

Near Arctic, Seed Vault Is a Fort Knox of Food



Dean C.K. Cox for the International Herald Tribune

The entrance to the Global Seed Vault, on a Norwegian Island near the North Pole. This week it received its first seeds, under a project to store every type of seed from every seed collection in the world. [More Photos >](#)

By ELISABETH ROSENTHAL
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LONGYEARBYEN, [Norway](#) — With plant species disappearing at an alarming rate, scientists and governments are creating a global network of plant banks to store seeds and sprouts, precious genetic resources that may be needed for man to adapt the world's food supply to [climate change](#).

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Longyearbyen is in Norway, 600 miles from the North Pole. [More Photos >](#)

This week, the flagship of that effort, the [Global Seed Vault](#) near here, received its first seeds, millions of them. Bored into the middle of a frozen [Arctic](#) mountain topped with snow, the vault's goal is to store and protect samples of every type of seed from every seed collection in the world.

As of Thursday, thousands of neatly stacked and labeled gray boxes of seeds — peas from Nigeria, corn from Mexico — reside in this glazed cavelike structure, forming a sort of backup hard drive, in case natural disasters or human errors erase the seeds from the outside world.

Descending almost 500 feet under the permafrost, the entrance tunnel to the seed vault is designed to withstand bomb blasts and earthquakes. An automated digital monitoring system controls temperature and provides security akin to a missile silo or Fort Knox. No one person has all the codes for entrance.

The Global Vault is part of a broader effort to gather and systematize information about plants and their genes, which climate change experts say may indeed prove more valuable than gold. In Leuven, Belgium, scientists are scouring the world for banana samples and preserving their shoots in liquid nitrogen before they become extinct. A similar effort is under way in France on coffee plants. A

number of plants, most from the tropics, do not produce seeds that can be stored.

For years, a hodgepodge network of seed banks has been amassing seed and shoot

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collections in a haphazard manner. Labs in Mexico banked corn species. Those in Nigeria banked cassava. Now these scattershot efforts are being urgently consolidated and systematized, in part because of better technology to preserve plant genes and in part because of the rising alarm about climate change and its impact on world food production.

“We started thinking about this post-9/11 and on the heels of [Hurricane Katrina](#),” said Cary Fowler, president of the Global Crop Diversity Trust, a nonprofit group that runs the vault. “Everyone was saying, why didn’t anyone prepare for a hurricane before? We knew it was going to happen.”

“Well, we are losing biodiversity every day — it’s a kind of drip, drip, drip. It’s also inevitable. We need to do something about it.”

This week the urgency of the problem was underscored as wheat prices rose to record highs and wheat stores dropped to the lowest level in 35 years. A series of droughts and new diseases cut wheat production in many parts of the world. “The erosion of plants’ genetic resources is really going fast,” said Dr. Rony Swennen, head of the division of crop biotechnology at the Catholic University of Leuven in Belgium, who has preserved half of the world’s 1,200 banana types. “We’re at a critical moment and if we don’t act fast, we’re going to lose a lot of plants that we may need.”

The [United Nations](#) International Treaty on Plant Genetic Resources, ratified in 2004, created a formal global network for banking and sharing seeds, as well as for studying their genetic traits. Last year, its database received thousands of new seeds.

A system of plant banks could be crucial in responding to climate crises since it could identify genetic material and plant strains better able to cope with a changed environment.

Here at the Global Vault, hundreds of gray boxes containing seeds from places ranging from Syria to Mexico were moved this week into a freezing vault to be placed in suspended animation. They harbor a vast range of qualities, like the ability to withstand drier, warmer climate.

Climate change is expected to bring new weather stresses, as well as new plant pests into agricultural regions. Heat-trapping carbon dioxide emissions will produce not just global warming but an increase in extreme weather events, like floods and droughts, the Intergovernmental Panel on Climate Change concluded.

Already three-quarters of biodiversity in crops has been lost in the last century, according to the United Nations Food and Agriculture Organization. Eighty percent of maize types that existed in the 1930s are gone, for example. In the United States, 94 percent of peas are no longer grown.

Seed banks have operated for decades, but many are based in agricultural areas and few are as high-tech or secure as the Global Seed Vault. They have often been regarded as resources for hobbyists, scientists, farmers and others rather than as a tool for human survival.

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