



## MOROCCO – AGRICULTURAL CENSUS 2016 – METADATA REVIEW

### 1. Historical outline

The Agricultural Census (AC) 2016 to which the metadata review and data presented here refer, is the third AC carried out in the country. The previous ACs were conducted in 1974 and 1996. In 1962, a Multiple Objective Survey was carried out and the results were published in 1964 and were reported in WCA 1960.

### 2. Legal basis and organization

#### ***Legal framework***

The AC 2016 was carried out under the following legal framework:

- Royal Decree-Law No. 370-67 of 5 August 1968, relating to statistical studies;
- Circular No. 571 of 10 March 2015 for the establishment of governance bodies at central and regional levels.
- Circular No. 2774 of 19 November 2015 of the Minister for the realization of the AC ;
- Circular No. 2950 of 8 December 2015 of the Minister for the launch of the AC;

#### ***Institutional framework and international collaboration***

The responsible office for the AC was the Ministry of Agriculture, Sea Fisheries, Rural Development and Waters and Forests (MASFRDWF). An Executive Committee chaired by the Minister and a Technical Committee chaired by the Secretary General of the Ministry of MASDRDWF under the former were formed. Under the latter, a Thematic Committee, Regional and Provincial Committees, and Project Team completed the governance scheme. An agreement was signed between the Strategy and Statistics Department (SSD) of the MASFRDWF and the High Commission for Planning (i.e., Moroccan National Statistical Office) for collaboration and data exchange. A convention was signed between SSD and the Royal Centre for Remote Sensing for the acquisition of satellite images. FAO provided technical assistance (TCP/MOR/3503 between MASFRDWF and FAO).

#### ***Census staff***

The staff involved in census data collection amounted to 2440 staff, of whom 1820 were enumerators, 450 controllers<sup>1</sup>, 110 supervisors, 34 geomaticians/topographers/cartographers, and 26 staff with other functions.

### 3. Reference date and period

***Reference day:*** the day of the interview for items such as structure of agriculture holdings, livestock and agricultural machines, etc.

***Reference period:*** the agricultural season (1 September 2014 to 31 August 2015) for crop production, land use, labour and use of fertilizers, etc.

### 4. Enumeration period

The data collection was conducted from March to August 2016.

### 5. Scope of the census and definition of the statistical unit

The ***census scope*** covered agricultural activities (agricultural and livestock production).

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<sup>1</sup> The function assigned to the controllers is to control the quality of the tabular information collected by enumerators for all variables contained in the questionnaires using back office control, telephone, and ground veracity control. The controller also checks the exhaustivity of the data collection across the geospatial tools used for this purpose.

The **statistical unit** for the AC 2016 was the agricultural holding defined as an economic unit of agricultural production under single management, comprising all livestock kept and all land used for agricultural production purposes, regardless of title or legal form. Economic units exclusively devoted to hunting, trapping and agricultural services, etc., were not considered as agricultural holdings.

### **Community-level data**

There were no community-level data collected along with the census.

## **6. Census coverage**

### **Geographic coverage**

The AC 2016 covered the entire country.

### **Cut-off threshold and other exclusions**

The AC 2016 covered agricultural holdings with at least one of the following criteria: (i) a minimum of 0.1 hectare of *Bour* (rain land), utilized agricultural area (UAA); (ii) a minimum of 0.05 hectare of irrigated UAA; (iii) a minimum of 0.01 hectare in a greenhouse; (iv) a minimum of ten trees in "olive tree equivalent" for scattered trees<sup>2</sup>; and (v) a minimum of 0.5 UGB<sup>3</sup> for cattle coming within the framework of effective breeding.

## **7. Methodology**

### **Methodological modality for conducting the census**

Although the modular approach was planned for the AC 2016, only the core module was implemented without supplementary modules.

### **Relation to other censuses**

Data conciliation was carried out between the AC 2016 and the Census of Fruit Plantations 2010.

### **Frame**

The establishment of the National Agricultural Register (NAR)<sup>4</sup> started with the preparation of the list of agricultural holdings, which was used as the frame for the AC 2016. The list by Douar (the smallest administrative division area) of agricultural holding was prepared in 2015, by enumerators of MASFRDWF in collaboration with the local authorities of the Ministry of Interior.

### **Complete and/or sample enumeration methods**

The census was a complete enumeration of all agricultural holdings from the frame, according to the census scope. Up to now, no thematic module was collected.

### **Sample design**

No sampling was used.

### **Data collection method(s)**

The data collection method was face-to-face interviews with CAPI (tablets). The enumerator delimited the holding and its plots in the tablet. The holding number and the plot number were generated automatically by the information system (back-office application) stored in the central server.

### **Questionnaire(s) and items covered**

The AC 2016 used one questionnaire for the basic module<sup>5</sup>.

The AC 2016 covered 16 out of the 23 essential items recommended in the WCA 2020.<sup>6</sup>

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<sup>2</sup> In the case of mixing of more than one species at the level of the plantation, the density is calculated in relation to the olive tree which constitutes a reference unit of measurement called "Olive tree equivalent".

<sup>3</sup> The Big Cattle Unit (UGB) is a unit used to be able to compare the numbers of animals of different species or categories.

<sup>4</sup> The NAR is a geographic information system containing aerial ortho-photos and satellite images, which identifies and locates the farms (agricultural holdings) and their plots.

<sup>5</sup> The basic module was used for exhaustive enumeration of all agricultural holdings using a single short questionnaire relating to the basic aspects of agricultural holdings such as location, legal status, gender and age of the operator, household size, etc.

<sup>6</sup> The following essential items were not covered by the AC: (i) 0302 Area of land actually irrigated: fully controlled and partially controlled irrigation; (ii) 0402 Area of temporary crops harvested (for each temporary crop type); (iii) 0406 Area of productive and non-productive permanent crops in compact plantations (for each permanent crop type); (iv) 0407 Number of permanent crop trees in scattered plantings (for each tree crop); (v) 0501 Type of livestock system; (vi) 0901 Whether working on the holding is the main activity; (vii) 0902 Working time on the holding; (viii) 1201 Presence of aquaculture on the holding.

## **8. Use of technology**

CAPI (tablets) method was used for census data collection with a software developed by the MASFRDWF. Orthophoto and satellite images were used, and also incorporated in the tablets, to create spatial geo-location of the agricultural holdings and their plots. GIS platform, connected to a central server via the Internet, was used to allow real-time managing and monitoring of the census progress. Use of private services for data collection, concerning all tabular information of questionnaire and geospatial information of holding limits. The database worked with SQL and the programming scripts were in PHP. A Geodatabase, a register of agricultural holdings with orthophotos and satellite images, was developed.

## **9. Data processing**

The data entry application installed in the tablets allowed enumerators to access the central server by a login name and a password. The enumerator delimited the holding and its plots, and then completed the information for each plot. The data entry application automatically generated the ortho-photo code, the holding number and the plot number by accessing the central database via the Internet. Once the enumerator completed the questionnaire, collected data was transmitted from the tablet to the central server which hosted the data. Data processing was carried out using PostgreSQL, PHP, 2IE and ArcGIS, QGIS for geographical data, and SPSS for analysis and tabular data.

## **10. Quality assurance**

For the AC 2016, the main mechanisms conducted to quality assurance in procedures were:

- Agreement with Royal Centre for Remote Sensing for exchange of experience and technical assistance;
- Technical assistance from a private service provider, specialized in the field of cartography, remote sensing and GIS;
- Workshops with stakeholders in the agricultural sector (Central Directorate, Regional Directorate, Provincial Directorate, institutions under supervision, etc.) for the development of the methodology and the design of the questionnaire;
- Involvement of other ministerial departments, such as High Commission for Planning (HCP), Ministry of the Economy, Ministry of the Interior, for: (i) identify their specific agricultural information needs; (ii) participate in carrying out the census;
- Recruitment of FAO experts for technical assistance on methodology, questionnaire design, tabulation plan design and the integration of gender in agricultural statistics;
- Requirement of an agricultural technician diploma for the recruitment of enumerators;
- A pilot census was carried out to evaluate and adjust all the steps of the operative.

The main mechanisms conducted to ensure the quality of census data were:

- A similar survey has been conducted in parallel with the AC, such as a post enumeration survey called "Data validation survey"; it consists in repeating the same questionnaires on a representative sample of 32 580 questionnaires in order to assess the accuracy and reliability of data, coverage errors, and sources of error (observational, delimitation, and response);
- Organization of workshops to validate the census results with experts in the field at central, regional, and provincial levels;
- Comparison with data series from statistical surveys and administrative data.

## **11. Data and metadata archiving**

All data is stored and archived in a central server at the Information System of the MASFRDWF.

## **12. Data reconciliation**

The data from the 2014/2015 agricultural year were compared to the results of the census, which led to reconciliations of the data. Other census data not included in statistical surveys were compared to administrative data. In the workshops with stakeholders, validation activities were organized with central, regional and provincial offices, to involve all specialists in the agricultural sector, vegetable and animal fields. Based on the result of AC 2016 and validation workshops, some data sets were revised and adjusted.

## **13. Dissemination of census results and microdata**

No census results were disseminated at the time of preparation of this review.

#### 14. Data sources

**Ministry of Agriculture, Sea Fisheries, Rural Development and Waters and Forests (MASFRDWF).** 2016. *Recensement Général de L'Agriculture pour l'établissement du Registre National Agricole*. Rabat, Morocco. January 2016.

**Arrach, R., Bouali, L., Mestari, S.** 2016. *Recensement Général de l'Agriculture du Maroc 2016: Préparation, mise en oeuvre et innovations majeures*. Presentation at a workshop of the Tunisia project UTF/TUN/041/TUN in June 2021.

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