

Agrobiodiversity and Biotechnology Programme

Since 2008, the programme has used biotechnology to enhance the use of agro-biodiversity and as a platform to develop new knowledge. Working with partners from eight national agricultural research institutes (NARIS) and the private sector in Uganda, Sudan, Kenya, Tanzania, Burundi, Ethiopia, Eritrea, DR Congo, project has scored the following achievements:

Cassava/sweetpotato tissue culture

- Developed Low cost tissue culture protocols for cassava and sweet potatoes.
- Developed a tissue culture certification scheme to facilitate exchange of banana tissue culture planting materials for buyers and importers. This has reduced the transmission of pathogens that cause infections from infected mother plants to host plants. Developed and optimized a technique for conducting diagnostic testing on the tissue culture materials for cassava and sweetpotato.

Cassava, sweetpotato germplasm conservation

- Made core collections of cassava and sweet potato germplasm
- Developed two genetic linkage maps to identify molecular markers associated with tolerance to Cassava Brown Streak Disease (CBSD)
- Rehabilitated and refurbished a regional genebank for and field gene bank for conservation of cassava and sweet potato germplasm at the National Genebank of Kenya

Maize for drought tolerance

- Advanced in screen-house, five transformed maize lines from Ethiopia, Kenya, Sudan, and Tanzania. These have produced seed for drought tolerance trials
- Generated and availed for uptake tissue culture protocols for maize
- Acquired, optimized and availed for uptake technologies for production of transgenic maize



Simple diagnostic tools for tapeworm

- Developed a penside lateral flow diagnostic assay for *Taenia solium* cysticercosis into a user-friendly diagnostic test and evaluated efficacy of *Taenia solium* recombinant vaccine in pigs in ECA.
- Integrating Agro-diversity with conservation to improve Livelihoods in Savannah Ecosystem
- Documented abundance and diversity of key biodiversity indicators in the Serengeti Mara ecosystem.
- Generated through rigorous validation processes, a total of 25 best-bet technologies were for use in the Serengeti Mara ecosystems.

Striga resistant sorghum



- Introgressed striga resistance genes into three sorghum backgrounds for arid and semi-arid zones.
- Completed studies on technology for fine mapping traits associated with Striga resistant genes in sorghum. Produced a fine map of traits associated with Striga resistant genes.
- Regenerated a total of 31 Superior Striga resistant lines of sorghum in Sudan and Uganda for multi environmental trials.
- Field tested in Sudan generated lines on-station and other locations to boost sorghum productivity.