



www.sare.org

## What is SARE?

Since 1988, the Sustainable Agriculture Research & Education (SARE) program has been the go-to USDA grants and outreach program for farmers, ranchers, researchers and educators who want to develop innovations that improve farm profitability, protect water and land, and revitalize communities. To date, SARE has awarded over \$5.5 million to more than 135 initiatives [1].

### SARE is grassroots with far-reaching impact

Four regional councils of expert practitioners set priorities and make grants in every state and island protectorate.

### SARE communicates results

SARE shares project results by requiring grantees to conduct outreach and grower engagement; and by maintaining an online library of practical publications, grantee-produced information products and other educational materials.

# SARE: Advancing the Frontier of Sustainable Agriculture in...

# South Dakota

Project Highlight: *High-Efficiency, Year-Round, Tropical Greenhouse*

In South Dakota, soybeans, corn, wheat, sunflowers, and alfalfa come to mind when contemplating the state's number one industry - agriculture. In Aurora, South Dakota, Wayward Springs Acres boasts 30 acres of pasture, 20 acres of grass hay ground, sheep, cattle, and goats on their farm. But some of the crops at Wayward Springs have veered in a different, more exotic, direction.

As a child, mechanical engineer Shannon Mutschelknaus developed an interest in horticulture and eventually began saving seeds and growing tropical and sub-tropical trees.

"I discovered the demand for exotic tropical fruit trees was robust because they are regularly ravaged by seasonal hurricanes," said Mutschelknaus. "Examples of the many plants I've successfully propagated include soursop, mamey, Garcinia humilus, Garcinia madruno, cherimoya, Monstera deliciosa, and passion fruit."

Mutschelknaus wanted to use his engineering, research, and horticultural expertise to build a specialized greenhouse to expand his exotic plant business. With support from a SARE grant, he built a greenhouse with an insulated rear wall, passive solar heat, and an in-ground "climate battery." Climate battery greenhouses like Mutschelknaus's use the earth below the greenhouse to manage excess heat captured during the day. Tubing is buried beneath the greenhouse, and a fan circulates air through the tubing. Warm, humid daytime air circulates underground, where it cools down before re-entering the greenhouse. And at night, fans push the cool air underground to absorb the earth's heat and bring warmth back into the structure.

Mutschelknaus now grows leafy greens and tomatoes in his greenhouse along with novel fruits like lowquats, soursops, and cherimoya. His plans are available to the public with easy-to-read graphs, illustrations, videos, and clear guidelines.

View Wayward Spring's greenhouse plans and instructional videos at [sare.org/projects](http://sare.org/projects); search for project number [FNC19-1185](https://doi.org/10.32473/SARE.FNC19-1185).

## SARE in South Dakota

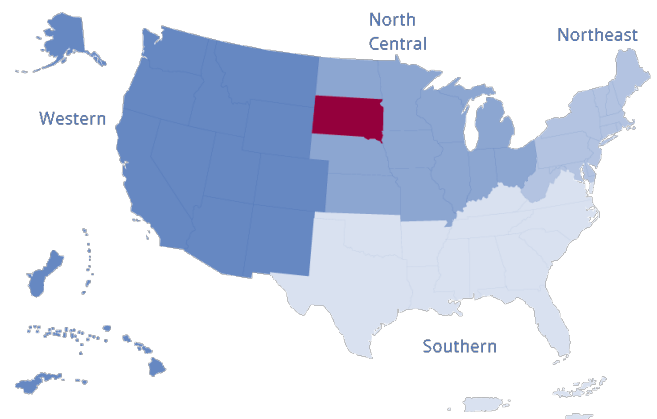
[northcentral.sare.org/state-profiles/south-dakota/](http://northcentral.sare.org/state-profiles/south-dakota/)

**\$5,541,569**  
**in total funding**

**135 grant projects**

(since 1988 [1])

For a complete list of grant projects state by state, go to [projects.sare.org/state-fact-sheets/](http://projects.sare.org/state-fact-sheets/)



[1] These totals reflect available data; complete information may not be available for all grant programs prior to 2016.

# SARE in South Dakota, 2020–2025

This is a summary of recent SARE-funded activities and impacts in the state. To search all SARE projects visit [projects.sare.org](https://projects.sare.org). For a list of all projects in this state visit [projects.sare.org/state-fact-sheets/](https://projects.sare.org/state-fact-sheets/).

## Grants awarded

Total awards: **21 grants**

- 3 Farmer/Rancher
- 5 Research and Education
- 1 Professional Development Program
- 5 On Farm Research/Partnership
- 1 Graduate Student
- 3 Youth Educator
- 3 PDP State Program [2]

Total funding: **\$1,805,335**

- \$40,546 Farmer/Rancher
- \$1,062,690 Research and Education
- \$89,805 Professional Development Program
- \$171,495 On Farm Research/Partnership
- \$14,976 Graduate Student
- \$15,997 Youth Educator
- \$409,826 PDP State Program [2]

[2] The Professional Development Program (PDP) State Program is a non-competitive award that funds the activities of the state coordinator(s). See more below.

For a complete list of awards by state, visit: [projects.sare.org/state-fact-sheets/](https://projects.sare.org/state-fact-sheets/)

## Farmer and rancher impacts

SARE grantees have reported the following impacts from their projects:

**2,714 farmers participated in a SARE-funded project**

**431 farmers reported a change in knowledge, awareness, skills or attitude**

**100 farmers changed a practice**



Learn about local impacts at: [northcentral.sare.org/state-programs/south-dakota/](https://northcentral.sare.org/state-programs/south-dakota/)

## Contact Your SARE State Coordinator

SARE sustainable ag coordinators run state-level educational programs for Extension and other ag professionals, and many help grant applicants and recipients with planning and outreach. Visit [northcentral.sare.org/state-profiles/south-dakota/](https://northcentral.sare.org/state-profiles/south-dakota/) to learn more.

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SARE is funded by the USDA's National Institute of Food and Agriculture (NIFA).