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 $404 million to more than 8,776 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.

www.sare.org

SARE: Advancing the Frontier of Sustainable Agriculture in...

Wyoming

Project Highlight: Growing and Marketing Ancient Grains in Wyoming

Markets for ancient grains such as spelt, emmer, and einkorn are growing due to their nutritional qualities and well-liked flavor. In addition, they are reported to require lower water and nutrient inputs than modern varieties. Caitlin Youngquist, Extension Educator at the University of Wyoming, considered that conducting research and working with farmers on these grains could help meet some of Wyoming’s agricultural challenges. According to Youngquist, challenges include low soil fertility and quality, saline and alkaline soils, arid conditions, high crop evapotranspiration demands, and isolation from markets.

Youngquist and her partners studied the nitrogen and water demands of the three grains; evaluated crop performance in various growing regions of the state, quantified costs and benefits associated with growing ancient grains in the state; assessed impacts of growing conditions on grain quality; and worked to develop local markets for cooking and baking. The research was conducted at three University of Wyoming research stations in addition to five on-farm trials. The team hosted numerous presentations, baking workshops, Facebook Live events, and field days. They sent product samples to six food bloggers. Several bulletins and fact sheets were developed for the public from this project.

For more information on this project, see sare.org/projects, and search for project number OW19-340.

SARE in Wyoming

western.sare.org/state-profiles/wyoming/

$520,361 in total funding

11 grant project

(since 1988)

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

Grants awarded 2019–2024

Total awards: **11 grants**
- 3 Farmer/Rancher
- 1 Professional Development Program
- 5 On Farm Research/Partnership
- 2 Graduate Student

Total funding: **$520,361**
- $60,050 Farmer/Rancher
- $75,648 Professional Development Program
- $324,790 On Farm Research/Partnership
- $59,873 Graduate Student

Find a complete list of projects on page 3.

Farmer and rancher impacts 2019–2024

SARE grantees have reported the following impacts from their projects:

- **3,973 farmers participated in a SARE-funded project**
- **101 farmers reported a change in knowlege, awareness, skills or attitude**
- **11 farmers changed a practice**

Find a complete list of projects on page 3.

Learn about local impacts at: [western.sare.org/sare-in-your-state/wyoming/](western.sare.org/sare-in-your-state/wyoming/)

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-profiles/wyoming/](western.sare.org/state-profiles/wyoming/) to learn more.

Bridger Feuz  
University of Wyoming  
(307) 783-0570  
bmfeuz@uwyo.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.
Wyoming has been awarded $3,234,178 grants to support 59 projects, including but not limited to, 15 research and/or education projects, 6 professional development projects and 21 producer-led projects. Wyoming 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>
</table>
| SW18-021  | Integrating livestock and cover crops into irrigated crop rotations           | $249,954     | Dr. Jay Norton  
University of Wyoming  
John Ritten  
University of Wyoming |
| SW10-073  | Prescribed Grazing to Sustain Livestock Production, Soil Quality, and Diversity in Rangeland Ecosystems | $197,268     | Dr. Kenneth Tate  
University of California Davis |
| SW07-049  | Evaluation of Camelina sativa as an alternative seed crop and feedstock for biofuel and developing replacement heifers. | $155,000     | Dr. Bret Hess  
University of Wyoming |
| SW05-117  | Integrated Crop and Livestock Systems: Dryland Crop Rotations to Improve Economic and Ecological Sustainability in the Central High Plains | $212,928     | Dr. Steve Paisley  
University of Wyoming |
| SW04-051  | Record Management Computer Database for Wyoming Cow-Calf Producers            | $18,563      | Dallas Mount  
University of Wyoming |
| SW03-008  | Annual Legume-Based Systems for Sustainable Integrated Crop/Livestock Enterprise Diversification on the Central High Plains | $200,000     | James Krall  
University of Wyoming |
| SW02-011  | Economic Impacts of Undernutrition on Fetal Programming during Early Gestation in the Cow: Effects on Growth, Development and Carcass Characteristics of Steers and Reproductive Efficiency of Heifers | $23,014      | Stephen Ford  
University of Wyoming |
SW98-071  Annual Legumes in Fallow as an Integrated Crop/Livestock Alternative in the Central Great Plains. $173,979  James Krall  
University of Wyoming

SW97-018  Integrating nemate-resistant crops into sugar beet rotations $113,184  David Koch  
University of Wyoming

SW96-010  Western Integrated Ranch/Farm Education $36,326  John Hewlett  
University of Wyoming, Department of Agricultural Economics

SW96-029  Potential of a Corn/Annual Medic Intercropping System for Weed Control, Reduced Soil Erosion and Improved Forage Production $95,100  James Krall  
University of Wyoming

SW95-007  Sustainable Rangeland Based Beef Cattle Production Systems $155,260  Michael A. Smith  
University of Wyoming

SW94-006  Legume Cover Crops in Fallow as an Integrated Crop/Livestock Alternative in the Northern and Central Great Plains $160,000  James Krall  
University of Wyoming

SW94-034  Western Integrated Ranch/Farm Education $90,000  John Hewlett  
University of Wyoming, Department of Agricultural Economics

LW91-022  Brassica Utilization in Sugar Beet Rotations for Biological Control of Cyst Nematode $47,000  David Koch  
University of Wyoming

**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>
| WPDP21-024 | Rancher to Consumer Meat Connection | $75,648 | Cody Gifford  
University of Wyoming |
| EW10-020  | Ranch Sustainability Assessment: Economic, Ecological, & Social Indicator Monitoring | $85,000  | Dr. John Tanaka  
University of Wyoming |
| EW10-012  | Equipping Extension Educators to Address Producer Needs in Energy Education | $99,596  | Sarah Hamlen  
MSU Extension |
| EW07-016  | Educator Training for the Wyoming Cow-Calf Record Management System | $9,500  | Dallas Mount  
University of Wyoming |
Sustaining western rural landscapes, lifestyles, and livelihoods through agricultural enterprise diversification: a collaborative partnership.

Extension Sustainable Agriculture Training in Colorado and Wyoming

**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>FW23-434</td>
<td>Goats - Invasive Weed Reduction &amp; Native Plant Reintroduction on River Bottom &amp; Sage Habitat</td>
<td>$20,300</td>
<td>Kate Brewster</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Big Sage Livestock</td>
</tr>
<tr>
<td>FW23-426</td>
<td>TAG grazing Cattle as a Tool for Range Management: Targeting Cheatgrass and False Annual Wheatgrass to see the impacts of restoring native species</td>
<td>$25,000</td>
<td>RC Carter</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carter Livestock</td>
</tr>
<tr>
<td>FW21-383</td>
<td>Trout Creek Pumpkin Patch: adding new revenue streams on a traditional cow/calf ranch</td>
<td>$14,750</td>
<td>Clint Wagon</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wagon Ranch</td>
</tr>
<tr>
<td>FW09-319</td>
<td>Enhancing Rural Agricultural Family and Community Development in Wyoming Through Sustainable Bioful Crop Production</td>
<td>$49,873</td>
<td>Donn Randall</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Wyoming Business Council</td>
</tr>
<tr>
<td>FW08-307</td>
<td>Nitrogen Use Efficiency of Cool-Season Perennial Forage Grasses Planted With and Without Alfalfa Under Irrigation for Hay Production</td>
<td>$14,999</td>
<td>Dr. Blaine Horn</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>University of Wyoming</td>
</tr>
<tr>
<td>FW08-303</td>
<td>Utilizing Soil Moisture and Microclimate Monitoring Technology to Reduce Water and Energy Needs and Improve Sugar Beet Crop Production for Producers in the Big Horn Basin Region of Wyoming</td>
<td>$29,923</td>
<td>Caryn Agee</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Washakie County Conservation District</td>
</tr>
<tr>
<td>FW06-021</td>
<td>Management of Iron Deficiency in Bean with Annual Ryegrass Interplantings</td>
<td>$9,505</td>
<td>Mike Ridenour</td>
</tr>
<tr>
<td>FW05-035</td>
<td>Brush Mower/Mixed Mountain Shrub Enhancement</td>
<td>$19,370</td>
<td>Myrtle and Clyde McColloch</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>JY Ranch</td>
</tr>
<tr>
<td>Project #</td>
<td>Project Title</td>
<td>SARE Support</td>
<td>Project Leaders</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>--------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>FW04-030</td>
<td>Progeny Evaluation to Determine an Economically Based Index for Sire Selection</td>
<td>$7,500</td>
<td>Sandra Snider</td>
</tr>
<tr>
<td>FW04-035</td>
<td>Tree Windbreak</td>
<td>$7,500</td>
<td>Betty Rodriguez</td>
</tr>
<tr>
<td>FW03-004</td>
<td>Wind and Water</td>
<td>$6,000</td>
<td>Betty Rodriguez</td>
</tr>
<tr>
<td>FW02-210</td>
<td>Platte County Farmer's Market</td>
<td>$2,434</td>
<td>Susan Schamel</td>
</tr>
<tr>
<td>FW02-207</td>
<td>BOS Grass Grown Premium Beef Marketing</td>
<td>$7,495</td>
<td>James Millett</td>
</tr>
<tr>
<td>FW01-047</td>
<td>Prevention of High Altitude Disease Losses in Beef Cattle Using PAP Test Scores, EPDs, and Gene-Mapping Techniques</td>
<td>$7,500</td>
<td>Jon Robinett Diamond G. Cattle Co. LLC</td>
</tr>
<tr>
<td>FW00-278</td>
<td>Internet Marketing of Organically Grown Wyoming Gourmet Garlic</td>
<td>$3,930</td>
<td>Steve Shesler</td>
</tr>
<tr>
<td>FW00-093</td>
<td>Pastured Poultry Production with Research on Sustainability of Grazing Lands</td>
<td>$1,477</td>
<td>Joleen and Greg Marquardt</td>
</tr>
<tr>
<td>FW99-060</td>
<td>Improving Ranch Unit Stability and Sustainability through Grazing Irrigated Alfalfa</td>
<td>$3,500</td>
<td>Rick March</td>
</tr>
<tr>
<td>FW96-023</td>
<td>Tall Stature Grasses for Winter Grazing and Spring Calving</td>
<td>$2,800</td>
<td>Matt Weber</td>
</tr>
<tr>
<td>FW95-045</td>
<td>Integrated Management to Improve Rangeland Health and Reduce Noxious Weeds</td>
<td>$5,000</td>
<td>Ogden Driskell Bearlodge Cattle Company</td>
</tr>
<tr>
<td>FW95-067</td>
<td>Initiation of Integrated Management</td>
<td>$5,000</td>
<td>Tom Bruce</td>
</tr>
<tr>
<td>FW95-076</td>
<td>Flitner Wetland Habitat Enhancement Project</td>
<td>$5,000</td>
<td>Mary &amp; Stan Flitner</td>
</tr>
</tbody>
</table>

**GRADUATE STUDENT GRANTS**
GW24-015  Microbial inoculants: evaluate their potential for improved hay production and soil health in high elevation meadows $29,952  Linda Van Diepen  University of Wyoming
Rael Otuya  University of Wyoming

GW22-231  Nitrogen Mineralization in High-Elevation Hay Meadow Soils for Improved Fertility Management $29,921  Urszula Norton  University of Wyoming
Daniel Adamson  University of Wyoming

GW18-025  The Critical Role of Soil Microbiota to Sustainable Agriculture: Quantifying short-term microbial and vegetation feedback to intensive grazing. $24,184  Linda Van Diepen  University of Wyoming
Emily Bean  University of Wyoming, The Pennsylvania State University

GW18-170  Evaluation of Pulse Crops for Dryland Production $25,000  Dr.Carrie Eberle  University of Wyoming
Amberle Filley  University of Wyoming

GW17-059  Cattle Diets and Performance: Enhancing What We Know with Advanced Plant DNA Technology $24,970  John Derek Scasta  University of Wyoming
Tamarah Plechaty  University of Wyoming, Laramie & Unites States Department of Agriculture - Agricultural Research Service, Cheyenne, WY

GW16-038  Increasing sustainable agriculture through enhanced diagnostics with Brucella infection $24,818  Dr.Brant Schumaker, DVM, MPVM, PhD  University of Wyoming
Noah Hull, MPH  University of Wyoming

GW16-068  Conservation biological control of alfalfa weevil in Wyoming $7,280  Makenzie Benander  University of Wyoming
Makenzie Benander  University of Wyoming

GW15-020  Economic and Environmental Sustainability of Irrigated Grass-Legume Mixtures $24,998  Dr.Anower Islam  University of Wyoming
Albert Adjesiwo  University of Wyoming

GW14-023  Improving Feed Efficiency in Sheep Through Rumen Manipulation and Producer Adoption $25,000  Dr.Kristi Cammack  University of Wyoming
Dr.Melinda Ellison  University of Idaho

GW11-007  Impacts of age on residual feed intake and its effect on reproductive parameters and profitability in ewes $24,990  Dr.Kristi Cammack  University of Wyoming
Dr.Rebecca Cockrum  Colorado State University

GW08-016  Potential of Managing Iron and Zinc Deficiency in Dry Beans with Interplantings of Annual Ryegrass and Increased Bean Density $18,928  Andrew Kniss  University of Wyoming
Emmanuel Omondi  University of Wyoming - Dept 3354
<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>OW24-005</td>
<td>Weaning strategy influence on pulmonary hypertension risk and respiratory disease</td>
<td>$75,000</td>
<td>Dr. Hannah Cunningham-Hollinger University of Wyoming, Cody Gifford University of Wyoming</td>
</tr>
<tr>
<td>OW23-380</td>
<td>Enhancing producer decision making: Lamb feeding strategies and meat quality assessment in the Katahdin sheep breed</td>
<td>$75,000</td>
<td>Cody Gifford University of Wyoming, Dr. Hannah Cunningham-Hollinger University of Wyoming, Stewart Whit University of Wyoming</td>
</tr>
<tr>
<td>OW21-363</td>
<td>Kernza® in Wyoming: Evaluating Perennial Grains to Revitalize Wyoming Dryland Agriculture</td>
<td>$74,804</td>
<td>Linda Van Diepen University of Wyoming</td>
</tr>
<tr>
<td>OW20-355</td>
<td>Does cattle selection matter? Testing larkspur-native vs larkspur-naïve cattle to reduce death losses on larkspur infested rangelands.</td>
<td>$49,991</td>
<td>Daniel Cook USDA-ARS-Poisonous Plant Research Laboratory, Clint Stonecipher US Department of Agriculture - Agricultural Research Service - Poisonous Plant Research Laboratory, Ben Green USDA-ARS-Poisonous Plant Research Laboratory, Eric Thacker Utah State University</td>
</tr>
<tr>
<td>OW19-340</td>
<td>Growing and Marketing Ancient Grains in Wyoming</td>
<td>$49,995</td>
<td>Dr. Caitlin Youngquist SnapLands</td>
</tr>
<tr>
<td>OW10-313</td>
<td>Residual Feed Intake - Producer Adoption and Genetic Selection Potential</td>
<td>$47,292</td>
<td>Dr. Kristi Cammack University of Wyoming</td>
</tr>
</tbody>
</table>

**Total funding from the USDA SARE program to Wyoming**

$3,234,178

For further information on projects, contact Western SARE at (406) 994-4785 or wsare@montana.edu. Sustainable Agriculture Research and Education (SARE) is funded by USDA’s National Institute of Food and Agriculture (NIFA).