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 $332 million to more than 7,749 initiatives.

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...

Utah

Project Highlight: Better Onions, Fewer Inputs

Onions are a high-value crop, but high fertilizer rates and aggressive use of pesticides to suppress weeds, diseases and insects threaten the sustainability of onion production. In Utah, growers and researchers are working to show how changes in management practices can allow farmers to maintain profitable yields while lowering their use of inputs.

In 2013 a SARE-funded team led by Utah State University’s Diane Alston studied the effect of certain changes on onion yields, in particular fertilization rates and crop rotations. They were following the lead of a small group of onion producers in the state who were finding they could reduce their use of pesticides by lowering their use of fertilizers and still achieve good yields.

The team pursued multiple objectives and developed a body of information that is helping Utah’s producers adopt more sustainable practices. They surveyed nearly 60 farms to better understand production system predictors of pests and yield; conducted field experiments that showed reducing fertilizer rates could reduce pest densities; and created an interactive production modeling tool.

In an assessment of producers conducted near the end of the project, 67 percent said the information they learned would help them diversify their operation, and 80 percent felt it would help them reduce their use of off-farm inputs.

For more information on this project, see sare.org/projects, and search for project number SW13-034.

SARE in Utah

western.sare.org/sare-in-your-state/utah

$6,138,536 in total funding

77 grant projects

(since 1988)

For a complete list of grant projects state by state, go to www.sare.org/state-summaries
SARE Grants in Utah

Total awards: 77 grants
- 34 Research and Education
- 9 Professional Development Program
- 19 Farmer/Rancher
- 8 Graduate Student
- 6 On Farm
- 1 Research/Partnership
- 1 Research to Grass Roots

Total funding: $6,138,536
- $4,919,339 Research and Education
- $574,500 Professional Development Program
- $115,837 Farmer/Rancher
- $188,111 Graduate Student
- $279,590 On Farm
- $61,160 Research/Partnership
- $61,160 Research to Grass Roots

Find a complete list of projects on page 3.

SARE's Impact

53 percent of producers report using a new production technique after reading a SARE publication.

79 percent of producers said they improved soil quality through their SARE project.

64 percent of producers said their SARE project helped them achieve higher sales.

Learn about local impacts at: western.sare.org/sare-in-your-state/utah

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 western.sare.org/state-pages/utah to learn more.

Marion Murray
Utah State University
(435) 797-0776
marion.murray@usu.edu

USDA National Institute of Food and Agriculture
Sustainable Agriculture Research & Education

For detailed information on SARE projects, go to www.SARE.org

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

This report includes summaries of competitive grant programs only. Some competitive grant programs that are no longer offered may be included or excluded from the totals in this report depending on the grant program and SARE region.
Utah has been awarded $6,138,536 grants to support 76 projects, including but not limited to, 33 research and/or education projects, 9 professional development projects and 19 producer-led projects. Utah has also received additional SARE support through multi-state projects.

### RESEARCH AND EDUCATION GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW21-927</td>
<td>Dry Matter Intake and Feed Efficiency of Four Dairy Breeds in a Pasture-Based Heifer Development Program</td>
<td>$299,935</td>
<td>Dr.Blair Waldron, USDA-ARS, Dr.Earl Creech, Utah State University, Dr.Clay Isom, Utah State University, Dept. of Animal, Dairy, and Veterinary Sc, Dr.Ryan Larsen, Utah State University, Dept. of Applied Economics, Dr.Rhonda Miller, WSARE, Dr.Kerry Rood, MPH, DVM, Utah State University, Dept. of Animal, Dairy, and Veterinary Sc</td>
</tr>
<tr>
<td>SW21-923</td>
<td>Developing sustainable strategies for nutrient and pest management on small-acreage strawberry farms</td>
<td>$349,736</td>
<td>Dr.Jennifer Reeve, Utah State University, Dr.Brent Black, Utah State University, Dr.Kynda Curtis, Utah State University, Dr.Robert Schaeffer, Utah State University</td>
</tr>
<tr>
<td>SW19-909</td>
<td>Identifying Stacked Conservation Practices that Optimize Water Use in Agriculture</td>
<td>$349,977</td>
<td>Matt Yost, Utah State University, Niel Allen, Utah State University, Dr.Earl Creech, Utah State University, Neil Hansen, Brigham Young University, Matthew Heaton, BYU, Dr.Bryan Hopkins, Brigham Young University, Dr.Kris Hulvey, Working Lands Conservation, Taylor Payne, Utah Department of Agriculture's Grazing Improvement Program</td>
</tr>
<tr>
<td>SW19-905</td>
<td>Can we manage public rangelands for producers and the environment?: Using grazing-duration to balance livelihoods, clean water, sage-grouse habitat, and sustainable forage</td>
<td>$349,979</td>
<td>Dr.Kris Hulvey, Working Lands Conservation, Taylor Payne, Utah Department of Agriculture's Grazing Improvement Program</td>
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<tr>
<td>SW18-058</td>
<td>Establishing a protocol for receiving cattle that are at-risk of having a mineral deficiency</td>
<td>$206,209</td>
<td>Dr.Kara Thornton, Utah State University</td>
</tr>
<tr>
<td>Project Number</td>
<td>Project Description</td>
<td>Budget</td>
<td>Principal Investigator</td>
</tr>
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<tr>
<td>SW17-046</td>
<td>Grass-birdsfoot trefoil mixtures to improve the economic and environmental sustainability of pasture-based organic dairies in the western U.S.</td>
<td>$214,123</td>
<td>Dr. Blair Waldron</td>
</tr>
<tr>
<td>SW15-003</td>
<td>Training cattle to graze medusahead and avoid velvet lupine: A new tool to sustain the economic viability of livestock operations in the Western US</td>
<td>$249,909</td>
<td>Dr. Juan Villalba</td>
</tr>
<tr>
<td>SW15-029</td>
<td>Improving Tart Cherry Sustainability</td>
<td>$230,154</td>
<td>Dr. Brent Black</td>
</tr>
<tr>
<td>SW14-015</td>
<td>Integrated Byproduct Streams for Enhanced Viability of Combined Dairy Farm and Milk Processing Operations</td>
<td>$295,688</td>
<td>Dr. Donald McMahon</td>
</tr>
<tr>
<td>SW13-034</td>
<td>Onion Systems Management Strategies for Crop Nutrition, Weeds, Thrips, and Iris Yellow Spot Virus</td>
<td>$169,299</td>
<td>Dr. Diane Alston</td>
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<tr>
<td>SW10-088</td>
<td>Grass-Legume pastures to increase economic and environmental sustainability of livestock production</td>
<td>$209,907</td>
<td>Dr. Blair Waldron</td>
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<tr>
<td>SW08-076</td>
<td>Cultural Management of Onion Thrips and Iris yellow Spot Virus</td>
<td>$133,411</td>
<td>Dr. Jennifer Reeve</td>
</tr>
<tr>
<td>SW07-014</td>
<td>Sustainable Vegetable Production: Screening Cover Crops for Water Use Efficiency</td>
<td>$118,411</td>
<td>Dr. Daniel Drost</td>
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<tr>
<td>SW07-035</td>
<td>High Value Crop Rotations for Utah High Tunnels</td>
<td>$144,495</td>
<td>Brent Black</td>
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<tr>
<td>SW04-060</td>
<td>Perennial Forage Kochia for Improved Sustainability of Grass-Dominated Ecosystems</td>
<td>$149,503</td>
<td>Dale Zobel</td>
</tr>
<tr>
<td>SW02-013</td>
<td>Sustainable Water Management for Irrigated Asparagus</td>
<td>$23,014</td>
<td>Dr. Daniel Drost</td>
</tr>
<tr>
<td>SW01-034</td>
<td>Assessment of Value Added Milk from Pasture-based Dairies</td>
<td>$78,000</td>
<td>Tilak Dhiman</td>
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<tr>
<td>SW01-023</td>
<td>Biofumigants in Commercial Onion Production to Enhance Soil Nutrient Availability, Soil Quality, and Control of Weed, Nematode, and Disease Pests</td>
<td>$134,317</td>
<td>Brad Geary</td>
</tr>
<tr>
<td>SW01-020</td>
<td>Production of Drought-adapted Intermountain Native Plants Through Low-cost, In-containers for Emerging Western Markets</td>
<td>$71,686</td>
<td>Roger Kjelgren</td>
</tr>
<tr>
<td>SW01-001</td>
<td>Value Added Opportunities from the Manufacture and Feeding of Silages Produced from Liquid Cheese Whey and Other By-products to Growing and Finishing Cattle and Beef Cows</td>
<td>$59,777</td>
<td>Dale Zobel</td>
</tr>
</tbody>
</table>
SW00-063 Impact Assessment of Western Region SARE Projects $38,500 Dr. Rhonda Miller WSARE

SW00-040 In-house composting in high-rise, caged layer facilities $60,975 Richard Koenig Utah State University

SW99-024A The Effects of Altering the Protein Efficiency of Lactating Dairy Cows on the Whole-Farm Nitrogen Efficiency of Dairy Farms $89,571 Allen Young Utah State University

SW99-024 The Effects of Altering the Protein Efficiency of Lactating Dairy Cows on the Whole-Farm Nitrogen Efficiency of Dairy Farms: Subcontract 1 $19,184 Allen Young Utah State University

SW99-024B The Effects of Altering the Protein Efficiency of Lactating Dairy Cows on the Whole-Farm Nitrogen Efficiency of Dairy Farms $19,184 Richard Kohn

SW98-058 Reducing Chemical Inputs in Arid Climates Through Sustainable Orchard Management $261,044 Schuyler Seeley Utah State University

SW96-032 Identification of Management Practices and Cultivars for Organic Hard-Winter Wheat Production $93,911 David Hole Utah State University

SW95-015 Public-Land Grazing Permitees Under Pressure: Sustainability of Coping Strategies on Private Land $63,000 D. Layne Coppock Utah State University

SW95-006 A Livestock Production System Less Reliant on the Use of Publicly Owned Lands $60,000 Randall D. Wiedmeier Utah State University

LWD93-034 Four Corners Navajo Nation Sustainable Agriculture Demonstration Project $100,000 Lyle G. McNeal Utah State University

LWD93-006 Navajo Nation Whole Farm/Ranch Sustainable Systems Demonstration Project $14,000 Lyle G. McNeal Utah State University

LWD92-005 Conference on the Science of Sustainable Agricultural Systems $15,500 David Bezdicek Washington State University

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**RESEARCH TO GRASS ROOTS GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>RGR20-007</td>
<td>Using the Wyoming Ranch Tools site to evaluate selected Western SARE research projects to assess economic sustainability for individual producers</td>
<td>$61,160</td>
<td>Bridger Feuz Master Stockman Consulting</td>
</tr>
</tbody>
</table>

**PROFESSIONAL DEVELOPMENT PROGRAM GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>WPDP21-012</td>
<td>Assisting Extension professionals in assessing profitable and sustainable agricultural enterprises with producer clientele</td>
<td>$99,969</td>
<td>Dr. Kynda Curtis Utah State University, Dr. Ryan Larsen Utah State University, Dept. of Applied Economics, Dr. Anastasia Thayer Utah State University, Ruby Ward Utah State University</td>
</tr>
</tbody>
</table>
### WPDP19-14
Enhancing Enterprise Diversification Assessment for Native American Farmers to Enhance Economic Sustainability

- **SARE Support**: $67,650
- **Project Leaders**: Ruby Ward (Utah State University), Vicki Hebb (Utah State University), Trent Teegerstrom (University of Arizona)

### EW15-023
Sustaining the Future of Navajo Rangelands via Mobile Learning Tools to Promote Enhanced Vegetation Management

- **SARE Support**: $62,260
- **Project Leaders**: Dr. Gerald Hawkes (New Mexico State University)

### EW14-017
Building Business Management Capacity for American Indian Agricultural Businesses

- **SARE Support**: $75,000
- **Project Leaders**: Ruby Ward (Utah State University)

### EW13-005
Economic Evaluation of Agricultural Diversification through Agritourism for the Intermountain West

- **SARE Support**: $74,492
- **Project Leaders**: Dr. Kynda Curtis (Utah State University)

### EW09-007
Economic Evaluation of Alternative (low-water use) Crops for the Great Basin

- **SARE Support**: $99,724
- **Project Leaders**: Carol Bishop (University of Nevada Cooperative Extension), Dr. Kynda Curtis (Utah State University)

### EW06-005
Entrepreneurial Sustainable Agriculture: Alternatives for Processing, Packing, Labeling and Marketing in Internet/Retail Environments

- **SARE Support**: $58,755
- **Project Leaders**: John C. Allen, PhD (Western Rural Development Center)

### EW06-018
Disseminating Research-based Information to Improve Great Basin Rangelands

- **SARE Support**: $21,605
- **Project Leaders**: Summer Olsen (Utah State University), Mark Brunson (Utah State University)

### EW04-010
Communication of Range Demonstration Project Results

- **SARE Support**: $15,045
- **Project Leaders**: Ken Mills (Utah Association of Conservation Districts)

## FARMER/RANCHER GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>FW19-343</td>
<td>Can barley fodder be fed in place of grass hay to dairy goats and dairy sheep and what effect will it have on milk production and composition.</td>
<td>$19,407</td>
<td>Anita Wilson (Milky Hollow Creamery)</td>
</tr>
<tr>
<td>FW07-315</td>
<td>Bramble Variety Trials in Utah to Reduce Disease, Increase Production and Enhance Profitability</td>
<td>$23,250</td>
<td>Rick Heflebower (Utah State University)</td>
</tr>
<tr>
<td>FW06-327</td>
<td>Integrating Annual Crop Residues, Perennial Pastures, and Livestock Management to Extend the Grazing Season and Minimize Losses of Soil Nitrogen</td>
<td>$10,000</td>
<td>Thomas Griggs (Utah State University)</td>
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<tr>
<td>FW06-027</td>
<td>Commercial Artichokes in the Intermountain West</td>
<td>$5,180</td>
<td>James Haggarty (Sun River Farms)</td>
</tr>
<tr>
<td>FW06-012</td>
<td>Interseeding Forage Kochia in Established CRP Land for Enhanced Livestock and Wildlife Utilization</td>
<td>$7,621</td>
<td>Ron Harper</td>
</tr>
<tr>
<td>FW05-022</td>
<td>Increasing the Profitability of Raspberries by Extending the Growing Season</td>
<td>$2,310</td>
<td>Clark Willis</td>
</tr>
<tr>
<td>FW04-014</td>
<td>Goats as a Weed Control Alternative in Small Acreage Ranchettes</td>
<td>$3,382</td>
<td>Kyle Christensen</td>
</tr>
</tbody>
</table>
Tomato Disease Prevention and Production Enhancement $2,095 Aviva Maller-O’Niel Rick Heflebower Utah State University

Organic Dairy Transition in Northern Utah $7,500 Clark Israelsen Utah State University Cooperative Extension

Winter Cover Crop Experiment $1,120 Aviva Maller-O’Niel

Season Extension Experiment $1,250 Rick Heflebower Utah State University

Medusahead Control and Revegetation in Southern Cache County, UT $6,414 Guy Pulsipher

Southern Utah Forest Products Association Cooperative Marketing Act $4,835 Brian Cottam

The Original Cache Junction Families Popped Wheat $2,801 Wes Roundy

Composting Poultry Waste Inside High Rise Layer Houses $4,992 Mike Shepherd

Hovenweep Burn Reseeding and Demonstration Area $4,000 Mary Tso

Increased Forage Production during Alfalfa Rotation Years in Johnson Canyon, Utah. Biological Control of Scotch and Bull Thistle on Disturbed Alfalfa Pastures $2,900 Michael E. Noel

Alternative Cropping For the Navajo Reservation $4,300 Mark Maryboy

Pasture Aeration and Fertilizer Study $2,480 Ken Carter

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**GRADUATE STUDENT GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW21-221</td>
<td>Enhancement of Samurai Wasp [Trissolcus japonicus (Ashmead)] for Biocontrol of Invasive Brown Marmorated Stink Bug [Halyomorpha halys (Stål)] in Utah</td>
<td>$30,000</td>
<td>Dr. Diane Alston Utah State University Curtis Rowley Cherry Hill Farms Dr. Lori Spears Utah State University Kate Richardson Utah State University</td>
</tr>
<tr>
<td>GW20-215</td>
<td>Identification of effective cover crop varieties and integrated management practices for weedy and invasive plant suppression in the Western US</td>
<td>$25,000</td>
<td>Steve Young Utah State University Danielle Thiemann Utah State University Danielle Thiemann Utah State University</td>
</tr>
<tr>
<td>GW18-106</td>
<td>Brown Marmorated Stink Bug in Utah’s Intermountain West</td>
<td>$24,999</td>
<td>Dr. Diane Alston Utah State University Mark Holthouse Utah State University</td>
</tr>
</tbody>
</table>
Utilizing Tannin-Containing Forages and Holos Software for Sustainable Beef Production in the Intermountain West

Dr. Jennifer Reeve
Utah State University
Kathryn Slebodnik
Utah State University

Navajo Spinach (Cleome Serrulata): Improving Seed Germination from Wild Populations Gathered across Native Lands of the Four Corners

Dr. Daniel Drost
Utah State University
Reagan Wytsalucy
Utah State University

Improved simple on-site soil quality testing for soils in the Intermountain West

Dr. Jennifer Reeve
Utah State University
Esther Thomsen
USU

Determining of gas emissions from manure sources in animal feeding operations

Scott B. Jones
Utah State University
Dr. Rhonda Miller
WSARE
Pakorn Sutitrarnnontr
Biological Engineering Department, Utah State University

Contributions to pest suppression through predator phenology and functional diversity

Dr. Ricardo Ramirez
Utah State University
Erica Stephens
Utah State University

Management strategies for Tomato spotted wilt virus and curtoviruses in Utah

Claudia Nischwitz
Utah State University
Dr. Diane Alston
Utah State University
Richard Heflebower
Utah State University Extension - Washington County

Promoting crop diversification and soil health for cut flower production

Dr. Melanie Stock
Utah State University
Dr. Brent Black
Utah State University
Dr. Daniel Drost
Utah State University
Dr. Larry Rupp
Utah State University

Supporting Natural Enemies of the Cabbage Aphid with Hedgerow Plantings

Laura Horn
Wild Bee Project

Biochar Amendment to Enhance Tomato and Melon Productivity and Protect Against Phytophthora Root Rot Disease

Marion Murray
Utah State University

Rangeland Restoration on the Channel Scablands of Eastern Washington

Dr. Kip Panter
USDA-ARS-PPRL

Feedlot performance, feed efficiency, and profitability of cattle fed either a complete mixed ration or allowed to voluntarily select their diet.

Beth Burritt
Utah State University

ON FARM RESEARCH/PARTNERSHIP GRANTS

Total funding from the USDA SARE program to Utah

$6,138,536
For further information on projects, contact Western SARE at (435) 797-2257 or wsare@usu.edu.

Sustainable Agriculture Research and Education (SARE) is funded by USDA’s National Institute of Food and Agriculture (NIFA).