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People Showing Concern About Disappearing Plant Life

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Paul Wallace of Petaluma Seed Bank looks at heirloom seeds. Many are traditional varieties passed down from generation to generation.

CHRISTOPHER CRUISE: I'm Chrisopher Cruise.

MARIO RITTER: And I'm Mario Ritter with EXPLORATIONS in VOA Special English. Today we tell about concerns about plant life, including agricultural crops. And we tell about efforts to keep them growing in the years to come.

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CHRISTOPHER CRUISE: Agricultural experts say crop diversity is important to feed the increasing population of our planet. They say having a large variety of plants also helps to protect against possible crop diseases and future crises.

Hundreds of thousands of different plants now exist. But many experts say the number has decreased sharply during the past century.

One of the world's largest seed conservation projects has predicted further losses. The Millennium Seed Bank Partnership is warning that up to one hundred thousand plant species could permanently disappear. The rich collection of genes that decide their qualities would disappear with them.

MARIO RITTER: Many experts blame climate change and loss of habitat, normal growth area, for damaging plant life. They say human activities and poorly planned, overly heavy use of land also are responsible.

The United Nations Food and Agriculture Organization says modern business farming is responsible for loss of farmers' traditional crop varieties. The "Green Revolution" of the twentieth century changed agriculture. Some experts say the use of modern commercial farming methods saved millions of people from starvation. Farmers planted, watered, and fertilized their crops with the help of machines. They treated their fields with chemicals to control insects and diseases. Harvests grew larger and higher quality.

But another result was that some traditional crops were lost.

CHRISTOPHER CRUISE: The Food and Agriculture Organization says about two hundred fifty thousand plant species are now known to exist. The FAO notes that today, thirty thousand plant species could be eaten. Still, it says, only seven thousand have been used for food.

About one hundred twenty crops are grown to feed humans. The FAO says nine of those crops provide seventy five percent of human food. Rice, wheat and maize are said to supply more than half of human food.

(MUSIC)

MARIO RITTER: Not all experts agree that a decrease in cultivated food crops is a crisis. A recent study showed a different situation, at least in the United States. The study examined records of plant varieties in America during the past century.

The study was the project of Paul Heald of the University of Illinois College of Law and Susannah Chapman of the Anthropology Department at the University of Georgia. They found that the total number of vegetable and apple crop varieties in the United States did not fall over the past century. Instead, Professor Heald says, the study may show a small increase in the number of varieties**.**

CHRISTOPHER CRUISE: Professor Heald and Ms. Chapman examined records of forty-two thousand vegetable crops. The crops were grown from nineteen three to two thousand four. They also studied apple variety records from nineteen hundred to two thousand.

Some scientists and others blame patenting for what they say are losses of crop diversity. But the study did not find that plant patents influenced the number of newly created plants. The researchers said they did not make a major change in the number.

A patent is the legal right of an inventor to a process or a product, even a plant. To get this right, the inventor has to demonstrate the qualities that make the patented plant different from other plants. The inventor must show that the plant has been reproduced asexually. This usually means that the plant is cut or its tissues have been connected to another plant.

MARIO RITTER: Asexual reproduction proves that the inventor can reproduce the plant. Grafting is a way to produce plants from parts of existing plants instead of seeds, which cannot be used. Branches or buds are cut from one plant and placed on another plant.

American patent law says a new version of plant also can be discovered, but only on land used for growing. Wild plants in nature cannot be patented. They do not belong to any one owner.

CHRISTOPHER CRUISE: The two researchers looked at three dates when laws protecting the rights of patent holders took effect. For example, seeds were first patented in nineteen seventy. The researchers say that, as they examined the records, they kept waiting for the number of new plant varieties to drop. But that did not happen. Instead, Mr. Heald says, they had a surprise.

PAUL HEALD: "We decided there is, there is, something wrong here, something wrong with the conventional story."

MARIO RITTER: Paul Heald says he thinks damage to the environment over the past century makes people believe that crop diversity also suffered.

PAUL HEALD: "There is no doubt that the twentieth century was an environmental disaster. Our normal assumptions I think about almost all environmental issues is that the news is bad."

Instead, he says, the development of new plant varieties is something to feel good about. The professor adds that new kinds of plants develop as a result of unofficial activities. He says immigrants, seed collectors, small farmers and local gardeners all keep and start new varieties.

(MUSIC)

CHRISTOPHER CRUISE: Today, many individuals and groups worldwide are working to guarantee plant life for the future. One method for doing so is called "in situ", meaning "in place." "In situ" preservation means a plant is grown in its normal environment. Another method is called "ex situ." In "ex situ", the plant is removed from its normal growing area and its seeds collected.

Shannon Carmody is with the Heritage Farm in Decorah, Iowa. There, workers grow and keep plants both "ex situ," in seed collections, and "in situ," on the farm's three hundred sixty hectares.

MARIO RITTER: The grounds around Heritage Farms are hilly. Ms. Carmody says the hills help protect the plant life.

In her words, "We have these valleys, and then gardens on either side. They create a kind of natural barrier. The barrier lets us prevent cross-pollination of all our different varieties that we preserve here."

Cross-pollination means the movement of pollen from one plant to another. If that happens, it could change the genetic structure of the plants.

Heritage Farm saves material from plants that can be regenerated -- grown again. Regeneration can be gained using seeds, bulbs or roots. The farm keeps seeds for heirloom and open-pollinated fruit and vegetable plants. Open pollination means pollination by wind, insects, birds and other natural methods.

The Heritage Farm collection does not include potatoes, which are not regenerated by seed.

CHRISTOPHER CRUISE: Experts differ about how to describe an "heirloom." Each variety differs from others in its genes. Heirlooms are usually passed down over time from one family or gardening group to another. Some are hundreds of years old. Insects or the wind often open-pollinate heirlooms.

Some heirloom fruits and vegetables have names like Green Nutmeg Melon and Cowhorn Okra. Others are Black Beauty Eggplant, Blue Curled Scotch Kale and Black Krimson Tomato.

At Heritage Farm or anywhere else, an heirloom garden in bloom promises a colorful sight.

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MARIO RITTER: Heritage Farm is the headquarters of Seed Savers Exchange, a not-for-profit group. It was established in nineteen seventy-five to save and share heirloom seeds. It also works to educate people about the need for genetic diversity.

Seed Savers Exchange has thousands of versions of different plant types. Its collection is one of the largest seed banks of its kind in North America.

Last year, Seed Savers Exchange donated two hundred seventy-one heirloom seed varieties to the Svalbard Global Seed Vault, far above Norway. The vault opened in February of two thousand eight. Since then, the Exchange has stored one thousand six hundred sixty open-pollinated heirloom seed varieties in the storage center.

CHRISTOPHER CRUISE: Svalbard protects plant varieties against permanent loss from accidents, wars and natural disasters. Placing seeds in the vault also can prevent their loss through equipment failure or financial failures of gene banks and plant museums.

The Norwegian government built the seed vault into the side of an icy mountain. The vault is kept at under minus eighteen and eight-tenths degrees Celsius. At that temperature, officials say, seeds can last many years even if cooling power is lost.

Svalbard can hold more than four million different seed samples. Each sample contains five hundred seeds. The seeds are "back-ups", or copies, of the varieties stored by seed banks around the world.

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MARIO RITTER: This program was written by Jerilyn Watson. I'm Mario Ritter.

CHRISTOPHER CRUISE: And I'm Christopher. Join us again next week for more Explorations in VOA Special English.