

PHENOTYPIC AND GENOTYPIC CHARACTERISATION OF ANKOLE, NTUKU AND NGANDA CATTLE OF UGANDA

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Progress presentation on OPTIBOV cattle project.

BACK GROUND

- The Ugandan cattle herd is comprised of 93.3 percent of indigenous breeds and their crossbreeds which are mainly
 - Long-horned cattle of Uganda(Sanga) (*Bos taurus indicus*)
 - Zenga breeds (Sanga and Zebu crosses)
 - East African shorthorn Zebu (*Bos indicus*).
- The Optibov breeds of interest of Uganda.
 - Long horned Ankole cattle (South-Western Uganda)
 - Nganda cattle (Central-Uganda)
 - Ntuku cattle (Mid-Western Uganda)



Ankole long horned Cattle



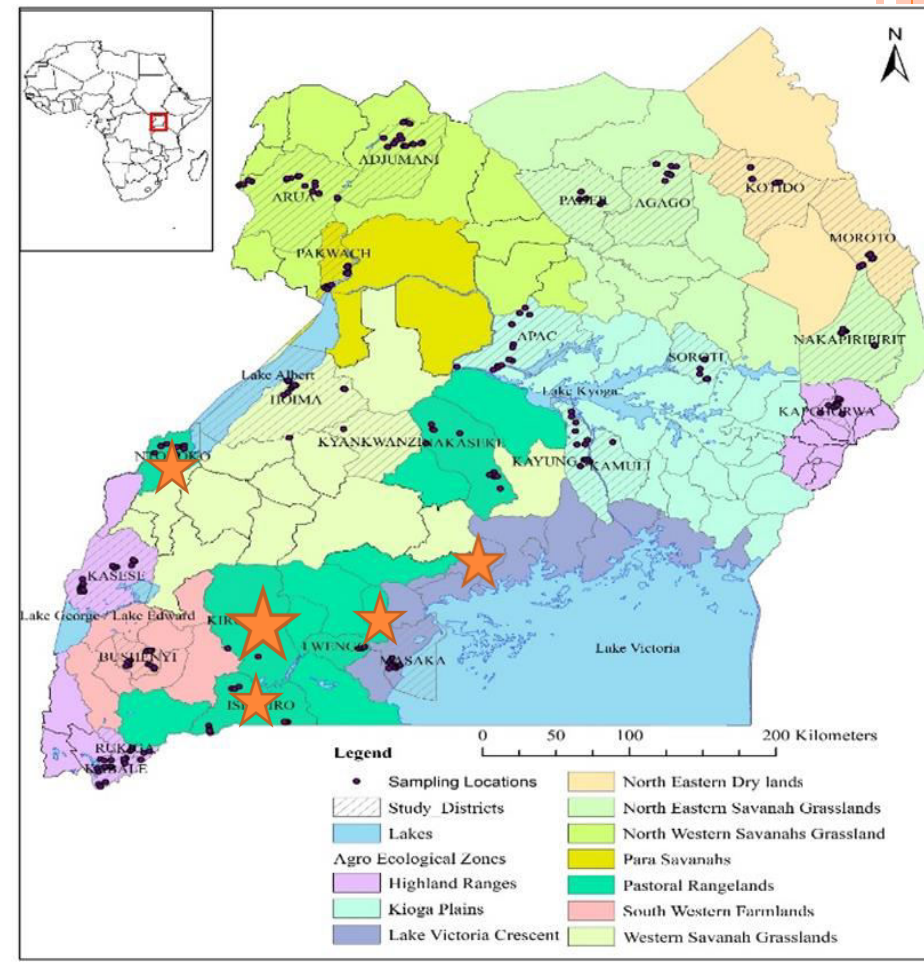
Ntuku Cattle



Nganda Cattle



- Very hardy animals that are well adapted to their agro-ecological zones
 - Harsh local climatic conditions in cattle corridor
 - Several endemic diseases and vectors(ticks and tsetse flies)
 - Feed and water resource constraints
 - Ideal animals for the pastoral rangelands



- Government policies on production and demand
 - Indiscriminate crossbreeding of indigenous animals
 - Importation of exotic breeds and its challenges
- Increased production costs for exotic breeds
 - Increased antibiotic use and resistance
 - Higher demand for extension services in a liberalized economy
 - Feed scarcity and competition for food
- The indigenous cattle are at a threat of genetic erosion.
- Global Plan of Action for Animal Genetic Resources and the Interlaken Declaration which Uganda subscribes to.
 - Sustainable use, development and conservation of the world's livestock genetic resources.
 - address the threat of genetic erosion,



PROBLEM STATEMENT

- Evidence-based conservation of genetic resources for governments to sustainably use animal genetic resources
- A lot of indigenous knowledge, culture and information is being lost and indigenous breeds are at a risk of genetic erosion
- Climate change and increased challenges of livestock production
 - Severe draughts and reduction in feed resources
- Studies on Sanga cattle have shown that they have the potential to perform competitively with the exotic breeds



- Phenotypic and genetic characterisation of animals helps in optimised use of genetic resources
- There is therefore need to conduct research
 - Identify markers for positive and negative selection to guide breeding interventions.
 - Characterise the indigenous breeds
 - Draw growth curves for these breeds
 - Carryout whole genome sequencing
- This study will therefore carryout phenotypic and genotypic characterisation of the Ankole, Ntuku and Nganda cattle of Uganda.

General objective

To carry out the phenotypic and genotypic characterization for the performance traits of the Ankole, Ntuku and Nganda cattle of Uganda.

Specific Objectives

1. To assess selection techniques (natural and human mediated) of Ankole, Ntuku and Nganda cattle of Uganda.
2. To carry out phenotypic characterization for performance traits and draw a genomic growth curve for Ankole, Ntuku and Nganda cattle under different management systems for a period of 0 to 18 months in Uganda.
3. To carryout genetic characterization and measure the genetic relationship between the Ankole, Ntuku and Nganda cattle in Uganda.



JUSTIFICATION AND SIGNIFICANCE

- Need for evidence based conservation policies by GoU
- Growing international interest in long-horned Ankole cattle
- Optimized performance in Ugandan ecosystems
- Vital for farmers, institutions and researchers
- It will help bridge the knowledge gap and add to the already existing studies.

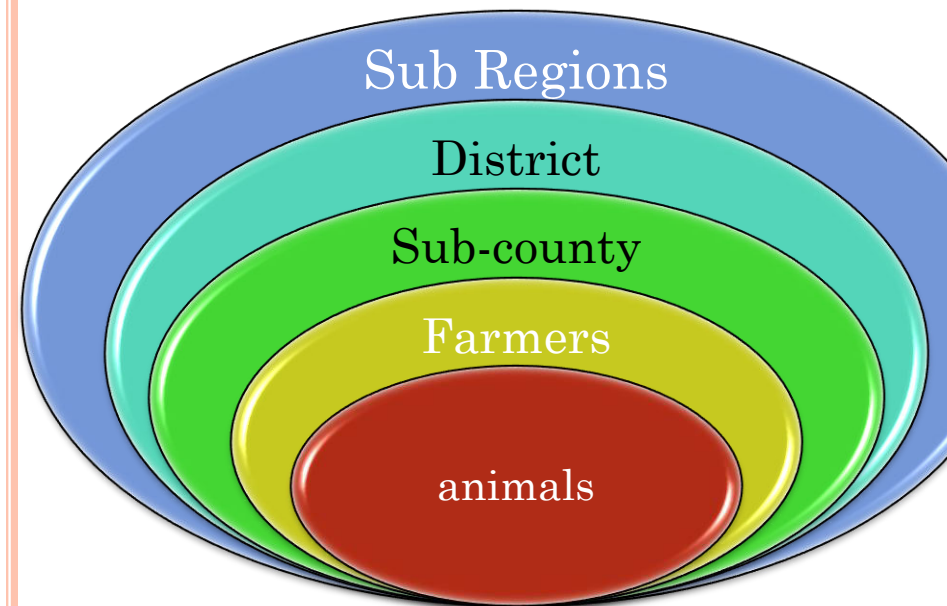
METHODOLOGY

- Study design
 - Mixed method(qualitative and quantitative) Approaches
- conducted for a period of one year
 - Cross sectional study
 - longitudinal study
 - Field data collection
 - Laboratory analysis



SAMPLING

- Multi stage clustered sampling (selection of geographical areas)
- Stratified sampling(selection of farms)
- Purposive sampling(elite farmers and institutional farms)
- Simple random sampling(individual animals)
- Longitudinal studies for animals



Ntuku- Mid western

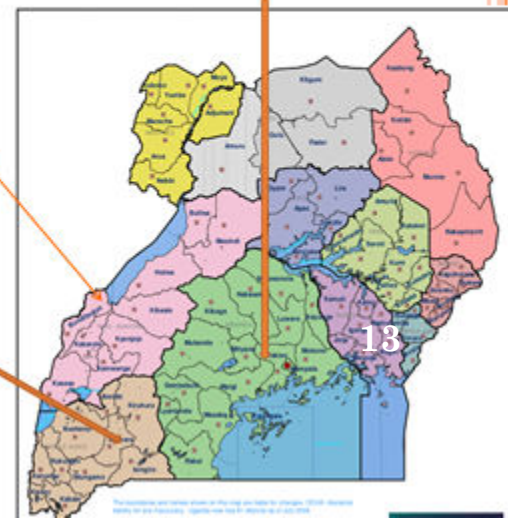
- Ntoroko
- Agropastoral rangeland
- Extensive grazing

Ankole- South Western

- Kiruhura, Kazo, Isingiro
- Agropastoral rangelands
- Cattle corridor
- Extensive systems

Nganda- Central Uganda

- Lwengo , Mpigi and Kayunga
- Mixed crop-livestock systems
- Populations in trading centres

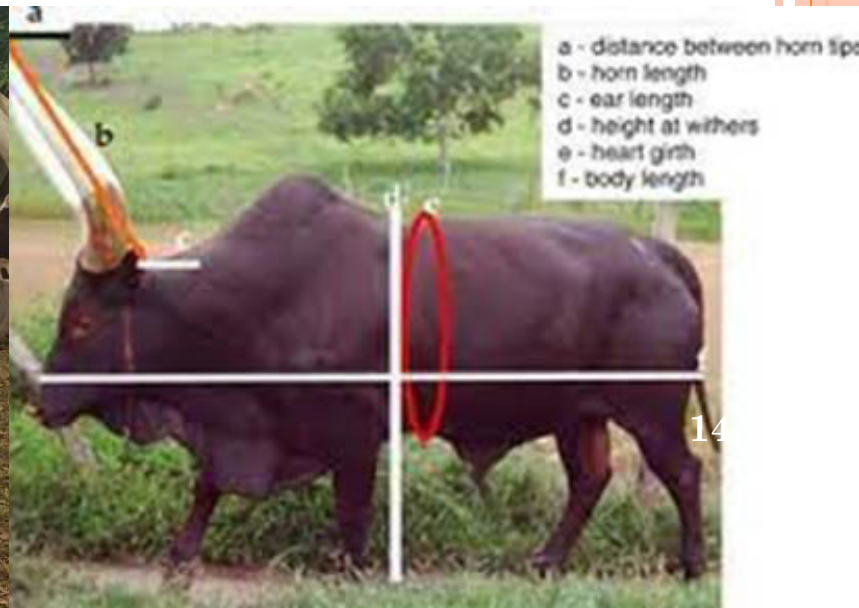


○ Data collection

- Primary data-

- Survey collection of samples from animals like blood, fecal samples, hair and body measurements.
- Questionnaires
- Focused group discussions
- Interviews

Morphometric measurement



What has been done so far

- Selection of farmers
- Farmer meetings
- Animal selection
- Samples collected for lab work
- Meeting with farmers in some districts
- Interviews with some farmers
- Visiting institution



THANK YOU

