# Profile from the Field

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## A Comparative, On-farm Study of Root Crop Production and Postharvest Systems for Scaling Up Diversified Vegetable Farms

**Project Titles:** A Comparative, On-farm Study of Root Crop Production and Postharvest Systems for Scaling Up Diversified Vegetable Farms
**Coordinators:** Dru Montri
**Location:** Bath, Michigan

**SARE Grants:** $22,241
**Duration:** 2017-2019
**To read the full project reports, go to https://projects.sare.org/ and search for project number FNC17-1090.**

On five acres of land in central Michigan, Dru and Adam Montri grow vegetables with seasonal field production and six hoophouses. They sell their Ten Hens Farms produce at the farmers market, to local grocers, area restaurants, and a regional food distributor. They had a problem with root crops, and two other nearby vegetable growers did too; they could not meet the wholesale demand for potatoes, carrots, and beets during the winter months. Together, with the farmers from Green Gardens Community Farm and Presque Isle Farm, the Montris put their heads together to try to figure out how to meet the growing demand for root crops. They decided that labor needs and cost of production were barriers that they could address, and they applied for and received a $22,241 NCR-SARE Farmer Rancher grant to investigate implementing mechanized production and postharvest handling of root crops on their three small-scale, diversified farms.

"The thinning, weeding, harvesting and washing of root crops by hand is hard on the body," said Dru Montri of Ten Hens Farm. "Each of the farms involved in this project has the potential to expand winter marketing opportunities by increasing harvested yields of root crops (carrots, beets, and potatoes). The limiting factors for each of the farms have been weed control, long harvesting times, precision seeding, and storage space."

A field day at Ten Hens Farms included discussion and demonstrations of equipment they used to improve their root crop production.

Through the project, each farm considered the optimum sustainable solution for their farm with a focus on stewardship, improving quality of life, and increasing farm profitability. The farms began the work of transitioning from labor intensive systems to using precision seeding, tractor cultivation, mechanical harvesting, and root washing using a barrel washer.

To address weed control each farm chose cultivation or hilling equipment that would be appropriate for their specific tractor and production system. Ten Hens Farm chose a double tool bar with sweeps and shovels,

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Green Gardens Community Farm chose basket weeders for their carrot production. Presque Isle Farm chose a trencher and hiller to control weeds in their potatoes. Ten Hens Farm and Green Gardens Community Farm also chose a 30 inch flame weeder to use with their carrots.

To improve harvesting, Ten Hens Farm chose an undercutter and Presque Isle Farm chose a Spedo potato digger to reduce hand digging. Green Gardens already had an undercutter in place prior to the project.

For planting, Ten Hens Farm chose a Jang 3-row precision seeder for their carrots and beets so that they could optimize their seed use and spend less time thinning crops.

As for postharvest, Presque Isle Farm chose a cooler to be able to store their potatoes at a different temperature than their other crops in an existing cooler and also to be able to have the space to store the amount of potatoes they were growing. Green Gardens Community Farm and Ten Hens Farm chose barrel washers to wash their root crops.

Generally, the farms reported success with their new tools. While some tools worked well immediately, others required more time to learn to use effectively. Overall, Ten Hens Farm increased carrot, beet, radish, and hakurei turnip production while decreasing their labor. Presque Isle Farm was able to increase their potato production while decreasing labor, and Green Gardens Community Farm was able to produce more root crops for winter storage and sales in a shorter amount of time, which boosted profitability.

“On the whole, these three farms overcame the identified barrier of supplying more storage crops for winter markets while decreasing their labor needs for those specific crops and decreasing the wear and tear on their bodies,” said Montri.

For more information on Montri’s NCR-SARE Farmer-Rancher grant project, visit the SARE project reporting website. Simply search by the project number, FNC17-1090, at https://projects.sare.org/, or contact the NCR-SARE office.

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