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  | $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-  | $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  | $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  | $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  | $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. $214,123 Dr. Blair Waldron USDA-ARS


Training cattle to graze medusahead and avoid velvet lupine: A new tool to sustain the economic viability of livestock operations in the Western US $249,909 Dr. Juan Villalba Utah State University

Improving Tart Cherry Sustainability $230,154 Dr. Brent Black Utah State University

Integrated Byproduct Streams for Enhanced Viability of Combined Dairy Farm and Milk Processing Operations $295,688 Dr. Donald McMahon Western Dairy Center, Utah State University

Onion Systems Management Strategies for Crop Nutrition, Weeds, Thrips, and Iris Yellow Spot Virus $169,299 Dr. Diane Alston Utah State University

Grass-Legume pastures to increase economic and environmental sustainability of livestock production $209,907 Dr. Blair Waldron USDA-ARS

Cultural Management of Onion Thrips and Iris yellow Spot Virus $133,441 Dr. Jennifer Reeve Utah State University

Sustainable Vegetable Production: Screening Cover Crops for Water Use Efficiency $118,411 Dr. Daniel Drost Utah State University

High Value Crop Rotations for Utah High Tunnels $144,495 Brent Black PSC Department, Utah State University Dr. Brent Black Utah State University

Perennial Forage Kochia for Improved Sustainability of Grass-Dominated Ecosystems $149,503 Dale Zobel ADVS Dept., Utah State University

Sustainable Water Management for Irrigated Asparagus $23,014 Dr. Daniel Drost Utah State University

Assessment of Value Added Milk from Pasture-based Dairies $78,000 Tilak Dhiman Utah State University

Biofumigants in Commercial Onion Production to Enhance Soil Nutrient Availability, Soil Quality, and Control of Weed, Nematode, and Disease Pests $134,317 Brad Geary Brigham Young University

Production of Drought-adapted Intermountain Native Plants Through Low-cost, In-containers for Emerging Western Markets $71,686 Roger Kjelgren Utah State University

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 $59,777 Dale Zobel ADVS Dept., Utah State University
<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
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<th>Project Leaders</th>
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</thead>
<tbody>
<tr>
<td>SW00-063</td>
<td>Impact Assessment of Western Region SARE Projects</td>
<td>$38,500</td>
<td>Dr. Rhonda Miller</td>
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<tr>
<td>SW00-040</td>
<td>In-house composting in high-rise, caged layer facilities</td>
<td>$60,975</td>
<td>Richard Koenig</td>
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<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</td>
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<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</td>
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<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</td>
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<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</td>
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<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</td>
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<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</td>
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<tr>
<td>LWD93-034</td>
<td>Four Corners Navajo Nation Sustainable Agriculture Demonstration Project</td>
<td>$100,000</td>
<td>Lyle G. McNeal</td>
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<tr>
<td>LWD93-006</td>
<td>Navajo Nation Whole Farm/Ranch Sustainable Systems Demonstration Project</td>
<td>$14,000</td>
<td>Lyle G. McNeal</td>
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<tr>
<td>LWD92-005</td>
<td>Conference on the Science of Sustainable Agricultural Systems</td>
<td>$15,500</td>
<td>David Bezdicek</td>
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**RESEARCH TO GRASS ROOTS GRANTS**

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
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<th>Project Leaders</th>
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<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</td>
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<td>Master Stockman Consulting</td>
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**PROFESSIONAL DEVELOPMENT PROGRAM GRANTS**

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<th>Project #</th>
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<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</td>
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<td>Utah State University</td>
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<td>Dr. Ryan Larsen</td>
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<td>Utah State University, Dept. of Applied Economics</td>
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<td></td>
<td>Dr. Anastasia Thayer</td>
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<td>Utah State University</td>
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<td></td>
<td></td>
<td></td>
<td>Ruby Ward</td>
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<td>Utah State University</td>
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</tbody>
</table>
WPDP19-14  Enhancing Enterprise Diversification Assessment for Native American Farmers to Enhance Economic Sustainability  $67,650  Ruby Ward  Utah State University  Vicki Hebb  University of Arizona  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

FARMER/RANCHER GRANTS

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<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>
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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  Utah State University</td>
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<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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<td>FW06-027</td>
<td>Commercial Artichokes in the Intermountain West</td>
<td>$5,180</td>
<td>James Haggarty  Sun River Farms</td>
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<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**

Project #: FW04-037

SARE Support: $2,095

Project Leaders:
- Aviva Maller-O’Niel
- Rick Heflebower
  - Utah State University

**Organic Dairy Transition in Northern Utah**

Project #: FW04-314

SARE Support: $7,500

Project Leaders:
- Clark Israelsen
  - Utah State University Cooperative Extension

**Winter Cover Crop Experiment**

Project #: FW03-201

SARE Support: $1,120

Project Leader:
- Aviva Maller-O’Niel

**Season Extension Experiment**

Project #: FW03-306

SARE Support: $1,250

Project Leader:
- Rick Heflebower
  - Utah State University

**Medusahead Control and Revegetation in Southern Cache County, UT**

Project #: FW00-019

SARE Support: $6,414

Project Leader:
- Guy Pulsipher

**Southern Utah Forest Products Association Cooperative Marketing Act**

Project #: FW00-054

SARE Support: $4,835

Project Leaders:
- Brian Cottam

**The Original Cache Junction Families Popped Wheat**

Project #: FW00-317

SARE Support: $2,801

Project Leader:
- Wes Roundy

**Composting Poultry Waste Inside High Rise Layer Houses**

Project #: FW99-080

SARE Support: $4,992

Project Leader:
- Mike Shepherd

**Hovenweep Burn Reseeding and Demonstration Area**

Project #: FW99-117

SARE Support: $4,000

Project Leader:
- Mary Tso

**Increased Forage Production during Alfalfa Rotation Years in Johnson Canyon, Utah. Biological Control of Scotch and Bull Thistle on Disturbed Alfalfa Pastures**

Project #: FW97-038

SARE Support: $2,900

Project Leaders:
- Michael E. Noel

**Alternative Cropping For the Navajo Reservation**

Project #: FW97-065

SARE Support: $4,300

Project Leader:
- Mark Maryboy

**Pasture Aeration and Fertilizer Study**

Project #: FW95-084

SARE Support: $2,480

Project Leader:
- Ken Carter

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**GRADUATE STUDENT GRANTS**

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<tr>
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<th>Project Title</th>
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<tbody>
<tr>
<td>GW21-221</td>
<td>Enhancement of Samurai Wasp [Trissolcus japonicus (Ashmead)] for Biocontrol of</td>
<td>$30,000</td>
<td>Dr. Diane Alston</td>
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<td></td>
<td>invasive brown Marmorated Stink Bug [Halyomorpha halys (Stål)] in Utah</td>
<td></td>
<td>Utah State University</td>
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<td></td>
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<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>Kate Richardson</td>
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<td>GW20-215</td>
<td>Identification of effective cover crop varieties and integrated management</td>
<td>$25,000</td>
<td>Dr. Corey Ransom</td>
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<td>practices for weedy and invasive plant suppression in the Western US</td>
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<td>Utah State University</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>Mark Holthouse</td>
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| 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      | 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>
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</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).