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 $359 million to more than 8,143 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 in Montana

western.sare.org/sare-in-your-state/montana

$9,745,902 in total funding

138 grant projects

(since 1988)

For a complete list of grant projects state by state, go to www.sare.org/state-summaries

Project Highlight: Improving the Benefits of Applied Nitrogen

Broadcast applications of urea are a common management practice for large-acreage, no-till, dryland winter wheat producers in Montana. But when urea is applied to the soil surface, a significant amount of nitrogen can be lost when it converts to ammonia gas and enters the atmosphere in a process known as volatilization. Farmers face economic losses due to reduced yield or crop quality from inadequate nitrogen fertility, and ammonia emissions contribute to environmental pollution and nitrogen enrichment of natural ecosystems.

With SARE funding to address the problem, Montana State soil scientist Richard Engel conducted on-farm trials over four seasons to identify soil and environmental conditions under which urea applications were most susceptible to ammonia loss, and to identify management practices to reduce those losses. Based on the findings, Engel’s team recommends against surface-applying fertilizer to frozen or wet ground, particularly during the over-winter period. Applying it during the spring following thaw resulted in lower ammonia volatilization loss. By following the team’s recommendations to fertilize in the spring and incorporate the fertilizer into the soil when possible, a majority of Montana’s wheat growers are reducing air pollution and saving about $5 million a year through reduced fertilizer loss and increased yields.

For more information on this project, see sare.org/projects, and search for project number SW10-050.
SARE Grants in Montana

Total awards: **138 grants**
- 46 Research and Education
- 22 Professional Development Program
- 37 Farmer/Rancher
- 10 On Farm Research/Partnership
- 19 Graduate Student
- 4 Research to Grass Roots

Total funding: **$9,745,902**
- $6,776,722 Research and Education
- $1,325,229 Professional Development Program
- $457,198 Farmer/Rancher
- $405,603 On Farm
- $463,184 Research/Partnership
- $317,966 Graduate Student
- $317,966 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/montana](western.sare.org/sare-in-your-state/montana)

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/montana](western.sare.org/state-pages/montana) to learn more.

Patrick Mangan  
Montana State University Extension Service  
(406) 258-4205  
patrick.mangan@montana.edu

For detailed information on SARE projects, go to [www.SARE.org](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.
Montana has been awarded $9,745,902 grants to support 137 projects, including but not limited to, 45 research and/or education projects, 22 professional development projects and 37 producer-led projects. Montana 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>
| SW22-934   | Landowner Collaborative Strategies for Nonlethal Predator Control             | $349,951     | Dr. Jared Beaver  
Montana State University  
Dr. Stewart Breck  
Colorado State University  
Dr. Alex Few  
Western Landowners Alliance  
Kyran Kunkel  
Western Landowners Alliance  
Dr. Julie Young  
Utah State University |
| SW21-929   | Indigenous Food-Science-Ways: Integrating Indigenous knowledge with food science research and education to support value-added Native foods | $349,898     | Wan-Yuan Kuo  
Montana State University  
Eric Belasco  
Dr. Jane Boles  
Montana State University  
Dr. Paul Gannon  
Montana State University  
Dr. Paul Lachapelle  
Montana State University  
Dr. Brent Peyton  
Montana State University  
Brenda Richey  
Montana State University  
Mattie Griswold  
Montana State University |
| SW21-930   | Intercropping chickpea with flax: An alternative sustainable way to manage Ascochyta blight of Chickpea | $347,557     | Dr. Chengci Chen  
Montana State University  
Dr. Frankie crutcher  
Montana State University-EARC  
Dr. William Franck  
Montana State University-EARC  
Dr. Qasim Khan  
Montana State University-SARC  
Dr. Kevin McPhee  
Montana State University-EARC  
Dr. Kent McVay  
Montana State University-SARC |
Developing an integrated management decision framework for cheatgrass control in the northeastern region of the sagebrush steppe

Lisa Rew
Montana State University
Andrew and Hilary Andersen
J Bar L Ranch
Jim Berkey
The Nature Conservancy
Amber Burch
Beaverhead County Weed District
Daphne and Kevin Chester and Crowe Double C Ranch Holdings
Kyle Cutting
US Fish, Wildlife Service
Eric and Stephanie Hansen
Hansen Livestock Company
Jeff Johnson
Johnson Ranch
Dr. Jane Mangold
Montana State University
Kara Maplethorpe
Beaverhead County Weed District
Allen and Yvonne Martinell
Lee Martinell Ranch
Dr. Bok Sowell
MSU-Animal & Range Sciences
Dr. Catherine Zabinski
Montana State University

Snowbanks to Grassbanks

$349,710

Dr. Bok Sowell
MSU-Animal & Range Sciences
Dr. Andrea Litt
Department of Ecology, Montana State University
Megan Van Emon
Montana State University

Soil acidity management of long-term no-till fields in Montana to prevent crop failure

$264,016

Dr. Richard Engel
Montana State University

The Impacts of Integrating Livestock into Cropping Systems on Soil Health and Crop Production

$249,502

Devon Ragen
Montana State University

Research and Demonstration of Minimum Tillage and Optimum Water Management in Sugarbeet Production in Eastern Montana

$247,410

Dr. Chengci Chen
Montana State University

Examining, Optimizing, and Building Capacity for Montana’s Local Beef to School Supply Chain

$220,021

Dr. Carmen Byker Shanks
Montana State University

Sustainable Cropping Systems for Dual-Purpose Biennial Canola

$256,397

Dr. Darrin Boss
Montana State University
Dr. Steve Fransen, PhD
Washington State University

Evaluating Native Perennial Flower Strips for Enhancing Native Bees and Pollination Services on Farmlands

$170,951

Laura Burkle
Montana State University

Landscape Collaborative Grazing and Greater Sage Grouse Survival

$339,552

Dr. Bok Sowell
MSU-Animal & Range Sciences

Low Glycemic Potatoes, a value-added crop for Montana

$154,000

Dr. David Sands
Montana State University

Degree Day Modeling and Economic Considerations of Insects and Weeds in Sheep Grazed Alfalfa, Grain, and Range Production Systems

$206,700

Dr. Hayes Goosey
Montana State University
Using cover crop mixtures to improve soil health in low rainfall areas of the northern plains

Enhancing Cropping System Sustainability by Minimizing Ammonia-N Losses from Biological and Chemical Inputs

Integrating Biological Control with Targeted Sheep Grazing to Suppress Spotted Knapweed

Infrastructure Support for Small Livestock Processing Facilities


Grower-based selection of varieties and systems for wheat stem sawfly control

Is Sulfur Cinquefoil a Candidate for Control with Sheep and Goats?

Developing a free on-line excel based enterprise budget decision support program to evaluate the incorporation of sheep into farm systems as an alternative to pesticide and mechanical methods of weed and insect control

Survey and Economic Analysis of Montana Farms Utilizing Integrated Livestock-Cereal Grain (Ley Farming) Systems

Does Timing of Defoliation Affect Spotted Knapweed Seed Viability and Germination?

Developing Distance Learning Based on Perceptions and Knowledge of Producers and Agricultural Professionals

Methane Recovery from Small Dairy Operations

Ecologically Based Integrated Weed Management to Restore Plant Diversity

Factors Affecting Alfalfa Stand Longevity in Montana

Increasing Crop Water Use Efficiency in Advanced No-Till Systems
<table>
<thead>
<tr>
<th>Project Code</th>
<th>Title</th>
<th>Funding ($)</th>
<th>Principal Investigator(s)</th>
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<tbody>
<tr>
<td>SW01-048</td>
<td>Using Crop Diversity in No-till and Organic Systems to Reduce Inputs and Increase Profits and Sustainability in the Northern Plains</td>
<td>$157,888</td>
<td>Bruce Maxwell MSU</td>
</tr>
<tr>
<td>SW00-015</td>
<td>An Alternative to Traditional Wheat Stubble Management Using Sheep to Control Pests and Improve Soil Nutrient Cycling</td>
<td>$166,147</td>
<td>Dr. Patrick Hatfield Department of Animal and Range Sciences Montana State University, Dept. Entomology Dr. Hayes Goosey Montana State University, Duane Griffith Montana State University, Ag Econ and Ext Dept</td>
</tr>
<tr>
<td>SW98-064</td>
<td>Selecting Cattle to Prevent Grazing Distribution Problems</td>
<td>$115,598</td>
<td>Derek Bailey Montana State University</td>
</tr>
<tr>
<td>SW97-056</td>
<td>Comparison of Pest Management Interactions in Spring Wheat-Cover Crop and Spring Wheat-Fallow Cropping Systems</td>
<td>$150,964</td>
<td>Andrew Lenssen Montana State University</td>
</tr>
<tr>
<td>SW96-019</td>
<td>Sustaining Agriculture and Community: Moving the Farm Improvement Club Program Beyond the Farm Gate</td>
<td>$124,425</td>
<td>Jonda Crosby Alternative Energy Resources Organization</td>
</tr>
<tr>
<td>LW92-004</td>
<td>Sustainable Farming Quarterly</td>
<td>$17,500</td>
<td>Nancy Matheson Alternative Energy Resources Organization (AERO)</td>
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<tr>
<td>LWD92-004</td>
<td>The Sustainable Farming Quarterly (SFQ) A Regional Newsletter</td>
<td>$17,500</td>
<td>Al Kurki Alternative Energy Resources Organization (AERO)</td>
</tr>
<tr>
<td>LW91-023</td>
<td>Farm Improvement Club Network for Sustainable Agriculture</td>
<td>$69,000</td>
<td>Nancy Matheson Alternative Energy Resources Organization (AERO)</td>
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<tr>
<td>LW91-024</td>
<td>Specifying and Analyzing Whole-Ranch Systems for Sustainable Range Livestock Production in Environmentally Sensitive Areas</td>
<td>$290,000</td>
<td>Jack Riesselman Montana State University</td>
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<tr>
<td>LW91-025</td>
<td>Practical Education in Sustainable Production Systems</td>
<td>$14,250</td>
<td>Wade Crouch Montana State University</td>
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<tr>
<td>LWD91-003</td>
<td>Regional Farm and Research Center Matching System-FARMS</td>
<td>$3,000</td>
<td>J. Jacobsen Montana State University</td>
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<tr>
<td>LW89-014</td>
<td>Low-Input Legume/Cereal Rotations for the Northern Great Plains/Intermountain Region</td>
<td>$162,000</td>
<td>James Sims Montana State University</td>
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<tr>
<td>LW89-016</td>
<td>Bio-Priming for the Control of Pythium Reemergence Damping-Off in Vegetable Crops</td>
<td>$14,984</td>
<td>Nancy Callan Montana State University</td>
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<tr>
<td>LW89-019</td>
<td>Livestock Health and Nutrition Alternatives: A Western States Conference</td>
<td>$5,000</td>
<td>Al Kurki Alternative Energy Resources Organization (AERO)</td>
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</tbody>
</table>
LW88-006  Soil-building Cropping Systems  
Conference-Legumes and Other  
Green Manures in Cropping Systems  
of The Northern Plains, Rockies and  
Intermountain Region  
Robert Gillespie  
Alternative Energy Resources Organization  
(AERO)

### 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>
| WRGR22-001      | Montana Food Economy Initiative                                               | $96,984      | Erin Austin  
Alternative Energy Resources Organization  
(AERO)  
Erin Austin  
AERO  
Michal DeChellis  
AERO and Cultivating Minds, LLC  
Kim Lloyd  
St. Peter's Health  
Michele Schahczenski  
Yellowstone Valley Food Hub  
Randi Wing  
AERO and FBCEDC |
| WRGR21-001      | Montana’s Soil Health Network: Deepening the Roots in Four Regions           | $51,223      | Maggie Gordon  
Northern Plains Resource Council  
Caroline Canarios  
Northern Plains Resource Council  
Charlie French  
NRCS  
Stephen Charter  
Charter Beef |
| WRGR21-006      | Participatory Training in Small-scale Anaerobic Digestion of Agricultural Residues | $95,000      | Dr.Roland Ebel  
Montana State University  
Selena Ahmed  
Montana State University  
Mac Burgess  
Montana State University  
Dr.Jed Eberly  
Montana State University  
Timothy Seipel  
Department of Land Resources and Environmental Sciences, Montana State University |
| RGR20-009       | Montana Food Economy Initiative                                               | $74,759      | Lindsay Ganong  
AERO |

### 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>
| WPDP22-021      | Montana Agritourism Fellows Program: Developing Leaders to Advance Sustainable AgriTourism | $99,965      | Dr.Shannon Arnold  
Montana State University  
Dr.Dustin Perry  
Montana State University  
Dr.Beth Shirley  
Montana State University |
| PDP20-020       | Building Internal and Community Capacity for the Blackfeet Nation Through Agriculture | $73,795      | Will Seeley  
Blackfeet Tribe: Agriculture Resource Management Plan  
Gerald Lunak  
Joe Gervais  
K Webb Galbreath |
Sustainable Beef Cattle Production: Ranch to Ribeye

EW18-027 Building Internal Capacity for the Blackfeet Tribe Agricultural Resource Management Plan (ARMP)

EW18-011 Pheromones as Tools for Monitoring the Insect Pests in the Northern Plains - Instructive Tools for Agricultural Professionals

EW17-011 Integrated Parasite Management: Train the Trainer


EW16-036 Catalyzing Increased Agricultural Sales through a Common Understanding of Montana’s New Food Modernization Law

EW15-009 Conservation and Augmentative Biological Control in the Northern Plains – Providing Tools for Agriculture Professionals

EW13-014 Enhancing the Exploring Energy Efficiency & Alternatives (E3A) Curriculum

EW12-004 Tour of sustainable Small Grain Production in Eastern Washington

EW12-006 Montana State University Extension Range Management Institute

EW11-012 Wildlife Damage Control for Traditional and Organic Farmers

EW01-007 Training Tour 2002-03-04

EW01-016 Growing Our Own: Communities That Sustain Entrepreneurs

EW99-008 Developing a Sustainable and Organic Master Gardener Horticulture Production Manual

EW99-015 Harvesting the Wealth: of AERO’s Farm and Ranch Improvement Clubs
**FARMER/RANCHER 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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<tbody>
<tr>
<td>FW22-390</td>
<td>Could sainfoin be the first dual-purpose perennial pulse crop for the western US?</td>
<td>$24,864</td>
<td>Shawn Wentzel&lt;br/&gt;Alaska Ranch</td>
</tr>
<tr>
<td>FW22-398</td>
<td>Establishing a Cool Season Legume Grass Finishing Pasture</td>
<td>$8,992</td>
<td>Ronald Wade&lt;br/&gt;Browns Meadow Farm</td>
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<tr>
<td>FW22-396</td>
<td>Livestock as a Tool for Pasture Management: Shifting Species Composition</td>
<td>$22,123</td>
<td>Doug Lair&lt;br/&gt;DBA Lair Ranch</td>
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<tr>
<td>FW21-372</td>
<td>Collaborative monitoring for ranch resilience and social-ecological sustainability in central Montana</td>
<td>$29,000</td>
<td>Bill Milton&lt;br/&gt;Milton Ranch</td>
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<tr>
<td>FW19-340</td>
<td>Improving Winter Greens Production and Storage for Cold Climate Farmers</td>
<td>$19,990</td>
<td>Katelyn Madden&lt;br/&gt;MGVC</td>
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<tr>
<td>FW15-039</td>
<td>Making the Most of Fine Fleece: Environmental, Economic, and Social Costs and Benefits of Alternative Strategies for Marketing Sheep Wool</td>
<td>$10,646</td>
<td>Linda Poole&lt;br/&gt;Prairie Shepherd</td>
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<tr>
<td>FW11-024</td>
<td>Organic Control of Perennial Weeds with Vinegar and Biologicals</td>
<td>$20,790</td>
<td>Jess Alger&lt;br/&gt;Organic control of Perennial Weeds</td>
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<tr>
<td>FW10-042</td>
<td>Marketing J Bar L Ranch Grassfed Beef to Members of Conservation Organizations</td>
<td>$13,000</td>
<td>Bryan Ulring&lt;br/&gt;J Bar L Ranches, LLC</td>
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<tr>
<td>FW09-305</td>
<td>Composting Recommendations and Marketing Evaluation for Livestock Operations in Cold Semi-Arid Environments</td>
<td>$49,315</td>
<td>Thomas Bass&lt;br/&gt;Montana State University</td>
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<tr>
<td>FW08-016</td>
<td>Can Producers in Five Montana Counties Successfully Use No-Till Methods for Renovation of Irrigated and Dryland Pastures?</td>
<td>$29,999</td>
<td>Ron Carlstrom&lt;br/&gt;MSU Extension- Gallatin County&lt;br/&gt;George Reich</td>
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<tr>
<td>FW08-023</td>
<td>Pasture-Raised Heritage Turkeys in a Dryland Farming System</td>
<td>$6,413</td>
<td>Jacob Cowgill</td>
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<tr>
<td>Project Code</td>
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<td>Budget</td>
<td>Principal Investigator</td>
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<td>FW08-034</td>
<td>High-Nutrition Drought-Tolerant Corn</td>
<td>$30,000</td>
<td>Dave Christensen</td>
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<tr>
<td>FW08-317</td>
<td>Sustainable Food and Bioenergy Systems: Student Internships Development Plan</td>
<td>$29,983</td>
<td>Dr. William Dyer</td>
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<tr>
<td>FW06-025</td>
<td>Agroecosystem Approach to Managing Imported Cabbage Worm (Peris rapae)</td>
<td>$6,356</td>
<td>Helen Atthowe</td>
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<tr>
<td>FW05-012</td>
<td>Forage Winter Wheat Production for Grazing or Hay Production in Eight Montana Counties</td>
<td>$19,795</td>
<td>George Reich</td>
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<tr>
<td>FW05-301</td>
<td>Protecting High Quality Rangelands in Garfield County from Invasive Weed Spread</td>
<td>$20,000</td>
<td>Eric Miller</td>
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<tr>
<td>FW05-305</td>
<td>Demonstration of Leafy Spurge Management Using Sheep Grazing in a Leafy Spurge Barrier Zone</td>
<td>$9,960</td>
<td>Sharla Sackman</td>
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<tr>
<td>FW04-018</td>
<td>Forage Winter Wheat Production for Jay or Grain in Gallatin County, Montana</td>
<td>$5,370</td>
<td>George Reich</td>
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<tr>
<td>FW02-036</td>
<td>Sheep and Cattle Grazing Complementarity Project</td>
<td>$5,055</td>
<td>Randall Tunby</td>
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<tr>
<td>FW01-032</td>
<td>Biological Weed Control: Education and Implementation</td>
<td>$7,500</td>
<td>Noah Poritz</td>
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<tr>
<td>FW01-085</td>
<td>Biological and Mechanical Control of Perennial Weeds in North-Central Montana</td>
<td>$6,387</td>
<td>Robert Quinn</td>
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<tr>
<td>FW00-017</td>
<td>Establishing a Sustainable Program for Recycling and Propagation of Quality Flower Bulbs in a Wholesale Flower Production Operation</td>
<td>$2,197</td>
<td>Laura Smith</td>
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<tr>
<td>FW00-260</td>
<td>Test Marketing Campaign to Conduct In-Store Lamb Cooking and Recipe Demonstration for Montana Natural Lamb Cooperative in the Billings, Montana Market Area</td>
<td>$9,300</td>
<td>Gayle Ott</td>
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<tr>
<td>FW00-282</td>
<td>Better Board of Trade.Com</td>
<td>$8,054</td>
<td>David Oien</td>
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<tr>
<td>FW00-288</td>
<td>TEAM: Team Effort in Agricultural Marketing for the McAlpine Ranch</td>
<td>$9,705</td>
<td>Clay McAlpine</td>
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<td>FW00-314</td>
<td>Montana Arnica Web Page</td>
<td>$870</td>
<td>Rod Daniel</td>
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<tr>
<td>FW99-102</td>
<td>Range Monitoring in the Badlands Grazing District</td>
<td>$10,000</td>
<td>Jack McCuin</td>
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<tr>
<td>FW98-035</td>
<td>Annual Forages for Dryland Rotations</td>
<td>$1,540</td>
<td>Vern Pluhar</td>
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<td>FW98-093</td>
<td>Cull Potato Composting</td>
<td>$7,500</td>
<td>Steve McCullough</td>
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<tr>
<td>FW96-007</td>
<td>Green Manure/Covercrop Combination Experiment</td>
<td>$1,923</td>
<td>Rod Daniel</td>
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<tr>
<td>FW96-008</td>
<td>Legume Grazing in Rotation with Small Grains</td>
<td>$4,000</td>
<td>Jess Alger</td>
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<tr>
<td>FW96-073</td>
<td>Evaluation of Grass Species for Improved Pasture Management</td>
<td>$4,800</td>
<td>Robert Lee</td>
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<tr>
<td>FW96-083</td>
<td>Vegetative Changes through Alternative Water Sources</td>
<td>$2,500</td>
<td>Dale Veseth</td>
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<tr>
<td>FW95-026</td>
<td>Carter-Fallon Forage Committee Range/Livestock Project</td>
<td>$4,943</td>
<td>Randy Tunby</td>
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<td>FW95-078</td>
<td>Managing a Living Mulch System in an Intensive Organic Vegetable Cropping Operation to Enhance Weed, Nutrient, and Pest Management</td>
<td>$5,000</td>
<td>Helen Atthowe</td>
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<tr>
<td>FW95-093</td>
<td>Influencing Elk and Livestock Riparian Use</td>
<td>$4,750</td>
<td>Allen Carter</td>
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**GRADUATE STUDENT GRANTS**

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<tbody>
<tr>
<td>GW22-235</td>
<td>Carrots as a Model for Defining Critical Period of Weed Management, Biofertilization, and Market Opportunities for Great Plains Vegetables Producers</td>
<td>$29,997</td>
<td>Fabian Menalled Dept. of Land Resources and Environmental Sciences, Mac Burgess Montana State University Dr.Roland Ebel Montana State University Emma Kubinski Montana State University</td>
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<tr>
<td>GW22-237</td>
<td>Integrated Weed Management of non-native annual grass, Ventenata dubia, in Montana rangelands</td>
<td>$29,722</td>
<td>Lisa Rew Montana State University Dr.Jane Mangold Montana State University Dr.Lisa Rew Montana State University Lilly Sencenbaugh Montana State University</td>
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<tr>
<td>GW22-240</td>
<td>Managing Crop Residues for Soil Health</td>
<td>$29,698</td>
<td>Dr.Catherine Zabinski Montana State University Zane Ashford Montana State University</td>
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<tr>
<td>GW21-218</td>
<td>Integrating thistle rust into weed management of Canada thistle</td>
<td>$30,000</td>
<td>Timothy Seipel Department of Land Resources and Environmental Sciences, Montana State University Dr.Jed Eberly Montana State University Fabian Menalled Dept. of Land Resources and Environmental Sciences Daniel Chichinsky Montana State University</td>
</tr>
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<td>Project Number</td>
<td>Project Title</td>
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<td>Principal Investigator</td>
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</tbody>
</table>
| GW20-204       | Restoring Disturbed Rangelands With Site-Specific Seeding                    | $25,000 | Lisa Rew  
Montana State University  
Colter Mumford  
Montana State University |
| GW20-205       | Measuring intra-field variability in pea protein to understand influencing factors in Montana cropping systems | $25,000 | Dr.Clain Jones  
Montana State University  
Dr.Perry Miller  
Montana State University  
Samuel Koeshall  
Montana State University |
| GW19-190       | Nitrogen Fertilizer Management Based on Site-Specific Maximized Profit and Minimized Pollution | $24,992 | Dr.Stephanie Ewing  
Montana State University  
Bruce Maxwell  
MSU  
Paul Hegedus  
Montana State University |
| GW19-197       | Fostering resilient plant-soil interactions on working ranches in semi-arid steppe ecosystems of north-central and eastern Montana. | $24,988 | Dr.Craig Carr  
Montana State University  
Dr.Stephanie Ewing  
Montana State University  
Dr.Christine Gobrogge  
Montana State University Environmental Analytical Laboratory  
Seth Newton  
Bear Gulch Ranch  
Jay "Butch" Ortner  
Ortner Ranch  
Danny Pratt  
Natural Resources Conservation Services  
Tiffany Salveson  
Natural Resources Conservation Service  
Timothy Seipel  
Department of Land Resources and Environmental Sciences, Montana State University  
Joseph Capella  
Montana State University |
| GW19-198       | Precision Agriculture Applied to Organic Systems                           | $22,500 | Bruce Maxwell  
MSU  
Royden Loewen  
Montana State University |
| GW19-199       | Effects of Habitat Heterogeneity on Crop Yield and Biodiversity             | $24,972 | Bruce Maxwell  
MSU  
Hannah Duff  
1992 |
| GW18-050       | Montana Hardy Fruit Nutraceutical Quality                                   | $17,765 | Mac Burgess  
Montana State University  
Durc Setzer  
Montana State University |
| GW18-179       | Predicting overwinter nitrate-N changes at the subfield scale in leaching-susceptible, agricultural soils | $25,000 | Dr.Clain Jones  
Montana State University  
Dr.Patrick Carr  
Montana State University  
Simon Fordyce  
Montana State University Central Agricultural Research Center |
| GW18-151       | Advancing Cover Crop Knowledge: Assessing the Role of Plant Diversity on Soil Change | $25,000 | Dr.Perry Miller  
Montana State University  
Kristen Dagati  
Montana State University |
| GW17-040       | Sustainability of dormant season grazing: Does protein supplementation impact beef cattle performance, soil organic matter, vegetation, and residual cover for wildlife? | $24,970 | Dr Janice Bowman  
Montana State University  
Dr.Lance McNew  
Montana State University  
Samuel Wyffels  
Montana State University |
<table>
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<th>Project #</th>
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<th>Project Leaders</th>
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| GW16-053   | Cover Crop Grazing: Optimal Seasonality for Soil and Livestock Benefit        | $25,000      | Dr. Perry Miller  
 Montanna State University  
 Robert Walker  
 MSU LRES |
| GW12-004   | Multiple Forms of Uncertainty as a Barrier to the Adoption of Sustainable Farming Practices | $24,830      | Patrick Lawrence  
 Montana State University |
| GW10-032   | Investigating the Legume Green Fallow Alternative on North-Central Montana No-Till Operations | $24,250      | Dr. Perry Miller  
 Montana State University  
 Justin O’Dea  
 Washington State University |
 Dept. of Land Resources and Environmental Sciences  
 Ilai Keren  
 Montana State University |
| GW06-026   | Effects of Weed Communities in Conventional and Organic Agricultural Systems. | $7,536       | Bruce Maxwell  
 MSU  
 Fabian Menalled  
 Dept. of Land Resources and Environmental Sciences  
 Fred Pollnac  
 Montana State University |

**ON FARM RESEARCH/PARTNERSHIP GRANTS**

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<th>Project Leaders</th>
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| OW22-372   | The Buzz on the Range: Promoting healthy soils and pollinators on Montana rangeland | $55,990      | Michael DeChellis  
 We Are For The Land Foundation, Inc.  
 Michael DeChellis OpenTeam And We Are For the Land Board Member  
 Michal DeChellis Cultivating Minds LLC and We Are For the Land Foundation |
| OW17-009   | Soil Moisture Network and Tools - MT and WY collaborative                       | $49,995      | Lee Schmelzer  
 Montana State University |
| OW17-026   | Montana Food Economy Initiative                                                 | $50,000      | Lindsay Ganong  
 AERO |
| OW17-021   | Evaluating Nitrates and Forage Quality in Fall Regrowth of Annual Cereal Forages | $19,972      | Dr. Tracy Mosley  
 Montana State University Extension |
| OW15-026   | Are Feedlot-based Performance Cattle Limiting Ecological Services for Rangeland Ecosystems in Northern Mixed-grass prairies? | $49,961      | Dr. Emily Meccage  
 Montana State University |
| OW13-017   | Reference strips and precision sensors for increased nitrogen use efficiency in wheat production | $49,907      | Dr. Olga Walsh  
 Montana State University |
| OW13-144   | Effects of Late-Season Water Lease on Forage Crops                             | $24,950      | Jodi Pauley  
 Montana State University |
| OW12-044   | Best Management Practices for Livestock Protection Dogs                         | $49,998      | Dr. Jeff Mosley  
 Montana State University |
| OW11-326   | Developing Community Based Oilseed Industry in Montana                          | $49,830      | Taylor Lyon  
 Bio-Energy Center  
 Dr. Nestor Soriano, Jr. Lead Research Scientist |
Total funding from the USDA SARE program to Montana
$9,745,902

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