



Simple Answers to Basic Questions

What is a genebank?

It is a facility for maintaining crop diversity. Usually, this diversity is in the form of seeds, stored and conserved in a frozen state. Some genebanks use normal household freezers for this purpose. The ideal temperature is between -10 and -20C. Each different type is stored in its own container, such as a bottle, can, or a sealed aluminium foil package.

How many genebanks are there?

The Food and Agriculture Organization of the UN lists about 1400 collections, ranging in size from a single sample to the U.S. collection with 464,000 different samples. Major genebanks include those in China, Russia, Japan, India, S. Korea, Germany, and Canada (in that order) as well as those operated by Centers of the Consultative Group on International Agricultural Research (CGIAR).

How many samples do genebanks currently house?

Approximately 6.5 million collectively. Some 1-2 million are estimated to be “distinct.” Once the Svalbard Global Seed Vault (SGSV) becomes fully operational, we would expect it to become the largest single collection in the world. It will have a capacity of 4.5 million samples, giving ample room to accommodate all existing diversity plus new variation as it arises in the future.

Who uses genebanks?

Plant breeders and researchers are the major users of genebanks. The diversity stored in genebanks is the raw material for plant breeding and for a great deal of basic biological research. Several hundred thousand samples are distributed annually for such purposes.

Is it really necessary to conserve so many different crop varieties?

Different types have different characteristics, not all of which are visible to the eye – genetic traits that provide disease resistance, adaptability to various soils and climates (including fluctuations), different tastes and nutritional qualities. If we ever need to use the potentially unique and sometimes hidden traits found in a particular variety, then we must conserve the variety - for as long as we want that option. So, the simple answer is “Yes!”

What are the threats to genebanks and their collections?

The biggest threat probably comes from lack of secure funding. Poor management can also be a major problem. In addition, genebanks are subject to natural disasters, wars and civil strife, accidents, etc. SISV provides insurance against all of these as well as larger and more catastrophic events.

How many varieties have been lost?

It is impossible to know, since there is no way of ascertaining how many different types have existed in the past. But, surely, much diversity has already been lost. Of the 7100 named varieties of apples grown in the U.S. in the 1800s, more than 6800 no longer exist. Extinction is forever. Different varieties of wheat and potato can disappear as permanently as the dinosaurs.

What kinds of seed will be stored in Svalbard?

Initially at least, all types of seed of the different food crops. There are, for example, more than 100,000 different kinds of rice. We would hope that Seed Vault would have a package of seeds of each of these different types.

Will the Svalbard Global Seed Vault store GMOs?

Norwegian policy precludes the importation of GMOs except by permission and only when they are housed in approved storage facilities. The Seed Vault does not meet these specific criteria, and thus GMOs cannot be accepted, at least at the present time. The policy was made prior to the decision to establish the Seed Vault. More information on the policy can be found at: www.seedvault.no

How safe and secure will the seeds be in the Seed Vault?

They will be as safe as they can be. The Seed Vault will be the most secure conservation facility in the world by several orders of magnitude. The conditions for the long-term conservation of the seed will be the best possible.

Could the Seed Vault survive a direct hit from a nuclear bomb?

Perhaps. Perhaps not. It would probably depend on the size! But it will surely withstand just about any other danger. As importantly, it is hard to imagine the Seed Vault being a target.

How long can seeds live in a frozen state?

It varies with the crop. Experimental data indicates a storage life of almost 20,000 years for one crop (sorghum). Eventually, all seeds will lose the ability to germinate – they'll die. Before this happens, a few seeds are taken from the stored sample and planted. Fresh, new seed is then harvested and placed in storage. This way, the original variety can be perpetuated, forever. When genebanks that have placed duplicates of their collection in Svalbard refresh their own seed supplies, we would expect them to supply a new, fresh lot to the Seed Vault. In practice this probably means that seed samples will be stored in Svalbard for 20-100 years before being refreshed. Seeds of most crops, however, will be capable of surviving far longer. It is important to realize that the Seed Vault is not a "time capsule." Seed will flow in and out as needed.

What is the Global Crop Diversity Trust and how is it connected to the Svalbard Global Seed Vault?

The Trust is a unique organization with the sole international mandate to ensure the conservation of crop diversity in perpetuity. The Trust is assembling a fund, the income from which will be used to support the long-term conservation and availability of this diversity for the international community. The Trust will provide support for the ongoing operations of the Seed Vault. It will also organize fund for the preparation and shipment of seeds from developing countries and international agricultural research centres to the facility. Professor Cary Fowler, Executive Secretary of the Global Crop Diversity Trust headed the international committee that assessed the feasibility of establishing the Seed Vault and has been involved at every stage of the process of establishing the Seed Vault.

The Trust believes that the facility in Svalbard will provide a global safety net for agriculture ensuring that even if a catastrophe strikes a particular genebank, or many genebanks, our irreplaceable heritage of crop diversity will not be lost for future generations.

For More Information About

The importance of conserving crop diversity / the challenges / the crops / the institutions involved / initiatives to ensure conservation / The Global Crop Diversity Trust

Visit www.croptrust.org