

THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
CENTRAL STATISTICAL AGENCY

AGRICULTURAL SAMPLE SURVEY

2007/08(2000E.C)

VOLUME

VI



REPORT ON FARM MANAGEMENT
PRACTICES FOR BELG/SECOND SEASON CROPS

PRIVATE PEASANT HOLDINGS

ADDIS ABABA
OCTOBER 2008

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STATISTICAL BULLETIN

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CHAPTER I

1. INTRODUCTION AND OBJECTIVES OF THE SURVEY

1.1 Introduction

Countrys' experience showed that farmers' attitude and tendency to adopte and accept new innovations, modern agricultural techniques and technologies, such as use of fertilizers, irrigation, improved seeds and pesticides that help to improve their living standards through attaining inhanced productivity, do have positive impact on the development of the agricultural sector as a whole.

The extent of adopting modern agricultural practices, such as utilization of fertilizer, irrigation, pesticides and improved seeds by the peasant farmers can be considered as important indicators for estimating the rate of adoption of modern technologies.

This report which is Volume VI of the six series reports, presents quantitative information about the use of modern agricultural inputs for Belg season crops of 2007/08 (2000 E.C.) of the private peasant holdings for the country and regions as it was obtained from the results of the Belg Season Crop Production Sample Survey conducted in May, 2008 by the Central Statistical Agency (CSA).

1.2 Objectives of the 2007/08 Belg Season Crop Production Sample Survey

The objectives of the 2007/08 (2000 E.C.), Belg Season Crop Production Sample Survey is to produce basic quantitative information on cropland area, production and yield, of major Belg season crops, as well as to provide quantitative information on:-

- The extent and use of different farm management practices on Belg season crops such as fertilized crop land area and quantity of fertilizer used by crop and fertilizer type, irrigated cropland area under improved seed, pesticide treated cropland area, ... etc.

The adequate and timely supply of this information to ultimate users is, therefore, important for use as a primary input in the process of policy formulation, designing developmental agricultural projects and programmms. This report, therefore, presents quantitative information on the above mentioned major variables at country and regional levels.

CHAPTER II

2. SURVEY METHODOLOGY, FIELD ORGANIZATION, METHOD OF DATA COLLECTION AND PROCESSING

2.1 COVERAGE

The 2007/8 (2000 E.C) Annual Agricultural Sample Survey (Belg season) covered the entire rural parts of the country except the non-sedentary population of three zones of Afar & six zones of Somali regions. Accordingly the survey took in to account of all parts of Harari, Dire Dawa, and 68 Zones / Special weredas (that are treated as zones) of other regions.

To be covered by the survey, a total of 2,200 Enumeration Areas (EAs) were selected. However, due to various reasons that are beyond control, in 75 EAs the survey could not be successful and hence interrupted. Thus, all in all the survey succeeded to cover 2,125 EAs throughout the regions. The Annual Agricultural Sample survey (Belg season) was conducted on the basis of 30 agricultural households selected from each EA. Regarding the ultimate sampling units, it was intended to cover a total of 66,000 agricultural households, however 63750 were actually covered by the survey.

2.2 SAMPLING FRAME

The list containing EAs of all regions and their respective households obtained from the 1999 E.C cartographic census frame was used as the sampling frame in order to select the primary sampling units (EAs). Consequently, all sample EAs were selected from this frame based on the design proposed for the survey. The second stage sampling units, households, were selected from a fresh list of households that were prepared for each EA at the beginning of the survey.

2.3 SAMPLE DESIGN

In order to select the sample a stratified two-stage cluster sample design was implemented. Enumeration areas (EAs) were taken to be the primary sampling units (PSUs) and the secondary sampling units (SSUs) were agricultural households.

The sample size for the 2007/8 agricultural sample survey was determined by taking into account of both the required level of precision for the most important estimates within each domain and the amount of resources allocated to the survey. In order to reduce non-sampling errors, manageability of the survey in terms of quality and operational control was also considered.

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

2.4 SELECTION SCHEME

Enumeration areas from each stratum were selected systematically using probability proportional to size sampling technique; size being number of agricultural households. The sizes for EAs were obtained from the 1999 E.C cartographic census frame. From the fresh list of households prepared at the beginning of the survey 30 agricultural households within each sample EA were selected systematically.

Estimation procedure of totals, ratios, sampling error and the measurement of precision of estimates (CV) are given in Appendix-I and II respectively. Distribution of sampling units (sampled and covered EAs and households) by stratum is also presented in Appendix-III.

2.5 Field Organization

The Central Statistical Agency (CSA) Branch Statistical Office heads, field supervisors and enumerators, other supporting staff and drivers were all involved in the field operation activities of the 2007/08(2000 E.C.) Belg season Crop Production Sample survey. To accomplish the data collection activities, all field enumerators were equipped with the

necessary survey equipment (i.e. compass, programmable calculator, measuring tape, sample bags... etc) at the completion of training. To assist with the fieldwork and data collection activities all available four-wheel drive vehicles were used for supervision and collection of completed questionnaires.

2.6 Training of Field Staff

At the beginning of the survey year, the field staff-training program was carried out in two stages. The first stage consisted of trainees from the head office, branch statistical office heads, statisticians and some of the field supervisors have been given training for one week at CSA's headquarters in Addis Ababa. Many of those trained in the first stage conducted similar training for field supervisors and enumerators for 15 days in CSA's 25 branch offices, which are distributed all over the country. During the second stage training, the field staff were given detailed classroom instruction on the objectives and uses of the Agricultural Sample Survey (AgSS) concepts, definitions of terms used, the method of area measurement, as well as correct interviewing procedures, ... etc. The enumerator's and supervisors' training also included a field practice to reinforce the concepts discussed in the classroom with regard to field measurement and the procedures of using programmable calculator.

2.7 Methods of Data Collection.

Except Cropland area of major Belg Season Crop, the data of which collected objectively using compasses and measuring tape, the information on production of major Belg Season crops and agricultural practices (uses of fertilizer, pesticide, improved seed and irrigation) were subjectively collected by interviewing the holders of sampled households. Appendix II, illustrates the total number of EAs and households reporting for the 2007/08 (2000 E.C) Belg crop productions by region.

A major characteristic of Ethiopian agriculture is the existence of two well-known crop production seasons referred to as the Meher (or main) and Belg Seasons. The generally accepted definition of the Meher season is that of the long rainy season, which normally occurs from June to September. The Belg Season most often refers to small but timely rainy season, which normally occurs from February to May but in limited areas of the country. Generally, the Meher Season rainy period provides ideal growing conditions for the longer maturing crops. Planting and harvest of Meher crops can extend to December or

January in some areas. Most of the time holders rely on short maturing crops for planting during the Belg rainy period and harvest of the crops is in June or July.

A point of contention arises with respect to the pure definition of the Belg crop. Belg cropping practices are heterogeneous across different portions of the country. The nature of the sowing period also overlaps with some of the Meher Season crops. Consequently, the report on Belg Season crops in the past faced a problem of a clearly defined growing period. It is important not to overlook or miss agricultural practices performed all year round due to use of irrigation or soil moisture from sufficiently dried areas that from time-to-time are swampy or marshy. To help clarify the two-crop season, the following definition has been in use since 1987/88:

Belg Season Crops were defined as any crops that are harvested during the months of March to August, while those crops that are harvested during September to February are considered Meher (or main) season crops.

This report consists of estimates of area under farm management practices of major Belg Season crops for the year 2007/08 (2000 E.C). The data collection period for obtaining the area, production and agricultural practices of the Belg season crops from 'Ghinbot' 1-30, 2000 E.C. (i.e. From May 8 to June 7, 2008). Data on area under Belg season crop are collected objectively using compass and measuring tapes, while data on production of Belg season crops were using subjective method based on face-to-face interviewing of the holder by the enumerator. Data on production of Belg season crops are usually reported in local production measuring units that require conversion to an equivalent metric unit using the conversion factors available for local units at Wereda level prepared by CSA. The conversion factors have been constructed from experimentally derived data using actual holder production data associated with each local unit.

2.8 Data Processing

a. Editing, Coding and Verification

To insure the quality of the collected survey data an editing, coding, and verification instruction manual was written, and seventeen editors, data coders and verifiers were trained for one day to edit, code and verify the data using the aforementioned manual as a reference and teaching aid.

The enumerator completed, edited and coded questionnaires sent to the head office were thoroughly verified by trained verifiers on a 100% basis before the questionnaires were sent to data entry unit. The editing, coding, verification and data entry of all questionnaires was completed in two weeks time.

b. Data Entry, Cleaning and Tabulation

Before starting data entry computer edit specifications were prepared for use on personal computers utilizing the CSPRO Software for data consistency checking purposes.

The data on the coded questionnaires were then entered into the CSPRO software on personal computers. The data was then checked and cleaned using the computer edit specifications prepared earlier for this purpose. Fifty-six data encoders were involved in this total process and it took fourteen days to complete the job. Finally, tabulation was done on personal computers to produce results as indicated in the tabulation plan.

2.9 Basic Concepts and Definitions

For better understanding and ultimate use of the data presented in this report, the definitions of concepts and terminology used for the collection of all types of data of the 2007/08 (2000 E.C.) Belg season Crop Production Sample survey is presented here below:-

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.

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

Agricultural Household:- 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.

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 helps, 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.

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.

Belg Season Crops:- are defined as any crops that are harvested during the months of March (Megabit) to August (Nchase).

Meher Season Crops:- are those crops that are harvested during September (Meskerem) to February (Yekatit) are considered as main (Meher) season crops.

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

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

Fertilizer:- refers to anything added to the soil intended to increase the amount of plant nutrients available for crop growth. Usually fertilizers are divided into two parts, Natural and commercial. Examples of natural fertilizers are farmyard manure and wood ashes while commercial fertilizers are DAP (Di-Ammonium phosphate) and UREA (Ammonium Nitrate).

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

CHAPTER III

III. SUMMARY OF THE RESULTS OF THE 2007/08 (2000 E.C.) FARM MANAGEMENT PRACTICES OF BELG SEASON SURVEY

In this part of the report, the results of the 2007/08 (2000 E.C) Belg Season Crop Production Sample Survey on the extent and use of Belg season farm management practices are presented. The following are brief discussions on the major findings of the survey.

According to 2007/08 (2000 E.C) Belg Season Crop Production Sample Survey results, it was estimated that Belg season major crops covered 1064.66 thousand hectares of land, in which about 4.34 million holders were engaged in the crop production activity. Of this total cropland area about 351.01 thousand hectares (49.69%) was estimated to be both natural and commercial fertilizer applied area, on which a total of 90.33 thousand quintals of chemical fertilizer was utilized for Belg season crop production. In general, about 1.09 million belg producing agricultural holders reported the use of improved farm management practices in their crop fields with the objective to attain enhanced crop productivity. However, some of them failed to meet their objective due to the prolonged delay of belg rains which was below normal both in its amount and distribution.

Summary Table A: Total Cropland Area and Number of holders engaged in 2007/08(2000 E.C.) belg season crop production activities

• Belg crop Area ('000 ha)	1064.66
• Number of Belg Crop Producing Holders (in million)	4.34
• Fertilizer applied Cropland Area(Natural+Chemical) ('000 ha)	351.01
• Number of holders reporting the use of farm management practices (in million)	1.09
• Quantity of commercial fertilizer applied ('000 qt.)	90.33

3.1 Total Area under Different Farm Management Practices

According to the 2007/08 (2000 E.C) Belg Season Crop Production Sample Survey results, it was estimated that about 105.76 thousand hectares (9.93% of the total cropland area at country level) was under commercial fertilizers, 57.64 thousand hectares (5.41% of the total country level cropland area) was irrigated land, 116.52 thousand hectares (10.94%) was treated with

pesticides and 13.87 thousand hectares (1.30%) was under improved seeds (For details See Summary Table B).

Summary Table B. Total Area Under Improved Farm Management Practices For Belg Season Crops of Private Holdings in Ethiopia 2007/08 (2000 E.C.)

TYPE OF FARM MANAGEMENT PRACTICES	TOTAL AREA IN '000HA.	% FROM TOTAL BELG CROP AREA
IRRIGATION	57.64	5.41
IMPROVED SEEDS	13.87	1.30
COMMERCIAL FERTILIZER	105.76	9.93
PESTICIDES	116.52	10.94

The estimate of total cropland area under different farm management practices for Belg season crops of 2007/08 (2000 E.C) is presented in Summary Table C. As it is indicated in the summary Table, the highest proportion of cropland area under different farm management practices was reported to be covered by cereals, where fertilizer applied, improved seed used, pesticides treated and irrigated cropland area accounted for 283.77; 13.11; 113.10 and 51.05 thousand hectares, with a share of about 26.65%; 1.23%; 10.62% and 4.79% from the total cropland area reported at country level, respectively. While pulses and oilseeds ranked second and third in their order (For details see summary Table C).

Summary Table C. Total Area under Improved Farm Management Practices for Belg Season Crops by major crop category for Private Holdings in Ethiopia, 2007/08 (2000 E.C.).

Crop Type	Total Cropland Area		Cropland Area Under Improved Farm Management Practice							
			Fertilizer (Nat + Cmm)		Impr. Seed		Pesticides		Irrigation	
			in '000 Ha	%	in '000 Ha	% from Total	in '000 Ha	% from Total	in '000 Ha	% from Total
Cereal	864.88	81.24	283.77	26.65	13.11	1.23	113.10	10.62	51.05	4.79
Pulses	187.58	17.62	66.02	6.20	0.76	0.07	3.12	0.29	6.48	0.61
Oilseeds	12.20	1.15	1.22	0.11	*	*	*	*	0.11	0.01
Grains	1064.66	100	351.01	32.97	13.87	1.30	116.52	10.94	57.64	5.41

In most Belg producing regions of the country, improved farm inputs were utilized for Belg crop production. As indicated in Summary Table D, the largest area under Belg season crops was reported by Oromia Region, where Fertilizer applied, improved seed, pesticides treated and irrigated cropland area accounted for 179.49; 2.58; 101.41 and 27.25 thousand hectares, with a share of 16.86%; 0.24%; 9.53% and 2.56% from the total country level cropland area.

respectively. The second and third were S.N.N.P.R. and Amhara Regions in their order (See the details in summary Table D).

Summary Table D. Total Cropland Area under Improved Farm Management Practices for Belg season crops by Region for private Holdings in Ethiopia, 2007/08 (2000 E.C.).

REGION	Total Cropland Area		Cropland Area Under Improved Farm Management Practices							
			Fertilizer(Nat + Com)		Impr. Seed		Pesticides		Irrigation	
	In '000 Ha	%	in '000 Ha	% from Total	in '000 Ha	% from Total	in '000 Ha	% from Total	in '000 Ha	% from Total
Tigray	8.75	0.82	4.49	0.42	0.23	0.02	-	-	7.6	0.71
Amhara	76.43	7.18	31.32	2.94	0.48	0.05	3.95	0.37	13.22	1.24
Oromia	553.64	52.00	179.49	16.86	2.58	0.24	101.41	9.53	27.25	2.56
Somali	3.16	0.30	0.33	0.03	-	-	-	-	-	-
Benshangul-Gmt	3.55	0.33	1.11	0.10	-	-	-	-	0.46	0.04
S.N.N.P.R	412.75	38.77	133.76	12.56	10.53	0.99	11.00	1.03	8.31	0.78
Gambela	5.69	0.53	-	-	-	-	-	-	-	-
Harari	0.58	0.05	0.43	0.04	-	-	0.02	0.00	0.04	0.00
Dire Dawa	0.11	0.01	-	-	-	-	-	-	-	-
GRAINS TOTAL	1064.66	100.00	351.01	32.97	13.87	1.30	116.52	10.94	57.64	5.41

3.2 Total Cropland Area under Fertilizer by Type

The results of the survey indicate that Belg season cropland area under both natural and commercial fertilizers were estimated to be 351.01 thousand hectares, covering 32.97% of the total area under Belg seasons crops of the private holdings. Of this total fertilized area 245.25 thousand hectares (69.87%) was reported to be under natural fertilizers. The coverage of commercial fertilizers was estimated to be 105.76 thousand hectares (30.13%), constituting of 27.91% DAP, 0.74% UREA and 1.48% mixture of the two fertilizers (DAP+UREA). (For details see Summary Table E.)

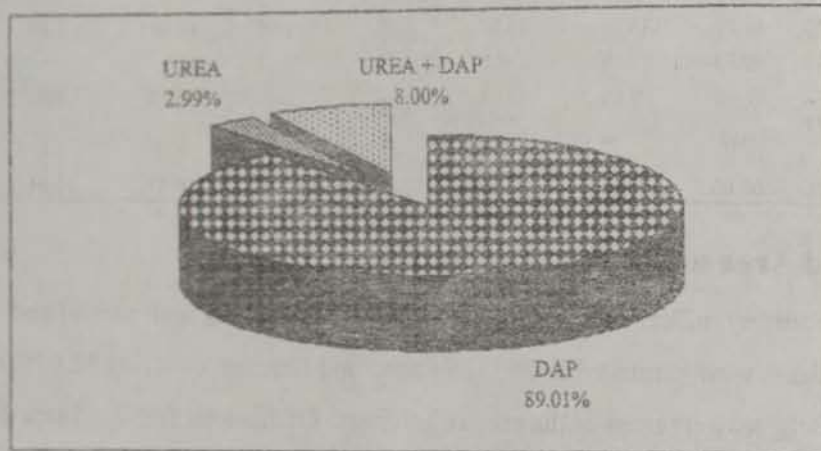
Summary Table E: Total Cropland Area under Fertilizer by Type of Fertilizer for Private Holdings in Ethiopia, 2005/06 (1998 E.C)

TYPE OF FERTILIZER	FERTILIZER APPLIED		PERCENTAGE FROM TOTAL BELG CROP AREA
	AREA IN 000'HA	%	
NATURAL	245.25	69.87	6.56
COMMERCIAL	105.76	30.13	2.83
DAP	97.98	27.91	2.62
UREA	2.58	0.74	0.07
DAP+UREA	5.20	1.48	0.14
TOTAL	351.01	100.00	32.97

3.3 Total Quantity of Commercial Fertilizer Applied by Type

In 2007/08 (2000 E.C.) the total quantity of commercial fertilizer used for Belg season crop production was estimated at 90.33 thousand quintals. Of this total, the share of DAP was the highest accounting for 89.01% (80.40 thousand quintals). The mixture of the two types of fertilizers (DAP+UREA) was the second highest accounting for 8.00% (7.23 thousand quintals). The last was the share of Urea, which accounted for 2.99% (2.70 thousand quintals) (See Fig 2).

Fig. 1. Estimates of total quantity of commercial fertilizer applied by type for Belg season crops of private holdings in Ethiopia, 2007/2008(2000 E.C.)



3.4 Number of Holders Reporting Damaged Cropland Area by Causes of Damage

The total number of belg crop producing private peasant holders who reported their crops were damaged by different causes of damage during the year 2007/08 Belg Season Crop Production harvest were estimated to be about 1.42 million and the damaged cropland area was estimated to be 144.61 thousand hectares. As indicated in Table 4, the highest cropland area was reported for cereals, that is 95.91 thousand hectares, followed by pulses, which is 32.37 thousand hectares.

Table 1: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Ethiopia								
Crop type	All crop land Area	All Fertilizer		Natural		DAP		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain Crops	1064659	351011	90326	2258789	245253	392202	97975	80396
Cereals	864889	283773	67560	2096490	194984	329884	82224	60118
Teff	69004	9950	3524	30900	4126	27139	4878	2733
Barley	141804	65696	21607	252149	28802	97589	35272	20219
Wheat	64596	24888	13253	86268	8961	45834	15728	13065
Maize	512460	157714	27971	1823044	130563	205442	23478	23032
Sorghum	61246	21223	429	142814	20773	5243	324	295
Finger millet	1896	*	*	7512	242	*	*	*
Oats/'Aja'	11872	3657	523	*	*	10877	2140	523
Rice	*	*	-	*	*	-	-	-
Pulse	187575	66017	22761	1195314	49066	203441	15734	20273
Horse/Faba beans	3932	690	*	18352	618	1150	*	*
Field peas	18260	1814	76	19905	1570	1550	*	*
Haricot beans	153068	61868	22330	1156531	45675	201132	15482	20176
Chick peas	4340	482	*	4796	474	-	-	-
Lentiles	1633	*	*	*	*	*	*	*
Vetch/Grass peas	3681	*	*	2680	*	*	*	*
Soya beans	46	369	*	2014	140	-	-	-
Fenugreek	*	369	*	6696	361	-	-	-
Gibto	*	*	-	*	*	-	-	-
Oilseeds	12195	1221	*	30920	1204	*	*	*
Nueg	199	199	199	199	199	199	199	199
Linseed	2558	491	199	3991	199	-	-	-
Ground nuts	*	*	*	11805	*	*	*	*
Safflower	199	199	-	199	*	-	-	-
Sesame	5893	*	-	*	*	-	-	-
Rapeseed	414	*	*	12728	*	*	*	*

Table 1.1: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Tigray Region

Crop type	All crop land Area	All Fertilizer		Natural		DAP		Quintal
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	
Grain Crops	8750	4488	1989	27388	2518	*	*	*
Cereals	6106	3815	1764	23806	1948	*	*	*
Teff	1374*	1311*	*	1300*	1307*	-	-	-
Barley	824	513	*	6224	384	-	-	-
Wheat	*	90*	*	100*	100*	*	*	*
Maize	4208	3050	1397	17488	1401	*	*	*
Sorghum	-	-	-	-	-	-	-	-
Finger millet	181*	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulse	2576	658	*	8510	555	-	-	-
Horse/Faba beans	100*	90*	-	1000*	90*	-	-	-
Field peas	1000*	900*	330*	10000*	900*	10000*	1000*	330*
Haricot beans	*	*	-	*	*	-	-	-
Chick peas	1015	90*	31*	*	*	1000*	100*	30*
Lentiles	100*	*	*	100*	100*	-	-	-
Vetch/Grass peas	1000*	1000*	100*	1000*	1000*	1000*	100*	100*
Soya beans	-	-	-	-	-	-	-	-
Penugreek	1000*	1000*	1000*	1000*	1000*	1000*	1000*	1000*
Gibto	1000*	1000*	1000*	1000*	1000*	1000*	1000*	1000*
Oil seeds	1000*	1000*	1000*	1000*	1000*	1000*	1000*	1000*
Nueg	1000*	1000*	1000*	1000*	1000*	1000*	1000*	1000*
Linseed	1000*	1000*	1000*	1000*	1000*	1000*	1000*	1000*
Ground nuts	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-

Table 1.2: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Crop type	All crop land Area	All Fertilizer		Natural		DAP		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain crops	2062	144	*	621	140	*	*	*
Cereals	1468	136	*	621	132	*	*	*
Teff	781	136	*	621	132	*	*	*
Barley	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-
Maize	-	-	-	-	-	-	-	-
Sorghum	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulse	593	-	-	-	-	-	-	-
Horse/Faba beans	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	331	-	-	-	-	-	-	-
Chick peas	262	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-

Table 1.3: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Amhara Region

Crop type	All crop land Area	All Fertilizer		Natural		DAP		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain Crops	76426	31322	1967	196512	28006	20687	2486	1452
Cereals	66430	29974	1870	191667	27021	20687	2471	1448
Teff	3893	*	-	8135	*	-	-	-
Barley	34471	13346	1336	83953	11292	*	1609	*
Wheat	6253	3644	*	38562	3610	*	*	*
Maize	19641	10792	*	87783	9926	*	*	*
Sorghum	*	*	-	*	*	-	-	-
Finger millet	*	-	-	-	-	-	-	-
Oats/ 'Aja'	*	*	-	*	*	-	-	-
Rice	*	-	-	-	-	-	-	-
Pulse	9917	1309	*	12654	961	-	-	-
Horse/Faba beans	-	-	-	-	-	-	-	-
Field peas	1865	*	-	*	*	-	-	-
Haricot beans	1772	*	*	6785	*	-	-	-
Chick peas	2249	*	-	*	*	-	-	-
Lentiles	*	*	*	*	*	-	-	-
Vetch/Grass peas	3107	*	-	*	*	-	-	-
Soya beans	-	-	-	-	-	-	-	-
Fenugreek	*	*	-	*	*	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil seeds	*	*	*	*	*	*	*	*
Nueg	-	-	-	-	-	-	-	-
Linseed	*	*	-	*	*	-	-	-
Ground nuts	-	-	-	-	-	-	-	-
Safflower	*	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	*	*	*	*	*	*	*	*

Table 1.4: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Oromia Region								
Crop type	All crop land Area	All Fertilizer		Natural		DAP		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain Crops	553638	179487	46596	843928	113969	144030	62413	41506
Cereals	461262	154893	43487	755174	90855	142244	61295	39742
Teff	46621	6660	2881	12792	2354	13530	3451	*
Barley	88560	48240	19833	114542	13820	85622	33481	19104
Wheat	55910	20408	13072	37683	4601	45382	15696	13013
Maize	228168	63119	6723	628119	56345	35857	6025	4595
Sorghum	31650	13737	*	78766	13489	2210	*	*
Finger millet	*	*	*	2072	*	*	*	*
Oats/ 'Aja'	9820	2271	493	3112	163	10259	2108	493
Rice	*	-	-	-	-	-	-	-
Pulse	83610	23851	3109	498188	22372	20635	1118	1763
Horse/Faba beans	2462	*	*	11405	*	*	*	*
Field peas	14816	1167	*	8653	1035	*	*	*
Haricot beans	62986	21943	3039	483478	20661	19038	990	1715
Chick peas	967	*	-	*	*	*	*	*
Lentiles	261	*	*	1573	*	*	*	*
Vetch/Grass peas	*	*	-	*	*	*	*	*
Soya beans	*	*	-	*	*	*	*	*
Fenugreek	*	*	-	*	*	*	*	*
Gibto	*	-	-	-	-	-	-	-
Oil seeds	8766	742	-	16173	742	-	-	-
Nueg	*	*	-	*	*	*	*	*
Linsced	2422	*	-	*	*	*	*	*
Ground nuts	*	*	-	*	*	*	*	*
Safflower	*	*	-	*	*	*	*	*
Sesame	4603	*	-	*	*	*	*	*
Rapeseed	*	*	-	*	*	*	*	*

Table 1.5: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Somale Region

Crop type	All crop land Area	All Fertilizer		Natural		DAP		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain Crops	3160	325	-	*	325	-	-	-
Cereals	2916	316	-	*	316	-	-	-
Teff	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-
Maize	2916	316	-	*	316	-	-	-
Sorghum	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulse	*	*	-	*	*	-	-	-
Horse/Faba beans	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	*	*	-	*	*	-	-	-
Chick peas	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-

Table 1.6: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Benshangul-Gumuz Region

Crop type	All crop land Area	All Fertilizer		Natural		DAP		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain Crops	3553	1106	*	10345	1020	*	*	*
Cereals	1460	562	*	8916	521	*	*	*
Teff	-	-	-	11788	-	-	-	-
Barley	131	*	-	-	-	-	-	-
Wheat	*	-	-	-	-	-	-	-
Maize	1262	548	*	8783	506	*	*	*
Sorghum	64	*	-	-	-	-	-	-
Finger millet	*	-	-	-	-	-	-	-
Oats/ 'Aja'	*	-	-	-	-	-	-	-
Rice	*	*	-	-	-	-	-	-
Pulse	2092	543	-	9240	499	-	-	-
Horse/Faba beans	35	138	-	8280	178	-	-	-
Field peas	*	*	-	-	-	-	-	-
Haricot beans	2055	543	-	9224	498	-	-	-
Chick peas	*	-	-	-	-	-	-	-
Lentiles	1780	180	-	8231	121	-	-	-
Vetch/Grass peas	38011	3800	-	91981	3011	3811	120	-
Soya beans	321708	18700	18700	1010200	11012	127008	19401	13800
Fenugreek	3701	-	-	8011	-	-	-	-
Gibto	13808	1700	170	45508	1800	1115	180	171
Oil seeds	13801	3701	37	8011	801	17008	1911	171
Nueg	331701	88014	30101	1100802	28018	199101	18201	18201
Linseed	81224	139100	28218	1127011	88008	338102	33801	32700
Ground nuts	*	*	-	-	-	-	-	-
Safflower	*	*	-	-	-	-	-	-
Sesame	*	-	-	-	-	-	-	-
Rapeseed	*	-	-	-	-	-	-	-

Table 1.7: Number of Holders, Inputs Applied Area and Quantity of Inputs used

(S.N.N.P.R) Region

Crop type	All crop land Area	All Fertilizer		Natural		DAP		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain Crops	412754	133760	39518	1173332	98996	226163	32894	37270
Cereals	321253	93834	20302	1109885	74018	165632	18332	18792
Teff	17649	2362	624	8033	865	13609	1427	581
Barley	17804	3589	236	47296	3298	3112	180	171
Wheat	2207	*	*	9633	*	*	*	*
Maize	251106	79703	19249	1074880	61925	155498	16497	17856
Sorghum	28807	7209	*	61441	7037	2971	156	*
Finger millet	1289	186	*	5371	158	*	*	*
Oats/ 'Aja'	*	*	*	1868	*	*	*	*
Rice	*	*	-	*	*	-	-	-
Pulse	88326	39502	19214	663423	24555	182320	14561	18477
Horse/Faba beans	1392	139	*	6580	129	*	*	*
Field peas	1483	*	*	7421	269	*	*	*
Haricot beans	85201	38917	19165	653549	24094	181607	14437	18429
Chick peas	108	*	-	*	*	-	-	-
Lentiles	65	*	*	*	*	*	*	*
Vetch/Grass peas	*	*	*	1512	*	*	*	*
Soya beans	*	*	-	1152	*	-	-	-
Fenugreek	15	4	-	1325	4	-	-	-
Gibto	*	*	-	*	*	-	-	-
Oil seeds	3175	*	*	11778	*	*	*	*
Nueg	*	*	*	*	*	*	*	*
Linseed	55	*	-	*	*	-	-	-
Ground nuts	*	*	*	8846	*	*	*	*
Safflower	*	*	-	*	*	-	-	-
Sesame	*	*	-	*	*	-	-	-
Rapeseed	48	7	-	1337	7	-	-	-

Table 1.8: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Gambela Region		All Fertilizer		Natural		DAP		
Crop type	All crop land Area	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
		Grain Crops	5686	*	-	*	*	-
Cereals	4953	*	-	*	*	-	-	-
Teff	-	-	-	-	-	-	-	-
Barley	*	-	-	-	-	-	-	-
Wheat	*	-	-	*	*	-	-	-
Maize	4916	*	-	-	-	-	-	-
Sorghum	*	*	-	*	*	-	-	-
Finger millet	*	-	-	-	-	-	-	-
Oats/'Aja'	-	-	-	-	-	-	-	-
Rice	*	*	-	*	*	-	-	-
Pulse	627	*	-	-	-	-	-	-
Horse/Faba beans	*	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	623	*	-	*	*	-	-	-
Chick peas	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	101	-	101	101	-	-	-
Soya beans	-	102	-	102	102	-	-	-
Fenugreek	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-
Nueg	101	101	-	101	101	-	-	-
Linseed	101	101	-	101	101	-	-	-
Ground nuts	101	101	-	101	101	-	-	-
Safflower	101	101	-	101	101	-	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-

Table 1.9: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Harari Region								
Crop type	All crop land Area	All Fertilizer		Natural		DAP		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain Crops	581	433	195	2699	330	*	34	*
Cereals	398	288	98	2456	216	*	24	*
Teff	-	-	-	-	-	-	-	-
Barley	*	*	*	-	-	*	*	*
Wheat	-	-	-	-	-	-	-	-
Maize	155	105	64	1507	63	*	*	*
Sorghum	243	182	*	1361	152	*	*	*
Finger millet	-	-	-	-	-	-	-	-
Oats/'Aja'	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	*	*	*
Pulse	183	144	97	2648	114	*	*	*
Horse/Faba beans	-	-	-	-	-	-	-	-
Field peas	*	*	*	-	-	-	-	-
Haricot beans	180	142	91	2648	113	*	*	*
Chick peas	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-
Vetch/Grass peas	*	*	-	*	*	-	-	-
Soya beans	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-
Gibto	-	-	-	*	*	-	-	-
Oil seeds	*	*	-	*	*	-	-	-
Nueg	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	*	*	-	*	*	-	-	-
Safflower	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-

Ethiopia

Table 1(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	21393	2586	2702	34177	5197	7228	4674663	1050787	1122690
Cereals	20067	2216	2134	30724	4349	5308	4312245	851784	1021947
Teff	*	*	*	*	*	*	280531	68974	34144
Barley	4863	977	838	4958	645	551	784646	141213	264132
Wheat	*	*	*	*	*	*	276157	64524	131203
Maize	12618	864	959	23017	2808	3980	3582586	500091	*
Sorghum	*	*	*	418	24	28	338110	61246	13628
Finger millet	-	-	-	-	-	-	22694	1896	*
Oats/ 'Aja'	-	-	-	-	-	-	83115	11829	17435
Rice	-	-	-	-	-	-	*	*	*
Pulse	7500	370	*	12074	848	1920	2521866	186812	97903
Horse/Faba beans	-	-	-	*	*	*	78256	3917	2970
Field peas	*	*	*	*	*	*	116851	18252	19558
Haricot beans	7110	348	*	10437	362	*	2349699	152432	68084
Chick peas	-	-	-	*	*	*	30273	4286	2895
Lentiles	-	-	-	*	*	*	20706	1633	1058
Vetch/Grass peas	-	-	-	*	*	*	20429	3632	2480
Soya beans	-	-	-	-	-	-	2525	46	*
Fenugreek	-	-	-	*	*	*	22441	*	831
Gibto	-	-	-	-	-	-	95702	12190	2840
Oil seeds	-	-	-	-	-	-	*	*	*
Nueg	-	-	-	-	-	-	15749	2558	*
Linseed	-	-	-	-	-	-	29846	*	*
Ground nuts	-	-	-	-	-	-	4421	199	*
Safflower	-	-	-	-	-	-	19798	5893	472
Sesame	-	-	-	-	-	-	22828	414	63
Rapeseed	-	-	-	-	-	-	-	-	-

Tigray Region Table 1.1(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	5140	302	*	10586	1604	1596	64196	8520	11006
Cereals	5140	302	*	10169	1501	1370	54279	5941	9061
Teff	-	-	-	*	*	*	*	*	*
Barley	*	*	*	*	*	*	*	820	1391
Wheat	*	*	*	*	*	*	*	*	*
Maize	4163	239	186	9520	1360	1164	40733	4047	2647
Sorghum	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	*	*	*
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	-	-	-	*	*	*	20495	2511	1925
Horse/Faba beans	-	-	-	-	-	-	*	*	*
Field peas	-	-	-	-	-	-	*	*	*
Haricot beans	-	-	-	-	-	-	*	*	*
Chick peas	-	-	-	*	*	1670	7308	*	603
Lentiles	-	-	-	*	*	*	*	*	568
Vetch/Grass peas	-	-	-	*	*	*	*	*	*
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	*	*	*	7638	*	*
Gibto	-	-	-	-	-	-	*	*	*
Oil seeds	-	-	-	-	-	-	*	*	*
Nueg	-	-	-	-	-	-	*	*	*
Linseed	-	-	-	-	-	-	*	*	*
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

Amhara Region Table 1.3(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	*	*	*	2489	*	*	388901	75949	91363
Cereals	*	*	*	*	*	*	364670	66007	83006
Teff	-	-	-	-	-	-	25609	3893	1158
Barley	*	*	*	*	*	*	187859	34185	60586
Wheat	*	*	*	-	-	-	58246	6253	10304
Maize	-	-	-	*	*	*	150320	19504	7572
Sorghum	-	-	-	-	-	-	*	*	*
Finger millet	-	-	-	-	-	-	*	*	*
Oats/ 'Aja'	-	-	-	-	-	-	*	*	*
Rice	-	-	-	-	-	-	*	*	*
Pulse	-	-	-	*	*	*	59863	9864	8327
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	18502	1865	2845
Haricot beans	-	-	-	*	*	*	20071	1769	1215
Chick peas	-	-	-	-	-	-	13469	2249	1966
Lentiles	-	-	-	*	*	*	3922	*	*
Vetch/Grass peas	-	-	-	-	-	-	13599	3058	1774
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	2536	*	*
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	4103	*	*
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

Oromia Region Table 1.4(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	9758	1552	1835	9659	1553	*	2080811	551055	836494
Cereals	9257	1334	1371	8785	1409	*	1896119	458838	787717
Teff	*	*	*	*	*	*	160747	46621	22942
Barley	*	*	*	*	*	*	413585	88323	187053
Wheat	*	*	*	*	*	*	194418	55837	116997
Maize	4662	*	*	4909	*	*	1485001	226096	*
Sorghum	*	*	*	-	-	-	154231	31650	4989
Finger millet	-	-	-	-	-	-	3253	*	*
Oats/ 'Aja'	-	-	-	-	-	-	58253	9777	13934
Rice	-	-	-	-	-	-	*	*	*
Pulse	4654	218	*	3669	*	*	1056958	83451	46825
Horse/Faba beans	-	-	-	*	*	*	46313	2458	1996
Field peas	*	*	*	-	-	-	68105	14816	15560
Haricot beans	*	*	*	3237	*	*	968056	62831	28125
Chick peas	-	-	-	-	-	-	7975	967	290
Lentiles	-	-	-	-	-	-	6918	261	129
Vetch/Grass peas	-	-	-	-	-	-	3407	*	*
Soya beans	-	-	-	-	-	-	*	*	*
Fenugreek	-	-	-	-	-	-	10176	*	*
Gibto	-	-	-	-	-	-	*	*	*
Oil seeds	-	-	-	-	-	-	49834	8766	1952
Nueg	-	-	-	-	-	-	*	*	*
Linseed	-	-	-	-	-	-	11371	2422	*
Ground nuts	-	-	-	-	-	-	*	*	*
Safflower	-	-	-	-	-	-	14415	4603	318
Sesame	-	-	-	-	-	-	15107	*	*
Rapeseed	-	-	-	-	-	-	-	-	-

Somale Region

Table 1.5(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
	Grain Crops	10851	3160	772	9492	2916	621		
Cereals									
Teff									
Barley									
Wheat									
Maize									
Sorghum									
Finger millet									
Oats/ 'Aja'									
Rice									
Pulse									
Horse/Faba beans									
Field peas									
Haricot beans									
Chick peas									
Lentiles									
Vetch/Grass peas									
Soya beans									
Fenugreek									
Gibto									
Oil seeds									
Nueg									
Linsced									
Ground nuts									
Safflower									
Sesame									
Rapeseed									

Benshangul-Gumuz Region Table 1.6(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	-	-	-	*	*	*	23676	3543	977
Cereals	-	-	-	*	*	*	19303	1451	249
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	1224	131	123
Wheat	-	-	-	-	-	-	*	*	*
Maize	-	-	-	*	*	*	18469	1253	125
Sorghum	-	-	-	-	-	-	870	64	-
Finger millet	-	-	-	-	-	-	*	*	*
Oats/ 'Aja'	-	-	-	-	-	-	*	*	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	-	-	-	-	-	-	21423	2092	728
Horse/Faba beans	-	-	-	-	-	-	534	35	36
Field peas	-	-	-	-	-	-	*	*	*
Haricot beans	-	-	-	-	-	-	21149	2054	690
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	*	*	*
Gibto	-	-	-	-	-	-	*	*	-
Oil seeds	-	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	*	*	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

(S.N.N.P.R) Region Table 1.7(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	4948	480	372	10951	1391	*	2079541	402223	179696
Cereals	4148	338	298	9610	1146	*	1942333	311212	139404
Teff	*	*	*	*	*	*	88298	17619	7696
Barley	*	*	*	1417	91	61	171012	17741	14976
Wheat	*	*	*	-	-	-	21253	2207	1230
Maize	3346	281	291	7919	1001	*	1854155	241158	104210
Sorghum	*	*	-	*	*	*	176552	28807	8420
Finger millet	-	-	-	-	-	-	17790	1289	294
Oats/ 'Aja'	-	-	-	-	-	-	7150	*	*
Rice	-	-	-	-	-	-	*	*	*
Pulse	2500	141	74	6436	244	*	1346882	87840	39559
Horse/Faba beans	-	-	-	*	*	*	31004	1392	876
Field peas	-	-	-	-	-	-	29050	1475	1034
Haricot beans	2500	141	74	6436	244	*	1324019	84723	37514
Chick peas	-	-	-	-	-	-	1520	108	35
Lentiles	-	-	-	-	-	-	3738	65	36
Vetch/Grass peas	-	-	-	-	-	-	2102	*	*
Soya beans	-	-	-	-	-	-	1662	*	*
Fenugreek	-	-	-	-	-	-	2090	15	4
Gibto	-	-	-	-	-	-	40261	3171	*
Oil seeds	-	-	-	-	-	-	*	*	*
Nueg	-	-	-	-	-	-	2890	55	14
Linseed	-	-	-	-	-	-	25242	*	*
Ground nuts	-	-	-	-	-	-	3882	*	*
Safflower	-	-	-	-	-	-	5249	*	141
Sesame	-	-	-	-	-	-	4758	48	8
Rapeseed	-	-	-	-	-	-	-	-	-

Gambela Region Table 1.8(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	-	-	-	-	-	-	19890	5645	2059
Cereals	-	-	-	-	-	-	19656	4912	1621
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	-	-	-	-	-	-	19576	4875	1610
Sorghum	-	-	-	-	-	-	94	-	-
Finger millet	-	-	-	-	-	-	286	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	-	-	-	-	-	-	9224	627	333
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	-	-	-	-	-	-	9224	623	332
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

Harari Region

Table 1.9(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	*	*	63	400	31	101	4738	581	70
Cereals	*	*	33	339	22	*	4333	398	*
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	*	21	29	*	*	*	3103	155	*
Sorghum	*	*	*	*	*	*	1938	243	-
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	*	*	30	375	9	57	4163	183	55
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	*	*	30	338	8	51	4126	180	55
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

Ethiopia

Table 1(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	99349	13872	5685	286429	116517	428955	57635	168903	50915
Cereals	89701	13105	5275	271081	113104	406313	51048	160020	46893
Teff	*	*	*	105280	30166	6525	684	*	*
Barley	3725	590	861	126962	32753	33654	3850	44625	15047
Wheat	*	*	*	72475	26608	3814	*	23763	11379
Maize	85193	12369	4141	48426	12839	372439	45244	107180	16274
Sorghum	-	-	-	16035	4618	6055	742	3740	286
Finger millet	-	-	-	-	-	*	*	-	-
Oats/'Aja'	*	*	*	22409	4458	*	*	-	-
Rice	-	-	-	*	*	*	*	-	-
Pulse	13560	763	408	31061	3115	107977	6473	59724	3942
Horse/Faba beans	*	*	*	-	-	*	*	-	-
Field peas	*	*	*	*	*	1704	110	*	*
Haricot beans	12632	636	259	20670	1220	79572	2262	57696	3732
Chick peas	*	*	*	2393	*	9398	1391	*	*
Lentiles	-	-	-	*	*	*	1102	*	*
Vetch/Grass peas	*	*	*	*	*	5789	874	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	10171	652	-	-
Gibto	-	-	-	-	-	*	*	-	-
Oil seeds	*	*	*	*	*	5828	114	3093	80
Nueg	-	-	-	-	-	*	-	-	-
Linseed	*	*	-	*	*	1525	*	*	*
Ground nuts	*	*	*	-	-	*	*	1480	*
Safflower	-	-	-	*	*	-	-	-	-
Sesame	-	-	-	-	-	*	*	*	*
Rapeseed	*	*	-	*	*	4013	*	*	*

Tigray Region Table 1.1(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	2463	231	173	878	878	58006	7599	15137	1962
Cereals	2092	231	173	878	878	48312	4968	13800	1763
Teff	-	-	-	-	-	*	*	*	*
Barley	*	*	-	*	*	1383	575	2762	310
Wheat	-	-	-	-	-	*	*	*	*
Maize	1896	2773	1087	3424	1074	38701	4067	10766	1273
Sorghum	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	*	*	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	4883	109	85	2387	123	20690	2564	1729	199
Horse/Faba beans	*	*	*	-	-	*	*	-	-
Field peas	-	-	-	-	-	*	*	*	*
Haricot beans	1483	231	173	1483	231	7504	1015	*	*
Chick peas	*	*	*	*	*	*	*	*	*
Lentiles	-	-	-	-	-	*	*	*	*
Vetch/Grass peas	-	-	-	-	-	*	*	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	7638	*	-	-
Gibto	-	-	-	1827	-	8047	875	-	-
Oil seeds	-	-	-	-	-	2483	*	-	-
Nueg	-	-	-	-	-	1172	1007	-	-
Linseed	-	-	-	-	-	1307	*	-	-
Ground nuts	1483	-	-	-	-	8297	1483	12307	1483
Safflower	1483	-	-	1483	-	1483	1483	1483	1483
Sesame	1483	-	-	1483	-	1483	1483	1483	1483
Rapeseed	-	-	-	-	-	-	-	-	-

Amhara Region Table 1.3(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	1964	477	*	16502	3947	91803	13221	17789	2881
Cereals	1468	*	*	*	*	83308	11442	17789	2865
Teff	-	-	-	*	*	1391	*	-	-
Barley	*	*	*	*	*	11154	1448	*	2050
Wheat	-	-	-	-	-	2077	*	-	-
Maize	*	*	*	1898	*	69289	9539	*	*
Sorghum	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	*	*	-	-
Oats/'Aja'	-	-	-	-	-	*	*	-	-
Rice	-	-	-	-	-	*	*	-	-
Pulse	*	*	*	*	*	9989	1769	-	-
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	*	*	*	*	*	*	*	-	-
Chick peas	-	-	-	*	*	20891	3047	1236	160
Lentiles	-	-	-	*	*	*	*	-	-
Vetch/Grass peas	*	*	*	*	*	*	*	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	*	*	-	-
Gibto	-	-	-	-	-	2837	400	10300	1030
Oil seeds	*	*	-	*	*	*	*	*	*
Nueg	-	-	-	-	-	-	237	3191	310
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	300	-	-	-	-	9337	4087	17800	1303
Safflower	377	37	12	*	*	8081	480	7214	702
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	*	*	-	*	*	2000	1000	1000	1000

Oromia Region Table 1.4(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	19171	2583	2075	227727	101409	236082	27245	68195	31823
Cereals	15537	2424	2014	221866	99961	232815	25597	66496	30900
Teff	-	-	-	83566	24674	-	-	*	*
Barley	1844	*	*	109398	29027	13835	*	30949	12567
Wheat	*	*	*	72423	26600	*	*	22274	11262
Maize	12910	2072	1047	38243	10749	223563	23435	27229	3916
Sorghum	-	-	-	15251	4453	*	*	*	*
Finger millet	-	-	-	-	-	-	-	-	-
Oats/'Aja'	*	*	*	22409	4458	*	*	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	4588	158	61	17642	1192	63143	1619	18255	921
Horse/Faba beans	*	*	*	-	-	*	*	-	-
Field peas	-	-	-	*	*	*	*	*	*
Haricot beans	4444	154	43	14700	912	60298	1371	17760	902
Chick peas	-	-	-	*	*	*	*	-	-
Lentiles	-	-	-	*	*	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	*	*	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	*	*	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	*	*	-	*	*	2030	*	*	*
Nueg	-	-	-	-	-	*	-	-	-
Linseed	*	*	-	*	*	*	*	*	*
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	*	*	*	*	-	-

Somale Region Table 1.5(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	-	-	-	*	*	*	*	-	-
Cereals	-	-	-	*	*	*	*	-	-
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	2770	-	-	-
Maize	-	-	-	*	*	*	*	-	-
Sorghum	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	*	*	*	*	-	-
Pulse	-	-	-	*	*	*	*	-	-
Horse/Faba beans	2214	124	42	14100	613	60200	1251	11100	605
Field peas	-	-	-	*	*	*	*	-	-
Haricot beans	-	-	-	*	*	*	*	-	-
Chick peas	2200	124	41	11000	1107	63100	1010	10700	677
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	12000	400	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	1200	400	-	-	-	-
Gibbo	12000	2000	1000	70000	10000	20000	3000	5000	2000
Oil seeds	-	-	-	1200	3000	-	-	12000	1700
Nucg	1000	-	-	10000	2000	1000	-	10000	2000
Linseed	-	-	-	2000	3000	-	-	-	-
Ground nuts	10000	2000	3000	20000	10000	20000	2000	20000	2000
Safflower	1000	2000	2000	10000	10000	20000	2000	20000	2000
Sesame	10000	2000	3000	20000	10000	20000	2000	20000	2000
Rapeseed	-	-	-	-	-	-	-	-	-

Benshangul-Gumuz Region

Table 1.6(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	203	*	*	307	*	6970	455	263	12
Cereals	*	*	*	*	*	6792	343	263	11
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	*	*	*	*	*	6792	343	263	11
Sorghum	-	-	-	-	-	*	*	-	-
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	*	*	*	*	*	3851	112	*	*
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	*	*	*	*	*	3851	112	*	*
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

(S.N.N.P.R) Region

Table 1.7(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	75402	10531	3233	40468	11003	29609	8310	67324	14229
Cereals	70270	10041	3014	36827	10714	28602	7905	61478	11347
Teff	*	*	*	14858	4255	2045	401	*	*
Barley	*	*	*	14367	3007	-	-	*	*
Wheat	-	-	-	*	*	*	*	*	*
Maize	69381	9948	2965	7850	1617	28023	7101	58713	10251
Sorghum	-	-	-	784	165	1819	402	2533	*
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	*	*	-	-	-	-
Pulse	8117	486	216	5482	289	9900	398	39587	2819
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	*	*	*	*	*	-	-	-	-
Haricot beans	7998	477	214	5465	288	9900	398	39587	2819
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	*	*	*	-	-	*	*	2256	*
Nucg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	*	*	*	*
Ground nuts	*	*	*	-	-	*	*	1480	*
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

Gambela Region

Table 1.8(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	*	*	*	-	-	*	*	*	*
Cereals	*	*	*	-	-	*	*	*	*
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	*	*	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	*	*	*	-	-	-	-	*	*
Sorghum	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	*	*	*	-	-	-	-	*	*
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	*	*	*	-	-	-	-	*	*
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-	-
Linsced	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

Harari Region

Table 1.9(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	-	-	-	366	16	597	40	*	*
Cereals	-	-	-	*	*	597	32	*	*
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	-	-	-	*	*	517	28	*	*
Sorghum	-	-	-	-	-	*	*	-	-
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	-	-	-	336	15	*	*	*	*
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	-	-	-	336	15	*	*	*	*
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

Table 2. Holders Applying Inputs by Educational Status

Educational Status of Holders	All Crop Holders	Chemical Fertiliser	Improved Seed	Pesticide	Irrigation
Illiterate	287,469	22,154	45,287	16,963	32,151
Literate	267,801	26,677	39,749	23,182	46,546
Grades 1-3	539,135	83,916	149,517	36,173	48,336
Grades 4-6	601,473	73,950	178,241	39,273	59,280
Grades 7-8	225,314	46,118	89,114	14,996	17,885
Grades 9-11	99,984	18,346	47,773	5,777	6,881
Grade 12 complete	31,454	2,861	10,991	1,141	1,447
Above grade 12	7,843	1,791	*	*	*
Total	1,611,553	149,904	393,449	206,425	439,975

Table 2.1 Holders Applying Inputs by Educational Status

Educational Status of Holders	All Crop Holders	Chemical Fertiliser	Improved Seed	Pesticide	Irrigation
Illiterate	42,024	19,721	2,561	*	4,740
Literate	65,094	15,723	24,651	978	11,621
Grades 1-3	10,394	2,074	3,794	487	607
Grades 4-6	11,594	2,374	4,294	534	654
Grades 7-8	4,594	974	1,794	224	274
Grades 9-11	1,994	374	1,194	144	174
Grade 12 complete	614	54	194	24	31
Above grade 12	154	34	124	15	19
Total	65,094	15,723	24,651	978	11,621

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Table 2.3 Holders Applying Inputs by Educational Status

Educational Status of Holders	All Crop Holders	Chemical Fertiliser	Improved Seed	Pesticide	Irrigation
Illiterate	268,124	27,124	1,641	10,572	61,724
Literate	59,285	4,749	*	*	11,621
Grades 1-3	32,813	*	*	*	5,397
Grades 4-6	37,590	*	*	*	6,200
Grades 7-8	4,366	*	*	*	717
Grades 9-11	3,728	*	*	*	515
Grade 12 complete	*	*	*	*	105
Above grade 12	*	*	1,461	1,871	917
Total	391,110	32,873	1,641	12,443	81,975

Table 2. Holders Applying Inputs by Educational Status

Ethiopia						
Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation	
Illiterate	2907469	221624	46767	164865	263191	
Literate	267803	26077	3974	25182	44349	
Grades 1 - 3	559839	53916	14947	38173	48326	
Grades 4 - 6	601423	75330	17824	35273	46080	
Grades 7 - 8	225636	40118	8914	14506	17085	
Grades 9 - 11	99984	18366	4723	5777	8088	
Grade 12 complete	21854	3861	1800	*	1447	
Above grade 12	7845	1701	*	*	*	
Total	4691853	440994	99349	286429	428955	

Table 2.1 Holders Applying Inputs by Educational Status

Tigray Region						
Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation	
Illiterate	42024	10721	2268	*	37470	
Literate	12555	2744	*	-	11629	
Grades 1 - 3	5407	1627	*	-	4487	
Grades 4 - 6	2664	*	-	-	2266	
Grades 7 - 8	1459	*	-	-	1259	
Grades 9 - 11	*	-	-	-	*	
Grade 12 complete	-	-	-	-	-	
Above grade 12	-	-	-	-	-	
Total	65004	15922	2463	878	58006	

Table 2.3 Holders Applying Inputs by Educational Status

Amhara Region						
Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation	
Illiterate	266336	17138	1845	10532	62723	
Literate	59085	4749	*	*	11987	
Grades 1 - 3	22813	*	-	*	5397	
Grades 4 - 6	32530	*	-	*	8968	
Grades 7 - 8	6568	*	-	*	*	
Grades 9 - 11	2779	*	-	-	*	
Grade 12 complete	-	-	-	-	-	
Above grade 12	-	-	-	-	-	
Total	390110	23873	1964	16502	91803	

Table 2.4 Holders Applying Inputs by Educational Status

Oromia Region					
Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Illiterate	1316733	85846	9852	128989	138023
Literate	142370	12200	*	19646	17700
Grades 1 - 3	258510	18252	3231	30472	33321
Grades 4 - 6	234230	27136	3348	29754	28436
Grades 7 - 8	90062	11261	*	11278	12767
Grades 9 - 11	30941	4371	*	5353	4786
Grade 12 complete	8119	*	*	*	1049
Above grade 12	3076	*	*	*	*
Total	2084042	160795	19171	227727	236082

Table 2.5 Holders Applying Inputs by Educational Status

Somale Region					
Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Illiterate	6710	-	-	*	*
Literate	3101	-	-	-	*
Grades 1 - 3	*	-	-	-	*
Grades 4 - 6	*	-	-	-	*
Grades 7 - 8	*	-	-	-	*
Grades 9 - 11	-	-	-	-	*
Grade 12 complete	-	-	-	-	*
Above grade 12	-	-	-	-	*
Total	10851	-	-	*	*

Table 2.6 Holders Applying Inputs by Educational Status

Benshangul-Gumuz Region					
Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Illiterate	14648	264	*	*	3688
Literate	2245	*	*	*	*
Grades 1 - 3	2212	*	*	*	*
Grades 4 - 6	2698	*	*	*	1275
Grades 7 - 8	1074	*	*	*	378
Grades 9 - 11	566	-	-	-	*
Grade 12 complete	-	-	-	-	*
Above grade 12	*	-	-	-	*
Total	23768	*	203	307	6970

Table 2.7 Holders Applying Inputs by Educational Status

(S.N.N.P.R.) Region						
Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation	
Illiterate	1246066	107046	32703	24117	17591	
Literate	46075	6019	2768	1237	660	
Grades 1 - 3	267030	33194	11697	6956	3918	
Grades 4 - 6	325060	46833	14312	4743	4680	
Grades 7 - 8	125322	27996	7871	2572	1289	
Grades 9 - 11	63955	13792	4489	*	927	
Grade 12 complete	13497	3003	1327	*	*	
Above grade 12	4360	831	*	*	*	
Total	2091365	238714	75402	40468	29609	

Table 2.8 Holders Applying Inputs by Educational Status

Gambela Region					
Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Illiterate	10113 -	*	-	-	*
Literate	1768 -	*	-	-	*
Grades 1 - 3	2683 -	-	-	-	-
Grades 4 - 6	3209 -	*	-	-	-
Grades 7 - 8	1006 -	*	-	-	-
Grades 9 - 11	818 -	-	-	-	-
Grade 12 complete	238 -	-	-	-	-
Above grade 12	*	-	-	-	*
Total	19917 -	*	-	-	*

Table 2.9 Holders Applying Inputs by Educational Status

Harari Region					
Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Illiterate	3072	492	-	224	310
Literate	541	*	-	*	*
Grades 1 - 3	535	*	-	*	155
Grades 4 - 6	504	*	-	*	*
Grades 7 - 8	*	*	-	*	-
Grades 9 - 11	*	-	-	-	-
Grade 12 complete	-	-	-	-	-
Above grade 12	-	-	-	-	-
Total	4738	984	-	366	597

Table 2.9 Holders Applying Inputs by Educational Status

Dire Dawa Region

Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Illiterate	1767	*	-	-	1627
Literate	*	-	-	-	*
Grades 1 - 3	*	-	-	-	*
Grades 4 - 6	*	-	-	-	*
Grades 7 - 8	-	-	-	-	-
Grades 9 - 11	-	-	-	-	-
Grade 12 complete	-	-	-	-	-
Above grade 12	-	-	-	-	-
Total	2059	*	-	-	1918

Table 3. Holders Applying Inputs by Age Group

Ethiopia					
Age Group	All Crop Holders	Chemical Fertilizer	Irrigated Land	Herds	Tractors
Below 15	27184	7021			
15-20	85708	14383		1224	5129
21-24	207112	31063	8128	18761	7042
25-29	501874	60254	8013	39050	27760
30-39	1124791	164701	23779	67149	36770
40-49	625949	152472	29101	35923	69005
50-59	397273	80303	14500	41060	48112
60 and above	695239	82180	12706	45404	51381
Not stated					
Total	4157879	560294	50929	277884	247511

Table 3.1. Holders Applying Inputs by Age Group

Tigray Region					
Age Group	All Crop Holders	Chemical Fertilizer	Irrigated Land	Herds	Tractors
Below 15					
15-20					
21-24	19144	3198			1307
25-29	14266	4469			1206
30-39	13410	3160			1500
40-49	16134	4863			1527
50-59					
60 and above					
Not stated					
Total	65004	17923	24000	876	3836

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Table 3.3. Holders Applying Inputs by Age Group

Amhara Region					
Age Group	All Crop Holders	Chemical Fertilizer	Irrigated Land	Herds	Tractors
Below 15					
15-20	1471				
21-24	1296				
25-29	36165	3870			4447
30-39	87382	9704			23072
40-49	96782			1982	24546
50-59	70901	4773			18046
60 and above	21362	2407			16828
Not stated					
Total	280117	20757	28000	3964	91839

Table 3. Holders Applying Inputs by Age Group

Ethiopia

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	22184	2321	*	*	*
18 - 20	85708	11367	*	5224	5189
21 - 24	207412	31464	4833	18931	7042
25 - 29	501874	66254	9012	39036	27765
30 - 39	1128391	164701	23979	63149	76595
40 - 49	888099	132472	20101	59923	69005
50 - 59	597273	89513	14597	41060	48112
60 and above	695239	82182	12106	48406	53554
Not stated	*	*	-	*	-
Total	4127579	580296	84979	277644	287538

Table 3.1. Holders Applying Inputs by Age Group

Tigray Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	*	-	-	-	*
18 - 20	-	-	-	-	-
21 - 24	*	-	-	-	*
25 - 29	5198	1040	*	-	4999
30 - 39	15344	3198	*	*	13825
40 - 49	14246	4469	*	-	12926
50 - 59	13410	3160	*	*	12063
60 and above	16134	4055	*	*	13522
Not stated	-	-	-	-	-
Total	65004	15922	2463	878	58006

Table 3.3. Holders Applying Inputs by Age Group

Amhara Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	*	-	-	-	-
18 - 20	3473	-	-	*	*
21 - 24	12995	*	-	*	*
25 - 29	36165	3880	-	*	6449
30 - 39	87582	6205	-	*	23912
40 - 49	96581	*	*	5982	24846
50 - 59	70900	4723	*	*	18245
60 and above	81362	3433	*	*	16906
Not stated	*	-	-	-	-
Total	390110	23873	1964	16502	91803

Table 3.4. Holders Applying Inputs by Age Group

Oromia Region					
Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	12766	*		3043	*
18 - 20	56931	5616		6135	5149
21 - 24	119734	10870	1589	12722	14241
25 - 29	283853	20891	3876	28513	26358
30 - 39	571466	45151	6760	63306	73600
40 - 49	430260	31467	3554	46800	46248
50 - 59	276173	21549	2099	32392	28405
60 and above	328764	24757	1293	34446	41765
Not stated	4096	-	-	*	-
Total	2084042	160795	19171	227727	236082

Table 3.5. Holders Applying Inputs by Age Group

Somale Region					
Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	*	-	-	-	-
18 - 20	*	-	-	-	*
21 - 24	906	-	-	-	*
25 - 29	1672	-	-	*	*
30 - 39	2645	-	-	-	*
40 - 49	1729	-	-	-	*
50 - 59	1129	-	-	*	*
60 and above	2184	-	-	-	*
Not stated	-	-	-	-	-
Total	10851	-	-	*	*

Table 3.6. Holders Applying Inputs by Age Group

Benshangul-Gumuz Region					
Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	*	-	*	-	*
18 - 20	783	-	*	*	*
21 - 24	915	-	-	*	335
25 - 29	2795	*	*	*	769
30 - 39	5448	*	*	*	1644
40 - 49	5738	*	*	*	1610
50 - 59	3656	*	*	*	1160
60 and above	4093	*	-	*	853
Not stated	*	-	-	-	*
Total	23768	*	203	307	6970

Table 3.7. Holders Applying Inputs by Age Group

(S.N.N.P.R) Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	10137	*	*	*	*
18 - 20	41871	4074	*	969	*
21 - 24	102690	8869	2857	2569	2211
25 - 29	282966	28835	7064	5526	4002
30 - 39	640801	71978	21922	10303	8409
40 - 49	410820	51211	18553	9272	7288
50 - 59	281066	34449	10250	3887	3013
60 and above	319786	38663	14313	7496	4337
Not stated	1227	-	-	-	-
Total	2091365	238714	75402	40468	29609

Table 3.8. Holders Applying Inputs by Age Group

Gambela Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	*	-	-	-	-
18 - 20	797	-	-	-	-
21 - 24	1571	-	-	-	-
25 - 29	3705	-	*	-	*
30 - 39	6711	-	*	-	-
40 - 49	3495	-	*	-	-
50 - 59	1768	-	-	-	-
60 and above	1778	-	-	-	*
Not stated	*	-	-	-	-
Total	19917	-	*	-	*

Table 3.9. Holders Applying Inputs by Age Group

Harari Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	-	-	-	-	-
18 - 20	*	-	-	-	*
21 - 24	330	*	-	*	*
25 - 29	574	*	-	*	*
30 - 39	1410	*	-	*	232
40 - 49	1027	171	-	113	*
50 - 59	567	163	-	170	*
60 and above	742	*	-	-	*
Not stated	-	-	-	-	-
Total	4738	984	-	366	597

Table 3.9. Holders Applying Inputs by Age Group

Dire Dawa Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	-	-	-	-	-
18 - 20	1	1	1	-	-
21 - 24	1	1	1	-	-
25 - 29	1	1	1	-	-
30 - 39	1	1	1	-	-
40 - 49	560	560	560	-	560
50 - 59	256	256	256	-	224
60 and above	1	1	1	-	-
Not stated	-	-	-	-	-
Total	2059	2059	2059	-	1918

Table 3.10. Holders Applying Inputs by Age Group

Harari Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	-	-	-	-	-
18 - 20	1	1	1	-	-
21 - 24	1	1	1	-	-
25 - 29	1	1	1	-	-
30 - 39	1	1	1	-	-
40 - 49	1	1	1	-	-
50 - 59	1	1	1	-	-
60 and above	1	1	1	-	-
Not stated	-	-	-	-	-
Total	7	7	7	-	-

Table 3.11. Holders Applying Inputs by Age Group

Harambee Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	-	-	-	-	-
18 - 20	1	1	1	-	-
21 - 24	1	1	1	-	-
25 - 29	1	1	1	-	-
30 - 39	1	1	1	-	-
40 - 49	111	111	111	-	-
50 - 59	111	111	111	-	-
60 and above	1	1	1	-	-
Not stated	-	-	-	-	-
Total	227	227	227	-	-

Table 4. Number of Holders and Damaged Crop Area in Number by Category of Crops and Causes of Damage

Category	All holders	Crop Area	Crop category		
			Wheat	Barley	Oats
All damage	14,276	1,407	2,767	1,262	1,407
Crop disease	2,720	2	408	*	*
Frost or floods	17,000	1,987	2,664	1,476	*
Locust	20,151	2,025	1,422	494	*
Shortage of rain	3,047	771	*	*	*
Too much rain	18,127	2,020	1,600	520	*
Wild animals	23,741	2,020	*	127	*
Birds	43,045	2,020	2,026	1,352	*
Hailstone	*	*	*	*	*
Pests	1,400	402	507	158	*
Weeds	23,100	2,020	2,022	710	*
Others	10,000	2,020	2,024	1,300	*

Table 4.1 Number of Holders and Damaged Crop Area in Number by Category

National and Regional Statistical Tables

On Extent of Crop Damage and Causes of Damage

Category	All holders	Crop Area	Crop category		
			Wheat	Barley	Oats
All damage	14,276	1,407	2,767	1,262	1,407
Crop disease	2,720	2	408	*	*
Frost or floods	17,000	1,987	2,664	1,476	*
Locust	20,151	2,025	1,422	494	*
Shortage of rain	3,047	771	*	*	*
Too much rain	18,127	2,020	1,600	520	*
Wild animals	23,741	2,020	*	127	*
Birds	43,045	2,020	2,026	1,352	*
Hailstone	*	*	*	*	*
Pests	1,400	402	507	158	*
Weeds	23,100	2,020	2,022	710	*
Others	10,000	2,020	2,024	1,300	*

Table 4. Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Ethiopia

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	1422981	144613	95907	32368	1447
Crop disease	2398	*	104	*	
Frost or floods	117040	5063	2664	1436	*
Locust	56161	3023	2122	404	*
Shortage of rain	3045	161	*	*	
Too much rain	38122	1626	860	520	
Wild animals	23781	507	*	121	*
Birds	112061	6428	3836	1552	*
Hailstone	*	*	*	*	*
Pests	31464	961	527	153	
Weeds	232591	32038	21665	7183	*
Others	180749	8826	5124	1530	*

Table 4.1 Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Tigray Region

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	27587	1361	670	*	
Crop disease	-	-	-	-	-
Frost or floods	1947	*	*	*	
Locust	-	-	-	-	-
Shortage of rain	-	-	-	-	-
Too much rain	3250	*	*	*	
Wild animals	*	*	*	*	
Birds	-	-	-	-	-
Hailstone	*	*	*	*	
Pests	181	-	-	-	-
Weeds	11081	*	*	*	*
Others	4721	*	*	*	

Table 4.3 Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Amhara Region

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	215857	31032	24672	4334	*
Crop disease	*	*	*	*	*
Frost or floods	*	*	*	*	*
Locust	*	*	*	*	*
Shortage of rain	*	*	*	*	*
Too much rain	*	*	*	*	*
Wild animals	*	*	*	*	*
Birds	*	*	*	*	*
Hailstone	*	*	*	*	*
Pests	*	*	*	*	*
Weeds	13364	1793	*	*	*
Others	*	*	*	*	*

Table 4.4 Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Oromia Region

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	697151	77854	51523	17515	1187
Crop disease	*	*	*	*	*
Frost or floods	66736	2534	1138	936	*
Locust	27608	1743	*	*	*
Shortage of rain	2352	135	*	*	*
Too much rain	23853	967	660	278	*
Wild animals	6419	105	*	*	*
Birds	36027	2418	1663	368	*
Hailstone	*	*	*	*	*
Pests	17681	371	181	59	*
Weeds	186634	27630	19221	5507	*
Others	97795	5112	2995	773	*

Table 4.5 Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Somale Region

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	6106	899	*	804	-
Crop disease	*	-	-	-	-
Frost or floods	*	*	-	*	-
Locust	*	*	-	-	-
Shortage of rain	*	*	-	*	-
Too much rain	*	-	-	-	-
Wild animals	*	-	-	-	-
Birds	*	*	*	*	*
Hailstone	*	*	*	*	*
Pests	*	-	-	-	-
Weeds	*	*	-	*	-
Others	*	*	-	-	-

Table 4.6 Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Benshangul-Gumuz Region

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	5687	159	47	*	-
Crop disease	*	*	*	-	-
Frost or floods	*	*	17	*	-
Locust	*	*	*	-	-
Shortage of rain	-	-	-	-	-
Too much rain	*	*	*	*	*
Wild animals	*	*	*	*	*
Birds	*	*	*	-	-
Hailstone	*	*	*	-	-
Pests	*	*	-	*	*
Weeds	1391	46	8	*	*
Others	*	*	*	*	*

Table 4.7 Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

(S.N.N.P.R) Region

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	467975	33211	18859	9449	177
Crop disease	1517	*	*	*	*
Frost or floods	37393	1499	837	410	*
Locust	21243	1105	*	179	*
Shortage of rain	*	*	*	*	*
Too much rain	8806	390	173	125	*
Wild animals	*	114	*	36	*
Birds	71602	3893	2113	1134	*
Hailstone	*	*	*	*	*
Pests	9354	360	202	93	*
Weeds	27460	2080	1519	464	*
Others	72815	3358	1973	729	*

Table 4.8 Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Gambela Region

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	1197	58	*	16	*
Crop disease	*	*	*	*	*
Frost or floods	*	*	*	*	*
Locust	*	*	*	*	*
Shortage of rain	*	*	*	*	*
Too much rain	*	*	*	*	*
Wild animals	*	*	*	*	*
Birds	613	*	*	*	*
Hailstone	*	*	*	*	*
Pests	*	*	*	*	*
Weeds	*	*	*	*	*
Others	373	18	*	*	*

Table 4.9 Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Harari Region					
Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	713	19	*	-	-
Crop disease	-	-	-	-	-
Frost or floods	*	*	-	-	-
Locust	-	-	-	-	-
Shortage of rain	-	-	-	-	-
Too much rain	-	-	-	-	-
Wild animals	-	-	-	-	-
Birds	-	-	-	-	-
Hailstone	*	*	*	-	-
Pests	416	*	-	-	-
Weeds	*	*	*	-	-
Others	*	*	*	-	-

Appendix

Estimation Procedures of Totals, Ratios and Sampling Error

The following formulas were used to estimate total area of land under specific crop, total holders, quantity of fertilizer applied and ratio in a stratum.

For Estimating Total Area of Land Under Specific Crops:

$$\hat{Y}_b = \sum_{i=1}^m W_{ij} \sum_{j=1}^n a_{ij} = \sum_{j=1}^n W_{.j} a_{.j}$$

In which, $W_{ij} = \frac{M_i H_{ij}}{n_i m_j A_{ij}}$ is the basic weight.

Appendix I

Estimation Procedures of Totals, Ratios and

Sampling Error

- N_i is the total number of sample EAs successfully covered in the i^{th} stratum.
- M_i is the measure of size of the i^{th} stratum obtained from the sampling frame.
- n_i is the measure of size of the i^{th} sample EA in the b^{th} stratum obtained from the sampling frame.
- H_{ij} is the total number of agricultural households of the i^{th} sample EA in the b^{th} stratum.
- h_{ij} is the number of sample agricultural households successfully covered by the i^{th} sample EA in the b^{th} stratum.
- a_{ij} is the value of area for agricultural households j , in the i^{th} EA in the b^{th} stratum under a specific crop.
- $a_{.j}$ is the sample total area under specific crop for EA i in stratum b .
- \hat{Y}_b estimate of total area under specific crop in stratum b .

1. For Estimating Total Number of Holders:

$$\hat{Y}_b = \sum_{i=1}^m W_{ij} h_{ij}$$

- Where:
- h_{ij} is the sample total number of holders of i^{th} EA in the b^{th} stratum.

APPENDIX I Estimation Procedures of Totals, Ratios and Sampling Errors

The following formulas were used to estimate total area of land under specific crop, total holders, quantity of fertilizer applied and ratios in a stratum.

1. For Estimating Total Area of Land Under Specific Crop:

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

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

Where:

- h represents the stratum
- n_h is the total number of sample EAs successfully covered in the h^{th} stratum.
- M_h is the measure of size of the h^{th} stratum as obtained from the sampling frame.
- m_{hi} is the measure of size of the i^{th} sample EA in the h^{th} stratum obtained from the sampling frame.
- H_{hi} is the total number of agricultural households of the i^{th} sample EA in the h^{th} stratum.
- h_{hi} is the number of sample agricultural households successfully covered in the i^{th} sample EA in the h^{th} stratum.
- a_{hij} is the value of area for agricultural households j , in the i^{th} EA in the h^{th} stratum under a specific crop.
- a_{hi} is the sample total area under specific crop for EA i in stratum h .
- \hat{A}_h estimate of total area under specific crop in stratum h .

2. For Estimating Total Number of Holders:

$$\hat{Y}_h = \sum_{i=1}^{n_h} W_{hi} y_{hi}$$

Where:

- y_{hi} is the sample total number of holders of i^{th} EA in the h^{th} stratum.

\hat{Y}_h is estimate of total number of holders for the h^{th} stratum.

W_h is as defined above.

3. For Estimating Quantity of Fertilizer and seed in Stratum h :

$$\hat{Q}_h = \sum_{i=1}^{n_h} W_{hi} q_{hi}$$

where,

\hat{Q}_h is estimate of total quantity of a specific fertilizer applied for a specific crop land in the h^{th} stratum.

q_{hi} is the sample total of a specific fertilizer applied for a specific crop land in the i^{th} EA in the h^{th} stratum.

W_{hi} is as defined above.

4. For Estimating Ratios in Stratum h :

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

Where, the numerator and denominator are estimates of domain totals for characteristic z and x , respectively.

5. Sampling Variance of Estimates:

Sampling variance for the estimate of stratum total of area for a specific crop and holders, and ratios are estimated by the following formulas.

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

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

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

$$Var(\hat{R}_h) = \frac{1}{\hat{X}_h^2} \left[Var(\hat{Z}_h) + \hat{R}_h^2 Var(\hat{X}_h) - 2\hat{R}_h Cov(\hat{Z}_h, \hat{X}_h) \right]$$

Where,

$$Cov(\hat{Z}_h, \hat{X}_h) = (1-f_h) \frac{n_h}{n_h-1} \sum_{i=1}^{n_h} \left(\hat{Z}_{hi} - \frac{\hat{Z}_h}{n_h} \right) \left(\hat{X}_{hi} - \frac{\hat{X}_h}{n_h} \right) + f_h \sum_{i=1}^{n_h} (1-f_{hi}) \left(\frac{h_{hi}}{h_{hi}-1} \right) \sum_{j=1}^{h_{hi}} \left(\hat{Z}_{hij} - \frac{\hat{Z}_{hi}}{h_{hi}} \right) \left(\hat{X}_{hij} - \frac{\hat{X}_{hi}}{h_{hi}} \right)$$

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

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

$\hat{A}_{hi}, \hat{Y}_{hi}, \hat{Q}_{hi}, \hat{Z}_{hi}, \hat{X}_{hi}$ are weighted total area, holder, quantity of fertilizer, characteristics z and x , respectively, in the i^{th} EA and h^{th} stratum.

$\hat{A}_{hij}, \hat{Y}_{hij}, \hat{Q}_{hij}, \hat{Z}_{hij}, \hat{X}_{hij}$ are weighted value of area, holder, quantity of fertilizer, characteristics z and x , respectively, from j^{th} agricultural household in the i^{th} EA and h^{th} stratum.

Since all strata are independent, the total variance at regional and country level is computed by aggregating the result obtained at Zone/Special Wereda level, i.e.

$$Var(\hat{A}) = \sum_h^L Var(\hat{A}_h), Var(\hat{Y}) = \sum_h^L Var(\hat{Y}_h), Var(\hat{R}) = \sum_{i=1}^L Var(\hat{R}_h)$$

Where, L is the number of strata (Zone/Special Wereda).

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

\hat{Y}_h is estimate of total number of holders for the h^{th} stratum.

W_h is as defined above.

3. For Estimating Quantity of Fertilizer and seed in Stratum h:

$$\hat{Q}_h = \sum_{i=1}^{n_h} W_{hi} q_{hi}$$

where,

\hat{Q}_h is estimate of total quantity of a specific fertilizer applied for a specific crop land in the h^{th} stratum.

q_{hi} is the sample total of a specific fertilizer applied for a specific crop land in the i^{th} EA in the h^{th} stratum.

W_{hi} is as defined above.

4. For Estimating Ratios in Stratum h:

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

Where, the numerator and denominator are estimates of domain totals for characteristic z and x , respectively.

5. Sampling Variance of Estimates:

Sampling variance for the estimate of stratum total of area for a specific crop and holders, and ratios are estimated by the following formulas.

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

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

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

$$Var(\hat{R}_h) = \frac{1}{\hat{X}_h^2} \left[Var(\hat{Z}_h) + \hat{R}_h^2 Var(\hat{X}_h) - 2\hat{R}_h Cov(\hat{Z}_h, \hat{X}_h) \right]$$

Where,

$$Cov(\hat{Z}_h, \hat{X}_h) = (1-f_h) \frac{n_h}{n_h-1} \sum_{i=1}^{n_h} \left(\hat{Z}_{hi} - \frac{\hat{Z}_h}{n_h} \right) \left(\hat{X}_{hi} - \frac{\hat{X}_h}{n_h} \right) + f_h \sum_{i=1}^{n_h} (1-f_{hi}) \left(\frac{h_{hi}}{h_{hi}-1} \right) \sum_{j=1}^{h_{hi}} \left(\hat{Z}_{hij} - \frac{\hat{Z}_{hi}}{h_{hi}} \right) \left(\hat{X}_{hij} - \frac{\hat{X}_{hi}}{h_{hi}} \right)$$

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

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

$\hat{A}_h, \hat{Y}_h, \hat{Q}_h, \hat{Z}_h, \hat{X}_h$ are weighted total area, holder, quantity of fertilizer, characteristics z and x , respectively, in the i^{th} EA and h^{th} stratum.

$\hat{A}_{hij}, \hat{Y}_{hij}, \hat{Q}_{hij}, \hat{Z}_{hij}, \hat{X}_{hij}$ are weighted value of area, holder, quantity of fertilizer, characteristics z and x , respectively, from j^{th} agricultural household in the i^{th} EA and h^{th} stratum.

Since all strata are independent, the total variance at regional and country level is computed by aggregating the result obtained at Zone/Special Wereda level, i.e.

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

Where, L is the number of strata (Zone/Special Wereda).

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

6. Coefficient of Variation (CV) of Estimates:

Coefficient of Variations (CV's) in percentage for estimates of stratum total area, number of holders applied fertilizer for a specific crop are given by:

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

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

7. Ninety-five Percent Confidence Interval (CI) of Stratum Total of Area:

$$\hat{A}_h \pm 1.96 * SE(\hat{A}_h)$$

Where, $SE(\hat{A}_h) = \sqrt{\text{Var}(\hat{A}_h)}$ is the standard error of the estimate of stratum total area

Estimates of standard errors and confidence intervals for other estimates can also be calculated by adopting the above formulas.

Appendix II

Standard Error and Coefficient of Variation

APPENDIX II Standard Error and Coefficient of Variation
 Table 2: Examples of Standard Error and Coefficient of Variation of Logarithmic and Linear Standard Error
 Coefficient of Variation of Logarithmic Standard Error (LSE) and Coefficient of Variation of Linear Standard Error (LSE)

Sample Size (n)	LSE		LSE	
	SE	CV	SE	CV
10	0.1000	0.1000	0.1000	0.1000
20	0.0707	0.0707	0.0707	0.0707
30	0.0577	0.0577	0.0577	0.0577
40	0.0500	0.0500	0.0500	0.0500
50	0.0447	0.0447	0.0447	0.0447
60	0.0408	0.0408	0.0408	0.0408
70	0.0378	0.0378	0.0378	0.0378
80	0.0354	0.0354	0.0354	0.0354
90	0.0337	0.0337	0.0337	0.0337
100	0.0321	0.0321	0.0321	0.0321
120	0.0287	0.0287	0.0287	0.0287
140	0.0263	0.0263	0.0263	0.0263
160	0.0244	0.0244	0.0244	0.0244
180	0.0229	0.0229	0.0229	0.0229
200	0.0217	0.0217	0.0217	0.0217
250	0.0196	0.0196	0.0196	0.0196
300	0.0180	0.0180	0.0180	0.0180
350	0.0168	0.0168	0.0168	0.0168
400	0.0158	0.0158	0.0158	0.0158
450	0.0150	0.0150	0.0150	0.0150
500	0.0143	0.0143	0.0143	0.0143
550	0.0137	0.0137	0.0137	0.0137
600	0.0132	0.0132	0.0132	0.0132
650	0.0127	0.0127	0.0127	0.0127
700	0.0123	0.0123	0.0123	0.0123
750	0.0120	0.0120	0.0120	0.0120
800	0.0117	0.0117	0.0117	0.0117
850	0.0115	0.0115	0.0115	0.0115
900	0.0113	0.0113	0.0113	0.0113
950	0.0111	0.0111	0.0111	0.0111
1000	0.0110	0.0110	0.0110	0.0110

APPENDIX II - Standard Error and Coefficient Variation

Table 1: Estimate of Number of Holders, Inputs Applied Area and Quantity of Inputs used and their standard error and coefficient of variations of major crops (For Ethiopia, 2007/08 (2009 E.C) Agricultural sample survey, Belg season

Crop	All crop land area			All Fertilizer						Natural					
	Area (Ha)			Area (Ha)			Quantity(Qt)			Holder			Area (Ha)		
	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV
All	1084650	32921	3.09	351011	21190	6.04	90326	14000	15.5	2258789	70859	3.14	245253	16488	6.31
Cereals	854889	29491	3.41	283773	19297	6.8	67550	11581	17.14	2098490	70490	3.35	194984	13199	6.77
Teff	89004	7841	11.36	9950	2384	23.95	3524	1378	39.11	30900	5325	17.24	4125	1047	25.37
Barley	141804	15072	10.63	65696	11522	17.54	21607	8598	30.54	252149	29411	11.65	28802	4582	15.91
Wheat	64506	9625	14.9	24888	5913	23.76	13253	5619	42.4	85268	16045	20.92	6961	1956	21.63
Maize	512460	20988	4.1	157714	10496	6.66	27971	4951	17.7	1823044	66370	3.64	130563	9317	7.14
Sorghum	61246	8489	13.86	21223	5899	27.8	429	161	35.09	142814	18403	12.89	20773	5893	28.37
Finger millet	1896	473	24.92	646	383	59.36	253	236	93.35	7512	2251	29.98	342	78	32.26
Oats/ 'Aja'	11872	2618	22.06	3657	1368	37.35	523	199	37.97	17662	9845	54.61	1516	1026	67.68
Rice	2011	1740	86.49			73.78				297	230	77.45			73.78
Pulse	187575	8805	4.69	66017	4418	6.69	22761	4502	19.78	1195314	53200	4.45	40066	3812	7.77
Horse/ faba beans	3932	791	20.12	690	287	41.57	34	18	54.22	18352	4032	21.97	618	244	39.41
Field peas	18260	3615	19.81	1814	503	27.7	76	35	46.27	19905	5051	25.37	1570	444	28.26
Haricot beans	153068	7336	4.79	61868	4314	6.97	22330	4496	20.13	1156531	52849	4.57	45675	3713	8.13
Chick peas	4340	1041	23.98	482	169	39.27	3	3	99.61	4796	1810	37.75	474	189	39.87
Lentiles	1833	555	34.01	574	357	62.22	216	140	67.62	5632	2616	53.01	167	111	66.33
Vetch/Grass peas	3681	1540	41.83	169	89	52.82	100	98	97.91	2680	901	33.26	148	87	59.08
Soya beans	46	22	48.02	42	22	51.8				2014	896	44.51	42	22	51.8
Fenugreek	2580	1387	53.75	369	160	43.32	2	2	99.91	6898	2277	35.49	361	180	44.25
Gibto	35	22	63.46	9	6	70.7				800	598	73.26	9	6	70.7
Oil seeds	12195	2787	22.89	1221	463	37.9	5	4	72.12	30920	8243	26.66	1204	463	38.42
Nueg	1162	905	77.91	177	175	98.71	1	1	99.84	834	673	80.69	177	175	98.9
Linseed	2558	1188	46.45	135	68	50.06				3991	1568	39.29	135	68	50.06
Ground nuts	1968	994	50.52	587	373	63.52	1	1	99.75	11805	4866	41.22	580	373	63.66
Safflower	199	89	44.55	11	9	76.52				393	221	56.14	11	9	76.52
Sesame	5893	2285	38.77	33	30	89.34				1168	898	76.85	33	30	89.34
Rapeseed	414	191	46.05	277	184	66.61	4	4	100.02	12728	6199	48.7	261	184	70.22

Table 1(Cont'd)
National

Crop type	DAP									UREA								
	Holder			Area (Ha)			Quantity (Q)			Holder			Area (Ha)			Quantity (Q)		
	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV
All	392202	32615	8.32	97975	14264	14.56	89390	12627	16.95	21393	3995	18.69	2500	591	22.66	2702	612	30.64
Cereals	329884	30510	9.25	82224	13796	16.76	60116	11279	18.76	20067	3946	19.67	2216	540	24.36	2134	585	27.43
Teff	27139	7315	26.95	4875	1796	36.62	2733	1240	45.38	1048	563	53.71	185	127	68.94	107	98	91.66
Barley	67569	18762	18.23	35272	9474	26.86	20219	6330	31.31	4863	1838	37.79	977	454	46.52	838	417	49.8
Wheat	45834	11187	24.41	15726	5949	35.28	13065	5818	43	1569	814	51.91	86	47	53.04	123	75	61.18
Maize	205442	23047	11.22	23478	4181	17.81	23032	4671	20.28	12615	3153	25.22	864	232	26.89	959	326	34
Sorghum	5243	1617	30.85	324	104	32.15	295	116	39.38	1965	1126	57.39	102	58	56.54	107	95	91.76
Finger millet	749	546	72.87	404	376	93.01	253	236	93.35	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	10877	3259	29.96	2140	903	42.21	523	199	37.97	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pulses	203441	22701	11.16	16734	2014	12.8	20273	4413	21.77	7500	2491	33.21	370	128	34.1	568	322	56.67
Horse/Faba beans	1150	544	47.29	24	13	53.5	16	9	56.81	-	-	-	-	-	-	-	-	-
Field peas	1550	753	48.58	221	132	59.51	64	34	53.58	390	389	99.66	21	21	99.66	6	6	99.66
Haricot beans	201132	22710	11.29	15482	2018	13.04	20176	4413	21.67	7110	2460	34.6	348	124	35.66	562	322	57.25
Chick peas	-	-	-	6	5	71.43	14	12	86.22	-	-	-	-	-	-	-	-	-
Lentils	678	511	75.3	-	-	-	2	2	100.55	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	119	120	100.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gibfo	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil seeds	886	515	58.18	17	16	90.69	5	4	72.12	-	-	-	-	-	-	-	-	
Nueg	242	242	99.84	-	-	-	1	1	99.84	-	-	-	-	-	-	-	-	-
Linsend	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ground nuts	307	306	99.75	1	1	99.75	1	1	99.75	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Repeased	336	336	100.02	16	16	100.02	4	4	100.02	-	-	-	-	-	-	-	-	-

Table 1(Cont'd)
National

Crop type	UREA + DAP									Indigenous seed								
	Holder			Area (Ha)			Quantity(Qt)			Holder			Area (Ha)			Quantity(Qt)		
	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV
All	34177	5962	17.45	5197	1183	22.77	7228	2507	34.89	4674863	72128	1.54	1050787	32624	3.1	1122890	309735	27.59
Cereals	30724	5841	18.36	4349	1071	24.62	5308	1700	32.02	4312245	75144	1.74	851784	29218	3.43	1021947	307212	30.06
Teff	2536	1387	54.72	761	580	76.25	684	500	73.1	280531	26046	9.28	68974	7840	11.37	34144	4359	12.77
Barley	4958	1414	28.51	645	229	35.45	551	242	43.94	784848	50201	6.4	141213	14998	10.62	264132	34706	13.14
Wheat	771	596	77.31	111	89	80.51	65	49	75.2	276157	29862	10.82	64524	9621	14.91	131203	24306	18.53
Melze	23017	5184	22.52	2808	849	30.24	3980	1600	40.2	3582588	74850	2.09	500091	20584	4.12	557876	303759	54.45
Sorghum	418	172	41.13	24	11	47.59	28	13	47.14	338110	27632	8.23	81246	8489	13.88	13828	2309	16.94
Finger millet	-	-	-	-	-	-	-	-	-	22694	3802	16.75	1896	473	24.92	1103	709	64.33
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-	63115	14532	17.48	11829	2014	22.1	17435	4100	23.52
Rice	-	-	-	-	-	-	-	-	-	5349	3105	58.04	2011	1740	86.49	2426	2329	95.01
Pulse	12074	2582	21.38	848	361	42.8	1920	876	45.6	2521868	66453	2.64	186812	8793	4.71	97903	6481	6.82
Horse/Faba beans	595	523	84.77	48	47	97.7	18	16	88.99	78256	9362	11.96	3917	790	20.16	2970	638	21.49
Field peas	37	36	96.59	1	1	96.59	6	5	96.59	116851	17251	14.76	18252	3618	18.82	19558	4100	20.96
Haricot beans	10437	2383	22.83	362	90	24.9	1591	644	53.02	2349699	64778	2.78	152432	7324	4.8	68084	4385	6.41
Chick peas	222	221	99.61	7	7	99.61	3	3	99.61	30273	6431	21.24	4266	1039	24.25	2895	777	26.82
Lentils	724	512	70.65	401	340	84.95	202	146	72.03	20706	4546	21.86	1633	555	34.01	1058	322	30.45
Vetch/Grass peas	196	196	100.13	21	21	100.13	98	98	100.13	20429	6618	32.38	3632	1533	42.2	2480	911	36.73
Soya beans	-	-	-	-	-	-	-	-	-	2525	944	37.38	46	22	48.02	22	15	67.87
Fenugreek	222	222	99.91	8	8	99.91	2	2	99.91	23441	6707	25.43	2580	1387	53.75	831	386	44.04
Gilto	-	-	-	-	-	-	-	-	-	1411	733	51.96	35	22	63.48	6	4	63.6
Oilseeds	-	-	-	-	-	-	-	-	-	95702	13360	13.99	12190	2787	22.86	2840	776	27.4
Nung	-	-	-	-	-	-	-	-	-	6320	3449	54.52	1162	905	77.91	179	145	81.16
Linseed	-	-	-	-	-	-	-	-	-	15740	4543	28.85	2558	1188	46.45	1313	858	60.12
Ground nuts	-	-	-	-	-	-	-	-	-	29846	7851	25.54	1964	994	50.82	773	386	51.29
Safflower	-	-	-	-	-	-	-	-	-	4421	1277	28.89	199	89	44.58	41	27	67.04
Sesams	-	-	-	-	-	-	-	-	-	19798	6120	30.91	5893	2285	38.77	472	186	35.21
Repeated	-	-	-	-	-	-	-	-	-	22826	7281	31.89	414	191	46.12	63	28	44.73

Appendix III(a). Number of Planned and Actually Covered Sampling Units (SUs) in Households
for the 2007/08 (2000 E.C.) Annual Agricultural Sample Survey (Belg Season)

Region	Stratum	Examination Types		Households	
		Planned	Covered	Planned	Covered
Tigray	North Western Tigray	30	31	120	80
	Central Tigray	4	5	170	170
	Eastern Tigray			870	870
	Southern Tigray			1140	1140

Appendix III

The 2007/08(2000 E.C) Belg Season Crop Production

Afar	Zone/Stratum	Sample Survey	
		Planned	Covered
		720	720

Number of Planned and Actually Covered Sampling units

Aurara	North Gondar	45	45	1800	1800	
	South Gondar	44	44	1760	1760	
	North Wello	45	45	1800	1800	
	South Wello	46	46	1840	1840	
	North Shewa	46	45	1840	1800	
	East Gojjam	47	47	1880	1880	
	West Gojjam	46	46	1840	1840	
	Wag. Hemba	28	28	1120	1120	
	Awi	32	32	1280	1280	
	Oromia	25	27	1000	1100	
	Amhara special woreda	30	29	1200	1160	
	Regions Total		428	423	16960	16960
	Gondar	West Wollo	30	30	1200	1200
East Wollo		24	15	960	600	
Illubabor		30	16	1200	640	
Harar		45	35	1800	1400	
West Shewa		35	35	1400	1400	
North Shewa		35	35	1400	1400	

Appendix III(a). Number of Planned and Actually Covered Sampling Units (EAs & Households) the 2007/8 (2000 E.C.) Annual Agricultural Sample Survey (Belg Season).

Region	Stratum	Enumeration Areas		Households	
	Zone/Sp.wereda	Planned	Covered	Planned	Covered
Tigray	North Western Tigray	31	31	930	930
	Central Tigray	39	39	1170	1170
	Eastern Tigray	29	29	870	870
	Southern Tigray	38	38	1140	1140
	Western Tigray	25	24	750	720
	Region Total		162	161	4860
Afar	Zone One	24	24	720	720
	Zone Three	24	15	720	450
	Region Total	48	39	1440	1170
Amhara	North Gonder	44	43	1320	1290
	South Gonder	44	44	1320	1320
	North Wello	45	41	1350	1230
	South Wello	46	45	1380	1350
	North Shewa	40	40	1200	1200
	East Gojam	47	42	1410	1260
	West Gojam	46	48	1380	1380
	Wag Hemira	28	23	840	690
	Awi	32	32	960	960
	Oromia	28	27	840	810
	Argoba special wereda	20	20	600	600
Region Total		420	403	12600	12090
Oromia	West Wellega	36	36	1080	1080
	East Wellega	36	35	1080	1050
	Illubabor	36	36	1080	1080
	Jimma	46	46	1380	1380
	West Shewa	42	41	1260	1230
	North Shewa	34	34	1020	1020

Appendix III(a) (Continued...)

Region	Stratum Zone/Sp.wereda	Enumeration Areas		Households	
		Planned	Covered	Planned	Covered
Oromia	East Shewa	40	38	1200	1140
	Arsi	44	43	1320	1290
	West Harerghe	40	40	1200	1200
	East Harerghe	42	39	1260	1170
	Bale	40	40	1200	1200
	Borena	36	36	1080	1080
	South West Shewa	38	38	1140	1140
	Guji	36	35	1080	1050
	Kelem Wellega	36	36	1080	1080
	Horoguduru Wellega	36	36	1080	1080
	West Arsi	39	37	1170	1110
	Region Total		657	646	19710
Somali	Shinile	20	16	600	480
	Jijiga	28	28	840	840
	Liben	24	24	720	720
	Region Total	72	68	2160	2040
Benishangul-Gumuz	Metekel	24	24	720	720
	Pawe Special Wereda	20	20	600	600
	Asosa	24	24	720	720
	Kemashi	20	18	600	540
	Mao Komo special wereda				
		20	20	600	600
	Region Total	108	106	3240	3180
SNNP	Guraghe	38	38	1140	1140
	Hadiya	34	34	1020	1020
	Kembata Tambaro	33	33	990	990
	Sidama	42	42	1260	1260
	Gedeo	34	31	1020	930
	Wolayita	39	38	1170	1140

Appendix III(a) (Continued...)

Region	Stratum	Enumeration Areas		Households	
	Zone/Sp.wereda	Planned	Covered	Planned	Covered
SNNP	South Omo	33	32	990	960
	Shaka	24	24	720	720
	Keffa	36	35	1080	1050
	Gamo Gofa	38	38	1140	1140
	Bench Maji	32	31	960	930
	Yem Specia Wereda	20	20	600	600
	Amaro Special W.	20	20	600	600
	Burji Special Wereda	20	19	600	570
	Konso Special Wereda.	20	20	600	600
	Derashe Special Wereda.	20	16	600	480
	Dawro	32	32	960	960
	Basketo Special Wereda.	20	20	600	600
	Konta Special Wereda.	20	20	600	600
	Siltie	30	30	900	900
	Alaba Special Wereda.	20	20	600	600
Region Total		605	593	18150	17790
Gambela	Agnuak	20	12	600	360
	Nuer	20	11	600	330
	Mejenger	20	19	600	570
	Etang	20	19	600	570
	Region Total		80	61	2400
Harari	Harari	24	24	720	720
Dire Dawa	Dire Dawa	24	24	720	720
Country Total		2200	2125	66000	63750

Appendix IV - Questionnaires

Crop Production Sample Survey
List of Fields Under Mixed Crops (Including Vegetables and Root Crops) and Agricultural Practices
(Belg. Season) - 2007/08 (2000 E.C)

Part I - Identification Particulars

1	2	3	4	5	6	7	8	9			10	11	12	13	14
Region	Zone	W erods	Farmers' Association	Extension Area	House hold ID Number	Holder ID Number	Sex of head of House hold M = 1 F = 2	Holders			Age	Sex M = 1 F = 2	Educational Status	House hold Size	Type of Holding Crop = 1 Livestock = 2 Both = 3
								Name							

Part II. Area Under Temporary Crops and Agricultural Practices

and Area Measurement Result

1	2	3			4			5			
		Parent No.	Field No.		Date of Measurement		Area in Sq. m.				
Sr. No.	Questions	Crop Name	Crop Name	Crop Name	Date	Month	Closure Error				
		code	cod	cod							
0	1	Type of Holding Private = 1 Rented/Contract = 2 Others					Side ID	1 - 2	2 - 3	3 -	
0	2	Have the field been included in the extension package program Yes = 1 No = 2					Bearing				
0	3	Was the field irrigated? Yes = 1 No = 2					Distances of				
0	4	Area in percentage share for each crop					Side ID	4 -	5 -	6 -	
0	5	Variety of seeds used Improved = 1 Indigenous = 2					Bearing				
0	6	(For Cereals, Pulses and oil seeds only) If indigenous seed was used, What was the total Quantity	Kg	gram	Kg	gram	Kg	gram			
0	7	(For Cereals, Pulses and oil seeds only) If improved seed was used, What was the total quantity	Kg	gram	Kg	gram	Kg	gram			
0	8	(For Cereals, Pulses and oil seeds only) If improved seed was used What was the cost/price	Birr	cent.	Birr	cent.	Birr	cent.			
0	9	Was the crop damaged Yes = 1 No = 2					Distances of				
1	0	If Yes, what was the major causes of damage Percentage of damage	Ross on	os de	Reau on	co de	Renso n	c o			
1	1	Percentage of damage					Bearing				
1	2	Any control/prevention measure taken for crop damage? Yes = 1 No = 2					Distances of				
1	3	If Yes, What type of measures? Chemical = 1 Both = 3 Non Chemical = 2					Side ID	13 -	14 -	15 -	
1	4	If Chemical Insecticide = 1 I&3 = 5 Herbicides = 2 2&3 = 6 Fungicide = 3 All = 7 I&2 = 4					Bearing				
1	5	What was field fertilized? Yes = 1 No = 2					Distances of				
1	6	If fertilized What type? Natural = 1 Both = 3 Chemical = 2					Side ID	16 -	17 -	18 -	
1	7	If chemical fertilizer used 17.1 Type Urea = 1 Both = 3 17.2 Quantity in Kg.					Bearing				
1	8	If Natural fertilizer used mainly what type? Manure = 1 I & 3 = 5 Compost = 2 2 & 3 = 6 Orgs = 3 All = 7 I & 2 = 4 Other					Distances of				
1	9	Production in local unit					Side ID	19 -	20 -	21 -	
			Local unit	Code	quantity	Local unit	Code	quantity	Local unit	Code	quantity

Reason if Area measurement not conducted →