

FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA  
CENTRAL STATISTICAL AUTHORITY

AGRICULTURAL SAMPLE SURVEY  
1996/97 (1989 E.C.)

REPORT ON



FORECAST OF AREA AND PRODUCTION OF MAJOR  
CROPS

(FOR PRIVATE PEASANT HOLDINGS)

ADDIS ABABA  
DECEMBER, 1996

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# CROP PRODUCTION FORECAST 1996/97 (1989 E.C.)

## 1. INTRODUCTION

Like many other developing countries, in Ethiopia agriculture is the backbone of the country's economy. It contribute about 55 percent of the GDP, 60 percent of merchandise exports and 80 percent of employment. Besides its contribution as the main income generating sector for the majority of the rural population, it also serves as the main source for household consumption.

Hence, food availability in Ethiopia, to a very large extent determined by its domestic crop production. Therefore, timely crop production forecast prior to harvest is of a great importance to the government and non-government organizations. It helps these organizations to plan and take all necessary measures such as administering exports or imports, management of stocks and distributing of food to different regions, regulation of prices both at the time of surplus and/or deficits,...etc.

From scientific point of view, a forecast of crop production can be defined as a statement of the most probable production of the crop which will be obtained from the coming harvest.

The Central Statistical Authority has been conducting crop production forecast survey annually, since 1980/81 (1973 E.C.), except for the last three consecutive years i.e. 1992/93 - 1994/95 (1985 - 1987 E.C.). This was due to the huge task of the preparatory and the actual enumeration work of the 1994 National Population and Housing Census. However, starting from 1995/96 (1988 E.C.) the Central Statistical Authority has resumed conducting the annual crop production forecast survey in all regions of the country.

This report presents basic information of crop production forecast for 1996/97 (1989 E.C.) i.e. for meher season harvest.

The report shows area coverage and expected production of major crops for the coming harvest at country, regional and group of zones which are taken as reporting levels.

## 2. OBJECTIVE OF THE SURVEY.

The objective of the crop production forecast survey is to collect basic quantitative information on area and expected production of major crops. The quantitative information that show the expected production of 1996/97 (1989 E.C.) meher season prior to harvest is considered to be essential for policy makers and administrators to prepare policies and take timely measures such as administering exports or imports, management of stocks and distributing of food to different regions, regulation of prices at the time of surplus and/or deficits,...etc.

## 3. COVERAGE OF THE SURVEY.

The 1996/97 (1989 E.C.) annual crop production forecast was designed to cover **sedentary rural** agricultural population in all regions of the country. A total of 54 zones and 367 weredas were covered in the survey. The areal coverage of the survey is given in Table A.

A total of 705 enumeration areas were selected to be covered in the survey in all regions. However, the report is based on 692 enumeration areas(EAs). In the remaining 11 EA's the holder or (respondents) could not report on time due to late sowing in these E.A's later than mid- October 1996 or due to some other reasons. In each EA a sample of 25 agricultural households, were selected resulting a total of 17,300 households.

**TABLE A. AREAL COVERAGE OF THE 1996/97 (1989 E.C.) CROP PRODUCTION FORECAST SURVEY <sup>1</sup>**

REGION	NUMBER OF ZONES		NUMBER OF WEREDAS	
	TOTAL	COVERED IN THE SURVEY	PLANNED TO BE COVERED IN THE SURVEY	COVERED IN THE SURVEY
TIGRAY <sup>2</sup>	5	4	35	33
AFAR <sup>3</sup>	5	3	7	4
AMHARA	10	10	95	95
OROMIA	12	12	150	148
SOMALIE <sup>4</sup>	9	3	6	6
BENSHANGUL GUMEZ	3	2	7	5
S.N.N.P	16	16	68	68
GAMBELA	1	1	5	4
HARARI	1	1	1	1
A. ABABA <sup>5</sup>	6	2	5	5
DIRE DAWA	1	1	1	1
<b>TOTAL</b>	<b>69</b>	<b>55</b>	<b>380</b>	<b>370</b>

**Notes**

- 1 - At the time of the design of the survey all the regions had the indicated number of zones.
- 2 - In Tigray Region, four out of five zones have rural settled population. In the remaining one zone the entire population is urban residents.
- 3 - Afar Region has a total of five zones, however only two zones have significant rural sedentary population.
- 4 - Somalie Region has a total of nine zones, however only three zones have significant rural sedentary population.
- 5 - Addis Ababa has a total of six zones, however, only two zones have rural settled population. In the remaining four zones the entire population is urban residents.

S.N.N.P.R = Southern Nations, Nationalities and Peoples' Region

#### 4. SAMPLE DESIGN.

A two-stage stratified sample design was used for the 1996/97 (1989 E.C.) crop production forecast survey. In three regions, namely, in Amhara, Oromia and Southern Nations and Nationalities and Peoples' Regional state, groups of contiguous zones were treated as strata/ reporting levels for presenting the survey results. In the remaining regions, the reporting levels were the regions themselves. The primary sampling units in all strata were Enumeration Areas (EAs). Agricultural households were the ultimate sampling units. The survey questionnaires were administered to all agricultural holders in the sampled agricultural households.

A fixed number of sample EAs was determined for each stratum /reporting level based on population size of the stratum and cost considerations. The overall sample number of EAs in a stratum was proportionately allocated to zones/special weredas within the stratum to their population size. From within each stratum sample EAs were selected with probability proportional to size, size being the total number of households of the EAs as obtained from the 1994 census map work. From each sample EA, 25 agricultural households were selected systematically without replacement. The crop forecast survey questionnaires were administered to the first 10 sample agricultural households with respect to area measurements and to all the 25 households with respect to data on condition factors,...etc.

A total of 705 EAs (1.4% of the total number of agricultural EAs) in the country were planned to be covered by the survey. But 13 of the sampled EAs were closed due to various reasons and the survey covered 692 EAs successfully. Distribution of EAs sampled and actually covered by stratum/reporting level is given in **Appendix I**. Estimation procedures of totals and ratios of agricultural characteristics and measure of their precision are given in **Appendix II and III**.

## **5. FIELD ORGANIZATION.**

The heads of the branch statistical offices of the Central Statistical Authority, field supervisors and enumerators were fully involved in the survey. Hence, 14 statistical branch office heads, about 200 field supervisors, each supervising 5 enumerators in most cases and about 746 (including the reserves) enumerators stationed in each of the selected EAs, experts from head office, other support staff and about 38 drivers were involved in the operation.

For all enumerators, the necessary survey equipment such as compass, protractor, ruler, measuring tapes, balance scale, poles, ropes, sample bags,...etc. were made available to facilitate the field work. Moreover, about 38 vehicles were put on operation to carry out the survey.

## **6. TRAINING OF FIELD STAFF.**

At the outset all relevant materials, like equipment were procured and questionnaires and instruction manuals were prepared. Then the training program for the field staff was carried out in two stages. In the first stage, about 60 trainees, i.e. experts from the head office, branch statistical office heads and some of the field supervisors were given training for 5 days at the head office. Those trained in the first stage conducted similar training for about 200 field supervisors and about 746 enumerators in all the 15 branch offices all over the country. During the training, pertaining to the crop production survey the field staff were given detailed class room instruction on the purpose of the survey, concepts and definitions of terms used, method of area measurement, method of crop cutting, interviewing procedures,... etc. The training was given for about 12 days and the training sessions included thorough field practices with regard to data collection.

## 7. METHOD OF DATA COLLECTION AND CROP PRODUCTION FORECASTING.

### i. Method of data collection

Information in the crop production forecast survey, were collected both by subjective and objective methods. Information on agricultural practices (such as use of fertilizer, pesticides, improved seed and irrigation) were collected subjectively by interviewing the holders of the first 10 selected households. Information on area under crops was collected objectively by measuring all cropped fields under temporary and permanent crops using compasses and measuring tapes (See **Appendix IV** for the total number of fields measured). However, in this report only area under major temporary crops are presented. Moreover, information on condition factors i.e., percentage change on the expected increase or decrease of yield for the coming harvest, as compared to last year's was collected. These information was collected subjectively for each temporary crop by interviewing the holders in each enumeration area (see Appendix v for crop production forecast survey questionnaires).

### ii. Method of crop production forecasting

The crop production forecast for 1996/97 (1989 E.C.) is based on three major factors, the actual area under crops after sowing (measured objectively in September 1996), last year's crop yield obtained from crop cutting survey and the so-called condition factors which compare the yield of this year with that of last year. All specific conditions (such as weather, pest damage...etc) affecting the growing of crops during the current season have been taken into account by the holders in these condition factors. The calculation of the forecast has been performed for all major temporary crops for which objective area measurements were conducted.

To correct the last year's yield by the condition factors the following were taken into account during the interview:-

**iii. Main factors which influence the expected crop production**

Besides the meteorological factor, there are a number of other factors that influence production and yield of major crops. These are:

a. Reason for expected decrease

- too much rain fall
- shortage of rain fall
- insect and pest damage
- hail and frost damage
- wild animal and locust damage
- shortage of seed
- depletion of the soil
- others

b. Reason for expected increase

- good weather condition
- improved seed
- application of fertilizers
- application of insecticides
- others

**8. EDITING, CODING AND VERIFICATION**

The editing and coding instruction manuals were prepared and printed. Then intensive training was given to the editor-coders for one day. About 40 editor-coders were involved to accomplish the editing and coding tasks. In due course, two professional staff were assigned to answer questions, clear doubts, ...etc. so as to facilitate the editing and coding activity. In addition, the edited and coded questionnaires were checked by about 13

supervisors/verifiers. The verification was done on 100% basis.

## **9. DATA ENTRY, CLEANING AND PROCESSING**

About 42 data encoders and as many personal computers have participated in the data entry activity. Unlike the previous years, the data was entered in personal computers using IMPS (Integrated Microcomputer Processing System) software. Then, the data entered was checked and cleaned by more than seventeen regular staff. Finally, the data processing activity was also done by personal computers (PCs) to produce results which were indicated in the tabulation plan and this operation was performed by three programmers.

## **10. BASIC CONCEPTS AND DEFINITIONS**

The concepts and definitions used in the survey are defined as follows.

**Enumeration Area (EA):** An Enumeration Area in rural parts of the Country is a locality that is less than or equal to a farmer's association area and usually it consists of 150-200 households.

**Households:** 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 greater or lesser extent. They may be related or unrelated persons, or a combination of both.

**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 holding the holder may be regarded as the person, who with or without 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 right to determine the utilization of the products.

**Holding:** A holding is all the land and livestock kept 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.

**Agricultural Households:** A household is considered an agricultural household when at least one member of the household is engaged in growing crops and/or breeding and raising livestock in private or in partnership with others.

**Parcel:** A parcel of holding is any piece of land entirely surrounded by land, water road, forest, ...etc. which is not part of the holding. It may consist one or more cadastral units, plots or field 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 crop.

**Forecast of crop production** is defined as an estimation of the future realization of such a random variable which is called "crop production".

## 11. Summary of the Results of 1996/97 (1989 E.C.) Crop Production

### Forecast Survey

In this report the results of 1996/97 (1989 E.C.) crop production forecast survey at country, regional and group of zones taken as reporting level are presented. Discussions on some of the major important points of the survey findings are presented below.

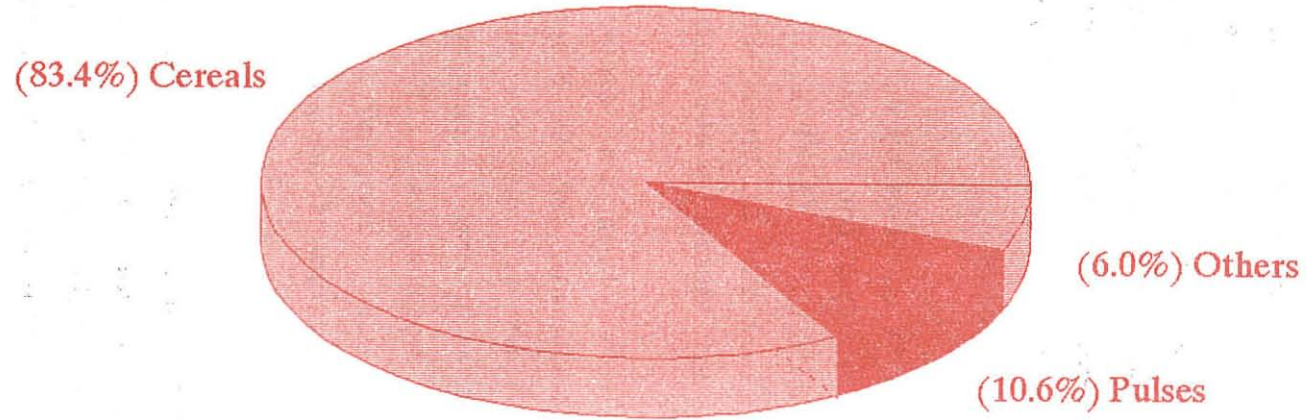
According to 1996/97 (1989 E.C.) crop production forecast survey results, about **8.14 million hectares** are covered by **major crops**, from which in the coming harvest about **95.72 million quintals** are expected to be produced with mean yield of **11.76 qt/ha**.

Out of these total, the highest area, which is about **6.79 million hectares (83.42%)**, and with expected production of **84.45 million quintals (88.23%)**, with mean yield of **12.44 qt/ha**, is reported for **cereals**, followed by **pulses**, with **0.86 million hectares (10.57 %)** and **8.47 million quintals (8.85%)** with mean yield of **9.85 qt/ha**, and then by **other crops (mainly oilseeds)** with **0.49 million hectares (6.02 %)** and **2.80 million quintals (2.93 %)**, with mean yield of **5.70 qt/ha**. See Table B.

Table B. Forecast of Area and Expected Production of Major Crops for Private Peasant Holdings in Ethiopia, 1996/97 (1989 E.C.)

Crop type	Area		Production		Yield Qt/ha
	In million ha.	%	In million qt.	%	
Cereals	6.79	83.42	84.45	88.23	12.44
Pulses	0.86	10.57	8.47	8.85	9.85
Others	0.49	6.02	2.80	2.93	5.70
All Crops	8.14	100.00	95.72	100.00	11.76

FIG 1. FORECAST OF AREA UNDER MAJOR CROPS FOR PRIVATE PEASANT HOLDINGS IN ETHIOPIA (MEHER SEASON) 1996/97(1989 E.C.)



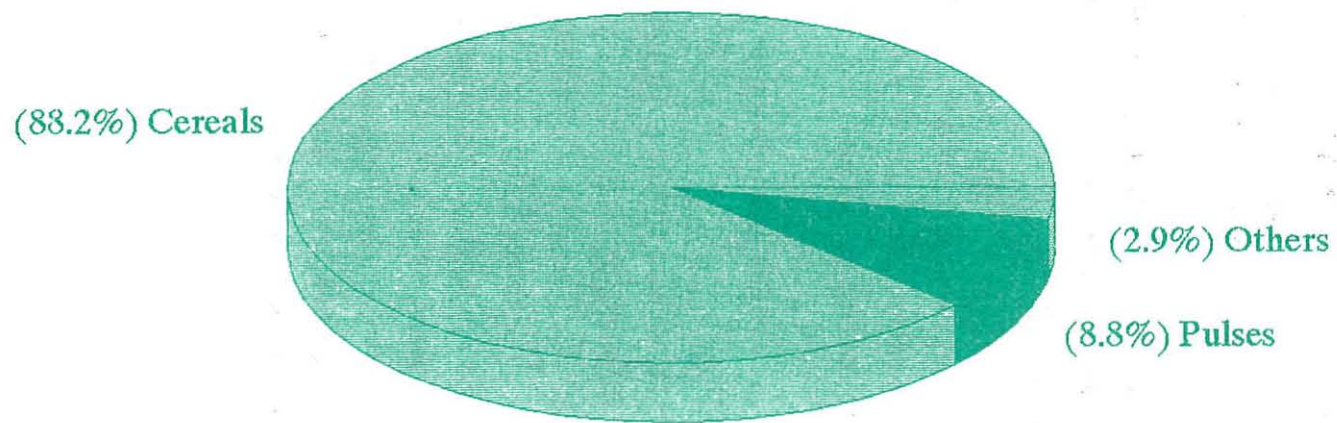
The total area and expected production of major crops of 1996/97 (1989 E.C.) are compared with last year's estimate in Table 1. The total area under major crops has increased by 2.38 % and the expected total production has increased by 3.16 %. Increase in area by 2.00 % and increase in expected production by 2.12 % is reported for cereals compared with the estimate of 1995/96 (1988 E.C.). The above mentioned increase in area under cereals ranges from 5.38% for teff to 8.95 % for sorghum, while the increase in the expected production ranges from 1.25 % for oats to 19.03 % for teff. However, for barley and wheat both area and production has shown a decline. Increases in area and production were also reported for other crops mainly oil seeds. Nevertheless, fenugreek, has shown a decrease in its area.

A reduction in area by 4.85% for pulses is observed, although, the expected production shows a slight increase i.e. 0.50% when compared with 1995/96 (1988 E.C.) estimate. Field peas and lentils have shown a decrease in their area and chick peas both in area and production. For details see Tables 1 and 2.

Furthermore, when one assesses the yield of major crops for the coming harvest, it is forecasted that 11.76 qt/ha is the average yield of all major crops at country level. The highest yield i.e. 12.44 qt/ha is reported for cereals. Average yield for the cereals ranges from 9.39 qt/ha for millet to 17.01 qt/ha for maize. The yield reported for other crops mainly oil seeds was 5.70q/ha which ranges from 3.40 qt/ha for sesame to 17.69 qt/ha for rapeseed (see Table 1).

Attempt has also been made to compare the 1996/97 (1989 E.C.) meher season forecasted yield of major crops with that of 1995/96 (1988 E.C.) estimate and these are shown in Table 1. In the forthcoming harvest the overall yield of major crops is expected to increase by 0.76 % from that of last year. The change in the yield of major crops ranges from negative 14.23 % for maize to 36.20 % for linseed. Nevertheless, the overall increase in the forecasted

FIG 2. FORECAST OF EXPECTED PRODUCTION OF MAJOR CROPS FOR PRIVATE PEASANT HOLDINGS IN ETHIOPIA, (Meher Season) 1995/96(1988 E.C)



yield is 14.39 % for other crops(mainly oil seeds). The reported decrease of the forecasted yield of Maize is mainly attributed by the decrease in the condition factors that have been reported by the holders during the survey time(i.e september, 1996). Out of the total holders a bout 76.49% (7011 holders) have reported that there will be a decrease in the yield due to excessive rain (17.58%), shortage of rain (3.49%), insect and pests (9.51%) and other reasons (18.36%) when they compared it with last year's estimates.

Finally, users of this report should know that the information on what is called condition factors was collected in the months of September 1996 (Meskerem 1989 E.C.). Therefore, the results should be used with great caution in light of the favorable or adverse conditions of weather and other factors which may affect the crop after the crop production forecast survey has been conducted. The effect of these are not examined in this report.

\*\*\*\*\*  
\* Note:- \*  
\* 1. If in some tables figures do not add up to total it \*  
\* is due to rounding. \*  
\* 2. Those forecasts designated by "\*\*\*" in all tables could\*  
\* not be reported because of high coefficient of \*  
\* variation (i.e. they are less reliable). However they \*  
\* are consolidated in the total forecast. \*  
\* 3. In all tables "-" indicates not reported and "0.00" \*  
\* indicates the value is insignificant. \*  
\*\*\*\*\*

Table 1. Forecast of 1996/97 and Estimates of 1995/96 Area, Production and Yield of major crops for private peasant holdings in ETHIOPIA (MEHER SEASON)

Crop	Total Area (000' ha)			Total Production (000' qt)			Yield (qt/ha)		
	Estimate	Forecast	%	Estimate	Forecast	%	Estimate	Forecast	%
	1995/96	1996/97	Change	1995/96	1996/97	Change	1995/96	1996/97	Change
Cereals	6652.55	6785.61	2.00	82697.14	84446.80	2.12	12.43	12.44	0.11
Teff	2097.40	2210.25	5.38	17523.75	20858.30	19.03	8.35	9.44	12.95
barley	825.54	705.65	-14.52	8725.32	7180.51	-17.70	10.57	10.18	-3.72
Wheat	882.06	807.48	-8.46	10763.04	9968.29	-7.38	12.20	12.34	1.17
Maize	1280.68	1369.59	6.94	25392.92	23290.62	-8.28	19.83	17.01	-14.23
Sorghum	1252.41	1364.48	8.95	17226.52	19798.68	14.93	13.75	14.51	5.49
Millet	269.35	286.62	6.41	2413.42	2690.06	11.46	8.96	9.39	4.75
Oats	45.11	41.54	-7.91	652.17	660.34	1.25	14.46	15.90	9.95
Pulses	904.39	860.54	-4.85	8141.44	8472.63	0.50	9.00	9.85	0.50
Horse Beans	336.72	338.01	0.38	3593.67	3608.95	0.43	10.67	10.68	0.04
Field Peas	180.46	167.10	-7.40	1395.75	1424.84	2.08	7.73	8.53	10.25
Haricot Beans	101.17	104.50	3.29	783.61	966.52	23.34	7.75	9.25	19.41
Chick Peas	144.97	118.89	-17.99	1232.41	1183.88	-3.94	8.50	9.96	17.13
Lentils	65.12	50.07	-23.11	331.64	334.56	0.88	5.09	6.68	31.20
Vetch	75.95	81.97	7.93	804.36	953.88	18.59	10.59	11.64	9.88
Others	391.57	491.44	25.51	1952.61	2803.32	43.57	4.99	5.70	14.39
Neug	223.33	241.44	8.11	859.49	887.14	3.22	3.85	3.67	-4.53
linseed	112.72	177.64	57.59	568.38	1219.99	114.64	5.04	6.87	36.20
Rape Seed	14.19	22.74	60.25	**	402.34	-	-	17.69	-
Ground Nuts	13.26	**	**	**	125.59	-	-	**	-
Sunflower	4.78	**	**	**	25.50	-	-	**	-
Sesame	9.39	17.81	89.67	**	60.51	-	-	3.40	-
Fenugreek	13.90	13.02	-6.33	73.51	82.25	11.89	5.29	6.32	19.45
All crops	7948.51	8137.59	2.38	92791.19	95722.75	3.16	11.67	11.76	0.76

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. less reliable). However they are consolidated in the total estimates

FIG 3. FORECAST OF 1996/97 AND ESTIMATES OF 1995/96 AREA OF MAJOR CROPS FOR PRIVATE HOLDINGS IN ETHIOPIA, BY REGION (Meher Season)

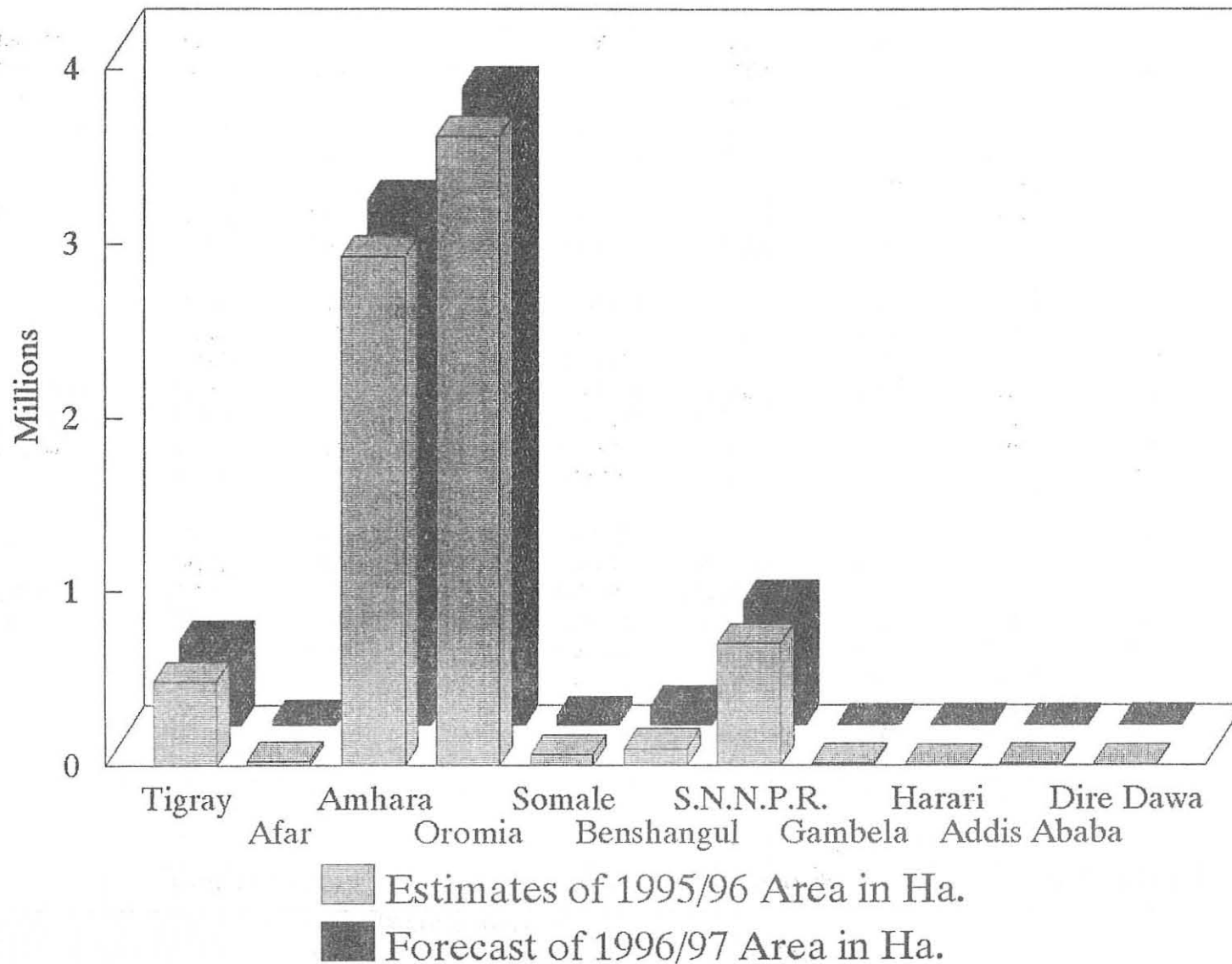


Table 2. Forecast of 1996/97 and Estimates of 1995/96 Area, Production and Yield of major crops for private peasant holdings in ETHIOPIA by REGION (meher season)

Region	Total Area (000' ha)			Total Production (000' qt)			Yield (qt/ha)		
	Estimate 1994/95	Forecast 1995/96	% Change	Estimate 1994/95	Forecast 1995/96	% Change	Estimate 1994/95	Forecast 1995/96	% Change
Tigray	481.43	492.00	2.20	5278.22	5663.80	7.31	10.96	11.51	5.00
Afar	24.34	31.40	29.01	193.23	274.48	42.05	7.94	8.74	10.11
Amhara	2933.09	3028.00	3.24	28612.93	29654.19	3.64	9.76	9.79	0.39
Oromia	3624.70	3673.96	1.36	47493.53	48400.28	1.91	13.10	13.17	0.54
Somale	59.73	52.56	-12.00	424.83	480.66	13.14	7.11	9.14	28.58
Benshangul	95.86	112.72	17.59	1058.50	1425.08	34.63	11.04	12.64	14.49
S.N.N.P.R	697.60	719.22	3.10	9265.15	9440.72	1.89	13.28	13.13	-1.17
Gambela	10.08	6.57	-34.82	227.89	122.94	-46.05	22.61	18.71	-17.23
Harari	4.41	6.17	39.91	46.01	49.56	7.72	10.43	8.03	-23.01
Addis Ababa	9.91	9.14	-7.77	147.61	147.37	-0.16	14.90	16.12	8.25
Dire Dawa	7.39	5.84	-20.97	43.29	63.67	47.08	5.86	10.90	86.11
<b>TOTAL</b>	7948.54	8137.58	2.38	92791.19	95722.75	3.16	11.67	11.76	0.76

FIG 4. FORECAST OF 1996/97 AND ESTIMATES OF 1995/96 PRODUCTION OF MAJOR CROPS FOR PRIVATE HOLDINGS IN ETHIOPIA, BY REGION (Meher Season)

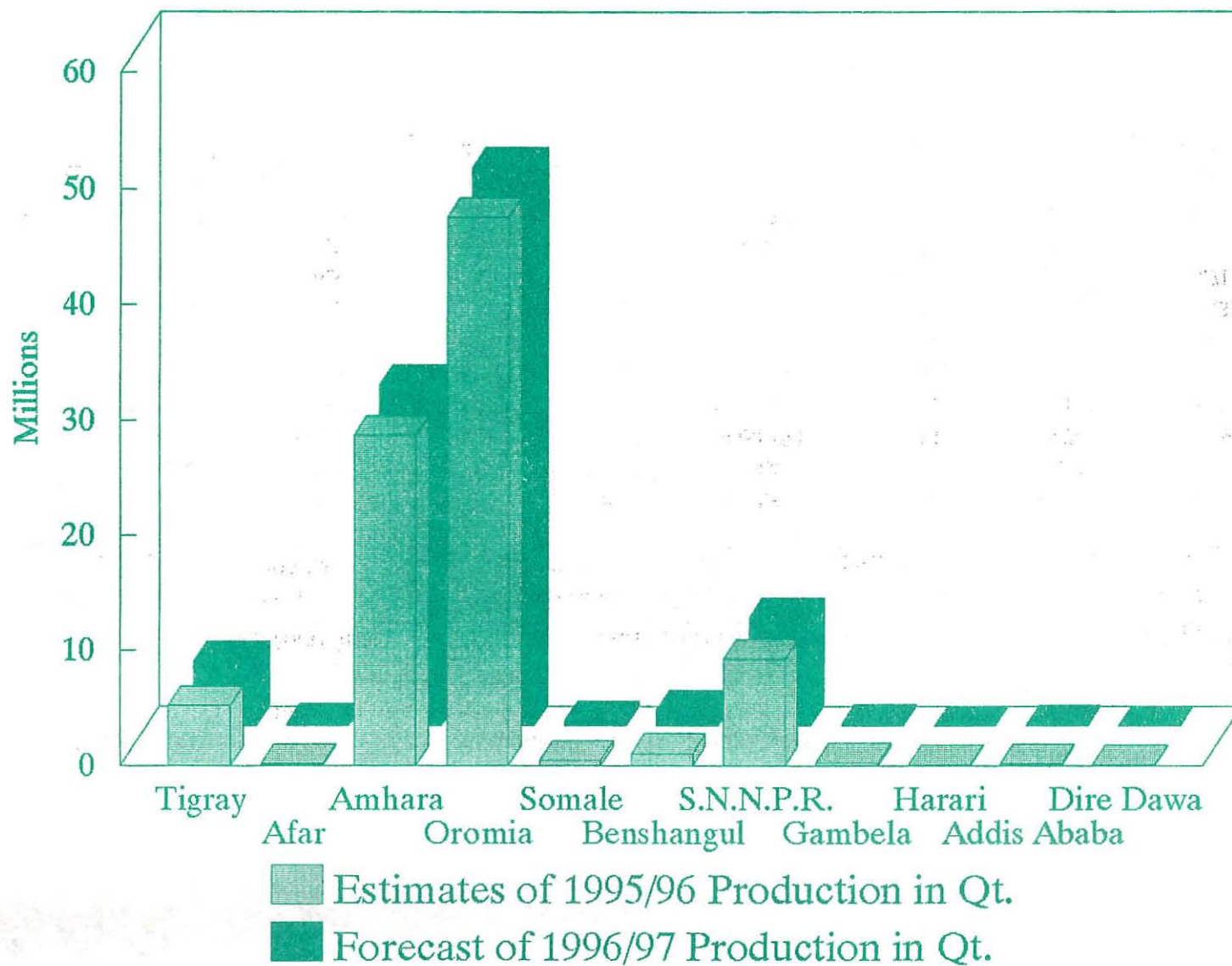


Table 3. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Ethiopia

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	6,785.61	83.39	84,446.80	88.22	12.44
Teff	2,210.25	27.16	20,858.30	21.79	9.44
Barley	705.65	8.67	7,180.51	7.50	10.18
Wheat	807.48	9.92	9,968.29	10.41	12.34
Maize	1,369.59	16.83	23,290.62	24.33	17.01
Sorghum	1,364.48	16.77	19,798.68	20.68	14.51
Millet	286.62	3.52	2,690.06	2.81	9.39
Oats	41.54	.51	660.34	.69	15.90
Pulses	860.53	10.57	8,472.64	8.85	9.85
Horse Beans	338.01	4.15	3,608.95	3.77	10.68
Field Peas	167.10	2.05	1,424.84	1.49	8.53
Haricot Beans	104.50	1.28	966.52	1.01	9.25
Chick Peas	118.89	1.46	1,183.88	1.24	9.96
Lentils	50.07	.62	334.56	.35	6.68
Vetch	81.97	1.01	953.88	1.00	11.64
Others	491.43	6.04	2,803.32	2.93	5.70
Neug	241.44	2.97	887.14	.93	3.67
Linseed	177.64	2.18	1,219.99	1.27	6.87
Rapeseed	22.74	.28	402.34	.42	17.69
Ground Nuts	14.59	.18	**	**	**
Sunflower	4.20	.05	**	**	**
Sesame	17.81	.22	60.51	.06	3.40
Fenugreek	13.02	.16	82.25	.09	6.32
All Crops	8,137.57	100.00	95,722.76	100.00	16.76

\*\* These estimates could not be reported in this table because of high coefficient of variation(i.e they are less reliable).However, they are consolidated in the total estimates.

FIG 5. FORECAST OF 1996/97 AND ESTIMATES OF 1995/96 AREA AND PRODUCTION OF MAJOR CROPS FOR PRIVATE HOLDINGS IN ETHIOPIA (Meher Season)

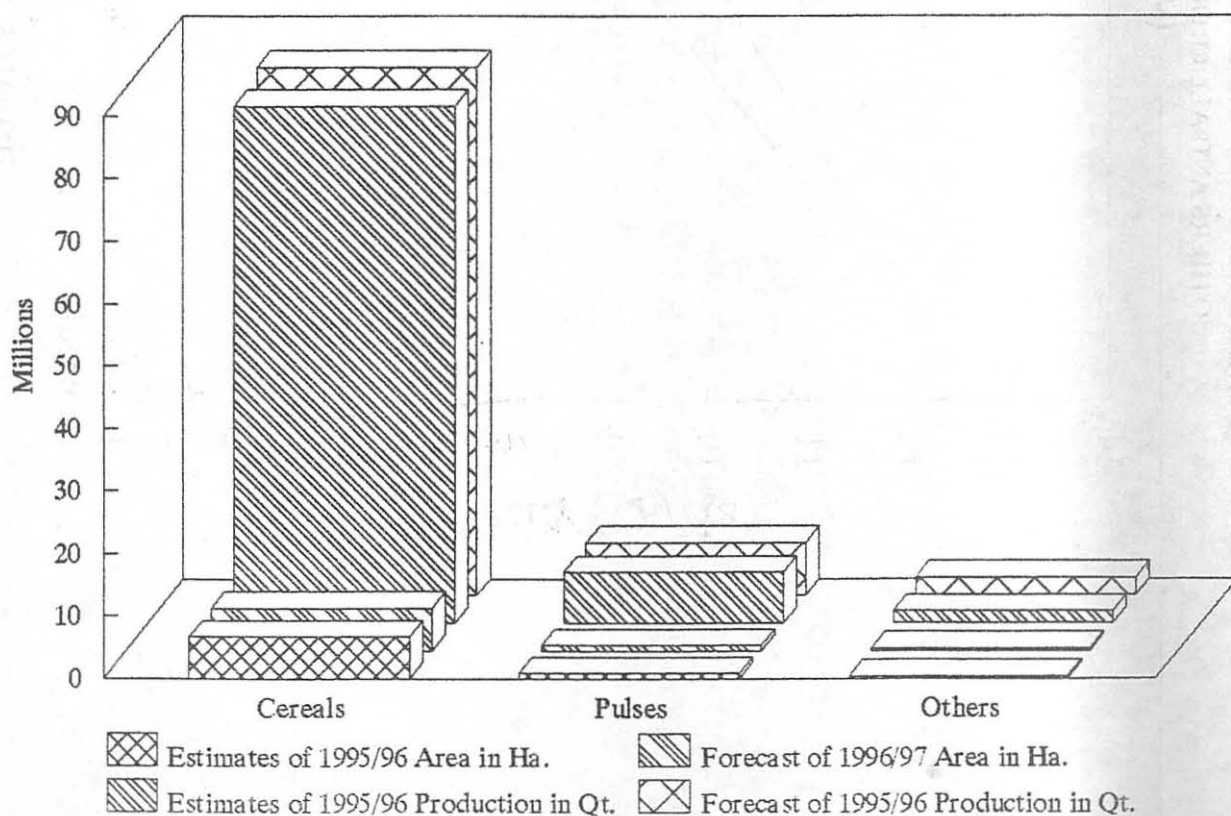


FIG. 6. FORECAST OF 1996/97 AND ESTIMATES OF 1995/96 OF YIELD FOR CEREALS, PULSES, OTHERS AND ALL CROPS FOR PRIVATE HOLDINGS IN ETHIOPIA (Meher Season)

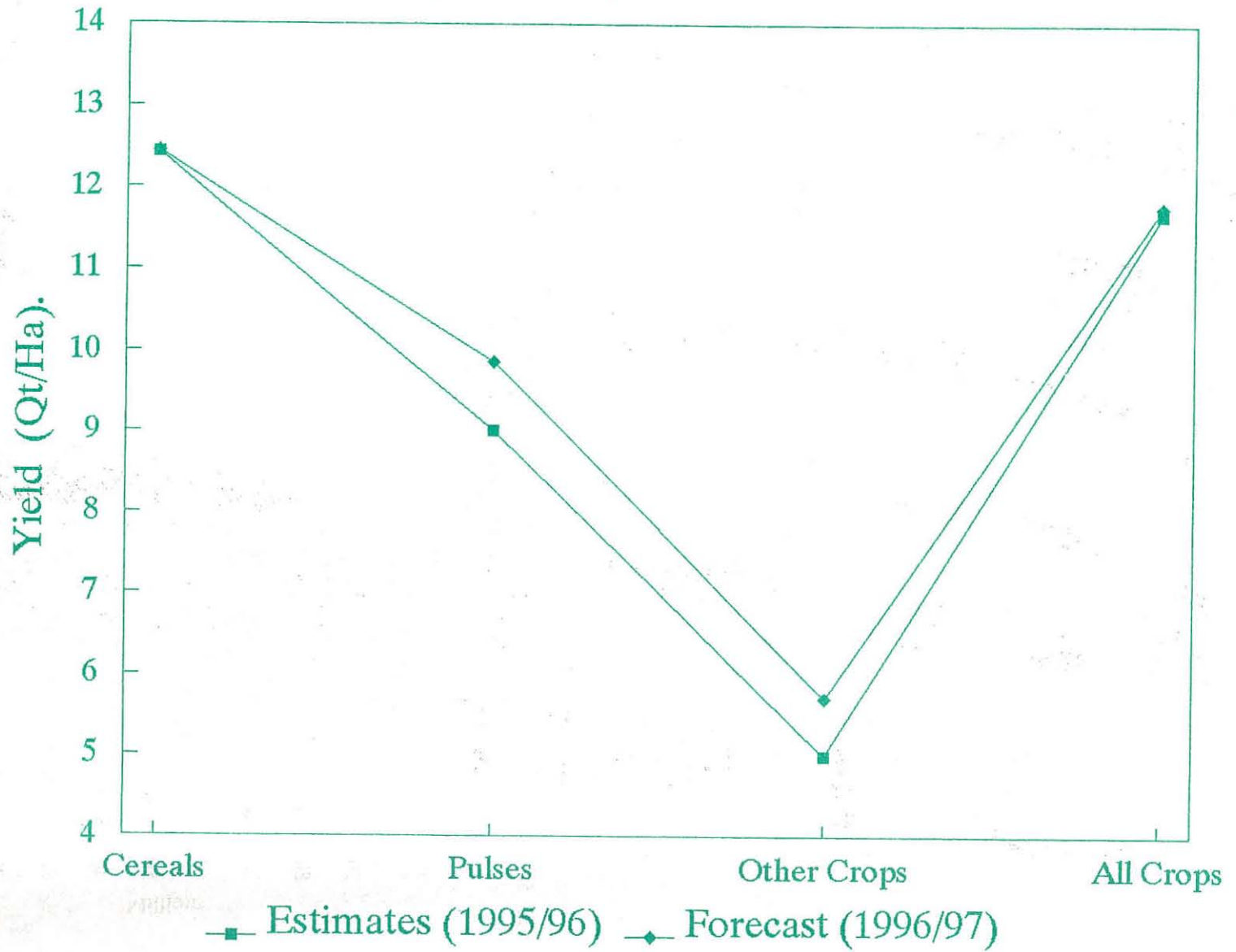


Table 4. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Tigray

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	461.48	93.80	5,389.30	95.15	11.68
Teff	101.14	20.56	722.80	12.76	7.15
Barley	63.10	12.83	514.14	9.08	8.15
Wheat	59.78	12.15	537.51	9.49	8.99
Maize	43.65	8.87	651.26	11.50	14.92
Sorghum	141.44	28.75	2,556.65	45.14	18.08
Millet	52.37	10.64	406.90	7.18	7.77
Oats	-	-	**	**	-
Pulses	26.75	5.44	261.96	4.63	9.79
Horse Beans	11.54	2.35	175.59	3.10	15.22
Field Peas	2.83	.58	16.40	.29	5.80
Haricot Beans	**	**	**	**	**
Chick Peas	4.18	.85	30.93	.55	7.40
Lentils	5.54	1.13	21.74	.38	3.92
Vetch	**	**	**	**	**
Others	3.77	.77	12.54	.22	3.33
Neug	**	**	**	**	**
Linseed	**	**	**	**	**
Rapeseed	-	-	-	-	-
Ground Nuts	-	-	-	-	-
Sunflower	-	-	-	-	-
Sesame	**	**	**	**	**
Fenugreek	**	**	**	**	**
All Crops	492.00	100.00	5,663.80	100.00	11.51

Table 5. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Afar

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	31.02	98.79	271.98	99.09	8.77
Teff	7.64	24.33	65.89	24.01	8.62
Barley	**	**	**	**	**
Wheat	**	**	**	**	**
Maize	1.89	6.02	16.27	5.93	8.61
Sorghum	19.56	62.29	176.66	64.36	9.03
Millet	-	-	-	-	-
Oats	-	-	-	-	-
Pulses	.36	1.15	2.35	.86	6.53
Horse Beans	**	**	**	**	**
Field Peas	**	**	**	**	**
Haricot Beans	**	**	**	**	**
Chick Peas	.22	.70	1.13	.41	5.14
Lentils	**	**	**	**	**
Vetch	-	-	-	-	-
Others	.02	.06	.14	.05	7.00
Neug	-	-	-	-	-
Linseed	-	-	-	-	-
Rapeseed	-	-	-	-	-
Ground Nuts	-	-	-	-	-
Sunflower	-	-	-	-	-
Sesame	**	**	**	**	**
Fenugreek	-	-	-	-	-
All Crops	31.40	100.00	274.48	100.00	8.74

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

FIG 7. FORECAST OF YIELD FOR CEREALS, PULSES, OTHERS AND ALL CROPS FOR PRIVATE HOLDINGS IN ETHIOPIA, BY REGION (Meher Season) 1996/97(1989 E.C.)

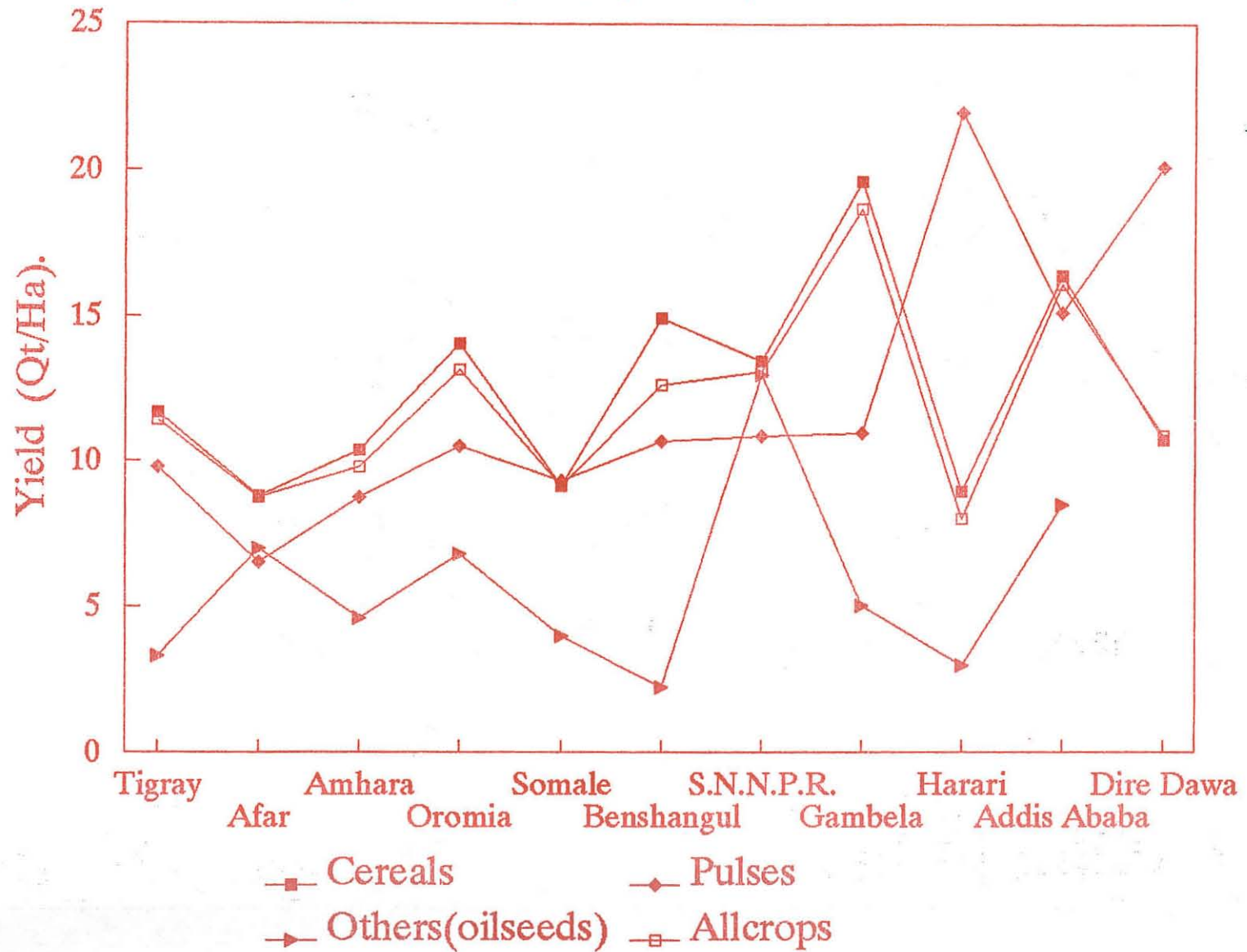


Table 6. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Amhara

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	2,479.30	81.88	25,706.21	86.69	10.37
Teff	908.45	30.00	7,433.81	25.07	8.18
Barley	239.35	7.90	1,891.80	6.38	7.90
Wheat	222.54	7.35	2,077.48	7.01	9.34
Maize	338.96	11.19	5,023.70	16.94	14.82
Sorghum	583.84	19.28	7,629.90	25.73	13.07
Millet	177.12	5.85	1,556.24	5.25	8.79
Oats	9.04	.30	93.26	.31	10.32
Pulses	343.38	11.34	3,001.26	10.12	8.74
Horse Beans	129.58	4.28	1,202.07	4.05	9.28
Field Peas	55.13	1.82	407.24	1.37	7.39
Haricot Beans	19.14	.63	105.31	.36	5.50
Chick Peas	76.13	2.51	751.12	2.53	9.87
Lentils	27.16	.90	182.11	.61	6.71
Vetch	36.24	1.20	353.41	1.19	9.75
Others	205.32	6.78	946.72	3.19	4.61
Neug	123.20	4.07	473.74	1.60	3.85
Linseed	49.11	1.62	181.34	.61	3.69
Rapeseed	11.91	.39	**	**	**
Ground Nuts	-	-	-	-	-
Sunflower	4.04	.13	24.31	.08	6.02
Sesame	**	**	**	**	**
Fenugreek	5.88	.19	49.38	.17	8.40
All Crops	3,028.00	100.00	29,654.19	100.00	9.79

Table 6.1. Forecast of Area and Production of Major Crops for Private Peasant Holdings 1995/96 (1988 E.C.)

REGION	TOTAL AREA (000' hectare)	TOTAL PRODUCTION (000' quintal)	YIELD (QT/HA)
Amhara	3,028.00	29,654.19	9.79
North and South Gonder Zone	972.05	8,497.51	8.74
East, West Gojam and Agewawi Zone	1,081.67	11,070.80	10.23
North Wolo and Waghama Zone	251.78	2,215.90	8.80
South Wolo, Oromia and North Shewa Zone	722.50	7,869.98	10.89

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 6.2. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

North and South Gonder Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	783.80	80.63	7,325.04	86.20	9.35
Teff	277.05	28.50	2,390.12	28.13	8.63
Barley	75.60	7.78	535.99	6.31	7.09
Wheat	48.46	4.99	399.62	4.70	8.25
Maize	83.94	8.64	852.17	10.03	10.15
Sorghum	213.38	21.95	2,397.86	28.22	11.24
Millet	84.57	8.70	744.42	8.76	8.80
Oats	**	**	**	**	**
Pulses	99.06	10.19	803.96	9.46	8.12
Horse Beans	34.70	3.57	241.48	2.84	6.96
Field Peas	18.01	1.85	165.63	1.95	9.20
Haricot Beans	**	**	**	**	**
Chick Peas	28.98	2.98	299.65	3.53	10.34
Lentils	3.33	.34	29.71	.35	8.92
Vetch	4.46	.46	42.40	.50	9.51
Others	89.19	9.18	368.51	4.34	4.13
Neug	64.60	6.65	261.29	3.07	4.04
Linseed	10.22	1.05	43.96	.52	4.30
Rapeseed	2.02	.21	3.17	.04	1.57
Ground Nuts	-	-	-	-	-
Sunflower	**	**	**	**	**
Sesame	**	**	**	**	**
Fenugreek	**	**	**	**	**
All Crops	972.05	100.00	8,497.51	100.00	8.74

Table 6.3. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

East, West Gojam and Agewawi Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	895.36	82.78	9,652.20	87.19	10.78
Teff	398.60	36.85	3,184.85	28.77	7.99
Barley	68.95	6.37	599.99	5.42	8.70
Wheat	72.52	6.70	751.37	6.79	10.36
Maize	204.15	18.87	3,732.43	33.71	18.28
Sorghum	60.48	5.59	601.84	5.44	9.95
Millet	89.78	8.30	775.75	7.01	8.64
Oats	**	**	**	**	**
Pulses	92.69	8.57	916.20	8.28	9.88
Horse Beans	38.24	3.54	365.49	3.30	9.56
Field Peas	13.32	1.23	99.12	.90	7.44
Haricot Beans	**	**	**	**	**
Chick Peas	17.94	1.66	206.09	1.86	11.49
Lentils	-	-	-	-	-
Vetch	17.68	1.63	195.41	1.77	11.05
Others	93.62	8.66	502.40	4.54	5.37
Neug	56.92	5.26	209.82	1.90	3.69
Linseed	**	**	**	**	**
Rapeseed	**	**	**	**	**
Ground Nuts	-	-	-	-	-
Sunflower	**	**	**	**	**
Sesame	**	**	-	-	-
Fenugreek	**	**	**	**	**
All Crops	1,081.67	100.00	11,070.80	100.00	10.23

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 6.4. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

North Wolo and Waghamra Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	212.43	84.37	1,934.51	87.30	9.11
Teff	67.74	26.90	483.97	21.84	7.14
Barley	31.47	12.50	194.97	8.80	6.20
Wheat	26.07	10.35	215.95	9.75	8.28
Maize	2.52	1.00	13.52	.61	5.37
Sorghum	82.66	32.83	1,004.45	45.33	12.15
Millet	**	**	**	**	**
Oats	**	**	**	**	**
Pulses	33.84	13.44	265.95	12.00	7.86
Horse Beans	10.65	4.23	109.46	4.94	10.28
Field Peas	7.84	3.11	36.35	1.64	4.64
Haricot Beans	**	**	**	**	**
Chick Peas	5.76	2.29	**	**	**
Lentils	6.70	2.66	35.94	1.62	5.36
Vetch	**	**	**	**	**
Others	5.51	2.19	15.44	.70	2.80
Neug	.46	.18	.33	.01	.72
Linseed	4.00	1.59	11.69	.53	2.92
Rapeseed	-	-	-	-	-
Ground Nuts	-	-	-	-	-
Sunflower	**	**	**	**	**
Sesame	**	**	**	**	**
Fenugreek	**	**	**	**	**
All Crops	251.78	100.00	2,215.90	100.00	8.80

Table 6.5. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

South Wolo, Oromia and North Shewa Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	587.71	81.34	6,794.46	86.33	11.56
Teff	165.05	22.84	1,374.88	17.47	8.33
Barley	63.34	8.77	560.86	7.13	8.85
Wheat	75.50	10.45	710.55	9.03	9.41
Maize	48.35	6.69	425.58	5.41	8.80
Sorghum	227.32	31.46	3,625.76	46.07	15.95
Millet	**	**	**	**	**
Oats	5.77	.80	**	**	**
Pulses	117.79	16.30	1,015.15	12.90	8.62
Horse Beans	45.99	6.37	485.65	6.17	10.56
Field Peas	15.96	2.21	106.14	1.35	6.65
Haricot Beans	**	**	**	**	**
Chick Peas	23.45	3.25	181.73	2.31	7.75
Lentils	17.13	2.37	116.46	1.48	6.80
Vetch	12.33	1.71	96.44	1.23	7.82
Others	17.00	2.35	60.37	.77	3.55
Neug	1.22	.17	**	**	**
Linseed	11.34	1.57	30.30	.39	2.67
Rapeseed	**	**	**	**	**
Ground Nuts	-	-	-	-	-
Sunflower	**	**	**	**	**
Sesame	**	**	**	**	**
Fenugreek	2.74	.38	**	**	**
All Crops	722.50	100.00	7,869.98	100.00	10.89

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 7. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Oromia

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	3,030.53	82.49	42,582.02	87.98	14.05
Teff	990.55	26.96	10,639.27	21.98	10.74
Barley	340.89	9.28	4,039.44	8.35	11.85
Wheat	441.65	12.02	5,972.42	12.34	13.52
Maize	756.78	20.60	13,992.35	28.91	18.49
Sorghum	422.79	11.51	6,810.69	14.07	16.11
Millet	45.54	1.24	561.70	1.16	12.33
Oats	32.34	.88	**	**	**
Pulses	383.92	10.45	4,047.63	8.36	10.54
Horse Beans	147.46	4.01	1,622.73	3.35	11.00
Field Peas	82.85	2.26	729.23	1.51	8.80
Haricot Beans	59.38	1.62	633.99	1.31	10.68
Chick Peas	35.46	.97	377.13	.78	10.64
Lentils	15.52	.42	107.04	.22	6.90
Vetch	43.24	1.18	577.52	1.19	13.36
Others	259.51	7.06	1,770.62	3.66	6.82
Neug	103.59	2.82	381.41	.79	3.68
Linseed	125.81	3.42	1,028.19	2.12	8.17
Rapeseed	**	**	**	**	**
Ground Nuts	**	**	**	**	**
Sunflower	**	**	**	**	**
Sesame	**	**	**	**	**
Fenugreek	**	**	29.29	.06	**
All Crops	3,673.96	100.00	48,400.28	100.00	13.17

Table 7.1.

Forecast of Area and Production of Major Crops for Private Peasant Holdings 1995/96 (1988 E.C.)

REGION	TOTAL AREA (000' hectare)	TOTAL PRODUCTION (000' quintal)	YIELD (QT/HA)
Oromia	3,673.96	48,400.28	13.17
East and West Welega Zone	613.88	6,446.35	10.50
Ilubabor and Jima Zone	479.39	5,845.41	12.19
North and West Shewa Zone	933.37	9,993.77	10.71
East Shewa, Arsi, Bale and Borena Zone	1,320.36	20,359.52	15.42
East and West Harerge Zone	326.96	5,755.23	17.60

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 7.2. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

East and West Welega Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	513.79	83.70	5,875.71	91.15	11.44
Teff	182.89	29.79	1,522.35	23.62	8.32
Barley	22.14	3.61	**	**	**
Wheat	32.34	5.27	335.74	5.21	10.38
Maize	166.61	27.14	2,452.97	38.05	14.72
Sorghum	71.82	11.70	892.07	13.84	12.42
Millet	37.46	6.10	408.72	6.34	10.91
Oats	**	**	**	**	**
Pulses	44.22	7.20	366.61	5.69	8.29
Horse Beans	25.44	4.14	238.27	3.70	9.37
Field Peas	9.36	1.52	70.28	1.09	7.51
Haricot Beans	9.25	1.51	57.06	.89	6.17
Chick Peas	-	-	-	-	-
Lentils	**	**	**	**	**
Vetch	**	**	**	**	**
Others	55.87	9.10	204.03	3.17	3.65
Neug	50.84	8.28	154.89	2.40	3.05
Linseed	**	**	**	**	**
Rapeseed	1.47	.24	37.82	.59	25.73
Ground Nuts	-	-	-	-	-
Sunflower	**	**	**	**	**
Sesame	**	**	**	**	**
Fenugreek	**	**	1.42	.02	**
All Crops	613.88	100.00	6,446.35	100.00	10.50

Table 7.3. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Ilubabor and Jima Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	436.10	90.97	5,403.78	92.44	12.39
Teff	172.12	35.90	1,516.00	25.93	8.81
Barley	14.59	3.04	**	**	**
Wheat	7.48	1.56	97.96	1.68	13.10
Maize	181.79	37.92	2,780.39	47.57	15.29
Sorghum	52.94	11.04	669.53	11.45	12.65
Millet	**	**	**	**	**
Oats	**	**	**	**	**
Pulses	34.66	7.23	381.31	6.52	11.00
Horse Beans	17.71	3.69	220.97	3.78	12.48
Field Peas	9.10	1.90	69.61	1.19	7.65
Haricot Beans	6.90	1.44	**	**	**
Chick Peas	**	**	**	**	**
Lentils	**	**	**	**	**
Vetch	-	-	-	-	-
Others	8.64	1.80	60.33	1.03	6.98
Neug	4.68	.98	**	**	**
Linseed	3.68	.77	37.02	.63	10.06
Rapeseed	**	**	**	**	**
Ground Nuts	-	-	-	-	-
Sunflower	**	**	**	**	**
Sesame	**	**	**	**	**
Fenugreek	**	**	**	**	**
All Crops	479.39	100.00	5,845.41	100.00	12.19

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 7.4. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

North and West Shewa Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	736.54	78.91	8,310.02	83.15	11.28
Teff	326.77	35.01	3,704.82	37.07	11.34
Barley	146.64	15.71	1,212.37	12.13	8.27
Wheat	130.28	13.96	1,661.82	16.63	12.76
Maize	45.05	4.83	**	**	**
Sorghum	86.79	9.30	935.60	9.36	10.78
Millet	-	-	-	-	-
Oats	.99	.11	13.44	.13	13.58
Pulses	130.00	13.93	1,270.23	12.71	9.77
Horse Beans	49.85	5.34	467.56	4.68	9.38
Field Peas	19.85	2.13	152.13	1.52	7.66
Haricot Beans	-	-	-	-	-
Chick Peas	23.10	2.47	209.04	2.09	9.05
Lentils	7.88	.84	48.82	.49	6.20
Vetch	29.33	3.14	392.69	3.93	13.39
Others	66.83	7.16	413.52	4.14	6.19
Neug	34.16	3.66	144.95	1.45	4.24
Linseed	27.03	2.90	170.29	1.70	6.30
Rapeseed	**	**	**	**	**
Ground Nuts	-	-	-	-	-
Sunflower	-	-	-	-	-
Sesame	-	-	-	-	-
Fenugreek	**	**	**	**	**
All Crops	933.37	100.00	9,993.77	100.00	10.71

Table 7.5. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

East Shewa, Arsi, Bale and Borena Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	1,056.84	80.04	17,776.38	87.31	16.82
Teff	292.47	22.15	3,707.27	18.21	12.68
Barley	149.17	11.30	2,234.06	10.97	14.98
Wheat	266.36	20.17	3,816.16	18.74	14.33
Maize	256.46	19.42	6,175.19	30.33	24.08
Sorghum	**	**	**	**	**
Millet	**	**	**	**	**
Oats	**	**	**	**	**
Pulses	149.46	11.32	1,622.83	7.97	10.86
Horse Beans	44.50	3.37	515.93	2.53	11.59
Field Peas	41.76	3.16	404.01	1.98	9.67
Haricot Beans	32.60	2.47	321.39	1.58	9.86
Chick Peas	**	**	**	**	**
Lentils	5.88	.45	39.58	.19	6.73
Vetch	**	**	**	**	**
Others	114.06	8.64	960.31	4.72	8.42
Neug	**	**	**	**	**
Linseed	92.06	6.97	808.62	3.97	8.78
Rapeseed	**	**	**	**	**
Ground Nuts	-	-	-	-	-
Sunflower	-	-	-	-	-
Sesame	**	**	**	**	**
Fenugreek	**	**	**	**	**
All Crops	1,320.36	100.00	20,359.52	100.00	15.42

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 7.6. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

East and West Harerge Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	287.26	87.86	5,216.14	90.63	18.16
Teff	16.29	4.98	188.84	3.28	11.59
Barley	8.35	2.55	133.45	2.32	15.98
Wheat	5.19	1.59	60.75	1.06	11.71
Maize	106.87	32.69	1,801.82	31.31	16.86
Sorghum	148.50	45.42	2,985.68	51.88	20.11
Millet	**	**	**	**	**
Oats	**	**	**	**	**
Pulses	25.58	7.82	406.66	7.07	15.90
Horse Beans	9.97	3.05	180.00	3.13	18.05
Field Peas	2.78	.85	33.20	.58	11.94
Haricot Beans	10.62	3.25	171.84	2.99	16.18
Chick Peas	**	**	**	**	**
Lentils	1.20	.37	14.78	.26	12.32
Vetch	**	**	**	**	**
Others	14.12	4.32	132.43	2.30	9.38
Neug	-	-	-	-	-
Linseed	**	**	4.98	.09	5.35
Rapeseed	-	-	-	-	-
Ground Nuts	**	**	**	**	**
Sunflower	**	**	**	**	**
Sesame	**	**	**	**	**
Fenugreek	**	**	**	**	**
All Crops	326.96	100.00	5,755.23	100.00	17.60

Table 8. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Somale

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	51.29	97.58	469.94	97.77	9.16
Teff	-	-	-	-	-
Barley	3.91	7.44	26.54	5.52	6.79
Wheat	3.63	6.91	31.69	6.59	8.73
Maize	19.00	36.15	198.72	41.34	10.46
Sorghum	24.67	46.94	212.80	44.27	8.63
Millet	-	-	-	-	-
Oats	**	**	**	**	**
Pulses	1.07	2.04	9.97	2.07	9.32
Horse Beans	-	-	-	-	-
Field Peas	.01	.02	**	**	**
Haricot Beans	.71	1.35	**	**	**
Chick Peas	.29	.55	**	**	**
Lentils	.07	.13	**	**	**
Vetch	-	-	-	-	-
Others	.19	.36	.76	.16	4.00
Neug	-	-	-	-	-
Linseed	-	-	-	-	-
Rapeseed	-	-	-	-	-
Ground Nuts	**	**	-	-	**
Sunflower	-	-	-	-	-
Sesame	-	-	-	-	-
Fenugreek	**	**	**	**	**
All Crops	52.56	100.00	480.66	100.00	9.14

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 9. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Benshangul

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	89.84	79.70	1,343.30	94.26	14.95
Teff	18.29	16.23	116.58	8.18	6.37
Barley	**	**	**	**	**
Wheat	**	**	**	**	**
Maize	24.31	21.57	457.18	32.08	18.81
Sorghum	39.40	34.95	685.25	48.09	17.39
Millet	6.65	5.90	74.05	5.20	11.14
Oats	**	**	**	**	**
Pulses	3.58	3.18	38.34	2.69	10.71
Horse Beans	**	**	**	**	**
Field Peas	**	**	**	**	**
Haricot Beans	1.42	1.26	**	**	**
Chick Peas	**	**	**	**	**
Lentils	**	**	**	**	**
Vetch	-	-	-	-	-
Others	19.30	17.12	43.44	3.05	2.25
Neug	14.46	12.83	31.99	2.24	2.21
Linseed	**	**	**	**	**
Rapeseed	-	-	-	-	-
Ground Nuts	1.42	1.26	**	**	**
Sunflower	-	-	-	-	-
Sesame	3.30	2.93	6.82	.48	2.07
Fenugreek	**	**	**	**	**
All Crops	112.72	100.00	1,425.08	100.00	12.64

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e.They are less reliable ). However they are consolidated in the total estimate

Table 10. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

(S.N.N.P.R)

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	617.65	85.88	8,332.55	88.26	13.49
Teff	179.66	24.98	1,811.33	19.19	10.08
Barley	56.91	7.91	693.20	7.34	12.18
Wheat	75.21	10.46	1,284.49	13.61	17.08
Maize	179.55	24.96	2,851.55	30.20	15.88
Sorghum	121.39	16.88	1,600.89	16.96	13.19
Millet	4.93	.69	91.10	.96	18.48
Oats	-	-	-	-	-
Pulses	99.78	13.87	1,084.87	11.49	10.87
Horse Beans	47.95	6.67	592.64	6.28	12.36
Field Peas	25.92	3.60	269.72	2.86	10.41
Haricot Beans	22.94	3.19	189.06	2.00	8.24
Chick Peas	1.55	.22	**	**	**
Lentils	1.38	.19	**	**	**
Vetch	**	**	-	-	**
Others	1.79	.25	23.29	.25	13.01
Neug	-	-	-	-	-
Linseed	**	**	**	**	**
Rapeseed	**	**	**	**	**
Ground Nuts	-	-	-	-	-
Sunflower	**	**	**	**	**
Sesame	-	-	-	-	-
Fenugreek	**	**	**	**	**
All Crops	719.22	100.00	9,440.72	100.00	13.13

Table 10.1. Forecast of Area and Production of Major Crops for Private Peasant Holdings 1995/96 (1988 E.C.)

REGION	TOTAL AREA (000' hectare)	TOTAL PRODUCTION (000' quintal)	YIELD (QT/HA)
(S.N.N.P.R)	719.22	9,440.72	13.13
Yem, Keficho, Maji, Shekicho and Bench Zone	96.01	1,281.57	13.35
North and South Omo, Gardula and Konso Zone	258.71	2,773.44	10.72
Gurage, Kembata and Hadiya Zone	281.14	4,278.64	15.22
Sidama, Gedio, Burji and Amaro Zone	83.36	1,107.07	13.28

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 10.2. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Yem, Keficho, Maji, Shekicho and Bench Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	77.81	81.04	1,094.79	85.43	14.07
Teff	22.29	23.22	210.85	16.45	9.46
Barley	8.83	9.20	90.46	7.06	10.24
Wheat	**	**	**	**	**
Maize	26.72	27.83	489.80	38.22	18.33
Sorghum	16.59	17.28	264.21	20.62	15.93
Millet	**	**	**	**	**
Oats	-	-	-	-	-
Pulses	18.17	18.93	186.63	14.56	10.27
Horse Beans	9.89	10.30	109.15	8.52	11.04
Field Peas	5.28	5.50	34.00	2.65	6.44
Haricot Beans	**	**	**	**	**
Chick Peas	-	-	-	-	-
Lentils	**	**	**	**	**
Vetch	-	-	-	-	-
Others	.03	.03	.16	.01	5.33
Neug	-	-	-	-	-
Linseed	**	**	**	**	**
Rapeseed	-	-	-	-	-
Ground Nuts	-	-	-	-	-
Sunflower	-	-	-	-	-
Sesame	-	-	-	-	-
Fenugreek	-	-	-	-	-
All Crops	96.01	100.00	1,281.57	100.00	13.35

Table 10.3. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

North and South Omo, Gardula and Konso Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	223.68	86.46	2,501.22	90.18	11.18
Teff	72.13	27.88	657.89	23.72	9.12
Barley	**	**	**	**	**
Wheat	**	**	**	**	**
Maize	49.98	19.32	540.70	19.50	10.82
Sorghum	81.98	31.69	1,073.05	38.69	13.09
Millet	**	**	**	**	**
Oats	-	-	-	-	-
Pulses	34.77	13.44	270.53	9.75	7.78
Horse Beans	13.07	5.05	111.10	4.01	8.50
Field Peas	10.40	4.02	87.94	3.17	8.46
Haricot Beans	10.19	3.94	62.20	2.24	6.10
Chick Peas	**	**	**	**	**
Lentils	**	**	**	**	**
Vetch	-	-	-	-	-
Others	.26	.10	1.69	.06	6.50
Neug	-	-	-	-	-
Linseed	**	**	**	**	**
Rapeseed	-	-	-	-	-
Ground Nuts	-	-	-	-	-
Sunflower	**	**	**	**	**
Sesame	-	-	-	-	-
Fenugreek	-	-	-	-	-
All Crops	258.71	100.00	2,773.44	100.00	10.72

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 10.4. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Gurage, Kembata and Hadiya Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	262.02	93.20	4,051.10	94.68	15.46
Teff	78.16	27.80	882.48	20.63	11.29
Barley	14.75	5.25	187.59	4.38	12.72
Wheat	65.21	23.19	1,149.93	26.88	17.63
Maize	79.48	28.27	1,514.47	35.40	19.05
Sorghum	20.82	7.41	235.02	5.49	11.29
Millet	3.60	1.28	**	**	**
Oats	-	-	-	-	-
Pulses	17.90	6.37	207.95	4.86	11.62
Horse Beans	11.08	3.94	140.74	3.29	12.70
Field Peas	**	**	44.58	1.04	**
Haricot Beans	2.75	.98	13.99	.33	5.09
Chick Peas	**	**	**	**	**
Lentils	**	**	**	**	**
Vetch	**	**	-	-	**
Others	1.22	.43	19.59	.46	16.06
Neug	-	-	-	-	-
Linseed	**	**	**	**	**
Rapeseed	**	**	**	**	**
Ground Nuts	-	-	-	-	-
Sunflower	-	-	-	-	-
Sesame	-	-	-	-	-
Fenugreek	**	**	**	**	**
All Crops	281.14	100.00	4,278.64	100.00	15.22

Table 10.5. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Sidama, Gedio, Burji and Amaro Zone

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	54.13	64.94	685.44	61.91	12.66
Teff	7.08	8.49	60.10	5.43	8.49
Barley	16.88	20.25	218.73	19.76	12.96
Wheat	4.81	5.77	**	**	**
Maize	23.36	28.02	306.59	27.69	13.12
Sorghum	**	**	**	**	**
Millet	-	-	-	-	-
Oats	-	-	-	-	-
Pulses	28.94	34.72	419.77	37.92	14.50
Horse Beans	13.91	16.69	231.65	20.92	16.65
Field Peas	7.00	8.40	103.20	9.32	14.74
Haricot Beans	7.01	8.41	**	**	**
Chick Peas	**	**	**	**	**
Lentils	**	**	**	**	**
Vetch	-	-	-	-	-
Others	.28	.34	1.85	.17	6.61
Neug	-	-	-	-	-
Linseed	**	**	**	**	**
Rapeseed	-	-	-	-	-
Ground Nuts	-	-	-	-	-
Sunflower	-	-	-	-	-
Sesame	-	-	-	-	-
Fenugreek	-	-	-	-	-
All Crops	83.36	100.00	1,107.07	100.00	13.28

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

Table 11. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Gambela

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	**	**	**	**	**
Teff	**	**	**	**	**
Barley	-	-	-	-	-
Wheat	-	-	-	-	-
Maize	3.92	59.67	82.82	67.37	21.13
Sorghum	2.21	33.64	37.91	30.84	17.15
Millet	**	**	**	**	**
Oats	-	-	-	-	-
Pulses	.01	.15	.11	.09	11.00
Horse Beans	-	-	-	-	-
Field Peas	-	-	-	-	-
Haricot Beans	**	**	**	**	**
Chick Peas	-	-	-	-	-
Lentils	-	-	-	-	-
Vetch	-	-	-	-	-
Others	.40	6.09	2.01	1.63	5.03
Neug	-	-	-	-	-
Linseed	-	-	-	-	-
Rapeseed	-	-	-	-	-
Ground Nuts	**	**	**	**	**
Sunflower	-	-	-	-	-
Sesame	**	**	**	**	**
Fenugreek	-	-	-	-	-
All Crops	6.57	100.00	122.94	100.00	18.71

Table 12. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Harari

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	5.10	82.66	45.80	92.41	8.98
Teff	-	-	-	-	-
Barley	.05	.81	1.64	3.31	32.80
Wheat	.13	2.11	1.81	3.65	13.92
Maize	1.36	22.04	12.44	25.10	9.15
Sorghum	3.56	57.70	29.91	60.35	8.40
Millet	-	-	-	-	-
Oats	-	-	-	-	-
Pulses	.03	.49	.66	1.33	22.00
Horse Beans	-	-	-	-	-
Field Peas	-	-	-	-	-
Haricot Beans	.03	.49	.64	1.29	21.33
Chick Peas	-	-	-	-	-
Lentils	**	**	**	**	**
Vetch	-	-	-	-	-
Others	1.04	16.86	3.11	6.28	2.99
Neug	-	-	-	-	-
Linseed	-	-	-	-	-
Rapeseed	-	-	-	-	-
Ground Nuts	1.04	16.86	**	**	**
Sunflower	-	-	-	-	-
Sesame	-	-	-	-	-
Fenugreek	-	-	-	-	-
All Crops	6.17	100.00	49.56	100.00	8.03

Table 13. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Addis Ababa

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	7.51	82.17	123.23	83.62	16.41
Teff	4.52	49.45	68.58	46.54	15.17
Barley	**	**	**	**	**
Wheat	2.69	29.43	50.57	34.31	18.80
Maize	**	**	**	**	**
Sorghum	**	**	**	**	**
Millet	-	-	-	-	-
Oats	**	**	**	**	-q
Pulses	1.55	16.96	23.47	15.93	15.14
Horse Beans	.19	2.08	1.51	1.02	7.95
Field Peas	.02	.22	.27	.18	13.50
Haricot Beans	-	-	-	-	-
Chick Peas	.47	5.14	7.24	4.91	15.40
Lentils	.32	3.50	3.03	2.06	9.47
Vetch	.56	6.13	11.43	7.76	20.41
Others	.08	.88	.68	.46	8.50
Neug	-	-	-	-	-
Linseed	**	**	**	**	**
Rapeseed	-	-	-	-	-
Ground Nuts	-	-	-	-	-
Sunflower	-	-	-	-	-
Sesame	-	-	-	-	-
Fenugreek	.08	.88	.67	.45	8.38
All Crops	9.14	100.00	147.37	100.00	16.12

Table 14. Forecast of Area, Production and Yield of Major Crops for Private Peasant Holdings 1996/97 (1989 E.C.)

Dire Dawa

CROP	TOTAL AREA		TOTAL PRODUCTION		YIELD (QT/HA)
	(000' hectare)	%	(000' quintal)	%	
Cereals	5.74	98.29	61.65	96.83	10.74
Teff	-	-	-	-	-
Barley	-	-	-	-	-
Wheat	-	-	-	-	-
Maize	.18	3.08	4.24	6.66	23.56
Sorghum	5.56	95.21	57.41	90.17	10.33
Millet	-	-	-	-	-
Oats	-	-	-	-	-
Pulses	.10	1.71	2.01	3.16	20.10
Horse Beans	-	-	-	-	-
Field Peas	**	**	**	**	**
Haricot Beans	.09	1.54	1.87	2.94	20.78
Chick Peas	-	-	-	-	-
Lentils	-	-	-	-	-
Vetch	-	-	-	-	-
Others	-	-	.01	.02	-
Neug	-	-	-	-	-
Linseed	-	-	-	-	-
Rapeseed	-	-	-	-	-
Ground Nuts	-	-	-	-	-
Sunflower	-	-	-	-	-
Sesame	**	**	**	**	**
Fenugreek	-	-	-	-	-
All Crops	5.84	100.00	63.67	100.00	10.90

\*\* These estimates could not be reported in this table because of high coefficient of variation (i.e. They are less reliable). However they are consolidated in the total estimates.

**APPENDIX- I**

**NUMBER OF EAS' SAMPLED AND ACTUALLY COVERED  
FOR 1996/97 CROP PRODUCTION FORECAST SURVEY.**

APPENDIX 1. NUMBER OF EAs SAMPLED AND ACTUALLY COVERED FOR 1996/97(1989 E.C)  
CROP PRODUCTION FORECAST SURVEY.

REGION	REPORTING LEVEL (STRATA)	NUMBER OF EAs SAMPLED	NUMBER OF EAs COVERED	% COVERED FROM SAMPLED EAs
TIGRAY	TIGRAY	35	33	94.29
AFAR	AFAR	25	18	72.00
AMHARA	N & S. GONDER	40	40	100.00
	AGEWAWI, E & W. GOJAM	40	40	100.00
	N.WOLLO & WAGHAMRA	35	35	100.00
	S. WOLLO, OROMIA & N. SHEWA	40	40	100.00
	<b>TOTAL</b>	<b>155</b>	<b>155</b>	<b>100.00</b>
OROMIA	E & W. WELLEGA	40	40	100.00
	ILLUBABOR & JIMA	40	40	100.00
	N & W. SHEWA	40	40	100.00
	E. SHEWA, ARSI, BALE & BORENA	40	40	100.00
	E & W. HARARGHE	40	40	100.00
	<b>TOTAL</b>	<b>200</b>	<b>200</b>	<b>100.00</b>
SOMALE	SOMALE	25	24	96.00
BENSHANGULE - GUMEZ	BENESHANGULE-GUMEZ	25	25	100.00
S.N.N.P.R.	YEM,KEFICHO,MAJI,SHEKICHO & BENCH	35	35	100.00
	N & S.OMO,DERASHE & KONSO	35	35	100.00
	HADIYA, KEMBATA & GURAGE	35	35	100.00
	SIDAMA, GEDIO,BURJI & AMARO	35	35	100.00
	<b>TOTAL</b>	<b>140</b>	<b>140</b>	<b>100.00</b>
GAMBELA	GAMBELA	25	22	88.00
HARARI	HARARI	25	25	100.00
ADDIS ABABA	ADDIS ABABA	25	25	100.00
DIRE DAWA	DIRE DAWA	25	25	100.00
	<b>GRAND TOTAL</b>	<b>705</b>	<b>692</b>	<b>98.16</b>

**APPENDIX-II**

**ESTIMATION PROCEDURES OF TOTAL, RATIO AND SAMPLING  
ERRORS**

APPENDIX II

ESTIMATION PROCEDURES OF TOTAL, RATIO AND SAMPLING ERRORS

Estimator of Total

The estimate of stratum total  $\hat{Y}_h$  is given by:

$$\hat{Y}_h = \sum_{i1}^{n_h} \left[ \frac{M_h}{n_h M_{hi}} \frac{H_{hi}}{h_{hi}} \sum_{j1}^{h_{hi}} Y_{hij} \right] \quad (1)$$

Where:

- $N_h$  = total number of EAs in stratum h
- $n_h$  = number of sample EAs in stratum h
- $M_{hi}$  = total number of households of EA i in stratum h obtained from the 1994 census map work
- $M_h$  =  $\sum_{i1}^{N_h} M_{hi}$  , total number of households of stratum h
- $H_{hi}$  = total number of agricultural households listed during the survey for EA i in stratum h
- $h_{hi}$  = number of agricultural households and successfully covered
- $Y_{hij}$  = the observed value of the variable y for agricultural households j, of EA i in stratum h

### Estimator of Variance for Total

The variance of stratum total estimate  $\hat{Y}_h$  is:

$$v(\hat{Y}_h) = \frac{n_h}{n_h - 1} \left[ \sum (\hat{Y}_{hi} - \frac{\hat{Y}_h}{n_h})^2 \right] \quad (2)$$

Where:

$\hat{Y}_{hi}$  = estimated total for EA i in stratum h

$\hat{Y}_h$  = estimated total for stratum h

### Coefficient of variation of total

The coefficient of variation of total is defined as:

$$CV = \frac{\sqrt{v(\hat{Y}_h)}}{\hat{Y}_h} \times 100$$

### Estimator of Ratio

The estimator of a given ratio  $\hat{R}_h$  in stratum h is the following:

$$\hat{R}_h = \frac{\hat{Y}_h}{\hat{X}_h}$$

Where:

$\hat{R}_h$  = estimate for the ratio of  $\hat{Y}_h$  to  $\hat{X}_h$  in stratum h

$\hat{Y}_h$  = estimated total for variable Y in stratum h,  
given by formula (1)

$\hat{X}_h$  = estimated total for variable X in stratum h,  
given by formula (2)

### Estimator of variance for ratio

The variance of a ratio is given by

$$v(\hat{R}_h) = \frac{1}{\hat{X}_h^2} [v(\hat{Y}_h) + \hat{R}_h^2 v(\hat{X}_h) - 2\hat{R}_h \text{cov}(\hat{X}_h, \hat{Y}_h)] \quad (3)$$

### Coefficient of variation of ratio

The coefficient of variation of ratio is defined as:

$$cv = \frac{\sqrt{v(\hat{R}_h)}}{\hat{R}_h} \times 100$$

**APPENDIX-III**

**STANDARD ERROR AND COEFFICIENT OF VARIATION FOR  
AREA AND PRODUCTION FORECAST**

APPENDIX III STANDARDERD ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF AREA AND PRODUCTION, OF MAJOR CROPS,1995/96(1988 E.C).

STANDARDERD ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF AREA AND PRODUCTION, OF MAJOR CROPS,1996/97(1989 E.C)

NATIONAL

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	2210.25	116.40	5.27	20858.30	1391.88	6.67
BARELY	705.65	61.78	8.76	7180.51	736.66	10.26
WHEAT	807.48	67.09	8.31	9968.29	908.05	9.11
MAIZE	1369.59	77.59	5.67	23290.62	1809.92	7.77
SORGHUM	1364.48	86.93	6.37	19798.68	1886.31	9.53
MILLET	286.62	38.76	13.52	2690.06	367.97	13.68
OATS	41.54	14.43	34.73	660.34	307.99	46.64
HORSEBEANS	338.01	22.34	6.61	3608.95	274.11	7.60
FIELDPEAS	167.10	17.60	10.53	1424.84	206.17	14.47
HARICOTBEANS	104.50	15.75	15.07	966.52	154.76	16.01
CHICKPEAS	118.89	19.28	16.22	1183.88	216.83	18.32
LENTILS	50.07	7.31	14.59	334.56	54.00	16.14
VECTH	81.97	17.99	21.95	953.88	239.00	25.06
NEUG	241.44	30.15	12.49	887.14	169.55	19.11
LINSEED	177.64	34.01	19.14	1219.99	364.64	29.89
RAPESEED	22.74	7.74	34.05	402.34	147.68	36.70
GROUDNUTS	14.59	6.64	45.52	**	**	**
SUNFLOWER	4.20	1.85	44.16	**	**	**
SEASAME	17.81	6.36	35.72	60.51	22.52	36.64
FENUGREEK	13.02	4.12	31.64	82.25	27.46	33.38
TOTAL	8137.59	211.07	2.59	95722.75	9370.06	9.79

NOTE

For estimates of area and production with CV greater than or equal to 30 %, users are advised to use them cautiously. Because the higher the CV the more unreliable the estimate will be.

STANDARDERD ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF AREA AND PRODUCTION, OF MAJOR CROPS,1996/97(1989 E.C)

TIGRAY

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	101.14	13.25	13.10	722.80	131.55	18.20
BARELY	63.10	13.77	21.83	514.14	117.47	22.85
WHEAT	59.78	13.73	22.97	537.51	141.88	26.40
MAIZE	43.65	8.64	19.80	651.26	173.20	26.60
SORGHUM	141.44	28.98	20.49	2556.65	775.46	30.33
MILLET	52.37	12.74	24.33	406.90	108.24	26.60
OATS	-	-	-	**	**	**
HORSEBEANS	11.54	3.45	29.89	175.59	56.38	32.11
FIELDPEAS	2.83	1.11	39.28	16.40	7.68	46.81
HARICOTBEANS	**	**	**	**	**	**
CHICKPEAS	4.18	1.63	38.92	30.93	13.55	43.82
LENTILS	5.54	2.39	43.11	21.74	6.02	27.71
VECTH	**	**	**	**	**	**
NEUG	**	**	**	-	-	-
LINSEED	**	**	**	**	**	**
RAPESEED	-	-	-	-	-	-
GROUDNUTS	-	-	-	-	-	-
SUNFLOWER	-	-	-	-	-	-
SEASAME	**	**	**	**	**	**
FENUGREEK	**	**	**	**	**	**

Abbriviations.

S.E.= Standard Error

C.V.= Coefficient of Variation

- Insignificant or not available

STANDARDER ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97 (1989 E.C)

AFAR

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	7.64	3.63	47.51	65.89	31.49	47.79
BARELY	**	**	**	**	**	**
WHEAT	**	**	**	**	**	**
MAIZE	1.89	0.68	35.84	16.27	6.85	42.08
SORGHUM	19.56	7.67	39.22	176.66	55.47	31.40
MILLET	-	-	-	-	-	-
OATS	-	-	-	-	-	-
HORSEBEANS	**	**	**	**	**	**
FIELDPEAS	**	**	**	**	**	**
HARICOTBEANS	-	-	-	**	**	**
CHICKPEAS	0.22	0.08	36.98	1.13	0.50	43.96
LENTILS	**	**	**	**	**	**
VECTH	-	-	-	-	-	-
NEUG	-	-	-	-	-	-
LINSEED	-	-	-	-	-	-
RAPESEED	-	-	-	-	-	-
GROUDNUTS	-	-	-	-	-	-
SUNFLOWER	-	-	-	-	-	-
SEASAME	**	**	**	**	**	**
FENUGREEK	-	-	-	-	-	-

Abbriations.

S.E. = Standard Error

C.V. = Coefficient of Variation

- Insignificant or not available

STANDARDER ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97 (1989 E.C)

AMHARA

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	908.45	66.12	7.28	7433.81	665.99	8.96
BARELY	239.35	28.23	11.80	1891.80	294.45	15.56
WHEAT	222.54	30.06	13.51	2077.48	317.80	15.30
MAIZE	338.96	30.08	8.87	5023.70	679.50	13.53
SORGHUM	583.84	63.59	10.89	7629.90	1221.59	16.01
MILLET	177.12	34.99	19.75	1556.24	314.83	20.23
OATS	9.04	2.81	31.14	93.26	38.12	40.88
HORSEBEANS	129.58	15.26	11.78	1202.07	180.20	14.99
FIELDPEAS	55.13	8.21	14.90	407.24	120.16	29.51
HARICOTBEANS	19.14	7.43	38.81	105.31	44.39	42.15
CHICKPEAS	76.13	14.44	18.96	751.12	163.51	21.77
LENTILS	27.16	5.57	20.52	182.11	41.63	22.86
VECTH	36.24	9.54	26.31	353.41	92.69	26.23
NEUG	123.20	21.39	17.36	473.74	135.25	28.55
LINSEED	49.11	14.16	28.83	181.34	61.86	34.11
RAPESEED	11.91	5.27	44.22	**	**	**
GROUDNUTS	-	-	-	-	-	-
SUNFLOWER	4.04	1.85	45.78	**	**	**
SEASAME	**	**	**	**	**	**
FENUGREEK	5.88	2.14	36.46	49.38	24.65	49.92

Abbriations.

S.E. = Standard Error

C.V. = Coefficient of Variation

- Insignificant or not available

STANDARD ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97 (1989 E.C)

OROMIYA

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	990.55	97.43	9.84	10639.27	1257.83	11.82
BARELY	340.89	51.49	15.10	4039.44	638.45	15.81
WHEAT	441.65	57.00	12.91	5972.42	772.57	12.94
MAIZE	756.78	68.67	9.07	13992.35	1651.31	11.80
SORGHUM	422.79	48.74	11.53	6810.69	1165.39	17.11
MILLET	45.54	8.89	19.52	561.70	142.47	25.36
OATS	32.34	14.24	44.02	**	**	**
HORSEBEANS	147.46	14.31	9.70	1622.73	168.83	10.40
FIELDPEAS	82.85	14.50	17.50	729.23	160.12	21.96
HARICOTBEANS	59.38	13.56	22.84	633.99	142.96	22.55
CHICKPEAS	35.46	12.89	36.36	377.13	144.02	38.19
LENTILS	15.52	4.12	26.51	107.04	31.25	29.20
VECTH	43.24	15.33	35.46	577.52	221.33	38.32
NEUG	103.59	20.85	20.12	381.41	101.37	26.58
LINSEED	125.81	30.72	24.42	1028.19	360.40	35.05
RAPESEED	**	**	**	**	**	**
GROUNDNUTS	**	**	**	**	**	**
SUNFLOWER	**	**	**	**	**	**
SEASAME	**	**	**	**	**	**
FENUGREEK	**	**	**	29.29	11.97	40.85

Abbreviations.

S.E. = Standard Error

C.V. = Coefficient of Variation

- Insignificant or not available

STANDARD ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97 (1989 E.C)

SOMALIE

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	-	-	-	-	-	-
BARELY	3.91	1.02	26.09	26.54	8.77	33.04
WHEAT	3.63	1.37	37.75	31.69	12.03	37.95
MAIZE	19.00	3.61	19.02	198.72	51.89	26.11
SORGHUM	24.67	4.89	19.84	212.80	48.61	22.84
MILLET	-	-	-	-	-	-
OATS	**	**	**	**	**	**
HORSEBEANS	-	-	-	-	-	-
FIELDPEAS	**	**	**	**	**	**
HARICOTBEANS	**	**	**	**	**	**
CHICKPEAS	**	**	**	**	**	**
LENTILS	**	**	**	**	**	**
VECTH	-	-	-	-	-	-
NEUG	-	-	-	-	-	-
LINSEED	-	-	-	-	-	-
RAPESEED	-	-	-	-	-	-
GROUNDNUTS	**	**	**	-	-	-
SUNFLOWER	-	-	-	-	-	-
SEASAME	-	-	-	-	-	-
FENUGREEK	**	**	**	**	**	**

Abbreviations.

S.E. = Standard Error

C.V. = Coefficient of Variation

- Insignificant or not available

STANDARDERD ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97 (1989 E.C)

BENSHANGUL- GUMEZ

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	18.29	5.28	28.87	116.58	41.52	35.61
BARELY	**	**	**	**	**	**
WHEAT	**	**	**	**	**	**
MAIZE	24.31	7.03	28.91	457.18	137.22	30.02
SORGHUM	39.40	7.76	19.69	685.25	162.05	23.65
MILLET	6.65	2.74	41.16	74.05	31.81	42.96
OATS	**	**	**	**	**	**
HORSEBEANS	**	**	**	**	**	**
FIELDPEAS	**	**	**	**	**	**
HARICOTBEANS	1.42	0.68	47.93	**	**	**
CHICKPEAS	**	**	**	**	**	**
LENTILS	**	**	**	**	**	**
VECTH	0.00	0.00	-	-	-	-
NEUG	14.46	3.60	23.94	31.99	11.24	35.14
LINSEED	**	**	**	**	**	**
RAPESEED	-	-	-	-	-	-
GROUNDNUTS	1.42	0.63	44.46	**	**	**
SUNFLOWER	-	-	-	-	-	-
SEASAME	3.30	1.54	46.48	6.82	2.30	33.73
FENUGREEK	**	**	**	**	**	**

Abbreviations.

S.E. = Standard Error

C.V. = Coefficient of Variation

- Insignificant or not available

STANDARDERD ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97 (1989 E.C)

S.N.N.P.R

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	179.66	23.40	13.03	1811.33	247.01	13.64
BARELY	56.91	13.65	23.99	693.20	184.83	26.66
WHEAT	75.21	15.58	20.72	1284.49	335.27	26.10
MAIZE	179.55	26.42	14.71	2851.55	586.29	20.56
SORGHUM	121.39	23.91	19.69	1600.89	355.01	22.18
MILLET	4.93	2.05	41.68	91.10	43.10	47.31
OATS	-	-	-	-	-	-
HORSEBEANS	47.95	7.93	16.54	592.64	115.12	19.43
FIELDPEAS	25.92	5.69	21.97	269.72	60.85	22.56
HARICOTBEANS	22.94	4.49	19.59	189.06	49.15	25.99
CHICKPEAS	1.55	0.69	44.35	**	**	**
LENTILS	**	**	**	**	**	**
VECTH	**	**	**	-	-	-
NEUG	-	-	-	-	-	-
LINSEED	**	**	**	**	**	**
RAPESEED	**	**	**	**	**	**
GROUNDNUTS	-	-	-	-	-	-
SUNFLOWER	**	**	**	**	**	**
SEASAME	-	-	-	-	-	-
FENUGREEK	**	**	**	**	**	**

Abbreviations.

S.E. = Standard Error

C.V. = Coefficient of Variation

- Insignificant or not available

STANDARD ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97(1989 E.C)

GAMBELA

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	**	**	**	**	**	**
BARELY	-	-	-	-	-	-
WHEAT	-	-	-	-	-	-
MAIZE	3.92	1.46	37.24	82.82	33.51	40.46
SORGHUM	2.21	0.47	21.45	37.91	9.80	25.86
MILLET	**	**	**	**	**	**
OATS	-	-	-	-	-	-
HORSEBEANS	-	-	-	-	-	-
FIELDPEAS	-	-	-	-	-	-
HARICOTBEANS	**	**	**	**	**	**
CHICKPEAS	-	-	-	-	-	-
LENTILS	-	-	-	-	-	-
VECTH	-	-	-	-	-	-
NEUG	-	-	-	-	-	-
LINSEED	-	-	-	-	-	-
RAPESEED	-	-	-	-	-	-
GROUNDNUTS	**	**	**	**	**	**
SUNFLOWER	-	-	-	-	-	-
SEASAME	**	**	**	**	**	**
FENUGREEK	-	-	-	-	-	-

Abbreviations.

S.E. = Standard Error

C.V. = Coefficient of Variation

- Insignificant or not available

STANDARD ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97(1989 E.C)

HARARI

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	-	-	-	-	-	-
BARELY	0.05	0.02	45.43	1.64	0.78	47.55
WHEAT	0.13	0.05	37.80	1.81	0.77	42.47
MAIZE	1.36	0.17	12.12	12.44	2.10	16.86
SORGHUM	3.56	0.40	11.24	29.91	5.10	17.06
MILLET	-	-	-	-	-	-
OATS	-	-	-	-	-	-
HORSEBEANS	-	-	-	-	-	-
FIELDPEAS	-	-	-	-	-	-
HARICOTBEANS	0.03	0.01	44.51	0.64	0.30	46.46
CHICKPEAS	-	-	-	-	-	-
LENTILS	-	-	-	**	**	**
VECTH	-	-	-	-	-	-
NEUG	-	-	-	-	-	-
LINSEED	-	-	-	-	-	-
RAPESEED	-	-	-	-	-	-
GROUNDNUTS	1.04	0.32	30.97	**	**	**
SUNFLOWER	-	-	-	-	-	-
SEASAME	-	-	-	-	-	-
FENUGREEK	-	-	-	-	-	-

Abbreviations.

S.E. = Standard Error

C.V. = Coefficient of Variation

- Insignificant or not available

STANDARDER ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97 (1989 E.C)

ADDIS ABABA

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	4.52	0.51	11.34	68.58	10.17	14.82
BARELY	**	**	**	**	**	**
WHEAT	2.69	0.44	16.52	50.57	12.29	24.31
MAIZE	**	**	**	**	**	**
SORGHUM	**	**	**	**	**	**
MILLET	-	-	-	-	-	-
OATS	-	-	-	**	**	**
HORSEBEANS	0.19	0.07	38.78	1.51	0.67	44.62
FIELDPEAS	**	**	**	**	**	**
HARICOTBEANS	-	-	-	-	-	-
CHICKPEAS	0.47	0.11	24.64	7.24	1.90	26.23
LENTILS	0.32	0.09	28.55	3.03	0.91	29.97
VECTH	0.56	0.10	17.99	11.43	2.61	22.80
NEUG	-	-	-	-	-	-
LINSEED	-	-	-	**	**	**
RAPESEED	-	-	-	-	-	-
GROUNDNUTS	-	-	-	-	-	-
SUNFLOWER	-	-	-	-	-	-
SEASAME	-	-	-	-	-	-
FENUGREEK	0.08	0.03	33.02	0.67	0.20	30.72

Abbreviations.

S.E. = Standarder Error

C.V. = Coefficient of Variation

- Insignificant or not available

STANDARDER ERROR AND COEFFICIENT OF VARIATION FOR FORECAST OF  
AREA AND PRODUCTION, OF MAJOR CROPS, 1996/97 (1989 E.C)

DIREDAWA

TYPE OF CROP	AREA (000' HA)	S.E. (000' HA)	C.V. (%)	PRODUCTION (000' QT)	S.E. (000' QT)	C.V. (%)
TEFF	-	-	-	-	-	-
BARELY	-	-	-	-	-	-
WHEAT	-	-	-	-	-	-
MAIZE	0.18	0.07	36.67	4.24	1.55	36.62
SORGHUM	5.56	0.76	13.59	57.41	7.40	12.90
MILLET	-	-	-	-	-	-
OATS	-	-	-	-	-	-
HORSEBEANS	-	-	-	-	-	-
FIELDPEAS	**	**	**	**	**	**
HARICOTBEANS	0.09	0.04	42.02	1.87	0.78	41.67
CHICKPEAS	-	-	-	-	-	-
LENTILS	-	-	-	-	-	-
VECTH	-	-	-	-	-	-
NEUG	-	-	-	-	-	-
LINSEED	-	-	-	-	-	-
RAPESEED	-	-	-	-	-	-
GROUNDNUTS	-	-	-	-	-	-
SUNFLOWER	-	-	-	-	-	-
SEASAME	-	-	-	**	**	**
FENUGREEK	-	-	-	-	-	-

Abbreviations.

S.E. = Standarder Error

C.V. = Coefficient of Variation

- Insignificant or not available

**APPENDIX-IV**

**NUMBER OF FIELDS MEASURED UNDER MAJOR CROPS**

**APPENDIX IV. NUMBER OF FIELDS MEASURED UNDER MAJOR CROP II  
1996/97(1989 E.C.)CROP PRODUCTION FORECAST SURVEY**

<b>REGION</b>	<b>REPORTING LEVEL (STRATA)</b>	<b>NUMBER OF FIELDS MEASURED</b>
<b>TIGRAY</b>	TIGRAY	1295
<b>AFAR</b>	AFAR	397
<b>AMHARA</b>	N & S. GONDER	2541
	AGEWAWI, E & W. GOJAM	2308
	N.WOLLO & WAGHAMRA	1520
	S. WOLLO, OROMIA & N. SHEWA	2332
	<b>TOTAL</b>	<b>8701</b>
<b>OROMIA</b>	E & W. WELLEGA	2876
	ILLUBABOR & JIMA	2360
	N & W. SHEWA	2276
	E. SHEWA, ARSI, BALE & BORENA	1829
	E & W. HARARGHE	1428
	<b>TOTAL</b>	<b>10769</b>
<b>SOMALE</b>	SOMALE	478
<b>BENSHANGULE – GUMEZ</b>	BENESHANGULE – GUMEZ	1332
<b>S.N.N.P.R.</b>	YEM,KEFICHO,MAJI,SHEKICHO & BENCH	1547
	N & S.OMO,DERASHE & KONSO	1387
	HADIYA, KEMBATA & GURAGE	1879
	SIDAMA, GEDIO,BURJI & AMARO	1187
	<b>TOTAL</b>	<b>6000</b>
<b>GAMBELA</b>	GAMBELA	570
<b>HARARI</b>	HARARI	763
<b>ADDIS ABABA</b>	ADDIS ABABA	1097
<b>DIRE DAWA</b>	DIRE DAWA	377
	<b>GRAND TOTAL</b>	<b>31779</b>

**APPENDIX-V**

**QUESTIONAIRES USED FOR 1996/97 CROP PRODUCTION  
FORECAST SURVEY.**





CENTRAL STATISTICAL AUTHORITY  
NATIONAL INTEGRATED HOUSEHOLD SURVEY PROGRAM  
CROP PRODUCTION FORECAST - 1989 E.C.

FORM ASS-89/2

JOB ID	1	2	3
	1	3	3

PART 1 - IDENTIFICATION PARTICULARS

ONLY FOR PURE STAND CROPS

1	2	3	4	5	6
KILLIL	ZONE	WEREDA	FARMERS' ASSOCIATION	ENUMERATION AREA	NAME OF CROP
4	5	6	7	8	9
10	11	12	13	14	15
16					

PART 2 CROP CONDITION

1		2		3		4		5		6		7		8		9		10		11		12	
SR. NO.	NAME OF HOLDER	HOUSEHOLD ID NUMBER				HOLD. ID NO.	NUMBER OF FIELDS					CROP PRODUCTIVITY COMPARED TO LAST YEAR										REMARKS	
												INCREASE=1 EQUAL=2 DECREASE=3	IF INCREASE QUANTITY IN PERCENT	IF DECREASE			CHANGE IN PERCENT						
														QUANTITY IN PERCENT	REASON FOR DECREASE	CODE							
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	
0	1																						
0	2																						
0	3																						
0	4																						
0	5																						
0	6																						
0	7																						
0	8																						
0	9																						
1	0																						

63

	NAME	SIGNATURE	DATE
ENUMERATOR			
SUPERVISOR			
REGIONAL SUPERVISOR			

NOTE: THIS FORM SHOULD BE FILLED OUT FOR MIXED CROPS ACCORDING TO THEIR TYPE IN PURE STANDS.

CENTRAL STATISTICAL AUTHORITY  
NATIONAL INTEGRATED HOUSEHOLD SURVEY PROGRAM  
AGRICULTURAL SAMPLE SURVEY - 1989 E.C.

FORM ASS - 89/4A

PART 1 - IDENTIFICATION PARTICULARS

JOB ID	1	2	3																
	1	5	3																
1 REGION				2 ZONE				3 WEREDA				4 FARMERS' ASSOCIATION				5 ENUMERATION AREA			

6 HOUSEHOLD ID NUMBER				7 HOLDER ID NUMBER		8 HOLDER NAME				9 PARCEL		10 FIELD		11 TYPE OF CROP STAND IN FIELD PURE=1 MIXED=2				12 SR. NO.	13 NAME OF CROP		14 CODE		15 PERCENTAGE SHARE OF AREA <small>(CODE 2 IN COL 11)</small>	

PART 2 - RESULTS OF AREA MEASUREMENTS

1 DATE OF AREA MEASUREMENT				3 AREA IN SQUARE METERS								4 AREA IN LOCAL UNITS								7 IF AREA NOT MEASURED REASON				8 CODE					
DAY		MONTH										NAME				CODE				AREA									

	NAME	SIGNATURE	DATE
ENUMERATOR			
SUPERVISOR			
REGIONAL SUPERVISOR			

