PRESENTATION OF BOTSWANA EXPERIENCE ON AGRIC. CENSUS & SURVEYS
Outline

1. Statistics Botswana Background on agricultural Statistics
2. Laws and Regulations in the Production of Statistics
3. Administrative divisions of Botswana and level of geographical disaggregation at which Statistics Botswana produce Official Statistics.
4. The main source of data used to produce annual agricultural surveys/agric. censuses
5. Sampling Technique used for annual surveys and sampling size
6. Sampling Weights
7. Experience with SAE methods within NSO (e.g. whether there is use of SAE to produce Poverty Maps)
8. Priority indicators linked to agriculture including SDG indicators for which there would be an interest to implement SAE techniques, with the assistance of FAO.
9. Dissemination
10. Methodological Problem
1.0 Background

• Statistics Botswana through the Agricultural Statistics Unit conducts Annual Agricultural Surveys and Decennial Censuses to collect data on the current agricultural structure of Botswana.

• This information is mainly used by the Ministry of Agriculture in formulation, monitoring and evaluation of agricultural policies, programmes and projects geared towards improving production in agricultural sector.

• The first livestock census (covering only livestock) was conducted in 1971 while the first fully fledged Agricultural Census that covered both crop and livestock farming was conducted in 1982.

• The second, third and four Agricultural Censuses were conducted in 1993, 2004 & 2015 respectively.
2.0 LAWS AND REGULATIONS IN THE PRODUCTION OF STATISTICS

The New Statistics Act of 2009 state that SB shall conduct its functions as the National Statistical System (NSS) and shall coordinate, monitor and supervise the activities of the systems.

The NSS comprises of additional agencies, which include all institutions in the country which deal with or directly associated with the:

- Provision of documents and other information for the purpose of carrying out statistical business
- Use of official statistical and other statistics
- Research and development of statistical methods and techniques and
- Training and education

For the purpose of coordinating the activities and operations of the System, SB shall

- avoid unnecessary overlapping or duplication in the collection of or publication of the data and information for statistical purposes
- attain comparability and integration of statistics compiled by agencies of the system, and
- maximum utilization of existing information and resources of data collection available in the System for statistical purpose
3.0 Administrative divisions of Botswana and level of (geographical disaggregation) at which Statistics Botswana produce Official Statistics.

• The highest levels of analysis for all Households conducted by Statistics Botswana is at administrative and census districts. Census districts are demarcated and gazzetted during Population and Housing preparations. There are 10 administrative districts and 28 census districts in Botswana.

• However, within each census district, there are Enumeration Areas (EAs) also demarcated for Population and Housing census and these form sampling frame for all surveys.

• For example, for agricultural censuses, the Sampling Frame of enumeration Areas is a list of EAs constructed in all the villages, lands and cattle posts areas (3 strata) and this is from the previous Population and Housing Census.

• Then the agricultural census sampling frame will be a master sample frame for annual agricultural surveys. For example, the 2015 Agricultural Census sampling frame was constructed from EAs enumerated during the 2011 Population and Housing Census.

• The second frame consists of a list of commercial farms obtained from the Department of Veterinary Services in Ministry of Agriculture and the list is augmented by the list from Establishment and Enterprise Register (EER)
4.0 The main source of data used to produce annual agricultural surveys/agricultural censuses

• Annual agricultural surveys and agricultural census collect primary data from farming community.

• There are two (2) agricultural sub-sectors in Botswana i.e. traditional sub-sector and commercial sub-sector.

• The data from the traditional sub-sector is collected through a questionnaire administered by enumerators.

• The data from the commercial sub-sector is used to be collected through a mailed questionnaire administered by farmers themselves but due to high non-response, personal interview method is now used like in traditional sub-sector.
5.0 Sampling Technique used for annual surveys and sampling size

- The basic sampling design under the traditional sub-sector is a stratified **two stage sampling technique** where the primary sampling units are Enumeration Areas which are classified into lands, villages and cattle posts as independent strata.
- Survey sample size is determined by the Probability Proportional to the measure of Size (PPS) from each stratum.

4.1 First Stage Sampling

- The primary sampling units (PSU) are Enumeration Areas (EAs) selected systematically with Probability Proportional to the measure of Size (PPS) from each stratum.
- The measure of size (MoS) is the number of agricultural holdings as enumerated during the current Population and Housing Census (in this case the 2011 Population and Housing Census).

4.2 Second Stage Sampling

- The Secondary Sampling Units (SSU) are Agricultural Holders selected systematically from each selected enumeration area.
- For commercial farms; total count or complete enumeration of commercial farms that are engaged in agricultural activities is done.
6.0 Sampling Weights

For the figures to represent the national level, there are two components of weighting:

5.1 From EA to Stratum Level:
First stage of weights account for the varying probability of EA selection. That is, they are proportional to the inverse of the size of measure.

5.2 From Household to EA Level
This is a simple weight obtained by dividing the total listed households in the EA by the number of selected households in that EA.

5.3 Broad disaggregation domains:
For Population and Housing census and other household surveys, the presentation of results can further be analyzed at levels of cities, towns, urban and rural villages.
7.0 Experience with small area estimation methods within NSO (Whether there is use of Small Area Estimation to produce Poverty Maps)

- Small Area Estimation is not done within Statistics Botswana
8.0 Priority indicators (linked to agriculture or including SDG indicators) for which there would be an interest to implement SAE techniques, potentially with the assistance of FAO.

The indicators that will be of interest in implementing SAE are as follows:

- Livestock Population (cattle, small stock, other livestock such as donkeys, dogs, poultry etc.)
- Livestock inventories such as Birth, Death, offtake rates, sales
- Area planted & Harvested
- Crop Production
- Yields (both yield per hectare planted & Harvested).
- Employment under agriculture
- Land area allocated for farming

The Following are SDG indicators linked to Agriculture and their Data Source

2.3.1 – Ministry of lands and water affairs, Annual Reports; 2.3.2 – Ministry of Agriculture AND 5.a.1 – Population and Housing Census, Statistics Botswana
9.0 Dissemination

• After the weights have been applied to the data, several tables are produced and edited.
• A report is thereafter produced and published.
• The published information is posted on the Statistics Botswana Website and portals.
• Data requests of published agricultural statistics are attended to by extracting the requested data and delivering it to the requesters.
10.0 METHODOLOGICAL PROBLEM

Data Gaps:
• There are many emerging enterprises within the Ministry of Agriculture of which production data is needed to monitor and evaluate them but are not covered. These include:
  ❖ Piggery
  ❖ Poultry
  ❖ Beekeeping
  ❖ Rabbit production etc.

Although some data is collected during surveys, they are not fully covered. Administrative data from these enterprises is needed.
THANK YOU!!!!!

KE A LEOGA!!!!