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 $333 million to more than 7,802 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.

www.sare.org

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
- 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

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.
AGRICULTURE PROJECTS FUNDED IN UTAH
by USDA's Sustainable Agriculture Research and Education (SARE) Program

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 Science, 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 Science.</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, Brigham Young University, Dr. Bryan Hopkins, BYU, Ross Spackman, Brigham Young University-Idaho.</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>
</tr>
<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 Code</td>
<td>Project Title</td>
<td>Funding</td>
<td>PI/Institution</td>
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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 USDA-ARS</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 Utah State University</td>
</tr>
<tr>
<td>SW15-029</td>
<td>Improving Tart Cherry Sustainability</td>
<td>$230,154</td>
<td>Dr. Brent Black Utah State University</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 Western Dairy Center, Utah State University</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 Utah State University</td>
</tr>
<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 USDA-ARS</td>
</tr>
<tr>
<td>SW08-076</td>
<td>Cultural Management of Onion Thrips and Iris yellow Spot Virus</td>
<td>$133,414</td>
<td>Dr. Jennifer Reeve Utah State University</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 Utah State University</td>
</tr>
<tr>
<td>SW07-035</td>
<td>High Value Crop Rotations for Utah High Tunnels</td>
<td>$144,495</td>
<td>Brent Black PSC Department, Utah State University Dr. Brent Black Utah State University</td>
</tr>
<tr>
<td>SW04-060</td>
<td>Perennial Forage Kochia for Improved Sustainability of Grass-Dominated Ecosystems</td>
<td>$149,503</td>
<td>Dale Zobel ADVS Dept., Utah State University</td>
</tr>
<tr>
<td>SW02-013</td>
<td>Sustainable Water Management for Irrigated Asparagus</td>
<td>$23,014</td>
<td>Dr. Daniel Drost Utah State University</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 Utah State University</td>
</tr>
<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 Brigham Young University</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 Utah State University</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 ADVS Dept., Utah State University</td>
</tr>
<tr>
<td>Project #</td>
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</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 Permittees 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 |

**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>
</table>
| RGR20-007 | Using the Wyoming Ranch Tools site to evaluate selected Western SARE research projects to assess economic sustainability for individual producers | $61,160 | Bridger Feuz  
Master Stockman Consulting |

**PROFESSIONAL DEVELOPMENT PROGRAM GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
| WPDP21-012 | Assisting Extension professionals in assessing profitable and sustainable agricultural enterprises with producer clientele | $99,969 | 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 |
WPDP19-14 Enhancing Enterprise Diversification Assessment for Native American Farmers to Enhance Economic Sustainability $67,650 Ruby Ward Utah State University Vicki Hebb Trent Teegerstrom University of Arizona

EW15-023 Sustaining the Future of Navajo Rangelands via Mobile Learning Tools to Promote Enhanced Vegetation Management $62,260 Dr. Gerald Hawkes New Mexico State University

EW14-017 Building Business Management Capacity for American Indian Agricultural Businesses $75,000 Ruby Ward Utah State University

EW13-005 Economic Evaluation of Agricultural Diversification through Agritourism for the Intermountain West $74,492 Dr. Kynda Curtis Utah State University

EW09-007 Economic Evaluation of Alternative (low-water use) Crops for the Great Basin $99,724 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 $58,755 John C. Allen, PhD Western Rural Development Center

EW06-018 Disseminating Research-based Information to Improve Great Basin Rangelands $21,605 Summer Olsen Utah State University Mark Brunson Utah State University

EW04-010 Communication of Range Demonstration Project Results $15,045 Ken Mills Utah Association of Conservation Districts

FARMLAND/CRP GRANTS

FW19-343 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. $19,407 Anita Wilson Milky Hollow Creamery

FW07-315 Bramble Variety Trials in Utah to Reduce Disease, Increase Production and Enhance Profitability $23,250 Rick Heflebower Utah State University

FW06-327 Integrating Annual Crop Residues, Perennial Pastures, and Livestock Management to Extend the Grazing Season and Minimize Losses of Soil Nitrogen $10,000 Thomas Griggs Utah State University

FW06-027 Commercial Artichokes in the Intermountain West $5,180 James Haggarty Sun River Farms

FW06-012 Interseeding Forage Kochia in Established CRP Land for Enhanced Livestock and Wildlife Utilization $7,621 Ron Harper

FW05-022 Increasing the Profitability of Raspberries by Extending the Growing Season $2,310 Clark Willis

FW04-014 Goats as a Weed Control Alternative in Small Acreage Ranchettes $3,382 Kyle Christensen
**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>
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<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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</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&lt;br&gt;Utah State University&lt;br&gt;Curtis Rowley&lt;br&gt;Cherry Hill Farms&lt;br&gt;Dr. Lori Spears&lt;br&gt;Utah State University&lt;br&gt;Kate Richardson&lt;br&gt;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&lt;br&gt;Utah State University&lt;br&gt;Danielle Thiemann&lt;br&gt;Utah State University&lt;br&gt;Danielle Thiemann&lt;br&gt;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&lt;br&gt;Utah State University&lt;br&gt;Mark Holthouse&lt;br&gt;Utah State University</td>
</tr>
<tr>
<td>Project #</td>
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</tr>
</tbody>
</table>
| GW18-156   | Utilizing Tannin-Containing Forages and Holos Software for Sustainable Beef Production in the Intermountain West | $20,204       | Dr. Jennifer Reeve  
Utah State University  
Kathryn Slebodnik  
Utah State University                                                                                                                                   |
| GW17-060   | Navajo Spinach (Cleome Serrulata): Improving Seed Germination from Wild Populations Gathered across Native Lands of the Four Corners | $24,969       | Dr. Daniel Drost  
Utah State University  
Reagan Wytsalucy  
Utah State University                                                                                                                                    |
| GW15-046   | Improved simple on-site soil quality testing for soils in the Intermountain West | $24,844       | Dr. Jennifer Reeve  
Utah State University  
Esther Thomsen  
USU                                                                                                                                                     |
| GW13-006   | Determination of gas emissions from manure sources in animal feeding operations | $25,000       | Scott B. Jones  
Utah State University  
Dr. Rhonda Miller  
WSARE  
Pakorn Sutitarnnontr  
Biological Engineering Department, Utah State University                                                                                               |
| GW12-030   | Contributions to pest suppression through predator phenology and functional diversity | $13,095       | Dr. Ricardo Ramirez  
Utah State University  
Erica Stephens  
Utah State University                                                                                                                                    |

**ON FARM RESEARCH/PARTNERSHIP GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
| OW19-343   | Management strategies for Tomato spotted wilt virus and curtoviruses in Utah   | $31,149       | Claudia Nischwitz  
Utah State University  
Dr. Diane Alston  
Utah State University  
Richard Heflebower  
Utah State University Extension - Washington County                                                                 |
| OW19-346   | Promoting crop diversification and soil health for cut flower production       | $49,999       | Dr. Melanie Stock  
Utah State University  
Dr. Brent Black  
Utah State University  
Dr. Daniel Drost  
Utah State University  
Dr. Larry Rupp  
Utah State University                                                                                                           |
| OW18-007   | Supporting Natural Enemies of the Cabbage Aphid with Hedgerow Plantings        | $48,554       | Laura Horn  
Wild Bee Project                                                                                                                                                                                                 |
| OW14-036   | Biochar Amendment to Enhance Tomato and Melon Productivity and Protect Against Phytophthora Root Rot Disease | $49,990       | Marion Murray  
Utah State University                                                                                                                                                                                          |
| OW13-005   | Rangeland Restoration on the Channel Scablands of Eastern Washington           | $49,931       | Dr. Kip Panter  
USDA-ARS-PPRL                                                                                                                                                                                                 |
| OW12-020   | Feedlot performance, feed efficiency, and profitability of cattle fed either a complete mixed ration or allowed to voluntarily select their diet. | $49,967       | Beth Burritt  
Utah State University                                                                                                                                                                                           |

**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).