

# Future Seeds, The Alliance of Bioversity International & CIAT, Colombia



## Genebank at a Glance

<b>Acronym</b>	CIAT
<b>Country</b>	Colombia
<b>Year established</b>	1977
<b>Conservation methods and facilities</b>	Seed, <i>in-vitro</i> , field
<b>Number of staff</b>	42
<b>Total number of accessions</b>	66,556
<b>Number of accessions distributed annually</b>	4,817



## Recent Highlights

- The genebank is developing climate-ready crop varieties which are vital for small-scale farmers as part of the 'Mining Useful Alleles for Climate Change Adaptation' project, coordinated by CIMMYT and funded by the Bill & Melinda Gates Foundation and Foundation for Food & Agriculture Research (FFAR). The project aims to identify climate-adaptive alleles in over 3,000 cassava and 10,000 bean landraces in the genebank, using environmental data like temperature and precipitation prevailing at the geographic locations where the accessions were collected. By combining climatic and genomic data, it will be possible to pinpoint these alleles, which are scattered throughout the genome. Breeders will then enrich their elite germplasm with these alleles, thereby enhancing heat and drought tolerance of the cultivars they are developing.
- The Hacienda San José, an 8,000-hectare ranch in Vichada, Colombia, produces sustainable beef by using a *Urochloa* (syn. *Brachiaria*) *humidicola* variety derived from the genebank as feed for their livestock. This species reduces emissions from beef production by boosting soil organic carbon by 15% compared to traditional pastures, while also curbing nitrous oxide emissions due to its root exudates that inhibit soil nitrification.
- The genebank is harnessing Near Infrared Reflectance Spectroscopy (NIRS) to develop a non-invasive method for assessing protein, amino acid, and mineral content in beans. If effective, NIRS will be a go-to approach for screening the bean collection for these nutritional traits. Simultaneously, the genebank is exploring the genetic architecture of these traits within the bean core collection using Genome Wide Association Studies (GWAS). This helps pinpoint specific alleles breeders can target to enhance the nutritional profile of new bean varieties.



[www.alliancebioversityciat.org/future-seeds](http://www.alliancebioversityciat.org/future-seeds)