



FIJI – Fiji Agriculture Census 2020 – Metadata review

1. Historical outline

The Fiji Agriculture Census 2020 (FAC 2020), to which data metadata and data presented here refer, is the seventh AC conducted in the country. Previous censuses were undertaken in 1950, 1960, 1968/1969, 1978/1979, 1991, and 2009. FAC 2020 was conducted, for the first time, following complete enumeration approach marking a significant milestone in census data collection for agricultural statistics in the country. All previous agricultural censuses conducted in the country followed sampling approach which limited generation of estimates of various characteristics at lower geographies.

2. Legal basis and organization

Legal framework

The FAC 2020 was carried out according to the Statistical Ordinances No. 29 of 1961 and No. 8 of 1964, enabling the collection, compilation, analysis, and publication of certain statistical information, including agriculture-related data. The Fiji Government, through a Cabinet decision on 17 May 2019, approved the implementation of the Fiji Agriculture Census 2020 by the Ministry of Agriculture from 10 February to 29 February 2020.

Institutional framework and international collaboration

The Ministry of Agriculture (MoA) primarily shouldered the responsibility of conducting the FAC 2020 in collaboration with Ministry of Fisheries, Ministry of Forestry, Fiji Bureau of Statistics, Ministry of Economy, Ministry of Sugar Industry, Ministry of Rural & Maritime Development, Ministry of iTaukei Affairs, Ministry of Health and Medical Services and Ministry of Women, Children & Poverty Alleviation with technical support provided by FAO.

Census staff

The FAC 2020 engaged 430 enumerators, 146 field supervisors who were existing extension locality officers, and 118 area coordinators (CAPI supervisors) who were existing senior technical extension officers that were trained and employed to collect, verify and scrutinize data collected during the census enumeration period.

Headquarters Team consisted of 10 statistics officers from 5 government agencies (Ministry of Agriculture, Ministry of Fisheries, Ministry of Forestry, Fiji Bureau of Statistics, Ministry of Women, Children and Poverty Alleviation) who were members of the FAC 2020 Technical Working Group. All data processing activity was carried out at the Main Census Data Processing Room by two staff of the Fiji Agriculture and Rural Statistics Unit with guidance from a FAO Consultant.

Two MoA IT officers were responsible for coordinating IT activities at the three main regional census offices during the census period.

3. Reference date and period

Reference day: 10 February 2020 for livestock, farming equipment inventory, number/area of plants or trees planted, and location of farmland parcels.

Reference period: 10 February 2019 to 10 February 2020 for crops, area harvested, fertilizers and agricultural pesticides, labour force, etc. However, for better recall and accurate reporting, shorter reference periods were also included, and simple calculations were recommended to capture the last 12 months data such as milk production (three months), fishing activities (one month), farm gate price (recent sale) and household members (six months). Climate Change questions on changes observed, type of events occurred, and frequency of occurrence used a past 10 year period (from March 2010).

4. Enumeration period

Data collection was conducted from 10 to 29 February 2020.

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

The **census scope** covered agricultural activities (crops and livestock production), aquaculture, fisheries, and forestry activities.

The **statistical unit** was the farm (agricultural holding), defined as 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 could be exercised by an individual or household, jointly by two or more individuals or households, by a clan or a village, or by a juridical person such as a corporation, cooperative or government agency.

For FAC 2020, data was collected from the following statistical units: Farming Households and Institutional Farms (Agricultural Holdings). **Community-level data**

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

6. Census coverage

Geographic coverage

The census covered all rural and part of peri-urban areas¹ in the country. All farming households and institutions in assigned areas were fully enumerated. Institutions comprised schools, group-owned farming organizations, and large commercial farms that were not owned by households.

Cut-off threshold and other exclusions

No threshold was applied.

7. Methodology

Methodological modality for conducting the census

The classical approach was used in the FAC 2020.

Relation to other censuses

There was limited coordination and relationship between the FAC 2020 and PHC 2017. The review of farmer listing conducted by the MoA in 2018 was verified using population data at the locality level from the PHC 2017. The concept of household and its compositions variables were sourced from the PHC 2017.

Frames

The FAC 2020 used several sources for the frame: the farming household baseline survey 2015/2016, a review of farmers listing 2018, the PHC 2017 locality data, boundary descriptions using satellite imagery and ground-truthing of the field descriptions. The first ever list of farms established by the MoA was undertaken in 2015/2016, and improved in 2018 since the coverage in 2015/2016 was incomplete due to Tropical Cyclone Winston. Data from PHC 2017 was used to verify the coverage. The 2018 review of farmers listing was done at the village level in parallel with satellite imagery and ground-truthing of the field descriptions. In the end, a final frame for FAC 2020 was established with 70 161 households.

Complete or/and sample enumeration methods

The FAC 2020 was a complete enumeration of all holdings in the four sub-sectors of agriculture (crop, livestock, fisheries, and forestry) in the country.

Sample design

No sampling was used.

¹ The peri-urban areas with agriculture as the main economic activity were identified from the PHC 2017 and the StatGIS Boundary Team verified on the ground before finalizing the demarcated boundary.

Data collection methods

In the FAC 2020, data was collected using CAPI method using Survey Solution software on tablets for both household and institutional questionnaires.

Questionnaire(s) and items covered

Two questionnaires were used for the FAC 2020 data collection: (i) farming households questionnaire; and (ii) institution questionnaire. The former consisted of 13 sections:

- a) Section 1 – Household Composition
- b) Section 2 – Housing Particulars
- c) Section 3 – Land
- d) Section 4 – Crops on Farmland
- e) Section 5 – Livestock
- f) Section 6 – Forestry
- g) Section 7 – Fisheries
- h) Section 8 – Aquaculture
- i) Section 9 – Climate Change and Challenges
- j) Section 10 – Equipment
- k) Section 11 – Agriculture Services
- l) Section 12 – Food Insecurity
- m) Section 13 – Labour

The institution questionnaire comprised eight sections: (i) geographical location of the farm; (ii) general characteristics of the farm; (iii) land; (iv) crops on farmland; (v) livestock; (vi) equipment; (vii) employment; and (viii) agriculture services.

The census covered 21 items out of the 23 essential items recommended in the WCA 2020².

8. Use of technology

Satellite imagery was used for boundary description, which was followed by ground-truthing to verify the descriptions on the field. CAPI using tablets with GPS was used during the data collection of the census. The census results were disseminated online. During the census operation, video-teleconferencing systems were also installed in all census regional centres for team briefing, communication, discussion and updates.

9. Data processing

In addition to ongoing case checks by FAC and HQ staff, the database was downloaded from the server in SPSS format each day. An automated syntax was used to produce and distribute two key reports. The first was a daily monitoring report showing survey progress on key metrics such as farmers, agricultural activities, number of land parcels, land tenure and size, count of key crops and area planted, etc. The second, the report of interviewers was produced for quality control, monitoring the number of rejected cases and errors per interviewer.

The FAC 2020 adopted SPSS software for data processing, of which manual statistical procedures were formulated to identify and replace missing values using farmers' socio-economic database as well as phone calls to the households identified.

Data processing activities such as data cleaning and clarification of some missing information took much longer than initially planned. Delays were due to prioritization of other activities on agriculture, COVID-19 and cyclones that hit Fiji during the period.

² The following items were not covered in the census: (i) 0103 Legal status of agricultural holder (type of holder); and (ii) 0902 Working time on the holding.

10. Quality assurance

Data validation checks were incorporated into the CAPI method to help enumerators identify possible errors/outliers in the data reported. There were two types of validation checks: one for incorrect data and the other for data that might be wrong or inconsistent. In addition, there were field supervisors assigned to all enumerators to provide agriculture technical advice and to provide last checks on all cases before they were synced daily.

Incomplete cases identified during the FAC 2020 data collection period, which resulted from the technical glitch, human errors, etc., were returned/rejected to enumerators for farm revisit and verification. Incomplete cases found after data processing were addressed using existing datasets such as 2018 farming household baseline data from MoA and 2019 Village profiles provided from the Ministry of iTaukei Affairs. Other alternative methods used were phone re-interviews and checks on the internal consistency of the variables collected in the household questionnaire.

Upon completion of fieldwork the data was exported in SPSS and several cleaning tasks were undertaken. All tasks were recorded, and data was modified using SPSS syntax files to ensure traceability and accuracy during the cleaning process. Editing activities are summarized below:

- check of numeric question for outlier values;
- check for missing values: filled either through call back to respondents or automatic imputation, as appropriate;
- re-coding of other specific values;
- locality corrections, using SPSS syntax.

Regarding the cartography of the FAC 2020, the country was subdivided into 197 Tikinas (Districts), the FAC enumeration area (EA). Since this area includes some of the major residential subdivisions of the major towns and cities where majority of the households were engaged in non-agricultural activities, a demarcation was carried out in order to delineate this boundary within the peri-urban areas using economic as a key criterion. Each team was provided with district maps clearly outlined the enumeration boundary and each Field Supervisor had a enumerators listing form for daily coverage check.

A Post Enumeration Census (PEC) was undertaken during April 2020 to verify the quality of data collated. Farmers listing was considered as a baseline for PEC. FAC 2020 coverage was verified at locality level. Four teams conducted post-enumeration exercises at purposive selected of undercovered areas in the Central, Northern and Western Division. The areas were identified through comprehensive coverage analysis of FAC 2020 areas, 2018 reviewed farmers listing and coverage map from Survey Solution. Districts and Localities with less than 70% coverage were selected and revisited during post enumeration.

11. Data and metadata archiving

An anonymized (de-identified) version of the database in SPSS format has been produced, in which all respondent details such as names, household numbers, and GPS coordinates have been removed. These identifying variables are stored in a separate database that can be re-identified by running an SPSS syntax. The FAC 2020 micro-data, final tables, and final reports are secured in the MoA main server located in the MoA IT room with limited access by the Stats IT Officers as well as with the Fiji Bureau of Statistics.

12. Data reconciliation

There was no reconciliation process of FAC 2020 data.

13. Dissemination of census results and microdata

The products, services, dissemination methods, and tools of disseminating FAC 2020 results and key findings were determined through Technical Working Group Committee meetings, consultations with stakeholders, and Data User Conference. The final results of the FAC 2020 were tabulated, analyzed, printed, and published in four volumes; (i) Descriptive Analysis Report; (ii) Detail Analysis and Report of 2020 FAC Enumeration Area; (iii) Gender Analysis Report; and (iv) Administrative Report. All

volumes were printed for publication, disseminated on USB, uploaded on the MoA website and also presented at Government agencies, NGOs, international partners and academics and farmers association. An Online Agriculture Data Library Hub (as a part of MoA website) was launched in December 2021. FAC 2020 Key Findings were also disseminated through video animation and Infographics. FAC 2020 reports are also in the Fiji Bureau of Statistics Library.

14. Data sources

Ministry of Agriculture (MoA). 2021. 2020 Fiji Agriculture Census. In: *MoA* [online]. Fiji. [Cited 8 September 2021]. <https://www.agriculture.gov.fj/censusrep.php>

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