

Pact invests US \$109 million to secure critical genetic material, maintain global food production

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Concerned that inconsistent funding eventually could weaken a global network of seed banks at a time when farmers face unprecedented challenges, two of the world's leading agriculture organizations announced today a bold new effort to secure what many consider the foundation of food security in the developing world.

The agreement between the [Global Crop Diversity Trust](#) and the [CGIAR Consortium](#) provides US\$109 million over five years for the CGIAR Research Program for Managing and Sustaining Crop Collections, which is dedicated to maintaining the 706,000 samples of crop, forage and agroforestry resources held in "genebanks" at 11 CGIAR research centers around the world.

The seed banks house the world's largest and most diverse collections of wheat, maize, rice, potato, banana, [sorghum](#), forages, beans and many other plants. This diversity is viewed as essential to providing farmers with new [crop varieties](#) critical to overcoming an array of weather- and pest-related threats. Over the last ten years alone, CGIAR genebanks have distributed more than one million samples to plant breeders and crop researchers—a process that has saved millions of lives globally through the development of new, resilient crop varieties.

"With [climate change](#) greatly intensifying demands on plant breeders to develop new heat-, drought- and flood-tolerant [crops](#), it is particularly

important for the samples conserved in the CGIAR's genebanks to be readily accessible and in optimal condition," said Åslaug Marie Haga, incoming executive director of the Global [Crop Diversity](#) Trust. "The viability of agriculture depends on the incredible treasure of crop diversity housed in the CGIAR genebanks."

"This particular program underpins global agricultural research; it builds a foundation for all of our other research programs to succeed.

Ultimately, the seeds and vegetative material stored and maintained in the genebanks are the lifeblood of the [crop improvement](#) research being carried out across the CGIAR Consortium. If our genebanks suffer, our research suffers," said Dr. Frank Rijsberman, the CEO of the CGIAR Consortium. "That's why we continue to work with the Trust, an organization dedicated solely to protecting crop diversity, to put these genebanks on a more firm financial footing and ensure they will be maintained and improved for generations to come."

Maintaining the hundreds of thousands of crop varieties held throughout the CGIAR network presents a complex challenge. Seeds and vegetative material must be collected, cleaned, stored and rejuvenated when aged. They also must be tested periodically for health and viability, safely duplicated and exchanged. And each of these steps must be carefully recorded and catalogued. Genebanks must also dedicate funds and research to find better, cost-effective ways to conserve crops that do not produce seed or whose seeds are hard to store—like potatoes, cassava and bananas. The Trust, for example, has supported research to develop cryopreservation procedures, the process by which plant tissues are conserved under extremely cold conditions, for a number of these crops.

In addition to lacking funding for basic maintenance costs, crop diversity collections are threatened by political unrest and weather disasters. For example, the genebank at the International Center for Agricultural Research in the Dry Areas (ICARDA), and its valuable collection of

cultivated and wild relatives of wheat, barley, lentil, chickpea, faba bean, peas and [forage](#) crops, was recently threatened by conflicts around ICARDA's headquarters in Aleppo, Syria, and had to be rapidly replicated or relocated to other CGIAR genebanks, national partners and the Svalbard Global Seed Vault in Norway.

Beyond maintaining the vitality of the existing collections, the CGIAR Consortium partnership with the Trust envisions adding some 56,000 new samples or "accessions" to the genebanks by 2015, including a large number of wild relatives of cultivated crops. Wild relatives often contain important traits, such as drought tolerance or disease resistance, that can be hard to find in cultivated varieties. New plant breeding technologies are making it easier to borrow traits from distant wild relatives and use them to improve the productivity or fitness of a cultivated crop.

"Today, thousands of improved crop varieties are growing in farmers' fields that can trace their roots to CGIAR genebanks," Haga noted. For example, the tsunami in late December 2004 increased the salinity of many rice-growing regions of Asia. But in the following year, the International Rice Research Institute (IRRI) in Manila searched its collection of more than 100,000 rice varieties and found cultivars suitable for the now-salty soils. IRRI's genebank also was central to helping Cambodia rebound from a country whose rice production was decimated in the wars of the 1970s to become the rice exporter it is today.

More recently, the seed collections maintained by the International Crop Research Centre for the Semi-Arid Tropics (ICRISAT) and the International Center for Tropical Agriculture (CIAT) have been mined to help farmers in the drought-stricken horn of Africa switch to more drought-tolerant varieties.

The CGIAR's genebank collection is intended for everyday use by plant

breeders and crop researchers. The collection is safely duplicated in the Svalbard Global Seed Vault on a remote island near the Arctic Circle. With the government of Norway, the Trust established the Svalbard facility as a back-up seed collection built to stand the test of time and to protect the world's crop diversity from natural or manmade disasters.

The new partnership between the Trust and the CGIAR Consortium will allocate the US\$109 million over the next five years to fund crop preservation and collection work at the CGIAR genebanks and ensure their crop samples are still widely shared. During that time, the CGIAR Consortium and the Trust will work with donors to secure a more permanent endowment to fund the genebanks in perpetuity.

"Given all of the turbulent issues surrounding agriculture and food today, from high commodity prices to threats from weather extremes, I think the international community is waking up to the enormous value of preserving crop diversity," said Margaret Catley-Carlson, outgoing chair of the Trust's executive board and former president of the Canadian International Development Agency (CIDA). "We want to put the seed banks on a more firm financial footing to make sure they remain prepared to respond to any new challenges, expected or unexpected, that could threaten agriculture production anywhere in the world."

"We see opportunities with this new program to knit together a global community committed to crop biodiversity that extends beyond CGIAR genebanks and allows funds to be invested more wisely," said Charlotte Lusty, a scientist with the Trust who is working on the partnership with the CGIAR genebanks. "There's a lot of expertise out there in Europe, the US, India, Brazil and China and we can reach out and build new partnerships that will ensure we are not duplicating efforts."

Provided by CGIAR

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