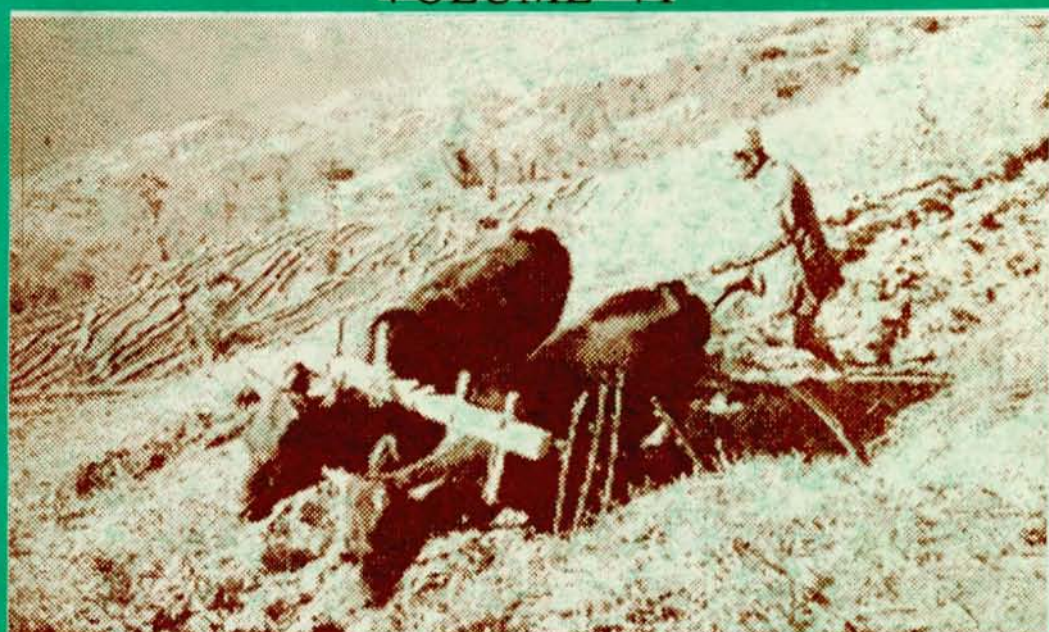


THE FEDERAL DEMOCRATIC REPUBLIC OF ETHIOPIA
CENTRAL STATISTICAL AGENCY

AGRICULTURAL SAMPLE SURVEY
2005/06(1998 E.C)
VOLUME VI



REPORT ON FARM MANAGMENT
PRACTICES FOR BELG/SECOND SEASON
CROPS

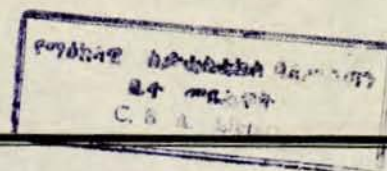
PRIVATE PEASANT HOLDINGS

ADDIS ABABA
SEPTEMBER 2006

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STATISTICAL BULLETIN

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1. INTRODUCTION AND OBJECTIVES OF THE SURVEY

1.1 Introduction

Country's experience showed that farmers' attitude and tendency to adopt 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 enhanced 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 2005/06 (1998 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, 2006 by the Central Statistical Agency (CSA).

1.2 Objectives of the 2005/06 Belg Season Crop Production Sample Survey

The objectives of the 2005/06 (1998 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:-

- Cropland area, production and yield of major Belg season crops
- 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.

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 agricultural developmental projects and programmes. This report, therefore, presents quantitative information on the above mentioned major variables at country and regional levels.

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

2.1 Coverage

The 2005/6 (1998 E.C) Annual Agricultural Sample Survey (Belg Season) covered the entire rural parts of the country except all zones of Gambella Region, and the non-sedentary population of three zones of Afar & six zones of Somali regions. Accordingly the survey took into account of all parts of Harari, Addis Ababa and Dire Dawa, and 58 additional Zones / Special Weredas (that are treated as zones) of other regions

Initially, a total of 2,024 enumeration areas were selected to be covered by the survey, and the survey was successfully carried out in 2,012 EA's (99.41 %). As regard to the ultimate sampling unit, it was planned to conduct the survey on 60,720 agricultural households and 60,045 (98.89 %) households were actually covered by the Belg season Agricultural Sample Survey. The overall distribution of the number of sampling units (planned and covered) by region is presented in Table 2.1 below.

Table 2.1. Number of Zones / Strata Covered, Planned and Covered Enumeration Areas & Households by region.

Reporting level	Number of Zones Covered	Enumeration Areas		Households	
		Planned	Covered	Planned	Covered
Tigray	5	165	165	4950	4931
Afar	2	48	43	1440	1280
Amhara	10	406	402	12180	12044
Oromia	14	573	573	17190	17073
Somali	3	72	72	2160	2123
Benishangul-Gumuz	3	80	78	2400	2333
SNNP	21	612	611	18360	18233
Harari*	1	24	24	720	717
Addis Ababa*	1	20	20	600	600
Dire Dawa*	1	24	24	720	711
Total	61	2024	2012	60720	60045

* = Values for these regions refer only the number of strata (domain of estimation)

2.2 Sampling frame

The list containing EAs of all regions and their respective agricultural households obtained from the 2001/2 Ethiopian Agricultural Sample Enumeration (EASE) 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.

In 2005/6, unlike the years before, in order to obtain a fairly representative number of extension program participant households the CSA categorized listed agricultural households in each EAs into two strata, i.e. households that are and that are not participants of extension program. The stratification was done on the basis of the six major crops where by the extension program is mostly exercised in the country. The crops are maize, teff, wheat, barley, sorghum and finger millet.

The sample size for the 2005/6 agricultural sample survey (Belg Season) 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 in addition considered.

Except Harari, Addis Ababa 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 obtained from the 1994 Population & Housing Census and adjusted for the sub-sampling effect. From the fresh list of households prepared at the beginning of the survey 30 agricultural households within each sample EA were selected systematically. Twenty of the households were selected from non extension participant agricultural households while the rest 10 households were selected from extension participant agricultural households. Information on area under crops, total number of holders, agricultural practices, crop damage, and quantity of agricultural inputs used were obtained from the 30 households that were ultimately selected.

Estimation procedure of totals, ratios, sampling error and the measurement of precision of estimates (CV) are given in Appendix-I and II, respectively.

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 2005/06(1998 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 begininig 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 10 days in CSA's 24 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 2005/06 (1998 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 2005/06 (1998 E.C). The data collection period for obtaining the area, production and agricultural practices of the Belg season crops ranged from 'Ghinbot' 15-30, 1998 E.C. (i.e. From May 23 to June 7, 2006). 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 conversions 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 thirty-one days.

b. Data Entry, Cleaning and Tabulation

Before starting data entry computer edit specifications were prepared for use on personal computers utilizing the Integrated Microcomputer Processing System (IMPS) Software for data consistency checking purposes.

The data on the coded questionnaires were then entered into the IMPS 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 2005/06 (1998 E.C.) Belg season Crop Production Sample survey are 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 (Nehase).

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.

III. SUMMARY OF THE RESULTS OF THE 2005/06 (1998 E.C.) FARM MANAGEMENT PRACTICES OF BELG SEASON SURVEY

In this part of the report, the results of the 2005/06 (1998 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.

Based on the 2005/06 (1998 E.C) Belg Season Crop Production Sample Survey results, it was estimated that Belg season major crops covered 1125.38 thousand hectares of land, where 4.13 million holders were engaged in the production activity. Of this total area under Belg season crops 559.16 thousand hectares (49.69%) was under the use of improved farm management practices in which 3087.00 (74.79%) thousand agricultural holders reported for utilizing different agricultural inputs. Moreover, in 2005/06 (1998 E.C) it was estimated that a total of 118,763 quintals of commercial fertilizer was utilized for Belg season crop production.

Summary Table A: Total Cropland Area and Number of Holders engaged in
2005/06(1998 E.C.) Belg Season Crop Production Activities

• Belg crop Area ('000 ha)	1125.38
• Number of Belg Crop Producing Holders (in million)	4.13
• Improved Farm Management practices ('000 ha)	559.16
• Number of holders reporting the use of farm management practices (in million)	3.09
• Quantity of commercial fertilizer applied ('000 qt.)	118.76

3.1 Total Area under Different Farm Management Practices

As mentioned earlier 2005/06 (1998 E.C) the Belg season crops covered about 1125.38 thousands hectares of land. Of this total, 559.16 hectares (49.69%) was under the use of improved farm management practices. Moreover, of the above mentioned total cropland area under improved farm inputs, 354.06 thousand hectares (63.32%) was under fertilizer (Both Natural and Commercial), 42.53 thousand hectares (7.61%) was under irrigation, 147.75 thousand hectares (26.42%) was treated with pesticides and 14.82 thousand hectares (2.65%) was under improved seeds. The coverage of the above mentioned farm management practices accounted for 31.46%, 3.78%, 13.13% and 1.32% of the total area under Belg season crops, respectively. (See Summary Table B).

Summary Table B. Total Area Under Improved Farm Management Practices For Belg Season Crops of Private Holdings in Ethiopia 2005/06 (1998 E.C.)

TYPE OF FARM MANAGEMENT PRACTICES	TOTAL AREA IN '000HA.	%	% FROM TOTAL BELG CROP AREA
IRRIGATION	42.53	7.61	3.78
IMPROVED SEEDS	14.82	2.45	1.32
FERTILIZER	354.06	63.32	31.46
PESTICIDES	147.75	26.42	13.13
TOTAL	559.16	100.00	49.69

The estimate of total cropland area under different farm management practices for Belg season crops of 2005/06 (1998 E.C.) is presented in Summary Table C. As it is indicated in this summary Table, the highest proportion of cropland area under different farm management practices was reported to be covered by Cereals, which accounted for 922.06 thousand hectares (81.93%). Furthermore, about 196.49 thousand hectares (17.46%) was accounted for Belg Pulses and the remaining 6.83 thousands hectares (0.61%) was reported as Belg Oilseed crops.

Summary Table C. Total Area Under Improved Farm Management Practices for Belg Season Crops of Private Holdings in Ethiopia, 2005/06 (1998 E.C.)

CROP TYPE	TOTAL BELG CROP AREA		CROPLAND AREA UNDER IMP. FARM MANAGEMENT PRAC.	
	'000 HA.	%	'000 HA.	%
CEREALS	922.06	81.93	495.49	88.61
PULSES	196.49	17.46	63.00	11.27
OILSEEDS	6.83	0.61	*	*
GRAINS	1125.38	100.00	559.16	100.00

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, covering 52.61% (592.03 thousand hectares). The second and third were S.N.N.P.R. and Amhara Regions with the coverage of 30.68% (345.31 thousand hectares) and 12.76% (143.56 thousand hectares), respectively.

Summary Table D. Total Cropland Area under Improved Farm Management Practices for Belg season crops of private Holdings in Ethiopia, 2005/06 (1998 E.C.)

REGION	TOTAL BELG CROP AREA		CROPLAND AREA UNDER FARM MANAGEMENT PRACTICES	
	'000 HA.	%	'000 HA.	%
Tigray	19.39	1.72	6.36	1.14
Afar	2.06	0.18	0.14	0.02
Amhara	143.56	12.76	57.89	10.38
Oromia	592.03	52.61	345.47	61.92
Somalie	20.91	1.86	0.77	0.14
Benshangul-Gumz	1.72	0.15	1.76	0.32
S.N.N.P.R	345.31	30.68	145.18	26.02
Gambela	-	-	-	-
Harari	0.22	0.02	0.14	0.03
Addis Ababa	-	-	-	-
Dire Dawa	0.18	0.02	0.19	0.03
TOTAL	1125.38	100.00	557.90	100.00

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 354.06 thousand hectares, covering 31.46% of the total area under Belg seasons crops of the private holdings. Of the total fertilized area 187.85 thousand hectares (53.06%) was reported to be under natural fertilizers. The coverage of commercial fertilizers was estimated to be 166.22 thousand hectares (46.94 %), constituting of 43.16% DAP, 1.63% UREA and 2.16% 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 AREA IN		PERCENTAGE FROM TOTAL BELG CROP AREA
	'000 HA	%	
NATURAL	187.85	36.10	16.69
COMMERCIAL	166.22	31.95	14.77
DAP	152.81	29.37	13.58
UREA	5.77	1.11	0.51
DAP+UREA	7.64	1.47	0.68
TOTAL	520.29	100.00	46.23

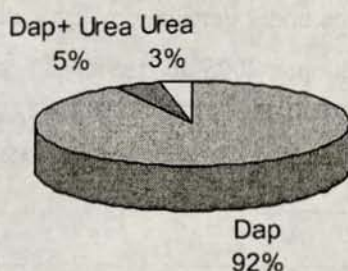
3.3.1 Use of Natural Fertilizers

In general, the application of natural fertilizers for Belg season crops in 2005/06 (1998 E.C.), varies from crop to crop. Of the total area under fertilizer, the highest proportion was reported for maize crop, which was estimated at 90.90 thousand hectares (25.67%). The fertilized area (natural fertilizer) under haricot beans was the second and estimated to be 29.37 thousand hectares (8.29%), while area under barley stood third i.e. 28.49 thousand hectares, 8.05% (see Table 2.1).

3.3.2 Use of Commercial Fertilizers

Out of the total land area under commercial fertilizers in 2005/06 (1998 E.C) Belg season, i.e., 166.22 thousand hectare (14.77%) of the total Belg season crop area, the area under DAP was the highest which accounted for 152.81 thousand hectare (91.93%), while the mix of the two fertilizers (DAP+UREA) and UREA were covering 7.64 thousand hectare (4.60 %) and 5.77 thousand hectare (3.47 %) of the total commercial fertilizer applied area, respectively (see Fig 1.)

Fig.1: Estimates of Total Area of Commercial Fertilizer Applied by Type for Belg Season Crops of private Holdings in Ethiopia, 2005/06(1998E.C)



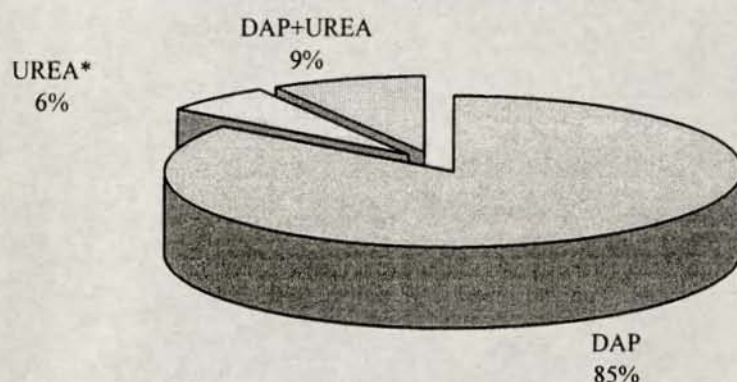
Similarly, the application of commercial fertilizers varied from crop to crop. Of the total area under commercial fertilizers the highest area was reported for barley at 69.66 thousand hectares (41.91%). The second highest area reported under commercial fertilizers was for wheat, i.e., 32.76 thousand hectares (19.71%).

The regional distribution of both natural and commercial fertilizers application varied from region to region. For instance, of the total area under both (Natural + Commercial) fertilizers, the highest was reported for Oromia Region, which accounted for 187,488 hectares (52.95% of the total), S.N.N.P and Amhara Regions were the second and third to report the highest area under both (Natural and Commercial) fertilizers which were estimated to be 119,908 hectares (33.87%) and 42,104 hectares (11.89%), respectively.

3.4 Total Quantity of Commercial Fertilizer Applied by Type

In 2005/06 (1998 E.C.) the total quantity of commercial fertilizer used for Belg season crop production was estimated at 118,763 quintals. Of this total, the share of DAP was the highest accounting for 85.23% (101,223 quintals). The mixture of the two types of fertilizers (DAP+UREA) was the second highest accounting for 8.54% (10,139 quintals). The last was the share of the Urea, which accounted for 6.23% (7401 quintals) (See Fig 2).

Fig. 2. Estimates of total quantity of commercial fertilizer applied by type for Belg season crops of private holdings in Ethiopia, 2005/2006(1998 E.C.)



National and Regional Statistical Tables

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	1125375	354064	118763	1843269	187849	500272	152808	101223
Cereals	922057	297505	94868	1587347	153645	369731	132861	82008
Teff	113066	22044	2701	94927	15200	24572	4766	1924
Barley	210764	99203	41131	232324	28489	163132	68573	39659
Wheat	110646	40020	20745	62380	6920	76051	32761	20478
Maize	423990	120540	28841	1293497	90902	180308	23202	18509
Sorghum	44114	10604	*	54814	10476	*	*	*
Finger millet	1963	616	*	7056	615	-	-	-
Oats/ 'Aja'	17348	4475	1181	18252	1045	22248	3431	1181
Rice	*	*	*	-	-	-	-	-
Pulse	196488	56257	23855	824940	33912	232449	19937	19175
Horse/Faba beans	3658	573	*	29500	503	1429	*	*
Field peas	19990	2348	157	19733	1449	5673	893	153
Haricot beans	147962	50490	23355	776793	29369	225145	18865	18921
Chick peas	10481	1501	*	13159	1415	-	-	-
Lentiles	11487	1084	*	9199	938	*	*	*
Vetch/Grass peas	1427	183	-	5096	183	-	-	-
Soya beans	11	*	*	*	*	*	*	*
Fenugreek	1448	72	*	5025	53	-	-	-
Gibto	*	*	-	*	*	-	-	-
Oilseeds	6830	303	*	13862	293	*	*	*
Nueg	*	*	-	*	*	-	-	-
Linseed	*	*	-	3339	*	-	-	-
Ground nuts	*	*	-	2223	*	-	-	-
Safflower	181	43	-	1978	43	-	-	-
Sesame	312	*	-	*	*	-	-	-
Rapeseed	191	*	*	6030	*	*	*	*

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		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain Crops	19386	3370	755	20218	2825	*	*	*
Cereals	18725	3195	641	19582	2739	*	*	*
Teff	13923	*	-	*	*	-	-	-
Barley	1734	344	*	3741	275	-	-	-
Wheat	*	*	-	*	*	-	-	-
Maize	2175	1150	563	11786	762	*	*	*
Sorghum	*	*	-	*	*	-	-	-
Finger millet	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulse	661	*	*	1068	*	*	*	*
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 1.2: Number of Holders, Inputs Applied Area and Quantity of Inputs used

Afar Region

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	143561	42104	3668	239563	38419	15071	1594	2449
Cereals	108955	38713	3549	229822	35135	15071	1594	2449
Teff	26982	11945	*	76344	10591	-	-	-
Barley	58279	16665	*	99589	15984	*	*	*
Wheat	8930	2735	*	32821	2706	*	*	*
Maize	13179	6716	2414	69453	5203	13435	1292	2257
Sorghum	*	*	-	*	*	-	-	-
Finger millet	*	*	-	*	*	-	-	-
Oats/ 'Aja'	1468	588	-	9462	588	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulse	34142	3341	*	34454	3234	-	-	-
Horse/Faba beans	*	*	-	*	*	-	-	-
Field peas	1172	151	*	3089	145	-	-	-
Haricot beans	*	948	*	13019	902	-	-	-
Chick peas	8530	1362	*	12439	1337	-	-	-
Lentiles	5680	666	*	7377	635	-	-	-
Vetch/Grass peas	*	181	-	4386	181	-	-	-
Soya beans	-	-	-	-	-	-	-	-
Fenugreek	502	*	-	2642	*	-	-	-
Gibto	*	-	-	-	-	-	-	-
Oil seeds	464	*	-	4879	*	-	-	-
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	592027	187488	80665	643859	66165	227177	115097	69708
Cereals	505129	169413	73285	484744	52594	197203	111419	64668
Teff	53425	5981	*	6057	1945	11862	*	*
Barley	135066	77383	39803	77092	8800	150761	67469	39155
Wheat	99521	37078	20711	26446	4031	75604	32729	20461
Maize	185378	41489	*	399468	33888	20546	4039	2295
Sorghum	15615	*	*	12727	*	*	*	*
Finger millet	*	-	-	-	-	-	-	-
Oats/ 'Aja'	15858	3879	1181	8494	449	22248	3431	1181
Rice	*	*	*	-	-	-	-	-
Pulse	81984	17977	7347	335153	13479	40812	3670	5008
Horse/Faba beans	1357	229	*	10204	205	*	*	*
Field peas	17048	1966	134	6494	1083	5547	*	134
Haricot beans	55914	15362	7036	319447	11888	34013	2657	4819
Chick peas	1086	-	-	-	-	-	-	-
Lentiles	5633	*	*	1792	*	*	*	*
Vetch/Grass peas	123	*	-	*	*	-	-	-
Soya beans	*	-	-	-	-	-	-	-
Fenugreek	*	*	-	*	*	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil seeds	*	*	*	*	*	*	*	*
Nueg	*	-	-	-	-	-	-	-
Linseed	*	*	-	*	*	-	-	-
Ground nuts	*	*	-	*	*	-	-	-
Safflower	*	*	-	*	*	-	-	-
Sesame	*	*	-	*	*	-	-	-
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	20905	331	*	2977	330	-	-	-
Cereals	20536	315	*	2892	314	-	-	-
Teff	-	-	-	-	-	-	-	-
Barley	*	-	-	-	-	-	-	-
Wheat	565	-	-	-	-	-	-	-
Maize	19548	298	*	2882	298	-	-	-
Sorghum	364	*	-	*	*	-	-	-
Finger millet	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulse	324	*	-	*	*	-	-	-
Horse/Faba beans	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	324	*	-	*	*	-	-	-
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	1724	*	*	*	*	-	-	-
Cereals	453	74	*	807	69	-	-	-
Teff	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-
Maize	453	74	*	807	69	-	-	-
Sorghum	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulse	1271	*	-	*	*	-	-	-
Horse/Faba beans	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	1271	*	-	*	*	-	-	-
Chick peas	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
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	345306	119908	33433	928389	79315	256988	36020	28919
Cereals	266564	85528	17390	846481	62530	156971	19779	14833
Teff	17954	2573	755	6981	1123	12685	1128	600
Barley	15625	4810	657	51881	3429	11085	811	319
Wheat	988	154	*	2757	130	*	*	*
Maize	202404	70717	15961	806791	50586	145867	17806	13900
Sorghum	27742	6685	*	38924	6673	*	*	*
Finger millet	1810	581	-	6391	581	-	-	-
Oats/ 'Aja'	*	*	-	*	*	-	-	-
Rice	*	-	-	-	-	-	-	-
Pulse	77334	34227	16035	448538	16633	191085	16238	14078
Horse/Faba beans	2040	344	*	19036	297	*	*	*
Field peas	1723	213	-	10020	213	-	-	-
Haricot beans	73201	33648	15985	438626	16105	190706	16189	14032
Chick peas	191	*	-	*	*	-	-	-
Lentiles	114	*	-	*	*	-	-	-
Vetch/Grass peas	*	*	-	*	*	-	-	-
Soya beans	11	*	*	*	*	*	*	*
Fenugreek	28	*	-	1858	*	-	-	-
Gibto	*	*	-	*	*	-	-	-
Oil seeds	1408	154	*	5094	151	*	*	*
Nueg	*	*	-	*	*	-	-	-
Linseed	39	*	-	*	*	-	-	-
Ground nuts	*	*	-	*	*	-	-	-
Safflower	153	*	-	1505	*	-	-	-
Sesame	*	*	-	*	*	-	-	-
Rapeseed	*	*	*	*	*	*	*	*

Table 1.8: 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	221	138	240	1856	81	426	19	70
Cereals	*	*	-	136	*	-	-	-
Teff	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-
Maize	*	*	-	*	*	-	-	-
Sorghum	*	*	-	*	*	-	-	-
Finger millet	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-
Pulse	178	128	240	1785	70	426	19	70
Horse/Faba beans	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-
Haricot beans	178	128	240	1785	70	426	19	70
Chick peas	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-

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

Dire Da wa Region

Crop type	All crop land Area	All Fertilizer		Natural		DAP		
		Hectare	Quintal	Holder	Hectare	Holder	Hectare	Quintal
Grain Crops	183	123	*	2287	122	-	-	-
Cereals	182	123	*	2262	122	-	-	-
Teff	-	-	-	-	-	-	-	-
Barley	*	*	-	*	*	-	-	-
Wheat	-	-	-	-	-	-	-	-
Maize	130	92	-	2219	92	-	-	-
Sorghum	51	*	-	639	*	-	-	-
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	-	-	-	-	-	-	-	-

Ethiopia

Table 1(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	34935	5768	7401	58360	7639	10139	4113316	1110559	924899
Cereals	26944	5012	*	45019	5987	7075	3534783	907602	822531
Teff	*	*	*	3686	*	180	392582	112932	45927
Barley	*	*	*	9927	1090	854	864406	210507	370008
Wheat	*	*	*	-	-	-	336706	110330	197836
Maize	11633	2091	*	32406	4346	6041	2591120	410384	172455
Sorghum	-	-	-	-	-	-	163411	43973	9954
Finger millet	*	*	*	-	-	-	18880	1962	475
Oats/ 'Aja'	-	-	-	-	-	-	112740	17348	25524
Rice	*	*	*	-	-	-	*	*	*
Pulse	11680	756	1616	25172	1652	3063	2085815	196127	99953
Horse/Faba beans	*	*	*	*	*	*	90471	3656	2757
Field peas	*	*	*	-	-	-	148744	19984	20656
Haricot beans	11385	694	1592	24234	1562	2842	1821684	147625	60666
Chick peas	*	*	*	*	*	*	75749	10464	6502
Lentiles	*	*	*	-	-	-	97226	11487	7218
Vetch/Grass peas	-	-	-	-	-	-	22409	1427	1282
Soya beans	-	-	-	-	-	-	814	11	*
Fenugreek	-	-	-	*	*	*	25293	1448	*
Gibto	-	-	-	-	-	-	917	*	*
Oil seeds	-	-	-	-	-	-	59398	6830	*
Nueg	-	-	-	-	-	-	1369	*	*
Linseed	-	-	-	-	-	-	27543	*	*
Ground nuts	-	-	-	-	-	-	10549	*	281
Safflower	-	-	-	-	-	-	6989	181	25
Sesame	-	-	-	-	-	-	3468	312	43
Rapeseed	-	-	-	-	-	-	10204	191	*

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	1136	*	*	5248	380	569	62685	19117	11048
Cereals	1136	*	*	4893	300	473	59549	18462	10217
Teff	-	-	-	-	-	-	25034	13826	5441
Barley	*	*	*	*	*	*	14833	1734	2579
Wheat	-	-	-	-	-	-	*	*	*
Maize	1136	*	*	3258	*	*	25045	2008	1407
Sorghum	-	-	-	-	-	-	*	*	*
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	-	-	-	*	*	*	4903	655	*
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	-	-	-	-	-	-	-	-	-

Afar Region

Table 1.2(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	-	-	-	-	-	-	4228	2062	472
Cereals	-	-	-	-	-	-	3992	1468	322
Teff	-	-	-	-	-	-	2887	781	191
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	-	-	-	-	-	-	*	*	*
Sorghum	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	-	-	-	-	-	-	1467	593	150
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	-	-	-	-	-	-	981	331	55
Chick peas	-	-	-	-	-	-	968	262	96
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
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	*	*	*	*	*	*	526448	143337	119587
Cereals	*	*	*	*	*	*	473022	108747	104569
Teff	*	*	*	*	*	*	152452	26945	6876
Barley	*	*	*	*	*	*	227911	58274	78618
Wheat	*	*	*	-	-	-	65495	8782	13088
Maize	*	*	*	*	*	*	137121	13161	4123
Sorghum	-	-	-	-	-	-	*	*	*
Finger millet	-	-	-	-	-	-	*	*	*
Oats/ 'Aja'	-	-	-	-	-	-	20239	1468	1842
Rice	-	-	-	-	-	-	-	-	-
Pulse	*	*	*	-	-	-	162104	34125	14933
Horse/Faba beans	-	-	-	-	-	-	*	*	*
Field peas	*	*	*	-	-	-	19790	1172	1202
Haricot beans	*	*	*	-	-	-	56220	*	3267
Chick peas	*	*	*	-	-	-	59640	8513	4401
Lentiles	*	*	*	-	-	-	52659	5680	4346
Vetch/Grass peas	-	-	-	-	-	-	18187	*	*
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	11775	502	304
Gibto	-	-	-	-	-	-	*	*	-
Oil seeds	-	-	-	-	-	-	15690	464	*
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	13664	*	*
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	19494	3342	*	13589	2885	4970	1841509	589794	648345
Cereals	13872	2913	*	10057	2486	*	1542421	503051	598577
Teff	-	-	-	*	*	*	149429	53425	26294
Barley	*	*	*	*	*	*	475174	134815	273793
Wheat	*	*	*	-	-	-	251305	99352	182875
Maize	5776	*	*	*	*	*	1062152	183828	88670
Sorghum	-	-	-	-	-	-	51506	15507	2887
Finger millet	-	-	-	-	-	-	*	*	*
Oats/ 'Aja'	-	-	-	-	-	-	91373	15858	23669
Rice	*	*	*	-	-	-	*	*	*
Pulse	6830	*	*	5447	399	*	849699	81829	47768
Horse/Faba beans	-	-	-	*	*	*	35872	1357	1199
Field peas	-	-	-	-	-	-	98879	17048	18473
Haricot beans	6830	*	*	5203	389	*	722478	55760	23260
Chick peas	-	-	-	-	-	-	10159	1086	*
Lentiles	-	-	-	-	-	-	42119	5633	2784
Vetch/Grass peas	-	-	-	-	-	-	3355	123	*
Soya beans	-	-	-	-	-	-	*	*	*
Fenugreek	-	-	-	-	-	-	7528	*	*
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	21292	*	*
Nueg	-	-	-	-	-	-	*	*	*
Linseed	-	-	-	-	-	-	11550	*	*
Ground nuts	-	-	-	-	-	-	*	*	*
Safflower	-	-	-	-	-	-	*	*	*
Sesame	-	-	-	-	-	-	*	*	*
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	*	*	*	-	-	-	34155	20840	6685
Cereals	*	*	*	-	-	-	33702	20472	6582
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	660	*	*
Wheat	-	-	-	-	-	-	4316	565	378
Maize	*	*	*	-	-	-	33330	19484	6070
Sorghum	-	-	-	-	-	-	1656	364	*
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	-	-	-	-	-	-	3971	324	93
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	-	-	-	-	-	-	3971	324	92
Chick peas	-	-	-	-	-	-	*	-	*
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	470	*	*
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
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	*	*	*	-	-	-	13824	1724	477
Cereals	*	*	*	-	-	-	6217	453	228
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	*	*	*	-	-	-	6217	453	228
Sorghum	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	-	-	-	-	-	-	12875	1271	249
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	-	-	-	-	-	-	12875	1271	249
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-	-
Nucg	-	-	-	-	-	-	-	-	-
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	6407	664	424	36572	3909	4090	1623540	333326	137960
Cereals	4622	465	259	27307	2753	2298	1412727	254768	101781
Teff	840	199	84	1778	*	*	62780	17954	7125
Barley	*	*	*	6175	566	337	145829	15625	14988
Wheat	*	*	*	-	-	-	11588	988	794
Maize	3679	261	173	20354	2065	1889	1323137	190615	71578
Sorghum	-	-	-	-	-	-	106752	27736	6865
Finger millet	-	-	-	-	-	-	17437	1810	393
Oats/ 'Aja'	-	-	-	-	-	-	1129	*	*
Rice	-	-	-	-	-	-	*	*	*
Pulse	3272	199	164	18859	1156	1793	1046911	77150	35859
Horse/Faba beans	*	*	*	*	*	*	50615	2037	1179
Field peas	-	-	-	-	-	-	29404	1723	908
Haricot beans	3272	199	164	18842	1155	1789	1021275	73019	33674
Chick peas	-	-	-	-	-	-	2007	191	45
Lentiles	-	-	-	-	-	-	1990	114	27
Vetch/Grass peas	-	-	-	-	-	-	*	*	-
Soya beans	-	-	-	-	-	-	744	11	*
Fenugreek	-	-	-	-	-	-	4650	28	*
Gibto	-	-	-	-	-	-	*	*	*
Oil seeds	-	-	-	-	-	-	21826	1408	320
Nueg	-	-	-	-	-	-	*	*	*
Linseed	-	-	-	-	-	-	2306	39	11
Ground nuts	-	-	-	-	-	-	8649	*	273
Safflower	-	-	-	-	-	-	6062	153	19
Sesame	-	-	-	-	-	-	1936	*	*
Rapeseed	-	-	-	-	-	-	2998	*	*

Harari Region

Table 1.8(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	583	21	93	189	*	*	4083	221	76
Cereals	-	-	-	-	-	-	*	*	*
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	-	-	-	-	-	-	*	*	*
Sorghum	-	-	-	-	-	-	*	*	*
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	583	21	93	189	*	*	3735	178	68
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	583	21	93	189	*	*	3735	178	68
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

Dire Dawa Region Table 1.9(Cont'd)

Crop type	UREA			UREA + DAP			Indigenous seed		
	Holder	Hectare	Quintal	Holder	Hectare	Quintal	Holder	Hectare	Quintal
Grain Crops	*	*	*	-	-	-	2843	138	*
Cereals	*	*	*	-	-	-	2719	137	*
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	-	-	-	-	-	-	2620	113	*
Sorghum	-	-	-	-	-	-	507	*	*
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	-	-	-	-	-	-	-	-	-

Ethiopia

Table 1(Cont'd)

Crop type	Improved seed			Pesticide		Irrigation		Extension package	
	Holder	Hectare	Quintal	Holder	Hectare	Holder	Hectare	Holder	Hectare
Grain Crops	84979	14816	5042	277644	147746	287538	42530	189077	77643
Cereals	80436	14455	4887	269412	146720	260511	36811	157518	72970
Teff	*	*	*	73960	30884	12003	1472	16934	4705
Barley	1905	*	*	155057	61580	30102	3238	63435	30281
Wheat	*	*	*	96605	44823	6488	427	41158	24844
Maize	74009	13606	3931	18940	4056	222061	30767	73053	13001
Sorghum	*	*	*	*	*	*	613	*	*
Finger millet	*	*	-	*	*	*	*	-	-
Oats/ 'Aja'	-	-	-	29964	4547	5254	287	-	-
Rice	-	-	-	*	*	*	*	-	-
Pulse	5611	361	155	13154	1024	62290	5356	59885	4665
Horse/Faba beans	*	*	*	-	-	*	*	-	-
Field peas	*	*	*	*	*	1225	*	*	*
Haricot beans	5301	337	137	10087	754	37088	1676	58239	4463
Chick peas	*	*	*	-	-	8068	*	*	*
Lentiles	-	-	-	*	*	6880	743	1870	175
Vetch/Grass peas	-	-	-	*	*	6177	*	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	8614	542	-	-
Gibto	-	-	-	-	-	*	*	-	-
Oil seeds	*	*	*	*	*	*	*	*	*
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	*	*	-	-
Ground nuts	*	*	*	-	-	-	-	-	-
Safflower	-	-	-	*	*	-	-	-	-
Sesame	-	-	-	-	-	*	*	-	-
Rapeseed	-	-	-	-	-	*	*	*	*

Tigray Region Table 1.1(Cont'd)

[illegible]

Afar Region

Table 1.2(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	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
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	2428	*	*	10182	2271	111226	13513	18589	3449
Cereals	2334	*	*	9468	*	102194	10652	17628	*
Teff	*	*	*	*	*	10218	1076	*	*
Barley	*	*	*	*	*	21981	2495	*	*
Wheat	*	*	*	*	*	5244	*	*	*
Maize	*	*	-	*	*	70750	6470	*	*
Sorghum	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	*	*	-	-
Oats/ 'Aja'	-	-	-	-	-	4951	*	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	*	*	*	*	*	19782	*	*	*
Horse/Faba beans	-	-	-	-	-	*	*	-	-
Field peas	-	-	-	-	-	*	*	-	-
Haricot beans	-	-	-	*	*	*	*	*	*
Chick peas	*	*	*	-	-	*	*	*	*
Lentiles	-	-	-	-	-	4387	445	*	*
Vetch/Grass peas	-	-	-	*	*	*	*	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	7042	439	-	-
Gibto	-	-	-	-	-	*	*	-	-
Oil seeds	-	-	-	-	-	*	*	-	-
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	*	*	-	-
Ground nuts	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	*	*	-	-

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	12910	2233	1254	245932	139024	116616	16725	109663	62864
Cereals	10374	2078	1178	241145	138469	102826	15474	90078	60786
Teff	-	-	-	61515	26486	*	*	*	*
Barley	*	*	*	146189	59362	*	*	58654	29580
Wheat	*	*	*	94227	44179	*	*	39715	24688
Maize	6250	*	519	12440	3217	99538	14561	17591	3248
Sorghum	*	*	*	*	*	*	*	*	*
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	29964	4547	*	*	-	-
Rice	-	-	-	*	*	*	*	-	-
Pulse	2920	*	*	9599	555	25444	906	28042	2071
Horse/Faba beans	-	-	-	-	-	*	*	-	-
Field peas	-	-	-	*	*	-	-	-	-
Haricot beans	2920	*	*	7084	305	22267	615	27124	1965
Chick peas	-	-	-	-	-	*	*	-	-
Lentiles	-	-	-	*	*	*	*	*	*
Vetch/Grass peas	-	-	-	-	-	*	*	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	*	*	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	-	-	-	-	-	*	*	*	*
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	*	*	*	*	*	3834	437	*	*
Cereals	*	*	*	*	*	3717	413	*	*
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	*	-
Maize	*	*	*	*	*	3565	370	*	*
Sorghum	-	-	-	-	-	379	43	-	-
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	-	-	-	-	-	*	*	-	-

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	-	-	-	-	-	1764	*	-	-
Cereals	-	-	-	-	-	1680	*	-	-
Teff	-	-	-	-	-	-	-	-	-
Barley	-	-	-	-	-	-	-	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	-	-	-	-	-	1680	*	-	-
Sorghum	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	-	-	-	-	-	*	60	-	-
Horse/Faba beans	-	-	-	-	-	-	-	-	-
Field peas	-	-	-	-	-	-	-	-	-
Haricot beans	-	-	-	-	-	*	60	-	-
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	67356	11980	3426	18470	5390	22298	7900	54397	10880
Cereals	65625	11796	3364	15846	5205	21041	6993	43634	8560
Teff	-	-	-	4405	2482	-	-	*	*
Barley	-	-	-	6698	*	*	*	*	*
Wheat	-	-	-	53	7	-	-	-	-
Maize	65625	11789	3361	5155	794	20956	6680	43255	8495
Sorghum	*	*	*	*	*	868	293	*	*
Finger millet	-	-	-	*	*	-	-	-	-
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-
Pulse	2414	184	62	2734	184	10956	908	29806	2320
Horse/Faba beans	*	*	*	-	-	*	*	-	-
Field peas	-	-	-	*	*	*	*	-	-
Haricot beans	2381	182	*	2524	183	10826	904	29806	2320
Chick peas	-	-	-	-	-	-	-	-	-
Lentiles	-	-	-	-	-	-	-	-	-
Vetch/Grass peas	-	-	-	-	-	-	-	-	-
Soya beans	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-
Oil seeds	*	*	*	*	*	-	-	-	-
Nueg	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-
Ground nuts	*	*	*	-	-	-	-	-	-
Safflower	-	-	-	*	*	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-
Rapeseed	-	-	-	-	-	-	-	-	-

Dire Dawa 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	*	*	*	*	*	1781	69	*	*
Cereals	*	*	*	*	*	1758	69	*	*
Teff	-	-	-	-	-	-	-	-	-
Barley	*	*	-	-	-	*	*	-	-
Wheat	-	-	-	-	-	-	-	-	-
Maize	*	*	*	*	*	1692	65	-	-
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	-	-	-	-	-	-	-	-	-

3.5 Total Number of Belg Crop producing Holders reporting use of Improved Farm Management Practices, by Holders' Educational Status.

Holders educational status plays important role in the adoption new and improved farming technologies, therefore, in this report an attempt is made to categorize holders reporting use of modern farming practice during the 2005/06 Belg Season Crop Production activities depending up on their educational status. According to the results of the 2005/06 Belg Season Crop Production Sample Survey, out of the total number i.e. 4.13 million holders, the highest number of holders (about 580.30 thousand holders) used chemical fertilizers, followed by use of irrigation scheme (287.54 thousand holders). It was also estimated that illiterate holders were recorded more in all application of agricultural inputs as compared to litrate holders.

Fig 4. Number of Holders Applying Inputs By Educational Status, 2005/06 Belg Season.

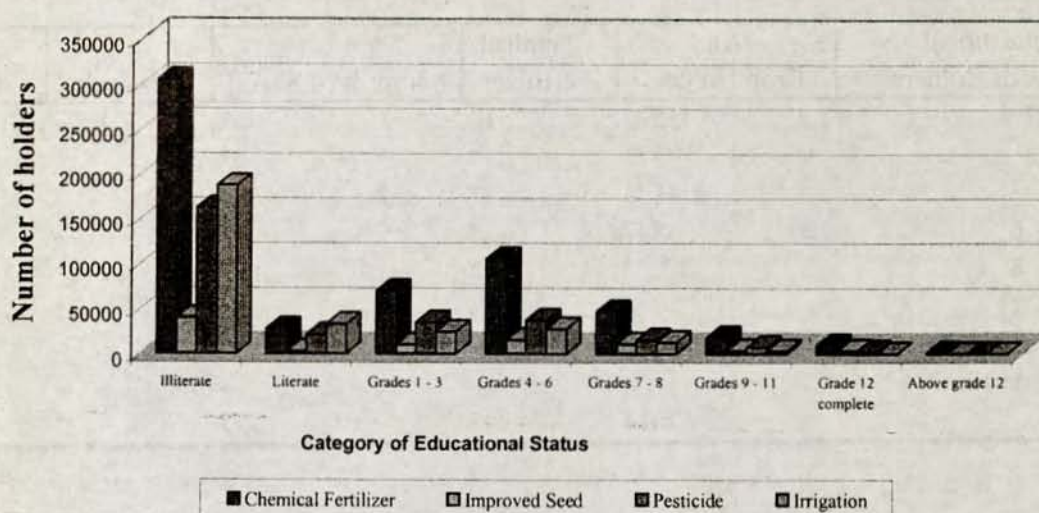


Table 2. Holders Applying Inputs by Educational Status

Ethiopia

Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Illiterate	2700516	304832	39212	161384	186490
Literate	237945	26901	2541	20688	32214
Grades 1 - 3	455826	69092	10140	34397	24107
Grades 4 - 6	469867	104836	15202	36673	27329
Grades 7 - 8	168724	46281	10746	14890	12470
Grades 9 - 11	62185	17787	3511	7327	3382
Grade 12 complete	26190	9317	3299	2267	*
Above grade 12	6327	1252	*	*	-
Total	4127579	580296	84979	277644	287538

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	43572	3510	*	1727	17229
Literate	10372	*	*	*	5815
Grades 1 - 3	4134	*	*	*	2752
Grades 4 - 6	3547	*	*	-	2309
Grades 7 - 8	*	*	-	*	*
Grades 9 - 11	*	-	-	*	*
Grade 12 complete	*	-	*	-	*
Above grade 12	-	-	-	-	-
Total	63624	6845	1595	*	28888

Table 2.2 Holders Applying Inputs by Educational Status

Afar Region

Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Illiterate	3959	*	-	*	*
Literate	*	-	-	-	-
Grades 1 - 3	*	-	-	-	-
Grades 4 - 6	*	-	-	-	*
Grades 7 - 8	-	-	-	-	-
Grades 9 - 11	-	-	-	-	-
Grade 12 complete	-	-	-	-	-
Above grade 12	-	-	-	-	-
Total	4228	*	-	*	*

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	386005	13081	2074	6911	80480
Literate	68472	4673	*	*	16478
Grades 1 - 3	29265	*	-	*	5678
Grades 4 - 6	30762	2719	-	*	6854
Grades 7 - 8	8783	*	-	*	*
Grades 9 - 11	3093	*	-	*	*
Grade 12 complete	*	*	-	*	-
Above grade 12	-	-	-	-	-
Total	526730	24708	2428	10182	111226

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	1203097	147977	7071	140768	69083
Literate	116780	15084	*	18901	8329
Grades 1 - 3	222394	28937	*	31298	13667
Grades 4 - 6	195651	41891	1871	33745	12882
Grades 7 - 8	66923	13723	1945	12883	9603
Grades 9 - 11	28175	7012	*	6525	2153
Grade 12 complete	8590	1930	-	1813	*
Above grade 12	2950	*	-	-	-
Total	1844559	256790	12910	245932	116616

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	27409	*	*	*	3213
Literate	4933	-	*	-	124
Grades 1 - 3	729	-	-	-	*
Grades 4 - 6	943	-	*	-	*
Grades 7 - 8	*	-	-	-	*
Grades 9 - 11	*	-	-	-	*
Grade 12 complete	*	-	*	-	-
Above grade 12	-	-	-	-	-
Total	34310	*	*	*	3834

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	10221	*	-	-	864
Literate	629	-	-	-	*
Grades 1 - 3	1082	-	-	-	382
Grades 4 - 6	1508	-	-	-	*
Grades 7 - 8	*	-	-	-	-
Grades 9 - 11	*	-	-	-	-
Grade 12 complete	-	-	-	-	-
Above grade 12	-	-	-	-	-
Total	13824	*	-	-	1764

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	1020951	139615	28801	11588	13115
Literate	36194	5204	1639	*	*
Grades 1 - 3	197655	37751	8453	2631	1348
Grades 4 - 6	236505	59283	13051	2278	4533
Grades 7 - 8	90854	30717	8802	849	1092
Grades 9 - 11	30348	10102	3162	*	*
Grade 12 complete	16978	7037	3122	*	*
Above grade 12	3377	1015	*	*	-
Total	1632861	290724	67356	18470	22298

Table 2.8 Holders Applying Inputs by Educational Status

Harari Region

Educational Status of Holders	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Illiterate	2447	535 -		*	-
Literate	394	82 -		-	*
Grades 1 - 3	353	143 -		*	-
Grades 4 - 6	614	187 -		*	*
Grades 7 - 8	240	170 -		*	-
Grades 9 - 11	*	-	-	-	-
Grade 12 complete	*	-	-	-	-
Above grade 12	-	-	-	-	-
Total	4083	1116 -		*	*

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	2855	*	*	*	1469
Literate	*	-	*	-	*
Grades 1 - 3	143	-	-	-	91
Grades 4 - 6	267	-	*	-	*
Grades 7 - 8	*	-	-	-	*
Grades 9 - 11	-	-	-	-	-
Grade 12 complete	-	-	-	-	-
Above grade 12	-	-	-	-	-
Total	3358	*	*	*	1781

3.6 Total number of Belg Crop producing Holders Reporting use of Improved Farm Management Practices by Age.

To easily identify the age category of holders who used to practice modern farm management on their holdings, Belg crop producing holders' ages have been categorized into nine groups. These are:

The group categories by age

Group	1	-	Under 18 Years
Group	2	-	18-20 Years
Group	3	-	21-24 Years
Group	4	-	25-29 Years
Group	5	-	30-39 Years
Group	6	-	40-49 Years
Group	7	-	50-59 Years
Group	8	-	60 years& above
Group	9	-	not state

Based on the survey results, a total of 4.13 million holders were engaged in the over all Belg season agricultural activities in 2005/06 (1998 E.C) Belg season. As mentioned above, these holders are categorized in to nine age groups based on the age of the holder. Accordingly, the highest number 1,128,391 (27.34%) of holders was estimated to fall in the age group 30-39. The second 888,099(21.52%) and third 695239(16.84%) highest number of holders fall in the age groups 40-49 and 60 and above, respectively. Moreover, it was estimated that a total of 1,005,737 Belg crop-producing holders (about 24.37% of the total) reported the use of improved farm management practices (See summary Table F)

Summary Table F: Total number of Belg Crop Producing holders reporting use of Farm Management Practices by age for Private holdings in Ethiopia, 2005/06 (1998 E.C.)

Age Group Category	Total Number of Holders		Number of holders Reporting use of Farm Management Practices	
	Number	%	Number	%
Under 18	22184	0.54	3785	0.38
18-20	85708	2.08	19329	1.93
21-24	207412	5.03	47642	4.74
25-29	501874	12.16	114818	11.42
30-39	1128391	27.34	272799	27.13
40-49	888099	21.52	229607	22.83
50-59	597273	14.48	154575	15.37
60 & ABOVE	695239	16.85	162895	16.20
NOT STATED	*	*	*	*
TOTAL	4127579	100.00	1005737	100.00

Fig. 3 Number of holders applying agricultural inputs by Age Group, 2005/06 Belg Season

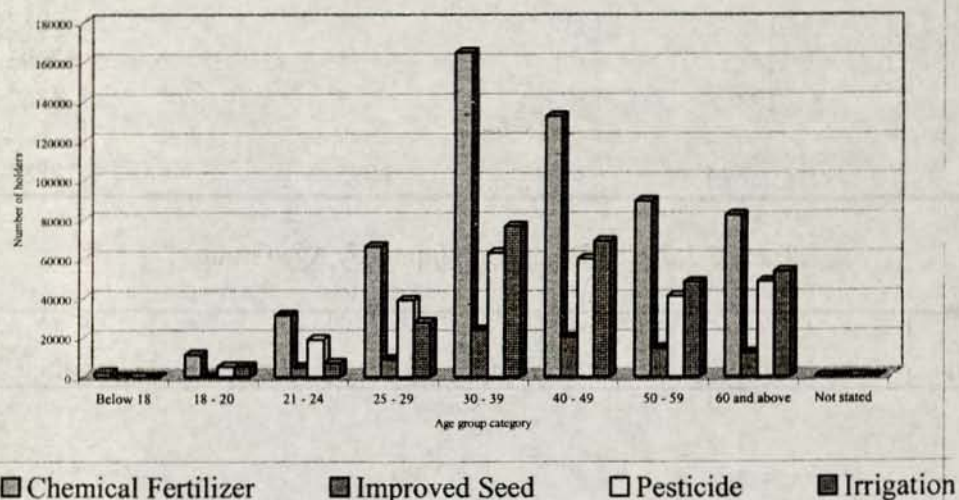


Table 3. Holders Applying Inputs by Age Group

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	859	-	-	*	*
25 - 29	6850	*	*	*	*
30 - 39	14753	1925	*	*	7322
40 - 49	13933	1832	*	*	7083
50 - 59	14857	*	*	*	7993
60 and above	12373	1273	*	*	4862
Not stated	-	-	-	-	-
Total	63624	6845	1595	*	28888

Table 3.2. Holders Applying Inputs by Age Group

Afar Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	*	-	-	-	-
18 - 20	148	-	-	-	-
21 - 24	206	-	-	*	*
25 - 29	553	-	-	-	*
30 - 39	955	-	-	*	*
40 - 49	750	-	-	*	*
50 - 59	739	-	-	-	*
60 and above	806	*	-	*	*
Not stated	-	-	-	-	-
Total	4228	*	-	*	*

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	7226	*	-	*	*
21 - 24	14645	*	-	*	1817
25 - 29	47510	2725	*	*	8326
30 - 39	111018	7745	*	2197	27819
40 - 49	119696	4857	-	2511	29025
50 - 59	99714	4068	*	1848	20066
60 and above	126097	3741	1353	*	23441
Not stated	-	-	-	-	-
Total	526730	24708	2428	10182	111226

Table 3.4. Holders Applying Inputs by Age Group

Oromia Region

Age Group	All Crop Holders	Chemical Fertilizer	Improved Seed	Pesticide	Irrigation
Below 18	11160	*	-	*	*
18 - 20	45896	7793	-	4440	3248
21 - 24	107362	16608	*	17406	2776
25 - 29	240661	32556	*	35178	13817
30 - 39	492401	62613	2985	54905	33297
40 - 49	384269	57556	3862	53229	27596
50 - 59	243798	37453	1954	36192	14870
60 and above	318113	40619	2438	42761	20762
Not stated	*	-	-	*	-
Total	1844559	256790	12910	245932	116616

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	37	-	-	-	37
21 - 24	56	-	-	-	56
25 - 29	144	-	-	-	131
30 - 39	425	-	-	-	381
40 - 49	178	-	-	-	171
50 - 59	148	*	-	-	112
60 and above	123	-	-	-	81
Not stated	-	-	-	-	-
Total	1111	*	-	-	969

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	*	-	-	-	-
21 - 24	1173	-	-	-	*
25 - 29	1795	-	-	-	*
30 - 39	2591	-	-	-	*
40 - 49	3433	-	-	-	358
50 - 59	1674	*	-	-	*
60 and above	2534	-	-	-	*
Not stated	-	-	-	-	-
Total	13824	*	-	-	1764

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	10045	*	*	*	-
18 - 20	30885	3233	*	*	*
21 - 24	81373	13607	4056	988	1537
25 - 29	198649	30471	7570	2828	2908
30 - 39	494463	91942	20239	4802	5370
40 - 49	356821	67968	15424	3685	3701
50 - 59	230198	46261	11616	2724	4058
60 and above	229955	36489	8099	2914	3684
Not stated	*	*	-	-	-
Total	1632861	290724	67356	18470	22298

3.7 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 2005/06 Belg Season Crop Production harvest were estimated to be about 1.59 million and the damaged cropland area was estimated to be 141.21 thousand hectares. As indicated in Table 4, the highest cropland area was reported for cereals, that is 114.38 thousand hectares, followed by pulses, which is 25.97 thousand hectares.

With regard to the causes of crop damage, it is reported that 48.72 thousand hectares was damaged due to hailstone, the second highest crop damage which is estimated at 28.18 thousand hectares was damaged by weeds. For details, see Table 4.

Fig 5. Total damaged cropland area by causes of damage and crop category

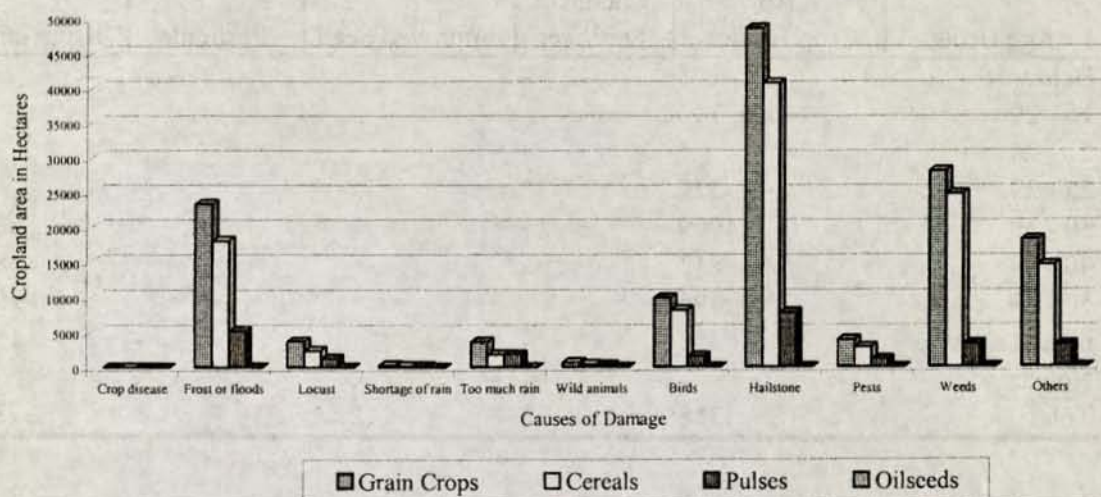


Table 4. Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Ethiopia

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	1589704	141210	114384	25974	*
Crop disease	*	*	*	*	-
Frost or floods	313643	23352	18081	5212	*
Locust	64695	3720	2397	1293	*
Shortage of rain	12431	328	151	176	-
Too much rain	81605	3662	1819	1812	*
Wild animals	21468	716	379	293	*
Birds	170350	9902	8193	1569	*
Hailstone	466174	48717	40830	7816	*
Pests	70893	3972	2869	1102	*
Weeds	276664	28182	24866	3290	*
Others	339797	18292	14626	3218	*

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	34929	7832	7731	*	-
Crop disease	-	-	-	-	-
Frost or floods	1141	*	*	-	-
Locust	*	*	*	-	-
Shortage of rain	*	*	-	*	-
Too much rain	*	*	*	*	-
Wild animals	*	*	*	-	-
Birds	*	*	*	-	-
Hailstone	28737	7322	7293	*	-
Pests	-	-	-	-	-
Weeds	*	*	*	*	-
Others	1805	128	*	*	-

Table 4.2 Number of Holders and Damaged Crop Area in Hectare by Category of Crops and Cause of Damage

Afar Region

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	3292	828	490	338	*
Crop disease	-	-	-	-	-
Frost or floods	*	*	-	*	-
Locust	-	-	-	-	-
Shortage of rain	-	-	-	-	-
Too much rain	*	*	*	*	-
Wild animals	-	-	-	-	-
Birds	*	*	*	-	*
Hailstone	2446	620	390	231	-
Pests	*	*	*	-	-
Weeds	978	133	*	105	*
Others	*	*	*	*	-

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	264223	26762	18811	7875	*
Crop disease	-	-	-	-	-
Frost or floods	36656	2304	1349	956	-
Locust	2991	*	*	*	-
Shortage of rain	4282	132	*	35	-
Too much rain	28594	2089	677	1398	*
Wild animals	9629	414	184	*	-
Birds	14296	933	912	*	*
Hailstone	139490	15674	12165	3485	*
Pests	11416	378	356	*	*
Weeds	25124	1680	742	938	-
Others	55398	3046	2271	738	*

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	670642	64345	55112	8526	*
Crop disease	*	*	*	-	-
Frost or floods	135776	10814	8535	2227	*
Locust	16556	*	*	*	-
Shortage of rain	*	*	*	*	-
Too much rain	24000	684	480	186	*
Wild animals	4791	163	108	*	*
Birds	51941	3692	3042	520	*
Hailstone	193535	17570	14685	2846	*
Pests	21664	1302	1016	*	-
Weeds	170962	20017	18571	1423	*
Others	117235	8553	7433	716	*

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	19962	3858	3783	70	*
Crop disease	-	-	-	-	-
Frost or floods	*	2	2	*	-
Locust	-	-	-	-	-
Shortage of rain	*	*	*	-	-
Too much rain	55	2	2	-	-
Wild animals	*	*	*	*	-
Birds	1537	158	137	*	-
Hailstone	4798	*	*	*	*
Pests	*	*	*	-	-
Weeds	12234	2412	2381	*	*
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	4222	*	*	*	-
Crop disease	-	-	-	-	-
Frost or floods	*	*	*	-	-
Locust	-	-	-	-	-
Shortage of rain	-	-	-	-	-
Too much rain	*	*	-	*	-
Wild animals	-	-	-	-	-
Birds	*	*	*	*	-
Hailstone	*	*	*	-	-
Pests	*	*	*	*	-
Weeds	*	*	*	*	-
Others	585	13	9	*	-

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	590902	37419	28393	8964	62
Crop disease	*	*	*	*	-
Frost or floods	139654	10191	8156	2028	*
Locust	44870	1996	1032	933	*
Shortage of rain	6385	167	46	121	-
Too much rain	27912	860	649	211	*
Wild animals	6758	121	70	*	*
Birds	100922	4934	3920	1007	*
Hailstone	96330	6669	5458	1206	*
Pests	36981	2097	1305	792	-
Weeds	63020	3818	3113	701	*
Others	162596	6230	4501	1722	*

Table 4.8 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	598	10	*	6	-
Crop disease	-	-	-	-	-
Frost or floods	*	*	*	*	-
Locust	*	*	-	*	-
Shortage of rain	-	-	-	-	-
Too much rain	*	*	-	*	-
Wild animals	-	-	-	-	-
Birds	*	*	*	-	-
Hailstone	*	*	-	*	-
Pests	*	*	*	-	-
Weeds	198	*	*	*	-
Others	*	*	*	*	-

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

Dire Da wa Region

Cause of damage	All holders	Grain Crops	Crop category		
			Cereals	Pulses	Oilseeds
All damage	933	27	27	-	-
Crop disease	-	-	-	-	-
Frost or floods	*	*	*	-	-
Locust	-	-	-	-	-
Shortage of rain	-	-	-	-	-
Too much rain	-	-	-	-	-
Wild animals	-	-	-	-	-
Birds	-	-	-	-	-
Hailstone	503	12	12	-	-
Pests	*	*	*	-	-
Weeds	315	*	*	-	-
Others	-	-	-	-	-

Appendix I

**Estimation Procedures of Totals, Ratios and
Sampling Error**

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 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_{hi} is as defined above.

3. For estimating quantity of fertilizer 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.

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

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

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

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

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.

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

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 Variation (CV) in percentage of estimate of stratum total of area and holder production for a specific crop are given by:

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

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

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

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

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

Table 1 (Continued)

Crop	DAP									Urea								
	Holder			Area(Ha)			Quantity(Qt)			Holder			Area(Ha)			Quantity(Qt)		
	Estimate	S.E	C.V	Estimate	S.E	C.V	Estimate	S.E	C.V	Estimate	S.E	C.V	Estimate	S.E	C.V	Estimate	S.E	C.V
All	500272	40584	8.11	152808	24911	16.3	101223	16062	15.87	34935	8738	25.01	5768	1932	33.5	7401	3295	44.5
Cereals	369731	36405	9.85	132861	24611	18.52	82008	15670	19.11	26944	8106	30.08	5012	1827	36.45	5785	3174	54.9
Teff	24572	6098	24.82	4766	1926	40.4	1924	850	44.17	7495	5899	78.7	1526	1196	78.37	597	455	76.3
Barley	163132	29986	18.38	68573	15880	23.16	39659	9832	24.79	7712	5054	65.54	1052	672	63.92	617	415	67.2
Wheat	76051	17954	23.61	32761	12068	36.84	20478	8700	42.48	1237	711	57.47	339	258	76.05	267	239	89.6
Maize	180308	18186	10.09	23202	3364	14.5	18509	2966	16.02	11633	2406	20.69	2091	976	46.67	4291	3087	72
Sorghum	1142	606	53.05	129	97	75.52	257	177	68.75	-	-	-	-	-	-	-	-	-
Finger millet	-	-	-	-	-	-	-	-	-	24	24	101.5	1	1	101.5	-	-	102
Oats/ 'Aja'	22248	7126	32.03	3431	1143	33.32	1181	375	31.74	-	-	-	-	-	-	-	-	-
Rice	-	-	-	-	-	-	-	-	-	322	323	100.5	3	3	100.5	12	12	100
Pulse	232449	21300	9.16	19937	2421	12.14	19175	2629	13.71	11680	3059	26.2	756	267	35.31	1616	708	43.8
Horse/Faba beans	1429	617	43.18	60	43	71.22	54	29	53.25	14	14	97.88	-	-	97.88	-	-	97.9
Field peas	5673	2529	44.59	893	445	49.85	153	64	41.59	294	291	98.94	5	5	98.94	3	3	98.9
Haricot beans	225145	21145	9.39	18865	2380	12.62	18921	2628	13.89	11385	3047	26.77	694	251	36.23	1592	705	44.3
Chick peas	-	-	-	-	-	-	-	-	-	350	346	98.9	24	24	98.9	7	7	98.9
Lentiles	1288	768	59.66	115	76	65.8	40	29	71.9	350	346	98.9	32	31	98.9	14	14	98.9
Vetch/Grass peas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Soya beans	109	109	99.61	3	3	99.61	7	7	99.61	-	-	-	-	-	-	-	-	-
Fenugreek	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gibto	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oile seeds	639	456	71.32	10	8	79.07	40	33	83.12	-	-	-	-	-	-	-	-	-
Nueg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Linseed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ground nuts	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Safflower	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sesame	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rapeseed	639	456	71.32	10	8	79.07	40	33	83.12	-	-	-	-	-	-	-	-	-

Table 1 (Continued)

Crop	Urea + DAP									Indigenous Seed								
	Holder			Area(Ha)			Quantity(Qt)			Holder			Area(Ha)			Quantity(Qt)		
	Estimate	S.E	C.V	Estimate	S.E	C.V	Estimate	S.E	C.V	Estimate	S.E	C.V	Estimate	S.E	C.V	Estimate	S.E	C.V
All	58360	8308	14.24	7639	1502	19.66	10139	2688	26.51	4113316	93127	2.26	1110559	57825	5.21	924899	87220	9.43
Cereals	45019	7276	16.16	5987	1369	22.87	7075	2321	32.8	3534783	90707	2.57	907602	52267	5.76	822531	84347	10.3
Teff	3686	1428	38.73	552	291	52.74	180	81	44.74	392582	37138	9.46	112932	14623	12.95	45927	7155	15.6
Barley	9927	3172	31.95	1090	385	35.31	854	350	41.03	864406	59583	6.89	210507	24616	11.69	370008	49147	13.3
Wheat	-	-	-	-	-	-	-	-	-	336706	38654	11.48	110330	23333	21.15	197836	45272	22.9
Maize	32406	6347	19.58	4346	1285	29.58	6041	2295	37.98	2591120	75462	2.91	410384	21507	5.24	172455	16252	9.42
Sorghum	-	-	-	-	-	-	-	-	-	163411	14472	8.86	43973	6420	14.6	9954	1259	12.7
Finger millet	-	-	-	-	-	-	-	-	-	18880	3361	17.8	1962	401	20.46	475	108	22.8
Oats/ 'Aja'	-	-	-	-	-	-	-	-	-	112740	19053	16.9	17348	4567	26.32	25524	6303	24.7
Rice	-	-	-	-	-	-	-	-	-	926	543	58.64	167	147	87.94	353	330	93.7
Pulse	25172	4535	18.02	1652	366	22.16	3063	1073	35.04	2085815	66350	3.18	196127	13837	7.06	99953	7773	7.78
Horse/Faba beans	261	244	93.41	10	9	94.9	126	122	96.43	90471	11123	12.3	3656	599	16.37	2757	537	19.5
Field peas	-	-	-	-	-	-	-	-	-	148744	21614	14.53	19984	4097	20.5	20656	4444	21.5
Haricot beans	24234	4419	18.23	1562	358	22.9	2842	979	34.46	1821684	60975	3.35	147625	12254	8.3	60666	5189	8.55
Chick peas	533	528	98.98	61	61	99.21	85	85	99.68	75749	13375	17.66	10464	1985	18.97	6502	1580	24.3
Lentiles	-	-	-	-	-	-	-	-	-	97226	17098	17.59	11487	2523	21.96	7218	1616	22.4
Vetch/Grass peas	-	-	-	-	-	-	-	-	-	22409	5154	23	1427	655	45.89	1282	549	42.8
Soya beans	-	-	-	-	-	-	-	-	-	814	349	42.9	11	5	49.25	6	4	62.9
Fenugreek	143	144	100.6	18	19	100.6	10	10	100.6	25293	5201	20.56	1448	584	40.33	854	439	51.4
Gibto	-	-	-	-	-	-	-	-	-	917	441	48.06	25	19	79.2	12	11	92
Oile seeds	-	-	-	-	-	-	-	-	-	59398	9343	15.73	6830	2904	42.52	2415	1268	52.5
Nueg	-	-	-	-	-	-	-	-	-	1369	662	48.34	113	66	58.39	37	33	90.2
Linseed	-	-	-	-	-	-	-	-	-	27543	7437	27	4897	2835	57.9	1978	1261	63.8
Ground nuts	-	-	-	-	-	-	-	-	-	10549	3711	35.18	1136	631	55.52	281	136	48.4
Safflower	-	-	-	-	-	-	-	-	-	6989	1529	21.88	181	54	29.8	25	8	31
Sesame	-	-	-	-	-	-	-	-	-	3468	1108	31.94	312	125	40.02	43	17	38.1
Rapeseed	-	-	-	-	-	-	-	-	-	10204	3853	37.76	191	89	46.6	51	34	66.1

Table 2. Holders Applying Inputs by Educational Status

National

Educational Status of holders	Crop Holders			Fertilizer			Improved Seed			Pesticide			Irrigation		
	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV	Estimate	SE	CV
Illiterate	2700516	68189	2.53	304832	26053	8.55	39212	6484	16.54	161384	21661	13.42	186490	18674	10.01
Literate	237945	15364	6.46	26901	4489	16.69	2541	839	33.02	20688	4429	21.41	32214	4520	14.03
Grades 1 - 3	455826	16837	3.69	69092	6829	9.88	10140	1845	18.19	34397	5848	17	24107	4072	16.89
Grades 4 - 6	469867	17949	3.82	104836	9234	8.81	15202	2610	17.17	36673	6171	16.83	27329	4009	14.67
Grades 7 - 8	168724	9074	5.38	46281	5173	11.18	10746	2097	19.52	14890	2994	20.11	12470	2675	21.45
Grades 9 - 11	62185	5036	8.1	17787	3004	16.89	3511	885	25.22	7327	2316	31.6	3382	1099	32.5
Grade 12 complete	26190	2918	11.14	9317	2049	21.99	3299	1245	37.75	2267	900	39.71	1546	817	52.86
Above grade 12	6327	1351	21.35	1252	540	43.17	326	240	73.54	17	17	97.93	-	-	-
Total	4127579	93281	2.26	580296	42086	7.25	84979	11703	13.77	277644	35909	12.93	287538	27669	9.62

Appendix III

**The 2005/06(1998 E.C)Crop Production Sample Survey
Number of Planned and Actually Covered Sampling units**

APPENDIX IV: Questionnaires used for the 2005/06 (1998E.C) Belg Season Crop Production Sample Survey**Crop Production Sample Survey
Assessment of Belg Crop Conditions- 2005/06**

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

Part I – Identification Particulars

1	2	3	4	5	6
Region	Zone	wereda	Farmers' Association / Settlement	Enumeration Area /village	Crop Name

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

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

**Questionnaires used for the 2005/06(1998E.C)
Belg Season Crop Production Sample Survey
Assessment of Belg crop condition**

Part I –Identification Particulars

1	2	3	4	5
Region	Zone	Wereda	Farmers' Association / Settlement	Enumeration Area/ village

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

1	2	3	4	5
Crop Name	Code	Expected Belg Crop Productivity Compared to Last Year Meher Season Crop		
		Increase = 1 Equal/No Change = 2 Decrease = 3	If increase/Decrease Quantity of increase/Decrease In percent	Expected Quantity of Productivity Change In Percent
		Code		
Teff	07			
Barley	01			
Wheat	08			
Maize	02			
Sorghum	06			
Finger millet	03			
Oats/'aja'	04			
Rice	05			
Horse beans	13			
Field peas	15			
Haricot beans	12			
Chick peas	11			
Lentils	14			
Grass peas/vetch	16			
Fenugreek	36			
Gibto	17			
Niger seed	25			
Lin seed/flax	23			
Ground nuts	24			
Sufflower	28			
Sesame	27			
Rape seed	26			
Soya beans	18			

	Name	Date	Signature
Development Agent (Respondent)	_____	_____	_____
Data Collector	_____	_____	_____
Supervisor	_____	_____	_____

* Data in this questionnaire should be collected from the Development Agent only by interview method.

Questionnaires used for the 2005/06(1998E.C)**Belg Season Crop Production Sample Survey****Assessment of Belg crop condition****Part I –Identification Particulars**

1	2	3	4	5
Region	Zone	Wereda	Farmers' Association / Settlement	Enumeration Area /village

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

1	2	3	4	5
Crop Name	Code	Expected Belg Crop Productivity Compared to Last Year Meher Season Crop		
		Increase	=	If
		1		increase/Decrease
		Equal/No	= 2	Quantity of
		change		increase/Decrease
		Decrease	=	In percent
		3		Expected
				Quantity of
				Productivity
				Change In
				Percent
			Code	
Teff	07			
Barley	01			
Wheat	08			
Maize	02			
Sorghum	06			
Finger millet	03			
Oats/'aja'	04			
Rice	05			
Horse beans	13			
Field peas	15			
Haricot beans	12			
Chick peas	11			
Lentils	14			
Grass peas/vetch	16			
Fenugreek	36			
Gibto	17			
Niger seed	25			
Lin seed/flax	23			
Ground nuts	24			
Sufflower	28			
Sesame	27			
Rape seed	26			
Soya beans	18			

	Name	Date	Signature
Chairman of Farmers' Association / Settlement (Respondent)	_____	_____	_____
Data Collector	_____	_____	_____
Supervisor	_____	_____	_____

✱ Data in this questionnaire should be collected from the Farmers' Association/settlement chair person by interview method.

Crop Production Sample Survey

List of Fields Under Temporary Crops (Including Vegetables and Root Crops) and Agricultural Practices
(Belg Season) – 2005/06 (1998 E.C)

Part I. Identification Particulars

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

Part II. Area Under Temporary Crops and Agricultural Practices

and

Area Measurement Result

1	2	3	4	5	6	7
Sr. No.	Questions	Parcel No.	Field No.		The Field is Pure stand = 1 Mixed = 2 Other Land Use = 3	
		Crop Name	Crop Name	Crop Name	Date of Measurement	
		Code	Code	Code	Area in Sq.m.	
		Date	Month			
0 1	Type of Holding Private = 1 Rented/Contract = 2 Other = 3				Closure	
0 2	Have the field been included in the extension package program Yes = 1 No = 2				Error	
0 3	Was the Field been Irrigated Yes = 1 No = 2				Side ID	1- 2 2- 3 3-
0 4	If the field Was Irrigated then the source of the water is River=1 Lake =2 Pond= 3 Water Harvesting = 4 Other= 5				Bearing(o)	
0 5	Area in percentage of each crop(for mixed Crops)				Distance of	
0 6	Variety of seeds used Improved=1 Indigenous=2				Side ID	4- 5 - 6 -
0 7	(for cereals, pulses and oil seeds only) if indigenous seed was used what was the total quantity	Kg gram	Kg gram	Kg gram	Bearing(o)	
0 8	(For cereals, pulses and oil seeds only) If Improved seed was used what was the total quantity	Kg gram	Kg gram	Kg gram	Distance of	
0 9	(For cereals, pulses and oil seeds only) If Improved seed was used what was the total quantity	Birr Cents	Birr Cents	Birr Cents	Side ID	7- 8 - 9 -
1 0	Was there crop damage? Yes=1 No=2				Bearing(o)	
1 1	If there was crop damage then the major causes of damage Code →				Distance of	
1 2	Percentage of damage Code →				Side ID	10 - 11 - 12 -
1 3	Any control /preventive measure taken for damage? Yes=1 No=2				Bearing(o)	
1 4	If yes what type of measure chemical=1 Non chemical=2 Both=3				Distance of	
1 5	if chemical Insecticide=1 Herbicides=2 Fungicides=3 1&2=4 1&3=5 2&3=6 All=7				Side ID	16- 17 - 18 -
1 6	Was the field Fertilized? Yes=1 No=2				Bearing(o)	
1 7	If yes what type? Natural =1 Chemical=2 Both=3				Distance of	
1 8	If chemical fertilizer used (in Qu. 17 if it is code 2 or code 3) 18.1 what type? UREA = 1 DAP = 2 Both = 3 18.2 Quantity in Kg	Kg	gram		Side ID	19 - 20 - 21 -
1 9	If natural fertilizer used (in Qu. 17 it is code 1 or 3) mainly Manure=1 Compost=2 Organic=3 1&2=4 1&3=5 2&3=6 All=7 Others=8				Bearing(o)	
2 0	Crop Production in local unit	Local unit	Code	quantity	Local unit	Code

Reason if Area measurement not conducted
Code →

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