

Fiji - National Agricultural Census 2009

Economic Planning and Statistics Division - Department of Agriculture

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Overview

Identification

ID NUMBER

FJI_2009_AgC_v01_M

Overview

ABSTRACT

The Fiji National Agricultural Census 2009 is the fourth agricultural census. After a lapse of 18 years, National Agricultural Census 2009 was carried out in Fiji beginning in October 2009; data collection was interrupted by two cyclones and not completed until March of 2010.

The Agriculture Census is a national obligation conducted by the country to provide benchmark data for planning and policy decisions in sustainable agricultural and rural development; and to strengthen and improve the ongoing Fiji Agriculture Statistics System (FASS) to generate key agricultural data on a regular basis using the results of the 2009 NAC as the benchmark and the dissemination of this statistical information in the form of regular reports.

The 2009 National Agriculture Census (NAC) is the first census programme to be conducted in the country using Multiple Sample Frame (MSF) as the main methodology. Given the experiences of the previous census programmes in terms of funding and availability of resources, the 2009 agriculture census programme provides a platform for more diversification and improvement programmes within the agriculture sector thus ensuring compatible foreign exchange earnings as well as uplifting the living standards of rural populace.

KIND OF DATA

Census/enumeration data [cen]

UNITS OF ANALYSIS

- Agricultural Holding and Holders

Scope

NOTES

The scope of Agricultural Census 2009 includes:

- i. General Characteristics of the Farm
- ii. Information on Farm Household Members
- iii. Distribution of Land Use
- iv. Temporary Crops
- v. Permanent Crops
- vi. Sugarcane
- vii. Scattered Plants
- viii. Types of Pastures
- ix. Floriculture
- x. Livestock and Poultry; Other livestock, Apiculture; Poultry, Aquaculture

- xi. Milk Production
- xii. Employment in the Total Farm
- xiii. Machinery and Farm Equipment
- xiv. Farm Management in the Total Farm

Coverage

GEOGRAPHIC COVERAGE

National

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Economic Planning and Statistics Division	Department of Agriculture

FUNDING

Name	Abbreviation	Role
Food and Agricultural Organization of the United Nations	FAO	

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Development Data Group	DECDG	The World Bank	Documentation of the DDI

DATE OF METADATA PRODUCTION

2014-03-24

DDI DOCUMENT VERSION

Version 01 (March 2014)

DDI DOCUMENT ID

DDI_FJI_2009_AgC_v01_M_WB

Sampling

Sampling Procedure

The survey design used the multiple sampling frame methodology. This methodology combines the advantages of an area frame (complete coverage) and a list frame (rare commodities and large and special farms). In the 2009 NAC, it was expected to provide reliable results at district level for most tables, although results for smaller districts might not be possible. In addition, a small island strategy (SIS) was used where complete enumeration of villages occurred within some districts.

The underlying basis for an area frame sample is to select small areas (in this case, one square kilometer - 100 hectares) that represent the entire area of interest. To improve the efficiency of the sample, the entire country was stratified (or characterized) by the intensity of agriculture. The stratification split the country into areas of high intensity agriculture, medium intensity agriculture, low intensity agriculture, forest areas, peri-urban areas and urban areas/non agricultural areas. The overall sample size was limited by the resources available; it was determined to use a ten percent sample of "agricultural land" as determined during the stratification process.

Initially the Fiji Bureau of Statistics (FIBOS) enumeration areas (EAs) for the 2007 Population and Housing Census were used for stratum identification. Subsequently it was determined that re-stratification of whole EAs and subdivision of other EAs would be more efficient. In many of the FIBOS EAs, farms were present only in small pockets; the uniformity of agriculture in the EA, one of the strengths of the stratification, did not exist. These EAs were, first, reviewed for the presence of natural pine forest and natural reserves. After these areas were removed, the remainder of the EA was divided into one square kilometer grids before the sampling process occurred. After the grids were selected, the Land Use Section of the DOA prepared maps using detectable boundaries "around the grid". It was not possible for segments to retain the gridlines as boundaries because they seldom were along recognizable boundaries; however, it was possible to approximate 100 hectares in that general area.

A farm can consist of land areas that are separated by physical boundaries or by land use patterns; these are called tracts. The method of data collection was to account for each tract inside the segment, but, also to collect information about areas outside the segment for farms with tracts both inside and outside. If a segment boundary splits an existing tract, it is divided into one tract inside the segment and one tract outside the segment. The percentage of the farmland inside the segment is used as a weighting factor for the farm in the expansions.

One of the limitations of area frame samples is the accurate expansion of rare or concentrated (non-uniform) variables - such as poultry houses or large dairy or beef farms. The list frame sample, developed from the knowledge and experience of DOA Animal Health and Production Division and Extension Division staff, was expanded as data collection occurred and there was better awareness of large and specialized farms. Data were collected from all of these farms. It should be noted that shortly before the beginning of data collection, a severe outbreak of brucellosis occurred and some culling took place.

Three levels of data presentation were identified for tabulation of the data of the National Agriculture Census 2009 (NAC 2009). The first is tables and expansions at district level; the second is tables and expansions at provincial and national level; the third is tables and (estimates) for special variables.

The census data were collected at farm level, at tract level, at crop level and at animal/poultry level. Information about households and their demographics were also collected. One priority area has been the role of gender in agriculture in Fiji. A special section of the census questionnaire was targeted at identifying these roles and highlighting any special differences. These data also have been broken out by age group.

Accurate land stratification for the 2009 NAC was essential; it was necessary to estimate the percentage of agriculture land use. Initially the stratification was made for each of the Fiji Islands Bureau of Statistics (FIBOS) enumeration areas (EAs).

The census estimates were requested at national, divisional, provincial and also tikina levels. The 15 provinces including Rotuma Island were the main focus of the tabulation. Consequently, the entire country was divided into strata according to the intensity of land use for agriculture. They were further subdivided into sub-strata according to specific land use. This sub-stratification technique guaranteed the sample allocation for priority and special crops. Another stratum was created for special farms including large commercial and freehold farms.

A total of 1,602 existing EAs from the 2007 population census were overlaid on the ASF topographic maps scale 1:50,000 in preparation for stratification activities according to land use. Each EA was classified into one of the strata keeping the same

geographical identification codes as those used in the population census. The percentage of area under crops, pastures, forest, etc. (land use) of each EA was estimated by field observation to check that each EA was classified in the right stratum and sub-stratum.

The sampling procedures are more fully described in "National Agricultural Census 2009 - Final Report" pp.7-13.

Weighting

The percentage of the farmland inside the segment is used as a weighting factor for the farm in the expansions.

Questionnaires

Overview

Two questionnaires, NAC 1 and NAC 3, were used to record information about the segments from the sample. The NAC 1 itemized all tracts inside the segment and all associated farm tracts outside the segments. The NAC 3 documented the nonfarm tracts inside the segment. Enumerators were required to fill out these questionnaires; during the interview process the main questionnaire (NAC 2) was used. Neither the NAC 1 nor NAC 3 was necessary for List Frame farms.

The questionnaire was designed and tested by the staff of the Agricultural Statistics Unit and training manuals were prepared for supervisors and enumerators. A Pilot Census was carried out in several locations to evaluate the content and layout of the questionnaires and the completeness of the census documents. The questionnaire and training materials were updated as the result of the Pilot Census.

Data Collection

Data Collection Dates

Start	End	Cycle
2009-10-06	2009-12	N/A

Data Collection Mode

Face-to-face [f2f]

Data Collection Notes

The publicity to promote the 2009 NAC started in February 2009. The Information and Communication Division of the Department of Agriculture conducted the census promotion through TV interviews and radio broadcasts in three languages: English, Fijian (iTaukei), and Hindustani. In addition to the brochure on the census objectives, a second brochure described the census methodology, farm activities, data requirements and uses were printed and distributed at Government offices in all provinces in the country. Other census news was published in all newspapers in different languages. A census poster was also printed in three languages and distributed around the country. The cooperation of the farmers was exceptional.

The field operation was undertaken at division level. A total of 129 Enumerators were placed in 26 field teams (9 in Central Division, 8 in Western Division, 4 in Northern Division and 5 in Eastern Division). Each field team had 4 or 5 enumerators, one field supervisor, one vehicle and one driver. A fleet of 30 vehicles from the Department of Agriculture was used where possible; most of the transportation in Eastern Division was provided by a Fiji Navy vessel, a Fisheries Division vessel and by Inter island ferries. The Principal Agricultural Officer (PAO) of each division was responsible for overall management together with the support of divisional administrative and finance personnel. The technical coordination and quality control activities were conducted by the supervisors and project counterparts. Ten photo interpreters played an important role in the field organization helping the enumerators to locate the SMs and to identify their physical boundaries on the field.

Data collection started on 6th October, 2009 with 119 fulltime enumerators. It was expected that data collection would be completed within two months; however only one division [Central] managed to achieve this timeline. The other three divisions encountered difficult field situations, including Cyclone Tomas, which further extended data collection until the 3rd week of December 2009. However, data collection in the Yasawa Group [Western Division] was not completed until February 2010 due to the impact of Cyclone Mick. Three different versions of the National Agricultural Census 2009 questionnaire were used for collection of information about agricultural farms. The first version was circulated and used during the first month of data collection. Typographical errors were corrected and additional codes were inserted in the subsequent versions, although the content of the questionnaire remained the same.

Census data collection was conducted more or less within the allocated time frame (45 working days). The massive participation of all Department of Agriculture technical and administrative divisions, assured the success of census field work. More than 120 personnel, 30 vehicles and boats worked full time during three calendar months. It is the first time that all Divisions in the Department of Agriculture had participated in the census data collection.

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Data Collectors

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Economic Planning and Statistics Division		Department of Agriculture

Data Processing

Data Editing

After a prioritized order of data collection from the provinces, the questionnaires were received at the Agricultural Statistics Unit in batches. Unique questionnaire numbers were assigned by the data processing administrator and recorded in a management system designed to prevent duplicate numbers and to coordinate the collection and processing of the three types of questionnaires. The questionnaire numbers consisted of province, district and a sequence number starting with an initial value assigned previously to each of the segments.

The editing and coding process for a total of 9,341 NAC 2 questionnaires containing farm data started in mid November 2009. Four persons managed the archives of census materials (questionnaires, cartography and photo-enlargements, etc.). Eleven coders were contracted and trained using the Field Team Manual and the Coding, Editing and Data Processing Manual. One table head checked the manual editing and coding. Data entry activities were conducted by ten data entry operators beginning in early December.

Consistency checks were also carried out in the ACCESS databases. Queries were designed to identify data entry and coding errors. Data were entered into 15 provincial databases (including Rotuma Island) which were combined into four divisional databases. The LSF database was kept separate, but combined in SPSS for tabulation and analysis.

Data Appraisal

No content available

File Description

Variable List

