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 7,748 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 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 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

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

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.

For detailed information on SARE projects, go to www.SARE.org
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>
</table>
| SW21-927  | Dry Matter Intake and Feed Efficiency of Four Dairy Breeds in a Pasture-Based Heifer Development Program | $299,935     | Dr. Blair Waldron  
                       USDA-ARS  
                       Dr. Earl Creech  
                       Utah State University  
                       Dr. Clay Isom  
                       Utah State University Dept. of Animal, Dairy, and Veterinary Sciences  
                       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 Sciences |
| SW21-923  | Developing sustainable strategies for nutrient and pest management on small-acreage strawberry farms | $349,736     | Dr. Jennifer Reeve  
                       Utah State University  
                       Dr. Brent Black  
                       Utah State University  
                       Dr. Kynda Curtis  
                       Utah State University  
                       Dr. Robert Schaeffer  
                       Utah State University |
| SW19-909  | Identifying Stacked Conservation Practices that Optimize Water Use in Agriculture | $349,977     | 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 |
| SW19-905  | Can we manage public rangelands for producers and the environment?: Using grazing-duration to balance livelihoods, clean water, sage-grouse habitat, and sustainable forage | $349,979     | Dr. Kris Hulvey  
                       Working Lands Conservation  
                       Taylor Payne  
                       Utah Department of Agriculture's Grazing Improvement Program |
| SW18-058  | Establishing a protocol for receiving cattle that are at-risk of having a mineral deficiency | $206,209     | Dr. Kara Thornton  
                       Utah State University |
Grass-birdsfoot trefoil mixtures to improve the economic and environmental sustainability of pasture-based organic dairies in the western U.S.

Best Management Practices for Regionally-Distinct Populations of the Blue Orchard Bee

Training cattle to graze medusahead and avoid velvet lupine: A new tool to sustain the economic viability of livestock operations in the Western US

Improving Tart Cherry Sustainability

Integrated Byproduct Streams for Enhanced Viability of Combined Dairy Farm and Milk Processing Operations

Onion Systems Management Strategies for Crop Nutrition, Weeds, Thrips, and Iris Yellow Spot Virus

Grass-Legume pastures to increase economic and environmental sustainability of livestock production

Cultural Management of Onion Thrips and Iris yellow Spot Virus

Sustainable Vegetable Production: Screening Cover Crops for Water Use Efficiency

High Value Crop Rotations for Utah High Tunnels

Perennial Forage Kochia for Improved Sustainability of Grass-Dominated Ecosystems

Sustainable Water Management for Irrigated Asparagus

Assessment of Value Added Milk from Pasture-based Dairies

Biofumigants in Commercial Onion Production to Enhance Soil Nutrient Availability, Soil Quality, and Control of Weed, Nematode, and Disease Pests

Production of Drought-adapted Intermountain Native Plants Through Low-cost, In-containers for Emerging Western Markets

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
<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW00-063</td>
<td>Impact Assessment of Western Region SARE Projects</td>
<td>$38,500</td>
<td>Dr.Rhonda Miller, WSARE</td>
</tr>
<tr>
<td>SW00-040</td>
<td>In-house composting in high-rise, caged layer facilities</td>
<td>$60,975</td>
<td>Richard Koenig, Utah State University</td>
</tr>
<tr>
<td>SW99-024A</td>
<td>The Effects of Altering the Protein Efficiency of Lactating Dairy Cows on the Whole-Farm Nitrogen Efficiency of Dairy Farms.</td>
<td>$89,571</td>
<td>Allen Young, Utah State University</td>
</tr>
<tr>
<td>SW99-024</td>
<td>The Effects of Altering the Protein Efficiency of Lactating Dairy Cows on the Whole-Farm Nitrogen Efficiency of Dairy Farms: Subcontract 1</td>
<td>$19,184</td>
<td>Allen Young, Utah State University</td>
</tr>
<tr>
<td>SW99-024B</td>
<td>The Effects of Altering the Protein Efficiency of Lactating Dairy Cows on the Whole-Farm Nitrogen Efficiency of Dairy Farms</td>
<td>$19,184</td>
<td>Richard Kohn</td>
</tr>
<tr>
<td>SW98-058</td>
<td>Reducing Chemical Inputs in Arid-Climates Through Sustainable Orchard Management</td>
<td>$261,044</td>
<td>Schuyler Seeley, Utah State University</td>
</tr>
<tr>
<td>SW96-032</td>
<td>Identification of Management Practices and Cultivars for Organic Hard-Winter Wheat Production</td>
<td>$93,911</td>
<td>David Hole, Utah State University</td>
</tr>
<tr>
<td>SW95-015</td>
<td>Public-Land Grazing Permittees Under Pressure: Sustainability of Coping Strategies on Private Land</td>
<td>$63,000</td>
<td>D. Layne Coppock, Utah State University</td>
</tr>
<tr>
<td>SW95-006</td>
<td>A Livestock Production System Less Reliant on the Use of Publicly Owned Lands</td>
<td>$60,000</td>
<td>Randall D. Wiedmeier, Utah State University</td>
</tr>
<tr>
<td>LWD93-034</td>
<td>Four Corners Navajo Nation Sustainable Agriculture Demonstration Project</td>
<td>$100,000</td>
<td>Lyle G. McNeal, Utah State University.</td>
</tr>
<tr>
<td>LWD93-006</td>
<td>Navajo Nation Whole Farm/Ranch Sustainable Systems Demonstration Project</td>
<td>$14,000</td>
<td>Lyle G. McNeal, Utah State University.</td>
</tr>
<tr>
<td>LWD92-005</td>
<td>Conference on the Science of Sustainable Agricultural Systems</td>
<td>$15,500</td>
<td>David Bezdicek, Washington State University</td>
</tr>
</tbody>
</table>

**RESEARCH TO GRASS ROOTS GRANTS**

**Project #**  | **Project Title**                                                                 | **SARE Support** | **Project Leaders**                           |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></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**

**Project #**  | **Project Title**                                                                 | **SARE Support** | **Project Leaders**                           |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></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</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr.Ryan Larsen, Utah State University, Dept. of Applied Economics</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Dr.Anastasia Thayer, Utah State University</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ruby Ward, Utah State University</td>
</tr>
<tr>
<td>Project #</td>
<td>Project Title</td>
<td>SARE Support</td>
<td>Project Leaders</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>------------------------------------------------------</td>
</tr>
<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>
</tr>
<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

---

GRADUATE STUDENT GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
| GW21-221   | Enhancement of Samurai Wasp [Trissolcus japonicus (Ashmead)] for Biocontrol of Invasive Brown Marmorated Stink Bug [Halyomorpha halys (Stål)] in Utah                                                                  | $30,000      | Dr. Diane Alston
Utah State University
Curtis Rowley
Cherry Hill Farms
Dr. Lori Spears
Utah State University
Kate Richardson
Utah State University |
| GW20-215   | Identification of effective cover crop varieties and integrated management practices for weedy and invasive plant suppression in the Western US                                                                | $25,000      | Steve Young
Utah State University
Danielle Thiemann
Utah State University
Danielle Thiemann
Utah State University |
| GW18-106   | Brown Marmorated Stink Bug in Utah’s Intermountain West                                                                                                                                                        | $24,999      | Dr. Diane Alston
Utah State University
Mark Holthouse
Utah State University |
<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>GW18-156</td>
<td>Utilizing Tannin-Containing Forages and Holos Software for Sustainable Beef Production in the Intermountain West</td>
<td>$20,204</td>
<td>Dr. Jennifer Reeve&lt;br&gt;Utah State University&lt;br&gt;Kathryn Slebodnik&lt;br&gt;Utah State University</td>
</tr>
<tr>
<td>GW17-060</td>
<td>Navajo Spinach (Cleome Serrulata): Improving Seed Germination from Wild Populations Gathered across Native Lands of the Four Corners</td>
<td>$24,969</td>
<td>Dr. Daniel Drost&lt;br&gt;Utah State University&lt;br&gt;Reagan Wytsalucy&lt;br&gt;Utah State University</td>
</tr>
<tr>
<td>GW15-046</td>
<td>Improved simple on-site soil quality testing for soils in the Intermountain West</td>
<td>$24,844</td>
<td>Dr. Jennifer Reeve&lt;br&gt;Utah State University&lt;br&gt;Esther Thomsen&lt;br&gt;USU</td>
</tr>
<tr>
<td>GW13-006</td>
<td>Determination of gas emissions from manure sources in animal feeding operations</td>
<td>$25,000</td>
<td>Scott B. Jones&lt;br&gt;Utah State University&lt;br&gt;Dr. Rhonda Miller&lt;br&gt;WSARE&lt;br&gt;Pakorn Sutitarnmontr&lt;br&gt;Biological Engineering Department, Utah State University</td>
</tr>
<tr>
<td>GW12-030</td>
<td>Contributions to pest suppression through predator phenology and functional diversity</td>
<td>$13,095</td>
<td>Dr. Ricardo Ramirez&lt;br&gt;Utah State University&lt;br&gt;Erica Stephens&lt;br&gt;Utah State University</td>
</tr>
</tbody>
</table>

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

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).