Botswana - Agricultural Census 2015

Agricultural Statistics Unit, Department of Agricultural Research, Statistics and Policy Development

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Overview

Identification

ID NUMBER
BWA_2015_AC_v01_EN_M_v01_A_OCS

Overview

ABSTRACT
Agriculture plays an important role in rural development by providing food, income and employment for the majority of the rural dwellers. The sector has potential for growth and creation of employment opportunities particularly for the unskilled and semi-skilled people. However, the sector is not performing optimally due to recurring droughts and endemic animal diseases such as Foot and Mouth Disease (FMD). Nevertheless, agriculture still remains a viable option for poverty reduction and employment creation because it is labour intensive. Since 2015 was declared a drought year, the results of the 2015 agricultural census depict contrasting trends between livestock and crop production. Comparison between the 2004 Agriculture Census with the 2015 Agricultural Census figures reveal that livestock production showed a decline, while arable production showed a marked improvement in the production of the three main crops i.e. sorghum, beans/pulses and sunflower.

KIND OF DATA
Census/enumeration data [cen]

UNITS OF ANALYSIS
Households

Scope

NOTES
The Scope of The Botswana Agricultural Census 2015 Includes:

· Identification

· Particulars of The Holding

· Particulars of The Holder

· Land Measurement

· Livestock

· Farming Practice

· Crop Production

· Water Supply, Farm Equipment and Machinery Inventory

· Climate/Weather

· Farm Enterprise

· Farm Labour

· Agricultural Labour and Farm Credit

TOPICS

Topic	Vocabulary	URI
Agriculture & Rural Development	FAO	
Land (policy, resource management)	FAO	
Labor	FAO	
Livestock	FAO	
Infrastructure	FAO	
Water	FAO	
Access to Finance	FAO	

Coverage

GEOGRAPHIC COVERAGE
National

UNIVERSE
The statistical unit was the agricultural holding, defined as economic unit of agricultural production under single management comprising all livestock kept and all land used wholly or partly for own account agricultural production purposes, without regard to title, legal form, or size. The AC 2015 covered holdings in both the household sector (the "traditional sector") and the non-household sector (the "commercial sector".)

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
Agricultural Statistics Unit	Statistics Botswana
Department of Agricultural Research, Statistics and Policy Development	Ministry of Agriculture Development and Food Security

OTHER PRODUCER(S)

Name	Affiliation	Role
Agricultural Statistics Unit		Technical assistance

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Office of Chief Statistician	OCS	Food and Agriculture Organization	Adoption of the metadata for FAM
Statistics Division	ESS	Food and Agriculture Organization	Generation of the metadata

DDI DOCUMENT VERSION
BWA_2015_AC_v01_EN_M_v01_A_OCS_v01

DDI DOCUMENT ID
DDI_BWA_2015_AC_v01_EN_M_v01_A_OCS_FAO

Sampling

Sampling Procedure

(a) STRATIFICATION

The Sampling Frame was constructed from the 1,328 Enumeration Areas (EAs) demarcated during the 2011 Population and Housing Census. This excluded all enumeration areas for urban villages and cities such as Gaborone and Francistown, and towns such as Lobatse, Selebi-Phikwe, Orapa, Jwaneng and Sowa. Also excluded from the sampling frame were enumeration areas for camps and commercial farms or ranches. The 2015 Agricultural Census has three levels of stratification. The lowest level comprised of the nineteen census districts. The second level consists of the ten administrative districts. The third level is the national level. A note has to be made here that the census districts are subsumed into the administrative districts. Creation of strata is dictated by two principal criteria. These include the need to:

• Provide estimates for each major region of the country.
• Increase precision.

Apart from national and rural estimates, the Government, which is the main user of Statistics Botswana data, requires accurate estimates for all census and administrative districts for planning and monitoring of agricultural development projects. Explicit stratification was therefore undertaken such that all census district become their own strata. The frame was organized in such a way that there was implicit stratification according to rural ecological zones; namely (i) Village (ii) Lands, and (iii) Cattle-post. This implicit stratification along ecological zones was expected to improve the accuracy of census data in view of the fact that homogeneity of the variables was relatively high. During the delineation of the maps, each EA was associated with unique ecological zone and thus, grouping the EAs into respective zones was not a problem. To facilitate the selection according to the stratification variables, the EAs were listed in three (3) independent sub-groups viz. (i) Village (ii) Lands, and (iii) Cattle-post in each agricultural district.

(b) SAMPLE SIZE

Many factors were considered when establishing the sample size for the 2015 Agricultural Census. The most important were: i) the general and specific objectives of the census, which required estimation of many variables; ii) the "needed" or "required" precision to achieve the census objectives measured in cost-benefit terms; iii) the magnitude of non-sampling errors that could affect the sampling design; and iv) the quality and completeness of Enumeration Areas (Sampling Frame).

Weighting

One of the by-products of the increased availability of computer programs for processing survey data has been the practice of assigning a weight to each sample case when non-epsem designs are used. The sampling weights were calculated for the sampling design used for 2015 Agriculture Census. In a multistage design, the sample selected at each stage represents the respective population. The fundamental assumption is that units selected at each stage are homogeneous to those not selected in respect of characteristics of interest. The weights of the sample are equal to the inverse of the probability of selection. Therefore, the sampling probabilities at first stage of selection of EAs including probabilities of selecting the holders were used to calculate the weights

Questionnaires

No content available

Data Collection

Data Collection Dates

Start	End	Cycle
2015-01	2015-06	Phase I
2015-06	2015-11	Phase II
2015-07	2015-12	Phase III

Data Collection Mode

Face-to-face [f2f]

Data Processing

Data Editing

(a) PROCESSING
All questionnaires which were received from the field were first checked and verified as soon as they reached the headquarters. All questionnaires with inconsistencies or omissions were returned to the field for correction. Data processing (entry, editing and validation) of census data was done using the CSPro software. Data entry applications were designed with consistency checks and skip patterns. Batch editing programmes were used for editing and cleaning.

(b) DATA QUALITY
The supervisors and enumerators were thoroughly trained on census questionnaires. Supervisor and enumerator manuals were prepared and made available to each team. Each supervisor and enumerator were provided with supervisor manuals and enumerator manuals respectively. Data coding and editing officers were employed to check questionnaire on arrival. Quality control officers were deployed to different districts to check the teams' work in the field.

Data Appraisal

Estimates of Sampling Error

Agricultural Census 2015, joins other surveys conducted by Statistics Botswana under complex designs. A stratified two stage design was employed in carrying out the census which calls for specialized methods and softwares to take care of the complexity of the design. In this case, WesVar 4.3 statistical software (supported by WESTAT) was used to obtain standard errors, confidence intervals and design effect for selected indicators.

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