

Profile from the Field

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Building Resilience and Flexibility into Midwest Organic Potato Production

Project Title: Building Resilience and Flexibility into Midwest Organic Potato Production: Participatory Breeding and Seed Potato Production

Coordinator: Ruth Genger

Location: Madison, Wisconsin

SARE Grants: \$17,637

Duration: 2016-2018

To read the full project reports, go to www.sare.org/projects and search for project number LNC14-358.

When Maria Carter's parents emigrated to America from the Netherlands in 1956, they brought along a knowledge of growing seed potatoes. Shortly after they put down roots in North Dakota, they put down tubers to start their new seed potato farm. They knew potato growers needed healthy seed potatoes, and they knew how to grow them. Potatoes are most often grown from the eyes of tubers rather than seeds; growers re-plant a part of the actual potato, and these pieces of potato are referred to as seed potatoes, even though they are not seeds. While Carter Farms primarily produced conventional certified seed potatoes for more than 50 years, they had become interested in growing certified organic seed potatoes as well, but they hadn't had much success despite their knowledge about potatoes. An encounter at the MOSES Conference brought Maria Carter face-to-face with Ruth Genger, an associate researcher at the University of Wisconsin who organizes organic variety trials to select for potato varieties that excel under organic management.

"Since potatoes regularly make the Environmental Working Group's 'Dirty Dozen' list (a list of the most pesticide-contaminated produce), organic potatoes are in high demand by savvy consumers," explained Genger. "Organic farmers in the North Central region face a regional shortage of organically produced seed potatoes, limited availability of desired specialty varieties, and limited information on variety performance under organic management. Very little potato breeding and selection focuses on the needs of organic farmers."

After speaking with Carter and other potato growers, Genger began to envision a decentralized network of organic farmers that could meet seed potato demands for the surrounding region. She wanted to enable farmers to be able to evaluate and select outstanding lines from crosses between existing varieties, and she wanted to promote interaction and learning



18 varieties of potatoes are depicted here as part of a SARE-supported, participatory, organic seed potato project. Photo by Laura Krouse of Abbe Hills Farm in Iowa.

among farmers. With support from a \$199,106 NCR-SARE Research and Education grant, she went about turning her vision of participatory breeding and seed potato production into a reality. In addition to Carter, 15 farmers teamed up with Genger to learn and engage in on-farm selection of potato breeding lines from true potato seeds, and to trial production of high quality organic seed potatoes from both minitubers (plantlets derived from potato tubers) and foundation seed potatoes (propagated potatoes that are grown in fields, hoophouses, and greenhouses).

The growers learned about seed potato production and potato breeding through one-on-one conversations during farm visits and phone conversations. Farmers received guidance on starting seedlings, plot design, evaluation in-season and at harvest, and learned about storage of tubers

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for replanting. Throughout the course of the project, the group learned that potato varieties for organic production should have early vine vigor and canopy closure, leafhopper tolerance, and resistance to tuber defect diseases. They began crossing those varieties that were likely to be good parents for new organic potato varieties. For her part, Carter was able to identify optimal varieties for her growing conditions in North Dakota. Today, her farm is now the second farm producing organic certified seed potatoes in the region.

“It has been a gift to do this project with Ruth,” said Carter. “We’d been trying to grow organic seed potatoes on and off for about 10 years. Of course, I had a lot of potato knowledge and background, but we just didn’t have enough information to do the organic potatoes. Ruth really solidified some things for us with her knowledge and varieties. We’ve been selling our organic seed potatoes using the internet, and last year was a fantastic year for us; we’ve reached our goals and then some. I have a son attending North Dakota State University, and he is looking forward to coming back to be involved in our organic seed potato business line. To be able to do it organically has been perfect for us.”

Learn more about the potato varieties, and view photos of them online at <http://labs.russell.wisc.edu/organic-seed-potato/>. Read more about this potato project on the SARE project reporting website. Simply search by the project number LNC14-358 at <https://projects.sare.org/search-projects/>, or contact the NCR-SARE office for more information.

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