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 $389 million to more than 8,519 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.

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

$7,934,798 in total funding

90 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: 90 grants
- 38 Research and Education
- 12 Professional Development Program
- 23 Farmer/Rancher
- 10 Graduate Student
- 6 On Farm Research/Partnership
- 1 Research to Grass Roots

Total funding: $7,934,798
- $6,297,618 Research and Education
- $851,939 Professional Development Program
- $196,386 Farmer/Rancher
- $279,590 Graduate Student
- $248,106 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

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 $7,934,798 grants to support 89 projects, including but not limited to, 37 research and/or education projects, 12 professional development projects and 23 producer-led projects. Utah has also received additional SARE support through multi-state projects.

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW23-948</td>
<td>Can soil carbon help fund rangeland management?</td>
<td>$349,975</td>
<td>Megan Nasto</td>
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<td></td>
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<td>Working Lands Conservation/Multiplier</td>
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<tr>
<td>SW23-950</td>
<td>Impact of including sprouted grains in the ration of beef cattle relative to animal performance, quality and nutritive value of meat, and economic via</td>
<td>$349,975</td>
<td>Dr. Kara Thornton</td>
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<td>Utah State University</td>
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<td>Brady Blackett</td>
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<td>Blackett Cattle Company</td>
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<td>Kelly Crozier</td>
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<td>Raise’m Right Ranch</td>
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<td>Dr. Matthew Garcia</td>
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<td>Utah State University</td>
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<td>Dr. Korry Hintze, PhD</td>
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<td>Dr. Clay Isom</td>
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<td>Utah State University, Dept. of Animal, Dairy, and Veterinary Sc</td>
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<td>Dr. Ryan Larsen</td>
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<td>Utah State University</td>
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<td>Dr. Stephan van Vliet</td>
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<td>Utah State University</td>
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<tr>
<td>SW22-942</td>
<td>Using grazing-duration to balance: livelihoods, clean water, sage-grouse habitat, and sustainable forage in semi-arid rangelands</td>
<td>$328,329</td>
<td>Dr. Kris Hulvey</td>
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<td></td>
<td>Taylor Payne</td>
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<td>Utah Department of Agriculture’s Grazing Improvement Program</td>
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<td>SW22-941</td>
<td>Identifying Stacked Conservation Practices that Optimize Water Use in Agriculture: Phase II</td>
<td>$350,000</td>
<td>Matt Yost</td>
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<td>Neil Hansen</td>
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<td>Brigham Young University</td>
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<td>Dr. Bryan Hopkins</td>
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<td>BYU</td>
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</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

SW19-905  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

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

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


SW17-046  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

SW15-029  Improving Tart Cherry Sustainability  $230,154  Dr. Brent Black  Utah State University

SW15-003  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

SW14-015  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
SW13-034 Onion Systems Management Strategies for Crop Nutrition, Weeds, Thrips, and Iris Yellow Spot Virus $169,299 Dr. Diane Alston Utah State University

SW10-088 Grass-Legume pastures to increase economic and environmental sustainability of livestock production $209,907 Dr. Blair Waldron USDA-ARS

SW08-076 Cultural Management of Onion Thrips and Iris yellow Spot Virus $133,441 Dr. Jennifer Reeve Utah State University

SW07-035 High Value Crop Rotations for Utah High Tunnels $144,495 Brent Black PSC Department, Utah State University

SW07-014 Sustainable Vegetable Production: Screening Cover Crops for Water Use Efficiency $118,411 Dr. Daniel Drost Utah State University

SW04-060 Perennial Forage Kochia for Improved Sustainability of Grass-Dominated Ecosystems $149,503 Dale Zobel ADVS Dept., Utah State University

SW02-013 Sustainable Water Management for Irrigated Asparagus $23,014 Dr. Daniel Drost Utah State University

SW01-023 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

SW01-001 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

SW01-020 Production of Drought-adapted Intermountain Native Plants Through Low-cost, In-containers for Emerging Western Markets $71,686 Roger Kjelgren Utah State University

SW01-034 Assessment of Value Added Milk from Pasture-based Dairies $78,000 Tilak Dhiman Utah State University

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

SW99-024 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

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
### RESEARCH TO GRASS ROOTS GRANTS

<table>
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<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
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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&lt;br&gt;Master Stockman Consulting</td>
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### PROFESSIONAL DEVELOPMENT PROGRAM GRANTS

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<tr>
<th>Project #</th>
<th>Project Title</th>
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<th>Project Leaders</th>
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</thead>
<tbody>
<tr>
<td>WPDP23-008</td>
<td>Expanding cut flower production education supports agricultural professionals and small farms</td>
<td>$99,979</td>
<td>Dr. Melanie Stock&lt;br&gt;Utah State University&lt;br&gt;Dr. Kynda Curtis&lt;br&gt;Utah State University&lt;br&gt;Claudia Nischwitz&lt;br&gt;Utah State University&lt;br&gt;Nick Volesky&lt;br&gt;Utah State University</td>
</tr>
<tr>
<td>WPDP22-002</td>
<td>Training Agriculture Educators in Utah using the Wyoming Ranch Tools site and Western SARE research projects.</td>
<td>$83,892</td>
<td>Bridger Feuz&lt;br&gt;Master Stockman Consulting&lt;br&gt;Hudson Hill&lt;br&gt;Master Stockman Consulting LLC.</td>
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<tr>
<td>WPDP22-014</td>
<td>Educating and training community leaders to implement water recycling approach in Utah’s landscapes and nursery industry</td>
<td>$93,568</td>
<td>Dr. Shital Poudyal&lt;br&gt;Utah State University&lt;br&gt;Dr. Kelly Kopp&lt;br&gt;Utah State University and CWEL&lt;br&gt;Candace Schaible&lt;br&gt;Utah State University Extension - Iron County&lt;br&gt;Katie Wagner&lt;br&gt;Utah State University Extension&lt;br&gt;Josh Zimmerman&lt;br&gt;Utah Department of Natural Resources</td>
</tr>
</tbody>
</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

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

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

FARMER/RANCHER GRANTS

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<tr>
<th>Project #</th>
<th>Project Title</th>
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<th>Project Leaders</th>
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</thead>
</table>
| FW23-420  | Reduction Of Water Use On Peony Crops By Using Shade Cloth. | $9,067 | Britin Van Brocklin
  Cherry petals flower farm |
| FW23-429  | Study of hydroponics in cut flower production to increase water conservation and crop quality | $25,000 | Anna Zack
  Zack Family Farms |
| FW22-400  | Economic and Yield Potential of Hemp Waste Material in Specialty Mushroom Substrate | $24,282 | Natasha Quinones-Rodriguez
  Intentional Growth |
| FW22-394  | The Economics of Early Weaning and Early Breeding of Range Ewe Lambs | $22,200 | Gene Peckham
  Peckham Livestock |
| 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

FW04-314 Organic Dairy Transition in Northern Utah $7,500 Clark Israelsen Utah State University Cooperative Extension

FW04-037 Tomato Disease Prevention and Production Enhancement $2,095 Aviva Maller-O’Niel Rick Heflebower Utah State University

FW04-014 Goats as a Weed Control Alternative in Small Acreage Ranchettes $3,382 Kyle Christensen

FW03-306 Season Extension Experiment $1,250 Rick Heflebower Utah State University

FW03-201 Winter Cover Crop Experiment $1,120 Aviva Maller-O’Niel

FW00-317 The Original Cache Junction Families Popped Wheat $2,801 Wes Roundy

FW00-054 Southern Utah Forest Products Association Cooperative Marketing Act $4,835 Brian Cottam

FW00-019 Medusahead Control and Revegetation in Southern Cache County, UT $6,414 Guy Pulsipher

FW99-117 Hovenweep Burn Reseeding and Demonstration Area $4,000 Mary Tso

FW99-080 Composting Poultry Waste Inside High Rise Layer Houses $4,992 Mike Shepherd

FW97-038 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

FW97-065 Alternative Cropping For the Navajo Reservation $4,300 Mark Maryboy
### GRADUATE STUDENT GRANTS

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<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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</thead>
</table>
| GW22-244  | Evaluating the Impact of Wheat Straw Amendments on Dryland Organic Wheat Systems | $29,995      | Dr.Astrid Jacobson  
Dr.Jennifer Reeve  
Utah State University  
Preston Christensen  
Utah State University |
| GW22-230  | Evaluating the Effectiveness of Range Riding at Reducing Conflicts Between Livestock and Native Carnivores Across the American West | $30,000      | Dr.Julie Young  
Utah State University  
Rae Nickerson  
Utah State University |
| 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      | Dr.Corey Ransom  
Utah State University  
Danielle Thiemann  
Utah State University |
| 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 |
| GW18-106  | Brown Marmorated Stink Bug in Utah's Intermountain West                      | $24,999      | Dr.Diane Alston  
Utah State University  
Mark Holthouse  
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 Sutitarmnontr  
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

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<td>GW95-084</td>
<td>Pasture Aeration and Fertilizer Study</td>
<td>$2,480</td>
<td>Ken Carter</td>
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<td>Principal Investigator(s)</td>
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<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>
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<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>
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<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>
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<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>
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<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>
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<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>
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**Total funding from the USDA SARE program to Utah**

**$7,934,798**

For further information on projects, contact Western SARE at (406) 994-4789 or wsare@montana.edu.

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