

Rare, unique seeds arrive at Svalbard Vault, as crises threaten world crop collections

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The Svalbard Global Seed Vault (SGSV) celebrated its third anniversary today with the arrival of seeds for rare lima beans, blight-resistant cantaloupe, and progenitors of antioxidant-rich red tomatoes from Peru and the Galapagos Islands. The arrival of these collections, including many drought- and flood-resistant varieties, comes at a time when natural and man-made risks to agriculture have reinforced the critical need to secure all the world's food crop varieties.

The seeds arriving for safekeeping in the depths of an Arctic Mountain on Norway's remote Svalbard Archipelago included major deposits from genebanks maintained by the Consultative Group on International Agricultural Research (CGIAR), which is the largest single contributor of seeds to the Seed Vault.

Among the shipments is a Peruvian desert lima bean variety on the verge of extinction that was rescued by the Colombia-based International Center for [Tropical Agriculture](#) (CIAT), as well as other lima beans and relatives that grow in very dry or high-altitude locations. In total, CIAT's new shipments include 3,600 bean and forage samples collected from 94 countries, including Afghanistan, Nepal, Yemen, Vietnam and Zimbabwe.

Thousands of other cereal and bean varieties are being deposited by the International Center for Agricultural Research in the Dry Areas (ICARDA). The International Livestock Research Institute (ILRI) in Addis Ababa, Ethiopia is depositing forage crops. In Arizona, a Navajo

ceremony was held to bless seeds of rare desert legumes from the University of Arizona before they began their long journey to Svalbard.

The new accessions, which will be added to the more than 600,000 already stored at Svalbard, include Agricultural Research Service-US Department of Agriculture (USDA) donations of soybeans collected by USDA researchers in China in the 1920s.

The USDA's shipment also includes seed collections of *Solanum chilense* and *Solanum galapagense*, wild relatives of the tomato whose genetic material was used by breeders at USDA and the University of California, Davis, to create tomatoes high in lycopene (an antioxidant) and beta-carotene (a source of Vitamin A). Other US shipments included seeds for important disease-resistant varieties of spinach, maize and cantaloupe.

"The optimism generated by the arrival of this incredible bumper crop of contributions is tempered by the threats that seem to emerge almost daily to seed collections around the world," said Cary Fowler, Executive Director of the Global Crop Diversity Trust, which manages the Seed Vault in partnership with the Norwegian government and the Nordic Genetic Resources Center in Sweden. "As the threats to agriculture escalate, the importance of crop diversity grows."

A vivid example of some of the threats facing genebanks is when unrest in Egypt led to the looting of the Egyptian Desert Gene Bank in North Sinai. At the Desert Gene Bank, home to a prized collection of fruit and medicinal plants, looters stole equipment, destroyed the facility's cooling system, and ruined data that represented more than a decade worth of research. Meanwhile, the Global Crop Diversity Trust continues to fight plans to bulldoze the field collections at Russia's Pavlovsk Experimental Station, Europe's most important collection of fruits and berries, to make way for a housing development.

The Norwegian vault's third anniversary also brings reminders of natural threats to crop diversity and the food security it maintains.

Dr. Tony Gregson, a grain farmer from Victoria's Wimmera region, which has been alternately baked and flooded recently, accompanied Australia's first contribution to the seed vault, which has travelled further than any other seeds that have come to Svalbard.

Gregson, who sits on the board of the Crawford Fund, which supports international agriculture research, noted that virtually all Australian food crops come from outside the country. Coupled with the country's recent bouts of extreme weather, this makes Australia's farmers particularly sensitive to the importance of global crop diversity.

"Australian farmers have recently had to deal with both droughts and floods. This is not only terribly difficult for farming communities, but also affects food prices worldwide—harsh reminders of the need to find [crop varieties](#) that will help adapt to these changing conditions," Gregson said.

While crop diversity is critical to adapting agriculture to climate change, it is also at risk of being lost due to rapid changes in climate and farm environments. For example, in February, the Trust announced a partnership with potato farmers in Peru to duplicate and deposit in the Seed Vault seeds from 1,500 varieties of potatoes still found in the Peruvian Andes, where some varieties are threatened by climate change. To keep pace with rapid changes in the global climate, the Global Crop Diversity Trust is also moving to collect wild relatives of domesticated crops. With the support of a US\$50 million grant from the government of Norway, the Trust is participating in a global search to locate and conserve wild relatives of wheat, rice, bean, potato, barley, lentils, chickpea, and other essential food crops that could contain valuable genetic traits.

Cary Fowler commented, "As we celebrate the third anniversary of this remarkable Vault, it is thrilling to see yet another fantastically diverse shipment of seeds arrive. The scale of the challenges facing agriculture can be overwhelming, yet the knowledge that over 600,000 samples are now guaranteed to be safe and available to help farmers gives me great hope for our common future."

Provided by Global Crop Diversity Trust

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