USS Seminar @ Uganda Martyr's University

A leading professional body that brings together statisticians, statistics users and those engaged in related profession in Uganda.

14th March 2019
Methods of collection of Crop area Statistics

Out line :

- Introduction
- Basic Concepts of Area Statistics
- Techniques for data collection
- Data sources for Measuring Crop Area
- Methods used for Crop Area Estimation
- Challenges & Photos

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Invitation
USS Annual General Meeting (AGM) is on Thursday, 11th April 2019 @ UBOS Conference Hall 2pm
Uganda is an agricultural based country and its economy largely depends on agriculture. Agriculture contributes about 24.3% to GDP. About 80% of all households in the country are involved in agriculture. 90% of the rural households are involved in agriculture.

**Households by Type of activity**
- Crop Growing
- Livestock Farming
- Mixed farming

**Need for Agricultural Statistics**
- Monitoring market trends
- Estimating future prospects of agricultural commodity markets
- Forecasting
- Planning and allocating resources
- They are vital tools for policy-making in the agricultural sector
- Precise estimate for area harvested and yield is paramount for accurate statistics on crop production–hence better GDP estimation

**Basic Concepts**

- **Area Planted**: Total Areas own with temporary and permanent crops
- **Area harvested**: Total Area from which the crop is gathered
- **Crop Yield**: average amount of produce obtained per unit of area harvested
  
  $$\text{Crop yield} = \frac{\text{Crop production}}{\text{Area harvested}}$$

**Sources of Crop Area Statistics**

- **Agricultural Censuses**: It’s normally a large sample survey and not a complete census.
- **Sample Surveys**: Agricultural surveys, crop production surveys, household surveys integrated with a module on agriculture.
- **Administrative data sources**: Farm and land registers, administrative reporting systems, data from local government units.
- **Remote sensing**: Aerial photographs, satellite imagery.

**Techniques for Data collection**

- **PAPI** (Paper Assisted Personal Interview)
- **CAPI** (Computer Assisted Personal Interview)
- **CATI** (Computer Assisted Telephone Interview)
- **CAWI** (Computer Assisted Web Interview)

**Area Measurement Methods**

- Farmer Assessment of Crop Area
- Rope-and-compass Method
- Area measurement through Maps
- Global Positioning System (GPS)
- Remote Sensing and GIS
Global Positioning System (GPS)
This is a space-based satellite navigation system that provides location and time information anywhere on Earth

Procedure for Area Measurement Using GPS
1. Mark your **starting point** with a stick so you can identify the point when you return.
2. The starting point should be the North West corner of the plot.
3. Wait for the device to fix on **at least 4** satellites.
4. Note the time you a restarting to use the Garmin GPS
5. Proceed to the starting corner of the plot where you have marked with a stick.
6. At the starting corner, wait until at least 4 satellites have been acquired.
7. Select the AREA CALCULATION page by high lighting and clicking the center of the Thumb Stick.
The GPS hardware determines coordinates for the x, y and z axes, with x and y being the geographic coordinates that determine location and z being the coordinate that determines elevation. GPS are used to determine the location, elevation, and even the area covered. According to the World Bank, systematic use of GPS-measured land area may result in improved agricultural statistics and a more accurate analysis of agricultural relationships (Carletto et al., 2016).

Field workers undertake area measurement using GPS devices. Enumerators climb hills to access crop plots and parcels to conduct area measurement.

Remote Sensing Images

Plot Boundaries

We appreciate UBOS for the continuous support to the USS and more thanks to the Agriculture and Environment Statistics Department for the great presentation.