	21	22	23	24	25

P.T.O.

2 - COMPLETE LIST OF HOUSEHOLDS AND HOLDERS

1				2	3	4	5	6				7		
SERIAL NUMBER OF HOUSEHOLD				NAME OF THE HEAD OF THE HOUSEHOLD	SERIAL Nº OF HOLDER WITHIN H.H	NAME OF THE HOLDER	TYPE OF HOLDER C=1, L=2, CL=3	CONSECUTIVE SERIAL NUMBER IN FA / SA						
								HOLDERS				OTHERS		
13	14	15	16		17		18	19	20	21	22	23	24	25

CENTRAL STATISTICAL OFFICE

FORM - ASS-2

INTEGRATED SYSTEM OF FOOD AND AGRICULTURAL STATISTICS

LIST OF SAMPLED HOLDERS IN THE SELECTED FA/SA 1980/81 (1973 E.C)

(FOR PRIVATE HOLDINGS)

1- IDENTIFICATION PARTICULARS

1	2	3	4
REGION	AWRAJA	WEREDA	FA / SA

2- LIST OF SAMPLED HOLDERS

	2	3	4	5	6
ID NUMBER FROM (ASS-1 COL.1)	SR. NO. OF THE HOLDER (ASS-1 COL.6)	SR. NUMBER OF SAMPLE HOLDER	NAME OF HOLDER (ASS-1 COL.4)	TYPE OF HOLDING (ASS-1 COL.5)	REMARKS

	ENUMERATOR	SUPERVISOR	REGIONAL SUPERVISOR
NAME			
SIGNATURE			
DATE	/ /	/ /	/ /

P. T. O.

2- LIST OF SAMPLED HOLDERS

1	2	3	4	5	6
IL NUMBER FROM (ASS-I COL.1)	SR. NO. OF THE HOLDER (ASS-I COL.6)	SR. NUMBER OF SAMPLE HOLDER	NAME OF HOLDER (ASS-I COL.4)	TYPE OF HOLDING (ASS-I COL.5)	REMARKS

CENTRAL STATISTICAL OFFICE

FORM-ASS-6

INTEGRATED SYSTEM FOOD AND AGRICULTURAL STATISTICS
COMPLETE LSIT OF FIELDS AND LIST OF SAMPLED FIELD BY CROP AT FARMERS' ASSOCIATION LEVEL 1980/81 (1973 E.C.)
(FOR PRIVATE HOLDINGS)

JOB ID

1	2	3
1	0	7

1- IDENTIFICATION PARTICULARS

1		2		3		4			5	
REGION		AWRAJA		WEREDA		FARMERS' ASSO.			NAME OF CROP	
	4 5		6 7		8 9		10 11	12		13 14

2- LIST OF FIELDS

1			2		3		4				5	6	7			8			9
IDENTIFICATION NUMBER OF(ASS 4 1/9, 3/1,2)							SERIAL NUMBER OF TOTAL FIELDS				TICK SELECTED FIELD FOR		SERIAL NUMBER OF SELECTD FIELD FOR						REMARKS
HOLDING			PARCEL		FIELD						AREA MEASURE-MENT	CROP CUTTING	AREA MEASURE-MENT			CROP CUTTING			
15	16	17	18	19	20	21	22	23	24	25			26	27	28	29	30	31	

	ENUMERATOR	SUPERVISOR	REGIONAL SUPERVISOR
NAME			
SIGNATURE			
DATE	/ /	/ /	/ /

2- LIST OF FIELDS

1			2		3		4				5	6	7			8			9
IDENTIFICATION NUMBER OF(ASS 4 1/9, 3/1,2)							SERIAL NUMBER OF TOTAL FIELDS				TICK SELECTED FIELD FOR		SERIAL NUMBER OF SELECTED FIELD FOR						REMARKS
HOLDING			PARCEL		FIELD						AREA MEASUREMENT	CROP CUTTING	AREA MEASUREMENT			CROP CUTTING			
15	16	17	18	19	20	21	22	23	24	25			26	27	28	29	30	31	

APPENDIX III

SURVEY QUESTIONNAIRES FOR INTERVIEW

FORM–ASS– 4

CENTRAL STATISTICAL OFFICE

INTEGRATED SYSTEM OF FOOD AND AGRICULTURAL STATISTICS
LAND UTILIZATION AND CROP PRODUCTION SCHEDULE 1980/81 (1973 E.C)
(FOR PRIVATE HOLDINGS)

JOB ID: 1 2 3 = 1 0 3

1-IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9
REGION	AWRAJA	WEREDA	FARMER'S' ASSO.	HOLDING NUMBER	NAME OF HOLDER	SIZE OF HOLDER'S HOUSEHOLD	No. OF PERMANENT WORKERS IN AGRICUL	SERIAL NUMBER
4 5	6 7	8 9	10 11 12	13 14 15		16 17	18 19	20 21 22

2-LAND UTILIZATION

1	2	3	4	5	6	7	8	9
TEMPORARY CROP LOCAL UNITS			PERMANENT CROP LOCAL UNITS			FALLOW LAND LOCAL UNITS		
NAME	CODE	QUANTITY	NAME	CODE	QUANTITY	NAME	CODE	QUANTITY
	23 24	25 26 27 28 29		30 31	32 33 34 35 36		37 38	39 40 41 42 43

10	11	12	13	14	15	16	17	18	19
PASTORAL LAND LOCAL UNITS			OTHER LAND LOCAL UNITS			TOTAL AREA LOCAL UNITS			BELG CROP YES=1 NO=2
NAME	CODE	QUANTITY	NAME	CODE	QUANTITY	NAME	CODE	QUANTITY	
	44 45	46 47 48 49 50		51 52	53 54 55 56 57		58 59	60 61 62 63 64	65

	ENUMERATOR	SUPERVISOR	REGIONAL SUPERVISOR
NAME			
SIGNATURE			
DATE	/ /	/ /	/ /

IF "YES" IN COLUMN 19
COMPLETE FORM-ASS–5

P·T·O·

1	2	3
1	0	4

3 - GENERAL CHARACTERISTICS OF FIELDS, CROPS, PRACTICES AND PRODUCTION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
LINE NO.	SR. NO. OF PARCEL	SR. NO. OF FIELD	NAME OF CROP: TEMPORARY = 1, PERMANENT = 2	CROP CODE	AREA UNDER CROP: LOCAL UNITS NAME	AREA UNDER CROP: LOCAL UNITS CODE	AREA UNDER CROP: LOCAL UNITS QUANTITY	IS FERTILIZER APPLIED YES = 1, NO = 2	IF YES COMM = 1, NAT = 2, BOTH = 3	COMMERCIAL FERTILIZERS: TYPE DAP = 1, UREA = 2	COMMERCIAL FERTILIZERS: NUMBER OF BAGS	SEEDING RATE: LOCAL UNITS NAME	SEEDING RATE: LOCAL UNITS CODE	SEEDING RATE: LOCAL UNITS QUANTITY
23	24 25	26 27		28 29 30		31 32	33 34 35 36 37	37	39	40	41 42 43		44 45	46 47 48 49 50
1														
2														
3														
4														
5														
6														
7														
8														

16	17	18	19	20	21	22	23	24	25	26	27
LINE NUMBER	NAME OF CROP	NO. OF TREES APPLICABLE TO PERMANENT CROPS LIKE COFFEE, ENSET	PRODUCTION: LOCAL UNITS NAME	PRODUCTION: LOCAL UNITS CODE	PRODUCTION: LOCAL UNITS QUANTITY	PRODUCT SOLD OR TO BE SOLD: LOCAL UNITS NAME	PRODUCT SOLD OR TO BE SOLD: LOCAL UNITS CODE	PRODUCT SOLD OR TO BE SOLD: LOCAL UNITS QUANTITY	PRODUCT SOLD OR TO BE SOLD: PRICE PER LOCAL UNIT BIRR / ₵	IS CROP DAMAGED YES = 1, NO = 2	IF YES REASON FOR DAMAGE	CODE
51	52 53 54		55 56	57 58 59 60 61		62 63	64 65 66 67 68		69 70 71 72 73	74		75
1												
2												
3												
4												
5												
6												
7												
8												

CENTRAL STATISTICAL OFFICE

FORM - ASS - 5

INTEGRATED SYSTEM OF FOOD AND AGRICULTURAL STATISTICS

BELG AND IRRIGATED CROPS SCHEDULE 1980/81 (1973 E.C)

(FOR PRIVATE HOLDINGS)

JOB I.D.

1	2	3
1	0	6

1 - IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9
REGION	AWRAJA	WEREDA	FARMERS' ASSOCIAT.	HOLDING NUMBER	NAME OF HOLDER	SIZE OF HOLDER'S HOUSEHOLD	NUMBER OF PERMANENT WORKERS IN AGRICU.	SERIAL NUMBER
[illegible]	[illegible]	[illegible]	[illegible]	149	[illegible]	07	02	006

2 - BELG CROPS (RAINFED)

LINE NUMB.	2 SERIAL Nº OF PARCEL	3 SERIAL Nº OF FIELD	4 NAME OF CROP (TEMPORARY = 1, PERMANENT = 2)	5 CROP CODE	6 AREA UNDER CROP LOCAL UNITS NAME	7 AREA UNDER CROP LOCAL UNITS CODE	8 AREA UNDER CROP LOCAL UNITS QUANTITY	9 SEEDING RATE LOCAL UNITS NAME	10 SEEDING RATE LOCAL UNITS CODE	11 SEEDING RATE LOCAL UNITS QUANTITY	12 PRODUCTION LOCAL UNITS NAME	13 PRODUCTION LOCAL UNITS CODE	14 PRODUCTION LOCAL UNITS QUANTITY
23	25	26 27		28 29 30		31 32	33 34 35 36 37		38 39	40 41 42 43 44		45 46	47 48 49 50 51
1													
2													
3													
4													
5													

3 - IRREGATED CROPS (FOR 2nd & 3rd IRRIGATED)

1	2	3
1	0	6

23	24	25	26	27		28	29	30		31	32	33	34	35	36	37		38	39	40	41	42	43	44		45	46	47	48	49	50	51
1																																
2																																
3																																

FORM-ASS-10

CENTRAL STATISTICAL OFFICE

INTEGRATED SYSTEMS OF FOOD AND AGRICULTURAL STATISTICS
LIVESTOCK AND POULTRY SCHEDULE 1980/81 (1973 E.C.)
(FOR PRIVATE HOLDINGS)

JOB ID

1	2	3
1	1	0

1. IDENTIFICATION PARTICULARS

1	2	3	4	5	6	7	8	9
REGION	AWRAJA	WEREDA	FARMERS' ASSO	HOLDING NUMBER	NAME OF HOLDER	SIZE OF HOLDERS HOUSEHOLD	NO OF PERMANENT WORKERS IN AGRICUL.	SERIAL NUMBER
4 5	6 7	8 9	10 11 12	13 14 15		16 17	18 19	20 21 22

2. HORSES, MULES, ASSES, AND CAMELS

1	2	3	4
SR NO	CLASSIFICATION	MALE	FEMALE
0 1	HORSES ALL AGES	23 24 25	26 27 28
0 2	HORSES UNDER 3 YEARS	29 30 31	32 33 34
0 3	HORSES 3 YEARS & OVER	35 36 37	38 39 40
0 4	ASSES ALL AGES	41 42 43	44 45 46
0 5	ASSES UNDER 3 YEARS	47 48 49	50 51 52
0 6	ASSES 3 YEARS & OVER	53 54 55	56 57 58
0 7	MULES ALL AGES	59 60 61	62 63 64
0 8	CAMELS ALL AGES	65 66 67	68 69 70
0 9	CAMELS UNDER 4 YEARS	71 72 73	74 75 76
1 0	CAMELS 4 YEARS & OVER	77 78 79	80 81 82

1	2	3
1	1	1

3. POULTRY, PIGS, AND BEEHIVES

1	2	3	4	5
SR NO	CLASSIFICATION	MALE	FEMALE	TOTAL
0 1	HENS & PULLETS		23 24 25 26	
0 2	COCKS & COCKRELS	27 28 29 30		31 32 33 34
0 3	CHICKS			
0 4	DUCKS	35 36 37 38	39 40 41 42	
0 5	TURKEYS	43 44 45 46	47 48 49 50	
0 6	GEESE	51 52 53 54	55 56 57 58	
0 7	PIGS ALL AGES	59 60 61 62	63 64 65 66	
0 8	PIGS UNDER 6 MONTHS	67 68 69 70	71 72 73 74	
0 9	PIGS 6 MONTHS & OVER	75 76 77 78	79 80 81 82	
1 0	BEEHIVES			83 84

P.T.O.

)B ID

2	3
!	2

4· CATTLE

!	2	3		
SR·NO		CLASSIFICATION	TOTAL	
0	1	CATTLE ALL AGES (A+B)	23	24 25
0	2	TOTAL FEMALES (A)	26	27 28
0	3	FEMALE CALVES UNDER 1 YEAR	29	30 31
0	4	FEMALE YEARLING: 1 TO LESS THAN 2 YEARS	32	33 34
0	5	HEIFERS 2 LESS THAN 3 YEARS	35	36 37
0	6	HEIFERS : 3 TO LESS THAN 4 YEARS	38	39 40
0	7	COWS 4 YEARS AND OVER	41	42 43
0	8	TOTAL MALES (B)	44	45 46
0	9	MALE CALVES UNDER 1 YEAR	47	48 49
1	0	MALE CATTLE 1 TO LESS THAN 2 YEARS	50	51 52
1	1	MALE CATTLE 2 TO LESS THAN 3 YEARS	53	54 55
1	2	MALE CATTLE 3 TO LESS THAN 4 YEARS	56	57 58
1	3	BULLS 4 YEARS AND OVER	59	60 61
1	4	OXEN 4 YEARS AND OVER	62	63 64

JOB ID

1	2	3
1	1	3

5· SHEEP AND GOATS

1		2	3			4		
SR·NO		CLASSIFICATION	MALE			FEMALE		
0	1	SHEEPS ALL AGES	23	24	25	26	27	28
0	2	LAMBS UNDER 1 YEAR	29	30	31	32	33	34
0	3	SHEEP 1 YEAR AND OVER	35	36	37	38	39	40
0	4	GOATS ALL AGES	41	42	43	44	45	46
0	5	GOATS UNDER 1 YEAR	47	48	49	50	51	52
0	6	GOATS 1 YEAR AND OVER	53	54	55	56	57	58

REMARKS

	ENUMERATOR	SUPERVISOR	REG· SUPERVISOR
NAME			
SIGNATURE			
DATE	/ /	/ /	/ /

APPENDIX IV

FORMS FOR OBJECTIVE MEASUREMENT

IELD AREA MEASUREMEN.

FORM—ASS—7

[1] Region _____ [2] Awraja _____

[3] Woreda _____ [4] Farm Ass. _____

[5] Holding No. _____ [6] Parcel No. _____

[7] Crop _____ [8] Field No. _____

Side	A–B	B–C	C–	D–	E–	F–	G–	H–	I–	J–
Bearing (o)										
Distance (m)										

Scale: 1cm _____ meters

Number of squares: full _____ Half or larger _____

Total squares _____

Field area _____ square meters

Drawn by	Date

CENTRAL STATISTICAL OFFICE

FORM-ASS-8

INTEGRATED SYSTEM OF FOOD AND AGRICULTURAL STATISTICS

AREA MEASUREMENT RECORD 1980/81 (1973 E.C.)

(FOR PRIVATE HOLDINGS)

JOB ID

1	2	3
1	0	8

1- IDENTIFCATION PARTICULARS

1		2		3		4			5	
REGION		AWRAJA		WEREDA		FARMERS' ASSO.			NAME OF CROP	
	4 5		6 7		8 9		10 11	12		13 14

2- DETAILS OF AREA MEASUREMENTS

1			2			3		4		5	6	7					8				
SERIAL NUMBER			HOLDING NUMBER			PARCEL NO.		FIELD NO.		LOCAL UNITS							ACTUAL AREA IN HECTARES				
										NAME	CODE	ACTUAL AREA									
15	16	17	18	19	20	21	22	23	24		25	26	27	28	29	30	31	32	33	34	35	36

	ENUMERATOR	SUPERVISOR	REGIONAL SUPERVISOR
NAME			
SIGNATURE			
DATE	/ /	/ /	/ /

P·T·O

2- DETAILS OF AREA MEASUREMENTS

1			2			3		4		5	6	7					8				
SERIAL NUMBER			HOLDING NUMBER			PARCEL No		FIELD No		LOCAL UNITS							ACTUAL AREA IN HECTARES				
										NAME	CODE	ACTUAL AREA									
15	16	17	18	19	20	21	22	23	24		25	26	27	28	29	30	31	32	33	34	35	36

CENTRAL STATISTICAL OFFICE

FORM-ASS-9

INTEGRATED SYSTEM OF FOOD AND AGRICULTURAL STATISTICS

CROP YIELD RESULTS 1980/81 (1973 E.C)

(FOR PRIVATE HOLDINGS)

JOB I.D.

1	2	3
1	0	9

1- IDENTIFICATION PARTICULARS

1	2	3	4	5
REGION	AWRAJA	WEREDA	FARMERS' ASSOCIATION	NAME OF CROP
X 4 5	X 6 7	X 8 9	X 10 11 12	X 13 14

2- DETAILS OF CROP CUTTING RESULTS

1	2	3	4	5	6	7	8
SERIAL NUMBER	IDENTIFICATION NUMBER OF			TRESHING		TWO WEEKS OF DRYING	
	HOLDING	PARCEL	FIELD	FIRST PLOT IN KG.	SECOND PLOT IN KG.	FIRST PLOT IN KG.	SECOND PLOT IN KG.
15 16 17	18 19 20	21 22	23 24	25 26 27 28	29 30 31 32	33 34 35 36	37 38 39 40

	ENUMERATOR	SUPERVISOR	REGIONAL SUPERVISOR
NAME			
SIGNATURE			
DATE	/ /	/ /	/ /

P.T.O.

2 - DETAILS OF CROP CUTTING RESULTS

1	2			3		4		5				6				7				8			
SERIAL NUMBER	IDENTIFICATION NUMBER OF							TRESHING								TWO WEEKS OF DRYING							
	HOLDING			PARCEL		FIELD		FIRST PLOT IN KG.				SECOND PLOT IN KG.				FIRST PLOT IN KG.				SECOND PLOT IN KG.			
15 16 17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

APPENDIX V

CONTROL SHEETS

ASS - 80/81

Enum. Cont. -1

ENUMERATOR'S RECORD SHEET

1. Enumerator _____ 2. EA/SA _____

3. Region _____ 4. Awraja _____ 5. Wereda _____

Date		Activity description	Remarks
Started	Completed		
(1)	(2)	(3)	(4)

Enumerator
Name
Signature
Date

Field Supervisor
Name
Signature
Date

ASS - 80/81 Samp.Cont. -S1

CONTROL SHEET OF HOLDER'S/HOUSEHOLD'S SELECTION

1. Region _____ 2. Awraja _____

3. Wereda _____ 4. FA/SA _____

1. Name of enumerator _____

2. When preparation of Form ASS -1 was:

a) started ___/___/___

b) completed ___/___/___

3. What is the total number of

a) holders in the FA/SA(on Form ASS -1) _____

b) households in the FA/SA(on Form ASS -1) _____

4. Have households/holders on Form ASS-1 cols. 1 and 6 respectively been numbered according to instruction (yes, no): _____

5. Date of

a) holders selection(on Form ASS-2 ___/___/___

b) households selection(on Form ASS-3) ___/___/___

6. Field supervisor's remarks on sample selection:

_____

_____

_____

_____

_____

	FIELD SUPERVISOR'S
Name	
Signature	
Date	___/___/___

ASS - 80/81 Progr. Cont. -S2

FIELD -WORK PROGRESS SHEET

1. Region _____ 2. Awraja _____
3. Wereda _____ 4. FA/SA _____

1. Name of enumerator: _____
2. Field supervision from: _____ to _____
3. How many holders have been selected(Form ASS -2): _____
4. How many holders have been already interviewed: _____
5. Number of completed forms:

ASS -4 _____ ASS -5 _____ ASS- 6 _____ ASS -7 _____
ASS -8 _____ ASS -9 _____ ASS-10 _____

6. How many fields have been measured _____
7. How many crop-cutting experiments have been conducted _____
8. Number of non-response:

a) interviews: total _____ of which refusals _____
b) field measurements: total _____ if which refusals

_____

c) crop-cutting exp's: total _____ of which refusals

_____

9. Has the enumeratof been keeping "Enumerator's Record Sheet" up - to- date (yes, no) _____ (if no, instruct him to do it as expected)
10. Remarks on survey equipments _____
11. Remarks on transportation _____
12. Remarks on financial matters _____
13. General Remarks _____

_____

_____

	FIELD SUPERVISOR
Name	
Signature	
Date	

ASS -80/81 SUMMARY OF RESULTS Summ. Cont.-S3

1. Region _____ 2. Awraja _____
3. Wereda _____ 4. FA/SA _____

(One for each FA/SA. To be completed by the field supervisors, at the end of work in the FA and to be sent to Headquarters)

1. Enumerator: _____ 2. Field Supervisor: _____
3. Date field work began in the FA: _____
4. Total number of

a) holders in the FA/SA(on Form ASS -1) _____
b) households in the FA/SA(on Form ASS -1)_____

5. Total number of selected
   a) holders in the FA/SA(on Form ASS -2) _____
   b) households in the FA/SA(on Form ASS -3)_____
6. Number of completed interviews for
   a) holders _____
   b) households _____
7. Number of completed forms:
   ASS -4 ____, ASS -5 ____, ASS-6_____, ASS-7____, ASS-8 _____,
   ASS -9 ____, ASS -10_____
8. Total number of incomplete interviews for
   a) holders: _____ of which refusal: _____
   b) households: _____ of which refusal: _____
9. Number of field-area measurements(Form ASS-7):____
   of which refusals _____
10. Number of crop-cutting experiments:_____ of which refusals _____
11. Number of holders interviews:scrutinized:_____
    spot checked: _____
    re-interviewed: _____
12. Number of fields area measurements: scrutinized:_____
    spot checked: _____
    re-interviewed: _____
13. Field Supervisor's remarks _____

_____

Signature of Field Supervisor _____ Date ____/____/____