



# **NAMIBIA CENSUS OF AGRICULTURE 2013/2014 (NCA 2013/2014)**

## **Enumerator's instruction manual**

**January 2014**

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# Chapter 1      General information

## 1.1 Introduction

In this modern age, statistical information has become an indispensable input of the development process of any country. In other words, statistical information is playing a very important role not only as a basic data input for planning, designing, evaluating and monitoring or reviewing of policies, programs and strategies, but also as an information that is indispensable to the public as a whole for making rational decisions. Namibia Census of Agriculture 2013/2014 (NCA 2013/2014) is an exercise, once conducted will enhance the already existing statistical information in the country.

Agriculture is the second most important economic sector (besides mining) in the Namibian economy. Though its contribution to the overall economic activity is less than 10 percent of GDP, the sector is the main source of livelihood for the majority of the population, mainly in the subsistence rural areas. Agricultural economy consists of communal and commercial agricultural sectors. The communal agricultural sector covers all the farming activities carried out by the subsistence farmers mainly for their own consumption. They include both the crop cultivation and the livestock farming. The main crops grown are the cereal crops - mahangu (Pearl millet), maize and sorghum- while beans, ground nuts etc. are also cultivated. Livestock farming in these areas are mostly concentrating on cattle, goat and poultry farming while other livestock such as pigs or sheep may also be found in smaller numbers. Subsistence crop cultivation is mainly found in the seven northern regions (Zambezi, Kavango east, Kavango west, Ohangwena, Oshikoto, Oshana and Omusati) along with the subsistence livestock farming. The subsistence farming activities in the remaining regions are limited to livestock farming with some smaller parts of the regions with patches of crop cultivation areas while the other parts are covered by large commercial farms.

The commercial agricultural sector covers the farming activities of the commercial farmers who carry out farming purely for commercial purposes. This will also include activities related to game and guest houses. They concentrate generally on cattle and goat farming. In some specific parts of the southern regions one may find sheep and poultry (chicken and ostrich) farming also. These types of commercial farms are found in the southern regions but not in the seven northern regions except in Oshikoto to some extent.

The government is making strenuous efforts to raise nutrition levels and living standards of the population; to improve the efficiency of agricultural production and the distribution of food and agricultural products and to better the overall conditions of the population depending on agriculture. It is therefore essential to have reliable quantitative information on the structure and other characteristics of agriculture that is needed in development planning, socio-economic policy formulation and establishment of national priorities. The main source of this information is the census of agriculture which is planned to be carried out in 2013/14.

The Namibia Census of Agriculture 2013/2014 will be conducted nation-wide and will cover all the fourteen regions for both the communal and commercial agricultural sectors. The data collected will be disaggregated by;

- a) Regions
- c) Socio-economic groups of the population

NCA 2013/2014 will be conducted in two parts covering the communal and commercial sectors separately. The Commercial sector is well organized and an updated list of farmers is available hence the data can be collected from all farmers. This will be a complete enumeration covering all the commercial farmers of the country. Since their production is mainly livestock and other activities not rain dependent, the data collection could be carried out at any suitable time of the year.

On the other hand the subsistence crop cultivation activities depend on the patterns of the rain and hence are seasonal. The current season has started in December2013/January2014 where planting will take place and the harvesting period to take approximately in May/June 2014. Therefore the communal sector data collection activities will be carried out in two phases, phase 1 relating to the planting period and Phase 2, to the harvesting period. The communal sector covers a large number of households; the data collection exercise can be quite expensive. As many resources would be employed to cover all regions, therefore considering the human and financial resource constraints it was decided to carry out a large scale sample survey to cover the communal sector instead of the complete enumeration.

The aim of this manual is to guide the interviewers and supervisors through the different field operations and procedures. In addition to instructions for completing the questionnaires, the manual includes sections on objectives of the census, the purpose and the coverage of the census, definitions and the concepts and classification systems. Further on, there are sections on the interviewers' roles, expected behavior and the methods of approach to household respondents and other issues and matters of importance to the field staff.

The contents of this manual should be studied and understood carefully with the purpose to reduce the difficulties and problems which might arise in the field during the enumeration period. It is important to note that the guidelines given in this manual are based on the policies, rules and regulations of the Namibia Statistics Agency (NSA), which need to be adhered to by all field staff.

## **1.2 What is a census of agriculture?**

A census of agriculture is a statistical operation for collecting, processing and disseminating data on the structure of agriculture, covering the whole or a significant part of the country. Typical structural data collected in a census of agriculture are:

- Demographic characteristics
- Size of holding, land tenure,
- Land use,
- Crop area harvested,
- Irrigation practice
- Livestock numbers,
- Labor and other agricultural inputs
- Crop yield and production
- Loan/Credit services
- Apiary
- Storage facilities
- Means of transport
- Economic activity
- Forestry
- and Aquaculture

In an agricultural census, data are collected directly from agricultural holdings, but some community-level data may also be collected. A census of agriculture normally involves collecting key structural data by complete enumeration of all agricultural holdings, in combination with more detailed structural data using sampling methods. As mentioned above the communal sector survey data collection will be carried out using sampling methods. Any further detailed data may also be collected using additional sampling methods during this survey.

### **1.3 Objectives of the Census of Agriculture/Communal sector survey**

The main objectives of the NCA 2013/2014 is in the first place to provide basic agricultural data on the communal and commercial farming sectors required for policy making at national and regional levels. The World Program for the Census of Agriculture 2010 (WCA 2010) round stipulates the general objectives of the agricultural census to:

- (a) Provide data on the structure of agriculture, especially for small administrative units, and to enable detailed cross-tabulations.
- (b) Provide data to use as benchmarks for current agricultural statistics.
- (c) Provide frames for agricultural sample surveys.
- (d) Use the census as a vehicle for developing the National Agricultural Statistics System ,
- (e) Secure data for items whose production is limited (rare crops),
- (f) Secure benchmark data for improving the annual agricultural sample survey in the future,
- (g) Make use of the census experience and trained personnel for capacity building and strengthening the Namibian Statistical Agency in the field of agricultural statistics,
- (h) Provide data to help monitor progress towards NDP4, Vision 2030 and global development targets, in particular the MDGs.

There is need for more accurate data for:

- Monitoring the performance of the sector
- Policy analysis
- Crop and livestock production
- Rural Development Planning
- Agricultural Marketing
- Early Warning and Food Security Monitoring

## 1.4 Scope and coverage

The NCA2013/2014 is designed to cover all the agricultural households/population in Namibia. This coverage encompasses all the households engaged in subsistence farming activities in the communal sector and all the farms engaged in commercial farming activities in the commercial sector. This means geographically all the 14 regions are covered either through the communal sector survey or the commercial sector census.

The **target population** for the communal sector survey is all the agricultural households and the population living in those households who are engaged in subsistence farming activities in Namibia.

In accessing this target population the households in the urban areas (ie the developed parts of the municipalities, towns and villages) and also the developed parts of some settlements will be excluded. Therefore the **survey population** covers only the rural areas and the semi urban areas.

The population living in institutions such as hospitals, police and army barrack; school hostels etc., under a central authority and having their meals supplied by the authority are also excluded from the communal sector survey. But if there persons living in these compounds following the definition of a private household (refer the definitions) then they should be included.

The institutions which are engaged in agricultural research and such type of activities where agricultural productions takes place (green schemes, experimental farms etc.) are also excluded from the communal sector survey. Such activities which are relevant to the NCA 2013/2014 will be covered through the commercial sector survey.

Thus the **survey population** in the communal sector survey covers only the agricultural households in rural and semi urban areas of communal sector excluding the institutional population.

## 1.5 Sampling

### 1.5.1 Census and a sample

There are several ways to collect information from the population in a statistical investigation. One way is to have a complete **census** where all the people in the population are covered. Another way is to conduct a sample survey. This is done when considerations of time and cost often make it impossible to gather information from every person in the population.

NCA2013/2014 involves both these approaches, the census approach in the commercial sector survey and the sample approach in the communal sector survey.

There might be problems related to censuses and sample surveys, which, if not properly controlled, will negatively, affect the census or survey results. One of these is the quality of interviewers' work. If the interviewers are not well trained and they do not execute their duties to the required standards, **non-sampling errors**, will occur which are very difficult to control. Therefore, it is imperative that the interviewers should know their duties, what to do and what not to do before they go into the field. During the planning stages of the survey/census, and in training sessions all the aspects involved will be clarified in detail, to avoid confusion in the field. **Hence it is the responsibility of all field staff to attend the training sessions completely and follow the training quite well so that the non-sampling errors are avoided.**

### **1.5.2 Communal sector survey sample**

As already mentioned, the communal sector survey is a large scale sample survey where sampling methods are used to access the survey population. Sampling refers to selecting from the population of units a portion of the units which is representative of the entire population. In practice, selection is done by use of random numbers in conjunction with a rigid procedure which does not allow subjectivity to intrude. The purpose of sampling is to estimate economically and accurately characteristics of the population by measuring these characteristics on a sample of units. When requirements of an appropriate sampling are met, the population characteristics can be estimated from the sample characteristics within specific limits of accuracy.

#### **1.5.2.1 Sampling plan for the communal sector survey**

The communal sector survey of the census of agriculture will be conducted on a basis of sampling in all regions covering the constituencies also in order to have good representation of the different agro-climatic and social conditions of the country. Stratified two stage cluster sample design will be adopted where the first stage sample will be the area sample based on the Primary Sampling Units (PSU – refer to concepts and definitions for detail explanation) of the sample frame. Second stage sample will be the agricultural households selected from a list of agricultural households prepared as the first step of the data collection exercise, just before the interviewing process. Regions are treated as geographical strata and they are also the primary domains of estimation. PSUs within region are further stratified geographically by the constituencies. Sample size is determined to give reliable estimates at the region level. Samples will be selected using strict random procedures.

In the case of objective yield estimation, crop cutting experiments will be conducted. This will involve further sampling where the design may be extended to three or four stages – sub sample of agricultural households and plots of mahangu, maize and sorghum.

There are 14 regions and 121 constituencies in Namibia. A representative sample of about 10530 agricultural households will be selected through the two stage process. This sample will be accessed by selecting 1053 PSUs and ten agricultural households within each selected PSU.

Further details of the sample design and the selection procedures are explained in the listing manual.

### **1.6 Data collection method**

As already highlighted the data collection of NCA2013/2014 will be consisting of two parts – the commercial sector census and the communal sector survey. The data collection of the commercial sector census will be carried out through a mail enquiry with follow ups where ever necessary. This activity will follow the communal sector survey.

Communal sector survey will use a face to face interview method. But it will deviate from the traditional pencil and paper process to a newer approach of Computer Assisted Personal Interview (CAPI) method. Each interviewing team will have a laptop computer with the software application installed which could load the questionnaire. The interviewer then asks the questions as in the questionnaire from the respondent and then records the responses using drop down menus in the application. The skip patterns and certain consistency checks are already programmed into the application and those will guide the interviewing process.

In the case of communal farms, agricultural holdings and the agricultural holder (as defined) will be identified and data relevant to the holding will be collected from the holder. One of the important aspects of the data collection exercise in the communal sector survey is the measurement of land

area. Another one is the estimation of the production based on the yields. Both these required information will be collected by subjective and objective methods. Subjective method is to ask the holder to estimate the area as well as the production by him or herself. Objective method is to measure the area objectively using appropriate instruments and also to carry out crop cutting experiments to measure the yields under the important crops for the purpose of estimation of production. These methods will be explained in detail later in this manual.

## **1.7 Survey period**

The field work of the communal sector survey of NCA2013/2014 will be launched during the main cropping season, i.e. from February 2014 to June 2014. Within this specified time, all required data for the 2013/14 agricultural year will be collected in two phases –phase 1, planting phase and phase 2, harvesting phase-.

## **1.8 Time reference**

Different time reference is used depending on various characteristics. The time reference for demographic characteristics of each member of the agricultural household, land use, area and number of trees (permanent crops) and agricultural equipment and livestock numbers will refer to the day of the enumeration. However, the time reference for agricultural inputs and practices will be the agricultural season. On the other hand, the reference period for data items such as apiary, aquaculture, food security, labor will be the last twelve months.

## **1.9 Subject matter content**

It is useful to distinguish between;

- a) data on holdings and,
- b) data on holders

In respect of data on holders and the agricultural households, some basic demographic and employment information is collected.

Regarding data on holdings, the following variables are covered:

- Number and type of livestock by age and sex
- Composition of herd / flock
- Changes in livestock numbers
- Crop acreage and production inputs
- Equipment
- Outputs
- Access to services and,
- Sources of income

The above mentioned terms and concepts will be further clarified which will be attended to in the following chapters and sections.

In order to collect all the required data based on accepted standard and procedures, the required data items are categorized into 21 major Sections. The twenty one (21) Sections of the questionnaire which will be used to collect data during the NCA 2013/2014 are listed below:

Section 01: Household Listing within PSU's

Section 02: Demographic characteristics and activity status of Household members

Section 03: Land under different land uses

Section 04: Extension Visits/ Services and agriculture information

Section 05: Access to Facilities

Section 06: Means of Transportation

Section 07: Storage Facilities

Section 08: Source of Loan/ Credit

Section 09: Farm Management Practices (ONLY CROP FIELDS)

Section 10: Aquaculture

Section 11: Forestry

Section 12: Apiary (Bee keeping)

Section 13: Food Security

Section 14: Economic Activity

Section 15: Labor Inputs

Section 16: Equipment

Section 17: Production and Disposition of Crops

Section 18: Livestock

Section 19: Area measurement

Section 20: Selection of plots for Crop Cutting

Section 21: Crop-cutting results

## **1.10 Legal Provisions**

The Statistics Act No. 9 of 2011 entrusts the "Minister of Statistics" (Director-General of the National Planning Commission) with the legal powers to authorize Censuses and Surveys to collect statistical information on the Namibian population.

It is required from the interviewers not to reveal or discuss any information collected from the respondents. To ensure this secrecy, all the interviewers and other census staffs are required to take the oath of secrecy. Thus all the information will be treated with the strictest confidentiality.

The relevant parts of the Act which caters for keeping this confidentiality of the data collected is given below.

Prohibition of disclosure of information

- 1) A document, an information or a record provided to the Agency or any other body authorized by the Minister to undertake a statistical or spatial data collection or obtained from administrative records and that relates to an individual, household, government body, undertaking or any other organization, may not be –
  - a) Disclosed to a third party;
  - b) Admitted as evidence in legal proceedings, except for purposes of criminal proceedings in terms of this Act; or
  - c) Disclosed to a government body for non-statistical purposes.
  
- 2) A document, an information or a record obtained in terms of this Act may not be published or disseminated in a manner which permits the identification of a specific individual, household, undertaking or other organization, unless the person, household, undertaking or organization consents in writing to the publication or dissemination in that manner”.

You should never mention other interviews or show completed questionnaires to other interviewers or supervisors in front of a respondent or any other person.

The law provides for penalties for the contravention of any of the provisions of the regulations of the Statistics Act.

## Chapter 2 Field operations

### 2.1 General instructions

#### 2.1.1 Work conditions during the NCA2013/2014

The presence/attendance, interest, ambition and devotion together with the enthusiastic cooperation and participation in both training and during the fieldwork of the interviewers and supervisors are of absolute vital importance for the successful completion of the fieldwork. The Head Office, in order to enable you to accomplish this important task, will enhance you, by both mobilizing and providing incentives, freely and duly avail the necessary information, training, equipment, census materials and support to you.

In order for the workload to be equally divided and the support equally shared, the following census regulations have to be observed. These will be enforced absolutely and strictly by the Supervisors, the Regional Coordinators, and the Head Office Staff and of course, by the overall Head of Census Operations, i.e. the Census Manager.

- The census machinery consists of various components. Each component is vital to the success of the census. If you are a supervisor or an interviewer and you accept the position, your dedicated presence/attendance is required for each day of fieldwork and you will also sign an attendance sheet register on a daily basis. This is according to NSA regulations and rules. You will be remunerated/ paid accordingly.
- Any person who is absent from the duty during any part of training or any day of fieldwork without prior approval from the supervisor or Head Office Staff will face the normal NSA disciplinary action.
- Maintaining your position as interviewer or supervisor is based on competence and hard work. Therefore your performance and ability must be of good quality both during training and fieldwork.
- You will represent the NSA and thus, the Statistician-General of the NSA. You are going to be looked upon as an employee of the NSA and therefore, your conduct throughout the training and fieldwork must be professional and your behavior and actions must be congenial in dealing with the public.
- Be always aware of the fact that we are only able to do our work with the goodwill and cooperation of the public. Thus, anyone found to be consistently overly aggressive, abrupt or disrespectful to the respondents in the field may face disciplinary action and/or even be dismissed.
- For the census to succeed, the Head Office Staff, supervisors and the interviewers must work closely together sharing difficulties and cooperating and supporting each other. The tasks will be assigned in a manner that enhances the cooperation and goodwill of the regional teams.
- Use of alcohol or any kind of intoxicative drugs during working hours during working hours, will be dealt with stiff disciplinary action, even with immediate dismissal.

- It is absolutely essential that the data gathered during the fieldwork is both *accurate* and *valid*, this absolutely depends on you. To control for the inaccurate or invalid data, spot checks will be conducted. Field staff may be dismissed at any time during the fieldwork if their performance is considered inadequate for the high quality data required for the census.
- Cheating in any way is a most serious offence and anyone found guilty of such, will be prosecuted through the clauses provided for by the Statistics Act No. 9 of 2011.

### **2.1.2 Interviewers role in the NCA2013/2014**

The interviewer plays a very important, vital and active role during the Census since the reliability of the data collected depends on their accuracy. Cooperation and confidence of the respondents should be gained and maintained absolutely in order to persuade them for readily and voluntarily answers to the questions.

It is very important that all enumerators working for the Census follow carefully the procedures laid down by the census organizers. You come in contact with the census organizers through your supervisors. Supervisors will supply you with materials and instructions, collect and check your work and try to help you with any problems you may come across during the field work. You should remain in constant touch with your supervisors. The supervision of enumerators work is an integral and necessary part of the survey which aims at collecting data of high quality.

You will work in teams of 4 persons each. Each team will be supervised by a field supervisor and regional supervisors. The supervisors will check the work you complete. They will also be concerned with the administrative and organizational aspects of the census.

Bear the following points in mind when dealing with the respondents:

- It is very important to make a good first impression.
- Always do your best to make the respondent feel at ease when you interview. With a few well-chosen words you can put your respondent in the right frame of mind for the interview. A good introduction of yourself, the purpose of your visit and what kind of demands you are going to place on the respondent should all be briefly articulated. By the end of your training session this has to be covered fully.
- Always adopt always a positive approach. Do not approach the respondent in a apologetic manner by using words like "*Are you too busy?*", "*Would you spare a few minutes?*" or "*Would you mind answering some questions?*" Such approaches obviously invites refusals before you start. Rather tell the respondent "*I would like to ask some questions*" or "*I would like to talk with you for a few moments.*"
- It is essential that you stress the confidentiality of all responses as stated in the section of Legal provisions of the Census (Act No. 9, 2011 STATISTICS ACT).
- You should answer any questions or queries from the respondent(s) frankly.

- Never suggest answers to the respondents, e.g. "*I suppose you mean that \_\_\_\_\_* , or e.g. *Is that right?*" Rather probe in such a manner that the respondent comes up with the relevant answer. Avoid changing the wording or sequence of questions from those as it appears in the questionnaire.
- Do not form any expectation or suggestion as to what is supposed to be or will be the *expected estimated production levels* of crop/livestock production for the respondent.
- Hesitating respondents should be treated very tactfully. A respondent may simply say, "*I don't know*", or may give an irrelevant answer or may act bored or detached or may contradict him/herself or may refuse to answer. Try to re-interest the respondent by spending a few moments talking about things unrelated to the interview.
- Never interrupt the respondent or show any sign of rudeness when respondent has given an irrelevant or an elaborated answer. Listen to what he/she has to say and try to steer him/her gently back to the original question.
- You should not hurry the interview. Hurrying the interview can affect the quality of the data. Remember also that the differences between you and the respondents can influence the interview negatively.

### **2.1.3 Training**

Your training as enumerators is crucial to the success of the census operation. Your training will consist of a combination of practical and classroom training. During the training, the questions included in the questionnaires will be discussed in detail; at this stage you will participate in role-playing interviews where you will be given the opportunity to participate as enumerators, holders, and as observers.

During your training you will be given several tests to measure how well you are progressing. On the basis of these tests, your general performance and the quality of your practical exercises, both in the classroom and in the field, will be assessed and it will be decided whether you should be allowed to continue with the training course and participate in the field work-

Your training as enumerators does not end when the formal training period is completed. Each time a supervisor meets with you to discuss your work in the field your training is being continued. The formal training period merely provides you with the basic knowledge and information regarding the survey, questionnaires, procedures, etc. Continued observation and supervision during the field work completes the training process. This is particularly important in the first few days of the field work.

#### **2.1.4 Quality Control during Field Work**

To ensure the quality of your work, the supervisor will do the following during the field work:

- a. He /she will scrutinize in detail all the questionnaires and forms you completed on CAPI, to check that each interview and objective measurement have been completed properly.
- b. He /she will spot-check some of the sample households, i.e. visit these households to confirm that you have visited the correct household and interviewed the correct holder.
- c. He /she will re-interview some of the holders already interviewed by you and re-measure some fields already measured by you.
- d. The supervisor will meet with you either singly or in a group during his visit to discuss your performance and assign you further work.
- e. He / she will regularly report back to headquarters about your performance during the field work.

In addition to the above, representatives from the headquarters will occasionally visit your team in the field.

## **2.2 Enumerator's tasks**

### **2.2.1 Relationship to the Supervisors**

Supervision of the enumerator's work is an essential requirement for the success of the census. While in the field you will work in teams and will be accompanied by your supervisors. For a proper appreciation of your role, you must first clearly understand your relationship to your supervisor.

- a. While you do most of the actual interviewing and objective measurements, your supervisor has a responsibility to the survey organizers for ensuring that you do your work satisfactorily. This means that the supervisor assigns work to you. Since the supervisor has to plan the work in the area so that it is conducted as efficiently as possible, and is completed within the time allowed, it is your duty to accept whatever work is allocated to you and complete it punctually. Of course, the supervisor will try to ask of you only what is reasonable. From time to time (at least once a week) you must report to the supervisor the outcome of all interviews and objective measurements (field area measurements and crop-cutting experiments) assigned to you and return the questionnaires and forms you have completed.
- b. Upon receiving your work, the supervisor will check it to see that you have completed the interviews correctly and have followed the standard procedures laid down by your survey organizers. You must see the supervisor regularly to discuss your previous work, and try to remove any short-comings he /she points out in your work.
- c. Your supervisor is instructed by the census organizers to re-visit some of the households after you have interviewed them. During these visits, the supervisor verifies that no mistakes were made in identifying sample households, and may also obtain some additional information. Such checking by supervisors is used in all census field works and is an integral and necessary part of a census which aims to collect data of high quality.
- d. The supervisor receives the necessary field supplies such as questionnaires, forms, GPS, balance-scales, etc. from the census organizers. You receive such material from the supervisor if it is required for your work. You must return it to him/her as soon as you have finished with it.
- e. The supervisor will have general information on such matters as travel, accommodation and security conditions for the area in which you work. It is your duty to ensure that he /she

passes on the relevant information to you. If, for example, you are supposed to make your own arrangements for travel, accommodation or food in some area, you should be told this before going into the field. Similarly, you should be told if you are required to take with you anything personal when you go to the field.

- f. The supervisor serves as a link between you and the census organizers. Just as he/she inform you of the survey organizers instructions, you must inform him in-return of any problems, or difficulties you may experience.

If, for example, you are not clear about a particular procedure, or about the meaning of a particular question in a questionnaire, you should seek the advice of your supervisor. The following sections give a short description of your basic tasks.

### **2.2.2 Identifying the sampled agricultural households, conducting the interviews and objective measurements**

Once you completed the household listing through CAPI, the team supervisor will combine all the listings together and select the sample households. He/she will then allocate the sample households to you which are to be interviewed. They will be from the households that you have listed. But sometimes few of the selected households may be from the listings of other team members who also carried out the listing of the PSU. But the team supervisor who is in charge of the listing operation will be able to locate those households for you if necessary. Then, you should prepare a route for your interviewing and start interviewing the holders within the selected agricultural households.

### **2.2.3 Eligibility for Interview**

Remember that the households you visit and interview must be only those selected. Never should another household be substituted for the one selected for the interview.

### **2.2.4 Consistency of answers**

It is very important during an interview to make sure that the answers given to various questions are consistent with each other. This applies in particular to the information on ages. If inconsistent answers are produced, it is very difficult after you have left the household to find out which, if any, of these is correct. You should check **during the interview itself** that the information you are getting is consistent. This requires a thorough familiarity with the questionnaires. It also requires presence of mind during the interview.

### **2.2.5 Checking Completed Questionnaires**

After an interview has been completed, you must review the questionnaires on CAPI, which you have just completed. This check means going over the entire interview, reading carefully through all relevant questions and answers. While checking, you may clarify answers where needed.

Ideally, this check should be done before leaving the holder's house so that you can obtain any missing information from the household. If it is not possible to do a thorough check before leaving the holder, you must, at least, quickly scan through the questionnaires to make sure that you have asked all relevant questions. In any case you must check the questionnaires in detail before you hand in to the supervisor.

You should make the following checks on every questionnaire completed:

- Has the information for identification of the interviewing household has been provided? This is most important.
- Have the answers been recorded insufficient detail so that they can be followed easily?

- Have interview instructions been followed correctly?
- Have measured all fields of land reported by every household/holder within the selected agricultural households
- Have correctly selected crop fields and conducted crop-cutting experiments in the right plots

### **2.2.6 Dealing with non-response**

Non-response means failure to obtain a complete interview. This could happen in different ways. Some common ways are that the selected household refuses to participate in the survey or temporarily gone somewhere.

In the case of refusing households, you should try to convince the household about the importance of taking part in the survey. If they still refuse then bring it to the attention of the team supervisor (TS). Team supervisor should visit the household and try to convince them. If she / he also fails then the matter need to be taken to the regional supervisor. The regional supervisor will in turn engage the assistance of the traditional authorities, councilors and regional governors. Head office through the project manager also needs to be informed. Such cases need to be tackled carefully since the tendency is there for it to spread to other households if one case is allowed without taking any action.

If the selected household has gone somewhere temporarily after the listing and cannot be contacted (non-contact) then you need to follow it up at regular intervals (call backs) until such time that you have completed all other tasks of the PSU. When you are ready to leave to the next selected PSU and this household is still not there then you need to consider it as a non-responding household (non-contact). When your team is in the next sampled PSU, you may still follow this up if the distance allows.

## 2.3 Field operation issues

### 2.3.1 Introduction

It is imperative that the interviewers should have a clear picture of the proposed field organization. The following procedures are designed for the field operation and you should understand each point discussed in this section. The census questionnaire will be administered using the COMPUTER ASSISTED PERSONAL INTERVIEWING [CAPI] application. This means that the field staff will be issued with hand-held portable computers and will do the interviews directly using these computers. No paper questionnaires shall be used for this census unless in a case of emergency.

- The *interviewers* are divided into teams of 4 members.
- One *supervisor* is assigned to every team of 4 interviewers.

Thus

- One supervisor (team supervisor - TS) plus 4 interviewers forms one team together.
- The 4 interviewers will be divided into 2 sub teams of 2 interviewers each
- Each sub team will work together in the whole exercise under the guidance of the TS
- Each sub team will get a laptop and a GPS among other materials

The time allocated to complete a PSU (listing and data collection) is approximately 5 days.

Briefly the workload involves the listing of households within the PSU and filtering the agricultural households, selecting the sample agricultural households and interviewing the selected households including the area measurement and the crop cutting experiments.

Listing will have to be carried out by the team as a whole under the guidance of the TS. TS will be responsible for the listing exercise and the selection of the sample. She / he will also be responsible to locate the selected sample agricultural households on the ground for the interviewers. How to carry out the proper listing exercise and the selection of the sample will be explained in the listing manual.

From the pre-listing of the selected PSUs (Primary Sampling Units), 10 agricultural households are drawn in the form of a random sample by the team supervisor. Each sub team will be assigned 5 sampled agricultural households for interviewing.

Your supervisor (TS) will visit you and the other members of your team on a regular basis during the enumeration period in order to "*spot-check*" and/or complete check all the questionnaires you have completed/finished on the computer.

Personnel from the Head Office team will pay visits to the field on an on-going regular basis. During these visits, spot-checking of the performance of interviewers and supervisors will be carried out.

### 2.3.2 Duties and Performance of Activities

#### ***Importance of interviewer performance:***

Interviewers are the eyes and the ears of the statistical system in the process of data collection. An interviewer serves as an important link between the NSA (census agency) and the respondents (the suppliers of information). The information collected in any survey can be said to be only as good as

the interviewer's performance. The quality of the information collected depends on the quality of the interviewers and their performing uniformly.

**Rules of conduct of Interviewers:**

Confidentiality of the information collected must be guaranteed at all times. The information is to be used for statistical purposes only. Thus, it is the responsibility of the interviewers to keep completely confidential, anything learned or observed during data collection, particularly during interviews.

During data collection, there are things interviewers must do.

**Things an Interviewer Must Do**

- (a) Introduce yourself on every visit, explaining to the respondent the reason for your visit, before starting the interview.
- (b) Read and intensively study the interviewer's manual, to become familiar with its content and meaning. This will help you to do your work efficiently.
- (c) Ask the questions in exactly the same fashion to all respondents. Keeping to the order the questions are sequenced ensures comparable responses between respondents.
- (d) Keep all census equipment safe and intact, clean and free from damage.
- (e) As you are solely responsible for all equipment issued to you for the census, ensure their security at all times.
- f) Ensure that, absolutely no one not employed for the 2013/14 Census of Agriculture, can be allowed to see the information you collect, nor should such information be discussed with anyone.

**Basic Responsibility: Self-sufficiency**

You are key to the success of the survey. You have the most direct influence on the accuracy of the data collected. It is more economical to collect accurate data than to correct inaccurately collected data.

Prompt submission of collected data (completed work) is absolutely crucial for timely processing and publication of data. The value of statistics for planning and decision taking is directly related to timeliness.

**General Interview Procedures**

- a) Preparing for the interview

There are four important steps to be taken before visiting a household for interview:-

- b) Reviewing the Manual

This includes review of the general interviewing procedures, the specific field procedures, and the question-by-question instructions.

- c) Reviewing the Survey Questionnaire/Questions

During the training, practice using the questionnaire to build self-confidence. For a successful interview, you require full understanding of the census questionnaire and the questions.

#### d) Organizing Census Materials

Stumbling through the lot of your census materials can disturb the person you are about to interview. Thus, be sure you know what census materials you need at each household, before settling down to an interview.

#### e) Appearance and Behavior

The first thing a respondent notices about you, the interviewer, is your personal appearance. Therefore, it is important for you the interviewer to create a good impression by being polite and courteous at all times. In every respect, an interviewer must be smart and clean.

#### f) Establishing a good relationship

The person's impression of you at the first visit largely determines the atmosphere for subsequent interviews. On your part, seeming bored, uninterested, uninformed, or hostile results in the respondent acting in a similar way and manner. A comfortable relationship between you, and the respondent, forms the basic foundation for a successful interview.

People tend to react favorably if you look to be someone with whom they will enjoy speaking to. It is your responsibility, as an interviewer, to impress the respondent, through friendliness and understanding.

#### g) Using the Census questionnaire (CAPI)

The aim of an interviewer is to secure from the respondent accurate information, according to some set standard interview procedures. To achieve the objective, the interviewer requires understanding the survey questionnaire and questions, well and sufficiently. This includes understanding how to ask the questions, how to follow questionnaire instructions, and how to identify the various types of questions.

Using the questionnaire well involves remaining neutral, asking the questions in the order in which they are presented, and asking questions as worded and avoiding showing the questions to the respondent.

#### h) Remaining Neutral

The interviewer must maintain a neutral attitude with the respondent. The interviewer must ensure that nothing in his/her words implies criticism, surprise, approval, or disapproval of either questions asked or the respondent's answers. In themselves, survey questions are so carefully worded that they are neutral.

#### i) Asking Questions in the Order Presented

Census questions, by design, follow one another in a logical sequence. To change the order of the sequence could alter the intention of the questionnaire/question. Thus, as an interviewer, never change the order of the questions. Asking a question out of the designed sequence can affect the answers received in the remaining interview.

#### j) Asking Questions as Worded

Questions are as they are worded for a purpose. To put together the information collected based on the questionnaire, questions must have been asked of each respondent, in a similar fashion. Thus, do not, as an interviewer, change the question wording.

k) Probing

Getting the respondent to answer the question that was asked is important but equally challenging. During an interview, when the following scenarios occur,

- the answer given by the respondent is incomplete or irrelevant
- he/she misunderstands the question
- the enumerator does not understand the answer
- the respondent loses track of the question and gets to another topic ,

It is the responsibility of the enumerator to get the respondent back on track through careful, neutral techniques. The quality of the interview depends greatly on the Enumerator's ability to probe and use the techniques successfully.

Probing has two major functions

1. It motivates the respondent to communicate more fully so that he/she clarifies or explains the reason behind what was said.
2. It helps the respondent to focus on the specific content of the interview so that irrelevant and unnecessary information can be avoided.

Some respondents find it difficult to express themselves whereas others may be reluctant to reveal their attitudes because they feel that they are socially unacceptable. Such factors must be dealt with and procedures should be used to encourage and clarify response.

- ✓ When the respondent does not seem to understand the question, when he/she misinterprets it, when he/she seems unable to make up his/her mind, or when he/she strays from the subject, you should repeat the question. The most useful technique is to repeat the question just the way you had put it or as it is written in the questionnaire.
- ✓ The simplest way to convey to a respondent that you know he/she has begun to answer the question, but that you feel he/she has more to say, is to be silent and make an expectant pause. The pause – often accompanied by an expectant look or a nod of the head – gives the respondent time to gather his/her thoughts.
- ✓ In probing, it will sometimes be useful to appear slightly puzzled by the respondent's answer and intimate with your probe that it might be you who failed to understand. For example "I'm not quite sure I know what you mean by that – could you tell me?" This technique can arouse the respondent's desire to co-operate with someone whom he/she thinks is trying to do a good job. It should not be overplayed, however, or the respondent will get the feeling that you do not know when a question is properly answered.

Probes are usually questions put to a respondent in order to get information in addition to that given by him/her in the first response to a general question probes must be used:

- When the response is irrelevant to the question asked
  - When an answer is unclear,
  - When an answer seems incomplete, and
  - When an answer is suspected of being untrue
- ✓ Occasionally, a respondent will give an “I don’t know” answer. This can mean any number of things for instance:
- The respondent does not understand the question and answer, “don’t know” to avoid saying he/she does not understand.
  - Respondent is thinking the question over and says “don’t know” to fill the silence and to give himself/herself time to think.
  - The respondent may be trying to evade the issue, or he/she may feel that the question is too personal and does not want to hurt the Enumerator’s feelings by saying so in a direct manner.
  - The respondent really may not know, or may not have an opinion or attitude on the subject or the requested responses.
- ✓ If the respondent actually does not have the information that you request, it is your responsibility to be sure that this is in fact the case, and not a mistake “I have no opinion on that” for “Wait a minute, I’m thinking.” A repetition of the question, an expectant pause, a reassuring remark or a neutral probe will encourage the respondent to reply.

#### l) Avoid showing Questions to the Respondent

Respondents can be influenced by knowing what questions are coming next or by seeing the answer categories that follow. Thus, avoid showing the questions to the respondent.

#### l) Ending the Interview

At the end of the interview, it is important to leave the respondent knowing, or at least thinking, you are grateful for the co-operation they provided. At the end of an interview, thank the respondent, mentioning that the co-operation they provided has been helpful. Inform the respondent of the possibility of your returning or some other person from the NSA visiting the household, to collect more information.

### **2.3.3 Safety and Security Precautions**

Your personal safety and security are extremely important. Remember:

- Do not go into an area and /or buildings/house if you have not been given a permission to enter.
- Be very careful of dogs
- Wear comfortable walking shoes

- Wear your census identification card where it will be clearly visible. Under no circumstances should a census official carry firearms or weapons of any kind while conducting the census.
- When entering an unsafe area, inform your supervisor who will make arrangements for the police to escort you into the area.

## Identification

- Wear your ID card at all times. The ID has some security features that will help the public to be sure that you are a genuine employee of NSA.
- Always present your ID card for inspection by households and relevant authorities (in particular, be sure to give elderly people ample time to examine it)
- The ID card is a matter of personal responsibility. Any damage or loss is for the employee's account. If you lose your ID card you must report it at once to your supervisors.
- You will be issued with a census t-shirt, cap and a bag. Please wear them all the times while on duty. These will further help to identify you as a fieldworker in the field.
- Return your ID card to your supervisor upon completion of fieldwork.

## Chapter 3 Concepts, definitions and measurements

### 3.1 Concepts and definitions

#### 1. Primary Sampling Unit (PSU)

The *Primary Sampling Units* (PSUs) are the areas where the NCA 2013/2014 Communal Sector Survey will be conducted. The PSUs are sampled from a frame of PSUs in communal rural areas and communal small urban areas. The boundaries of the PSU are defined on a map. A description of the boundary of the PSU and a locality list will be supplied as far as they are available.

You will be responsible for visiting every household in your PSU and recording the particulars of all persons in that PSU. Do not miss out any household nor count any person or household twice.

#### 2. Locality

A *locality* is any place with one or more dwellings, either a compact settlement or scattered houses.

#### 3. Household

A *household* consists of one or more persons related or unrelated who live together in one or part of one or more than one housing unit/dwelling unit and have common catering arrangements.

In general a household consists of a man, his wife (or wives), their children with or without other relatives, domestic servants, boarders and lodgers.

A person who lives alone and caters for himself/herself forms a one person household.

#### 4. Household membership

Household size is the number of members of the holder's household. This can be obtained either by listing all household members or asking a direct question on the number of household members.

Household size can be measured in two ways:

- i. persons present on the day of enumeration; or
- ii. persons who are usually resident in the household. The usual residence approach – called the *de jure* concept – is recommended for the agricultural census, and is the way official population estimates are normally made. Usual member should be residing in the household for the past six months.

#### 5. Head of household

The *Head of the household* is a person of either sex **who is a member of the household** and generally runs the affairs of the household and is looked upon by the other members of the household as the main decision maker. If the “formal” head is not a member of the household according to the definition above, the member of the household actually running the affairs of the household in the absence of the “formal” head is to be recorded as the head of the household.

The head of the household can be either a man or a woman.

## 6. Agricultural holding

“An agricultural holding is an economic unit of agricultural production under single management comprising all livestock kept and all land used wholly or partly for agricultural production purposes, without regard to title, legal form, or size.

Single management may be exercised by an individual or household, jointly by two or more individuals or households, by a clan or tribe, or by a juridical person such as a corporation, cooperative or government agency.

The holding's land may consist of one or more parcels, located in one or more separate areas or in one or more territorial or administrative divisions, providing the parcels share the same production means, such as labour, farm buildings, machinery or draught animals.”

## 7. Dwelling unit

All buildings can be classified into;

- (i) Dwelling units
- (ii) Living quarters other than dwelling units (institutions e.g Police Barracks)
- (iii) Non-dwelling units

A **dwelling unit** is a building/structure where households live and is a place of residence. Sometimes if a household occupy more than one building/structure they are all considered as one dwelling unit for the purpose of this way. **This census is confined to private households living in dwelling units only.**

## 8. Respondent

The respondent is the person from whom data are collected about the agricultural unit.

The respondent should be the holder. If not, he or she is a person close to the holder decision.

He should have good knowledge about the holding and the homestead.

## 9. Agricultural holder

The agricultural holder is defined as the civil or juridical person who makes the major decisions regarding resource use and exercises management control over the agricultural holding operation. The agricultural holder has technical and economic responsibility for the holding and may undertake all responsibilities directly, or delegate responsibilities related to day-to-day work management to a hired manager.

By definition, the agricultural holding is under single management, and therefore there cannot be more than one agricultural holder for an agricultural holding. *However, there may be more than one joint holder in a holding.*

A joint holder is a person making the major decisions regarding resource use and exercising management control over the agricultural holding operations, in conjunction with another person.

A joint holder can be from within the same household or from a different household.

#### **10. Sub-holding**

A sub-holding is defined as a single agricultural activity or group of activities managed by a particular person or group of persons in the holder's household on behalf of the agricultural holder. There may be one or more than one sub-holding in a holding. A sub-holding could comprise a single plot, a whole field, a whole parcel, or even the whole holding.

A sub-holding could also be a livestock operation associated with a plot, field or parcel, or a livestock operation without any land.

#### **11. Sub-holder**

A sub-holder is a person responsible for managing a sub-holding on the holder's behalf. There is only one sub-holder in a sub-holding, but there may be more than one sub-holder in a holding. The holder may or may not be a sub-holder. The sub-holder concept is broadly similar to the concepts of "plot manager" and "farm operator" used in some countries.

#### **12. Legal status**

Legal status refers to the juridical aspects under which the agricultural holding is operated. It also refers to other aspects about the type of holding. From the juridical point of view, a holding may be operated by a single individual, jointly by several individuals with or without contractual agreement belonging to the same or to different households, or by a juridical person: corporation, cooperative, governmental institution, church, etc.

Legal status of the holder is an important classification item especially in combination with the sector where the holder belongs.

#### **13. Legal status of agricultural holder**

- An individual
- Two or more individuals
- Juridical person

Holders may also be classified into the following sectors:

- Household sector
- Single-holding household
- Multiple-holding household
- Partnership of two or more households

#### **14. Farmhouse**

A farm house is a house attached to a farm, especially the main house in which the farmer lives.

## **15. Land tenure**

Land tenure refers to the current status of the land operated by the holding. The collection of data should relate specifically to that land. Land rented out to others should be excluded. The reference period for land tenure data is usually the day of enumeration.

## **16. Land Use**

Land use refers to activities – such as growing crops, raising livestock or cultivating fish – carried out on the land making up the holding with the intention of obtaining products and /or benefits.

## **17. Area of holding according to land use types**

Land use refers to activities – such as growing crops, raising livestock or cultivating fish – carried out on the land making up the holding with the intention of obtaining products and/or benefits.

Land use should be distinguished from “land cover”, which describes the physical characteristics of the land, such as grassland or forest. In the agricultural census, the area of the holding is classified according to its main land use.

Land under temporary meadows and pastures include land temporarily cultivated with herbaceous forage crops for mowing or pasture. A period of less than five years is used to differentiate between temporary and permanent meadows.

## **18. Land temporarily fallow**

Land temporarily fallow is arable land at prolonged rest before re-cultivation. This may be part of the holding's crop rotation system or because the normal crop cannot be planted because of flood damage, lack of water, unavailability of inputs, or other reasons.

Land is not considered temporarily fallow unless it has been, or is expected to be, kept at rest for at least one agricultural year.

Fallow land temporarily used for grazing should be classified as “fallow” if the land is normally used for growing temporary crops.

## **19. Land under temporary crops**

Land under temporary crops includes all land used for crops with a less than one year growing cycle; that is, they must be newly sown or planted for further production after the harvest.

Some crops that remain in the field for more than one year may also be considered as temporary crops. Asparagus, strawberries, pineapples, bananas and sugar cane, for example, are grown as annual crops in some areas. Such crops should be classified as temporary or permanent according to the custom in the country.

## **20. Land under permanent crops**

Land under permanent crops refers to: land cultivated with long-term crops which do not have to be replanted for several years; land under trees and shrubs producing flowers, such as roses and jasmine; and nurseries (except those for forest trees, which should be classified under

“forest or other wooded land”). Permanent meadows and pastures are excluded from land under permanent crops.

Permanent meadows and pastures include land used permanently (for five years or more) to grow herbaceous forage crops, through cultivation or naturally (wild prairie or grazing land).

### **21. Number of years since cleared (for each parcel)**

The purpose of this item is to better understand the extent of recent land clearances, especially where shifting cultivation is present or where deforestation is a concern. Usually, it will only be necessary to collect data in broad ranges, such as: in the last one year; 1–3 years ago; 4 or more years ago.

Where different parts of the parcel are cleared at different times, the time when most of the land was cleared should be reported. If land is re-cleared after being left uncultivated for a long time, the most recent land clearance should be taken.

### **22. Irrigation**

Irrigation refers to purposely providing land with water, other than rain, for improving pastures or crop production. Irrigation usually implies the existence of infrastructure and equipment for applying water to crops, such as irrigation canals, pumps, sprinklers or localized watering systems. However, it also includes manual watering of plants using buckets, watering cans or other devices. Uncontrolled land flooding by overflowing of rivers or streams is not considered irrigation.

### **23. Temporary crops**

Temporary crops are those with a less than one year growing cycle. Some countries may wish to include only the major crops; however, it should be borne in mind that, because it is based on complete enumeration, the core census module may provide the only means of getting reliable data for the minor crops.

### **24. Permanent crops**

Permanent crops are crops with a more than one year growing cycle. Permanent crops may be grown in a compact plantation or as scattered trees/plants and both should be included.

### **25. Area harvested**

Area harvested refers to the total area from which the crop is gathered. Thus, area destroyed because of drought, flooding, pest attack or any other reason is excluded. In this regard, a certain percentage loss criterion – for example, yield is less than 20% of what it normally is – is used to determine if a crop is destroyed. Crop that is damaged but not destroyed is included in the area harvested. If possible, the area harvested should exclude uncultivated patches, footpaths, ditches, headlands, shoulders and shelterbelts.

## **26. Arable land**

Arable land is land that is used in most years for growing temporary crops. It includes land used for growing temporary crops in a twelve month reference period, as well as land that would normally be so used but is lying fallow or has not been sown due to unforeseen circumstances.

## **27. Cropland**

Cropland is the total of arable land and land under permanent crops.

## **28. Agricultural land**

Agricultural land is the total of cropland and permanent meadows and pastures.

## **29. Land under temporary pastures**

Land under Temporal pastures includes land temporarily cultivated with herbaceous forage crops for mowing or pastures. A period of less than five years is used to differentiate between temporally and permanent meadows.

## **30. Land under permanent pastures**

Land under Permanent Pastures include land used permanently (for five years or more) to grow herbaceous forage crops, through cultivation or natural (wild prairie or grazing land).

## **31. Forest land**

Forest Land refers to land with crown cover of more than 10 percent trees able to reach a mature height of 5 meters or more. It includes natural plantation forest. Areas that are temporarily not under trees but are expected to revert to forest are included.

## **32. Wooded land**

Wooded Land refers to land with crown cover of 5-10 percent for trees able to reach a mature height of 5 meters or more at maturity; or crown that cover of more than 10 percent for trees not able to reach a height of 5 meters at maturity or bush cover of more than 10 percent.

## **33. Total area of holding**

Total area of holding is the area of all the land making up the agricultural holding. It includes all land operated by the holding without regard to title or legal form. Thus, land owned by members of a household but rented to others should not be included in the area of the holding.

Conversely, land not owned by members of a household but rented from others for agricultural production purposes should be included in the holding area.

The area of holding may be zero, such as where the holding keeps livestock but has no land; this is called a landless holding.

## **34. Parcel**

A parcel is any piece of land, of one land tenure type, entirely surrounded by other land, water, road, forest or other features not forming part of the holding or forming part of the holding under a different land tenure type.

### 35. Field

A field is a piece of land in a parcel separated from the rest of the parcel by easily recognizable demarcation lines, such as parts, cadastral boundaries and/or hedges.

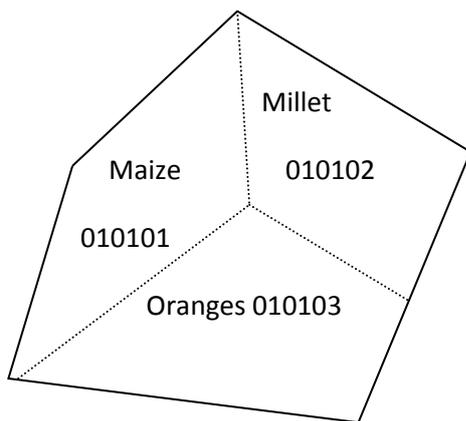
A field may consist of one or more plots, where a plot is a part or whole of a field on which a specific crop or crop mixture is cultivated.

### 36. Plot

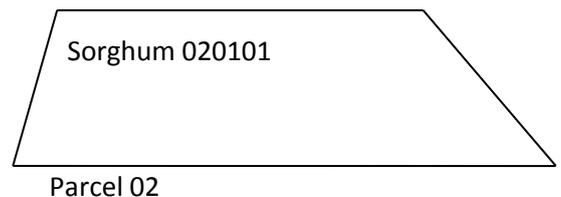
This is a piece of land within the holding on which a specific crop or crop mixture is cultivated.

It is very important that the enumerator clearly understands the distinction among parcel, field and plot. You, the enumerator follow the examples given below which explains the parcel, field and plot. Numbers are provided during listing of all parcels, fields and plots of the sampled household.

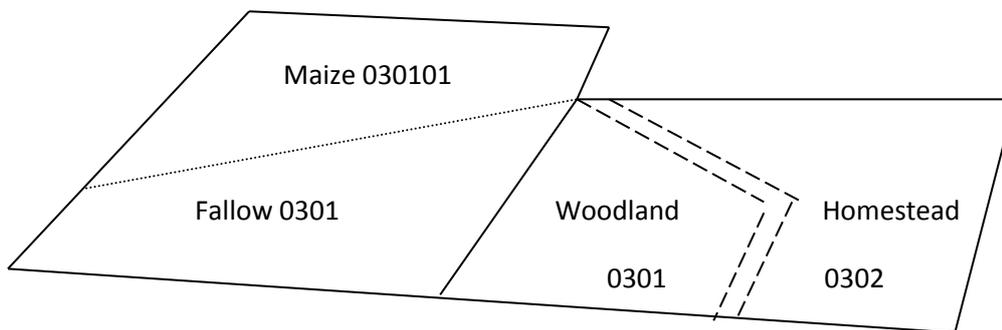
Example 1:



Parcel 01



Parcel 02



Parcel 03

In this example, number of parcels = 3

Number of fields = 4

Number of plots = 5

### **37. Mixed or Associated Cropping.**

Mixed cropping, also called *associated and inter-planted cropping*, refers to the situation when two or more different temporary or permanent crops are grown simultaneously on the same field or plot. This way of cultivation is widely used, particularly in developing countries, not only for temporary crops such as beans and maize but also for permanent crops, e.g., apples/pasture, grapes/beans, bananas/citrus, coconuts/pasture, bananas/cocoa/nutmeg.

It can happen that the area covered by crops grown in association with others is reported to be about the same as if the crops were sown alone.

In this case the entire area of the plot could be attributed to each of the crops grown in association. Otherwise, it is recommended that area for each one of the associated crops be estimated in such a way that figures relate to that part of the area the particular crop would have covered if it had been grown alone.

The criteria for area allocation to specific crops in mixed cropping are, inter alia, quantities of seed used, plant density, yield obtained, eye estimates. When this allocation is not possible, it was suggested that countries should report separately for crops grown alone and for crops grown associated with others. (FAO Statistics, January 2011)

### **38. Soil degradation**

Soil degradation is the decline in soil quality caused by natural processes or, more commonly, improper use by humans. Its consequences include: loss of organic matter; decline in soil fertility; decline in structural condition; erosion; adverse changes in salinity, acidity or alkalinity; and the effects of toxic chemicals, pollutants or excessive flooding.

### **39. Soil erosion**

Soil erosion is the displacement of soil material by running water, rainfall, wind or other factors, resulting in a decline of arable layers. Chemical degradation refers to deterioration in the chemical make-up of the soil because of loss of nutrients and/or organic matters, salination, acidification or pollution. Physical degradation refers to the physical deterioration of the soil, such as compaction, crusting and sealing, water-logging, and subsidence.

### **40. Bodies of water**

Bodies of water refers to large accumulations of water, such as oceans, seas, and lakes, but it includes smaller pools of water such as ponds, wetlands, or more rarely, puddles. A body of water does not have to be still or contained; Rivers, streams, canals, and other geographical features where water moves from one place to another are also considered bodies of water.

### **41. Kitchen garden**

A kitchen garden is a garden in which vegetables, fruits, and herbs are grown for household consumption.

### **42. Agricultural census reference period**

The reference period for agricultural census items varies according to the type of data. The reference periods are usually the day of enumeration (for inventory items) or a twelve-month reference period (for continuing activities). The agricultural year is usually the most suitable

reference period because respondents find it easier to think of their agricultural activities in terms of seasonal activities.

#### **43. Census map**

The census map is a collective term for describing the various types of maps that are used for census purposes. These maps are typical two-dimensional representations of features and landmark on the ground showing clearly defined administrative and census boundaries. For NCA 2013/14, the census maps have a bird-eye view image backdrop obtained from either satellite platforms (satellite imagery) or low flying aircrafts (aerial photo). There are twotypes of census maps that will be used during the NCA 2013/14 namely:-

#### **44. PSU Map**

This is a map showing the boundary of a selected PSU along with the backdrop and the reference points such as clinics, schools etc. The map may include the location of the dwelling units where the households reside (if they are available) and locality names. Examples of these maps will be found in the listing manual.

#### **45. Regional Maps**

These are maps produced for the purpose of identifying the general location of the PSUs with respect to the constituencies within the region. They will contain the road structure and other towns within the region among other information. This map will be useful in planning and monitoring the field work of the survey with in the region especially for the regional supervisor.

## **3.2 Area Measurement and Calculation**

### **3.2.1. Introduction**

1. One of the most important factors for production used in growing crops, raising livestock or any other farming activity, is land. The pattern of Land-Use usually varies by seasons or by different regions of the country. Thus, accurate data on area used for agricultural purposes is an important aspect of agricultural planning.
2. Total land operated by the holder (i.e. the agricultural holding) is a crucial variable for the analysis of agricultural data. The area of a holding may vary from time to time. A holder may sell or leave part of his/her holding or he/she may buy or rent from others.
3. At any time the holder has the option to fully or partially utilise the holding. Thus the proportion of the holding under crop also varies from season to season or from year to year. Since production can be estimated as a product of Yield and Area, there is definite relationship between area planted and amount of crop harvested. The product can easily be computed in the case of crops are grown in pure stand. The problem is however quite complex if crops are in mixed stand.

### **3.2.2 Area to be measured**

1. The area to be measured is limited to that one within the selected EA and includes:
  - i. The area of parcels and plots under various crops.
  - ii. Pasture land.

2. The area of the holding will be obtained by measuring separately each of the holder's parcels (and then the respective plots.)
3. The area occupied by farm buildings and residential buildings on the farm in where the household lives should be measured as a separate parcel (or as a plot within a bigger parcel). These areas should be identified/coded as "farm houses etc".
4. When you are through with the parcel measurements, you repeat the same procedure for the crop-field/plot areas to be measured. Those include only:
  - i. Plots under crops
  - ii. fields under fallow land
  - iii. fields under farm buildings etc
  - iv. Planted pasture
5. Ensure that you identify each crop plot and land under fallow by crop name. This will facilitate identification of the plot for follow up visits.

### **Measuring Unit**

1. Land area will be measured with a Global Positioning System (GPS) device and recorded as hectares with one place of decimal in Section 19: Area measurements
2. Experience shows that the GPS device does not take accurate readings when it comes to very small plots. To overcome this short-coming, the following will be adopted as explained below:

Measure the area the first time going clockwise (Point A to say point F) and record the reading in your notebook. Then, measure the same area for the second time but now going anti clockwise (Point F back to Point A) and record both readings in the space provided.

3. It is expected that the holder will normally give his/her area estimates (Farmer's/holder's Estimate) in hectares, or square kilometres, acres and square feet. For square feet, enter the units as reported by the respondent in the space provided. (Fractions must be converted to decimals by the Enumerator before recording them on the questionnaire.

### **Equipment/items for Area Measurement**

#### ***Necessary equipment/materials for area measuring***

When conducting area measurement, the Enumerator will have the following tools available:

1. A GPS device
2. A notebook/pen

### 3.2.3 The GPS Device

1. The NCA will use an **eTrex 30** series hand-held GPS device.  
A GPS is a high precision digital watch combined with a signal receiver. It is equipped with AA batteries/cells, and only these batteries/cells must be used. The Team Supervisor (TS) will be responsible for timely replacing the discharged batteries/cells. The TS will in turn, receive the batteries from the Regional Supervisor whenever required. The GPS device should be handled with great care switched off and stored in a safe place when not in use.
2. The Enumerator will carry out area measurements on all parcels constituting selected holdings, using a GPS device.

#### Introduction

1. The area to be measured of parcels/ fields /plots will be in different shapes and sizes. The first thing to be done, with the help of the respondent, is to survey the field/plot to be measured by going around them.
2. With the assistance of the respondent, the Enumerator will start by walking around the parcel to establish its boundaries as well as the number of fields and plots which constitute it.
3. Assign each parcel, field and each plot a unique serial number
4. The last step will be for the Enumerator to measure the crop plot and the field using the GPS device.

**Note: when measuring the field/plot in a clock-wise direction, using GPS, if the measured area is less than 0.5 hectare, then the field/plot must be measured twice in an anti-clockwise direction and both measurement results should be recorded in the spaces provided on Section 03. However, in the first measure indicates that the size of the measured field/plot is greater than 0.5 hectare; there will not be a second measurement.**

Area measurement is confined to areas of a 0.5 hectare and more. Those areas less than 0.5 hectare will not be measured.

### Steps to be followed in the area measurement using the GPS

#### Step 1

Go to the starting point of the parcel/plot you will measure, and mark this point temporarily on the ground by fixing a peg.

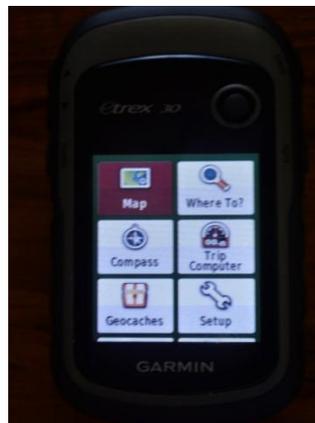
## Step 2

Turn the GPS device on by pushing and holding (for approx. 1 to 2 second) the START key (with a switch symbol on the right side of the device).



## Step 3

The GPS device will be turned on and the main menu window will appear as shown.



#### Step 4

Use the joy stick to move through the main menu to select SETUP and then scroll to UNITS page and ensure that you select the following options: (Metric, Meters (m/sec), Meters, Celsius, Millimeters (Hg)).



### How to measure area using eTrex 30

#### Step 5

Select Area Calculation from the main menu than select Start



## Step 6

Walk around the perimeter of the area you want to calculate and select Calculate once you return to your starting point.



## Step 7

The area readings will be displayed on the screen in, also note the unit of measurement (e.g. km, m, hectares etc) specified below and it must be ensured that the units are in Hectors. You can change the units by tabbing on Change Units and make sure that the selected unit is Hectors.



### **Step 8**

After copying of the area reading in the CAPI application, select Save Track, doing this will enable you to store the captured tracks to be downloaded later (These tracks must be transferred to the laptop of the regional supervisor and eventually to head office on regular basis).



### **Step 9**

Each track has to be uniquely named as follows: Region code, Constituency Code, PSU\_Code, HHnumber, L = Parcel/ F = field/P = plot (one of the three letters should precede the three digit code that is allocated to either the Parcel, Field or Plot depending on what it is you are measuring).

### 3.2.4 Census Materials

Upon successful completion of your training, ensure that you are issued with:

- Personal computer (laptop)
- Global Positioning System (GPS)
- GPS Batteries
- Laptop Car charger
- Notebook batteries
- Enumerator's instructions manual.
- Identification card
- Enumeration Area Map
- An Enumerator's Instructions Manual (for consulting in case you have forgotten some concept(s) or definition(s))
- Note book
- Pen
- Callback cards
- Household stickers
- Bosstick
- Flash lights and batteries
- Letter of introduction
- Census uniform
- Enumerator's bag in which to keep the census materials, particularly the laptop and GPS.

At the end of the enumeration period, you will be required to hand over to your Supervisor:

- Personal computer (laptop)
- Global Positioning System (GPS)
- Car charger
- Laptop batteries
- All the notebooks (both completed, spoilt and unused)
- Census maps
- Identification card
- Note books
- Flash lights and batteries

## Chapter 4 Instructions for completing the questionnaire

### Section 01 (Refer to listing manual)

### Section 02 Demographic characteristics and activity status of household members

*This section deals with the demographic characteristics and economic Status of the agricultural HH members. Provide information for each individual person in the household. From section 2 onwards information will be collected from only the ten (10) sampled agricultural holdings*

**Identification:** Select the appropriate codes for Region, Constituency and Primary Sampling Unit (PSU) variables from the drop down menu. Select also the Dwelling Unit Number (DU) and the Household Number (HH) from the drop down list before you continue with the interviews.

*This section deals with the demographic characteristics and economic Status of the agricultural HH members. Provide information for each individual person in the household.*

Person number is a serial number which is already given in column 1 .

q201: *List of Household members (start with head of Household):* Ask for and type in the *name* of each household member that lives in this HH. Start with the head of HH as the first entry. A HH member must have lived in the house continuously for at least six months.

Q202: *Interview status.* Select from the drop down list the status of the interview at this specific point in time.

1= Continue

2= Vacant

3= Refusal

4= Non-contact

q203: *Relationship with the head of HH:* Ask for each household member, the relationship to the Head of Household. *Select the applicable response from the drop down list.*

1= Head

2= Spouse

3= Son/Daughter

4= Son/Daughter in Law

5= Parent

6= Grand child

7= Other relative

8= Other non-relative

9= Domestic Worker

99= Don't Know

q204: *Sex*. Ask the *sex* of each member of the HH. Select the appropriate response either “Male” or Female” from the drop down list.

q205: *Age*. Ask the *age* of each HH member. Select the applicable response from the drop down list.

- 00= less than 1 year
- 98= If 98 or more
- 99= Don't know

q206: *Marital Status*. Ask the *marital status* of each HH member. Select the applicable response from the drop-down list.

- 1= Never married
- 2= Married with certificate
- 3= Married traditionally
- 4= Consensual union
- 5= Divorced
- 6= Widowed
- 7= Separated
- 99= Don't know

q207: *Education*. Only consider persons *older than five years* for this question. What is the highest level of education that the household member attained? If a person is *less than five years old*, leave it blank. *Select the applicable response from the list.*

- 0= None
- 1= Pre-primary (kinder-garden, crèche)
- 2= Primary (grades 1-6)
- 3= Junior Secondary (grades 7-10)
- 4= Senior Secondary (grades 11-12)
- 5= Certificate
- 6= Diploma
- 7= Degree/tertiary
- 99= Don't know

q208: *Literacy*. Ask for each HH member whether they can *read* or *write* in any language with understanding? Select from the drop-down list the appropriate response either “Yes” or “No”.

q209: *Main Activity*. Ask the *MAIN activity* that each Household member is engaged in. This refers to agricultural activity that the member carries out or involved in. *Select the applicable response from the drop-down list.* Note that both *MAIN* & *SECONDARY* activities carries the same coding system. For one HH member, there cannot be the same activity for both primary and secondary at the same time.

- 01= Crop production
- 02= Livestock production
- 03= Fisheries
- 04= Forestry
- 05= Horticulture
- 06= Fruity culture
- 07= Trader
- 08= Artisan
- 09= Agriculture paid job outside holding
- 10= Non-agriculture paid job
- 11= No activity-looking for work
- 12= No activity-not looking for work
- 13= Student
- 14= Household work
- 15= Child less than 8 years old
- 16= Apiary

*Horticulture:* Having to do with vegetable production farming

*Fruity culture:* having to do with fruit production farming

*Apiary:* Farming with bees, producing honey.

q210: *Situation of the main Activity.* Ask the situation of the MAIN activity for each household member? *Select the applicable response from the drop down list.*

- 1= Own account worker (independent)
- 2= Employer
- 3= Paid worker
- 4= Non-paid family worker
- 5= Task worker
- 6= Not active
- 7= Not applicable

q211: *Secondary Activity:* Ask the SECONDARY activity that the Household member is engaged in? *Select the applicable response from the drop-down list.*

q212: *Situation of the Secondary Activity:* Ask the situation of the SECONDARY activity for each household member? *Select the applicable response from the drop-down list.*

q213: *Does the Household member manage a Plot?* Ask whether the HH member manage a plot. Select either “Yes” or “No” from the drop-down list. Manage implies making decisions about the plot.

q214: *Does the Household member owns livestock?* Ask whether the HH member owns any livestock. Select either “Yes” or “No” from the drop-down list.

q215: *Is the Household Member a holder?* Ask whether the HH member is a holder or not. Select either “Yes” or “No” from the drop-down list.

### **Section 03 Land Under different land Uses**

Identification: Insert the codes for the following: Region, Constituency, Primary Sampling Unit (PSU), Dwelling Unit Number (DU), Household Number (HH) before you continue with the interviews for each household.

In the first three columns of this questionnaire, spaces are provided to write parcel, field and plot number, respectively. The enumerator should be able to correctly give parcel number, field number, plot number to each household’s/ holder’s holding based on the definition of parcel, field and plot. Detail exercise on how to give parcel number, field number and plot number should be done during the training of the field staff.

For all parcels, fields and plots belonging to the household, please specify what type of land use is on the ground, i.e. in q301, corresponding to the parcel, field and plot number, the name of crop or type of land use should be recorded.

q301: list of crop and land use type: corresponding to the field/plot number provided in column 2 and 3, enter the name of crop grown or the land use type in the space provided (codes for crops and other land uses are given for use)

q302: Land use code: from the code list for land uses, enter the appropriate code

q303: *Sex of Person Responsible:* Once again, select the sex of each household member that is responsible for his/her crop. Select either “Male” or “Female” from the drop-down list.

q304: *Location of field/plot:* Ask where is the plot located? Using the GPS locate the where the plot is situated. Select the applicable response from the drop-down list.

1= Within the EA

2= Outside the EA but within constituency

3= Outside constituency

q305: How did the household acquire the use of specific field/plot? Ask how the household acquire the specific plot? Select the applicable response from the drop-down list.

1= Inherited

2= Purchased

3= Cleared

4= Use right from local authority

5= Sharecropping

6= Borrowed

7= Rented

8= Other

q306: Period in years since land cleared or acquired: Ask when did the household acquire the plot, if the land was "cleared", ask for the period in years since land cleared. Select the appropriate response from the drop down menu.

1= Under a year ago

2= 1-3 years ago

3= 4 or more years ago

q307: Area in hectare measured with GPS (clockwise-- moving left-to-right direction): Indicate the area planted to each crop in hectares. Measure the field with the GPS clockwise and **insert the** measurement.

q308: Area in hectare measured with GPS (anti-clockwise-- moving right-to-left direction): Indicate the area planted to each crop in hectares. Measure the field with the GPS anti-clockwise and insert the measurement. This area should be measured anti-clockwise only when the area is less that 0.5Ha, otherwise the field must remain blank.

q309: Holder Area Estimate: Ask the respondent for an estimate of the area planted to each crop indicated. Indicate what unit the respondent used to estimate the area. Select the applicable unit response from the drop-down list.

1= Hectare

2= Km2

q310: Area (ha): What is the estimated area for each crop indicated? If the estimate area in q310 is given in Km2, then convert it to Hectare and enter it in the provided field.

q311: Number of trees (for permanent crops): ask the respondent for the number of trees on the field/plot corresponding to each fields/plots under permanent crops indicated in column 4 of the questionnaire.

## **Section 04 Extension visits/Services and agriculture information**

Agriculture extension refers to the provision of agricultural advice and information on crop and livestock producers etc. Extension services may be provided by government institutions, non-government organizations, farmers Unions, MAWF veterinary and MAWF rural water supply and others.

Extension services may cover advice to farmers in areas such as farm management, selection of crop varieties, use of inputs such as fertilizers, animal health, plant protection and marketing etc. Extension services are also used by governments to distribute inputs, disseminate market information and to promote the production of particular commodities or crop varieties.

Or

Extension Services refers to personal contact with extension personnel or direct participation in extension activities such as a farm demonstration. Extension services may cover advice to farmers in areas such as farm management, selection of crop varieties, use of inputs such as fertilizers, plant protection, animal health and marketing etc. It refers to the provision of agricultural advice and information to crops and livestock Producers.

### **Extension service topics**

Farm Management  
Selection of crop  
Input use  
Credit  
Farm mechanization  
Livestock husbandry  
Plant Protection  
Environmental conservation  
Marketing  
Water irrigation and drainage  
Other Specify

### **Information topics**

Weather  
Crop varieties  
New agricultural practices  
Farm machinery  
Credit facilities  
Plant diseases and pests  
Marketing  
Rangeland management  
Livestock husbandry & diseases  
Agronomic practices  
Water and irrigation  
Fish farming  
HIV/AIDS  
Others

Range land Management is the carefully use of land management of rangeland resources (plants, animals, soil and water) to meet the needs and desires of society.

Or

Range land Management is the use of grazing land to ensure consistent livestock production and at the same time conserve range resources.

Livestock husbandry refers to agricultural practice of caring and breeding of livestock. This mainly involves raising and caring of domestic animals

Farm machinery refers to agricultural equipment kind of machinery used on a farm to help with farming. Example of this kind is the tractor.

Credit refers to money that is available for someone to borrow.

Farm management refers to strategies and methods used to keep a farm productive and profitable.

Environmental conservation refers to practice of protecting the environment, on individual, organizational or governmental level, for the benefit of the natural environment

q401: *Was this holding ever visited by any extension service provider during the past 12 months?* The interviewer should ask the respondent whether the holding was ever visited by any extension service provider during the past 12 months. From the drop-down list select the appropriate response either “Yes” or “No”. If the response is “Yes” then q402-q409 should not be blank and if the respondent answer “No” then skip to q403.

q402: *How many times was the holding visited by any extension?* Enter the number of visits by the extension service provider in field.

q403: *Did the holding receive any agricultural related information?* Select the appropriate response either “Yes” or “No” from the drop-down list. If the response is “No” then skip to Section 5.

q404: Ask whether the farmer has access to the following extension Services. If the farmer has access to extension services, then select the appropriate topic from the drop-down list.

01=MAWF veterinary staff

02= MAWF agricultural extension

03= Farmers' unions/cooperatives

04= NGO

05= MAWF rural water supply

06=Meat Board of Namibia

07=Agronomic of Namibia

08=Agra Co-operation

09=MAWF – Forestry

10=Private sector Dealers

11=Internet

12 Ministry of Environment

13 Other ...

q405: Which Extension topics did you receive any service for? Ask of the extension services are received by the farm. From the drop-down menu select the appropriate response.

- 01= Farm management
- 02= Selection of crop
- 03= Input use
- 04= Credit
- 05= Farm mechanization
- 06= Livestock husbandry
- 07= Plant protection
- 08= Environmental conservation
- 09= Marketing
- 10= Water irrigation and drainage
- 11=Other

q406: What are the main sources of extension services you received? Refers to where the holder received information to help manage the agricultural holding. *In* Ask the farmer/respondent the main sources of extension services received. Select the appropriate response from the drop-down menu (the menu is the same as in q404).

q407: Do you use extension services? : Ask whether the farm uses extension services. From the drop-down list select the appropriate response.

- 01=MAWF veterinary staff
- 02= MAWF agricultural extension
- 03= Farmers' unions/cooperatives
- 04= NGO
- 05= MAWF rural water supply
- 06=Meat Board of Namibia
- 07=Agronomic of Namibia
- 08=Agra Co-operation
- 09=MAWF - Forestry.

- 10=Private sector Dealers
- 11=Internet
- 12 Ministry of Environment
- 13 Other

q408: Which of the extension service provider are you satisfied with?: Ask the farmer which of the extension services he / she is satisfied with. Select the appropriate response from the drop-down list.

- 01=MAWF veterinary staff
- 02= MAWF agricultural extension
- 03= Farmers' unions/cooperatives
- 04= NGO
- 05= MAWF rural water supply
- 06=Meat Board of Namibia
- 07=Agronomic of Namibia
- 08=Agra Co-operation
- 09=MAWF - Forestry.
- 10=Private sector Dealers
- 11=Internet
- 12 Ministry of Environment
- 13 Other

q409: *Information topic provided.* Which of the following agricultural related information were received by this holding? Ask the respondent which of the topic was received and choose the appropriate response from the drop-down list.

- 01= Weather
- 02= Crop varieties
- 03= New agricultural practices
- 04= Farm machinery
- 05= Credit facilities
- 06= Plant diseases and pests

- 07= Marketing
- 08=Rangeland management
- 09=Livestock husbandry & diseases
- 10=Agronomic practices
- 11=Water & Irrigation
- 12=Fish farming
- 13 HIV/AIDS
- 14=Other

q410: *Main information source provided:* For each information received in q409 ask the mode of information and select the appropriate response from the drop-down menu.

- 01= Radio
- 02= Television
- 03=- Internet
- 04=- Newspaper
- 05= Magazines/Bulletins
- 06= Extension officers
- 07= Farmer to farmer
- 08= Farmers' associations
- 09= Agric show/exhibitions
- 10= Neighbor
- 11= Other

## **Section 05 Access to facilities**

Here we want to find out about the holdings access to various facilities of special importance to agriculture, namely local produce, regional produce market, nurseries, feeder roads, water point millers ,livestock development centre, public transport, tarmac, agricultural research Centre etc.

Feeder road is a minor or small road used to bring the traffic to a major road.

Miller refers to a person who operates a mill, a machine to grind a cereal crop to make flour.

Nurseries refer to a place where young plants are grown and cared for. E.g. some nurseries sell plants to the general public.

Local produce market refers to farmers who buy produce at your local farmer market. Farmer's markets feature local farmers who sell their products once or twice a week at stands located in public use areas.

A regional produce market refers to largest produce markets in the region and allows local farmers to buy from them.

**Identification:** Select the appropriate codes for Region, Constituency and Primary Sampling Unit (PSU) variables from the drop down menu. Select also the Dwelling Unit Number (DU) and the Household Number (HH) from the drop down list before you continue with the interviews.

q501: *Does the household have access to facilities?* Ask whether the household has access to any facilities and select either "Yes" or "No" form the drop-down list. If the response is "No" then skip to Section 6.

Q502: *Access to type of Facilities:* Ask the HH which facilities it has access to and choose the appropriate response from the drop-down list.

- 01= Local produce market
- 02= Regional produce market
- 03= Local input dealer/farm supply shops
- 04= Agriculture Development Centre (ADC)
- 05= Nurseries
- 06= Agricultural research centers
- 07= Public transport
- 08= Feeder roads
- 09= All year round gravel road
- 10= Tarmac
- 11= Water point
- 12= Livestock development Center
- 13= Mills

14= Other

Q503: *Distance to the nearest facility*: For each selected facility in q502 enter the distance of the nearest facility in kilometers in the field provided.

## Section 06 Means of transportation

Definition: Means of transport are transportations that are used by the Agriculture holdings to transport their agricultural produce.

Here we want information on type(s) of means of transportation the agricultural holding owns, can borrow or can hire. The pictures below are exam[les demonstrating agriculture transportation.

### Donkey cart



### Head loading



**Sledge:** A sled, sledge, or sleigh is a land vehicle with a smooth underside or possessing a separate body supported by two or more smooth, relatively narrow, longitudinal runners that travels by sliding across a surface. They may be used to transport agricultural workers, cargo for agriculture produce, or both.



**Canoe:** Is a small boat without an engine which is propelled by bladed paddles manually, and it is open on top and pointed at both ends.



q601: *Does the household have any means of transportation?* Ask the HH whether they have any means of transportation for their produce. Select the appropriate response from the drop-down list which is either “Yes” or “No”. If the HH response is “No” then skip to Section 7.

q602: *Means of transport used.* These refers to all types of the means of transport that are used by the agriculture holdings. Select only the means of transportation that are used by the agricultural holding. From the drop-down menu select the appropriate response.

- 01= Head loading
- 02= Car/Pick up
- 03= Lorry
- 04= Tractor
- 06= Bicycle
- 07= Oxen
- 08= Oxen cart
- 09= Donkeys
- 10= Mules
- 11= Donkey cart
- 12= Boats/Ferry
- 13= Wheelbarrow
- 14= Trailers /Truck
- 15= Horses
- 16= Canoes
- 17= Sledge
- 18=Others

Q603: *Source of Main Access:* Ask the HH for each selected transport mode in q602, the source and choose the appropriate response from the drop-down list.

- 1= Owns
- 2= Borrow
- 3= Rent
- 4= Others

Q604: *Number Owned:* Ask the respondent how many transport equipment that are used are owned by the HH. If in q603, the HH response is '1= Owns' then enter the number of transport equipment owned in field provided.

## **Section 07 Storage facilities**

Definition: Storage facilities refer to where the holders store their agriculture produce.

Here we want information on whether the holding has any storage facilities and the storing capacity. Some of the storage facilities listed are:

Granary is a special storage house or a room in a barn for threshed grain or animal feed.

In the house: means that any of the rooms in the dwelling used for storage purposes.

Specific house/room; refers to a house or room used purely/solely for storage of agricultural produce.

Under shelter/outside; meaning that there are some shelters for storage, but not a house with complete walls.

Silo: A silo is a structure for storing bulk materials. Silos are used in agriculture to store grain or fermented feed known as silage. Silos are more commonly used for bulk storage of grain, woodchips and food products.

Bags: refers to a container used by the farmers to store their seeds

Drums: this refer to a drum used as a storage facility

From the dropdown menu; select the region code, constituency number, Primary sampling unit (PSU) number, Dwelling Unit (DU) number House hold (Hh)

q701: *Does the holding have any storage facility for produce?* Select the appropriate response from the drop-down list either “Yes” or “No”. If the HH response is “No” then skip to Section 8

q702: *Types of storage facility used?* Ask the type of storage facility which was used by the holder for agriculture purposes. From the dropdown, choose the appropriate response against the type of storage facility used.

- 1= Granary
- 2= In the house
- 3= Specific house/room
- 4= Under shelter/outside
- 5= Sealed containers
- 6= Bags
- 7 = Drums
- 8= Silo
- 9= Cold storage
- 10= Under ground
- 11=other

q703: *Type of unit used to fill the storage facility:* Ask the unit used to fill the storage facility selected in q703 and choose the appropriate response from the drop-down list

- 1= Latta (25kg)
- 2= Bags (50kg)
- 3= more than 50kg
- 4= others

q704: *Number of units used:* Corresponding to the type of units recorded in q703, fill the number of units the respondent used in the field provided.

q805: *Weight (in kg.):* Enter the total weight of the product

q806: *Volume:* This field should not be calculated, it will be automatic from CAPI.

## Section 8 Source of Loan/Credit

**Definition of LOAN:** Loan for agricultural purposes refers to any type of credit received for purposes related to the operations of the agricultural holding. This includes credit for purchasing crop and livestock inputs, constructing farm buildings, and purchasing farm machinery. Credit not related to agricultural operations, such as for construction of the holder's house, for other family businesses, or for consumption expenditure, should be excluded.

**Source of Loan** refers to who provided the credit. The specific source classes will depend on the institutional arrangements for credit in the country. Typical: agricultural development bank; cooperative credit society; money lender and Agribank, etc.

**Period of loan** or credit refers to the period over which the loan or credit is to be paid off, as agreed at the time the loan was received.

If credit was received more than once during the reference year, the period should be reported for the loan or credit of highest value.

Normally, the **period** of loan or credit is reported in ranges to reflect the likely reasons for using credit, such as for short-term (for the current crop) or long-term (for major capital outlays). Typical groupings are: Less than 12 months, 12–35 months, 36 months or more

**Collateral** is defined as assets pledged as security for a loan of money, which means that if the borrower defaults on the terms of the loan, the collateral may be sold and the proceeds used to pay off the loan. For the purpose of the agricultural census, collateral is used in a wider sense to also cover guarantee provided for the purchase of goods and services.

This is usually related to the production of agricultural goods, but may also be based on assets. The collateral for larger holdings is often the holder's land. This is prevalent where there is a well-developed land tenure system with legal ownership of land.

Otherwise, other assets can be used as collateral. For a loan to buy farm machinery, for example, the purchased machinery may be used as collateral. Other type of collateral covers the purchase of goods and services on credit based on agreements to pay at a later date, or credit received without any collateral on a personal guarantee basis.

From the dropdown; select the region code, constituency number, Primary sampling unit (PSU) number, Dwelling Unit (DU) number and House hold number (HH)

q801: *Did this holding apply for a loan for agricultural purposes in the last 5 years?* Ask whether the household has applied for a loan in the last five years. Select from the drop-down list the appropriate response which is either "Yes" or "No". If the HH response is "No" then skip to Section 9.  
q802: *Was the loan granted?* Ask the responded whether the loan that the HH applied for was granted. Select from the drop-down list the appropriate response which is either "Yes" or "No". If the HH response is "No" then skip to q807 and if the HH response is "Yes" continue to ask q803 to q806.

q803: Source of Loan received? Ask the respondent from where he received the loan from. Select the appropriate response from the drop-down list of loan provider.

- 01= Agribank
- 02= Development Bank of Namibia
- 03= Commercial Banks
- 04= Micro finances institutions
- 05= Money lenders
- 06= Self help group
- 07= under shelter/outside-individual a borrowing from a friend or neighbour
- 08= Government
- 09= NGO
- 10= Family and friends
- 11= Other

q804: *Loan Period*: Ask the HH how long it takes to pay the loan off. From the dropdown menu select the appropriate response.

- 1 = Less than 1 Year
- 2 = Between 1 and 3 years
- 3 = More than 3 years
- 4 = Others

q805: *What was the reason of the Loan?* Ask the HH why the loan was needed. From the dropdown menu select appropriate response given by the HH.

- 01 = Agriculture labour
- 02 = Seeds
- 03 = Fertilizer
- 04 = Agro chemicals
- 05 = Farm implements and machinery
- 06 = Irrigation structures
- 07 = Livestock
- 08 = Aquaculture (marine resources and fisheries)
- 09 = Bee farming (pollination)
- 10 = Trading agricultural produce
- 11 = Tractor
- 12 = Borehole
- 13 = De-bushing
- 14= Threshing
- 15= Other agricultural purpose

q806: *Type of collateral security?* Ask the HH if there was any security for the loan provided. Select the appropriate response from the drop-down list.

- 0= No collateral
- 1= Land title
- 2= Crops
- 3= Livestock
- 4= Salary
- 5= Third party
- 6= Other

q807: *If it was not granted, why?* Ask the HH why the loan was not granted. From the dropdown menu select the appropriate response.

- 1= No need for loans
- 2= No lending facilities
- 3= Lack collateral security
- 4= High interest rate
- 5= Not profitable
- 6= Ignorance
- 7= Negative past experience/ITC
- 8= Not applicable
- 9= Other

## **Section 09 Farm management practices (ONLY CROP FIELDS)**

**Definition:** Farm management practices refers to the different activities practiced on the farm, such as use of irrigation, application of fertilizers, use of improved seed, use of pesticides, etc.

**Irrigation** refers to purposely providing land with water, other than rain, for improving pastures or crop production. Irrigation includes any process under which water is moved from a water source to apply to an agricultural crop.

This item refers to the physical area of land irrigated, not the total area of crops irrigated.

-Land irrigated for successive crops in different seasons within the reference period is only counted once in computing the area of land irrigated and shown under multiple-irrigated crops.

-Land under temporary crops with single-irrigated crop refers to land with single irrigated crop during the reference period, or land with successive crops with irrigation being used for only one of the crops during the reference year.

**From the dropdown; select the region code, constituency number, Primary sampling unit (PSU) number, Dwelling Unit (DU) number and House holdnumber (HH)**

In the first three columns the CAPI will transfer the listed crop fields from Section 3.

q901: *Type of ownership:* Ask the HH the type of ownership of the crop fields. From the dropdown select the the appropriate response as provided by the respondent.

q902: *Did you use any type of irrigation during the last 12 months?* Ask the household if any type of irrigation was used dring the pst twelve months. Select the appropriate response from either "Yes" or "No".

*Here, want to know whether irrigation took place on the holding during a twelve-month reference period, usually the census reference period. This item relates to the actual use of irrigation, not whether the holding is equipped for irrigation.*

*If the household practices irrigation, give details on the main source, main method of obtaining and applying water.*

*q903: Which irrigation method was used on the irrigated area: Ask the method of irrigation used by the household. From the dropdown menu select the appropriate response.*

- 1= Surface irrigation
- 2= Sprinklers
- 3= Drip irrigation

This refers to the mechanism used for watering crops.

**-Surface irrigation:** application of water on the surface for crops which is the same as flood irrigation. Group of application techniques where water is applied and distributed over the soil surface by gravity

**-Sprinkler:** is the application of pressurised water through pipes. The water passes through a device which sprays the water onto the crop from above.

**-Drip irrigation:** A drip irrigation system delivers water directly to the root zone of a plant, where it seeps slowly into the soil one drop at a time. Almost no water is lost through surface runoff or evaporation, and soil particles have plenty of opportunity to absorb and hold water for plants

*q904: What was the Source of irrigation water? Ask the household to find out what the water source is for that is used for irrigation. From the dropdown menu select the appropriate response against the source of irrigation that the respondent has given you.*

- 1= River /Lake/Pond/Mountain ( by gravity)
- 2= River /Lake/Pond(by pumping)
- 3= Dam /Reservoir /Earth dam
- 4= Deep Well/Tube well
- 5= Shallow well
- 6= Municipal/Town Council Water supply
- 7= Harvested
- 8 = Borehole
- 9 = Waste water/semi purified
- 10 = Rural Water Supply
- 11= Canal

*q905: Did the holder pay for irrigation water? Ask whether the holder has paid for the irrigated water. Select the appropriate response either "Yes" or "No" from the drop-down list.*

*q906: Irrigation water payment terms: Ask the HH to find out the terms of water payment for the irrigation water. From the dropdown list select the applicable response given by the household.*

- 1= water fee per ha
- 2= water fee per volume
- 3 = other

q907: *What was the frequency of water payment for irrigation?* Here we want to find out the frequency of water payment by the household. Ask the HH on the frequency of water payments. From the dropdown list select the frequency that is applicable as given by the respondent.

- 1= Monthly
- 2= Quarterly
- 3= Annually
- 4= Others

q908: *Agricultural Inputs:* Ask the respondent whether there were any agricultural inputs used on the farm. From the dropdown list select the appropriate agricultural inputs as given by the respondent.

- 01= Local seeds
- 02= Improved
- 03= hybrid seeds
- 03= Organic fertilizer
- 05= Inorganic fertiliser
- 06= Pesticides
- 07= Herbicides
- 08= Fungicides
- 09= Other pesticides

**-Local seeds** –non hybrid seeds which is open pollinated and is collected for future planting  
Improved seeds-that are higher in yielding, more nutritious, and both drought and climate resilient  
Hybrid seeds –hybrids seeds cannot be collected for future planting as they will not germinate or grow

q909: *Main Source of Supply of Inputs:* Ask the HH where they get their supply of input from. From the dropdown list select the application response of the source as provided by the respondent.

- 1= Own
- 2= Markets
- 3= Cooperatives
- 4= Government
- 5= NGOs

q910: *Reason for not using improved inputs:* If the HH has responded '01= Local seeds and 04= Organic fertilizer' in q910 then you ask the HH why improved seeds were not used. From the dropdown list select the appropriate reasons as provided by the respondent.

- 1 = No knowledge
- 2 = Too expensive
- 3 = Not available
- 4 = Do not see usefulness

## Section 10 Aquaculture

Aquaculture holding is defined as an economic unit of aquaculture production under single management.

q1001: *Was fish farming carried out by this holding during the last 12 months?* Ask the respondent whether fish farming activities were carried out on the holding. Select the applicable response category as either “Yes” or “No”. If the HH respond “No” then skip to Section 11.

q1002: *Does the holding owns a pond/dam?* Ask whether the holding owns a pond/dam and choose either “Yes” or “No” form the drop down list. If the HH responds “Yes” then record the size of the pond in square meters.

If the answer is “Yes”, record the size of the pond in square meters in the field provided. **(Refer to the area measurement results on Section 03)**

q1003: *Fish farming system:* Ask the household the type of fish farming system used on the holding. From the drop down menu select whatever responds that is applicable as provided by the HH.

- 1 = Still water culture (Pond)
- 2 = Running water culture
- 3 = Water recycling system
- 4 = Cage culture (Dam)

Fish farming systems refers to how water is used to culture fish.

Here you are expected to classify the response(s) from the respondent according to the different types of systems as provided in the drop down menu

### Example

*If the household used a pond to culture fish during the past 12 months, select ‘Still water culture’ from the drop down menu.*

### **Still water culture**

This is usually practiced in stagnant water in ponds, but tanks are also used. Pond fish culture system is about the most conventional form of freshwater aquaculture in the world and especially in Africa. The organism mostly involved in the culture has been fish and in Africa, tilapia and catfish.

### **Running water or flow-through culture**

This is usually practiced in tanks and raceways made of various such material as wood, fibreglass, plastic, cement with fish as the main organism cultured. If abundant water is available, earthen ponds are also used.

## Water recycling system or recalcitrating

In this system, the running water used for culture is recycled and 'reconditioned' (i.e. filtered of dirt and re-oxygenated) by a mechanical device. Non-earthen structures tanks and race-ways made of various such materials as wood, fibreglass, plastic, cement with fish as the main organism cultured.

## Cage culture system

Cage culture may also be considered as a kind of flow through system because water in the fish rearing cage units is always being exchanged with water from outside the cage.

Cages are net enclosures used for rearing aquatic animals or plants in lakes, rivers, reservoirs or the open sea.

Cages are held in place by floating structures (surface floating, mid-water floating or seabed cages).

q1004: *Source of fingerlings*: Source of fingerlings refers to the institution that provided the holding with fingerlings to start fish culture (Fish Capital). Ask the HH where they obtain their fingerlings from. From the dropdown menu select the appropriate response as given by the HH.

- 1 = Government
- 2 = NGO/Project
- 3 = Private trader
- 4 = Other

q1005: *Number of stocked Tilapia fingerlings*:

Here you are required to enter the number of Tilapia fingerlings that the holding put in say, pond 1 (Production unit no 1).

q1006: *Number of stocked Catfish fingerlings*

Ask the respondent for the number of fingerlings put in the pond (Catfish).

q1007: Number of stocked Carp fingerlings

Here you are required to enter the number of fingerlings put in the pond filled with Carp fingerlings.

q1008: *Number of other type of fingerlings*: Here you are required to enter the number other type of fingerlings other than the ones already specified q1005 –q1007.

q1009: *Number of fish harvested*: This item refers to the number of fish that were harvested from nursery pond and restored into grow out ponds.

Enter the number of fish that were restored into grow out ponds at each harvest (for the specified species) throughout the past twelve months, in the field provided.

Ponds are seined (a fishing net that hangs vertically in the water, having floats at the upper edge and sinkers at the lower) and fish is removed at regular intervals throughout the production season

(partial harvest) or over the entire year (full harvest). Selective harvest, by fish size, is commonly practiced with the multiple/partial harvest technique. Number of fish harvested is equal to the number of fish to be restored.

q1010: *Total Weight (Kg) of Fish Harvested during the past 12 months:* Ask the respondent what was the total weight of fish harvested during the reference period. Enter the number in field provided.

q1011: *Was partial harvest from fish farming carried out on this farm during the last 12 months?* Ask the HH whether partial harvest from fish farming was carried out. Select the applicable response either “Yes” or “No” from the drop down list. If the household’s respond is “No” then skip to q1013.

q1012: *What was the reason for partial harvest?* Ask the respondent why the holding carried out partial harvest and select the appropriate response from the drop down menu.

- 1 = Own Consumption
- 2 = Marketing
- 3 = Other

q1013: *For how many years has the farmer practiced aquaculture?* Ask the farmer for how long the holding has practiced fish farming. Select the response from the categories provided:

- 1 = the last three years
- 2 = the last five years
- 3 = the last ten years
- 4 = over ten years

q1014: *What is the water type?* This item refers to whether aquaculture on the holding was carried out during the reference year using water of the types. From the drop down-list select the appropriate response as provided by the responded.

- 1 = Freshwater
- 2 = Brakish water
- 3 = Other

**Freshwater:** Freshwater refers to reservoirs, rivers, lakes and canals, with consistently negligible salinity.

**Brackish water:** Brackish water refers to waters with appreciable salinity but not to a constant high level.

Enclosed water bodies in which salinity is greater than freshwater but less than seawater are also regarded as brackish.

The respondent may choose more than one type of water used on the holding.

**q1015: *What is the water source?*** This item refers to whether water for aquaculture production on the holding during the census reference year was obtained from the sources indicated in column q1014.

Select the appropriate response from the drop down menu. You may select all that apply.

- 1 = Rain-fed
- 2 = Groundwater/borehole
- 3 = Rivers/canals
- 4 = Lakes/reservoirs
- 5 = Dams

### ***Management of Site***

q1016: *Type of Activity:* Here we want to know which different types of activities the workers have been involved in regarding the management of say, pond. Ask the respondent the type of activity the workers were involved in. Select one category from the list provided.

- 1 = Feeding
- 2 = Water monitoring
- 3 = Cleaning
- 4 = Feeding and water monitoring
- 5 = Feeding and cleaning
- 6 = Harvesting/fishing
- 7 = Watering and cleaning
- 8 = All of the above

q1017: *Number of workers:* Here you are required to enter the number of **Male** workers on the fishing farm that has been involved in managing the facilities.

q1018: *Number of workers:* Here you are required to enter the number of **Female** workers on the fishing farm that has been involved in managing the facilities.

## Section 11 Forestry

### PRESENCE OF FOREST AND OTHER WOODED LAND ON THE HOLDING

Presence of forest and other wooded land refers to whether such forest and other wooded areas are present on the land making up the agricultural holding. The reference period is the day of enumeration.

Forest and other wooded land is land not classified as mainly “agricultural land” that satisfies either of the following definitions:

Forest land is land with crown cover of more than 10% of trees able to reach a mature height of 5 meters or more (natural and plantation forests).

Other wooded land is land with:

- i. Crown cover of 5-10% for trees able to reach a mature of 5 meters or more at maturity; or
- ii. Crown cover of more than 10% for trees not able to reach a height of 5 meters at maturity; or
- iii. Shrub or bush covers of more than 10%.

**q1101:** *Presence of Forest:* Select the appropriate response from the drop down list. Ask the household whether there is forest presence on the holding and select either “Yes” or “No” as per HH response. If you select “No” then skip to Section 12.

**q1102:** *Type:* Select the appropriate code from the drop down menu.

1= Forestry

2= Other wooded land

**q1103 – q1104:** *Area:* This item relates to all forest and other wooded land on the holding, including forest and other wooded land on agricultural land.

Here you are required to enquire on information about the area of forest and other wooded land reported as primary land use (q1103) and as a secondary land use (q1104).

We want to know whether the land is primarily used for forest and other wooded land or it is for example used for crop and/or livestock while forest and other wooded land is a secondary activity.

**q1105: Total Area:** The land under forest and wooded land in q1103 and q1104 should be equal to total area i.e. the summation of area (q1105) of:

- i. Area of forest as primary use recorded in q1103
- ii. Area of forest as secondary use recorded in q1104
- iii. Area of wooded land as primary use recorded in q1103
- iv. Area of wooded land as secondary use recorded in q1104

#### Main Purpose of Forest and Wooded Land



#### **q1106 – q1114: Main Purpose of Forest and Wooded Land**

Ask the respondent what the main purpose for the forest and wooded land on holding is used for. Here we want the purpose for which the land was used the most during the reference period.

Select the response from the drop down menu either “Yes” or “No” for each question.

##### **Production**

Forest area designated primarily for production of wood, fibre, bio-energy and/or non-wood forest products (FAO, 2010; Rome, 2010).

##### **Soil and water management**

Forest area designated primarily for protection of soil and water (FAO, 2010; Rome, 2010)

##### **Multiple uses**

Forest area designated primarily for more than one purpose and where none of these alone is considered as the predominant designated function. (FAO, 2010; Rome, 2010).

## **Conservation**

Here we want to know whether the holding had preserved (access to) a part of forest for conservation purposes during the reference period.

Examples: Wood for furniture, lumber, firewood and other products

## **Forest biological diversity**

Forest ecosystem: Forest biological diversity means the variability among forest living organisms and the ecological processes of which they are part; this includes diversity in forests within species, between species and of ecosystems and landscapes (FAO, 1998; FRA 2000).

A forest ecosystem can be defined at a range of scales. It is a dynamic complex of plant, animal and micro-organism communities and their biotic environment interacting as a functional unit, where trees are a key component of the system. Humans, with their cultural, economic and environmental needs are an integral part of many forest ecosystems (FAO, 1998; FRA 2000).

## **Fodder crops (Temporary and permanent).**

Fodder crops are those cultivated explicitly or primarily for feeding animals. By extension, natural grasslands and pastures, whether somewhat cultivated or not, also are included in this category (FAO Statistics, January 2011).

Fodder is the coarse food for livestock, composed of entire plants including leaves, stalks, and grain, of such forages as cora and sorghum (World English Dictionary).

## **Other (e.g. Windbreaks)**

Other: Forest areas designated primarily for a function other than production, protection, conservation, social services or multiple use (FAO, 2010; Rome, 2010).

Windbreaks are linear plantings of trees/shrubs designed to reduce wind speed in open fields, preventing soil erosion and protecting adjacent crops from wind damage.

## **Presence of Agro-Forestry Practices on the Holding**

This section refers to trees planted for wood (firewood, poles, planks, and carving, charcoal, medicinal, etc, but NOT fruit trees). It does not include naturally growing trees on the farm (unless special care has been given to promote their establishment) or trees growing naturally on the communal areas.

Tree farming is the planting of trees on an area of land for which the main purpose is the production and regeneration of trees for wood on that land.

Agro-forestry: is the planting of trees on land for the purpose of complementing other farming activities like crop and animal production. For the purpose of this questionnaire Agro-forestry trees are trees planted on boundaries and scattered throughout fields. The main productive unit in this case is Crops and Livestock.

Select the appropriate code from the drop down.

Agro-forestry is a sustainable farm management system in which trees and other wooded plants are purposely grown on the same land as agricultural crops or livestock, either concurrently or in rotation.

It refers to specific forestry practices that complement agricultural activities, such as by improving soil fertility, reducing soil erosion, improving watershed management, or providing shade and food for livestock.

**The reference period for agro-forestry data is the census reference year.**

## **Section 12 Apiary (Bee keeping)**

**q1201:** *Presence of Apiary:* Ask the respondent whether Apiary was practiced on the holding during the reference period. Select the appropriate code according to the response given as either “Yes” or “No”. If the response chosen is “No” then skip to Section 13.

**q1202:** *Type of Bee Hive:* Ask the respondent the type of bee hives that was operated by the holding. Select the relevant code from the drop down menu.

1= Local

2= Top-Bar Hive

3= Langstroth

4= Others

Top-bar hives - the hive body is a simple box with a series of separate bars

set side-by-side on the top, the bees build one comb on one top-bar.

- Langstroth/Modern Hives - Hives which have been provided with frames on which bees develop their honey combs.
- Hives refers to any container provided by humans for bees to nest in.
- Comb – A wax structure made of hexagonal (six-sided) cells in which honey bees rear young and stored food.



**q1203: Number Colonized:** Ask the respondent how many hives were occupied by bees during the reference period and enter it in the field.

**q1204: Number Not Colonized:** Here you are required to enter the number of hives that were not occupied by bees during the past twelve months as provided by the respondent.

**q1205: Production (Kg):** Here you are expected to enter the weight (in Kg) of honey produced during the reference period as provided by the respondent. Note that the Total weight for each species is required here.

## Section 13 Food security

**q1301: Did the holding experience any Food shortages during the past 12 months?**

The enumerator should ask this question to determine if he/she can continue with this section or not if the answer is “no” then the enumerator should skip the section and go to Section 14 if the answer is “yes” then continue with q1302

Food shortage in this case refers to the deficit of food at household level. That means the household depleted their own produce and or what they produced was not sufficient enough to sustain the households’ need.

**q1302: In the past three months, did you worry that your household would not have enough food?**  
If “Yes” enter 1 and if “ No” enter 2

**q1303 – q1304:** Ask the average number of meals, including breakfast, taken per day in the household for adults, boys and girls and enter the information obtained

**q1305: When did the household experience this food shortage?** From the dropdown list enter the appropriate respond that correspond to the month the household experienced food shortage.

- 01= January
- 02 = February
- 03=March
- 04=April
- 05=May
- 06=June

- 07= July
- 08= August
- 09= September
- 10= October
- 11= November
- 12= December

The enumerator should read all the option to the respondent so that the respondent will choose the right answers. Codes are provided next to the answers.

### **Main Reasons Food Shortage**

For q1306 to q1308, ask the household the main reasons for experiencing food shortages and select the appropriate reason from the drop down list as provided by the respondent.

- 01= Loss of crops/Insufficient production
- 02= Lack of jobs
- 03= Inability to work because of illness or injury
- 04= Disabled, old age
- 05= Lack of adequate land
- 06= Lack of adequate capital
- 07= Family too big
- 08= Lack of adequate labour
- 09= Over selling produce
- 10= Loss of livestock
- 11= Others
- 99 = Don't Know

q1306. First main reason

q1307. Second main reason

q1308. Third main reason

This question is a follow-up to those that answered “Yes” in q1301. The enumerator should explain all three main options of food shortage one by one so that the respondent should choose from the answers provided in CAPI software. The main aim of this question is to establish what could have caused food shortage during the past 12 months in that particular household. Three reasons should be indicated in order of their importance from the main reason that causes food shortage to the least cause.

*Q309: What was the households' immediate response to food shortage?*

Given the situation of food shortage, one would like to know the immediate action taken to improve the food shortage situation. This mainly refers to changes in eating pattern, which is considered as one of the immediate response mechanism.

The enumerator should read all the optional answer that are provided in CAPI and select appropriate responses.

- 1= Skipping meals
- 2= Eating less preferred food
- 3= Reducing the size of meal

### **q1310 to q1313**

Here the enumerator should give a chance to the respondent to choose the age and gender of a person whom the change in eating pattern has applied to.

#### **What steps were taken to alleviate food shortage?**

The enumerator should read this question to the respondent and he/she must make sure that the respondent understood the question. In this question we would like to know how the household handled the food shortage situation in the long run to ensure that they obtain the needed food commodity in order to reach the next harvest or fill the food deficit.

#### **q1314: *What steps were taken to alleviate food shortage?***

- 1= Use saving to buy food
- 2= Take out a loan
- 3= Sell land
- 4= Sell livestock
- 5= Get another job
- 6= Start or expand family business
- 7= Social grant
- 8= Food relief
- 9= Help from charities

The enumerator should read all the optional answer that are provided in CAPI and select the appropriate response.

### **q1315 to q1318**

Here the enumerator should give a chance to the respondent to choose the age, gender of a person whom the change in eating pattern has applied to.

#### **q1319: *Is the household likely to experience food shortage during the next 12 months?***

Here the enumerator should let the respondent answer a 1=Yes or 2=No question. In attributing to the current household food security situation, that is the stock available at the time of this interview and looking at the crop stand and weather pattern over the remainder of the season, the household is expected to forecast their food stock availability for the upcoming twelve month period. Using those indicators to predict the likelihood or not for food shortage.

### ***Which of the following natural disasters did the household experience?***

The respondent should choose from the option provided in question **q1320** to **q1326** for natural disasters and from **q1327** to **q1328** for man-made disasters. Here the codes of level of damage are also provided by CAPI. Natural disasters are naturally occurring events, or extreme forces of nature, that cause death or destruction of people and or their property.

Here are a few common ones in Namibia: flood, wild fire, drought, pest outbreak, erratic rain etc. Wild animal attacks could also be considered a type of natural disaster but on a smaller personal scale. Examples might include: stampede of elephants, hippos and others

## **Section 14 Economic Activity**

### **Are there other economic Activities on the holding?**

The enumerator has to explain the question to the respondent and he/she should make sure that the respondent understood it. Apart from the agricultural production activities that are happening in this holding are there other economic activities that contribute or support this household. Some of the other common activities involves; hunting, fishing, and selling of goods and services.

**q1401:** *Are there other Economic Activities on the holding?* Ask the respondent whether there are any other economic activities performed on the holding other than agricultural activity. Select for the CAPI drop down list either “Yes” or “No” as per household response. If the response is “No” then skip to Section 15.

**Q1402: *Economic activity:*** The enumerator has to read all the option to the respondent so that the respondent will choose the options that apply to him/her after explaining what are the other likely economic activities. The list will be provided from the drop down menu in CAPI.

1= Agricultural services

2= Hunting, trapping, game propagation and related service activities

3= Forestry, logging and related service activities

4= Fishing, aquaculture and related service activities

5= Manufacturing

6= Wholesale and retail trade

7= Hotels and Restaurants

8= Other

**q1403 to q1406:** The respondent should choose from the option provided in question q1402 as to who perform those activities.

Animal trapping, or simply trapping, is the use of a device to remotely catch an animal. Animals may be trapped for a variety of purposes, including food, wildlife

Logging is the cutting, skidding, on-site processing, and loading of trees or logs onto trucks or skeleton cars

### **q1407 What are the other sources of income?**

The enumerator has to explain the question to the respondent and he/she should make sure that the respondent understood. The household should indicate if they are having any other source of income apart from the agricultural production activities that this household is engaged in. In most cases, there are employed individuals who are earning wages or salary, or old age pension and other remittances. From the drop down list select the appropriate response.

0= No other income source

1= Income derived from economic production activities other than agricultural production

2= Income from paid employment

3= Pension and investment income

4= Remittances - Internal (within Namibia)

5= Remittances - External (outside Namibia)

6 = veteran social grant

7 = social grant

8 = old age pension grant

The enumerator has to read all the option to the enumerator to the respondent so that the respondent will choose the options that apply to him/her.

Q1408 to q1411 the respondent should choose from the options provided in question q1407 as to who receives such income.

## **Section 15 Labor inputs**

These sections are about economic activity of the holding's household members and the labor they supply to the holding. This information is required on number of persons, distributed by sex engaged in agricultural work on the holding in the last 12 months and by adult/children. For holding members who worked permanent and temporary on the holding during the last 12 months, numbers will be given for males, females, boys and girls.

### **PERMANENT BASIS**

Permanent worker is a person who works on the holding to perform farm activities for at least six months during the agricultural season. Permanent worker may be member in the holders homestead or outside it or holder himself.

**Identification:** Select the appropriate codes for Region, Constituency and Primary Sampling Unit (PSU) variables from the drop down menu. Select also the Dwelling Unit Number (DU) and the Household Number (HH) from the drop down list before you continue with the interviews.

**q1501: Adult Male:**

Ask the household how many adult males of the holdings worked on permanent basis on the holding during the agricultural season? Enter the number of adult males in the field provided.

**q1502: Adult Female:**

Ask the respondent how many adult females of the holdings worked on permanent basis on the holding during the agricultural season? Enter the number of adult female in the field provided.

**q1503: Boys below 15 Years:**

During agricultural season, how many boys 15 years below of the holdings worked permanent on basis on the holding? Enquire from the household and enter the number of boys 15 years below in the field provided.

**q1504: Girls below 15 Years:**

During agricultural season, how many girls 15 years below of the holdings worked on a permanent basis on the holding? Ask the respondent and enter the number of girl's age below 15 years in the field provided.

**TEMPORARY BASIS**

Temporary worker is a person who works on the holding to perform farm activities less than six months during the agricultural season. Temporary worker may be a member in the holders homestead or outside it or holder himself.

**q1505: Adult Male:**

During agricultural season, how many adult males of the holdings worked on temporary basis on the holding? Enter the number of adult male.

**q1506: Adult Female:**

During agricultural season, how many adult females of the holdings who worked on temporary basis on the holding? Enter the number of adult female.

**q1507: Boys below 15 Years:**

During agricultural season, how many boys 15 years below of the holdings worked on temporary basis on the holding? Enter the number of boys 15 years below.

**q1508: Girls below 15 Years:**

During the current agricultural season, how many girls 15 years below of the holdings worked on temporary basis on the holding? Enter the number of girls 15 years below.

## **PAID EMPLOYMENTS**

Information is required for paid employment for person who works a permanent or temporary basis during the last 12 months.

### ***q1509: Did the Household have any paid employee during the agricultural season?***

Select the appropriate response from the drop down list as either "Yes" or "No". If the respond is "No" then skip to Section 16.

If yes, ask the respondent how many persons were paid employment as permanent or temporary laborers? Enter the number of paid employment by age and gender.

## **PERMANENT BASIS**

Information is requested for persons paid to work as temporary laborers during the past 12 months of during the last months. This information will be entered on number of laborers as well as payment period days for males, female, boys and girls for temporary laborers.

### ***q1510: Adult males from 15 years above:***

During agriculture season was any adult male a paid employee on permanent basis? Ask the respondent the total number adult males work on the permanent basis for pay in cash or kind on agricultural holding.

### ***q1511: Adult Females from 15 years above:***

During agriculture season was any adult female a paid employee on permanent basis: Ask the respondent the total number of adult females who work on permanent basis for pay in cash or kind on the agricultural holding.

### ***q1512: Children boys from 15 years and below:***

During the agricultural season was any boys paid employees on a permanent basis: Ask the respondent the total number of boys who worked on permanent basis for pay in cash or in kind on agricultural holding.

### ***q1513: Children Girls from 15 years and below:***

During agriculture season was any girls paid employees on permanent basis: Ask the respondent the total number of girls who work on permanent basis for pay in cash or kind on agricultural holding.

## **TEMPORARY BASIS**

Information is requested for persons paid to work as temporary laborers during the past 12 months of during the last months. This information will be entered on number of laborers as well as payment period days for males, female, boys and girls for temporary laborers.

### ***q1514: Adult males from 15 years and above:***

Ask the respondent the total adult males who work on temporary basis for pay in cash or kind on the agricultural holding.

### ***q1515: Adult Females from 15 years and above:***

Ask the respondent the total number adult females who work on temporary basis for pay in cash or kind on the agricultural holding.

**q1516: Children boys from 15 years and below:**

Ask the respondent the total number of boys who work on temporary basis for pay in cash or kind on the agricultural holding.

**q1517: Children girls from 15 years and below:**

Ask the respondent the total number of girls who work on temporary basis for pay in cash or kind on the agricultural holding.

## **Section 16 Equipment**

**Identification:** Select the appropriate codes for Region, Constituency and Primary Sampling Unit (PSU) variables from the drop down menu. Select also the Dwelling Unit Number (DU) and the Household Number (HH) from the drop down list before you continue with the interviews.

This section comprises machinery, implements and other facilities used on the holding solely or partly for agricultural production during the last 12 months.

Note: Machinery, implements and other facilities used solely for agricultural purpose, in working order at some point during the last 12 months should be reported.

In many cases, holders may have lost their livestock due to looting or death due to poor disease control measures. Thus it is possible that a holder will own some machinery, implements and facilities related to livestock, but has not used them during the last 12 months.

The machinery and equipment should still be recorded, but not as having been used during the last 12 months.

### **TYPE OF EQUIPMENT**

From the drop down menu of machinery, implements and facilities, for each of them find out whether it was used during the past 12 months or not.

Note: Is very important to be sensitive when going through the list of equipment. Some respondent could be offended if asked about equipment which they cannot own or operate.

**q1601: Type of equipment used:**

What types of equipment were within holding during the past 12 months?

## **Type of Equipment**

1. Hoes
2. Axes
3. Slashes
4. Pangas/Machete
5. Watering Cans
6. Wheelbarrows
7. Pruning Knives
8. Pruning Saws
9. Chain/Handsaw
10. Sheller Spade
11. Fork Hoe
12. Tractor
13. Plough Mechanical
14. Ox-Plough
15. Trailer
16. Harrow/Cultivator
17. Welder
18. Planter
19. Sprayer
20. Pail
21. Milk Can
22. Hand Mill(Manual Hammer)
23. Hammer Mill (Engine Driven)
24. Ox Cart
25. Donkey Cart Hoes
26. Other, Specify

### **DESCRIPTION OF AGRICULTURAL EQUIPMENT:**

**Pruning Knife is used in the removal of unwanted branches**

**Pruning saw is used for removal of unwanted stems or branches**

**Chain/Handsaw is used for felling large trees and removal of big unwanted stems or branches. They could be motorized.**

**Sheller spade are of various type**

**Sprayers are used for application of liquid agricultural chemicals to plants/animals**

**q1602: Type of ownership:**

Ask the respondent whether the equipments are owned, rented or borrowed

- 1= owned
- 2= rented
- 3= borrowed
- 4= other

**q1603: Number of agriculture equipment owned, rented, and borrowed by the household**

Enter the number of the equipment owned, rented or borrowed per type of equipment.

**q1604: When did you buy the equipment used?** From the drop down list select the appropriate response from the household.

- 1= less than 1 year ago
- 2=1-10 years ago
- 3= More than 10 years ago

**q1605: During the past 12 months did the household use this agriculture equipment.**

Select from the drop down list either “Yes or “No” for each equipment.

## **Section 17 Production and disposition of crops**

### **PRODUCTION**

The aim of this is to get a broad indicator of the extent to which agricultural holdings are participating in the market economy. The purpose of the production data are usually collected only for agricultural holdings.

If the holding sells some produce and uses the rest for home consumption, mainly for home consumption or whether sale represents the large value of agricultural production.

Sales include selling produce for cash or in exchange for other produce (barter)

### **Disposal of agricultural produce:**

Example, payment of labor, sending to family members, gifts, or payment of taxes, should not be considered in assessing the main purpose of production. Data is collected on production and disposition within the PSUs.

**Identification:** Select the appropriate codes for Region, Constituency and Primary Sampling Unit (PSU) variables from the drop down menu. Select also the Dwelling Unit Number (DU) and the Household Number (HH) from the drop down list before you continue with the interviews.

For each crop that was grown during the last 12 months, the following information will be recorded:

**q1701: Crop Code: Enter the crop code.Refer table below**

After the listing of different crops that was carried out in Section 3, the CAPI will transfer all the crop and codes to this section automatically. Therefore, this field will already be populated with the required information and it is imperative that the listing of the plots are done correctly in order to have accurate information. The table below outlines the crop and codes.

Crop Group	Crop Name	Code	3. Oil seed crops	Crop Name	code	Tree Crop	Crop Name	Crop Code
<b>1. Cereals</b>	Wheat	1		Soya Beans	40		<b>Lemon and Limes</b>	90
	Maize	2		Ground Nuts	41		<b>Mangos</b>	91
	Rice	3		Caster Beans	42		Oranges	92
	Sorghum	4		Linseed	43		Other fruits and nut	93
	Barley	5		Mustard	44		Paw-paws	94
	Oats	6		Simsim	45		Naartjie	95
	Millets	7		Sunflower	46		Marula Maroela	96
	Mixed Cereals	8	<b>4. Roots/Tubers</b>		55		Eembe	97
	Other	9		Iris Potatoes	56		Enyandi	98
<b>2. Vegetables</b>	Asparagus	15		Sweet potatoes	57		Grapes	99
	Cabbages	16		Cassava	58		Guava	100
	Cauliflowers & Broccoli	17		Yams	59		Palm/eendunga	101
	Lettuce	18		Other roots and tubers	60		Omauni	102
	Spinach	19	<b>5. Leguminous crops</b>		70			
	Chicory	20		Beans	70			
	Cucumber	21		Broad Beans	72		<b>Forest trees and plantation trees</b>	
	Egg plant	22		Chick Peas	73		<b>Natural forest trees</b>	110
	Tomatoes	23		Cow Peas	74		<b>Other forest trees</b>	111
	Water melons	24		Lentils	75		<b>77= Plantation trees</b>	112
	Pumpkin	25		Peas	76			
	Carrots	26		Pigeon Peas	77		<b>OTHER LA OTHER LAND USES</b>	
	Turnips	27	<b>6. Sugar Crops</b>	Leguminous crop	78		<b>fallow land</b>	115
	Garlic	28		Sugar Cane	85		<b>grazing land</b>	116
	Onion	29		Sweet sorghum	86		<b>homestead</b>	117
	Mushroom	30		other sugar crops	87		<b>other land</b>	118
	other Vegetables	31						

**What is the quantity harvested and in what conditions/States?**

**q1702: Unit of measurement refers to the codes provided:**

Ask the respondent the name of the unit of measurement. Select the appropriate units from the drop down list.

Code for Unit harvested of quantity			
Codes	Units	Code	Units
01	Kilogram(kg)	21	Drum (kg)
02	Gram	22	Bottle 750 ml
03	Litre	23	Bottle 500 ml
04	Metre	24	Bottle 350 ml
05	Millilitres	25	Bottle 250 ml
06	Square metre	26	Bottle 150 ml
07	Yard	27	Drinking chocolate tin 2 kg
08	Small cup with handle	28	Drinking chocolate tin 1 kg
09	Sack 120 kg	29	Drinking chocolate tin 0.5 kg
10	Sack 100 kg	30	Cup/Mug 0.5 l
11	Sack 80 kg	31	Glass 0.25 l
12	Sack 50 kg	33	Basket 20 kg
13	Sack unspecified	34	Basket 10 kg
14	Jerrican 20 l	35	Basket 5 kg
15	Jerrican 10 l	36	Basket 2 kg
16	Jerrican 5 l	37	Calabash 1-5 l
17	Jerrican 2 l	38	Wheelbarrow
18	Jerrican 1 l	39	Ox chart
19	Latas 50 kg	40	Other Units (specify)
20	Latas 25 kg		

**q1704: Number of Units harvested: Ask the respondent the total number of units harvested.**

**q1705: Condition/state:** From the drop down list , select the appropriate response on condition of the crop as provided by the respondent.

<b><u>Codes for Condition</u></b>	
<b><u>Millet/Mahangu</u></b>	1= Fresh raw harvest 2= Dry at harvest
<b><u>Sorghum:</u></b>	1= Wet/fresh raw harvest 2= Dry at harvest
<b><u>Maize:</u></b>	1= Green harvested: with shell/cob and stalk 2= Green harvested: with shell/cob and without stalk 3= Green harvested: in the shell/cob 4= Fresh/raw harvested: with shell/cob and with stalk 5= Fresh/raw harvested: with shell/cob without stalk 6= Fresh/raw harvested: in the shell/cob 7= Dry at harvest

**q1705: Cost per unit of measurements N\$ Unit Cost:** Ask the unit cost of the harvest

**q1706: Quantity sold:** Ask the respondent the quantity sold

**q1707: Total value production sold:** Ask the respondent the total quantity sold for each crop in unit.

**q1708: Most sold to:** Ask the respondent and select the applicable response from the drop down menu to whom the production was mainly sold?

1. Government organizations
2. Private trader local market village
3. Private trade const. market
4. Consumer at market
5. Neighbor/Relative
6. Other

### **PROCESSED FOR SALE**

**q1709: Processed for sale:** Were any quantities processed for sale? Ask the respondent the quantity in unit that was used or set aside as sale or animal feed.

**PROCESSED ANIMAL FEED**

**q1710:** *Processed animal feed:* Were any quantity used for processed animal feed? Ask the respondent the quantity in unit was used or set aside as sale or animal feed.

**q1711:** What quantity was given to landlord/proprietor or to others? Ask the quantities in unit given to landlord/proprietor or to others.

- 1= Landlord/proprietor
- 2= Others

Landlord/proprietor is **one that owns and rents land, building, or dwelling units.**

**q1712:** *What quantity was consumed by household including that before harvest or set aside for home consumption?* Ask the quantity in unit used/set aside for home consumption by the farm household.

**q1713:** *What quantity was set aside as seed?* What quantity was used/set aside for seeds? Inquire and enter the quantity in unit of seed used or set aside for future use.

**q1714:** *How much quantity stored or currently in storage?* Ask the respondent the number of quantity stored in the household.

**q1715:** *How much percentage lost after harvest?* Enter the percentage lost after harvest due to damage/wasted, insects, rodents, rotting etc.

**q1716:** *Where did most losses happen?* Ask the respondent where most of the product losses happened and select the appropriate response from the drop down list.

- 1= on the field
- 2= during the storage
- 3 = during the transport
- 4 = others

## **Section 18 Livestock**

Livestock refers to all animals, birds and insect kept or reared in captivity mainly for agricultural purposes. This includes cattle, sheep, goat and pigs, as well as poultry. Domestic animals, such as cats and dogs, are excluded unless they are being raised for food or other agricultural purposes.

The number of animal is the animal population on the holding at a specific point of time, the day of enumeration. These refer to number of animals being raised by the holding on the day of enumeration, regardless of ownership. Animals raised include those present on the holding, as well as those being grazed on communal grazing land or transit at the time of enumeration.

**Identification:** Select the appropriate codes for Region, Constituency and Primary Sampling Unit (PSU) variables from the drop down menu. Select also the Dwelling Unit Number (DU) and the Household Number (HH) from the drop down list before you continue with the interviews.

**q1801:** *Did any members of your household raise or own any livestock during the past 12 months?*

1= Yes

2= No if no go to poultry section q1904.

**q1802:** *Number of Livestock reared/kept:* How many heads of livestock did the holding raise or own? From the drop down list select the livestock and enter number per type of animal.

#### CATTLE

1. Indigenous Cattle (beef)
2. Exotic (beef)
3. Crossbreed (beef)
4. Dairy Cattle
5. Bull
6. Cows
7. Heifers
8. Fem calves<1 year
9. Male calves< 1 year
10. Tollies 1-3 years
11. Oxen

#### GOATS

12. Boerbok (Female)/ doe
13. Boerbok (Male)/ buck
14. Other Goats (Male)
15. Other Goat (Female)

#### SHEEP

16. Sheep (Male)
17. Sheep (Female)

#### OTHER LIVESTOCK

18. Pigs
19. Donkeys/Mules
20. Horses
21. Dogs
22. Cats

### 23. Other, Specify

**q1803:** *How many livestock owned by female household members?* Enter the total number of livestock owned by female members

#### **POULTRY**

**q1804:** *Poultry types are provided. Ask the HH the poultry types available and from the drop down list select the appropriate response.*

**q1805:** *Number of Poultry reared/kept: How many poultry did the holding raise or own?* For each selection in 1804 enter the poultry numbers per type.

**q1806:** *How many poultry owned by female household members? ?* For each selection in 1804 enter the total number of poultry owned by female members

#### **LIVESTOCK INTAKE 2013/2014**

Livestock intake is livestock purchased, given or born which increase the number of livestock in the herd, Number of livestock bought\received.

**q1807:** *Types of livestock are provided. From the drop down select the types of livestock as per respondent answers.*

Types of livestock

Cattle
Goat
Sheep
Pig
Poultry

**q1808:** *How many head of livestock did the household buy or receive from others during the reference period?* Ask the respondent the number of livestock bought during the reference period.

**q1809:** How many herds of livestock were born alive in the holding during the last 12 months: Ask the respondent the total number of livestock born alive and enter the response you get from the respondent.

**q2210:** *Total livestock intake:* Put together q1808-q1809 will give you the total livestock intake. Please sum all the total livestock.

### LIVESTOCK OFF-TAKE 2013/2014

Cattle off-take is cattle that removed from the herd, either by selling household consumption, given away or stolen.

Q1811: *Livestock types are provided*

q1812: *Number Consumed by the Holding*: How many head of livestock were slaughtered for home consumption during the reference period? Ask the respondent the number slaughtered for home consumption during the reference period.

q1813: *Number sold/traded*: How many head of livestock were sold alive/slaughtered for sale during the reference period? Ask the respondent the number sold alive /traded for sale during the reference period.

q1814: *Number given away (gift, traditional fines)*: During the reference period, how many head of livestock were given away, as gift or as traditional fines? Ask the respondent the number of livestock which were given away as a gift or as a traditional fine by the household.

q1815: *Total livestock off-take*: Put together q1810-q1812 will give you the total livestock off-take.

**NOTE: Livestock is Cattle, Goats, Sheep, Pigs excluding poultry.**

### LIVESTOCK LOSSES DURING 2013/2014

q1816: livestock types are provided

q1817: *Number of Deaths due to disease*: During the reference period, how many head of livestock that died due to disease? Find out from the respondent the number of livestock that died due to disease.

q1818: *Number stolen or Lost*: During the reference period, how many of the head of livestock were stolen or lost? Find out from the respondent the number of livestock that were stolen or lost during the reference period.

q1819: *Number of livestock lost due to predators*: Ask the respondent the number of livestock losses due to predators (attributable to attacks by wild animals).

q1820: *Number of death due to starvation*: **How many of the livestock died due to starvation?** Find out from the respondent how many livestock died due to starvation.

q1821: *Number of losses due to other reasons*:: How many of the livestock were lost due to other reason? Find out from the respondent how many of the livestock lost due to other reasons, e.g. , drowning, lightning accidents.

q1822: *Total livestock losses*: Put together q1814-q1818 will give you the total livestock intake.

**Note: Livestock is Cattle, Goat, Sheep and Pig; please do not include poultry (excluding poultry).**

q1823: *Feeding Practice*: What have been (for this household) the feeding practices of animal feeds for the livestock in the past 12 months? From the drop down list ask the respondent the feeding practice of animal feed for each type of livestock and all poultry in the past 12 months.

1. Only grazing/free ranging
2. Mainly grazing/free ranging with some feeding
3. Mainly feeding with some grazing/ free ranging
4. Only feeding (no grazing or scavenging)
5. Salt licks
6. Protein licks
7. Summer Phosphate Supplementation
8. Commercial feed meals
9. Crop residue (e.g. maize/mahangu) stove
10. Camel thorn pods
11. Baled grass
12. Lucerne
13. Other, Specify

q1824: *Major Source*: What have been (for this household) the major sources of animal feed for the livestock in the past 12 months? From the drop down ask the respondent the major source of animal feed for each type of livestock and all poultry (q1825 – q1828) in the past 12 months.

1. Rented farm
2. Communal land
3. Bought from other farmers
4. Bought from shop/market
5. Bought from cooperative or farmer group
6. Bought from feed company
7. Other specify

q1829: What have been (for this household) the major feed practices for livestock in the past 12 months? For each type of livestock type provided from q1830 – q1834, enter the appropriate response obtained from the respondent

q1835: *Main Pasture management system*.

Pasture is a land used for grazing.

Production System refers to the general characteristics and practices of raising livestock on the holding (the reference period for the collection of data on type livestock production system is a single point of time, usually the day of enumeration).

Sedentary Pastoralism refers to livestock raised by holder who have a permanent residence. Often, livestock are raised in combination with growing crops.

Sedentary Agro pastoralism is a mode of production that combines field culture and husbandry with the use of pasture areas. The types of livestock kept by pastoralists vary according to climate, environment, water and other natural resources, and geographical area.

Sedentary Agro pastoralism is a mode of production that combines field culture and husbandry with the use of pasture areas.

Feed lot a plot of ground on which livestock are fattened for market.

Cattle post is a suitable land where livestock are kept way out in the bush. The owner and his family may live at the post or he /she may employ others from time to time but in any case a cattle post is like an informal small village, fortified with woven sticks and containing two or three huts. The cattle are not kept there, they graze freely and men take turns to watch them. The post is where they will sleep.

Transhumance refers to seasonal movement of livestock (as sheep) between mountain and lowland pastures either under the care of herders or in company with the owners.

Nomadic refers to livestock raised in a situation where the agricultural holder has no permanent place of residence and does not practice regular cultivation. Livestock move from place to place with the agricultural holder and his/her household, depending on the season and availability of feed or water.

Production Systems:

- 01 Rotational grazing based on available grazing land
- 02 Rotational grazing based on available water points
- 03 Continuous grazing

q1836: *Did the HH use the following practices on livestock?*

The dropdown is provided and select the appropriate response recorded in the space provided.

Practice on livestock

Commercially prepared animal feeds
Veterinary drugs
Insemination

## Section 19 Area measurement

**Parcel, Field, Plot Nos.:** In the first three columns transfer all the parcel, field and plot ID numbers from Section 03

**q1901: list of crop and land use type:** corresponding to the field/plot number provided in column 2, transfer the name of crop grown or the land use type from Section 03

**q1902: Land use code:** transfer the corresponding codes from Section3

**q1903: Area in hectare measured with GPS (clockwise):** Indicate the area planted to each crop in hectares. Measure the field with the GPS clockwise and insert the measurement.

**q1904: Area in hectare measured with GPS (anti-clockwise):** Indicate the area planted to each crop in hectares. Measure the field with the GPS anti-clockwise and insert the measurement.

Measure the area the first time going clockwise (Point A to say point F) and record the reading in your notebook. Then, measure the same area for the second time but now going anti clockwise (Point F back to Point A) and record both readings in the space provided.

**q1905: Number of trees (for permanent crops):** ask the respondent for the number of trees on the field/plot corresponding to each fields/plots under permanent crops indicated in q1902.

## **Section 20 Selection of Plots for Crop Cutting**

In order to estimate the production of a crop, two components are necessary namely the area under the crop and the yield (production per unit area) of the crop. The area measurement of plots has been done and the results of the measurements recorded in SECTION 19.

Crop-cutting will allow us to estimate the yield of a crop by harvesting, threshing and weighing the produce of randomly located subplots in selected plots.

In order to conduct crop cutting equipment experiment make sure you are prepared with the following: Equipment and material that you will need for Crop-cutting;

1. Selected Plots for Crop Cutting from Section 20
2. Tables of random numbers.
3. One measuring tape
4. One 7.07 meters plastic rope a ring attached at each end
5. Two 5 meters long ropes with a ring attached at each end
6. 3 iron poles
7. Bags to store the harvested crops for drying.
8. Plastic bags for weighing the threshed and cleaned samples
9. Weighing scale

As soon as the crop is ripe, and well in advance before the household will start harvesting the plot, the subplots for crop-cutting must be harvested.

### **Crop-cutting field selection**

During this pilot census, regarding area, all parcels/fields/plots of different land uses will be measured and data on farm practices will be collected for all plots.

However, for crop-cutting experiment, only sorghum, maize and millet will be covered and samples

of crop plots under these crops will be selected. The procedure to select fields/plots for crop-cutting is given below.

### **Crop-Cutting Plot Selection Procedures**

Section 21 is the form where all the sorghum, maize and millet plots which are eligible for crop cutting will be copied with their corresponding IDs in Column 1 – column 4 and selection of crop cutting fields/plots will be conducted. Hence, the crop fields/plots for the crop-cutting exercise with their corresponding Household ID, Parcel number, Field number, plot number and Crop name and crop code will be transferred from Section 03 to this Section 21, in the space provided. After completing the transfer of the required identification information of the crop plots, selection of crop plots for crop-cutting will be performed.

#### **Part I: Identification Particulars:**

In this part, the Region, Constituency, PSU and DU codes will be entered, in the space provided.

#### **Part II: List of Crops**

- a) Put identification numbers of households, parcels, and plots in the spaces provided and these ID numbers will be taken from Section 03. This will be done in one section ( Section 21) for all the sampled agricultural households.
- b) Column 5: Crop name and code: the crop name and code of the crop which corresponds with the identification numbers entered in column 1 to column 4 will be entered in the space provided.
- c) Column 6 –column 11: Name of crop: under this row, spaces are provided for writing crop names. The spaces provided allow to write up to three different crop names. Based on the sequence of crops listed in column 5, the crop names should be listed in the spaces provided, but one crop name in each space. Under columns titled “Serial plot No ” (col. 6, and 8, 10), give consecutive serial number starting from 01 to each crop type, independently. Then, using a random number table, three crop fields from each crop type will be selected for crop-cutting experiment. If the number of crop plot for a particular crop is 3 or less than three, all the crop fields for this crop will be selected for crop-cutting experiment. Then, the selected field number will be ticked/circled in column 6, 8, and 10 for identification purpose. Then this selected field numbers ticked will be transferred to column 7, 9, and 11. These are the selected field for crop-cutting experiment.

## Section 21 Crop-cutting results

This Section serves to record all the crop-cutting results obtained from the 5mx5m field plots on the selected crop fields in the selected Enumeration Areas

Identification Particulars: name of the Region, Constituency, PSU and DU will be entered for the sampled PSU, in the space provided.

In the first 4 columns put identification numbers of households, parcel number, field number and plot number, respectively for the crop-cutting plots. The identification numbers should be copied from Form CC.

*q2101, q2102: Name of crop and code*: the name of the crop planted on the selected crop –cutting field will be entered, and the corresponding crop code will be entered

*Crop-cutting/day, month*: the date and month where crop-cutting on the field was conducted will be recorded.

*q2103: Fresh weight of harvest*: the fresh crop harvest from the 5mx5m plot after it is threshed will be weighed and the result will be recorded in kilogram, in the space provided.

*Note that the way crop-cut or harvest is done on the plot should be done in similar way as the holder is harvesting. Also prior to start the crop-cut on the field, the enumerator should get the permission from the holder to do the crop-cut.*

*Dry weighing/day, month*: there has to be a second weight where the crop-cut harvest should be dried for 10-15 days in order to remove the moisture content. Hence, the date and month where the crop-cut harvest is weighed for the second time after drying should be recorded in the space provided.

*q2104: Dry weight*: the crop-cut harvest after 10-15 days of drying will be weighed and the result obtained should be recorded, in kilogram, in the space provided.

At the end, the enumerator who collected the information and conducted the crop-cutting and the supervisor and regional coordinators who checked the collected information should put their names, signatures and date of the activity done, respectively, in the space provided.

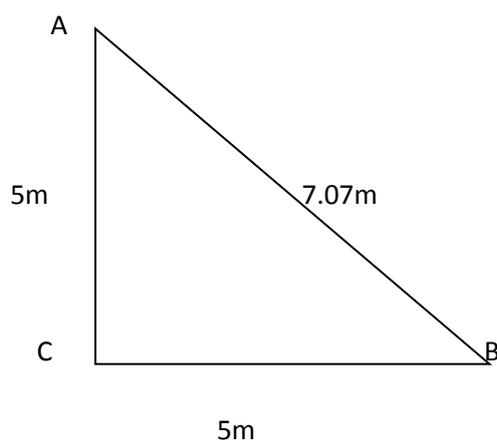
Crop-cutting experiment procedures

In each selected field for crop-cutting one randomly selected plot will be taken and the crop on the plot should be cut, threshed and weighed.

The procedures of selecting random plot are as follows:

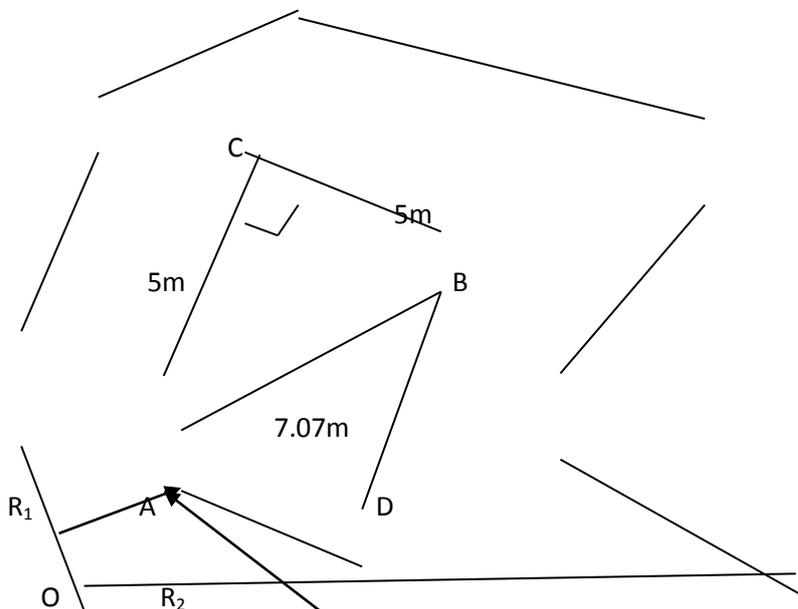
- a. The South-Western corner of the field will always be selected as a starting point, say O. For convenience, a pole is fixed at the starting point, O.
- b. Beginning from the starting point, the length and the breadth of the field is measured by pacing, fractions of the paces being rounded off to the next whole number
- c. Two random numbers, one each for the length and breadth and not exceeding the respective numbers are selected by using random number table.
- d. A random point in the field corresponding to the selected paired number is chosen by walking from the starting point of field, O, along its length and stop at a distance of a selected number corresponding to the length, then walk into the field along the breadth and stop at a distance of the other selected number. A pole is fixed at this point, call it point A. if the random point does not fall within the field, the pair of random numbers is rejected both for the length and the breadth and another random point is selected using a fresh pair of random numbers.

Plot allocation: to set up a plot, a framed rope is used which has three parts: first rope is 7.07 meters long, and on each end of the rope is one ring; second and third ropes which are 5 meters long each, with one ring at the end of each rope



A line which is 7.07 meters is set up in the direction of the enumerator's shadow at the random point A. The rope is pulled straight and fixed to poles A and B by rings as shown on the diagram above. The two sides of the rope are pulled with C to the left side of the line AB until both sides of rope AC and BC are stretched and the ring C is fixed by a pole. This is a right-angle triangle, one half of the required square plot for one crop-cutting. Then, all the stalks lying on the boundaries under the rope AC and BC of the triangle inside the triangle will be included in the yield of sample plot.

### Crop-cutting plot allocation



After cutting all the stalks of the triangle ABC, then the ring C will be pulled to the opposite side to form the second right-angle triangle ABC', which is the remaining one-half of the plot. All stalks that are clearly located inside the triangle ABC' are cut as before. However, the stalks on the boundaries AC' and BC' of the second triangle should not be included in the yield of the sample plot.

Freshly cut samples from the selected plot are then immediately threshed and put into bags with identification information (Household ID, ID, Parcel number, Field number, plot number and Name of crop. With the balance scale, weigh and the result of weight should be recorded in the space provided.

The crop that is cut and threshed contains some moisture, therefore, it is important to dry it for 10-15 days and then re-weigh the dried crop and the result should be recorded in the space provided.



