How a High School Program Is Preserving Seeds of The Past for Future Generations

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WALDOBORO, MAINE — 04/27/2016 — Medomak Valley High School students Briana Luce, Riley Arbour and Cassidy Dever pot heirloom tomatoes during a horticulture class on Wednesday. With more than 800 varieties in its seed bank, the school's Heirloom Seed Project is the oldest and one of the largest high school-based seed saving programs in the country. Micky Bedell | BDN

When researchers in Scotland needed seeds to grow Bere, a very old barley variety once cultivated for thousands of years in highlands, they looked across the Atlantic to a midcoast Maine high school.

With more than 800 varieties in its seed bank, the Medomak Valley High School Heirloom Seed Project is the oldest and one of the largest high school-based seed-saving programs in the country.

They had exactly what the folks in Scotland were looking for their heritage seed project.

"We ship seeds all over the world," said Neil Lash, Medomak horticulture professor and director of the program. "It is really an international project."

Any seed or plant from that seed that has been handed down for generations and hand-selected for a special, region-specific trait is considered an "heirloom." According to those who grow them, heirloom seeds are often hardier and tastier than the more overly genetically manipulated and modified seeds produced in mass quantities.

In any given year, Lash has between 20 and 30 students working with the seed project, which began in 1991 and grew out of a horticulture class that began 20 years earlier. The idea, Lash

said, is to teach the students how to grow, collect, preserve and pass along heirloom seeds to the next generation of gardeners.

What began in a classroom and single greenhouse has expanded into the current 2-acre garden, two greenhouses and an arboretum.
"Our students are actually doing something about preserving biodiversity," Lash said. "They are not just studying it. Our seeds are very historical and include varieties from 38 different [Native American] tribes and, this year, seven crops traced to the Inca Indians."

Every year, Lash said, his students pour over the selections offered through Seed Savers Exchange to select seeds for the upcoming growing season.

"They look for the ones with the most historical connections that we can then use to connect the [students] to a historical or a geographical reference point," he said. "It gives them a chance to not just talk about that history, but actually get involved with historical seed preservation."

Over the summer Lash's students work in the center's greenhouses, nurturing plants in highly controlled conditions to avoid any cross-pollination. In the fall, the seeds from those plants are harvested and made available through an international seed exchange program.

"We are supplying seeds to gardens around the world that you read about in the paper," Lash said. "Our seeds end up in some pretty famous places [and] one year we gave a pea plant to Monticello that could be traced back to a plant Thomas Jefferson planted in 1773."

Medomak seeds have also gone to gardens in Old Sturbridge Village in Massachusetts, Quebec City's 400th anniversary garden, The Nordic Seed Bank in Sweden, The Taiwan Agricultural Institute, The University of Guelph in Ontario, The Northern Plains Sustainable Agricultural Society in North Dakota and the Ahkwesahsne Cultural Restoration Program at the St. Regis Mohawk Tribe Environment Division in New York.

Two months ago, the students shipped out the Bere Barley seeds to Scotland.

"It's a type of barley supposedly brought to the Shetland and Orkney Islands by the Vikings in 800 A.D.," Lash said. "Through DNA testing, we know the variety is an ancient one, but we can't say for sure if the Vikings brought them."

In Scotland, according to Lash, professor Rob Lee and his crew are working to reintroduce the crop to the Kintyre peninsula. In return, Lee sent Medomak a box of Atlantic hazelnuts from a grove in Scotland dating back to the Ice Age.

"We are still stratifying them," Lash said. "And will add them to our Living History Arboretum if they germinate."

In recent years the program has branched out to include poultry and Lash's students are currently working with three different heritage breed chickens — Golden Campines, Buckeyes and Chanteclers.

“These are all multipurpose birds that give a little bit of meat and a little bit of eggs,” Lash said. “They are not tremendous layers or meat producers and that is why these breeds are biting the dust rapidly.”

The Golden Campines, according to retired professor John Twomey of Montville, are critically endangered, with fewer than 500 breeding pairs in the country. This week he delivered 12 Campine chicks, which can trace their family tree back to ancient Rome and Julius Caesar, to Medomak.

“These chickens developed in the Campine region of Belgium, where there is poor soil and quite a harsh climate,” Twomey said. “They are able to forage avidly, fend off predators, and their coloration is such that they are not easy to see, so are well camouflaged.”

Legend has it, he said, that when Caesar invaded that region, he encountered the chickens and was so impressed he took some back to Rome.

“These are not egg-laying machines,” Twomey said. “One hen can lay 180 to 220 eggs a year, but they will lay in the winter without artificial lights.”

At one time, he said the Campines were a popular breed in this country and a Mainer is credited with bringing the first breeding pair to the U.S. decades ago.

“I love that the [Medomak] students are working with these heritage breeds,” Twomey said. “Promoting genetic diversity is a good thing to maintain and doing so shows respect for our elders who developed these breeds and varieties in the first place.”

Students in Lash’s program receive science elective credit for their work, but agree they get far more than that out of it.

“It offers a different learning experience rather than just doing book work,” Riley Arbour, a senior from Union, said. “It’s nice to go out to the greenhouses and have that hands-on experience.”

For Arbour, who plans to attend the University of Vermont to study biochemistry, the program provided a real-life historical connection with a real family tree.

“I was down in the arboretum at our outside fire pit with my mom and we were looking at a honey locust [tree] there that we had that is from a tree that was at the [Civil War] Battle of Antietam,” Arbour said. “It turned out my great-great-grandfather was in that battle as a Union soldier and my mom had his history. My great-great-grandfather could have walked by that tree [and] knowing that really bridged between horticulture and personal history.”

Fellow senior Jackson Vail said the project has provided opportunities to connect with people outside the classroom.

“We not only focus on preserving biodiversity, we are also making connections with people in the community and internationally also working on seed preservation,” Vail, who plans to study ecology at Princeton next year, said. “We really are doing important work.”

Senior Cassidy Dever said she has been involved in gardening ever since she was a child working in the dirt with her mom.

“Now I am learning so much about how much better these heritage seeds are and that they really produce food that is better for us and tastes better than food from the more mass-produced, overly modified seeds,” she said. “I love that we are preserving history [and] the seeds our grandparents grew up with.”

Lash said the students try to select plants that will grow in Maine conditions, which can be a challenge.

“We don’t use grow lights,” he said. “So we need to be aware of the length of daylight and what plants are sensitive to that.”

With 800 — and counting — successful seed-producing heirloom varieties blossoming in the program, Lash and his students certainly seem to have figured it out.

“This work is so important,” Arbour said. “Once you lose these seeds, you have lost them for good [and] it’s really nice to know we had a hand in hopefully preserving a few of them.”