CHAPTER 1

INTRODUCTION

This chapter provides a historical background on the World Programme for the Census of Agriculture 2010, and outlines the basic characteristics of the new approach for the 2010 round of agricultural censuses covering the period 2006–2015. The new programme uses a modular approach, with a core module carried out on a complete enumeration basis to provide key structural data in conjunction with one or more sample-based census supplementary modules to provide more in-depth data. The integration of the census of agriculture into the overall system of agricultural statistics is emphasized. The changes from earlier agricultural census programmes are also highlighted.

What is a census of agriculture?

1.1. 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 size of holding, land tenure, land use, crop area harvested, irrigation, livestock numbers, labour and other agricultural inputs. 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.

Background to the world programme for the census of agriculture

1.2. This publication presents guidelines for the World Programme for the Census of Agriculture 2010 (WCA 2010), covering agricultural censuses to be carried out by countries between 2006 and 2015. It is the ninth round in the decennial programme of agricultural censuses, which started in 1930. The 1930 and 1940 rounds were sponsored by the International Institute of Agriculture (IIA). The six subsequent rounds – in 1950, 1960, 1970, 1980, 1990 and 2000 – were promoted by FAO, which assumed the responsibilities of IIA following its dissolution in 1946.

1.3. The first two rounds of the agricultural census sought to provide comprehensive agricultural statistics, including production. For the 1930 round, countries were asked to carry out a national agricultural census during 1929 in the northern hemisphere, and during 1930 in the southern hemisphere. The objective was to obtain global data referring to the same time period. A similar request was made for the 1940 round. These first two rounds were undertaken at a time when there was a large gap in agricultural information, and data sources for agricultural statistics were not well organised, even in developed countries. The agricultural censuses were expected to help fill this gap. However, many countries found it difficult to conduct the census. Adequate resources for maintaining a large field staff were not easily obtained; their recruitment and training were major concerns when professional staff were limited in number; and, completing long questionnaires was a burden for both enumerators and respondents. It was difficult to guarantee data quality, and data processing in the pre-computer era was very time-consuming. For these and other reasons, the first two census rounds proved to be beyond the capacity of many countries.

1.4. The 1950 round provided for a more restricted content, concentrating on the structural aspects of agriculture such as farm size, land use and numbers of livestock. Later rounds retained this focus on structural data, but gradually expanded the census content to reflect current areas of concern; the 2000 round gave special emphasis to aquaculture, employment and the environment. The requirement to undertake censuses in all countries in the same year was also relaxed; the 2000 round covered agricultural censuses taken during the period 1996–2005.

1.5. In implementing agricultural censuses, governments around the world have increasingly had to balance the need for statistical information against the resources required to produce the statistics. A census of agriculture is very costly as well as being highly demanding on technical and other resources. More and more, governments are under pressure to cut the costs of providing statistical services. Some countries have not had the manpower or financial resources to carry out a full census of agriculture, but have been able to participate in the agricultural census programme by using a sample-based approach.

1.6. At the same time as governments face pressure to cut costs, they are also being confronted with increasing and more complex demands for data. There has been growing interest in topics such as food security, the environment, farm labour, and special agricultural practices like organic farming. Where statistical systems are not well developed, there has also been a tendency to use the opportunity provided by the census of agriculture to collect a wider range of data than would normally be the case in such a census. Meeting these additional data needs without over-burdening the census of agriculture has become a dilemma for many countries, especially given the complexity of many of the new topics. The questions needed to adequately cover topics such as farm labour and household food security are too detailed for a census of agriculture in its current form.

1.7. In developing the series of agricultural census programmes, FAO has recognized that countries are at different states of economic and statistical development. Countries have been encouraged to develop and implement their census of agriculture tailored to their unique situation, but to be mindful of the need to collect a minimum set of data for international comparison purposes.

The census of agriculture in an integrated agricultural statistics system

1.8. In recent years, increasing efforts have been made towards the better integration of statistical activities. Integration, in a statistical sense, means that each statistical collection is carried out, not in isolation, but as a component of the national statistics system. In an integrated agricultural statistics system, the census of agriculture provides certain types of data as part of an integrated set of data on food and agriculture, needed for decision-making in food, agriculture and rural development.

1.9. The main advantages of an integrated statistics system are:

- It is possible to plan and develop a comprehensive statistical programme, without duplication of statistical activities or the release of conflicting statistics, while ensuring the efficient and balanced use of available statistical resources.
- Concepts, definitions and classifications used in the different statistical activities can be made compatible, making it easier to interpret and analyse related data from different sources.
- Any one statistical collection, such as the census of agriculture, can be restricted to a coherent and manageable set of items, in the knowledge that other related data are available in a comparable form from other sources.

1.10. The data requirements on food and agriculture in an integrated statistics system are extensive and include data on: the structure of agricultural holdings, agricultural production, farm management, food consumption, household income and expenditure, labour force, and agricultural prices. These data could come from agricultural censuses, agricultural surveys, population censuses and surveys, administrative records, or other sources. An integrated agricultural statistics system involves a multi-year programme of statistical activities, including an agricultural census and agricultural surveys, to provide all the required data.

1.11. Planning and implementing an integrated agricultural statistics system requires an efficient organization, trained personnel at various levels, and secured budgetary allocations over a period of years. Efficient organization implies strong cooperation between users and producers of agricultural statistics. Different statistical activities are not always all under the jurisdiction of a single government institution: for example, the national statistics office is often responsible for the agricultural census, whereas the ongoing agricultural production surveys are carried out by the relevant ministry. In these circumstances, establishing

coordination among the various agencies is paramount. This is sometimes difficult because each agency may have different mandates regarding the purpose, scope and timing of their work.

1.12. Many countries experience a shortage of trained statistical personnel and/or insufficient funds for statistical development, and will require time to achieve an integrated statistics system. Nevertheless, it is recommended that all statistical development efforts be oriented towards the long-term goal of providing a continuous flow of timely and accurate data covering all aspects of food, agriculture and rural development.

1.13. Agricultural censuses and agricultural surveys are closely related in that both involve the collection of agricultural data from agricultural production units. For WCA 2010, emphasis has been given to developing the agricultural census within the overall framework of the system of integrated agricultural censuses and surveys. This system can be viewed as having two elements: (i) the agricultural census, which is the nucleus of the system; and (ii) the programme of agricultural sample surveys, based on the agricultural census.

1.14. This publication focuses mainly on the agricultural census element of the system. The programme of agricultural surveys is briefly discussed in Chapter 9. Further information on these surveys will be provided in later volumes.

Outline of WCA 2010

1.15. In the past, agricultural censuses have been mainly concerned with the collection of structural data for agricultural production units (agricultural holdings). The 2010 programme continues in this vein. Guidelines for taking agricultural censuses for agricultural production units are given in Chapters 2 to 6 of this publication. However, it is recognized that some countries may wish to collect a wider range of data than in the past and two options are provided:

- Aquaculture is becoming increasingly important in many countries. The option to conduct an aquacultural census in conjunction with the agricultural census is provided. This is discussed in Chapter 7.
- Some countries might like to provide additional agriculture-related data for households that are not agricultural producers but are involved in agriculture in some way, such as those living in rural areas or those deriving income from employment in agriculture. This option is discussed in Chapter 8.

1.16. To help countries meet the need for a wider range of data from the agricultural census, while minimizing the cost of census-taking, it is recommended that countries use a modular approach for the agricultural census:

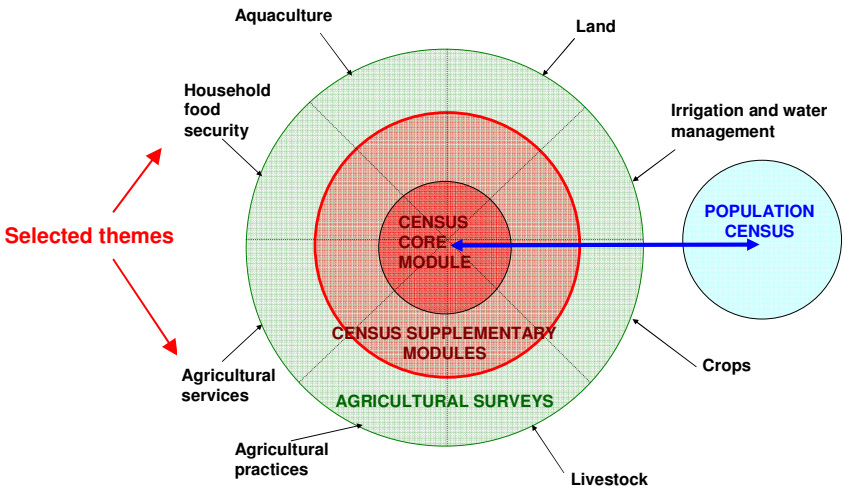
- A core census module, to be conducted on a complete enumeration basis[1], will provide a limited range of key structural items of importance for national policy-making, making international comparisons, constructing sampling frames, and analysing data at detailed geographic or other levels. The core module is similar to the conventional agricultural census in the past, but with a much more restricted range of items.
- One or more census supplementary modules, to be conducted on a sample basis at the same time as, or immediately after, the core census module to provide more detailed structural data or data not required at lower administrative levels. The sample for the census supplementary modules will be selected based on sampling frames from the core census module. For information on how supplementary modules are conducted in conjunction with the core census module, see paragraphs 3.75–3.76. For information on the sample selection for supplementary modules, see paragraphs 10.12–10.15.

1.17. A recommended list of 16 items for the core module is given in Chapter 4. These items are FAO's recommended minimum set of data for the agricultural census. Countries may include more core items to

[1] For countries where a complete enumeration is not possible, the core module can be conducted on a large sample basis (see paragraphs 3.64–3.71).

meet additional data needs or for use in creating sampling frames for the census supplementary modules or the programme of agricultural surveys. For example, if an in-depth survey on fertilizers was to be conducted, an additional item on the use of fertilizers may be added to the core module to help select the sample for the fertilizer survey.

Figure 1.1: The agricultural census in the framework of the system of integrated agricultural censuses and surveys



1.18. Chapter 4 also provides a list of 89 items that could be considered by countries for inclusion in the census supplementary modules. Countries are not expected to carry out all agricultural census supplementary modules or collect all 89 census supplementary items. Instead, each country will conduct one or more supplementary modules according to their requirements. For example, if irrigation and livestock are important to a country, it would carry out the core census module plus two supplementary modules on irrigation and livestock.

1.19. For information on the criteria used to determine the suitability of items for the core and supplementary modules, see paragraphs 3.16–3.21. Concepts and definitions for each core and supplementary item are provided in Chapter 11.

1.20. A schematic representation of the agricultural census within the framework of the system of integrated agricultural censuses and surveys is shown in Figure 1.1. It shows items under selected headings or themes such as “land” and “irrigation and water management”, according to their suitability for inclusion in the agricultural census core module, in the agricultural census supplementary modules, or in the programme of agricultural surveys.

1.21. As well as holding level data, provision is also made for the collection of infrastructure data at the community level, an important need in many countries. Guidelines are provided in Chapter 5.

1.22. Emphasis is also given to integrating the agricultural and population censuses, not only through the use of standard concepts and definitions and sharing field materials, but also coordinating the two data collection activities, adding agriculture-related questions to the population census, and linking of data from the two sources. For more details, see Chapter 6.

1.23. Some features of the new agricultural census methodology have already been implemented by countries in previous agricultural census rounds. As in the past, it is expected that countries will adapt the guidelines given in this publication to meet national needs.

Changes from earlier agricultural census programmes

1.24. WCA 2010 has been developed after a review of country experiences with the 2000 programme and an assessment of changing data needs in the light of developments in agricultural practices.

1.25. The main methodological differences between the 2010 and 2000 programmes are highlighted in the previous section (see paragraphs 1.15–1.23). Specific changes to statistical units, data content, concepts and definitions, and classifications are summarized below:

1.26. Statistical unit

- The statistical unit for the agricultural census, the agricultural holding, remains the same as used in previous programmes (see paragraph 3.23).
- The concept of an aquacultural holding has been introduced as the unit of aquacultural production in the aquacultural census (see paragraphs 7.9–7.11).
- Two new concepts – the sub-holding and the sub-holder – have been introduced to better measure the role of household members in the management of the holding, especially women (see paragraphs 3.42–3.52).

1.27. Data content

- In the 2000 programme, FAO provided a list of recommended items, with some denoted as "Essential". The 2010 programme presents items under two headings according to their suitability for the core and supplementary modules.
- The list of recommended core items is shorter than the list of essential items from the 2000 programme. However, under the modular approach, a greater range of in-depth data can be collected in the supplementary modules using sampling methods. An extensive, but not exhaustive, list of items for consideration for the supplementary modules is provided.
- A number of items in the supplementary modules are included in the agricultural census programme for the first time:
  - Land: land clearance (Item 0106); soil degradation (Item 0111).
  - Water: irrigation according to land use type (Item 0201); method of irrigation (Item 0202); area of specific crops irrigated (Item 0203); source of water (Item 0204); payment terms for irrigation (Item 0205); other water management (Item 0206).
  - Crops: end-use of crops (Items 0302 and 0313); crop production (Items 0303 and 0314); net cropped area (Item 0321); fertilizer use for each crop type (Item 0323); source of seed (Item 0324); type of seed (Item 0325); area of nurseries (Item 0326).
  - Livestock: use of veterinary services (Item 0402); milking animals (Item 0413); livestock population dynamics (Items 0414–0418); type of feed (Item 0419).
  - Agricultural practices: use of agricultural chemicals (Item 0501); good agricultural practices (Item 0502); organic farming (Item 0503); genetically modified crops (Item 0504); sales of agricultural produce (Item 0507).
  - Agricultural services: credit (Items 0601–0604); source of agricultural information (Item 0605); extension services (Item 0606); access to food markets (Item 0607).
  - Demographic and social characteristics: national/ethnic group (Item 0702); household structure (Item 0713)
  - Farm labour: activity status of household members (Item 0801), status in employment of household members (Item 0811); time worked of household members in main job and on the holding (Items 0813–0814); form of payment for employees (Item 0822); use of agricultural service establishments (Item 0823).
  - Household food security: a new agricultural census theme altogether (Items 0901–0911).
  - Aquaculture: type of site (Item 1001); production facility (Item 1002); type of water (Item 1003); sources of water (Item 1004); type of organism (Item 1005).
  - Forestry: purpose of forest (Item 1103); agro-forestry (Item 1104).
  - Management of the holding: a new theme altogether (Items 1201–1214).
- Several non-essential items from the 2000 programme have been omitted from the 2010 programme; namely, presence of a hired manager, area with irrigation potential, soil type/colour/depth and value of forestry/fishery sales.

1.28. Concepts and definitions

- The definition of an agricultural holder has been amended to allow for the possibility of the holder being a group of people (see paragraphs 3.36–3.41).
- Forest and other wooded land has been re-defined to bring it into line with international standards. The notion of forest and other wooded land as a primary and secondary land use has also been introduced in accordance with international definitions (see paragraph 11.35).
- The notion of "legal" and "non-legal" has been introduced into the land tenure concept to address the issue of security of tenure (see paragraphs 11.47–11.49).
- The definition of irrigation has been clarified to reflect the "controlled" supply of water, and the concept of "water management" has been introduced to provide a more complete picture of water issues on the holding (see paragraphs 11.68–11.72).
- The concept of fertilizer has been clarified to meet with FAO standards. Other organic materials that enhance plant growth but do not come under the definition of fertilizer are also included (see paragraphs 11.130–11.137).
- The concept of "agricultural household" has been introduced to distinguish between holdings that are primarily agricultural producers and those for which agricultural production is a secondary activity (see paragraphs 11.210–11.214).
- Employment concepts have been changed to better reflect the structure of employment in rural areas and to be consistent with ILO standards (see paragraphs 11.226–11.233).

1.29. Classifications

- The land use classification has been changed to clarify land use terminology (see paragraphs 11.20–11.39).
- The crop classification has been updated to make it more suitable for current needs (see Appendix 3).
- For the first time, structured classifications have been provided for types of livestock (see Appendix 5) and types of machinery (see Appendix 6).

Data items and questionnaires

1.30. The purpose of this publication is to present broad principles and guidelines for the 2010 round of agricultural censuses. It makes recommendations on the items to be included in the census and the concepts and definitions to be used. It does not make recommendations on the questions to be asked in the questionnaire to collect those data. Each country needs to develop its own questionnaires and field procedures to collect the data in a manner suited to national conditions, based on the recommended concepts and definitions provided in this publication.

1.31. Often, several questions are required to provide a given agricultural census item. Some items, such as activity status (Item 0801), involve abstract concepts, which cannot be collected directly from respondents. For example, one cannot ask a person if he/she is unemployed; instead, one asks a series of questions about the person's work activities to determine if the person satisfies the conditions for unemployment (see paragraph 11.237).

1.32. The willingness and ability of respondents to supply information also influences the way questions are asked. For example, to collect data on farm area, one may need to ask questions about the different types of land (to ensure that it is fully reported), to use local units (if the respondents are not familiar with hectares), or to ask specific questions about land registration documents for each member of the household (if land is registered in different names).