Introduction

- Tanzania Agricultural Research Institute (TARI) has been implementing AVISA to support dryland cereals and legumes in collaboration with CIMMYT.
- Product design teams for dryland cereals and legumes was formed in Tanzania.
- Market segments and Target Product Profiles (TPP) generated.
- As part of breeding assessment, it was recommended to improve breeding infrastructure for some key traits for sorghum, millets, and groundnuts.
- Recommendations also includes improvement of a key breeding processes to shorten breeding cycles.

Challenge

Key problem statement/s

- Lack of adequate phenotyping facilities
- Poor breeding infrastructure (irrigation & screen-house facilities)
- Lack of reliable cold rooms and seed storage facilities
- Insufficient digital data captures and processing gadgets
- Lack of reliable transports facilities (cars)

What are you trying to solve?

- Capacity?
  - Low water storage capacity in sorghum and finger millet breeding nursery
  - Inefficient irrigation system
  - Improve finger millet crosses success rates

Process?

- Molecular markers not integrated in breeding programs

Solutions

Actions taken to overcome the challenges

- Improve water storage capacity and increased area for breeding nursery
- Install new water tanks for irrigation up to 20,000 Liters under sorghum and millets nursery in the Eastern zone.
- Install new dripper lines
- Procurement of drought screening facility and screen house for rapid generation advances.
- Parental QA/QC integrated in breeding programs

How was the solution designed/agreed?

- Agreed between members of crop improvement teams

Who provided what input?

- CIMMYT provided funds
- TARI provided material support

ADCIN Africa Dryland Crops Improvement Network

TARI Transforming Agriculture

Title: Breeding Process or capacity improvement conducted during 2024 in Tanzania

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Key messages/Insights

Fig 1. Screen-house facilities at TARI-Ilonga (AVISA)

Fig 2. Finger millet crosses at the mini screen-house facility of TARI-Uyole (Crop Trust

Fig 3. Groundnut screen-house and water storage facilities at TARI-Naliendele. Procurement for additional facilities is currently in progress

Current implementation status

- Procurement process of drought screening facility and screen house for rapid generation advances in different stages.
- Parental QAQC integrated in breeding programs
- Breeding teams capacitated in areas of informatics (use of BMS)

What are your plans to sustain?

- Organize additional training sessions in plant tissue sampling and data management and interpretation
- Install irrigation systems at TARI's Canters: Uyole, Naliendele, and Ukiriguru.
- Optimization of finger millet hybridization techniques: plastic bag, chemical and hot water emasculation
- Construct Screen house facilities for biotic and abiotic works at TARI Uyole
- Find and buy a permanent *Striga hermonthica* screening plots (2 acres) in Igunga district
- Purchase/find a reliable transport facility

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