Few food plants are native to U.S.

BELTSVILLE, Md. - In the beginning, the United States got shortchanged on food plants. We've been trying to make up for it ever since.

Of about 200 important food plants known to us, only a handful--pecans, blueberries, wild strawberries, sunflowers, a few others–were in this country when mankind arrived. Mankind brought all the rest–corn, wheat and just about everything else you can name–from other areas of the world.

Some other parts of the world were shortcanged, also. "When the Bible mentions 'corn,' it's really telling of wheat and barley," said George White, the plant introduction officer for the U.S. Department of Agriculture. "Corn was not in that part of the world at the time."

In 1858, the United States government sent a man to China to collect tea seeds. We've had a programmed effort for decades to bring new plant materials to the United States to use in developing new plant varieties.

"We're interested in materials that's alive, not museum material," said White. Now in charge of the effort, he coordinates introduction into this country of plant material for research.

"There are about 350,000-plus species of plants in the world. Only about 200 are used as important food crops. Of those, about 15 are the major crops that feed mankind, the ones civilization is built on."

White and his fellow plant explorers visit other countries to find plants of value to the United States. They turn the plants of their seeds over to department researchers who grow them in large numbers and collect more seeds. Pathologists screen the plants against insects and diseases. Commercial plant breeders evaluate the plants further, transferring any useful genes they find to our varieties through controlled cross-pollination.

"We still seek new food plants but one of our main thrusts today is improving our existing plants," White said.

"You might look at it as a type of warfare. We're always trying to upgrade our plants to keep up with pests, which always seem to be a jump ahead of us. Insect and disease organisms change. A plant that might have resisted a harmful pest a few years ago might not be able to resist it today.

"We've bred our present plants--tomatoes for instance--to have high quality, flavor and other things we like. However, to get the genes to make improvements in our tomato plants, we still have to go back to Central America, the world origin for the tomato. We locate wild 'ancestors' of our modern tomatoes and bring them back as seeds or plants to cross breed with our commercial varieties.

A plant resists insects, for instance, in a number of ways, said White. It may have "hairs" or a tough "skin" or even a chemical compounds that discourages insects from eating it.

Today's environment places new stresses on plants. Plant explorers search for useful plants that can tolerate those stresses, such as grasses to grow in strip-mined areas and in sewage sludge, fast becoming a disposal problem. "These plants often have to grow on such soils without accumulating metals, so cattle can eat the plants without being harmed by them or without their metals ending up in our food chain.

Is there a danger of certain plants being driven to extinction?

"We need to think of the future, too. Improved varieties of some crops are gradually replacing the wild species that have been evolving for hundreds of years. We'll have less access to the original species and their genetics later as they are overrun by man. So we go after them now. We bring them back and store them in seed form--we have a national seed bank at Ft. Collins, Colo.--until the future when we'll need their genetics," White said.

"We want to continue to breed in characteristics that improve flavor, nutrition or some other qualities and enhance machine harvesting. Bread always looks about the same but the wheat in it may have changed considerably over the years. An average of about 15 new wheat varieties were developed and registered in each of the last three years, for example," White said.

The improved relations with China, which decades ago gave us one of America's top cash crops–the soybean–has opened an area of the world long denied us, said White. He and his colleagues have already begun exchanging plant material with the Chinese.

The department's plant introduction stations have kept records of the crops they've introduced, starting with a Russian cabbage introduced in 1898. It holds the plant introduction number "1" among some 433,000-plus introductions of various species that have been documented since 1898, said White.