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, granteeproduced 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

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

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>
</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 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 |
| 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  
 BYU  
 Dr.Bryan Hopkins  
 Brigham Young University  
 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 |
<table>
<thead>
<tr>
<th>Project Number</th>
<th>Project Title</th>
<th>Total Funding</th>
<th>Principal Investigator</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<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>
<td>USDA-ARS</td>
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<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>
<td>Utah State University</td>
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<tr>
<td>SW15-029</td>
<td>Improving Tart Cherry Sustainability</td>
<td>$230,154</td>
<td>Dr. Brent Black</td>
<td>Utah State University</td>
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<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>
<td>Western Dairy Center, Utah State University</td>
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<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>
<td>Utah State University</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>
<td>USDA-ARS</td>
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<tr>
<td>SW08-076</td>
<td>Cultural Management of Onion Thrips and Iris yellow Spot Virus</td>
<td>$133,441</td>
<td>Dr. Jennifer Reeve</td>
<td>Utah State University</td>
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<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>
<td>Utah State University</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>
<td>PSC Department, Utah State University</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>Dr. Brent Black</td>
<td>Utah State University</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>
<td>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</td>
<td>Utah State University</td>
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<tr>
<td>SW01-034</td>
<td>Assessment of Value Added Milk from Pasture-based Dairies</td>
<td>$78,000</td>
<td>Tilak Dhiman</td>
<td>Utah State University</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>
<td>Brigham Young University</td>
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<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>
<td>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</td>
<td>ADVS Dept., Utah State University</td>
</tr>
</tbody>
</table>
### Impact Assessment of Western Region SARE Projects

- **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

### The Effects of Altering the Protein Efficiency of Lactating Dairy Cows on the Whole-Farm Nitrogen Efficiency of Dairy Farms

- **SW99-024A** The Effects of Altering the Protein Efficiency of Lactating Dairy Cows on the Whole-Farm Nitrogen Efficiency of Dairy Farms, $89,571, 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

### Reducing Chemical Inputs in Arid-Climates Through Sustainable Orchard Management

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

### Identification of Management Practices and Cultivars for Organic Hard-Winter Wheat Production

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

### Public-Land Grazing Permittees Under Pressure: Sustainability of Coping Strategies on Private Land

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

### A Livestock Production System Less Reliant on the Use of Publicly Owned Lands

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

### Four Corners Navajo Nation Sustainable Agriculture Demonstration Project

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

### Navajo Nation Whole Farm/Ranch Sustainable Systems Demonstration Project

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

### Conference on the Science of Sustainable Agricultural Systems

- **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>
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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>
</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 |
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</td>
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<td></td>
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<td>Milky Hollow Creamery</td>
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<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</td>
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<td>Utah State University</td>
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<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</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</td>
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<td>Sun River Farms</td>
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<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>
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<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>
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<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>
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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>
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<td>$30,000</td>
<td>Dr. Diane Alston</td>
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<td>Utah State University</td>
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<td></td>
<td>Curtis Rowley</td>
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<td>Cherry Hill Farms</td>
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<td>Dr. Lori Spears</td>
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<td>Utah State University</td>
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<td></td>
<td>Kate Richardson</td>
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<td>Utah State University</td>
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<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</td>
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<td>Utah State University</td>
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<td></td>
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<td>Danielle Thiemann</td>
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<tr>
<td>GW18-106</td>
<td>Brown Marmorated Stink Bug in Utah’s Intermountain West</td>
<td>$24,999</td>
<td>Dr. Diane Alston</td>
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<td>Utah State University</td>
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<tr>
<td></td>
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<td>Mark Holthouse</td>
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<tr>
<td></td>
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<td>Utah State University</td>
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</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>
<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  Utah State University  Dr. Diane Alston  Richard Heflebower  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  Utah State University  Dr. Brent Black  Dr. Daniel Drost  Dr. Larry Rupp  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  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  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  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  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).