



COMMON BEAN (*PHASEOLUS VULGARIS* L.) AFRICA REGIONAL GENE BANK

Securing germplasm for Africa

PURPOSE

The gene bank was established in 2012 to support Africa-wide bean research programs under Pan Africa Bean Research Alliance (PABRA) by preserving and managing germplasm. Accessions are utilized in various hybridization and other common bean research programs worldwide. Germplasm is accessible to all bean scientists.

WHAT WE DO

- Germplasm collection.
- Characterization of seed traits
- Evaluation
- Documentation
- Germplasm conservation
- Distribution.

GERMPLASM PRESERVATION METHOD

- Accessions are preserved in a dry seed form at $\leq 12\%$ moisture content.
- Dried seeds are treated with Pirimiphos-methyl 16g/kg + Permethrin 3g/kg before storage.
- The cold-room is maintained at $5-10^{\circ}\text{C}$ and $\leq 50\%$ relative humidity.
- Seeds are maintained for 4-5 years for active collection and 15 years for long time storage. After those periods seeds are replenished.



CURRENT COLLECTION

Currently, the gene bank maintains a collection of over **8800** common bean accessions.

ACCESSION TYPES

- 48% fixed Breeding lines,
- 18% Released varieties across Africa,
- 10% Released landraces,
- 12% Landraces,
- 10% segregating materials,
- 2% wild relatives and siter species of common beans.



GERMPLASM SOURCES

- 40% of the collection is from our mother gene bank FUTURE SEEDS from Palmira in Colombia,
- 35% from NARS and breeders in sub-Saharan Africa,
- 20% developed by CIAT-Kawanda breeding hub,
- 5% elsewhere.

MANAGING OF INVENTORIES

- Breeding Management System (BMS) in support of a unique Barcoding system is used to manage seed inventories & report on seed transactions (Seed deposits and withdraws).
- The system also links to germplasm characterization data.



Accessions are grouped in nurseries

- Drought and heat tolerant lines
- Iron biofortified lines
- Fast cooking lines
- Disease resistance nurseries (angular leaf spot, anthracnose, common bacterial blight, bean root rot, BCMV)
- Good canning quality traits

NEW DEVELOPMENTS

- To ensure genetic purity, all accessions will be fingerprinted using DNA markers.
- A genetic reference library that will control duplication of accessions in the gene bank and enhance the bean breeding process through marker-assisted breeding will be established

HOW TO ACCESS MATERIALS

- Place formal requisition to the center indicating purpose.
- The requesting entity signs a standard material transfer agreement (SMTA) on receiving germplasm.