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“Management of land use systems for enhanced food security:  
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## Conservation and Characterisation of Germplasm Diversity to Underpin Efforts to Enhance Food Security

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### Abstract

The Genetic Resources Centre (GRC) of IITA holds important germplasm collections of most of the major staple crops of sub-Saharan Africa: Cowpea, Yam, Maize, Cassava, Soybean and Banana/Plantain. In addition, it holds smaller number of accessions of important but underutilised legumes including Bambara groundnut, African Yam Bean and Winged Bean. A total of more than 33,000 accessions are held. GRC collects, characterises, conserves, documents and distributes accessions of these crops. Seed propagated crops are conserved under cold storage conditions and safely duplicated at 2 geographically different places, including at the Svalbard Global Seed Vault (SGSV). Conservation of clonal crops (Cassava, Yam, Banana /Plantain) is carried out both in the field and *in vitro* genebank, with cryo preservation also being developed.

Distribution of accessions is carried out free of charge as part of the multilateral system under the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) to all requestors for research purposes or breeding for food and agriculture. Where possible, passport and characterisation data are also made available on-line and we have started uploading these data to Genesys, a web based portal that is bringing together accession level information for CGIAR and some national Genebanks. GRC collaborates with national programmes including genebanks, particularly in West Africa, and plays an important role in training and capacity development.

A major objective is to increase the effective utilisation of germplasm in breeding programmes within and outside the CGIAR. One of the routes we are taking toward this collaboration with colleagues within and outside IITA is the molecular characterisation of our collections.

Plans are in place for a new facility in East Africa at IITA, Tanzania for the conservation and cleaning of cassava landraces of South East Central Africa which are threatened by cassava brown streak disease. This disease has not reached West Africa and so it is advisable for collection and conservation to be carried out in the East with the collaboration of national partners and to support their breeding programs.

**Keywords:** Banana/plantain, cassava, cowpea, cryo preservation, *in vitro* genebank, maize, soybean, Svalbard global seed vault, yam