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IMPERIAL ETHIOPIAN GOVERNMENT
CENTRAL STATISTICAL OFFICE

NATIONAL SAMPLE SURVEY

2nd ROUND

FORMS AND INSTRUCTIONS

ADDIS ABABA, NOVEMBER 1968

4

STATISTICAL MANUAL

4

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Prepared and printed in the Central Statistical Office.

NATIONAL PEOPLE SURVEY

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NATIONAL SAMPLE SURVEY

SECOND ROUND

PART ONE

Purpose of the survey

1. The National Sample Survey came into existence in 1963. It was organised with the aim of filling gaps in the basic statistics of Ethiopia and to provide a scientific basis for economic development plans. The National sample survey is planned as a continuing multipurpose survey being conducted in successive rounds covering the topics on population, vital statistics, livestock and agriculture. The survey was planned to cover the rural areas of the whole Empire. From 1963 up to 1967 twelve provinces (out of 14) have been completed.

The data are collected by the interview method. The field work for this large scale survey is done by the staff of the Central Statistical Office. The plan for the survey is prepared by the Central Statistical Office in co-operation and consultation with most economic and development ministries and agencies concerned. The technical work relating to the formulation of sampling design, designing schedules, writing up instructions, processing and tabulation of the data collected, and writing reports for each province is done by the Central Statistical Office.

The First Round provided detailed statistics on provincial level while overall estimates are obtained for the awrajas (sub-provinces). Due to the extended time period involved (about 4 years) and the changes in the design and methods introduced during the survey, the results obtained for the different provinces were not on comparable basis and the compilation of the national estimates will have to be arrived at by making a number of assumptions and adjustments which might cause some errors.

2. The experience obtained from the first round have enabled the Central Statistical Office to standardize the survey techniques and procedures. The items to be covered in this round will be similar to those of the previous round, except for the addition, if possible, of a small scale crop-cutting work. The emphasis will be in obtaining detailed and reliable estimate on the national level and overall estimate on provincial level.

Scope of the survey

1. It is proposed to start the field work of the second round at the beginning of November 1968. Unlike the first round, the field work in the second round will be conducted simultaneously in 12 out of 14 provinces of the Empire (excluding Balle and Eritrea), and will continue for about 12 to 18 months. This will facilitate compilation of national estimates by aggregating the provincial estimates. Twenty teams, each team consisting of one team leader and three enumerators and provided with a landrover, will carry out the fieldwork, which will be supervised by seven supervisors.

2. Information will be collected on the number of persons, their age, sex, literacy, occupation, activity status, number of children ever born, indebtedness, livestock and poultry owned. Information relating to areas under crops, crop production, land tenure etc. will relate mainly to the preceding agricultural year, whereas information on births, deaths and seasonal movement will relate to the preceding twelve months.

Sample design

1. A stratified two-stage sampling design will be adopted for the second round for rural areas. The whole country (excluding Balle and Eritrea) will at first be stratified into about 450 'weredas' or districts into which the country has been divided for administrative purposes. Within each wereda, schedule 2

will be used for preparing an upto date list of all the administrative subdivisions for use as the first stage sampling frame.

2. In the case of weredas with less than 30 subdivisions, the first stage sampling will consist of selecting two subdivisions with probability proportional to their administrative population counts, or some other suitable measure of size if available, otherwise with equal probability. When there are 30 or more subdivisions in a wereda, two pairs of two contiguous subdivisions will be selected, which will be done by selecting two nucleus subdivisions by the above method, and then selecting a neighbouring subdivision for each nucleus with equal probability among all its contiguous neighbours.

For the second stage sampling, all the households residing in a selected subdivision will be completely listed in Schedule 3, and a proportion sampled for further enquiries (schedules 4 to 10) by systematic sampling after stratification by household class (owner, tenant etc.) such that the overall sampling fraction is 1 in 100.

PART TWO

INSTRUCTION TO ENUMERATORS

SCHEDULE 1

Wereda Questionnaire

The purpose of this questionnaire is to provide general information on conditions in the wereda.

The accuracy of the information given will depend on the knowledge and co-operation of the informants. Try therefore to question as large a group of local experts as possible: for example elders from the wereda or school teachers or government officials.

SECTION 1 - IDENTIFICATION PARTICULARS

1 to 5 Identification particulars. Record in block letters the name of each administrative area shown.

⑤ Distance by road between awraja and Wereda capital . If there is a road the distances in Kilometers by road will be recorded. If not enquire the number of hours it takes to cover the usual path or track on foot. Taking 6 kms per hour as an average, record the estimated distance.

SECTION 2 - ACCESS TO WEREDA CAPITAL

① If an all weather road passes through the wereda capital, put a tick mark (✓) after (a) "all weather road". If not, is there a dry weather road or, even if there is no road, can a car or landrover reach the capital during the dry season? If the answer is yes, tick (b) "by vehicle during dry season only". If both headings "(a)" and "(b)" are left blank, heading (c) "by mule and foot only" must be ticked. Note that only one heading should be ticked.

② If heading "(a)" of question 1, is ticked leave question 2 blank. If headings "(b)" or "(c)" are ticked answer question 2. Ask how many kilometers it is from the wereda capital to the nearest point on any all weather road, by the most direct route (i.e. not necessarily by road) and enter the total number of kilometers after "(a)" its distance from nearest point on all weather road in km". Then ask how many hours it takes for

a man walking on foot to cover this distance and enter the total after
(b) "hours by foot the journey takes from all weather road".

③ Height of Wereda capital in meters. Altimeter reading should be taken on the premises of the wereda office.

SECTION 3 - TOWNS AND ESTIMATED POPULATION

① A TOWN is an area in which: 1. the buildings and houses are contiguously aligned, i.e. side by side in rows; and there are: 2. at least one public bar in which alcoholic beverages are sold; 3. at least one hotel, i.e. a house in which strangers can pay for a bed for a night; 4. at least one permanent shop selling different kinds of goods; and 5. at least one weekly market in the town. Note that all five of the above conditions have to be true to call a group of buildings a town. If, for example four of the conditions are true for a certain place, but one is not, omit the name of this place from the list.

Using the above definition, write the name of each town in the wereda including the capital of the wereda in Amharic letters, and give the best estimate available of the population of each town. Under the heading "date", enter the Ethiopian Calendar Year (as "58", "59", etc.) for which the population count of each town was made.

② Settlement pattern. There are two types of settlements:

- (a) Scattered dwellings where households live some distance apart from each other, generally on or very near the land they cultivate.
- (b) Compact villages where families live in one place in houses side by side, and at some distance from their farms.

Note that the answer should apply to the way in which most of the country people live and usually tick only one heading. If, however, about half the people of the wereda live in compact villages and the other half in individual dwellings on their land, tick both headings.

SCHEDULE I

SECTION 4 - PARTICULARS OF WEEKLY AND BI-WEEKLY MARKETS

One horizontal line across columns 1 to 6 has been provided to name and describe each of the eight important markets in the wereda. Include only LARGE MARKETS (in terms of number of people attending) generally held once or twice a week and omit the small afternoon markets. As the order of importance of the market will be indicated under Col. 4, it is not necessary to list the markets according to order of size.

Col. 2 Name of place market held. In Amharic letters, enter the names of the places in which the largest markets are held such as the names of the towns, villages etc.

Col. 3 Days held. Enter the day of the week on which each market is held, or, if it is held twice a week, the two days on which the market is held. If a large market is not held on the same regular day or days every week, but is held every three days on different days each week write "every 3 days".

Abbreviate the names of the days of the week as follows:

M = Monday
TS = Tuesday
W = Wednesday
TH = Thursday
F = Friday
ST = Saturday
SN = Sunday

Col. 4 Order of importance. Compare the sizes of the markets listed under column 2 and rank them by writing the number "1" for the largest market, the number "2" for the second largest, etc. By "largest", "second largest", etc. is meant the total number of people who usually attend a given market. For markets held more than once a week, if the attendance on one day is usually larger than on the other day, always consider only the one day of largest attendance.

Col. 5 Do trucks come. If the trucks actually come and pick up products

at any time of the year write "yes", but if they never come to a particular markets, write "no".

Col. 6 Major products for sale. List the five most important products, including livestock, brought for sale by farmers to each of the markets listed in column 2, regardless of who the main buyers may be, i.e., other farmers, traders, agents of exporting firms, etc. Use only Amharic names (with Amharic letters) in answering this and the next two questions.

② Agricultural products sent out. List in Amharic, by order of importance at least five most important agricultural products, i.e., livestock, honey, etc. and/or crops produced in the wereda, and sent out of the wereda to be sold in other parts of the country.

③ Agricultural products brought into. List in Amharic at least five of the most important agricultural products bought by the people of the wereda, produced outside the wereda in other parts of the country. Note that only agricultural products are to be included. Omit such things as salt, cloth, etc.,

SECTION 5 - POPULATION TYPE

List the three largest language groups, the three largest ethnic groups and the three largest religious groups according to their order of importance. The word largest refers to the size of the population belonging to each group.

Ask what proportion of the total population belong to each group and enter the percentages. These percentages will be approximate and may not add up to 100% as only the three largest groups are listed.

The entry will be made line by line, i.e. the three largest language and their percentages will be completed before recording the Ethnic groups.

SCHEDULE I

A completed Section 5 might for example look like this:

		FIRST	%	SECOND	%	THIRD	%
1	Language	Amharic	70	Agewigna	10	Galigna	5
2	Ethnic	Gala	50	Amhara	20	Agew	15
3	Religious	Moslem	45	Orthodox Christian	25	Animist	20

SECTION 6 - EDUCATION AND MEDICAL FACILITIES

PART 1. SCHOOLS

Whenever possible the information should be obtained from the officials in charge for education, i.e. representatives of Ministry of Education or school directors.

Col. 3 Opposite the name of each school describe the type of school each of them is, with one of the following five names:

Government Schools operated by the Ministry of Education or any other ministry or agency of the Central Government (the Ministry of Public Health, for example);

Church Schools operated by the Ethiopian Orthodox Church, whether or not they follow the curriculum of the Ministry of Education;

Koranic Schools operated by the Moslem Church.

Mission Schools operated by any Christian church of foreign origin, whether Catholic or Protestant.

Private School not operated either by the Government or by one of the religious organizations listed above.

Col. 4 Describe the grades each school has. For example, if grades one to four inclusive are taught at a particular school, enter "1-4" or, for a high school, "8-12".

Col. 5 Enter the total number of teachers i.e. the total number of people who do any teaching, part or full time. Include administrative

personnel only if they also do some teaching.

Col. 6 Enter the total number of students in each school.

PART 2 MEDICAL INSTITUTIONS

Medical institutions are: hospitals, health centers, health stations, clinics and pharmacies. Those institutions which are operated by the Ministry of Public Health will be recorded under GOVERNMENT i.e. under cols.1 & 2, while these not operated by the Ministry of Public Health will be recorded under PRIVATE i.e. under cols.3 & 4.

1. A HOSPITAL possesses beds and other facilities for keeping patients inside the hospital. There is at least one doctor (with MD degree) in it.
2. A HEALTH CENTRE usually has a few beds, generally not more than six, for the treatment of patients in the center and is headed by health officers. At the present time, all Health Officers are graduates of the Public Health College in Gondar.
3. HEALTH STATION does not have facilities for keeping patients overnight. It has at least one advanced dresser, and some of them may have two or three dressers. All the health stations in an area are supposed to be supervised by the health centre of that area.
4. PRIVATE CLINICS include health stations often (but not necessarily) with at least one registered nurse in charge, but not having a doctor. They also include centres with only a dresser in charge. Private clinics have up to as many as twenty beds.
5. PHARMACIES are stores where people buy medicine and where they may also get some medical care. List only those pharmacies which are under the responsibility of a registered pharmacist, licensed by the Ministry of Public Health, and include only independent pharmacies, that is, do not include pharmacies which are inside or part of a hospital. Except in Addis Ababa, all Government pharmacies are within a hospital.
6. TYPE OF HOSPITALS. For the hospitals recorded both under item 1&4

the types should be stated. For instance, there are 2 hospitals treating all types of disease and 1 hospital treating tubercular patients only and 1 leprosium enter this information as follows: 2 General service +1 TB + 1 Leprosium.

SECTION 7 - WATER AND FIREWOOD SUPPLIES

① Sources of Water Supply. The purpose is to include the main sources of water supply, not all the water supply in the wereda. Inquire from where most of the water, used by the people of the Wereda, come and tick ONE or SEVERAL of the water sources listed in the questionnaire.

② Adequacy of Water Supply during the dry season. If there is enough water during the dry season (a) "for people" or (b) "for livestock" tick "yes" if there is not, tick "no".

Note that question 2 (and 3) applies only to chronic water shortages, i.e. the general situation over the past few years. If the water supply is usually adequate for people and for livestock, but last (or this) year drought occurred, the answer is "yes".

③ Water shortages. If the answers are "yes" to both headings of question 2, leave this question 3 blank. If the answer is "no" to one of the headings, answer this question.

If during the dry season, there is lack of water for people or animals almost everywhere in the wereda, tick the second heading "general". If, on the otherhand, water is in short supply only in certain parts of the wereda, only certain communities suffer, tick the first heading "local".

④ Firewood supply. Tick "yes" or "no" as appropriate. Note that the question does not apply to other fuels, such as cow dung which the housewife may use to make her fire, It applies only to wood and fuels made from wood, such as charcoal and it applies only to the "rural parts" of the wereda. If wood is scarce in the towns or larger centres and

plentiful in the countryside, the answer is "no" not "yes".

- ⑤ Main Use of cow dung. The question is "How is most of the cow dung used? Therefore tick either heading "a" or heading "b" but never both. If cow dung is used neither as a fuel nor as manure, tick "(c) as neither".
- ⑥ Use of crop residues. By crop residues is meant any part of the plant stalk, leaves, etc. of crops not eaten by people. The crop residues may be harvested and then fed to the animals or the animals may be allowed to graze on harvested fields. In both cases, if most crops residues are used mainly for fuel, for building, etc., the answer is "no".
- ⑦ Soil burning. In clearing land or to improve soil fertility, it is the practice, in some parts of the country, to burn the vegetation on the land before plowing it or using it for pasture (ገደ ዐደፍ ምገጠላ) Farmers may burn their soil only every seven or more years or at more frequent intervals. The word "extensively" in the question does not mean how often is the soil burnt. It means how much land has been burnt at one time or another. If soil burning is a usual practice in the wereda, tick "yes". If it is not practiced at all or it is practiced only on small amounts of land, tick "no".

SECTION 8 - LAND AND AGRICULTURE

- ① Climatic regions: The Wereda may consist of one or more climatic regions. These are "dega", "Woina dega" and "Kola". Tick the one or several categories which apply in the Wereda. Enter the best estimate of the percentages of the total area under the ticked categories. Remember that the total should add up to 100%.
- ② Average cost of land per gasha. Enter the average or usual cost during the past year of the three kinds of land: "lem", "lem tuff", and "tuff" in Ethiopian dollars. If gashas are not the units of land measurement used in a wereda, give the prices per land unit of similar or large size. In that case cross out the word "gasha" and, above it, write the name of the land unit used.

If land is never bought or sold, write "no sales" across the question.

③ Type of settlements. There are three type of settlements:

(a) A SETTLED family has a permanent house in one place in which aside from occasional trips, the household lives all year round. The family cultivates the land and may or may not own livestock in addition to growing crops.

(b) There are three kinds of SEMI-NOMADIC families: 1. families who could be classified under definition (c) "nomadic" except that, at a certain time of year, they stop in one place and plant and harvest some crops; 2. Families who live in a permanent house and grow crops, but regularly for some months of each year, a part of the family (usually men and boys) take the livestock to pastures in distant regions; and 3. shifting cultivators who stay no more than two or three years in one place and then move their houses and their fields to another place.

(c) A NOMADIC family does not live in one place. During the year, the family and its house move from place to place in search of water and pasture for livestock. The family possesses and lives from livestock only and does not cultivate any crops.

Using the above definitions, tick the appropriate heading or headings and also give the approximate percent of the total population in each group. The total percentage should add up to 100.

④ Tax paid. Tick one or more headings so as to include all the types of taxes paid by all the people of the wereda, i.e. whether tax is paid on land, on livestock owned or on the produce from land and/ or livestock.

⑤ Irrigation. Is any irrigation practised in the wereda. The answer is "yes", even if only one farmer uses irrigation or only one crop is grown under irrigation in the entire wereda. If all crops are grown with rain water only, the answer is "no".

⑥ Crops irrigated. If the answer to question 5 was "no", leave this question blank. If it was "yes", list the Amharic names in Amharic letters of all the crops grown under irrigation.

⑦ Money wage paid per day to agricultural labourers. Enter the usual

money wage paid per day to agricultural labourers in Eth.\$

- (a) when the employer provides food and housing free of charge, and
 (b) when he doesn't.

The answers must be in Ethiopian dollars and cents; for example, "0.65" or "\$1.25".

⑧ Communally owned land in the wereda. Communally owned land is one in which allotments of land are made by the community, and land cannot be sold by individual persons. Include only lands used exclusively by their communal owners and not, for example, lands owned by the Government or a community rented out to others, or "vacant" lands of unknown ownership which the community may allow people to use on a tenancy basis. If any land in the wereda is communally owned, tick "yes", or if none, tick "no".

⑨ Allotment of the land. If the answer to question 8 was "no", leave this question blank. If the answer was "yes", complete question 9.

(a) Is land allotted annually. Tick "yes" if the land on which crops are grown is decided upon and given for the use of each household once a year.

(b) If not annually, how often? If the land for growing crops is allotted to each household at longer but fairly regular intervals, say every seven years, enter the usual or average number of years between allotments. If households "permanently" use the same land for growing crops, and land is allotted only to a new household, member of the community, answer heading "(b)" by writing the words "upon request".

(c) "What is the usual size of allotment per household? Give the total amount (for crops, pasture, buildings, etc.) of communal land, usually or on the average, allotted to one household. If some household use additional lands not communally owned, such land must not be included in the average amount allotted.

After the sub-heading "number of units", enter the number of local land measurement units allotted to one household, and after "local unit", the local name in Amharic letters of the land measurement used.

SECTION 8. LAND AND AGRICULTURE

1 IS THE WEREDA : DEGA % WOINA DEGA % KOLA %

2 WHAT IS THE AVERAGE COST OF LAND PER GASHA IN THE WEREDA (DURING PAST 12 MTHS)
FOR:- (a) LEM \$ _____ (b) LEMTUFF \$ _____ (c) TUFF \$ _____

3 ARE THE INHABITANTS OF THE WEREDA,
(a) SETTLED % (b) SEMI-NOMADIC % (c) NOMADIC %

4 IS TAX PAID ON : LAND LIVESTOCK PRODUCE

5 IS ANY IRRIGATION PRACTISED IN THE WEREDA : YES NO

6 IF 'YES' TO QUESTION 5. LIST THE AMHARIC NAMES OF CROPS IRRIGATED

- 1 _____ 2 _____ 3 _____ 4 _____
5 _____ 6 _____ 7 _____ 8 _____

7 WHAT IS THE USUAL MONEY WAGE PAID PER DAY TO AGRICULTURAL LABOURERS
(a) WITH FOOD AND SHELTER PROVIDED (b) WHEN NO FOOD AND SHELTER PROVIDED
\$ _____ CENTS \$ _____ CENTS

8 IN THE WEREDA, IS THERE ANY COMMUNALLY OWNED LAND (IN WHICH ALLOTMENTS OF LAND ARE MADE BY THE COMMUNITY, AND LAND CANNOT BE SOLD BY INDIVIDUAL PERSONS)
YES NO

9 IF 'YES' TO QUESTION 8
(a) IS LAND ALLOTTED ANNUALLY? YES NO
(b) IF NOT ANNUALLY, HOW OFTEN? _____
(c) WHAT IS THE USUAL SIZE OF ALLOTMENT PER HOUSEHOLD?
NUMBER UNITS _____ LOCAL UNIT _____

SECTION 9. MAJOR CROPS AND SEASONS IN THE WEREDA

1	2	3	4
Nº	MAJOR CROPS AMHARIC NAME	PLANTED (ETHIOPIAN MONTH/S)	HARVESTED (ETHIOPIAN MONTH/S)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

WEREDA QUESTIONNAIRE

SECTION 1.		IDENTIFICATION PARTICULARS	
1	PROVINCE	2	AWRAJA
		3	WEREDA
X		4	AWRAJA CAPITAL
		5	WEREDA CAPITAL
6 DISTANCE BETWEEN AWRAJA AND WEREDA CAPITALS.			k.m.

SECTION 2.		ACCESS TO WEREDA CAPITAL	
1. APPROACHABLE BY:-			
(a) ALL WEATHER ROAD	<input type="checkbox"/>	(b) BY VEHICLE DURING DRY SEASON ONLY	<input type="checkbox"/>
		(c) BY MULE AND FOOT ONLY	<input type="checkbox"/>
2. IF WEREDA CAPITAL IS NOT ON ALL WEATHER ROAD:-			
(a) ITS DISTANCE FROM NEAREST POINT ON ALL WEATHER ROAD IN k.m.	<input type="text"/>	(b) HOURS BY FOOT THE JOURNEY TAKES FROM ALL WEATHER ROAD	<input type="text"/>
3. HEIGHT OF WEREDA CAPITAL in meters			

SECTION 3.		TOWNS AND ESTIMATED POPULATION	
1. LIST ALL THE TOWNS (FOR DEFINITION SEE INSTRUCTIONS) IN THE WEREDA, INCLUDING THE CAPITAL			
Nº	NAME	DATE	ESTIMATED POPULATION
1			
2			
3			
4			
Nº	NAME	DATE	ESTIMATED POPULATION
5			
6			
7			
8			
2 IN THE RURAL AREAS OF THE WEREDA DO PEOPLE LIVE IN			
(a) SCATTERED DWELLINGS		(b) COMPACT VILLAGES	

SECTION 4. PARTICULARS OF WEEKLY AND BI-WEEKLY MARKETS WITHIN WEREDA					
1	2	3	4	5	6
Nº	NAME OF PLACE MARKET HELD	DAYS HELD	ORDER OF IMPORTANCE	DO TRUCKS COME	NAME FIVE MAJOR PRODUCTS (INCLUDING LIVESTOCK) OFFERED FOR SALE BY FARMERS IN EACH MARKET
1					
2					
3					
4					
5					
6					
7					
8					
2. NAME AT LEAST FIVE MAJOR AGRICULTURAL PRODUCTS (INCLUDING LIVESTOCK) SENT OUT OF THE WEREDA					
3. NAME AT LEAST FIVE MAJOR AGRICULTURAL PRODUCTS (INCLUDING LIVESTOCK) BROUGHT INTO THE WEREDA					

SECTION 10. DISEASES AND PESTS IN CROPS USUALLY PREVALENT IN THE WEREDA.			
1	2	3	4
NAME OF PESTS AND DISEASES	NAME OF CROP AFFECTED	SYMPTOMS AND DAMAGE OF THE DISEASE OR PEST	OFFICIAL USE ONLY
1			
2			
3			
4			
5			
6			

SECTION 11. DISEASES AND PESTS IN ANIMALS USUALLY PREVALENT IN THE WEREDA					
1	2	3	4	5	6
NAME OF PESTS AND DISEASES	TYPE OF ANIMAL AFFECTED	SYMPTOMS OF THE DISEASE	MONTHS OF PREVALENCE	WAS IT IN EPIDEMIC FORM LAST YEAR	IF YES WAS VET SERVICE AVAILABLE
1					
2					
3					
4					
5					
6					

SIGNATURES	ENUMERATOR	Nº	SURVEY DATE	SUPERVISOR	Nº	SCRUTINY DATE
ROLL NUMBERS			// //			// //
DATES						

SECTION 5.		POPULATION TYPE				
1	2		3		4	
GROUPS	ACCORDING TO NUMBER OF PERSONS					
	FIRST	%	SECOND	%	THIRD	%
1 LANGUAGE						
2 ETHNIC						
3 RELIGIOUS						

SECTION 6.		EDUCATION AND MEDICAL FACILITIES			
1. SCHOOLS (DATA ON SCHOOLS IN THE WEREDA TO BE OBTAINED FROM THE WEREDA OFFICE)					
1	2	3	4	5	6
Nº	NAME OF THE SCHOOL	TYPE	GRADES	Nº TEACHERS	Nº PUPILS
1					
2					
3					
4					
5					
6					
7					
8					

2. RECORD THE NUMBER OF EACH OF THE FOLLOWING LOCATED IN THE WEREDA							
1		2		3		4	
GOVERNMENT		NUMBER		PRIVATE		NUMBER	
1	HOSPITALS			1	HOSPITALS		
2	HEALTH CENTRES			4	CLINICS		
3	HEALTH STATIONS			5	PHARMACIES		
6	TYPE OF HOSPITALS			6	TYPE OF HOSPITALS		

SECTION 7		WATER AND FIREWOOD SUPPLIES ETC.	
1. WHAT ARE THE USUAL SOURCES OF WATER SUPPLY IN THE WEREDA?			
RIVER	<input type="checkbox"/>	LAKE	<input type="checkbox"/>
STREAM	<input type="checkbox"/>	SPRING	<input type="checkbox"/>
WELL	<input type="checkbox"/>	POND	<input type="checkbox"/>
OTHER	<input type="checkbox"/>		
2. IS WATER SUPPLY IN THE WEREDA ADEQUATE DURING THE DRY SEASON?			
(a) FOR PEOPLE	YES <input type="checkbox"/>	NO <input type="checkbox"/>	(b) FOR LIVESTOCK
			YES <input type="checkbox"/>
			NO <input type="checkbox"/>
3. IN CASE OF WATER SHORTAGES IN THE WEREDA, ARE THEY?			
		LOCAL	<input type="checkbox"/>
		OR GENERAL	<input type="checkbox"/>
4. IS FIREWOOD IN SHORT SUPPLY IN THE RURAL PARTS OF THE WEREDA?			
		YES	<input type="checkbox"/>
		NO	<input type="checkbox"/>
5. IS COW DUNG USED MAINLY?			
(a) FOR FUEL	<input type="checkbox"/>	(b) AS MANURE	<input type="checkbox"/>
		OR (c) AS NEITHER	<input type="checkbox"/>
6. ARE CROP RESIDUES USED MAINLY FOR FEEDING LIVESTOCK?			
		YES	<input type="checkbox"/>
		NO	<input type="checkbox"/>
7. IS SOIL BURNING OF EITHER CROP OR PASTURE LAND EXTENSIVELY PRACTISED?			
		YES	<input type="checkbox"/>
		NO	<input type="checkbox"/>

Col. 4 Leave this column blank.

SECTION 11 - DISEASES AND PESTS IN ANIMALS

Columns 1 to 3 The definitions and instructions for completing this section on animal diseases and pests are similar to those given above in Section 10. col. 1 to 3 for plant diseases and pests. Make sure, however, that ticks (ወቸገር) are included if they are a serious problem to the livestock of the wereda.

Col. 4 Months of prevalence. Write down the Ethiopian month in Amharic letters to explain at what time of the year does the disease or pest usually affect animals, or during what months does the disease or pest affect most animals. If there is no particular period during the year for a given disease or pest, write "all year".

Col. 5 Epidemy For each of the diseases listed in column 1, write "yes" if the disease was on a large scale, affecting many animals in a particular area (not necessarily in the entire wereda, but many animals at least in parts of the wereda). If the disease affected only a few animals here and there in the wereda and was not quickly transmitted to neighbouring animals, write "no". Since pests do not cause epidemics leave this column blank for each pest listed in column 1.

Col. 6 Availability of veterinary services. For each disease for which "no" is written in column 5, leave this column blank, but for each disease where the answer is "yes", complete col. 6 as follows: Write "yes" if the animals suffering from the epidemic were able to receive veterinary treatment. If no veterinary services were available write "no".

SCHEDULE 2

LIST OF ADMINISTRATIVE SUBDIVISIONS

This schedule will be used to make a list of all the administrative subdivisions in a wereda and to select sampling subdivisions.

Ordinarily the necessary information will be obtained from the wereda offices. If, however, an awraja office happens to have current lists of subdivisions for some or all of the weredas in the awraja, together with the other information required, complete the Schedules from the records of the awraja office. In such cases, however, the schedules must be checked and where necessary corrected in every wereda (or mikartil wereda) office.

In this schedule, it is assumed that each wereda is administratively divided first into a certain number of large or "first rank" areas, each of which is then further divided into smaller or "second rank" subdivisions. Where mikartil weredas still exist, this will of course not be the case and there will be three "steps" of descending size in the wereda, instead of only two.

Thus FIRST RANK areas are defined, for the purpose of this survey, as the largest administrative units into which a wereda is divided or if the wereda is divided into mikartil weredas, the largest administrative units under the mikartil weredas. The area administered by a balabat or a koro, for example, will usually be a first rank area.

SECOND RANK subdivisions are the largest administrative units into which each first rank area is divided. Second rank subdivisions are often also the smallest distinct administrative subdivisions in a wereda. Thus second rank subdivisions are likely to be areas administered by a chikashum, a shenecha, etc.

From the complete list of second rank subdivisions, a

number of them (2 or 4) will be selected as sample subdivisions except in places where second rank subdivisions would not be satisfactory because they are too small. In such cases, first rank area might be used as sampling subdivisions. A sampling subdivision should probably contain about 100 to 200 households.

Columns 1 to 3 Locating Reference. Enter the names of the province, the awraja, and the wereda in English letters. Repeat them on each continuation sheet used.

Columns 4 to 7. Use Amharic letters in completing these columns. On the top horizontal line containing the heading "designations", above the words "first rank" and above the words "second rank", enter the designations of the first and second rank officials respectively, i.e. write "balabat" and "chikashum", etc. as appropriate.

First and second rank subdivisions are usually most clearly identified by the names of the officials responsible for them. In places where the officials are frequently changed, it may be better to use the names of areas for purposes of identification.

Enter the name of only one first rank official in column 4 and the name of the first rank area for which he is responsible in column 5 and then immediately proceed to completing columns 6 and 7. List all the names of the second rank officials and the second rank areas on successive horizontal lines in columns 6 and 7 until all the second rank subdivisions within this first rank area have been listed, before proceeding, and completing in the same way, the next first rank area.

No special space has been provided for the listing of mikutil weredas. If at the time of filling the schedule they still exist, first use an entire horizontal line across columns 4 to 7 to enter the name of a mikutil wereda. Below it on the next horizontal line, enter one of the first rank areas in the mikutil wereda and its second rank subdivisions, until all the mikutil weredas and all their first and second rank subdivisions have been listed.

SCHEDULE 2

IT IS ESSENTIAL THAT ALL THE SUBDIVISIONS IN THE WEREDA BE CORRECTLY AND COMPLETELY LISTED WITHOUT DUPLICATION, AND THAT THE ENTIRE AREA OF THE WEREDA BE INCLUDED. Check and re-check, for example, that no ristgult, Church or Government lands have inadvertently been omitted. Where, as in Gojam, "debrs" and "gots" are administrative subdivisions, make sure that not a single "debr" or "got" has been omitted. Make sure that all the "kebeles" and "menders" under each chikashum have been included, etc.

Since the sample subdivisions for the National Sample Survey are selected from the information given in this Schedule, any gaps or inaccuracies will necessarily lead to incorrect estimates of provincial and national totals.

Columns 8 and 10. Complete columns 9 and 11 before completing columns 8 and 10.

Col. 9 Estimated Number of Population or Households. Quite often, the awraja (wereda or mikitil wereda) office will have records of : 1) the number of persons, 2) the number of households, and/or 3) the number of taxpayers, in all (or almost all) the subdivisions listed in columns 6 and 7.

If information on number of persons is available, enter the total number in each subdivision opposite the name of the subdivision and correct the heading of this column by putting a line through the word "households". If information on population is not available, enter the total number of households in each subdivision if it is available, and put a line through the word "population" in the column heading. If information on neither of these is available, enter the total number of taxpayers in each subdivision, if available; cross out the words "population households" in the column heading and write "taxpayers". If none of these three are available, leave the column blank.

Directly above the column heading, write the Ethiopian calendar year for which the information is given. Remember also

that the column heading must be corrected. Otherwise the numbers given in the column will be meaningless.

Col. 11 Number of units of area of the Subdivision. In the brackets provided in the column heading, write the name of the unit used in measuring the area of each subdivision listed in columns 6 and 7 (for example, "gasha").

Enter the area of each subdivision in whole numbers only, i.e. after rounding the decimals, if any. Add up the areas of all the subdivisions and enter the total below this column on the last continuation sheet. Compare the total thus obtained with any other information available on the total area of the wereda. Any differences must be thoroughly checked and the information in columns 4 to 7 corrected as necessary so as to ensure that the list of subdivisions is complete without any duplication.

If the areas of the subdivisions are not known, leave the column blank.

Col. 8 Sampling Serial Number. After ensuring that all the subdivisions in the wereda have been completely listed, number the subdivisions listed in columns 6 and 7 serially as 1, 2, 3,N, where "N" is the total number of subdivisions in the wereda.

Col. 10 Cumulation. Cumulate in this column the numbers in column 9 or, if column 9 is blank, the numbers in column 11.

Before doing so, however, check that every subdivision has been included. If information in column 9 or 11 is missing for one or a very few subdivisions, add up the numbers already entered in the column, average them by dividing this total by the number of subdivisions for which information is available. Enter this average, within brackets on the line of each subdivision for which information is missing. Then cumulate the column, including all the averages entered, in this column,

SCHEDULE 2

Col. 12 Order of Selection. Sampling subdivisions will be selected in three somewhat different ways depending on the total number of subdivisions in the wereda and the information available in each case.

I. SELECTION OF SUBDIVISIONS IN WOREDA WITH LESS THAN 30 SUBDIVISIONS

a) When population or area figures are available (columns 9 or 11 completed).

If there is a total of less than 30 subdivisions (cols. 6 and 7) in the wereda and information on the number of people, households, taxpayers or the area of each subdivision is available, two subdivisions will be selected for survey by circular systematic sampling with probability proportional to size.

The method to be used can best be described with an example.

Sampling serial No. (of Subdivision) Col. 8	Estimated population Col. 9	Cumulation Col. 10	Assigned range	Order of selection Col. 12	Initial probability
1	530	530	1-530	2	0.0863
2	740	1270	531-1270		0.1205
3	480	1750	1271-1750		0.0782
4	870	2620	1751-2620		0.1417
5	920	3540	2621-3540		0.1498
6	<u>600</u>	4140	<u>3541-4140</u>	1	0.0977
7	450	4590	4141-4590		0.0733
8	930	5520	4591-5520		0.1515
9	620	6140	5521-6140		0.1010
Total	6140				1.0000

In the example, it is assumed that population figures are available and that the total population of the wereda is 6,140.

Take a random number between 0001 and 6140. Let this random number be 3,572. Then 3,572 is the random start. Since it falls within the range of subdivision 6, subdivision 6 becomes the first sampling subdivision selected. Enter its order of selection "1" on the correct horizontal line in column 12.

Divide the total population by two, rounding the result to whole numbers if necessary (for a circular systematic sample of size 2), i.e., $\frac{6,140}{2} = 3,070$. Add the sampling interval to the random start, i.e., $3,070 + 3,572 = 6,642$.

If, as in the present case, the result is more than the total population of the wereda, subtract the total population from it, i.e. $6,642 - 6,140 = 502$. Since 502 is within the range of subdivision 1, subdivision 1 becomes the second sample subdivision and its order of selection "2" is entered in column 12.

If, on the contrary, the sum of the random start and the sampling interval is equal to or less than the total population of the wereda, the second sample subdivision can be selected directly without subtraction. Suppose, for example, that the sum happened to be 5,321. Subdivision 8 would then have been chosen as the second sample subdivision since 5,321 falls within its range.

12.1. Initial probabilities of selection of subdivisions

The initial probability of selection of subdivisions is given in the last column of the illustrative table. Initial probabilities are calculated by dividing the population (or the number of households, taxpayers or the areas) in a subdivision by the total population (number of households, taxpayers, etc) in the wereda. Thus the initial probability of selection of subdivision 6, for example, is $\frac{600}{6,140} = 0.0977$

SCHEDULE 2

b) When population or area figures are not available (columns 9 and 11 blank).

If there are less than thirty subdivisions (cols. 6 and 7) in the wereda and population, household taxpayers or area figures are not available. (columns 9 and 11 are blank) the two sample subdivisions are selected by circular systematic sampling with equal probability.

Suppose that no information is available other than the names and the total number of subdivisions. In the above example there are 9 subdivisions. Then, take a random number between 1 and 9. Let this number be 7. Subdivision 7 is selected as the first sample subdivision. The second sample subdivision is then selected as follows. The sampling interval is: $9/2 = 5$. The second sample subdivision is: Random start + (rounded) Sampling Interval - Total (if necessary), i.e. $7 + 5 - 9 = 3$. Subdivision 3 becomes the second sampling subdivision.

II. SELECTION OF SUBDIVISIONS IN WEREDA WITH 30 OR MORE SUBDIVISIONS.

If there is a total of 30 or more subdivisions in a wereda, 2 pairs of two contiguous subdivisions will be selected for survey. Two "nucleus" sample subdivisions will just be selected by one of the methods described above, depending upon whether the information in column 9 or 11 is available or not. In addition, two more subdivisions contiguous respectively to the two nucleus subdivisions will be selected in Schedule 2-A.

CONCLUDING REMARKS

Make sure that you entered the name of the place, i.e., the awraja, wereda or miketil wereda office from which the information was obtained on each page of the schedule. Before signing and dating each page, check that the page numbers were entered correctly on each continuation sheet used.

LIST OF NEIGHBOURING SUBDIVISIONS

If in a wereda there are a total of thirty or more subdivisions one of this schedule will be used to make a list of all the subdivisions contiguous to each nucleus subdivision selected in Schedule 2, and to select a contiguous subdivision for survey. Since two nucleus subdivisions were selected in Schedule 2, two Schedule 2-A will be completed for each wereda with thirty or more subdivisions. If a subdivision is administered by wereda A but is actually located in wereda B, it will be listed in wereda A in schedule 2. If this subdivision is selected as a nucleus, it alone will be surveyed since it has no contiguous neighbour in wereda A.

Columns 1 to 3 Locating Reference. Enter the names of the province, the awraja, and the wereda in English letters.

Col. 4 Name of Selected Nucleus Subdivision. In Amharic letters, enter the name of one of the selected nucleus subdivisions from column 6 (or column 7) of Schedule 2.

Col. 5 Order of selection. Copy the number given as the order of selection of this nucleus subdivision from column 12 of Schedule 2.

Col. 6 Names of Neighbouring Subdivisions Adjoining the Selected Nucleus. With the help of the official in charge of the nucleus subdivision (the chikashum or sinecha, etc.), enter the names in Amharic letters of all the subdivisions which are contiguous to, i.e. which have at least one boundary in common with, or whose boundaries at one point touch the nucleus subdivision and which also of course are in the same wereda as the nucleus subdivision. Make sure that all the neighbours of the nucleus in the wereda have been correctly and completely listed and that their names are the same as those already given in Schedule 2. Also correct any errors or omissions in Schedule 2 on the Schedule 2 itself.

Col. 7 Sampling Serial Number. Serially number the subdivisions listed in column 6 as "1, 2, 3 n_1 ", where " n_1 " is the total number of neighbours of the nucleus. Take a random number between

1 and n_1 . Let it be 'C'. Put a circle around the number "C" in column 7. The subdivision with serial number 'C' then becomes the neighbouring subdivision selected for survey, unless it was the one already selected in Schedule 2 as the other nucleus subdivision. If it was, take another random number to select the contiguous subdivision for survey.

In column 12 of Schedule 2, on the same horizontal line as the name of the contiguous subdivision just now selected in this Schedule 2A, enter "1 C" if its nucleus subdivision had order of selection "1"; enter "2 C" if its nucleus has order of selection "2" (from column 5 of this Schedule 2 A).

Column 8 Name of Selected Neighbour. Write the name of the subdivision selected in column 7 on the first horizontal line of this column.

Col. 9 Names of Subdivisions Adjoining the Selected Neighbour. With the help of the official in charge of the selected contiguous subdivision, now enter the names of all the subdivisions contiguous to the selected neighbour and located in the same wereda. The nucleus subdivisions selected in Schedule 2 will obviously be one of the subdivisions in this list. Once again, make sure that the list is correct and complete and that the names of the subdivisions are the same as those already listed in Schedule 2. Correct and complete the Schedule 2 if necessary.

Items 10 and 11 Initial Probabilities of Selecting the Nucleus and the Neighbour. Calculate correct to 4 decimal places and enter the initial probabilities of selection of the nucleus subdivision and of the selected neighbouring subdivision if the necessary information is available in columns 9 or 11 of Schedule 2. (See the instructions to column 12.1 of Schedule 2). Use the back of Schedule 2-A to make calculations. Enter the two probabilities after " p_1 " and " p_2 " respectively at the bottom of the schedule.

Items 12 and 13 Total Number of Neighbours of the Nucleus Subdivision and of the Selected Neighbour. Count the total number of neighbours of the nucleus subdivision and of the selected neighbour listed in columns 6 and 9 of this schedule and enter these two totals after " n_1 " and " n_2 " respectively.

SCHEDULE 3

LIST OF HOUSEHOLDS IN SUBDIVISION

The purpose of this schedule is to prepare a list of all the households residing in each of the subdivisions selected in Schedules 2 and 2 A, and then to select sample households from whom information on population, agriculture, etc. will be collected (in Schedules 4 to 12).

The subdivision will be divided into a number of distinct localities (kebeles, menders, etc.), each with its own name. With the help of the official in charge of the subdivision (the chikashum, sinecha, etc.), first check the boundaries of the entire subdivision and, on the back of the schedule, make a complete list of all the localities within the subdivision.

Columns 1 to 5 Locating Reference. Enter the names of the province, the awraja, the wereda, the mikitil wereda if any, and the subdivision in English letters. Repeat them on each continuation sheet used.

It may happen that the name of the subdivision supplied is in some way incorrect or incomplete. If it is, be sure to enter it correctly on this Schedule, and also to correct it on the Schedule 2 or the Schedule 2 A.

Col. 6 Order of Selection. Copy the number ("1", 1C, "2" or 2C) given as the order of selection of the subdivision from column 12 of Schedule 2.

Col. 7 Name of Localities within the Subdivision. As explained, a subdivision is divided into localities. From the list on the back of the schedule, enter the name of one locality (in Amharic letters) in this column, then complete columns 8 to 13 inclusive for all the households residing in that locality, before entering the name of a second locality. If there is any inaccuracies in

SCHEDULE 3

the names of localities or any missing localities, complete and correct the list before going along.

Columns 8 to 13

After correctly entering the name of a locality in column 7, begin visits to all the households in that locality to collect and record the information required for completing columns 8 to 13 inclusive for each household. Interview the head of the household if at all possible or, if not, another responsible member of the household so as to ensure that the information given is correct.

Col. 8 Serial Number of the Household. All the households residing in the whole subdivision will have to be listed in this Schedule.

A HOUSEHOLD consists of all members of one family related by blood or marriage and including also other members, if any, who normally live together in one house or in closely related premises and take their meals from the same kitchen. (For a complete definition of a household, see the first two pages of the instruction for Schedule 4).

Number the households serially as 1, 2, 3 H, where "H" is the total number of households in the subdivision. In other words, although the households are listed by localities, they must not be numbered by localities. Suppose, for example, that the last household in the first locality was serially numbered "12", then the first household in the second locality must be numbered "13", and so on.

In most cases, every piece of land in the subdivision will have a name, i.e., if the list of localities is correct and complete, all the land in the subdivision will have been included, as it must be. Should it happen, however, that some parts of the subdivision do not have a name and there are households on this land, then take great care that all such households have also been listed in this column, whether or not a locality name can be

given for them in column 7. ALL THE HOUSEHOLDS IN THE ENTIRE SUBDIVISION MUST BE INCLUDED; NOT A SINGLE HOUSEHOLD MUST BE MISSED, NOR SHOULD ANY HOUSEHOLD BE LISTED MORE THAN ONCE.

Col. 9 Name of the Head of the Household. The HEAD is the person who is considered to be the head by the other members of that household. Enter the name in Amharic letters of the head of each household.

Col. 10 Persons in the Household: Total, Male and Female. Enter the total number of persons in each household and then the total number of males and of females. Remember that for this column, as for Schedule 4, "persons" means all adults and children including very small babies and that all human beings living and eating with the household, whether they are members of the same family or not, such as servants and any kind of employees normally residing in the household.

Spend as much time and effort as necessary to ensure that the information given in this column is especially accurate and complete.

Col. 11 Last Twelve Months: Births and Deaths. Enter the total number of births of children born alive and of deaths which occurred during the last twelve months to persons belonging to the household. Ensure that the information in this column is extremely accurate. Check that all the births and deaths within the last twelve months are included and that births and deaths which occurred more than twelve months ago are omitted.

All births during the last twelve months to all women, now members of the household, and to all women, formerly members of the household, who died during the past twelve months must be included. Births to women, formerly members of the household, who are now alive and are now members of another household, must be omitted.

In recording all the deaths during the last twelve months to persons belonging to the household, be especially careful that none of the deaths (and births) of very small children, including children born alive who died before baptism and children whose mothers died, have been omitted. (See also the instructions to columns 22, 26 and 28 of Schedule 4.)

Col. 12 Non-farming Activities if any, Followed by the Members of the Household, Including the Head. The head and/or any other member of a farming household may earn a certain income from trade or crafts. A few households, of course, earn their entire living from non-agricultural activities.

Whether the household is engaged in farming or not, list all the non-agricultural economic activities of all the members of each household during the last twelve months. (Before doing so, however, read and study the instructions to column 15 of Schedule 4).

Col. 13 Household Class. Classify the households according to the ownership of the land. All land used by any member of the family, not the head of the household only, is to be included.

Enter "L" for landowner only if a farming household owns all the land it used during the last twelve months. Enter "T" for tenant only if a farming household rents all the land it used during the last twelve months. If a part of the land used by a farming household is rented from others and another part is owned by the household, enter "P". If the household grew no crops and/or owned no livestock during the past year (whether or not the household farmed in previous years), enter "O" for others, i.e. for non-agricultural households.

Col. 14 Sampling Serial Number by Class. Now serially renumber all the households in the subdivision by classes, beginning with "1" and ending with the total number of households in the subdivision. Start with all the households listed in column 13 in class "L". Number them as "1", "2", "3" "L". Next,

take all the households belonging to class "P". The serial number of the first household in class "P" will be the number immediately after "L". Thus, serially number all the households in class "P" as "L + 1", "L+2" to, say, number "P", and in the same way, all the households in class "T" from "P + 1" to, say, number "T", and those belonging to class "O" from "T + 1" to "H", where "H" is the total number of households in the subdivision. It must obviously be exactly the same as the serial number of the last household in column 8.

Col. 15 Order of Selection. Either the interval to be used in selecting sample households for survey will be supplied to enumerator, or he will have to calculate it himself following the instructions given below.

a) Sampling Interval Supplied

At the bottom of page one of the schedule (and its continuation sheets), enter the sampling interval given to enumerator,
 $h =$ ".

The method to be followed next can be understood most easily from numerical examples. Suppose the interval given is "10". Take a random number between 1 and 10. Let this random number be "4". Enter "4" at the bottom of the first page under "Random Start, $r =$ _____". Select the households numbered, in column 14; "r", "r + h", "r + 2h", "r + 3h", "r + 4h", etc. up to the largest number in the series, which is smaller than the total number of households, i.e. in example, households with serial numbers 4, 14, 24, 34, 44, 54, etc. Now serially renumber the first, second, third, fourth, etc. households selected as "1, 2, 3, 4 in column 15, i.e. in the example, household number 4 in column 14 becomes the household with order number "1" in column 15, household number 14 has order number "2", household number 24 order number "3", and so on.

b) Sampling Interval Not Supplied

If no sampling interval has been given to enumerator, he will have to calculate it using one of the methods described below. Make calculations on the back of the schedule and round the result to the nearest whole number. (The numerical illustrations given after the first two formula are taken from the example given in the instructions to column 12 of Schedule 2).

RULE 1.

Total number of subdivisions in the wereda is less than 30; and the two subdivisions are selected with probability proportional to size (example in instruction for col. 12 Ia).

In this case the sampling interval "h" is:

$$h = 200p$$

where

"p" is the initial probability of selecting the subdivision under consideration.

Example for subdivision 6:

$$h = 200 \times 0.0977 = 19.54$$

$$= 20 \quad (\text{after rounding})$$

RULE 2.

Total number of subdivisions in the wereda is less than 30; and the two subdivisions are selected with equal probability. (example in instruction for col. 12, Ib).

In this case the sampling interval "h" is:

$$h = \frac{200}{N}$$

where

"N" is the total number of subdivisions in the wereda.

Example:

$$h = \frac{200}{9} = 22.22 = 22 \quad (\text{after rounding}).$$

RULE 3.

Total number of subdivisions in the wereda is 30 or more, and two pairs of contiguous subdivisions are selected such that the nucleus subdivisions are selected with probability proportional to size, and one neighbouring subdivision is selected for each nucleus with equal probability from among all the possible neighbours.

In this case the two sampling intervals, " h_1 " and " h_2 ", are:

$$h_1 = 200 \left[p_1 + p_2 \times \frac{n_1}{n_2} \right]; \text{ and}$$

$$h_2 = 200 \left[p_2 + p_1 \times \frac{n_2}{n_1} \right];$$

where

h_1 is the sampling interval for selecting households in the nucleus subdivision;

h_2 is the sampling interval for selecting the households in the selected neighbouring subdivision;

p_1 and " p_2 " are the initial probabilities assigned to the nucleus and the selected neighbour respectively, and

n_1 and " n_2 " are the total number of neighbouring subdivisions for the nucleus and for the selected neighbour.

Example:

when: $p_1 = 0.0334$, $p_2 = 0.0251$, $n_1 = 5$, and $n_2 = 6$,

$$h_1 = 200 (0.0334 + 0.0251 \times \frac{5}{6}) \\ = 200 (0.0334 + 0.0209) = \frac{5}{6} 10.86 = \underline{11} \text{ (after rounding); and}$$

$$h_2 = 200 (0.0251 + 0.0334 \times \frac{6}{5}) \\ = 200 (0.0251 + 0.0401) = 13.04 = \underline{13} \text{ (after rounding)}$$

RULE 4.

Total number of subdivisions in the wereda is 30 or more: and two pairs of contiguous subdivisions are selected in such a manner that the nucleus subdivisions are selected with equal probability and one neighbouring subdivision is selected for each nucleus with equal probability from among all the possible neighbours.

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In this case the sampling intervals, "h₁" and "h₂", are:

$$h_1 = \frac{200}{N} \left(1 + \frac{n_1}{n_2}\right); \text{ and}$$

$$h_2 = \frac{200}{N} \left(1 + \frac{n_2}{n_1}\right),$$

Where

h₁ and "h₂" are the sampling intervals for selecting the households in the nucleus and the neighbouring subdivisions;

N₁ is the total number of subdivisions in the wereda,

n₁ and n₂ are the total number of neighbouring subdivisions of the nucleus and of the selected neighbour.

Example: when N = 40, n₁ = 5, n₂ = 6,

$$h_1 = \frac{200}{40} \left(1 + \frac{5}{6}\right) = 9.17 = \underline{9} \text{ (after rounding); and}$$

$$h_2 = \frac{200}{40} \left(1 + \frac{6}{5}\right) = 11.00 = \underline{11} \text{ (after rounding).}$$

Depending upon how each sample subdivision within a wereda was selected (in Schedules 2 or 2A), apply one of the four rules given above to calculate the sampling interval for that subdivision. These rules have been worked out so that the expected overall sampling fraction is 1 in 100, and therefore the correct formula must be used in each case without any mistake. For ease of reference the formula to be used are also given at the bottom of the schedule.

Once you have calculated the sampling intervals, the instructions are exactly the same as those given above for this column under the title, "Sampling Interval Supplied".

Col. 16 Measure Land. One - third of the households selected in column 15 will be used for land measurement. In order to make this selection, a random number will be taken between 1 and 3. Suppose this random number is 2, then the sample for land measurement will consist of households with orders of selection 2,5 ($=2+3$),8($=5+3$),11,14 in column 15. These households will be marked "Y" in this column to indicate that they are to be used for land measurement.

Once it is marked "Y" in the appropriate spaces in this column 6 whether a household is selected with or without land, do not write anything else and do not change what is written in this column.

If it is necessary to substitute a household not selected for land measurement for a selected household because the selected household does not have land, refer to instructions for column 10 in schedule 7.

FINAL REMARKS

For every page of schedule 3 used, put down the totals of the items in columns 10 and 11 at the bottom in the spaces provided.

Make sure that all the households residing in the sample subdivisions are completely listed and check the calculation of the sampling interval and see that the samples have been correctly drawn before putting signature, roll number and date on the last page of the schedule.

SCHEDULE 4

POPULATION-BIRTH AND DEATH

The main purpose of this schedule is to collect information on population, on its composition by age groups, on birth and mortality rates, activity and so on. The importance of this information is very big. Government planning is almost impossible without statistics on population. The need to establish health services in one place as compared to another may well depend on the rates of infant mortality in the two places. In order to justify the establishment of a new industry in a certain place, the available labour force (i.e. the ages, sexes and occupations of the adult population) should be known. A knowledge of age composition of the child population and its expected rate of growth is indispensable before schools and teaching staffs can be planned efficiently. Such examples in all fields of endeavour could be multiplied. They all point to the necessity of conscientiously and methodically collecting basic statistics on population.

OBSERVATION UNIT AND ENUMERATION PROCEDURE

In obtaining relevant data about population, all selected household should be interviewed.

A HOUSEHOLD consists at first of all the members of one family, related by blood or marriage and including also other members, if any, who now normally live together in one house or in closely related premises and take their meals from the same kitchen. It means that all persons living in the household should be included, whether they are members of the family or not, such as servants, any kind of employees, etc. normally residing and eating in the household.

Thus, where marriages are monogamous, a household is likely to consist of a man, his wife and their children and adopted children, together with any parents or other relatives who normally live in the household, and servants and employees normally residing in the household.

Where marriages are polygamous, i.e. where one man has more than one wife at a time, one household will include all the wives provided that the husband and his wives and children live in the same house or in closely related premises and that they share their principal meals. If, on the otherhand, the wives and their children (together with other relatives and servants) live in separate premises and each wife and her children take meals from different kitchens, then each wife's households must be counted as a distinct and separate household. In these cases, the husband must be considered as belonging only to (and being the head of) the household of the wife now alive, whom he married first and the second, third, etc. wives must be considered as being the heads of their respective households.

A normally resident member of a given household should have neither formed a separate household nor be a usual member of another household. Membership in a particular household is not related to the length of stay in that household, as for example a daughter, recently married, must be counted as a member of her husband's (or her own) household, not of her father's household. Usual member of a given household, temporarily absent, must not be omitted, including students in boarding school or away at college who must always be counted as members of their father's (or mother's) household. All guests, whether they are related to members of the household or not, who are normal members of another household must be omitted.

Always interview the head of the household if at all possible. If the head is temporarily absent, interview another responsible adult member of the household.

THE HEAD OF HOUSEHOLD is the member, of either sex, who is considered to be head by the other members of that household. For polygamous wives living in separate households, when the husband is considered to be head only of the household of the wife, now alive, whom he married first, all the other wives are considered to be the heads of their respective households.

INSTRUCTION FOR COMPLETING THE SCHEDULE 4

One horizontal line across columns 6 to 22 inclusive has been provided to list and describe each member of the household.

Col. 1 to 4 - Locating Reference. Enter the names of the province, the awraja, the wereda, and the sampling subdivision in English letters. Repeat them, together with the household number, on each continuation sheet used.

Col. 5 Household Number. The household number is the order number of selection given to the household from column 15 of Schedule 3.

Col. 6 Order Number. This column has already been completed for households consisting of twelve members or less. After completing column 7, circle the order number in column 6 of the household member who is providing the information for completing the schedules.

For households with more than twelve members, cross out the order numbers printed on each continuation sheet used and write the new order number in the left-hand margin of the schedules. On the first continuation sheet, for example, enter "13", "14", "15", etc. on successive horizontal lines.

Col. 7 to 12 Personal Particulars of the Household Members. It may be best for convenience and accuracy to complete one horizontal line across columns 7 to 12 (or some of these columns) for one person at a time before going on to the next person, and completing these columns for that second person, and so on.

Col. 7 Name. Enter the names of all the members of the household in Amharic letters on successive horizontal lines. Always enter the name of the head of the household on the first horizontal line. In case of small children, not yet properly named, write "not yet named".

Col. 8 Sex. Enter "M" for male and "F" for female persons. Check that the sex agrees with the name of the person given in column 7. Be especially careful to enter the correct sex of small children, not yet properly named.

Col. 9 Relationship. The relationships of members of the household to one another will be expressed 1) by their relationship to the head of the household only if this relationship is a direct one (i.e. by blood

or adoption only, and husbands and wives) or 2) when the relationship to the head is not direct, by the direct relationship to any other member of the household. Individuals will be identified by the order numbers given them in column 6. Note that, in describing the parents of children, always enter the father first and the mother second.

The following examples should make clear the system to be used in describing each of the relationships among the members of the household.

- a) for the head of the household, simply enter "head";
- b) for the wife (or the husband) of the head of the household, enter "wife (or husband) of 01". A woman is considered as a man's wife provided only that the man recognizes her as his wife, irrespective of the secular or religious ceremonies performed, and including marriages where specific financial arrangements have been agreed upon by the two partners to the marriage. For the father, mother, brother, sister, etc. of the head, enter similarly "father of 01", "mother of 01", etc. provided of course that the head of the household is entered as "01" in column 6.
- c) for the sons (or daughters) of the head and his wife with order number "02", enter "son (or daughter) of 01 + 02";
- d) for the sons (or daughters) of the head and a second wife with, say, order number 06, enter "son (or daughter) of 01 + 06";
- e) for 1) the sons (or daughters) of the head and another wife, not a member of the household, and 2) the sons (or daughters) of the head and another woman, either now dead or now a member of another household, enter "son (or daughter) of 01 + --";
- f) for the sons (or daughters) of wife with order number "03" and a man either now dead or now a member of another household, enter "son (or daughter) of --- + 03", not step-child of head;
- g) similarly, for, say, the mother of the head's wife number "02", enter "mother of 02", not mother-in-law of head;
- h) for adopted children, use the system described above and write "adopted" in front of the relationship. A boy adopted by the head as his son would, for example, be entered as "(adopted) son of 01";

SCHEDULE 4

i) for employees and servants, members of the household, who are not related to the family, enter simply "servant", "employee", etc.;

j) however, for children or other relatives of servants who are members of the household, use the same system as above. For example, if a girl, member of the household, is the daughter of a servant with order number "09" and a woman, not a member of the household, enter the girl as the "daughter of 09 + --"; enter the servant's wife, if she is a member of the household, as "wife of 09", etc.

Col. 10 - Present. For those members of the household who, on the day of visit, are present in the subdivision, enter "I", and for those who have gone outside the subdivision, enter "O".

Col. 11 - Age at Last Birthday. For persons one year old and over, enter their ages in completed years (i.e. their ages at their last birthday), from 1 to 99 years inclusive, except for persons of more than 99 years of age, all of whom must be entered as "99". For example, a person whose age is 11 years and a few days must be entered as "11" i.e. a person of 11 years, and 11½ months will be entered as "11"; a baby of 1 year and 1 day would be entered as "1", etc.

For babies not yet one year old, use a similar system, but give their ages in completed months (not including Paguman of course).

As, for example, enter a baby from 1 to 29 days old as "0"; a baby of 5 months and 14 days as "5", etc. up to "11" for a baby ¹²/₁₂ who is 11 months old or over, but ¹²/₁₂ not yet 1 year ¹²/₁₂ old.

Col. 12 - Marital Status. Enter the marital status of every member of the household, including children, using the following codes.

For men: M_1 = Married (who has 1 wife alive at the time of the survey);
 M_2 = Married (who has 2 wives alive at the time of the survey);
 M_3 = Married (who has 3 wives alive at the time of the survey);
 M_4 = Married (who has 4 wives alive at the time of the survey);
 M_5 = Married (who has 5 or more wives alive at the time of the survey);

For women: M = Married (whose husband is alive at the time of the survey);

For men and women: S = Single (who has never married);
 W = Widowed (who did not remarry after the death of his or her spouse);
 D = Divorced (who did not remarry after the marriage was dissolved by any means other than the death of his or her spouse).

Col. 13 - Literacy. Enter the literacy of each member of the household aged 10 years or more. For members of the household less than 10 years old, leave this column blank. Enter the following codes:

"L" for a literate person, i.e. one who can both read and write a simple message about his (or her) daily life in any language. Persons who can only sign their names must not be listed as literate.

"R" for persons who cannot write, but can read only in any language;

"N" for persons who can neither read, nor write.

Col. 14 - Usual Activity Status. All persons, regardless of age or sex, will be divided into two major groups: the "economically active" i.e. those who normally work, and the "economically inactive" i.e. those who do not work. Persons belonging to these two groups will be further divided into sub-groups and only the sub-group or "status" of each person will be entered in this column.

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The ECONOMICALLY ACTIVE are all those persons who either 1) usually work to produce economic goods and/or services or 2) are looking or are available for such work (although at present unemployed). The unemployed should be classified according to their status in their previous employment, if any.

Each economically active person must have one of the following "statuses". Enter either:

- 1) "Employer" for a person who operates his (or her) own business or who engages independently in a profession and also employs one or more people to work in that business or profession. For example, a blacksmith or a carpenter who hires one or two boys to work for him (for payment in cash or in kind) must be classified as an employer. Note, however, that any person employing domestic servants for his family or in his house must not be classified as an employer;
- 2) "O.A.W." for "own account worker" for a person who operates his (or her) own business or who engages independently in a profession and who does not employ other people in his business or profession. A farmer who, together with other members of the household, does all the farm work and who does not hire people for pay to help on his farm, would be entered as an "own account worker". A woman who makes "araki" and sells it to others must also be classified as an "own account worker";
- 3) "Employee" for a person, including domestic servants, who works for a public or private employer and receives payment for this work in cash or in kind;
- 4) "U.F.W." for "unpaid family enterprise worker" for a person who works without being paid for that work in an economic enterprise operated by a related person living in the same household. For example, the boy who takes his father's livestock to pasture, and the wife who weeds her husband's fields are classified as "unpaid family enterprise workers";
- 5) "E.O." for others economically active, if they are economically active and yet cannot be correctly classified in one of the above groups as, say, for example, young people who have never had a job and who are now looking for work.

All persons who are not economically active must be classified as ECONOMICALLY INACTIVE and must have one of the following statuses.

For each economically inactive person, enter either:

- 6) "Student" for a person who regularly attends any public or private educational institution for systematic instruction at any level of education;
- 7) "H.M." for "home-maker" for a person of either sex who is responsible for the care of the home and/or children. Note however, that domestic servants who are paid in cash and/or kind for this type of work are not classified as home makers, but as economically active "employees";
- 8) "I.R." for "income recipients" for a person who receives income from any kind of property or investments, from royalties or rents, or from pensions for work done in the past, provided of course that the person is not now working at any job;
- 9) "T.Y." for "too young" for a person under 10 years of age, who neither works nor goes to school;
- 10) "T.O." for "too old" for a person who no longer works because of advanced age;
- 11) "P.D." for a physically disabled person unable to work because of a more or less permanent disability, for example, seriously crippled persons, lepers, blind persons, etc.; or
- 12) "N.E.O." for others not economically active who cannot be classified under any of the above statuses as, for example, prisoners under life sentence, who do no work.

REMEMBER THAT ALL THE STATUSES HAVE BEEN RANKED IN THE ABOVE LIST.

(See Foreword, page.) Most people have several statuses at the same time and may be both economically active and economically inactive. For each person with more than one status always enter the status with the lowest number in the above list, regardless of the time spent or the money earned from this or that status by the person. It follows from the above, of course, that no one having a single economically active status could ever be listed under any of his economically inactive statuses.

Take, for example, a man who works for the government and also hires people to work on a farm owned by him. His status must be entered as "employer" only, since "employer" (1) is above "employee" (3) in the list. Or take an own account farmer who is learning to read at night and also receives a pension from the Government. He must be entered as "O.A.W." only. A woman who takes care of her home and children and helps harvest her husband's crops and also sells "tela" and "tej" to the public must not be classified as a "home-maker" (7) or as an "unpaid family enterprise worker" (4), but must be entered as "O.A.W." (2) only.

Col. 15 - Main Occupation. Complete this column for all economically active persons, (having statuses 1 to 5 inclusive in column 14), and for economically inactive students (status 6). For all economically inactive persons, except students, leave the column blank.

The MAIN OCCUPATION of an economically active person is the person's profession or the kind of work the person does. Always enter here only the main occupation of the person for that person's activity status given in column 14, and omit any other occupations the person may have. It seems unlikely that a person would have two or more occupations for the one activity status. For anyone who does, enter only the one occupation in which the person generally spends the most time. For persons now unemployed, with previous work experience, enter their most recent occupation.

Be very specific in listing each person's occupation and for the first five occupations listed below be sure to enter the words in quotation marks and to respect the definitions given. Use English in completing this column. Use Amharic when in doubt about the correct English translation.

A "FARMER" is a person who cultivates land for growing crops, whether or not he owns or rents the land he uses. He may or may not own livestock in addition.

A "FARM LABOURER" is a person who does any kind of agricultural work, whether for pay or as an unpaid family labourer, but who neither rents nor owns the land he cultivates.

A "HERDSMAN" is a person who does not grow any crops and who owns and lives from livestock; as compared to:

A "SHEPHERD" who cares for livestock belonging to other people, including members of his own family, and who may or may not own a little livestock himself in addition.

A "NEW WORKER" is an economically active person who has never worked before.

Other occupations include: 1) all administrative posts, as for example: "governor", "chikashum", "clerk", "policeman", "soldier", etc.; 2) the professions: "priest", "teacher", "doctor", "lawyer", etc.; 3) the crafts, so long as the craftsmen and women sell what they produce against payment in cash or in kind as, for example, "spinners" who make thread, "weavers" who make cloth, "tailors", "goldsmiths", "silversmiths", "blacksmiths", "tanners" and "leather workers", "carpenters", "potters", "basket makers", etc.; 4) the trade and processing industries: "merchants" or "traders" buying and selling all kinds of goods, "grain millers" or "flour millers", "oil pressers", "charcoal makers", "tej, tella or araki sellers", etc.; the service industries: "guards", "domestic servants", etc.

For all persons recorded as "student" in column 14, enter here their grade in school or their college year at the time of the survey. For persons attending schools which do not have grades, enter the type of school as, for example, "church school", "literacy classes", etc.

Col. 16 to 19 - ABSENCE IN THE LAST 12 MONTHS. For each member of the household who travelled outside the wereda for economic reasons during the last twelve months, complete columns 16 to 19. For each member of the household who travelled for pleasure or family reasons only (i.e. to visit friends or relatives, to attend marriages or funerals, etc.) and for each person who did not leave the wereda during the last twelve months, leave columns 16 to 19 blank.

ECONOMIC REASONS include working or looking for work for a person's own business or that of others and, for these columns, they also include appearances in court in any capacity (as plaintiff, defendant or witness), provided only that the person has been officially called by the court. Economic reasons also include absences to settle

a person's own administrative affairs, such as for payment of taxes, registration of land, etc. Note that any trip, the purpose of which is economic, must be recorded. For example, if a person left the wereda in search of work, whether or not he found work, or, say, to trade, whether or not he succeeded in doing so, such travel must be included in these columns. (See also the instructions to column 18.)

For each person who left the wereda for economic reasons one or more times during the last twelve months, only the single longest time of absence of that person during these twelve months will be described in columns 16 to 18 inclusive. For example, for a person absent for three days in search of work and also absent six months picking coffee, enter only the six months of absence (in weeks) in these columns, and omit all the other shorter absences of that particular person. The total time of all the absences for economic reasons of each person during the last twelve months will be given in column 19.

Col. 16 - Longest period of absence. Enter the single longest period of absence of each member of the household absent for economic reasons in completed weeks only, whether the period is only a few days in one case, or many months in another. For example, for a person whose longest absence has been, say, 6 months, enter "25"; for an absence of 1½ months, enter "06", etc. If the single longest period of absence is in days, enter "00" for periods of from 1 to 6 days inclusive; enter "01" for periods of from 7 to 13 days, "02" for periods of from 14 to 20 days, and so on.

Col. 17 - Place of Absence. In Amharic letters, enter the name of the place of the single longest absence in one of the following three ways.

For a person who left the wereda in which he lives and went to another wereda in the same or another awraja, and in the same province, enter the name of the awraja to which he went. Take, for example, a man who lives in Sululta Wereda in Menagesha Awraja in Shoa Province. Suppose he goes to Alem Gena Wereda, also in Menagesha Awraja, to sell a horse. Enter "Menagesha" in Amharic letters in this column.

If this same man had gone to Insaro Wereda in Selale Awraja in Shoa Province, enter "Selale" in Amharic letters. In a word, having recorded absences from the wereda in columns 15 and 16, all these absences within the same province are to be entered by awrajas only in this column.

For a person who left the wereda to go to another province but not to go to Addis Ababa, enter only the name of the province to which he went. Suppose the man from Sululta had gone to Bedele Wereda in Buno Bedele Awraja in Illubabor Province to pick coffee. Enter "Illubabor" in Amharic letters in this column.

If a person went from any wereda, including weredas in Shoa Province, to Addis Ababa, enter "Addis Ababa" only.

Col. 18 - Reason for Absence. Enter the reason for the single longest absence in Amharic or English, whichever is clearer. Be very specific in giving the reason for the absence.

The following examples and definitions should make clear the system to be used in entering the reason for each person's absence. Enter the words in quotation marks where these apply.

If the person went to work for his own enterprise:

- "to plant (cultivate, pick) coffee";
- "to grow crops", "to harvest crops", etc. (other than coffee);
- "to graze cattle";
- "to trade in coffee";
- "to trade" (not including trade in coffee), etc.

If the person went to work as someone else's employee:

- "as a coffee picker";
- "as a cotton picker";
- "as a sugar cane harvester";
- "as a farm labourer" (not including work in the coffee, cotton or sugar cane industries);
- "as a shepherd";
- "as a labourer" (where the type of work sought is not known).

SCHEDULE 4

If the person was called to court, whatever the reason, simply:

"to appear in court".

If the person went to settle his own administrative affairs:

"to pay taxes"

"to register land"; etc.

Make a distinction between persons who are working for their own enterprise and those who are working for others against payment in cash or in kind. Note also that, because of its importance to the national economy, work in coffee, whether in a person's own enterprise or in an enterprise belonging to others, must be separately listed.

Col. 19 - Total Absence. For each person listed in columns 16 to 18, enter his total time of absence during the last twelve months for economic reasons (not for pleasure and family reasons): for business or work, for litigation and for administrative affairs. Record the total absence in completed weeks only. (See the instructions to column 16.) Thus, for example, for a man who spent 16 weeks picking coffee, two weeks looking for work, and 23 days in court during the last twelve months, enter "21" in this column.

Col. 20 - Age at first Marriage. For each woman who has ever been married, that is, for all women not listed as "S" for single in column 12, enter her age in completed years at the time of her first marriage. For contractual marriages of children, enter the age at which the girl went to live in her first husband's home. For single women leave this column blank.

Col. 21 to 25 - BIRTH IN THE LAST 12 MONTHS. Complete columns 21 to 25 inclusive for all women members of the household of child-bearing age or beyond, that is, for all women, whether now single, married, divorced or widowed, aged about 14 years and over. The minimum child-bearing age will not usually be below 13 or 14 years of age, but judgement may be required in some cases to ensure that all women of child-bearing age and women who have ever born at least one child, have been included. For women below child-bearing age, leave these columns blank.

Col. 21 - Children Born Alive: Total Born and Alive Now. Under sub-columns 33-34, enter the total number of children born alive to each woman of child-bearing age and beyond during her entire lifetime. For women of child-bearing age and beyond who have never had any children, enter "00". Include only children who were alive when they were born and omit children born dead. Take special pains however to check that all children born alive who may have died a few days after birth or who died while they were very young have been included.

Under sub-columns 35-36 enter the total number at present alive, out of the total born to each woman. If none are alive now, enter "00".

Col. 22 - Born Last Twelve Months: Total and Alive. Under sub-column 37, enter the total number of children born alive to each woman of child-bearing age during the last 12 months. As explained in the instructions to column 21, take care that all children born alive have been included and that children born dead have, of course, been omitted. Also check that no child born, say, 13 months ago has been included as well as that none born within the last twelve months has been omitted.

Make no difference between single and multiple births, but simply enter the total number of babies born alive to each woman. For example, the children of a woman who gave birth two times in the last twelve months to one live baby each time would be entered as "2" and the live twins born to another woman who gave birth only once during the last twelve months would also be entered as "2".

If a woman of child-bearing age bore no children during the last twelve months, enter "0" in the sub-column.

Under sub-column 38, enter the total number of children alive on the day of visit out of those born to each woman within the last twelve months. If none are alive (or none were born), enter "0".

Col 23- Order Number. Copy the order numbers from column 6 of all woman who bore children during the last twelve months, i.e. every woman whose entry in sub-column 37 was neither "0" nor blank.

Col. 24 and 25 - BIRTHEVENTS. By "birth event" is means the giving of birth on a single occasion, whether it is a single or multiple birth, i.e. whether one child was born at the time or more than one: twins, triplets, etc. Enter the first or earlier event for each woman under column 24, "Birth Event 1" and, for those few women who gave birth more than once during the last twelve months, the later (or most recent) birth event under column 25, "Birth Event 2". For women who gave birth only once during the last twelve months always complete column 24 only and leave column 25 blank.

Col. 24 - Birth Event 1 : Month, Year, Sex(es). Under "month", enter the Ethiopian calendar month in which the baby (or babies) were born to each woman who gave birth once during the last twelve months and enter the earlier birth event for each woman who gave birth twice during the last twelve months. Use the following code numbers to enter the month of birth.

<u>Code</u>	<u>Name of Month</u>	<u>Code</u>	<u>Name of Month</u>
"01"	= Meskerem	"08"	= Miazia
"02"	= Tekemt	"09"	= Genbot
"03"	= Hedar	"10"	= Sene
"04"	= Tahasas	"11"	= Hamle
"05"	= Tir	"12"	= Nehase
"06"	= Yekatit	"13"	= Pagumen
"07"	= Megabit		

Under "year" enter the last two digits of the Ethiopian calendar year of the birth even, as for example, "59", "60", "61", etc.

Under "sex(es)", enter the sex of the one child, or the sexes of all the children in multiple births for each birth event. Enter "M" for male children and "F" for female children. For a single birth, enter only "M" or "F" as the case may be, but for, say, twins, both girls, enter "F, F" or for, say, triplets, two boys and one girl, enter "M,M,F", and so on.

Col. 25 - Birth Event 2 : Month, Year, Sex(es). Complete this column only for women who gave birth on two different occasions during the last twelve months and enter the details of the second (or more recent) birth event for such women. The instructions for completing each of

the sub-headings in this column are exactly the same as those for the sub-headings of column 24.

Col. 26 - Children Born to Mothers Now Deceased: Total Born and Alive Now.

Birth during the last twelve months to women members of the household now alive were recorded in column 22.

In sub-column 39, directly below "total born", enter the total number of children born alive to all women who died during the last twelve months and were members of the household at the time of their deaths. In sub-column 40, directly under the sub-heading "alive now", enter the total number of children who are alive now, out of those born to all mothers since deceased, whether or not these children are now members of the household. In case of nil entries enter "0" in the respective column.

Col. 27 - Total Deaths. Enter the total number of deaths which occurred during the last twelve months to all persons who were members of the household at the time of their deaths. If no deaths occurred during the last twelve months, enter "0".

Col. 28 to 31 - DEATH IN HOUSEHOLD. Complete as many of these columns as necessary to describe each of the deaths counted in column 27.

Col. 28 - Death 1. In the top most vertical space across the column, write the name in Amharic letters of one of the deceased persons counted in column 27. Directly below, enter the deceased person's relationship to a member of the household. Use the method explained in the instructions to column 9 to describe the relationship. Under the sub-heading "sex", enter "M" for male and "F" for female persons. Under "age", enter the age of the person at the time of death in completed months for persons under 1 year of age, and in completed years for persons 1 year old and over. Use the method explained in the instruction to column 11.

Col. 29, 30, 31 - Deaths 2, 3 and 4. The instructions for completing these columns are exactly the same as those for column 28. Complete as many of these columns as necessary to describe all the deaths entered in column 27. Leave the un-needed columns blank.

Col. 32 - Holidays Last Month. Enter the total number of special holidays during the immediately preceding Ethiopian calendar month, on which the household did no farm work. Omit all Sundays and Saturdays even if they coincide with special holidays. Exclude also days lost due to family ceremonies such as weddings, funerals etc. ..

Holidays in this context refer only to religious and national holidays such as Good Friday, Easter, Meskel, Independence Day, His Majesty's birth day etc. .. Note that holidays such as St. Gabriel's days or St. Mary's day must be included if the household observes them and does not do any work on those. Otherwise omit them.

If no special holidays were observed by the household, enter "00" in this column.

CONCLUDING REMARKS

This schedule must be completed very accurately for each household. Before going on to the next schedule take as much time as may be needed to check the schedule for accuracy and internal consistency and by making a final cross check of certain columns against each other after completing the schedule, before leaving the household.

After completing column 7; read all the names listed to the interviewed person and ask him if any member of the household has been inadvertently omitted. Be especially careful to include students or other members of the household temporarily absent as well as all servants, members of the household, whom the head of the household may not have thought of mentioning.

Check that the sex of each member of the household in column 8 corresponds to his or her name in column 7. Check that the relationships in column 9, the ages in column 11, and the marital statuses in column 12 are consistent with one another and reasonable, and correspond to the names in column 7. After completing columns 20, 21 and 22, check them against the women members of the household, listed in column 7 and against the women's ages in column 11. Check the number of children now alive in column 21 against the children listed as members of the household in column 7. See that all children are correctly accounted for, as for example, children alive now who may now be members of another household. Check that all the babies,

members of the household, now alive included in column 22 have been correctly listed in column 7. Check that the order numbers given in column 23 have been correctly copied from column 6 and that columns 24 and 25 are consistent with columns 7 and 22. Finally, check that columns 28 to 31 inclusive are consistent with column 27.

SCHEDULE 5A AND 5B

Livestock and Poultry

The main purpose of this schedule is to list all the livestock, poultry and beehives owned by a household on the day of visit. The honey produced by the household during the last twelve months must also be recorded. All livestock owned must be listed whether the livestock happens to be near the household at the time of the survey or away grazing in another area.

Livestock jointly owned by the household and members of other households must also be included. The jointly owned livestock will be divided by the total number of owner households and the result added to the livestock owned by the household only.

As entries in this schedules will be made correct to one decimal place the last sub-column under each column is provided for decimal entry. Suppose, for example, that a household owns 7 cows altogether of which 4 are owned jointly with two other households. The 4 cows will be divided into the three owning households giving 1.33 cows for each. The number of cows owned by the household under study will be $(3+1.33)$ 4.33 and the final entry under lam will be "04.3". In the same manner 5 "beres" will be entered as "05.0".

The names of different types of livestock are listed on the left-hand side of each block or card. These names are the ones used by farmers and are therefore self explanatory. In some blocks two sets of names are listed under the same line. Names of males appear on the top left-hand corner of each line and names of females on the bottom right hand corner of the same line corresponding to the two general headings above the sub-columns "male" and "female".

Schedule 5A consists of 4 cards nos. 02 to 05, and Schedule 5B contains 4 cards nos. 06 to 09. If the information is nil for all the columns in any card, write "NONE" accross that card, and do not write 0's in these cases. If, however, there is at least one non-zero entry in a card, write the 0's in all the other columns in this card.

SCHEDULE 5A

CARD No. 02 CATTLE OWNED NOW

Complete card 02 if the household owns cattle on the day of visit. If the household does not own any cattle, write "NONE" across this card.

CATTLE TYPE	DESCRIPTION	APPROXIMATE AGE IN YEARS
Tija	Calf, male or female	0 to 1
Woifen	Young male	1 - 4
Gider	Young female	1 - 4
Korma	Bull (for breeding)	4 & over
Lam	Cow (which has had at least one calf)	4 & over
Senga	Castrated male (for slaughter)	3 & over
Messina	Barren female	4 & over
Bere	Ox, castrated male (for draft)	4 & over

Start by asking the total number of cattle the household owns, then the break down into males and females before enquiring into the different cattle types. Enter "00.0" if the household has no animals of a given type.

Be especially careful to verify that all the numbers reported are correct by cross adding the totals.

Col. 50-52 Total Draft Cattle. A DRAFT ANIMAL is an animal which pulls the plow. Bere, Beklo, and feres are common draft animals but other animals are also used.

Enter the total number of cattle owned now which were used as draft animals at any time during the past twelve months. Omit any cattle which were used but which are not owned now.

Col. 53-55 Total Cows in Milk. Enter the total number of

SCHEDULE 5A

cows which gave milk on the day immediately preceeding the day of visit to the household. The number of cows in milk must be equal to or less than the number of lams recorded under cols. 28-30.

CARD No. 03 - CATTLE IN THE LAST 12 MONTHS

Complete Card 03 if the household owned any cattle during the past twelve months, whether or not the household owns cattle now. Otherwise write "NONE" across this card.

The numbers to be entered have been divided into two groups, one for tija and one for all adults, i.e. all other cattle, including woifen and gider.

Cols. 13 to 18 Lost. Enter the total number of tija lost during the past twelve months under columns 13-15 and the total number of adult cattle lost under columns 16-18. Include only those animals which disappeared and were not found again. Do not include animals which were later found dead. Such animals will be counted in columns 19 to 24.

Cols. 19 to 24 Died. Enter the number of tija and the number of adult cattle which died during the year. Include only cattle which died a natural death and cattle killed by wild animals, or by accident. Do not include cattle slaughtered for human consumption.

Cols. 25 to 30 Slaughtered. Enter only the numbers of tija and adult cattle owned by the household and slaughtered in the household.

Cols. 31 to 36 Sold. Enter the number of tija and adult cattle sold for slaughter or for any other purpose to members of other households, whether or not the meat of the animal was shared by the household being surveyed. If cattle belonging to the household being surveyed was slaughtered in another household and the meat was shared by number of households including the household being surveyed, such animals must be counted in the cattle sold by the household.

Include in the numbers sold, cattle sold for money, cattle exchanged for any type of goods, and cattle exchanged for other cattle or other livestock.

Cols 37 to 42 Gift to Others. Enter any cattle the ownership of which has been transferred to another household during the past year, and for which no money, goods, or livestock were paid or are owned. For example, cattle given for marriage or cattle taken by a former member of the household who has now established a separate household.

Cols. 43-46 Total Herd Reduced by. The entry here will be the total of cattle lost, died, slaughtered and given as gift to others. Mention the total figure to the informant to verify that the figure is acceptable.

Cols. 47 to 52 Purchased. Enter the numbers of cattle bought by the household whether for slaughter or for increasing the number of animals belonging to the household. An animal bought for slaughter by the household will therefore be entered twice. It will be entered here and also under columns 25 to 30, when it is slaughtered.

Number purchased include cattle acquired in exchange for money, goods, and/or cattle or other livestock.

Cols. 53 to 58 Gifts Received. Enter any cattle which was acquired by the household during the past year for which the household did not give and does not owe money, goods or livestock.

Cols. 59-61 Born. Enter the total number of tija born alive during the past twelve months, including all those which may have died while they were still very young. Check that this number is reasonable when compared to columns 28-30 "lam" and columns 53-55 "total cows in milk" in Card No. 02.

Cols. 62-65 Total Herd Increased by. The entry will be the total of cattle purchased, received as gift and born during the last 12 months.

REMARKS: When card 03 is completed, cross-check the entry with those of card 02. Suppose that only "01.0" adults is entered under sold, ask what type of animal it was. If it was a lam and the household reported "03.0" Lam in card 02, verify that the household owned 4 lam only a year ago.

Check that all livestock bartered for other livestock has been correctly included. For example, suppose a man gives a cow to a member of another household for which he receives 6 sheep in exchange. The cow must be entered under "sold" in Card No 03 and the 6 sheep under "purchased" in Card No. 05.

CARD No. 04 AND CARD No. 05 - SHEEP

SHEEP AND GOATS	DESCRIPTION	APPROXIMATE AGE IN YEARS
Gilgel	Lambs or kids, male or female	0 - ½
Tebot	Young stock, male or female	½ - 2
Wetete	Young male	½ - 2
Awra	Adult male	2 & Over
Set	Adult female (which has had at least one lamb or kid)	2 & Over
Mukit	costrated male	2 & Over

The instructions for completing Card No. 04 on sheep are the same as those for completing Card No. 02 on cattle. The number of males and the number of females belonging to the two categories "gilgel" and "tebot" must be listed separately.

The instructions for completing Card No. 05 are the same as those for completing Card No. 03. Column numbers are the same on both cards. Note that "adults" means all sheep except gilgel.

Tebot are included under "adults".

SCHEDULE 5B

CARD No. 06 AND CARD No. 07 - GOATS

The instructions for completing these two cards on goats are the same as the instructions for completing the two cards on sheep and on cattle.

CARD No. 08 - OTHER LIVESTOCK OWNED NOW

Cols. 13-15 Feres: Total. Enter the total number of feres owned now. All feres, including the new born or the very young, are to be entered here.

Cols. 16 - 18 Feres: In the last 12 Months Used as Draft only. Of the feres now owned, enter the number used as draft animals during the past twelve months, not including any feres also used as pack animals. A DRAFT ANIMAL is one which pulls the plow.

Cols. 19 - 21 Feres: In the Last 12 Months Used as Pack Only. Enter the number of feres now owned and used as pack animals during the past twelve months, not including any feres also used for draft.

A PACK ANIMAL is one used for the transport of goods from one place to another. An animal used only for transportation of people and not for the transportation of merchandise is not a pack animal.

Cols. 22 to 24 - Feres: In the Last 12 Months Used for Both. Of the feres now owned, enter the number which were used for both pack and draft during the past year. The number in these columns is not the total of the two preceding headings. The total number of feres used for pack only, and of feres used for

NATIONAL SURVEY OF ETHIOPIA (2nd ROUND)

LIVESTOCK AND POULTRY

SCHEDULE 5A

LOCATING REFERENCE	1 PROVINCE	2 AWRAJA	3 WEREDA	4 SUB-DIVISION	5 H/H NUMBER	CODE											
						1	2	3	4	5	6	7	8	9	10	11	12

CATTLE CARD No. 02				CATTLE CARD No. 03			
OWNED NOW	MALE	FEMALE	TOTAL	IN THE LAST 12 MONTHS	TIJA M+F	ADULTS M+F	TOTAL
TIJA	13 14 15 16 17 18			LOST	13 14 15 16 17 18		
WOIFEN GIDER	19 20 21 22 23 24			DIED	19 20 21 22 23 24		
KORMA LAM	25 26 27 28 29 30			SLAUGHTERED	25 26 27 28 29 30		
SENGA MESINA	31 32 33 34 35 36			SOLD	31 32 33 34 35 36		
BERE	37 38 39			GIFT TO OTHERS	37 38 39 40 41 42		
TOTAL	40 41 42 43 44 45 46 47 48 49			TOTAL HERD REDUCED BY			43 44 45 46
TOTAL DRAFT CATTLE			50 51 52	PURCHASED	47 48 49 50 51 52		
TOTAL COWS IN MILK			53 54 55	GIFT RECEIVED	53 54 55 56 57 58		
				BORN	59 60 61		
				TOTAL HERD INCREASED BY			62 63 64 65

SHEEP CARD No. 04				SHEEP CARD No. 05			
OWNED NOW	MALE	FEMALE	TOTAL	IN THE LAST 12 MONTHS	GILGEL M+F	ADULTS M+F	TOTAL
GILGEL	13 14 15 16 17 18			LOST	13 14 15 16 17 18		
TEBOT	19 20 21 22 23 24			DIED	19 20 21 22 23 24		
WETETE	25 26 27			SLAUGHTERED	25 26 27 28 29 30		
AWRA SET	28 29 30 31 32 33			SOLD	31 32 33 34 35 36		
MUKIT	34 35 36			GIFT TO OTHERS	37 38 39 40 41 42		
TOTAL	37 38 39 40 41 42 43 44 45 46			TOTAL FLOCK REDUCED BY			43 44 45 46
				PURCHASED	47 48 49 50 51 52		
				GIFT RECEIVED	53 54 55 56 57 58		
				BORN	59 60 61		
				TOTAL FLOCK INCREASED BY			62 63 64 65

SIGNATURES ROLL NUMBERS DATES	ENUMERATOR	No.	SURVEY DATE	SUPERVISOR	No.	SCRUTINY DATE
			/ /			/ /

both pack and draft are to be entered separately.

The total of the three headings (columns 16 to 24 inclusive) must of course be equal to or less than the number of feres entered in columns 13-15. If the total is less, check why it is less, as for example, some of the feres owned may be too young, too old, used only for the transport of people, etc. If the total of the three headings is more than the number entered in columns 13-15, check all the numbers entered, and correct them.

Cols. 25 to 36 Beklo. The instructions for completing these columns are the same as the instructions for completing sub-columns 13 to 24 on feres.

Cols. 37 to 48 Ahya. The instructions for completing these columns are the same as the instructions for completing columns 13 to 24 on feres.

Cols. 49 to 60 Total Equines. Add the numbers entered on the first three horizontal lines under each of the four headings at the top of the card and enter the totals in the spaces provided.

Cols. 61 to 72 Gimel. The instructions for completing these columns are the same as the instructions for completing columns 13 to 24 on feres.

CARD No. 09 - OTHER LIVESTOCK OWNED NOW

Cols. 13 - 15 Asama. Enter the total number of asama of all ages now owned.

Cols. 16 - 19 Doro (total). Enter the total number of doro of all ages, including chicks (tchanchut) now owned by the household.

Cols. 20 - 23 Of which there are laying hens. Enter the total number of hens which actually laid eggs on the day immediately preceding the day of visit. See the figure is reasonable when

compared to the number of doro entered above.

Cols. 24 - 26 Number of Beehives. Enter the total number of beehives now owned. If the household has no beehives enter "00.0".

Cols. 27 - 29 Amount of Honey Taken Last 12 Months. Enter the total amount of honey taken during the past twelve months in the correct number of local measurement units. Note that space has been provided for whole numbers only.

Cols. 30 - 31 Unit Used. In Amharic letters, in the space before col. 30 - 31, enter the local name of the unit of measurement used in columns 27-29 to count the amount of honey taken. Leave columns 30-31 blank.

SCHEDULE 6

Indebtedness

The purpose of this schedule is to provide information on all amounts owed to others by the household.

There are two systems of borrowing in Ethiopia:

TYPE 1 LOAN. A person borrows a certain amount, in money only, in produce only, or in both money and produce. When he receives the loan, he promises to pay back, on a specified date (or dates) the same or a larger amount of money, produce, or money and produce, and/or perhaps do some work for the lender.

TYPE 2 LOAN. A person borrows a certain amount but he does not promise to pay back a specific amount on a specific date. He promises to pay a fixed amount for interest each month for an indefinite period until he has paid back the amount he borrowed and the total of all the monthly interest fees. If a person borrows from another (say friend or relative), and has not to pay any interest, nor is there any fixed date for repayment, treat this as a type 2 loan with 0 interest.

This Schedule will be completed for each household which

before or on the day of visit borrowed money or crops or bought anything for the farm or house for which has still to pay in whole or in part at some future date.

Loans of LESS THAN E\$1.00 are to be OMITTED. Only loans of E\$1.00 and more are to be included.

A single LOAN is if a certain amount was borrowed on a single day from one person. This amount can consist of any number of things. As an example, if a household borrowed several different crops and some money from one person on the same day, this should be entered as one loan.

The schedule has been divided into three blocks. The headings in each of the blocks are the same, and the three blocks are to be used for three separate loans. Enter the largest loan in the first block, opposite the vertical heading "Loan No. 1", the second largest loan in the second block, etc.

For a loan Type 1 complete columns 7,8,9,10, and 11 and leave column 12 blank.

For a loan of type 2, complete columns 7,8,9,11 and 12 and leave column 10 blank.

Col 6 Loan No. 1. Do not write anything in this column provided the household has no more than three loans.

Col. 7 Purpose of Loan. Describe what was the loan for (food, seed, cloth or clothing, to pay for sickness, to buy an ox, to pay for a wedding, etc.)

Col. 8 Source of Loan. Write down one of the following (including the numbers given) as to who gave the loan to the household:

- "1. Own landlord", i.e. the household's landlord,
- "2. Trader"
- "3. Landowner", but not the household's landlord,

- "4. Church",
- "5. Bank", or
- "6. (other)"

These six categories are ranked categories: for example if the lender happens to be the household's landlord and he is also a trader, enter "1. own landlord", not "2. trader". If the lender is not the household's landlord, and he both trades and owns land, enter "2. trader". Only if the lender is neither the household's landlord, nor does he engage in trade but he does own land enter "3. landowner", and so on.

The sixth category for others is to be used only if none of the five groups listed apply. For example, if a man borrows money from his brother who is a landowner but does not engage in trade describe him as "3. landowner", not in the sixth category as "brother". Using the sixth category, do not only write the word "other" but enter "6" and specify what the person is.

Col. 9 Details of Loan Taken. Describe accurately and in detail the amount of money and/or produce the borrower received from the lender.

If the loan was given in money only, write down the word "cash" on the last horizontal line under the heading "item"; leave blank the headings, "No.", "unit", and "price". Enter the total amount of money received under the heading "value".

If the loan was given in produce, write the name of the produce on the first horizontal line under the heading "item", for example, "teff" or "hoe" or "cloth". Enter the number of units under "no" and the name of the measurement unit under "unit". Enter the price per unit at the time the loan was received under the heading "price". Multiply the number of units and the price per unit and write the result, under the heading "value".

If there are several items in a single loan, describe each

item on a separate horizontal line, according to the instructions given above.

Add up all the amounts shown under "value" and enter the total.

A correctly completed column 9, for a loan in cash and in kind, might for example look like this:

9. DETAILS OF LOAN TAKEN

ITEM	No.	UNIT	PRICE	VALUE
teff	5	kunas	\$1.00	\$ 5.00
hoe	1	-	1.25	1.25
cash				10.00
Total value of loan				\$16.25

Col. 9 Period of Loan (Months) is the difference between the day on which the loan was taken and the day on which the household must pay back the loan,

Enter the period of the loan in completed Ethiopian months, i.e. count 1 month for each full month of 30 days and 1 month for any part of a month which is 15 days or more. Count any period of less than 15 days as 0 months.

When there is no date of repayment on which the borrower promises to pay back the loan, write the letters "IND" meaning that the period of the loan is indefinite, as is the case for Type 2 loans.

Col. 10 Total Amount Due. When the borrower receives a loan, he usually promises to pay back a certain amount on the date the loan is due. (This is the case of Type 1 loans.)

Write down the details of the total amount to be paid back,

in cash only, in kind only, or in cash and kind. The method to be used in completing the headings in this column is the same as the one used in completing the headings in column 9. Note that the items listed for a given loan may be the same as in column 9 or they may be quite different. It is common practice to receive a loan in, say, money and to pay it back in produce, for example in grain, coffee, etc. In this column as in columns 9 and 11, list the actual items borrowed or returned in each case, whether they are the same or different in the three columns.

If the borrower promised to do some work for the lender in repayment or partial repayment of the loan, write the word "labour" on one line under the heading "item" and enter units of time (hours, day or weeks, etc) under the heading "unit". If possible, the price per unit of time should be entered under "price" and the total value of the work done and/ or to be done under the heading "value". If it is too difficult to find out the price, in the case of Labour only, leave the headings "price" and "value" blank.

Col. 11 Repayment Already Made. If any amount has already been repaid before or on the day of visit, complete this column. The instructions for completing each of the headings are the same as those for completing the headings in columns 9 and 10.

Describing a Type 2 loan, be sure to include the total amount paid for the loan and/or for interest, from the day the loan was taken (even if the loan was taken several years ago). The amount paid for interest and the amount paid for the loan itself are not to be listed separately, but all the amounts paid in cash and/or in kind must be entered. For example, suppose a man borrowed \$20, and he has not returned anything for the loan, but he has paid \$1 a month for thirteen months. In this case, enter "cash" under "item" and "\$13.00" under "value". Suppose, on the contrary, that he has also paid back \$10 for the loan itself. In this case, enter "23.00" under the heading "value".

If the household has not paid anything till the day of the survey, enter "0" on the last line under the heading "value, opposite the words "total repayment made".

Col. 12 Total Interest Payable in a Year. Complete this column if the period of the loan was indefinite in column 9. (Type 2 loan).

The person who borrows for an indefinite period can probably most easily tell the amount of interest he pays or promised to pay per month. Multiply this amount by 12 and write the result. For example if a man borrowed \$10 and he promised to pay the lender \$1 per month, write "12". Note that the heading says "interest in a year". Whether the borrower tells the interest per week, per month, etc. multiply correctly so that the number is the interest he would pay if he had to pay for an entire year. This number does not include the amount he borrowed.

Note. If a household has more than three loans outstanding on the day of the survey, continue on as many sheets as needed.

SCHEDULE 7
LAND AREA AND UTILIZATION

This Schedule will be used to list and describe all the fields on which a household planted and harvested or planted but could not harvest due to crop failure crops during the most recently completed agricultural year decided upon for that particular household in Schedule 7-A, and to list all the crops planted and/or harvested in these fields. Land on which crops failed (damaged by weather or any other adverse conditions) must be also included.

It must exclude: land which was left fallow (left for rest) during the entire year, used for pasture, for the growing of wood only, or for any purpose other than the growing of crops. All land rented or owned by the household under study which has been re-rented to other households for their use during the agricultural year, must not be included.

THE FIELDS TO BE INCLUDED ARE, THEN, ALL FIELDS USED BY THE MEMBERS OF THE HOUSEHOLD EXCLUDING SERVANTS FOR GROWING CROPS, REGARDLESS OF THE SYSTEMS OF OWNERSHIP OR THE LOCATION OF THESE FIELDS.

The instruction for this schedule is given for single and mixed crops and crop combinations separately. Within each part there is explanation on how to complete the schedule for the crops grown in season 1, or season 2 and 3.

The two main characteristics requested for every season are area of fields and crops. The entry in a particular column will depend upon the season and type of crop as indicated below.

NATIONAL SURVEY OF ETHIOPIA (2nd ROUND)

INDEBTEDNESS

SCHEDULE 6

LOCATING REFERENCE	1 PROVINCE		2 AWRAJA			3 WEREDA			4 SUB-DIVISION			5 H/H NUMBER			CODE											
															1	2	3	4	5	6	7	8	9	10	11	12
															1	0										
LOAN No. 1	7 PURPOSE OF LOAN		8 SOURCE OF LOAN		9 DETAILS OF LOAN TAKEN						10 TOTAL AMOUNT DUE					11 REPAYMENT ALREADY MADE					12 TOTAL INTEREST PAYABLE IN A YEAR	FOR OFFICIAL USE ONLY				
					ITEM	No.	UNIT	PRICE	VALUE	PERIOD OF LOAN (MONTHS)	ITEM	No.	UNIT	PRICE	VALUE	ITEM	No.	UNIT	PRICE	VALUE		TOTAL INTEREST PAYABLE IN A YEAR	INTEREST RATE % PER ANNUM			
					TYPE TOTAL VALUE OF LOAN				TYPE TOTAL AMOUNT DUE					TOTAL REPAYMENT MADE												
	13		14		15				16					17					18							
LOAN No. 2	14 PURPOSE OF LOAN		15 SOURCE OF LOAN		16 DETAILS OF LOAN TAKEN						17 TOTAL AMOUNT DUE					18 REPAYMENT ALREADY MADE					19 TOTAL INTEREST PAYABLE IN A YEAR	FOR OFFICIAL USE ONLY				
					ITEM	No.	UNIT	PRICE	VALUE	PERIOD OF LOAN (MONTHS)	ITEM	No.	UNIT	PRICE	VALUE	ITEM	No.	UNIT	PRICE	VALUE		TOTAL INTEREST PAYABLE IN A YEAR	INTEREST RATE % PER ANNUM			
					TYPE TOTAL VALUE OF LOAN				TYPE TOTAL AMOUNT DUE					TOTAL REPAYMENT MADE												
	31		32		33				34					35					36							
LOAN No. 3	21 PURPOSE OF LOAN		22 SOURCE OF LOAN		23 DETAILS OF LOAN TAKEN						24 TOTAL AMOUNT DUE					25 REPAYMENT ALREADY MADE					26 TOTAL INTEREST PAYABLE IN A YEAR	FOR OFFICIAL USE ONLY				
					ITEM	No.	UNIT	PRICE	VALUE	PERIOD OF LOAN (MONTHS)	ITEM	No.	UNIT	PRICE	VALUE	ITEM	No.	UNIT	PRICE	VALUE		TOTAL INTEREST PAYABLE IN A YEAR	INTEREST RATE % PER ANNUM			
					TYPE TOTAL VALUE OF LOAN				TYPE TOTAL AMOUNT DUE					TOTAL REPAYMENT MADE												
	49		50		51				52					53					54							
FOR OFFICIAL USE ONLY												SIGNATURES			ENUMERATOR			SURVEY DATE			SUPERVISOR			SCRUTINY DATE		
NUMBER OF LOANS	67	TOTAL AMOUNT DUE	68	69	70	TOTAL REPAY MADE	71	72	73	TOTAL STILL DUE	74	75	76	ROLL NUMBERS DATES			No.	/ /					No.	/ /		

SCHEDULE 7

Type of crop Season	Columns to be completed	
	For fields	For crops
SINGLE AND MIXED CROPS		
A. Season 1	6 to 10	11
B. Season 2		
-fields cultivated during season 2 only	6 to 10	14
-fields on land cultivated both during Season 1 and Season 2	6 to 10	11 season 1 13 & 14 season 2
C. Season 3	6 to 10	15 and 16
CROP COMBINATION		
A. Season 1	6 to 10	11 and 12
B. All seasons, except season 1.	6 to 10	14 or 15 (names) and 12 (production)

I. SINGLE AND MIXED CROPS

When only one crop is grown at one time in a field, it is called a single crop. When several (usually two) similar crops are grown in a field at one time, they are called mixed crops provided that the seeds are not separated. Mixed crops are planted and harvested together.

SEASON 1 (Columns 6 to 9 and 11)

The fields used and the crops grown during season 1 will be entered in columns 6 to 11.

Season 1 is that period of year during which the largest amount of land was planted in crops by the household. This will almost always be during the big rains. All fields on which permanent crops, as for example, buna, muz, etc. are grown must also be included in Season 1, regardless of the planting or harvesting dates for such crops.

Columns 6-10 Description of field.

Col. 6 Field Number. List all the fields planted in crops during Season 1, including fields where crops failed. Number them serially as "01", "02", "03", etc. If there is not enough space to list all the fields, use continuation sheets as needed.

A FIELD is a contiguous piece of land usually used for one crop at one time. In some parts of the country, however, a number at different crops are grown in a single field at the same time.

Col. 7 Tenure. Opposite the right field number in column 6, enter "O" for each field owned and "R" for each field rented. If a single field is partly owned and partly rented, enter "P". Note that the letters "O", "R" (or "P") must be recorded for every field, i.e. one of them must appear on every line.

A person is the OWNER of a piece of land if has the right to bequeath and sell the land, whether or not he has registered title to the land. A person belonging to a community or family group which holds the land in common for the use of all members of the group is also a landowner, even though the individual owner does not have the right to sell the land.

Fields are recorded as owned if owned by any member of the household (except servants)

A TENANT is the person who uses land but does not own it, and who for its use pays rent in the form of services (past or present), produce and/or cash.

Fields are recorded as rented only when rented from members of other households.

Col. 8 Location. For fields located inside the subdivision under study, write "I"; for fields located outside the subdivision, write "O". These letters must be recorded for every field.

SCHEDULE 7

Col. 9 Area of Field: Number of Units and Unit Used. Enter the area of every field in the units of measurement used by the household. Enter the name of the unit actually used by informant in his own language. Do not translate it into Amharic and do not convert it into another unit.

If a single household uses several units of different sizes to describe the areas of their fields, enter the names for each field exactly as given, as for example the area of one field might be described as so many "timads" and that of another as so many "medebs".

Under "No. of units", enter the number of local area units for each field and under "unit used" enter the name of the unit in Amharic letters. Entries will be made correct to one decimal place, for example, the number "1" as "01.0"; the number "2½" as "02.5", etc.

Col. 10 Complete this column after completing columns 11 to 16 inclusive.

Col. 11 Type of Crop. Enter the names of the crops grown on each field during season 1. Crops in this context are all crops harvested from any plant or tree, not including trees and plants harvested for fuel or wood only.

If the crop grown is a single crop, i.e. when only one crop is grown at one time in a field, write the name of the crop in the local language in Amharic letters under "local name", and the Amharic name in Amharic letters under Amharic name. If it is not possible to write the correct Amharic name of a crop, leave the column blank.

If the schedule is being completed for an Amharic-speaking region, and the local and Amharic names are the same, write the Amharic names under "local name", and put a dash under "Amharic name". Note, however, that Amharic-speaking regions as well as

non-Amharic speaking regions may have their own local names, for example "bar mashilla" or simply "mashilla" in Gojam is "bokolo", not mashilla for the majority of Amharic-speaking people.

If the crop grown was a mixed crop, give the local name of the mixture, if it has a name under "local name", and (with dashes) also give the names of all the crops in the mixture, under "Amharic name". For example, if the entry is "wasera" under "local name", write "gebs - sinde" under "Amharic name".

If a CROP FAILED, damaged by weather or any other adverse condition that the farmer harvested none of that particular crop in a given crop season, enter the name of the crop in the same manner as described above and write "F" in sub-column headed FAILURE" after the local name. Otherwise leave this column blank.

Remember that a crop is said to have failed only if the harvest was zero. If any part of damaged crop, even a very small amount, was harvested, this is not a crop failure. If also, within a single season, before the crop reached maturity, the farmer decided to plough the same land again and re-plant and harvested a crop from his second planting, this is not a crop failure.

After completing column 11 and after checking that all fields used for growing crops whether single, mixed or crop combinations during Season 1 have been listed and correctly described in columns 6, 7, 8, 9, and 11, draw a horizontal line below the last entry across the entire schedule (that is, across columns 6 to 16 inclusive).

If there was only one crop season during the most recently completed agricultural year, and the household had no fields under crop combinations, leave columns 12 to 16 blank, and now complete column 10 (for which see the instructions, page :).

B. SEASON 2 (Columns 6 to 9, and 13 and 14)

Season 2 is the season in the most recently completed agricultural year selected for the household in Schedule 7-A during which the second largest amount of land was planted in crops. This

SCHEDULE 7

will, of course, most often be during the small rains.

In season 2 (which may be before or after season 1, depending on the agricultural year chosen for a particular household), the farmer may have cultivated land left fallow during season 1 or he may have grown crops on the same land during the two seasons, or he may have done both.

The instructions given below are in two parts, first for land cultivated in season 2 only and then for land cultivated both in season 1 and season 2.

1. Fields cultivated during season 2 on land not used during season 1.

The field number, tenure, location, area and type of crop for each field from land not used during the first season; and used during the second season, will be entered in columns 6,7,8, 9,10 and 14 below the horizontal line drawn across the schedule beneath the fields entered for Season 1.

If more than half of a field is on land not used in Season 1 and another part of this same field is on land which was cultivated in Season 1, the entire field shall be considered as being on "new" land and all such fields must be entered under these columns.

Col. 6 Field Number, Count all the fields on land not used during season 1 and number them serially, starting with the number immediately following the highest number recorded for Season 1. For example, if the last field cultivated during season 1 was numbered "04", the first field listed for season 2 below the horizontal line drawn across the schedule, would be "05", the second "06", and so on.

Columns 7, 8 and 9. The instructions for completing these columns for fields used during season 2 are the same as those given above for fields cultivated in season 1.

Col. 11 Type of Crop. Leave this column blank for all crops grown in season 2 as the entry will be made in col. 14.

Col. 12 Crop combination. Leave this column blank.

Col. 13 Number Area Units. Leave this column blank for all fields on land not used in season 1, as the entry will be made in col. 9.

Col. 14 Type of Crop. Enter the local name only of the crops grown and record failures, if any. The method to be used is the same as the one described in the instructions to column 11 for season 1.

2. Fields on land cultivated both during season 1 and season 2

The crops in fields on land used both in Season 2 and Season 1 will be listed in columns 13 and 14 only, starting with the first horizontal line at the top of the schedule.

Columns 6 to 10 have already been completed when fields and crops in Season 1 were listed. All these fields will, therefore, be listed above the horizontal line drawn across the schedule.

If more than half of a field is on land used both during season 1 and season 2, the entire field shall be considered as being on land used during the two seasons and it must be entered under these columns.

Note the use of the word "land" in the preceding paragraph. No mention was made as to whether the sizes and boundaries of fields used in Season 2 as compared to the sizes and boundaries of fields used in Season 1 are the same or are different, and it does not matter, so long as the land is the same or almost the same. Nor does it matter in what order the fields are listed. There is to be no "field to field" correspondence between what is entered in columns 6 to 12 inclusive for season 1, and what should be written in columns 13 and 14 for season 2.

Col. 13 Number of Area Units. Enter the number of local units of measurement in the total area of each field starting from the first horizontal line at the top of the schedule. The fields can be listed in any order, except that if two or more different land measurement units were entered in column 9, the areas in column 13 must correspond to the right names in column 9. If, say, in column 13 a field is entered as "01.0" timads, this field must be entered on any horizontal line on which "timad" was entered in column 9, and it must not be entered on the same line as say, the word "gasha" in column 9.

Col. 14 Type of Crop. Enter the local name only of the crops in each field listed in column 13 and record failures.

C. SEASON 3 (Columns 6 to 9 and 15 and 16)

The instructions for completing these columns for fields used during a third season are the same as those for recording fields cultivated during a second season. In other words, again draw a horizontal line across the schedule below what was written for season 2. Fields on land cultivated neither during season 1 nor during season 2 will be listed and described under columns 6 to 10 and 16. Fields on land also used during the first season and/or the second season, will be recorded under columns 15 and 16 only above the first and/or second line drawn across the schedule, beginning with the lines at the top of the schedule.

D. SEASON 4, 5, ETC. (Columns 6 to 9 and 13 to 16)

If there are more than three crop seasons in an agricultural year, use continuation sheets as needed, correct the headings above columns 13 and 14 and 15 and 16 only to read "season 4", "season 5", etc., and complete the appropriate columns according to the instructions given above. In such cases write the corresponding names of area units used in column 9 in the continuation sheets.

E. LAND MEASUREMENT

A third of the sample households were selected in Schedule 3 (column 16) for land measurement. A few among the one-third of

households chosen may be households without land under crops during the most recently completed agricultural year. Replace any such household by the next household in the list of sample households in column 16 of Schedule 3 which did cultivate land and which was not already selected for land measurement, i.e. if the next household on the list happens also to be without crop land (and/or already selected for land measurement) choose the one after that, until find a ^{sample} household which cultivated land. In a word, one third of the total sampled households must be selected and their fields measured.

If a selected household has to be substituted, do not make any additional notations or change anything written on the Schedule 3 itself. Record in the Schedules 12 the household number of the "substitute" household whose fields actually are measured and attach them to the Schedule 7 of the "substitute" household.

Column 10 - If Measured, Number of Square Meters. Complete this column only after recording all the information required for columns 6 to 9 and 11 to 16.

Use Schedule 12 to record the size and shape of these households' fields. After completing them for a household, copy the areas in square meters of the fields under sub-columns 23-27 of this column. Under sub-column 22, enter "X" if at least one boundary of a field was "imaginary". (See the instructions to Schedule 12). If all the boundaries measured existed on the day of visit, Leave sub-column 22 blank. Never enter "0" in this sub-column. Attach all the completed Schedules 12 for one house-

II. CROP COMBINATIONS

When several dissimilar crops are grown, usually in haphazard fashion, in one field, at one time they are called crop combinations. In some parts of the country, six or more crops are grown in a field at one time. Each crop in the one field is however, planted and harvested separately.

SCHEDULE 7

A. SEASON 1 (Columns 6 to 12)

The instructions for completing columns 6 to 10 inclusive for crop combinations grown in Season 1 are exactly the same as those given above for single and mixed crops, except that since crop combinations by definition mean several crops in one field, complete all these columns (and columns 11 and 12) horizontally for one field first before going on and completing all the columns for the next field.

Col. 11 - Type of crop. The instructions for completing this column are the same as those for single and mixed crops, except that listing should be for crops grown in one field on separate horizontal lines: one crop on the same horizontal line as the number and description of the field under columns 6 to 10, a second crop, below it on the next line, etc. After listing all the crops in one field, put a bracket round them on the left side of column 11 to show clearly to which single field they all belong. The number of units of field area (col.9) should be recorded only once, i.e. in the line for the first listed crop in the crop combination.

Col. 12 If Field used for crop combinations, give production of each. Opposite the crop name in column 11, enter the production per field of each crop grown. Under "No units", enter the total number of local units of the crop produced from the one field and under "unit used", the name of the local unit of production.

B. ALL SEASONS EXCEPT SEASON 1 (Columns 6 to 16)

Since both permanent and annual crops are usually grown on fields under crop combinations, it will be very unlikely that fields under crop combinations would be cultivated for more than one season in a year. Since also all permanent crops must be listed under season 1 regardless of planting or harvesting dates, only annual crops could be listed in a second or third season.

As in the case of single and mixed crops, the names of all crops from Season 1 must be entered in column 11, the names (only)

of all crops from season 2 in column 14 and from Season 3 in column 16, but the production of each crop in every field under crop combinations from every season must be given in column 12, and every crop must be listed on a separate horizontal line in the columns. In order to have enough lines in column 12 to list the production of all these crops, start completing columns 13 and 14 below what was entered in columns 6 to 11 (and columns 15 and 16 below anything entered in columns 6 to 14 inclusive). With this exception, the instructions are the same as those given above.

III DIFFERENCE IN CROP AREA

Col. 17 Crop Area Compared to Year Before. If the total AREA (not production) under crops described in columns 6 to 16 was the "same", larger or smaller than the household's crop area during the agricultural year just before the one described above, put a tick mark under one of the sub-headings, "same", "greater" or "less", as appropriate.

Col. 18 Difference in Crop Area Between the Last Two Years. If you ticked either "greater" or "less" in column 17, enter the difference between the areas in the two years under the sub-headings "number of units" and the name of unit used. (See the instructions to column 9.) If you ticked "same", leave the column blank.

If, although the household knows that the area was more or less the same as the case may be, no one can estimate the amount of the difference, write "NS", meaning "not stated".

Col. 19 Reasons For No Further Expansion. This column is in no way related to the answer given in columns 17 and 18. The household cultivated a certain amount of land in the most recently completed agricultural year. The question is, why didn't the household cultivate a larger amount of land during the year. Do not suggest possible answers, but try to find out what in the

farmers opinion is the major obstacle to expansion. Record the answer by writing the number "1" under the appropriate sub-heading.

-Lack of Market: If, for example, the household produces enough for the needs of the family and, if it produced more, nobody would buy the crops or the household would get such a low price for any additional production that it is not worth the extra work and costs involved, the answer goes under the sub-heading "lack of market".

-Lack of Manpower: If the family is working as hard as it can now and it cannot do more, the answer goes under the sub-heading "lack of manpower".

-Lack of Draft Animals: If the household had a pair (or another pair) of oxen (mules or horses) for plowing, it would plant more crops each year, the answer goes under the sub-heading "lack of draft animals".

-Land not Available: If there is no crop land within reasonable distance that could be used for growing crops, all crop land (for rent or sale) is too expensive, or all the land available is being used by some one, the answer goes under the sub-heading "land not available".

- Land too poor: If all available land is unfit for growing crops due only to excessive use of the land for growing crops in the past, the answer goes under "land too poor".

-Land too Weedy: If there are so many weeds that the family have no extra time during the growing season to weed additional crops, the answer goes under the sub-heading, "land too weedy".

-Other: Very rarely, the answer may not lie within any of the above categories. If it does not, put the number "1" under "other" and describe the reason under "specify 'other' reasons" in the space provided at the bottom of the schedule.

Lack of money can never be included as a reason. If lack of money is given as a reason, then ask what the household would do with money if it had it. If they answer to buy more animals for ploughing, then the reason is "lack of draft animals", if it is to rent more land, then the reason is "land not available" etc.

After asking the household for the single most important reason for not expanding crop production, ask if there is a second, less important reason, for not expanding crop production, and put a number "2" under the appropriate sub-heading for the second reason.

SCHEDULE 7 A

PART I. CROP CALENDAR

The purpose of this part is to provide information on all the planting and harvesting periods of all the crops grown and harvested by a household during the most recently completed agricultural year.

A CROP SEASON consists of the period of clearing, plowing, planting and harvesting related to an annual crop or group of crops. In many parts of the country there are two crop seasons, one at the time of the small rains, and one during the big rains.

AN AGRICULTURAL YEAR is one complete cycles of crop seasons. Where crops are grown only during the big rains, there is only one season in an agricultural year. Where crops are grown during the big and the small rains there are two seasons and, where irrigation is practised or rainfall is frequent throughout the year, the agricultural year may well consist of more than two seasons.

To choose an agricultural year for a given household, take the most recently completed crop season, make sure with the household that all the annual crops planted during that season have been harvested before the day of the survey. If they have, that crop season will be the last crop season of the agricultural year and the year itself will cover a twelve months period ending with the crop season selected. If one or more crops from the last season have not been harvested at the time of your visit, the entire season must be excluded and an agricultural year chosen which ends with the previous crop season for which, all annual crops will have been harvested.

Season and month . The months in each climatic season are shown in the first column, as it applies to most areas of Ethiopia. If, however, the distribution of the season are different, enter the appropriate months for each season in the space provided below the table.

Put an X in front of the month when the recent agricultural year ended. Then work backward and enquire what crops were planted and harvested in each month. Suppose, Yekatit was the last month of the agricultural year, enquire about the crops planted and harvested in that month and proceed to Tir, Tahissas etc.... and finally for Megabit which will be the 12th month.

Crops Planted. Provision is made for recording only three crops under a particular month. Even if there are more than three crops enter only the three important crops according to their order of importance. All crop names will be written in Amharic.

Crops Harvested: The instruction is the same as for crops planted.

PART II CROP ROTATION

The purpose of this part is to briefly describe the way in which a household's fields were used during the present and past agricultural years, as well as during the most recently completed agricultural year described in Part I. If it is difficult to get ten years information, complete the table for as many years as possible.

Field Number. Copy all the field numbers in consecutive order on successive horizontal lines from column 6 of Schedule 7.

Year. Each of the years listed refers to an agricultural year. The 1st year is the year at the time of visit and will, of course, never be a complete year. It may consist of a month or two only or of an almost complete year, depending on the dates chosen for the most recently completed agricultural year for a particular household.

SCHEDULE 7A

After having listed all the field numbers, it will be best to complete an entire horizontal line for one field at a time before going on to the next field and describing it in the same way.

Crops. Under each year, enter the local name in Amharic letters of all the crops planted whether or not any crop failed. If the field was used during several crop seasons in one year, enter the names of all the crops planted one after another in the space provided as say "gebs-gebs" or "sinde-shimbra", etc. For the 1st year only include the names of the crops the household plans to plant, if crops have not already been planted on the day of visit. The year will always be incomplete, but describe as much as it possible.

Fallow. Enter "fallow" under a particular year, only if the field was left fallow, i.e. no crops were planted or harvested from the field during an entire agricultural year.

SCHEDULE 8

PRODUCTION, TREE COUNT, CAUSE AND PERCENT OF LOSS

The annual production of major crops and the number of trees owned by a household will be given in this schedule.

TOTAL PRODUCTION OF HOUSEHOLD

Col. 6 Order No. Each of the crops to be listed in column 7 have already been serially numbered, If a household produced more than 15 major crops, continuation sheets must be used as needed and the order numbers on the second (and other sheets) corrected, starting with order number "16".

Col. 7 Local Name of Crop List the local and amharic names in Amharic letters of each of the main crops grown by the household during the most recently completed year decided upon for that particular household in Schedule 7. Enter the names of the crops on successive horizontal lines.

Only major crops are to be included, that is only those crops which belong to the categories listed below:

Include:

- all cereals or grains, for example, "teff", "sinde", "gebs", "temej", "aja", "bokolo", "mashilla", "zengada", "dagusa", "bultuk", "ruz", and including any mixed grains such as "hanfetz", "duragna", etc.;
- all pulses (ጥረጥረ), for example, "shimbra", "adengware", "ater", "bakela", "gwaya", "mesir", etc.;
- all oil seeds (የቀባት ለሀሳ), for example, "neug", "selit", "suf", "ferenj suf", "telba", "loz", "gomen zer", "teftere", "gulo", etc.;
- all types of "shinkurt", for example, "nech", "kay", "ferenj", and "baro", if any, etc; and
- coffee,

CROP CALENDAR AND ROTATION

LOCATING REFERENCE	1 PROVINCE	2 AWRAJA	3 WEREDA	4 SUB-DIVISION	5 H/H NUMBER

PART I CROP CALENDAR

LIST CROPS PLANTED AND HARVESTED (IN ORDER OF IMPORTANCE) DURING THE MOST RECENTLY COMPLETED AGRICULTURAL YEAR

IF THE SEASONS ARE DIFFERENT, FOR THE AREA (THAN THOSE BELOW) ENTER THE MONTHS WITHIN EACH SEASON

1. TSEDAYE _____ 2. BEGGA _____
 3. BELGE _____ 4. KIREMTE _____

PART II CROP ROTATION

FOR EACH FIELD LISTED IN SCHEDULE 7

RECORD FOR EACH, FOR THE PAST TEN YEARS THE CROP PLANTED OR IF IT WAS LEFT FALLOW

SEASON AND MONTH	CROPS PLANTED (IN ORDER OF IMPORTANCE)			CROPS HARVESTED (IN ORDER OF IMPORTANCE)		
	FIRST	SECOND	THIRD	FIRST	SECOND	THIRD
1 TSEDAYE	MESKEREM					
	TIKIMT					
	HIDAR					
2 BEGGA	TAHISAS					
	TIR					
	YEKATIT					
3 BELGE	MEGABIT					
	MIAZIA					
	GINBOT					
4 KIREMET	SENIE					
	HAMLIE					
	NEHASIE					

FIELD No.	CROPS PLANTED — STARTING FROM THE PRESENT AGRICULTURAL YEAR									
	THIS YEAR	LAST YEAR	3 YEARS AGO	4 YEARS AGO	5 YEARS AGO	6 YEARS AGO	7 YEARS AGO	8 YEARS AGO	9 YEARS AGO	10 YEARS AGO

SIGNATURES ROLL NUMBERS DATES	ENUMERATOR	No.	SURVEY DATE / /	SUPERVISOR	No.	SCRUTINY DATE / /
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PRODUCTION - TREE COUNT - CAUSE AND % LOSS

LOCATING REFERENCE	1 PROVINCE	2 AWRAJA	3 WEREDA	4 SUB-DIVISION	5 H/H NUMBER	CODE										
						1	2	3	4	5	6	7	8	9	10	11
						1	3									

TOTAL PRODUCTION OF HOUSEHOLD										TOTAL TREE COUNT OF HOUSEHOLD										REMARKS							
6 ORDER No.	7 NAME OF CROP						8 PRODUCTION				9 ORDER No.	10 NAME OF TREE															
	LOCAL			AMHARIC			NUMBER UNITS		UNIT USED			AMHARIC					NUMBER										
							18	19	20	21				TOTAL LAST YEAR					NON BEARING LAST YEAR								
13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
0	1	0									0	1	0														
0	2	0									0	2	0														
0	3	0									0	3	0														
0	4	0									0	4	0														
0	5	0									0	5	0														
0	6	0									0	6	0														
0	7	0									0	7	0														
0	8	0									0	8	0														
0	9	0									0	9	0														
1	0	0									1	0	0														
1	1	0									1	1	0														
1	2	0									1	2	0														
1	3	0									1	3	0														
1	4	0									1	4	0														
1	5	0									1	5	0														

11 LOSSES IN THE FIELD CAUSED BY																				12 LOSS IN STORAGE CAUSED BY				13 % LOSS IN FIELD					14 % LOSS IN STORE (12 m...)				
WIND	FROST	Too Much Rain	Too Little Rain	HARVEST	WILD ANIMALS	BIRDS	RATS MICE	INSECTS	DISEASE	THEFT	OTHER*	RATS MICE	INSECTS	DAMP	OTHER	GRAINS	PULSES	OIL SEEDS	GRAINS	PULSES	OIL SEEDS												
41 CAUSE ONE												42 CAUSE TWO				43					44	45	46	47	48	49	50	51	52	53	54		

* COLUMN 11 SPECIFY "OTHER" CAUSE

SIGNATURES ROLL NUMBERS DATES	ENUMERATOR	No.	SURVEY DATE / /	SUPERVISOR	No.	SCRUTINY DA / /
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SCHEDULE 8

- cotton,
- "berbere" or "karia".

Make sure that no mixed crops belonging to any of the above groups have been omitted.

All other crops produced by the household must not be listed in this column.

Col. 8 Production: Number of Units and Unit Used. By "production" is meant the total production during the agricultural year of each crop regardless of the field or the season in which the crop was grown or whether part of a given crop was grown as a single crop and part of it in crop combinations. If, for example, a household produced 5 daulas of "gebs" from one field during small rains and 3 daulas from another and 10 daulas from a third field during the big rains, enter the total production of "gebs" in the year, namely, "18 daulas".

Of course, the amount entered for each crop must be the total amount harvested before any part of the crop was given to the church, the landlord, the money lender, the trader, etc. as the case may be.

in whole numbers

Enter the total number of units produced under "Number Units" and the name of the local production unit in Amharic letters under "Unit Used".

As in the case of units of area, write the local names used by the farmers. Do not write "kuna" unless this name belongs to the system of units actually used by the farmers in their own language.

The production of each cereal crop recorded in this column must always be for threshed or shelled grain. However, if a household does not know the annual production of "bokolo", "mashilla", "zengada" or "dagusa" in grain, and the number of units entered in this column have to be for ears, heads, or cobs,

write "yaltefelefele" in column 7 next to the local name of "bokolo", and "ras" in this same column next to the local names of "mashilla", "zengada" and "dagusa".

In the very few cases where "teff" is stored in bundles with the stalks, and only a small quantity is threshed at one time for eating, record "teff" production in grain. Ask the farmer or his wife to estimate how much grain each bundle produces. Ask the total number of bundles produced, and convert this figure into "teff" grain production.

Never write the word "buna" only in Column 7. When a household's coffee production is entered in Column 8, is it "jenfel" or "keshir buna"? Depending on the answer, always record coffee in column 7 as either "jenfel buna" or "keshir buna".

After completing columns 7 and 8, check the accuracy of the information. Review all the crops listed in Schedule 7. Check if any of those belonging to the categories required have been omitted. Look at the figures of the areas planted in a particular crop under columns 9, 13 and 15, and judge if the production declared in Schedule 8 seem reasonable. If not, question the household further to ensure accurate and complete information.

TOTAL TREE COUNT OF HOUSEHOLD

Col. 9 Order No. Each of the types of trees to be listed in Column 10 have already been serially numbered.

Col. 10 Name of Tree and Number. Under "name of tree", list the Amharic names (in Amharic letters) of every one of the following types of trees which belonged to the household during the most recently completed agricultural year:

- buna
- gesho
- enset

-muz

-all citrus, as for example, lomi, burtukan, mandarin, tringo, etc.

-chat

-papaya.

Trees other than those listed above are to be omitted.

All the trees of the types listed must be included, whether or not their names appear in the Schedule 7, for the household.

Sub-columns 29-34 Total Number Last Year. Next to the name of the tree, enter the total number of trees of each kind owned by the household. Trees grown in fields and trees scattered over the farm or grown next to the house must be included in the totals. On no account must the number of coffee trees be omitted.

Sub-Columns 35-40 Number Non-Bearing Last Year. Enter the number of each type of tree which during last year bore no crop, for any reason, as for example, because the trees were too young, to old or because of disease, drought, etc.

CAUSE OF AND PERCENTAGE OF LOSS

Col. 11 Losses in the Field Caused By. Losses in the field include all losses for whatever reason from the time the crops were first planted until they were ready for sale or storage.

The headings are simple and self-explanatory, except possibly the heading "harvest". If the farmers think that they lost the largest amount of crop while it was being cut, brought from the field and threshed, such losses would be entered under the heading "harvest".

If the household gives several reasons for losses, for a poor crop last year, find out the one thing which caused the biggest amount of damage, the one reason for which the household

lost the largest amount of crop, and write the number "1" under the correct heading in the spaces provided.

Then ask the household for a second cause of loss, the reason for which it lost the next largest amount of crop and write the number "2" under the correct heading for this second reason.

In case number 1 or 2 has been entered under the heading "other", this other cause will have to be specified in the space given below for this purpose. If the farmer reports no loss in the field write "NO LOSS" across column 11.

The spaces below the headings "41. Cause one" and "42. cause two" are for office use. Leave them blank.

Col. 12 Losses in Storage. Put a tick mark directly below the one biggest cause of loss in crops stored by the household during the agricultural year. In case there is no loss in storage, write "NO LOSS" across this column. If the farmer did not store any crop during the last year, write "NOT STORED" across column.

Columns 13 and 14: In this two columns maize (bekolo or bar mashilla) is excluded from the category "grains".

Col. 13 % Loss in Field. To calculate losses in the field, the farmers have an idea of how much production they should have had, if all conditions were favourable. They know how much was obtained in an excellent year and how much was actually harvested during the year under discussion. Ask for these two estimates and then calculate the percentages (on the back of the schedule).

For example, if a household harvested 20 daulas of wheat last year from the same field (or fields) from which it has harvested 25 daulas in a very good year, the percent loss for wheat would be:

$\frac{25-20}{25} \times 100 = 20\%$. This will be only percent loss in wheat. However, losses for all grains, excluding maize, may well be much smaller than those for wheat due to, say, smaller losses for teff. Therefore question the household on each of its grain crops and estimate an average of the loss for all grains. Enter this number under the heading "grains".

If the agricultural year was an excellent one, and the household harvested as much as could be expected, write the number "0" under "grains". If the household grew no grains, put a dash.

The instructions for estimating the percentage losses for pulses and oil seeds are exactly the same as those for estimating losses for grains.

Col. 14 % Loss in Store. Since the household usually does not store the whole harvest for an entire year but continually uses part of it as the year progresses, it will be especially difficult to estimate a total annual loss.

The best way might be to ask the household for the amount of loss it will expect if it had stored for twelve months say 20 units grains or pulses or oilseeds as the case may be. Then the % loss =
$$\frac{\text{Amount lost}}{\text{amount put in storage (i.e. 20 units)}} \times 100$$

Note that if a household had no loss in storage for crops which were stored, enter zero, "0". If there was no loss because nothing was stored, put a dash under the correct heading.

SCHEDULE 9

TENURE, SEASONAL LABOUR, AND STORAGE

Information on land tenure, labour employed, and storage systems will be given in this Schedule.

The schedule will be completed for all households which now cultivate land whether or not they also grew crops during the most recently completed agricultural year. The information will relate to the date of the survey.

All land used by a household on the day of your visit, for its house and yard, for growing crops, for pasture or for any purpose, must be included. Land rented out to other households must be excluded.

Col. 6 Is the Farm Household: Owner Only, Tenant Only, Owner and Tenant. If the household owns all the land it uses, put a tick mark under "owner only". If the household rents all the land it uses, put a tick mark under "tenant only". If the household owns some of the land it uses and rents the rest, put a tick mark under "owner and tenant".

Col. 7 Total Number of Parcels of Land Used (Owned and/or Rented). Enter the total number of parcels used by the household.

A PARCEL is a contiguous piece of land surrounded on all sides by land used by other households, and/or land not part of any farm or holding.

Col. 8 If Tenant, Number of Landlords Resident in: Same sub-Division, Same Wereda, Elsewhere. If in column 6, "tenant only" or "owner and tenant" are ticked complete this column. If "owner only" is ticked leave the column blank.

A tenant may rent all his land from one person, or he may rent part of his land from one and the rest from another person.

SCHEDULE 9

In other words, he may have more than one landlord. The numbers put under each heading in this column, added up together must give the total number of landlords the tenant has.

For the landlord (or landlords) who live in the sub-division in which the tenant lives, put the number "1", if one landlord, "2" if two landlords, etc. under the heading "same subdivision". If one landlord (or several landlords) do not live in the same sub-division but do live in the same wereda as the tenant, put the correct number under "same wereda". For the landlords who do not live either in the same sub-division or in the same wereda as the tenant, put the correct number of landlords under "elsewhere".

Leave the inappropriate headings blank.

Col. 9 Is Ownership of Lands: Private, Government, Church.

In this column, describe all the owners of the land now used by the household, whether or not this land is owned by the household, and/or by members of other households.

Put a tick mark under one or more of the headings: "private" including communally owned lands, "Government", "church". Leave the inappropriate headings blank.

In cases where the land used by the household belongs to several different owners, if all the owners belong to the same category, tick only one of the headings, but if for example, some of the land belonged to a private person and some to the Government, tick both these headings.

Note that lands belonging either to the Ethiopian Orthodox Church, to the Moslem Church or to any other religious body, are to be included under the heading "church". If, on the other hand, a priest (or any member of a church) has the sole right to bequeath and sell a peice of land, that land is privately owned. Only lands belonging to churches as institutions are to be included under church land.

Col. 10 Has Agricultural Advice Ever Been Received from Any Source. If the farmer has ever received advice from any source on methods of cultivation, kind of seeds, types of crops to grow, etc., put a tick mark under "yes". If he has not, tick "no".

Col. 11 Did any Member of the Household Participate in Reciprocal Work Last Year. If any member of the household participated in reciprocal work during the last twelve months, put a tick mark under "yes". If none did, tick "no".

The type of works as "debo", "jige", etc. are reciprocal. A person works for members of another household and members of that household give back the same services to the household on another day. Services to a koro, to a landlord or to any officials are not reciprocal work, and are not to be included. A wage is never paid for reciprocal work; food and drink may be provided while people are working, by the household for whom they are working.

Columns 12 to 20

Except for column 13, the information contained in columns 12 to 20 inclusive must apply to the most recently completed agricultural year.

Col. 12 Number of Seasonal Labourers Employed Last Year. A seasonal labourer is a person who is hired to do a specific task (for example, for the harvesting of major crops), only during a part (or parts) of the year. Often, the seasonal labourer is also a migrant, i.e. his normal place of residence is not close to that of the farmer for whom he works, but not all seasonal labourers are necessarily migrants.

Only seasonal labourers who do agricultural work related to crops or livestock are to be included in the column. Permanent agricultural labourers who work all year round for a household and temporary non-agricultural labourers (carpenters, house-builders, etc.) are not to be included.

SCHEDULE 9

Start with the last heading in the column. Ask the household if it employed seasonal labourers during the most recently completed agricultural year, and enter the total number employed under "total seasonal labourers employed". If none were employed, write "000" and leave the other headings of the column blank.

If seasonal labourers were employed, ask how many came from the province in which the household lives and enter the total number under "From Same Province: Give Number". If none came from the same province, enter "000".

There are two headings "From Another Province". Under the first "Give Name", enter the name of the province (other than the province in which the household lives) from which the largest number of seasonal workers from other provinces came. Under "Give Number", enter the total number of seasonal workers from that province. In the same way, under the second heading, enter the name of the province, and the number of labourers from the province from which the second largest number of seasonal workers from other provinces came.

If the number under the last heading is more than the total under the first three headings added together check all the numbers with the household and make sure that all the numbers finally reported are correct. In fact if the household did employ seasonal labourers not only from listed provinces (same, "I" and "II") but also from other provinces as well the total number might be larger.

Col. 13 Does Any Building Used Have a Corrugated Iron Roof.
The question applies only to the house (or any other building) now used by the household, either owned or rented. It does not apply to buildings which are rented to other. Tick "yes" or "no" as appropriate.

Col. 14 Type of Storage Used: Give Number. Enter the number of "gottera", "dibignet" and/or "gudguad", as appropriate, owned by the household.

If the household uses other types of storage put a tick mark under the heading "other", and write the names in Amharic letters, and the number, of these storage systems, in the space provided at the bottom of the schedule.

Note that numbers are to be entered under the heading "stacks" only if there is no other form of storage for a particular crop, that is, only if certain crops are kept in stacks from one year to the next and quantities consumed or sold are always taken from stacks. If stacks are used as temporary storage, before threshing grain for example, "stacks" must not be included.

If a household never stores any crops, write "no storage" across the column.

Columns 15 to 20

The crops and the amounts to be reported in these columns include only those crops and only those quantities which belong to the household itself. Crops owed to the landlord or some other person which might be stored at least temporarily are not to be included.

Col. 15 Crop of which Largest Quantity Stored Last Year.

Enter the local name in Amharic letters of the one crop of which the largest quantity was put in storage during the most recently completed agricultural year.

If not a single crop was stored even for a short time during the entire agricultural year, write "no crop" in this column (and leave columns 16 and 17 blank). This will almost never occur.

Col. 16 Number of Units of Own Crop Stored. The amounts stored at different times throughout the agricultural year of the one crop named in column 15 will be given in this column.

SCHEDULE 9

Under "unit used", enter the name in Amharic letters of the local unit used by the household in measuring the crop. See the instructions to column 8 of Schedule 8).

Under "pre-harvest", enter the total number (including "000" if such is the case) of such units in storage just before the household stored its single largest harvest of the crop.

Under "harvest", enter the total number of units in storage immediately after the largest harvest was stored. In other words, the total amount of the crop in storage at that time from any source: the recent harvest, other harvests, amounts bought, etc.

Under "survey date", enter the total number of units of the crop in storage on the day of visit.

The numbers under the three headings should be entered all in the single local unit under "unit used". If not, convert the units. For example, if, under "units used" "daula" is entered and in reporting his pre-harvest stock the farmer said he had 20 kunas (and if, on this farm, 10 kunas = a daula) enter the number "2" under the heading "pre-harvest", not the number "20".

Col. 17 Number of Months since Harvest Time. Enter the number of completed Ethiopian months (not including Pagumen of course) between the day of visit and the single largest harvest. Count 1 month for each full month of 30 days and for any part of month which is 15 days or more. Count 0 months for any part of a month which is less than 15 days.

Col. 18 Crop which Provided the Largest Cash Income Last Year. Enter the local name in Amharic letters of the one crop from which the household made the most money during the most recently completed agricultural year. Note that it may have sold a larger quantity of another crop from which the total earnings for the year were less. What is wanted here is the single crop from which

the household earned the largest cash income, regardless of quantities sold.

The crop named in this column may be different from the crop named in column 15, for example a household might store a larger quantity of teff than it did any other one crop, but it might make the most money from, say, coffee.

The crop named in columns 18 and 15 may be the same. In areas specializing in producing grains, for example, teff might be both the largest crop stored by a particular household and the crop from which the household made the largest amount of money. If the crop in columns 15 and 18 is the same, repeat its name in column 18.

If not a single crop was sold during the entire agricultural year, write "no sales" in this column (and leave columns 19 and 20 blank).

Cols. 19 and 20 Refer to the cash crop entered in col. 18. Once the biggest cash crop has been correctly identified, the instructions for completing columns 19 and 20 are the same as those for completing columns 16 and 17.

If the crop named in columns 15 and 18 is the same, copy all the entries from columns 16 and 17 in these two columns.

SCHEDULE 10

FORMS OF OWNERSHIP AND TENANCY

This schedule should give information about land ownership system in the country. The Schedule is divided into two major blocks. The ^{first} block is devoted to all land owned and the second block to all land rented on the day of visit, by all households under study.

If no members of the household own and/or rent any land on the day of your visit, write "No" across Schedule.

Col. 1 to 4 Locating Reference. Enter the names of the province, the awraja, the wereda and the sample sub-division in English letters.

Col. 5 Household Number. The household number is the order number of selection given to the household from column 15 of Schedule 3.

Col. 6 - 11 TO BE COMPLETED FOR ALL LAND OWNED BY THE HOUSEHOLD
If any one or more members of a household (excluding servants, employees) now own land, all the land owned shall be considered as belonging to that household and columns 6-11 should be completed. If the household owns no land write "NO" across the block containing columns 6-11.

A person is considered the OWNER (LANDOWNER) of a piece of land if that person has the right to bequeath and sell the land, whether or not he has a registered title to the land.

A person belonging to a community or family group which holds the land in common for the use of all members of the group shall also be considered a landowner, even though the individual owner does not have the right to sell the land.

Col. 6 Origin of ownership.

Purchases. If the household bought some or all of the land it now owns, put tick mark under the heading "purchased".

Inheritance. If the household inherited from a relative or another person some or all of the land it now owns, put a tick mark under the heading "inheritance".

Note that communally owned lands are not to be considered as having been inherited, even though communally owned lands are of course passed on from one generation to the next. Only singly or jointly owned lands are to be included under this heading. In the case of all land communally owned, leave this heading blank

Service Compensation. If the household receives some or all of the land it owns in return for services or work done, put a tick mark under the heading "service compensation". If the household received some or all of the land as a gift from a person or an organization even though the receiver performed no services in the past or the present for the giver, such land must also be included under the heading "service compensation". This of course means only land which acquired a new owner when the giver is alive. Land owned after the death of a person goes under the heading "inheritance".

Note that the instructions given above do not say "tick one". Tick one heading only if all the land owned by the household falls into one category and two or more headings if all the land falls into more than one category. For example, a household might have inherited one piece of land and bought another piece. In this case, both the headings "purchased" and "inheritance" should be ticked.

Col. 7 Type of Ownership. Different systems of ownership are listed under three headings in this column; "single", "joint", "community".

SINGLE OWNER If one person, or a man and his wife jointly, have the right to sell and to bequeath a piece of land, that person (or the person and his wife) shall be considered a single owner.

JOINT OWNERS If two or more persons (not including a man and his wife) each have full and equal rights to a piece of land i.e. by agreement, they together have the right to sell and bequeath the land, they shall be considered joint owners.

The two or more owners may be related, but they need not be related. For example two friends might buy a piece of land together. If a co-operative society happens to own land, the farmers, members of the society, must be classified as joint owners of this land.

The joint owners may be related. A man and his son for instance, or two brothers, might jointly own a piece of land. Be careful, however, that in each case, they are indeed joint owners. For example, if a man "give" his son a piece of land and the father alone retains the right to sell and bequeath that piece of land, the land is not jointly owned. The father, in this case, is a single owner and the son is a tenant.

COMMUNAL OWNERS A communal owner is a person who, because of his membership in a particular community or family group has the right to use land which is owned in common by all members of the group.

Comparison between Joint and Communal Ownership: Generally, but not necessarily, the number of persons owning a piece of land under a system of joint ownership is smaller than it is under communal ownership.

Also, if joint owners decide to sell (or bequeath), they can certainly do so. In fact, after agreeing among themselves, they have the same rights and behave together as if they were single owners. Under communal ownership individual owners can never sell.

The single most important distinction between joint and communal ownership is that under joint ownership, the joint owners come together by an agreement among themselves whereas under communal ownership, however restricted or all encompassing the group may be, the right to use the land is derived from a person's membership in the group, from his relationship or parentage, i.e. if his father was a member of the group, he and his children are automatically members, with the same use rights as any other member of group.

Generally, all the land will be under one system of ownership. It would be unusual, but not impossible, for example, that part of the land belonging to one household is under single ownership and part of it is under community ownership. Tick under one or more headings as required to describe all the land owned.

Col. 8 Can the land be Bequeathed, "Sold", Mortgaged". Each of these heading is again divided into three sub-headings, "all", "part", "none".

Bequeathed. If all the land of the household is owned under single ownership for example, the owner should have the right to bequeath and sell all of it. Tick the one correct subheading depending on whether the owner or joint owners within the household under survey have the right to bequeath all, part, or none of the land he (they) own. Communally owned lands are not to be considered as being inherited or bequeathed. If all the household's land was communally owned, tick the sub-heading "none".

Sold If the owner or joint owners have the right to sell all, part, or none of the land he (they) owns tick under the one correct sub-heading. In this case also communally owned lands are excluded.

Mortgaged. Tick under one correct subheading if the owner, joint owners, or the community (where lands are communally owned) have the right to mortgage the land.

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An owner (or joint or communal owners in agreement) can MORTGAGE a piece of land if he (they) have the right to use this piece of land as a guarantee of repayment of a loan, and if the mortgaged land becomes the property of the lender, when the borrower does not pay back the loan. Mortgage means to mortgage to any organization or private person, for example, to a bank, a trader, a friend, a relative, etc. provided only that the land is used as a guarantee against repayment.

Col. 9 Has any of the land Ever Been Mortgaged? Is any of the land Mortgaged Now? In completing columns 9-11, ask if the questions apply to any part of the land now owned by the household. All systems of land tenure, including communally owned lands, are to be included in completing this column. Remember that land can be mortgaged to anyone, not necessarily only to a bank.

Has Any of the Land Ever Been Mortgaged? If the present owner, owners, or the community, at any time in the past, have mortgaged any part of the land the household now owns, tick "yes". If it never has, tick "no".

Is Any of the Land Mortgaged Now? On the day of the survey, if any part of the household's land is pledged against re-payment of a debt, tick under "yes"; If it is not, tick under "no".

Col. 10 Has Any of the Land Ever Been Rented Out? Is Any of the Land Rented Out Now? The questions again refer to any part of the land now owned by the household. If any of the land now owned has ever been rented by the household to persons, not members of the household under study, tick under "yes" under the heading "Has any land ever been rented out?" If not, tick "no".

If any land is now (on the day of your visit) rented out to persons, not members of the household, tick "yes"; if not, tick "no" under the heading "Is any of the land rented out now?"

Col. 11 If Any Land Rented Out Now: Number of Units Rented Out:
Unit Used. If the answer to sub-column 21, "Is any of the land rented out now" was "yes", complete this column. If the answer was "no", write "NO".

Under the heading, "number units rented out", write the total number of local land measurement units rented to other households on the day of your visit. Include only land rented to others which is owned by the household being surveyed.

1. LAND - In Schedule 7, you described only land under crops. In Schedule 9, you described all land now used by farmer households (i.e., not including households which do not cultivate land), excluding only land belonging to the households which was rented to members of other households.

In this Schedule all households should be included regardless of the profession of its members, provided only that the household now owns and/or rents land anywhere in Ethiopia. It means that ALL THE LAND NOW OWNED AND/OR RENTED BY THE HOUSEHOLD SHOULD BE DESCRIBED.

Under the heading "Unit used", enter the local name of the area unit in Amharic letters.

Col. 12 - 18 TO BE COMPLETED FOR ALL LAND RENTED BY THE HOUSEHOLD
 If any one or more members of a household now rent land, all the land rented shall be considered as being rented by the household and columns 12-18 should be completed.

If the household rents no land, write "NO" across the columns. A person who rents land is a TENANT. He uses, but does not own land. A tenant usually pays rent in the form of services (past or present) produce and/or cash for the use of the land. All land which is used and not owned by the household must necessarily be rented land, whether or not the tenant pays any rent.

Col. 12 Landlords. The numbers 1, 2, and 3 are given on three consecutive horizontal lines. Often, all the land rented by one household will belong to one landlord. There are also, however, households which rent land from two or more different landlords, and they may have a different agreement with each landlord. The number "1" stands for the landlord from whom the household rents all or, when the household has more than one landlord, the landlord from whom it rents most of its land (the largest rented area). The first horizontal line across columns 12-18 apply to the terms of the agreement between this particular landlord and the household.

Similarly, the number "2" stands for the landlord from whom the household rents the second largest part of the rented land and the number "3" for the third landlord, if there is one. As in the case of landlord No. 1, the second horizontal line across columns 12-18 describes the contract between the household and landlord No. 2, and the third landlord No. 3.

If the household has only one landlord, put a line through the numbers "2" and "3". If the household has two landlords, put a line through the number "3".

Col. 13 Is Contract: Verbal, Written, None? If there is any agreement between a landlord and a tenant (in this case, the household under study) regarding what each of them must do for the other, then there is a contract between the landlord and the tenant.

It is probable that the contract between the tenant and one landlord will be only through conversation, i.e. "verbal", only in writing, i.e. "written", or that there is no contract of any kind, i.e. "none", between the two of them. If is possible, however, that for part of the land rented from a single landlord, the agreement between landlord and tenant is verbal and for part, it is a written contract.

For each landlord, write "verbal" if the contract for all

the land rented from the one landlord is verbal; write "written" if all the land is under a written contract. If for part of land, the contract is verbal and for part, it is written, write the letters "V - W".

If there is no agreement of any kind, write "none". It seems improbable but not impossible that, if the tenant has a landlord, there would be no understanding of any kind between the landlord and the tenant. The same cases there would probably be no contract where a tenant uses land not belonging to any one, or belonging to an unknown person.

Col. 14 Is Tenant Compensated for Improvements? If the tenant has a contract with the landlord, and if in it there is a provision that, if the tenant fulfills the terms of the contract, will be compensated by the landlord when he leaves the land, for any permanent improvements he may have made (for example, for fences built, for trees planted, etc.) tick "yes". If there is not tick no.

If there is no contract between tenant and landlord, leave these spaces blank.

Col. 15 Does the Landlord Supply Draft Animals, Tools, Seed, House? Tick "yes" or "no", under each heading on each line.

If there is no contract between tenant and landlord, leave column blank. For all four headings, the question means that the landlord supplies the tenant free of charge, in other words, as part of the agreement between landlord and tenant, in partial exchange for the rent the tenant pays to the landlord.

If, for example, the landlord "gives" some seed to the tenant when he needs it, but the tenant either returns the same or a larger quantity or pays for it at a later date, the answer is "no", not "yes".

Draft Animals. If the team of animals with which the farmer plows belongs to the landlord and is lent to the tenant when he plows, the answer under the heading "draft animals" is "yes". If the draft animals used by the tenant belong to him, or if he does not use animals for ploughing, the answer under the heading "draft animals" is "no".

Tools. If the landlord gives or lends any tools to the tenant for which the tenant does not pay at a later date the answer is "yes", under the heading "tools".

Seed If the landlord gives any seed to the tenant, the answer under the heading "seed" is "yes". (See paragraph directly above the heading "draft animals")

House. If the house in which the tenant lives belongs to the landlord and the tenant does not pay rent in addition to his land rent, for the use of the house, the answer under the heading "house", is "yes".

Col. 16 Does Landlord Decide Any One Crop? The question is asked about any one crop. If the tenant himself decides upon all the kinds of crops he plants and the landlord makes no decision on which crops are planted, tick under "no" on the correct horizontal line. If, on the other hand, the tenant promises to plant one (or more) crops named by the landlord, tick under "yes".

Col. 17 Does Tenant Pay for Land Tax? The tenant usually pays rent to his landlord. In addition to the rent paid, he is also asked to contribute to the payment of the land tax, regardless of who actually pays the tax to the Government.

If the tenant pays rent only and does not give anything in addition to his rent, for taxes, tick under the heading "no".

If the tenant has to provide an additional payment and if this payment is in the form of asrat (i.e. one tenth (1/10) of his total crop before the landlord's share for rent has been taken out), tick under the heading "asrat".

If the tenant's contribution to the land tax is paid in money, tick under the heading "cash".

If the tenant contributes both asrat and cash for the payment of land tax, tick both headings.

Col. 18 Details of Rent Paid. The total rent paid to a landlord will be entered on the correct horizontal line. Include all the rent paid to each landlord under the three headings. Write "0" under each of the headings which do not apply.

Payment in cash. If the tenant pays his rent or part of his rent in money the total Ethiopian dollars paid per year for all the land rented from one landlord will be entered under the three sub-columns (35-37) and tick also under the sub-heading "cash" on the right-hand side.

This sum must be in dollars only, not in dollars and cents. If, any chance, the rent is in dollars and cents, round the cents correctly to the nearest dollar and enter dollars only, For example, a rent of \$110.75 will be entered as \$111, a rent of \$41.49, as \$041 a rent of \$42.59 as \$043, etc.

Payment in fixed amount of Crop. The farmer promising to pay so many quintals of teff per year regardless of how much or what else the farmer may produce from the rented land. In this case, ask the farmer his total rent per year, is one crop or several crops. Then ask him how much each quintal or daula, etc. was worth at harvest time. Make the necessary calculations on the back of the schedule and enter the total amount in Eth.\$ only on the correct horizontal line on the left-hand side of the column, and tick under the subheading "fixed crop"

SCHEDULE 10

on the right. If the farmer pays a part of the rent in cash and another part in fixed amount of crop, enter the total of these two amounts in Eth.\$ on the left hand side of column, and put tick marks under both the subheadings, i.e. cash, crop.

Share of Total Crop (Fraction). If the tenant pays his rent or part of his rent in share of total crop, that part of the tenant's total crop paid per year to one landlord will be entered under this heading.

The share of total crop means that the farmer pays a fraction of everything he produces to the landlord,

Write the fraction of the total crop paid on the left side of this sub-column, i.e. $1/2$, $1/3$, $1/4$, $3/4$ etc.

Payment in services. If a certain amount of work for the landlord, in addition to the tenant's work on the rented land, is owed to the landlord, i.e. if in the agreement between landlord and tenant, services to the landlord are included, tick under "yes" under the heading "services".

If the tenant performs any special services at irregular intervals for the landlord (on feast days, marriages, funerals, etc.) which are not part of the agreement between tenant and landlord, tick under "no", not under "yes". Under this heading only work done as all or part of the rent-paid is to be included.

Col. 19 Has Tenant Ever Sublet Any of the Lands He Rents. If any land rented by the household under survey ever been re-rented to persons who are not members of the household, tick under "yes". If the household has never re-rented land, tick under "no".

Note that if a household owns part of its land and also rents some land, this question does not apply to any land owned. It applies only to rented land which is then re-rented to others.

REMARKS

Leave all the small spaces directly under sub-columns 13-24 in the first block and under sub-columns 27-69 in the second blank, except sub-columns 35-37, 49-51, and 63-65 in column 18, under in which the numbers should be written. All other sub-columns are for office use only.

The last block on the bottom right-hand side of the Schedule is for office use and must be left blank in all cases.

FORMS OF OWNERSHIP AND TENANCY

LOCATING REFERENCE	1 PROVINCE	2 AWRAJA	3 WEREDA	4 SUB-DIVISION	5 H/H NUMBER	CODE											
						1	2	3	4	5	6	7	8	9	10	11	12
						1	5										

TO BE COMPLETED FOR ALL LAND OWNED BY THE HOUSEHOLD

6						7			8									9				10				11									
ORIGIN OF OWNERSHIP			TYPE OF OWNERSHIP			CAN THE LAND BE									HAS ANY OF THE LAND EVER BEEN MORTGAGED		IS ANY OF THE LAND MORTGAGED NOW		HAS ANY OF THE LAND EVER BEEN RENTED OUT		IS ANY OF THE LAND RENTED OUT NOW		IF ANY LAND RENTED OUT NOW												
PURCHASED	INHERITENCE	SERVICE COM-PENSATION	SINGLE	JOINT	COMMUNITY	BEQUEATHED			SOLD			MORTGAGED			YES	NO	YES	NO	YES	NO	YES	NO	NUMBER UNITS RENTED OUT			UNIT USED									
						ALL	PART	NONE	ALL	PART	NONE	ALL	PART	NONE									YES	NO	YES		NO	YES	NO	22	23	24			
13			14			15			16			17			18		19		20		21		22			23			24			25		26	

TO BE COMPLETED FOR ALL LAND RENTED BY THE HOUSEHOLD

12		13		14		15						16				17						18						19		FOR OFFICIAL USE ONLY							
LANDLORDS		IS CONTRACT VERBAL WRITTEN NONE		IS TENANT COMPENSATED FOR IMPROVEMENTS		DOES THE LANDLORD SUPPLY						DOES LANDLORD DECIDE ANY ONE CROP				DOES TENANT PAY FOR LAND TAX						DETAILS OF RENT PAID						HAS TENANT EVER SUB-LET ANY OF THE LANDS HE RENTS		NUMBER LANDLORDS	MODE OF RENT PAYMENT						
						DRAFT ANIMALS		TOOLS		SEED		HOUSE		YES		NO		ASRAT		CASH		ETH. \$		SHARE OF TOTAL CROP (FRACTION)		SERVICES		YES				NO					
1		27		YES NO		YES NO		YES NO		YES NO		YES NO		YES NO		YES NO		YES NO		ASRAT		CASH		34 35 36 37		CASH CROP		38		39		YES NO		40			
2		41		YES NO		YES NO		YES NO		YES NO		YES NO		YES NO		YES NO		YES NO		ASRAT		CASH		48 49 50 51		CASH CROP		52		53		YES NO		54			
3		55		YES NO		YES NO		YES NO		YES NO		YES NO		YES NO		YES NO		YES NO		ASRAT		CASH		62 63 64 65		CASH CROP		66		67		YES NO		68		69	

SIGNATURES ROLL NUMBERS DATES	ENUMERATOR	No.	SURVEY DATE / /	SUPERVISOR	No.	SCRUTINY DATE / /
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SCHEDULE 11

LOCAL PRODUCTION UNITS

Schedule 11 will be completed for all households whose land is measured.

This is one of the most important schedules to be completed. If the information given here is incomplete or inaccurate, all the information on production of crops collected in Schedule 8 as well as the information on honey production in Schedule 5-B and the information on storage in Schedule 9 will be useless.

All local units of measurement used by the farmer in measuring his production are to be listed. Note the word "production". Units used by the farmer in selling or buying crops, if these units are different from production units are not to be included. If the farmer does not own the units he uses but borrows them from a neighbour, ask him to have them at his farm on the day of the visit for land measurement. Ask also that the necessary crop be available. (See instructions for completing column 10.)

The farmer will probably use several series or systems of units unrelated to one another for different kinds of crops. For example, he might have the series: daula, enkib, kuna for grains and pulses, a second series, ferasula and neter for coffee, and a third series for honey.

Do not attempt to relate one series to another but treat each one separately. Give equivalences only within each series and weigh the smallest production unit in each of the series listed. After completing one series, draw a horizontal line across columns 6-11, and start the second series of units. (See the example given under "FINAL REMARKS".)

Col. 1 to 4 Locating Reference. Enter the names of the province, the awraja, the wereda and the samplesubdivision in English letters.

Col. 5 Household Number. The household number is the order number of selection given to the household from column 15 of Schedule 3.

Col. 6 Crops for which Unit Used. Complete columns 7 and 8 before completing this column.

Col. 7 Local Name of Production Unit. Write down the names of all production units used by the farmer for a particular group of crops, listing the largest unit first, for example, daula, enkib, kuna.

As requested in the instructions for completing Schedules 7 and 8, always use the local name, the name actually used by the farmer himself. Never convert this unit to one which might be more familiar.

Col. 8 Name of Equivalent Production Unit. For each of the names in column 7, ask the farmer the number of smaller units and write his answers in this column. Do not assume the answer. While it is generally true, for example, that 20 kunas are one daula, in some parts of the country 10 or 12 kunas are one daula.

The entry in columns 7 and 8 might look as follows:

<u>Column 7</u>		<u>Column 8</u>	
		No	Name
1	daula =	2	enkib
1	enkib =	10	kuna

Make sure that each list includes all the units in a given series, and that at least one (or more) units at the end of the list in column 8 is less than 15 kilograms in weight.

Col. 6 Crops for which Unit Used. After completing one series of units put a bracket around the series and write the name of all the crops or all the types of crops produced

SCHEDULE II

in the region, for which this series of units is used. For example, the series given above might be used for "all grains + pulses".

Note that in the case of units used for measuring coffee, do not write simply "buna" but always write "jenfel buna" or "keshir buna".

Col. 9 Name of Smallest Production Unit in Each Series. Copy down the name of the smallest unit listed in column 8. For the series given in the example above, "kuna" will be recorded under this column.

Col. 10 Name of Item Weighed. Use only one crop for each Schedule 11. Weigh the contents of the smallest units in each series only once, always using the same crop for one household.

The crops to be used are:

1. teff, 2. dagusa, 3. zengada, 4. Mashila, 5. geba.

This is an ordered or ranked series, i.e. always use teff wherever it is available for all weighings. Use dagusa only if no teff is available. Use zengada, only if neither teff nor dagusa are available, Use mashila only if neither teff, nor dagusa, nor zengada are available, etc. If none of the above crops are available in a sample subdivision at the time of the survey, use the bag of teff (15 kilograms) which will^{be} provided to each team for this purpose.

Always use dry (shelled) grain, i.e. not recently harvested grain which, being fresh, would contain a good deal of moisture, but always use grain that has been stored for a while.

Write the name of the crop weighed in this column. When using teff, specify the type of teff, i.e. write "red teff", "white teff" or mixed teff. If mashilla or zengada are used,

make sure to write the correct name, regardless of the name used by the farmer. Mashilla is white sorghum. Zengada is red sorghum.

Always use one of these five grain crops for weighing, even if the units are not used for grains but are used say, only for coffee or only for spices. In the case of units used for honey, water may be used instead of the grains mentioned above for weighing.

In the few cases when the farmer uses a weight to measure his crop, a meter for example, simply write the name of the weight. (See instructions for completing column 11.)

Col. 11 Weight. Request the farmer to fill the smallest unit in each series of units in his customary manner, i.e. in the way he does when measuring his crop. Some farmers will level the crop in the unit; others will heap it above the edge of the container. After the farmer has filled the unit, dump the contents of the unit on the scale and weigh it.

Make sure the reading is accurate, and write it down in the spaces provided. If the reading is less than 10 kilos, put a zero "0" in the left-hand column under kilos and then write the number of kilos in the column on the right. Enter the decimals in the spaces provided. For example if a kuna weighs 6.74 kilos, it would be recorded as:

<u>Kilos</u>	<u>Grams</u>
0 6	7 4 0

If the unit of measurement for honey is a brele, clean it thoroughly and fill it with water to the level that the farmer fills it when measuring honey, and weigh the water in the same manner as for other local units.

Almost all the local units of measurement, measure content or volume. The directions given above apply to this type of unit.

SCHEDULE II

A few local units, the neter for example for measuring honey or coffee, are weights, similar to the weights used in the metric system. Wherever weights are in fact used by farmers for the measurement of produce, simply put the weight on the scale and weigh it and record the result under column 11. Do not record what the farmer calls it weight but actually weigh the weight on your scale and record the result. Under column 10 put the name of the weight, for example, "neter".

Col. 12 Weight of One Standard Measure of Crop listed In Column 10. After completing columns 10 and 11, fill the standard measure with the crop just weighed under column 11. Make sure the crop is level in the standard measure (not heaped). Dump the contents of the standard measure on the scale, and record the weight in the spaces provided in column 12, opposite the correct crop, among the five crops listed. In case water has been used for "honey" units, fill the standard measure with water and write the weight of this water in the space provided.

REMARKS

Make sure that to list all series of units used by the farmer, and draw a horizontal line across Schedule 11 after each completed series. As a partial check, look at the names of the production units listed at the bottom of card number 09 in Schedule 5-B, under column 12 in Schedule 7, under column 8 in Schedule 8 and under columns 16 and 19 in Schedule 9. All of these names must be included under column 7 or column 8 of this Schedule.

A properly completed Schedule 11 might look like this:

Columns:	6	7	8	9	10	11	
						Kilos	Grams
Grains	}	1 daula =	2 enkib	1 kuna	red teff	06	740
pulses		1 enkib =	10 kuna				
keshir buna	}	1 ferasula =	20 neter	1 neter	neter	00	850
berbere							
honey							
butter							

Column 12	Kilos Grams
1. teff	00 - 870
2. mashilla, etc	

Side. Before measuring a field with the chains and compasses, determine with the help of the head or other responsible member of the household, the exact boundaries of the field recorded above. Fix the required number of pegs in the corners of the field so determined and name them A-B-C-D-, etc.

If the field is triangular having 3 sides, enter "A" after C - in the third column; if the field has got 4 sides, enter D after C - in the third column and enter "A" after D - in the fourth column. If 5, enter E after D - in the fourth column, and "A" after E - in the fifth column, and so on.

If the field has more than 10 sides, use a continuation sheet for entering K-L, L-M, etc. Correct the names of the sides and record their bearings and distances. Repeat the name of the subdivision, the household number, the field number and the name (s) of the crop (s) on the continuation sheet and attach it to the first sheet. If a continuation sheet, is used, always draw the diagram of the field only on the first sheet.

Bearing ($^{\circ}$). Using a compass, determine accurately the bearing which each of the sides A-B, B-C, etc. of the field makes with the direction of the magnetic North pole. Enter these bearings in degrees in the columns under the corresponding sides.

Distance (M). Measure accurately the length of each of the sides A-B, B-C etc. of the field with the help of the chain, and enter these distances in meters below the corresponding sides.

Diagram. Make a diagram of each measured field on the graph paper provided on this schedule (each small square = $\frac{1}{2}$ cm. ²) using a ruler and protractor.

Choose an appropriate scale in such a manner that the diagram is neither too small (in which case the error in area measurement will be large), nor so large as to go outside the graph paper. Depending on the size of the field, choose a scale such that the drawing will fill most of the page.

The graph must always be drawn with continuous lines according to distances and bearings actually measured on the field. In no case should these distances and bearings be changed, even if the diagram does not close properly. No attempt should ever be made to artificially close the diagram by suitably altering the last set of distance and bearing,

In case the starting and the finishing points of the diagram do not coincide, and their deviation is small (less than 5 meters in actual distance), draw a dotted line connecting the last point of the field to the starting point.

If the deviation between the starting and the finishing points is more than 5 meters, correct the mistake by repeating all the measurements of bearings and distances for the field.

EXAMPLE.

If the field is large, a scale of 10 meters = 1 centimeter may be appropriate to fill the page. For many fields, however, twice this scale, or 5 meters = 1 centimeter, will be more appropriate.

Suppose for example that a field has measured sides of 49, 38, 68, and 70 meters. Using the scale 1 cm. = 10 m., the sides will be 4.9, 3.8, 6.8 and 7.0 cm., which are too small for accurate area calculations. To convert this to a scale of 1 cm = 5 m. multiply the result by 2, because $1/5 = 2 \times 1/10$.

$$a) 4.9 \times 2 = 9.8 \text{ cm.}$$

$$b) 3.8 \times 2 = 7.6 \text{ cm.}$$

$$c) 6.8 \times 2 = 13.6 \text{ cm.}$$

$$d) 7.0 \times 2 = 14.0 \text{ cm., which is a good scale for this}$$

size of field.

Scale. Write the scale used in drawing the diagram, as for example, "1 cm. = 5 m."

SCHEDULE 12

Number of Squares: Full and Half or Larger. Count the number of small squares which are fully included in the diagram and enter their number after the word "full". Count the number of small squares, half or more of which have been included in the diagram and enter their number after "half or larger". Do not count squares less than half of which are inside the diagram.

Add the two numbers together and enter the total after "total squares".

Field Area. Calculate the area of the field from the total of the small squares and the scaling factor used, and enter the area in square meters in the space provided.

If the scale used is 1 cm. = a meters, and the total of the small squares is n, then the area is : Area = $\frac{1}{4}$ 'n' a² square meters.

In the above illustration, the scale is 1 cm. = 5 m., and the total number of small squares is 522. The area, therefore, is:
 $\frac{1}{4} \times n \times a^2$
 $\frac{1}{4} \times 522 \times (5)^2 = 3,262$ square meters.

APPENDIX I

RANDOM NUMBERS

Instruction for the Use of Random Numbers

The random numbers will be used for selecting (a) the sample subdivisions in Schedule 2, (b) the contiguous subdivision in Schedule 2-A, if there are 30 or more sampling subdivisions in a wereda, (c) the sample households in Schedule 3, and (d) one-third of the sample households for land measurement also in Schedule 3.

There are 16 pages of random numbers. Each page containing 25 rows and 15 columns of two digit random numbers. The columns are continuously numbered serially from 1 to 240.

To determine the first random number with which sampling work should be started, take the random number in the first row of the column whose serial number is equal to the product of your roll number multiplied by 3. As for example, if the roll number is 17, start with the random number occurring in the first row of column No. 51 (17×3), i.e. with the random number "46" if, for example, a two digit number for sampling is required. If it is one digit number, use only 4; if a three digit number is needed, use 468; for a four digit number use 4688; for a five digit number use 46886, and so on.

In most cases only one random number will be needed for each Schedule to determine the random start. If it is necessary to select a random number between 1 and "N", where "N" has "k" digits, then use "k"-digit random numbers for this purpose. In case the random number is greater than "N", reject it and cross it out with pencil, and take the next random number until it is within the desired range.

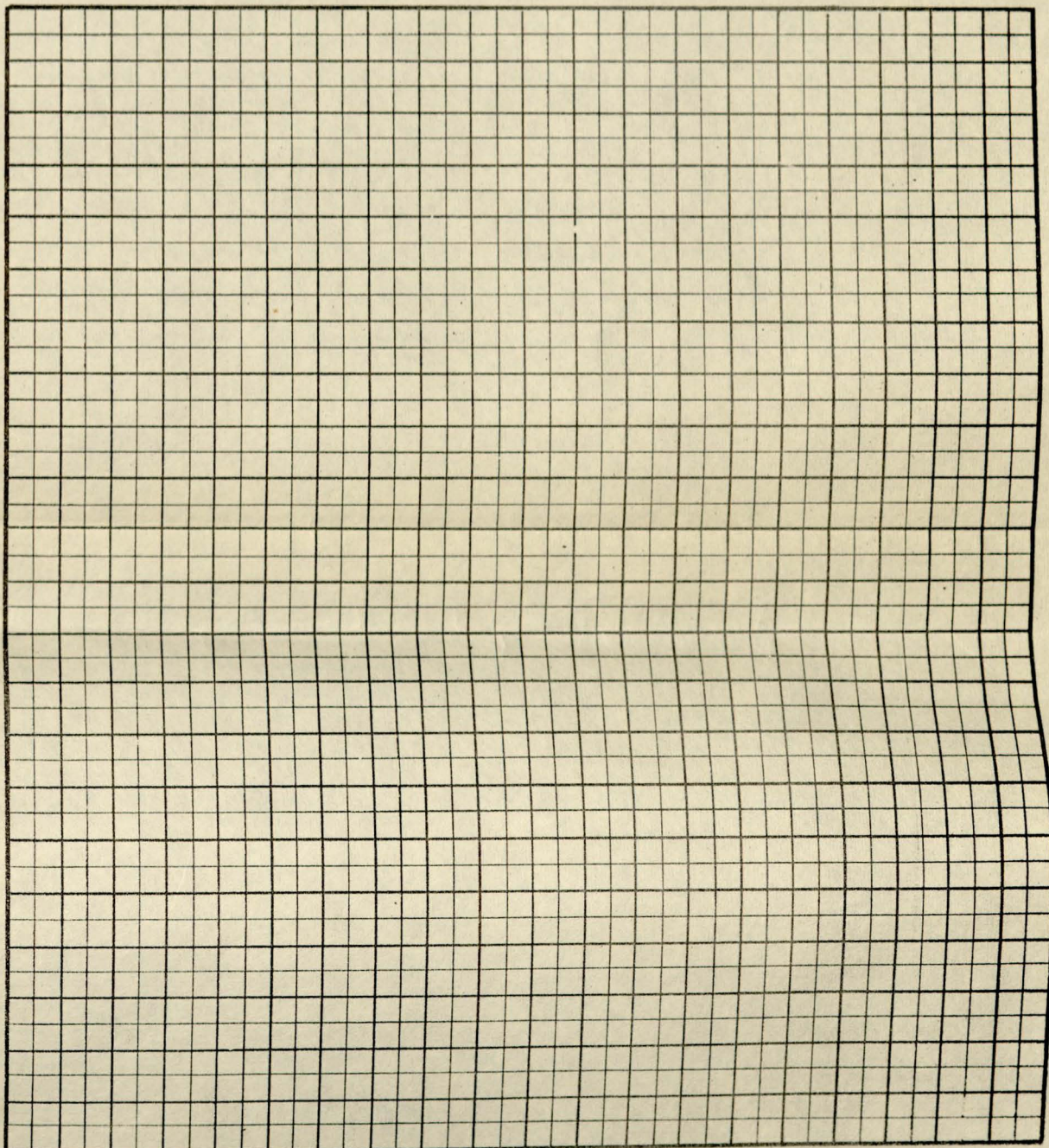
Always cross out with pencil the used and rejected random numbers, and for next sampling work start with the next numbers, going downwards in the column. When all the random numbers in one column are exhausted, start with the first row of the next column (to the right) and go downwards as before. After column No. 240 has been used up, go back to column No. 1 and follow the same procedure.

FIELD AREA MEASUREMENT

SUB-DIVISION H/H NUMBER FIELD NUMBER

CROPS PLANTED LAST YEAR IF ANY BOUNDARY IMAGINARY PUT X IN BOX

SIDE	A—B	B—C	C—	D—	E—	F—	G—	H—	I—	J—
BEARING (°)										
DISTANCE (m)										



SCALE: 1cm = meters
 NUMBER of SQUARES: FULL HALF or LARGER
 TOTAL SQUARES
 FIELD AREA SQUARE METERS

DRAWN BY	N°	DATE // /
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APPENDIX
RANDOM NUMBERS
Instructions for Use of Random Numbers
TABLE OF RANDOM NUMBERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
												76	96	85
13	70	43	69	38	81	87	42	12	20	41	15	38	51	09
26	99	82	78	99	05	22	99	52	32	80	91	40	91	90
72	53	95	81	07	98	14	74	52	58	73	10	44	53	23
22	08	08	68	37	16	36	62	20	02	35	98	31	25	22
21	61	90	53	85	72	86	94	87	18	50	11			
												34	35	20
47	38	55	66	50	96	25	78	34	45	52	78	36	12	17
96	68	13	07	31	29	70	09	16	66	81	09	25	51	40
45	92	93	44	87	72	26	75	82	31	72	69	73	38	33
78	85	71	45	32	16	57	91	52	05	93	20	17	20	75
51	99	50	88	62	54	90	51	01	39	18	70			
												75	57	37
67	62	30	02	88	17	37	25	42	86	00	32	12	47	35
03	08	89	77	12	41	15	25	52	30	93	11	73	67	55
45	10	04	66	94	70	33	74	97	23	40	97	16	02	29
62	48	46	97	04	36	31	27	29	84	85	35	48	98	13
59	59	33	63	53	43	60	30	15	81	67	59			
												73	65	42
72	63	67	17	24	55	68	32	24	80	13	92	22	96	06
46	28	15	70	28	98	53	36	03	89	83	74	57	26	11
21	03	09	16	31	48	05	10	98	62	14	15	47	76	60
84	82	53	39	92	14	07	84	04	01	66	17	31	80	30
75	68	40	90	39	95	46	10	94	68	39	10			
												91	55	48
42	77	29	80	73	38	92	11	81	72	50	88	83	70	10
63	55	09	84	66	56	92	13	97	14	87	27	28	35	53
54	29	70	14	85	95	79	72	77	48	57	92	86	91	62
42	97	50	61	19	55	38	55	85	57	85	08	24	86	86
52	30	47	73	26	54	18	05	75	92	95	08			

TABLE OF RANDOM NUMBERS

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
27	81	21	75	39	43	77	80	81	72	55	33	32	54	38
17	41	85	13	20	66	59	22	20	93	15	11	02	14	89
51	74	23	54	88	84	12	16	77	01	89	83	44	23	49
87	91	53	86	97	42	80	83	37	31	97	12	11	84	69
30	16	17	32	34	00	07	25	52	79	77	77	69	76	38
92	81	12	15	28	42	98	67	52	38	30	12	85	98	68
03	83	93	48	64	50	32	57	94	64	87	55	68	72	06
74	85	16	86	09	22	62	06	38	16	74	71	27	69	83
97	36	58	90	91	23	91	19	04	16	31	25	96	65	32
05	85	53	06	41	29	78	51	15	49	01	26	88	45	76
77	67	60	70	44	56	91	03	19	66	19	69	66	27	28
37	15	17	96	24	95	08	39	55	15	33	19	50	98	26
64	16	38	58	74	29	71	49	52	13	29	90	80	93	66
14	16	78	44	49	34	05	46	96	88	74	51	03	39	64
29	19	71	98	71	19	51	86	82	95	83	84	13	02	62
09	39	92	56	68	36	54	55	46	13	58	83	61	66	77
41	55	75	08	62	55	19	15	75	77	74	65	03	42	78
28	98	16	85	39	67	49	02	30	47	55	67	10	59	34
92	22	79	70	66	78	13	97	42	81	54	10	57	42	17
86	08	54	39	88	38	46	74	21	13	74	36	85	52	19
36	26	40	17	70	39	94	05	76	12	98	65	97	74	18
91	20	64	12	33	15	59	43	28	75	88	60	64	80	35
14	30	57	07	34	09	56	26	81	41	14	99	96	72	06
94	83	96	96	17	02	10	89	71	76	53	37	80	03	58
52	67	59	63	22	28	76	43	45	97	87	11	68	57	74

TABLE OF RANDOM NUMBERS

31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
86	17	98	62	44	62	67	18	02	15	79	36	90	21	60
34	17	10	17	43	68	47	09	66	06	96	96	18	97	02
23	83	25	22	31	25	09	32	57	52	88	05	95	82	56
64	42	07	46	19	56	27	48	22	87	41	90	47	81	74
28	01	52	52	24	90	68	59	70	66	73	13	25	50	70
73	27	49	30	71	93	45	23	86	40	53	13	33	09	79
68	96	82	12	70	61	57	03	27	55	72	07	87	82	47
49	27	30	17	92	45	96	75	06	25	10	97	52	41	85
81	91	86	43	17	60	76	59	96	38	96	50	35	60	90
70	11	90	78	54	31	75	14	38	49	91	76	14	39	00
76	60	35	52	47	78	49	74	59	95	14	00	98	70	66
32	04	40	57	05	72	16	19	54	78	61	03	98	31	08
28	04	32	97	32	25	47	51	21	49	54	26	17	95	15
87	23	34	82	02	05	65	10	67	08	62	72	33	16	66
16	41	58	73	76	51	37	53	22	55	41	89	36	21	52
01	13	30	72	03	34	30	08	29	67	58	00	65	94	00
04	66	49	07	80	83	53	28	77	26	75	61	19	20	88
63	72	23	44	91	97	54	05	88	16	45	44	11	17	87
05	81	81	56	04	93	91	92	94	29	49	60	13	73	14
18	80	74	51	53	88	53	90	86	97	55	59	58	01	75
22	64	46	10	22	05	37	98	77	78	83	69	31	73	90
52	48	31	16	69	39	76	94	21	69	90	25	96	40	50
58	85	06	34	69	82	18	68	65	29	90	78	29	64	83
87	04	04	58	00	78	09	82	57	19	43	05	45	99	21
85	96	61	47	26	03	43	29	11	72	73	48	08	29	41

TABLE OF RANDOM NUMBERS

46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
25	19	17	50	50	46	26	92	62	41	27	66	85	60	70
54	61	41	41	91	88	83	30	32	75	59	03	58	58	83
97	50	71	35	65	67	15	45	73	09	17	60	68	38	05
96	17	27	35	82	80	77	28	97	11	26	72	02	88	96
21	48	84	49	72	93	48	66	75	82	36	33	77	97	35
85	12	09	36	72	81	06	73	04	02	03	10	81	34	44
49	57	40	54	64	88	97	69	03	12	94	45	86	74	66
07	43	79	37	60	96	75	39	46	33	42	41	29	83	73
80	07	51	15	59	55	24	80	49	12	61	68	00	44	58
40	71	81	93	03	03	60	02	42	53	38	35	05	67	73
50	24	44	84	14	02	13	95	71	17	46	16	45	72	36
51	36	08	02	99	65	46	51	84	51	20	85	22	94	38
62	81	28	56	90	81	19	95	58	41	50	80	91	11	62
83	33	85	65	91	68	33	17	85	77	15	53	18	87	75
24	05	75	46	93	05	64	39	09	20	73	52	84	82	81
28	40	31	45	53	96	36	84	57	60	99	82	84	93	66
21	23	47	38	68	53	19	50	06	54	28	00	56	78	63
00	78	78	51	53	72	74	90	79	03	63	27	02	60	44
66	96	71	70	61	05	98	64	67	41	35	00	84	20	51
46	24	17	92	11	04	92	17	17	89	52	52	65	59	36
55	69	47	19	10	36	47	63	23	35	15	03	79	56	48
75	17	81	21	31	84	98	99	77	96	71	72	67	99	24
35	04	66	64	83	34	75	18	40	58	65	35	98	48	02
05	83	68	55	63	72	35	53	51	48	26	41	11	16	45
45	48	17	48	46	21	44	18	99	41	51	94	64	83	03

TABLE OF RANDOM NUMBERS

61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
23	99	75	91	68	71	77	35	56	29	30	26	83	97	11
24	50	63	43	58	96	59	56	76	39	86	04	11	71	07
63	99	50	54	63	11	67	06	79	37	52	17	84	84	58
67	42	45	26	06	30	13	96	47	25	54	31	33	77	79
23	73	62	45	06	38	83	49	66	35	06	02	45	45	02
09	98	28	71	65	35	74	94	87	13	79	77	27	49	88
77	97	74	00	04	18	42	69	79	74	66	90	72	83	13
81	33	58	28	11	28	89	53	29	23	21	91	15	16	83
90	47	83	90	03	18	14	38	28	21	72	09	99	32	35
59	01	09	70	86	58	53	77	74	15	14	95	71	50	87
56	96	60	28	80	20	35	34	07	89	78	85	71	49	57
69	65	85	38	62	53	81	97	00	30	43	05	36	04	39
28	23	54	79	10	52	77	02	87	74	17	42	96	00	80
40	71	41	62	18	93	71	73	71	36	10	92	91	99	73
88	83	39	47	97	05	17	97	88	09	38	28	22	06	26
04	96	83	09	23	49	00	32	23	47	09	51	83	36	02
14	72	41	35	69	48	93	00	72	10	63	46	98	63	46
94	02	46	56	58	48	99	48	02	27	38	71	95	05	17
56	04	35	54	37	10	49	21	77	05	99	06	65	11	63
05	22	71	74	19	45	22	30	57	72	47	46	77	14	01
59	61	33	54	59	83	87	10	50	31	66	32	27	95	11
66	87	57	15	87	25	06	59	67	13	45	95	50	73	90
34	42	45	30	64	25	16	53	13	25	88	11	13	23	54
85	41	23	96	62	77	66	47	21	52	93	02	61	15	30
92	08	10	47	20	83	55	04	30	53	42	16	71	13	32

TABLE OF RANDOM NUMBERS

76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
50	01	66	62	10	38	47	86	17	59	64	26	02	36	17
13	35	98	13	29	61	37	85	44	14	96	63	98	71	28
68	37	23	74	77	92	37	14	25	88	78	96	90	90	00
40	43	78	99	64	47	23	89	80	49	91	95	59	60	06
90	37	63	74	14	30	64	66	72	38	19	28	01	63	44
04	84	87	41	64	03	89	57	82	34	07	71	33	49	80
43	95	90	88	46	27	34	43	61	52	24	53	09	84	27
94	20	01	52	38	82	74	59	52	76	29	85	59	84	16
64	04	67	90	38	25	44	69	32	35	04	27	13	98	84
91	89	73	11	07	29	69	79	89	36	79	99	56	05	63
24	43	43	01	91	48	33	23	60	63	87	15	15	27	59
77	67	34	95	86	99	27	54	40	61	32	54	74	63	89
09	91	95	96	96	59	13	33	76	69	65	15	88	82	08
36	59	12	33	44	28	85	77	72	84	23	05	57	14	43
67	03	48	83	77	15	39	38	60	87	93	20	89	37	55
87	07	87	94	15	70	33	87	92	20	44	52	85	28	63
70	83	47	08	44	92	03	01	69	36	54	02	85	92	92
35	61	24	35	08	63	55	43	88	72	23	80	06	83	24
33	90	47	53	07	64	57	02	75	91	23	41	95	06	18
10	86	00	20	21	25	38	66	72	50	88	21	00	24	82
77	56	37	85	54	76	52	11	75	37	11	21	26	61	05
12	87	87	16	41	19	24	45	50	63	61	48	52	29	34
95	03	95	57	45	95	95	29	81	58	75	81	44	15	27
41	99	20	67	81	61	53	17	68	79	40	87	93	89	23
01	80	04	99	83	04	81	35	81	62	49	64	35	74	06

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02	96	85	29	01	71	25	75	16	12	96	88	01	45	02
57	32	28	08	02	76	67	87	64	68	02	96	09	50	78
85	58	76	47	47	46	64	91	31	90	58	42	77	01	02
93	26	47	78	64	08	47	06	70	10	57	11	66	84	10
23	58	59	96	27	53	88	27	01	08	13	32	85	15	83
84	19	95	90	83	74	45	69	34	35	88	20	53	29	43
79	66	11	73	04	76	31	64	82	88	12	41	65	36	13
73	42	95	17	00	89	67	98	16	36	35	80	06	97	38
34	38	75	66	20	90	21	98	10	10	13	92	61	62	31
67	90	30	29	71	25	60	92	54	59	71	70	90	84	97
58	95	23	11	71	30	52	79	21	68	59	35	23	25	42
64	29	41	75	29	82	23	41	28	81	00	41	10	48	53
36	43	78	24	43	50	27	42	29	38	79	93	99	08	00
18	12	08	30	86	79	73	70	40	53	55	80	29	76	17
91	45	23	39	92	54	43	26	25	82	27	80	26	01	05
24	30	32	85	33	23	07	78	82	74	25	81	11	29	85
64	89	57	04	42	93	90	92	26	68	14	90	77	84	29
46	18	94	19	23	77	96	76	83	69	99	06	92	01	35
04	95	37	27	95	53	12	76	24	60	94	69	25	59	85
65	16	04	24	33	40	68	86	26	54	34	12	96	09	72
24	87	91	28	61	02	38	74	42	10	50	53	23	59	49
25	55	26	72	44	60	99	65	87	25	78	68	53	38	41
25	89	45	95	41	44	17	09	95	17	75	58	77	87	65
08	03	95	38	97	54	79	49	35	89	07	83	70	72	03

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93	64	05	94	59	30	88	69	03	78	66	74	33	15	87
46	24	83	84	06	97	41	44	49	01	58	73	81	00	64
36	54	95	27	03	22	73	68	82	26	73	69	03	40	44
99	67	38	75	54	77	34	78	99	87	60	02	12	89	46
33	91	35	59	10	01	45	48	69	25	70	32	42	44	83
94	29	36	01	15	41	81	68	23	23	99	11	71	89	19
70	37	97	36	64	25	91	00	03	34	88	11	58	11	08
46	29	97	61	48	85	49	57	72	25	57	16	84	90	33
76	22	60	49	55	66	10	84	48	79	46	71	13	94	59
87	16	17	47	44	11	79	38	96	96	13	87	02	11	67
78	84	74	70	02	42	57	23	03	64	74	44	71	91	01
76	44	57	03	45	00	47	69	20	41	99	03	59	13	15
20	83	00	40	64	92	61	17	29	68	77	72	68	03	24
24	61	08	21	70	02	37	25	64	46	69	18	53	04	74
29	85	54	13	49	87	54	65	29	72	15	13	53	97	90
93	16	36	14	26	91	71	32	66	62	11	58	59	64	90
61	83	79	06	81	23	00	63	49	31	11	54	12	12	12
27	84	03	81	77	83	48	04	94	22	19	76	67	36	74
31	04	54	43	58	97	93	86	87	15	46	82	06	80	46
17	76	11	52	88	26	01	66	83	69	49	85	36	54	64
82	50	20	62	91	62	77	30	06	90	30	32	81	60	11
34	06	30	54	52	02	69	73	18	05	30	01	73	04	94
62	56	60	72	02	00	16	69	43	12	84	36	49	76	82
52	33	84	16	22	29	29	56	92	15	32	23	77	07	16

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93	85	79	02	99	02	17	26	83	40	11	05	62	99	46
69	84	86	60	38	93	67	72	57	00	45	23	78	00	01
00	52	10	07	16	79	25	48	92	81	50	75	81	37	36
57	36	92	49	68	09	52	04	40	07	37	03	10	79	18
15	01	59	88	74	21	29	37	80	19	12	57	16	72	18
53	72	62	12	25	83	30	99	56	42	71	37	43	43	20
46	77	32	80	07	29	81	12	64	22	72	83	37	69	59
78	56	25	62	84	57	89	74	44	60	17	78	53	12	28
49	36	27	01	26	30	42	52	55	96	86	46	28	54	12
73	15	04	54	89	95	06	04	04	92	49	24	39	90	62
50	98	84	57	60	82	66	67	52	86	60	00	81	36	10
07	41	50	30	08	42	43	20	24	93	19	13	27	34	71
73	57	82	86	32	67	46	37	46	20	99	60	53	25	74
13	10	33	24	37	90	01	26	50	70	81	55	23	70	08
87	26	26	55	15	27	10	52	51	95	18	96	69	78	84
05	99	94	64	44	86	01	04	55	88	17	34	00	09	37
34	42	41	77	65	54	35	55	73	85	33	74	36	66	80
07	93	29	08	46	38	60	76	15	06	13	31	53	04	60
63	90	30	64	15	55	74	87	68	41	80	40	81	47	71
72	78	76	67	14	27	75	33	27	70	24	63	47	16	67
46	58	98	77	00	04	39	16	91	83	93	06	53	40	99
48	98	87	46	93	96	86	08	70	86	05	80	72	98	22
69	45	67	66	96	63	98	53	73	87	78	80	26	65	35
59	11	32	13	28	25	38	35	91	58	42	14	85	91	00

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38	81	85	69	35	49	26	16	97	66	38	68	54	06	23
02	89	99	60	03	83	19	71	06	66	33	77	84	32	27
48	58	66	74	07	02	68	25	35	46	60	30	13	96	79
55	87	80	48	33	94	05	43	39	79	68	86	26	99	09
00	02	43	05	54	97	13	33	25	19	54	57	17	23	06
82	74	28	07	31	44	49	00	20	61	44	67	71	86	23
97	46	06	85	53	95	62	24	18	87	88	37	68	12	48
27	95	04	75	66	23	46	61	58	85	84	68	51	43	60
21	55	66	63	67	54	98	39	58	34	31	53	16	63	44
30	29	75	20	04	09	21	69	24	49	43	40	97	36	36
74	52	39	96	51	43	56	08	83	97	62	18	12	93	87
51	47	38	83	16	00	02	97	68	22	58	98	54	82	50
20	45	89	39	70	21	98	91	18	94	52	94	62	30	28
64	53	70	08	57	48	86	77	42	41	25	40	72	51	35
90	52	67	66	55	33	43	44	28	84	95	45	42	09	67
87	61	28	11	65	42	70	83	95	49	82	21	10	06	23
68	97	71	36	56	22	04	71	48	17	20	02	56	25	47
74	29	89	73	99	66	99	43	46	53	89	28	42	36	55
43	75	00	82	43	53	56	70	35	64	16	69	05	11	49
54	62	73	36	69	81	11	26	79	41	02	69	54	26	61
69	38	82	26	28	87	13	61	19	47	08	09	68	85	60
47	41	61	98	00	29	74	10	37	39	14	38	62	28	71
93	45	12	64	87	97	11	76	33	05	38	29	15	92	98
01	36	46	57	62	78	74	99	00	99	05	41	48	21	67

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55	12	89	81	90	41	10	27	53	73	81	04	59	91	49
73	60	56	98	48	85	27	55	78	56	73	15	90	94	29
76	91	76	58	48	00	51	53	91	89	31	22	59	80	96
81	97	36	86	59	65	34	76	30	83	29	13	33	36	98
21	79	20	56	79	26	14	67	85	48	93	64	91	85	03
43	35	78	78	05	26	93	27	68	31	54	94	51	31	86
29	96	32	20	69	22	05	39	61	42	31	81	07	84	90
73	90	14	00	91	49	79	09	15	31	87	71	95	84	11
31	46	63	54	44	03	97	99	73	02	42	41	81	18	66
11	43	59	88	00	64	68	23	30	93	73	31	70	34	50
68	67	94	49	08	08	80	93	09	41	94	66	29	56	86
04	23	03	08	58	71	56	91	76	60	95	41	26	60	05
12	20	07	92	04	84	02	78	94	16	65	26	59	32	93
06	02	49	20	57	30	20	19	85	14	91	84	81	72	59
83	48	07	82	38	65	02	48	57	42	06	46	97	83	44
06	56	59	61	03	61	99	64	75	64	44	54	60	58	02
91	65	56	95	15	14	68	15	63	55	20	81	49	47	54
40	51	90	44	68	83	15	48	72	81	94	77	94	23	58
43	91	97	48	37	79	75	87	70	38	70	77	36	42	97
42	82	97	65	85	08	49	21	23	20	18	85	79	21	46
79	70	10	35	26	36	52	13	95	32	34	03	56	44	09
67	45	67	74	27	81	79	17	01	56	68	95	28	39	31
25	25	58	57	08	78	95	64	06	72	63	48	92	37	30
18	95	80	12	99	70	02	68	07	05	96	04	51	99	97

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166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
27	31	87	51	21	06	56	13	83	57	88	37	14	94	65
79	92	27	39	63	62	50	43	78	34	24	58	27	76	06
96	12	31	69	02	86	33	91	53	45	32	55	62	18	31
24	76	58	36	74	79	90	28	05	34	20	53	20	60	55
60	00	48	57	47	61	14	17	61	51	76	10	92	38	32
33	60	24	82	53	61	84	64	92	45	27	84	55	49	65
03	72	54	53	15	99	34	97	99	57	95	24	00	83	99
24	12	72	63	04	87	65	12	66	40	47	95	66	24	41
76	54	93	41	68	87	53	60	07	01	96	81	81	56	19
40	79	63	53	50	36	75	24	43	82	28	04	35	81	76
27	53	82	99	51	33	10	61	75	38	25	21	05	19	45
34	34	12	02	88	63	11	54	53	02	11	12	60	53	93
88	06	59	54	66	55	86	94	08	05	94	90	51	86	20
57	81	83	74	40	08	99	29	18	34	90	81	08	44	32
35	61	71	62	72	46	57	28	93	63	03	06	65	96	88
53	30	08	19	26	67	44	69	68	43	02	42	87	98	97
15	26	81	86	12	67	01	89	59	76	96	22	66	90	89
13	96	97	21	28	62	60	02	37	16	49	96	48	08	69
10	13	33	72	84	94	16	94	75	95	17	19	13	85	68
71	31	80	92	46	55	80	59	74	04	74	89	16	32	68
02	19	26	92	49	11	17	30	01	38	16	01	80	52	54
00	60	44	82	49	19	54	54	95	08	32	29	88	02	55
41	20	54	05	74	11	32	92	39	23	17	22	65	53	78
59	96	83	89	93	97	65	56	31	52	08	27	87	92	89
76	08	79	21	31	60	12	00	22	85	60	58	37	15	34

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181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
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90	31	76	17	12	20	41	29	71	48	19	43	48	90	17
20	30	23	27	73	53	60	07	94	10	91	79	27	22	84
06	41	14	89	08	28	03	85	84	88	04	22	72	09	49
84	79	60	62	55	93	63	22	94	39	49	96	13	12	49
99	17	34	90	55	33	25	77	43	48	09	71	25	80	19
63	76	98	99	92	59	51	17	13	36	01	46	06	80	40
72	87	09	83	32	36	32	52	02	77	80	01	60	58	45
05	92	49	12	34	57	87	73	51	46	25	19	39	31	67
64	99	91	18	37	11	88	38	06	91	14	25	77	68	95
07	69	11	09	79	09	45	28	87	72	18	76	21	13	47
86	78	48	73	20	61	18	35	09	54	50	26	29	67	65
01	78	77	94	64	88	73	64	40	94	16	49	22	84	77
33	92	09	63	73	64	57	62	03	22	25	92	34	52	90
02	64	60	09	13	11	58	73	59	26	85	97	90	51	89
40	89	77	32	81	63	27	98	19	84	12	92	00	41	25
93	76	73	65	79	87	19	37	22	51	34	11	67	37	03
30	39	37	80	21	37	76	41	40	31	16	04	25	17	92
89	71	86	53	18	55	52	85	56	31	26	49	66	96	54
03	73	41	53	51	99	57	65	20	67	66	27	31	00	57
90	92	47	73	00	02	70	00	78	00	22	92	29	33	61
24	64	10	38	31	63	35	69	71	55	20	29	25	38	70
30	27	62	15	31	25	58	56	95	43	36	60	02	55	55
57	54	92	47	11	64	32	83	18	65	52	74	54	71	13
43	58	37	16	69	49	85	02	15	73	57	63	50	46	71

TABLE OF RANDOM NUMBERS

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49	91	93	73	14	15	01	47	02	70	30	96	01	06	30
45	42	46	06	93	60	41	09	31	29	52	49	68	82	39
50	69	74	10	51	89	66	51	57	21	54	95	58	76	46
18	56	73	16	02	87	41	05	13	87	13	61	08	73	29
43	73	70	73	19	41	04	60	25	42	09	50	42	45	01
52	69	34	01	65	33	19	62	22	41	29	65	24	43	22
01	15	92	69	53	78	68	58	74	08	05	11	38	94	28
94	46	83	72	49	19	98	09	56	83	25	40	01	22	61
44	42	06	32	95	17	32	67	80	84	09	69	57	52	92
81	58	85	33	16	11	87	12	17	39	12	11	07	72	20
60	25	84	42	22	94	38	96	52	03	38	97	12	87	15
53	12	75	59	76	42	73	48	95	57	51	31	12	50	82
02	68	01	17	09	00	38	12	31	52	22	24	73	89	09
95	68	53	92	82	11	96	03	47	31	35	59	02	23	84
00	32	10	43	45	44	48	02	29	03	71	82	60	44	48
67	16	84	57	42	18	97	25	03	16	56	57	02	46	13
11	23	91	28	97	34	06	48	44	87	56	80	11	02	46
75	25	43	39	13	14	29	63	79	33	69	90	40	59	83
16	67	93	59	86	81	53	07	69	33	47	40	14	70	07
25	81	18	46	46	96	68	34	08	88	78	35	34	55	49
80	49	70	27	17	99	43	11	36	95	04	05	19	52	40
44	44	96	11	09	82	38	91	73	62	44	72	30	09	91
46	90	22	50	50	53	83	95	82	13	26	25	16	55	89
35	48	16	10	07	10	67	28	66	79	16	26	74	55	78

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211	212	213	214	215	216	217	218	219	220	221	222	223	224	225
71	78	83	24	83	79	73	65	45	77	48	64	06	29	51
50	35	59	39	36	65	21	60	67	00	72	49	17	38	27
33	18	02	20	36	11	98	87	46	08	86	64	21	85	72
90	58	17	35	74	35	68	22	66	22	82	86	89	01	55
78	86	51	82	75	95	03	05	49	03	33	06	80	88	38
33	54	84	54	73	86	13	33	53	45	65	65	31	59	39
34	15	76	71	08	46	71	00	17	90	94	49	62	85	25
39	18	58	72	78	98	61	25	22	68	18	98	07	55	60
61	38	90	45	69	50	88	43	65	33	09	17	66	73	57
38	25	17	04	28	35	46	77	46	37	73	29	31	56	32
13	49	04	17	93	11	97	87	12	84	07	69	84	22	10
42	34	02	48	77	60	65	04	27	54	40	44	08	42	90
68	80	32	01	70	44	36	57	52	63	03	74	75	63	65
07	14	50	08	50	76	11	34	53	42	16	08	51	79	09
34	48	64	21	33	04	05	83	12	60	06	62	72	57	07
57	11	73	43	75	39	36	84	93	97	53	35	40	31	14
25	88	33	01	05	53	24	27	35	98	25	80	70	17	91
85	81	42	53	74	04	52	64	54	11	34	31	30	92	85
84	75	63	22	39	49	96	75	65	33	11	33	87	76	22
02	72	56	24	85	49	55	52	74	69	27	99	28	22	96
73	83	77	95	79	39	26	52	44	56	69	93	29	50	85
51	26	20	89	77	29	09	45	39	01	44	45	71	17	81
20	64	37	60	09	39	73	19	59	39	34	32	20	30	47
93	15	81	85	78	05	62	94	70	72	64	91	40	12	10
68	14	87	52	34	62	60	01	33	02	38	95	73	71	34

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226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
00	88	97	48	69	32	21	32	66	35	67	33	65	36	75
21	42	34	74	91	81	94	50	72	65	55	07	99	19	40
90	69	33	57	86	66	75	78	53	83	23	90	48	32	52
34	05	02	36	33	77	93	15	29	40	67	54	59	86	41
99	64	40	94	50	88	96	14	41	77	18	48	49	31	92
91	12	48	04	05	45	72	68	61	37	37	95	58	10	25
25	31	10	11	68	60	46	58	37	62	43	67	45	23	62
34	88	22	36	04	78	44	20	85	79	23	79	79	06	48
21	86	80	12	01	25	36	03	08	87	33	97	22	45	56
91	53	27	12	50	95	02	03	40	98	94	04	38	26	77
77	37	98	08	05	80	37	74	74	05	16	87	15	83	98
80	26	88	76	01	34	08	65	25	27	10	45	47	91	56
99	85	52	83	48	79	34	15	30	35	23	68	82	43	34
67	87	13	56	38	76	20	31	48	45	08	31	23	40	23
66	21	04	47	16	75	82	45	76	81	05	75	27	90	82
86	65	03	84	99	31	00	22	09	34	06	63	14	69	10
76	00	85	07	11	95	57	84	28	43	32	96	85	64	92
73	38	22	34	07	56	03	44	31	00	83	70	74	69	29
16	21	93	91	84	48	15	05	66	12	14	84	83	22	82
20	53	92	13	90	71	00	45	78	51	07	79	46	45	02
73	46	35	61	66	30	85	42	97	86	19	09	12	69	17
86	04	95	37	15	60	53	17	23	01	14	82	57	46	50
52	32	96	30	67	30	40	08	52	29	39	40	15	69	27
16	13	48	55	73	72	70	68	40	74	50	59	33	64	72
32	31	32	26	03	55	74	15	28	81	04	55	20	72	79

SUPPLEMENTARY INSTRUCTIONS FOR SCHEDULE 8 ON COLUMN 10
TOTAL TREE COUNT OF HOUSEHOLD

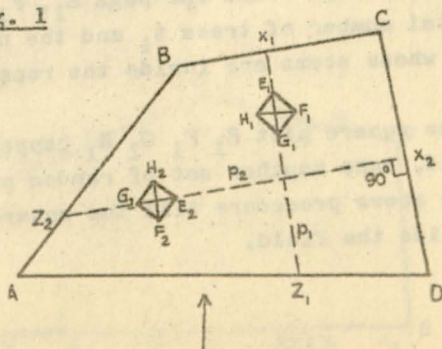
In most of the cases it will be possible for the enumerator to count the specified trees himself, and also to determine the number of non-bearing trees. In some cases the farmer will be able to give the information, and the enumerator will have to check these numbers before entering them in the schedule.

There may however be certain cases as for example coffee and ensete in some parts of the country, where the farmer himself may not know the number of such trees, and it is not possible also for the enumerator to count all the trees one by one because of their large numbers. In these cases the enumerator will have to estimate the total number of such trees and the number not bearing by the methods explained below only in the one-third sample households whose lands will be measured. For the remaining sample households, write "NOT COUNTABLE" under subcolumns 29 to 40, against those tree crops which can not be counted one by one because of their large numbers.

METHOD - 1

This method of estimation will be used when it is possible to enter into the field growing the trees. While approaching the field, the enumerator will take the left hand corner of the field as the starting point A. See figure 1 below.

Fig. 1



First of all complete the schedule 12 for this field and determine its area "s" in square meters. Then add the lengths of all its sides to determine the perimeter "l" of the field in meters. Multiplying "l" by 5/4, estimate p the number of paces in the perimeter. Take two random numbers between 1 and p, and let them be x_1 and x_2 . Starting from the corner A take x_1 paces along the perimeter in a clockwise direction to determine the point x_1 . Similarly take x_2 paces clockwise from A to determine the point x_2 . If x is more than $\frac{1}{2}p$, it will be easier to take (p-x) paces from A in the anticlockwise direction to determine the point x. Stick in pegs at the points x_1 and x_2 .

With the help of the diagram in Schedule 12, roughly estimate in paces the length p_1 of the perpendicular $x_1 z_1$. Take a random number between zero and p_1 , let it be y_1 . Walk inside the field y_1 paces along $x_1 z_1$ at a direction perpendicular to the side reaching the point E_1 . The point E_1 will be the first corner of a 5m X 5m square plot, inside which the trees will have to be counted, Put a peg at E_1 and proceed in the same direction to G_1 such that $E_1 G_1 = 7.07m$ by the chain. Since a 5m X 5m square has a diagonal 7.07m, G_1 will be the opposite corner of the square plot. Stick another peg at G_1 . Put the ends of two 10 meter chains on the pegs E_1 and G_1 , and by holding these chains in the middle, find the position of the two other corners of the square, F_1 and H_1 . After checking by the chain the distance $F_1 H_1$ which must be 7.07m, put two more pegs at F_1 and H_1 . This will ensure that the plot E,F,G,H has an area of exactly 25 square meters. Pass a rope round the pegs E_1 , F_1 , G_1 and H_1 , and count the total number of trees t_1 and the number of non-bearing trees n_1 whose stems are inside the rope.

If a part of the square plot $E_1 F_1 G_1 H_1$ happens to fall outside the field, take another set of random numbers x_1 , y_1 and repeat the above procedure till the square plot is wholly located inside the field.

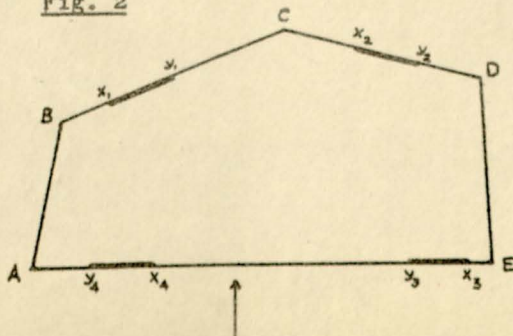
Similarly estimate P_2 , the length of the perpendicular $x_2 z_2$, and with the help of a random number y_2 between zero and p_2 , demarcate the 5m X 5m square plot $E_2 F_2 G_2 H_2$. Count the number of trees t_2 and the number of non-bearing trees n_2 in the second square plot. Repeat the procedure if the square plot is not wholly located inside the field.

Then estimate in whole number the total number of trees in the whole field $T = \frac{t_1 + t_2}{2} \times \frac{s}{25}$ or $2 \frac{(t_1 + t_2)}{100} s$, and the total number of non-bearing trees in the whole field $N = \frac{(n_1 + n_2)}{100} s$. In the schedule 12 of the field, the enumerator must write down the values of l , p , and x_1, p_1, y_1, t_1, n_1 and x_2, p_2, y_2, t_2, n_2 , and also the estimated values of T and N .

METHOD 2.

This method of estimation will be used only when it is not possible to enter inside the field because the trees are very densely grown as in the case of ensete in certain parts of the country. After completing the schedule 12 for such a field, add the distances of all its sides to determine l , the length of the perimeter in meters. Divide l by 4 to determine the sampling interval h . Take a random number between zero and h , say r . Then starting from the corner A of the field and proceeding in a clockwise direction along its perimeter determine the points x_1, x_2, x_3 and x_4 at distances $r, r+h, r+2h$ and $r+3h$ meters respectively from A. See figure 2 below. Put pegs at x_1, x_2, x_3 and x_4 .

Fig. 2



Measure of segments $x_1 y_1$, $x_2 y_2$, $x_3 y_3$ and $x_4 y_4$ each equal to 10 meters with the help of the chain, and put pegs at y_1 , y_2 , y_3 and y_4 . Count the total number of trees, and the number of non-bearing trees which are on the boundary only (i.e. only the outer row) in each of these segments. Let these be t_1, n_1 ; t_2, n_2 ; t_3, n_3 and t_4, n_4 respectively.

Then estimate the total number of trees in the field

$$T = \frac{(t_1 + t_2 + t_3 + t_4)^2}{4} \times \frac{s}{100} \text{ or } \frac{(t)^2 s}{100}, \text{ where } t \text{ is the average}$$

number of trees per segment. Similarly estimate the total number of non-bearing trees in the field $N = \frac{(\bar{n})^2 s}{100}$ where \bar{n} is the average of n_1, n_2, n_3 , and n_4 . Enter the values of $l, h, r, t_1, t_2, t_3, t_4, n_1, n_2, n_3, n_4$ and T and N in schedule 12 for the field.

After estimating these numbers for each of the fields of the sample household (whose lands have been measured) growing a particular tree crop, add these numbers and enter the totals in subcolumns 29 to 34 and 35 to 40 after including also the scattered trees if any belonging to this household.

