# Journeying towards a sustainable dairy breeding program in Tanzania

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# Goal

Breeding programs that deliver improved genetics that are adaptable to the local environments and smallholder management systems are possible and sustainable when supported by: digital tools for data capture, integration of genomic analyses, enhanced capacity of national partners and participation of private and public sector actors.

## **Project sites in Tanzania**

# Background

- Smallholder dairy contributes the largest proportion of milk in Tanzania.
- Farmers do not have access to productive and adapted seedstock that best suit their production systems
- Access to information to enable farmers extract optimum benefits from their livestock enterprises is limited
- There is no systematic and sustainable selection and breeding program for dairy cattle
- Artificial insemination is used to deliver exotic genetics but is not accessible to all neither is it supported by empirical data and feedback systems.
- A nationally harmonized animal identification system is in place but is not widely implemented.



# **Innovative application of technologies**

- \* National Dairy Performance Recording Centers with a robust and agile database for herd and cow performance data collection
- Harmonized animal identification and registration
- Use of on and offline digital data capture tools
- Pipelines for continuous genetic evaluations to identify superior purebred and crossbred bulls developed
- Certification systems for dairy seedstock established
- Digital farmer extension and feedback system for animal management and decision making
- Dairy herd profitability simulator tool developed and tested.
- Private-public partnerships options to sustainably resource recording, genetic evaluation and digital extension

#### The AADGG Platform An agile, robust, flexible & scalable system Analytics Farming systems characteristics Customized data summaries Characteristics of dairy animals on Genomic evaluation Monitor animal performance Customized indexes for animal Monitor use of technologies (eg selection Artificial Insemination, vaccination Service provider -Learning tools Costs of production Data Validation Managing reproduction Managing calves at different stages Data capture SAMSUNG ystem Administratio Using livestock data for decisions DK Collect > Main Menu ODK Collect 1.4.7 (1053 Managing animal health PI Management Fill Blank Forn Edit Saved Form ata Extraction Send Finalized Form Interherd Country Data platforms KAZNET Get Blank Form a Feed Delete Saved Form DATA PLATFORM

# Products

Database and data platform

### Africa Asia Dairy Genetic Gains Project (AADGG) DATA PLATFORM:

- Performance data on dairy cattle under various farming systems of Tanzania.
- Controlled Access to the data platform by users
- Summaries from data available in different formats for monitoring
- Registered farmers can access and use their data directly or through service providers



## Milk and animals registered



#### **Sire selection**

- Top ranked bulls and bull dams selected using estimated genomic breeding value
- Bulls used by national Artificial Insemination center for semen production
- Semen from top ranked bulls used for AI and calves born
- Bulls catalogue produced



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Dairy Farmers & Farmer organizations







