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 $354 million to more than 8,043 initiatives.

SARE is grassroots with far-reaching impact

Four regional councils of expert practitioners set priorities and make grants in every state and island protectorate.

SARE communicates results

SARE shares project results by requiring grantees to conduct outreach and grower engagement; and by maintaining an online library of practical publications, granteeproduced information products and other educational materials.

SARE in Washington

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

$11,628,924 in total funding

192 grant projects

(since 1988)

For more information on these projects, see sare.org/projects, and search for project numbers EW10-016, EW12-026 and OW14-003.

Project Highlight: Fostering Better, More Sustainable Forests

Private timber lands in the Pacific Northwest are declining faster than in any other area of the country. The Northwest Natural Resource Group (NNRG) works with private landowners to promote a sustainable, environmentally sound economy in the region’s forestlands.

NNRG received three SARE grants to provide education on forest conservation practices to professionals and producers. The first project trained more than 111 individuals involved in forestry about the value-added benefit of Forest Stewardship Council-certified products and market opportunities for such products. Twenty-six members became FSC-certified, representing 112,000 acres. NNRG then followed up with another training for 100 natural resources professionals to help them assist landowners with the Environmental Quality Incentives Program (EQIP), a USDA conservation program. More than 68 forest producers reported that they applied for EQIP funds. These producers used the funds to develop management plans and conduct conservation practices to enhance timber quality and overall productivity.

In their final project, NNRG partnered with EcoTrust to provide producers with tools and examples that would help them make decisions and consider active forest management. Through their outreach, eight farmers changed or adopted a practice with 25 farmers planning to change their practices.

For more information on these projects, see sare.org/projects, and search for project numbers EW10-016, EW12-026 and OW14-003.

www.sare.org
SARE Grants in Washington

Total awards: 192 grants
- 50 Research and Education
- 27 Professional Development Program
- 74 Farmer/Rancher
- 10 On Farm Research/Partnership
- 24 Graduate Student
- 7 Research to Grass Roots

Total funding: $11,628,924
- $7,863,599 Research and Education
- $1,643,435 Professional Development Program
- $735,565 Farmer/Rancher
- $439,352 On Farm Research/Partnership
- $479,306 Graduate Student
- $467,667 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/washington

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/washington to learn more.

Chad Kruger
Washington State University
(509) 335-4605
cekruger@wsu.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.
Washington has been awarded $11,628,924 grants to support 189 projects, including but not limited to, 47 research and/or education projects, 27 professional development projects and 74 producer-led projects. Washington 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>
| SW22-937  | Water Quality Effects of Multifunctional Working Buffers for Seasonally Wet Farmland | $336,119     | Carrie Brausieck  
Snohomish Conservation District  
Gwendolyn Hannam  
Whidbey Island Conservation District |
| SW22-939  | Pre and Postharvest Disease Management of Pome Fruit to Support an Expanding Organic Production in the Pacific Northwest | $349,612     | Dr.Achour Amiri  
Washington State University  
Karina Gallardo  
Washington State University |
| SW21-925  | Genomic Selection as a Risk Management Tool for U.S. Dairies                  | $349,876     | Dr.Holly Neibergs  
Washington State University  
Dr.Amber Adams-Progar  
Washington State University  
Dr.Joseph Dalton  
University of Idaho  
J. Shannon Neibergs  
Washington State University |
| SW21-926  | Diversifying Northwestern fields and palates                                  | $349,999     | Dr.Kevin Murphy  
Washington State University  
Stephen Bramwell  
WSU Dept. Crop and Soil Sciences  
Dr.Girish Ganjyal  
Washington State University - School of Food Science  
Justin O'Dea  
Washington State University |
| SW20-916  | Wigging out, then wigging in: removing earwigs from stone fruit and augmenting them in pome fruit | $348,733     | Dr.Rebecca Schmidt-Jeffris  
USDA-ARS  
Rick Hilton  
Oregon State University  
Nathan Moses-Gonzales  
M3 Consulting Group  
Dr.Louis Nottingham  
Washington State University  
Dr.Ashley Thompson  
Oregon State University  
Dr.Northfield Tobin  
Washington State University |
| LS19-320  | Southern Organic Seed Summit                                                   | $49,957      | Jared Zystro  
Organic Seed Alliance |
| SW18-103  | Ecological and Economic Benefit-Cost Comparison of Grazed and Ungrazed Prairie Land for Critical Species Protection in Western Washington | $248,229     | Stephen Bramwell  
WSU Dept. Crop and Soil Sciences |
| SW18-031  | Exploring relationships between pollinators and canola on the Palouse         | $207,134     | Dr.David Crowder  
Washington State University |
<table>
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<tr>
<th>Project Code</th>
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<tr>
<td>SW16-013</td>
<td>Bovine-avian interactions on dairies: improving cow welfare and farm economic stability by implementing effective and sustainable pest bird deterrence methods</td>
<td>$238,105</td>
<td>Dr. Amber Adams-Progar Washington State University</td>
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<td>SW15-061</td>
<td>Developing Agronomic Strategies to Optimize Production of Quinoa and Hulless Barley on No-till Farms in the Palouse Region of Idaho and Washington</td>
<td>$223,119</td>
<td>Dr. Kevin Murphy Washington State University</td>
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<td>SW14-013</td>
<td>Increasing adoption of reduced tillage strategies on organic vegetable farms in the maritime</td>
<td>$249,949</td>
<td>Doug Collins WSU</td>
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<td>SW12-122</td>
<td>Soil Quality Assessment of Long-Term Direct Seed to Optimize Production</td>
<td>$193,448</td>
<td>James Harsh Ann Kennedy Washington State University/ARS</td>
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<td>SW11-00B</td>
<td>Evaluating the Western SARE Farmer/Rancher and AP Grant Programs: 2011 Survey Results from Grant recipients reflecting on their grant experience.</td>
<td>$22,035</td>
<td>Dr. Danna L. Moore Social and Economic Sciences Research Center</td>
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<td>SW11-072</td>
<td>Selecting management practices and cover crops for reducing tillage, enhancing soil quality, and managing weeds in western WA</td>
<td>$196,626</td>
<td>Doug Collins WSU</td>
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<td>SW10-052</td>
<td>Native Habitat Restoration, Sustainable IPM and Beneficial Insect Conservation</td>
<td>$191,106</td>
<td>Dr. David James Washington State University</td>
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<td>SW09-050</td>
<td>Development of Organic Hop Production in the Pacific Northwest</td>
<td>$123,465</td>
<td>Dr. Kevin Murphy Washington State University</td>
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<td>SW08-049</td>
<td>Integration of Microbial Pesticides in Pome-Fruit Production in the Pacific Northwest</td>
<td>$120,598</td>
<td>Lawrence Lacey USDA-ARS Peter Landolt USDA ARS</td>
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<td>SW08-052</td>
<td>Assessing habitat and dietary switching by predators in a cover crop system</td>
<td>$121,092</td>
<td>David Horton USDA-ARS</td>
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<td>SW08-102</td>
<td>Combining trap cropping and natural-chemical lures to attract and kill crucifer flea beetles</td>
<td>$191,868</td>
<td>William Snyder Washington State University</td>
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<td>SW07-055</td>
<td>A sustainable distribution and evaluation program for selected honey bee stocks in the Pacific Northwest</td>
<td>$172,938</td>
<td>Dr. Walter Sheppard Department of Entomology, Washington State University</td>
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<td>SW07-503</td>
<td>Supplemental R&amp;E Funding from Innovative SARE Coordinator Programs</td>
<td>$24,842</td>
<td>Dr. Carol Miles WSU Mount Vernon NWREC</td>
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<td>SW06-013</td>
<td>Enhancing Sustainability of Small Fruit Production in the Pacific Northwest Through Educating Producers on Consensus-derived Scouting and Decision-making Parameters</td>
<td>$170,929</td>
<td>Craig MacConnell Washington State University Colleen Burrows WSU Whatcom County Extension</td>
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<tr>
<td>SW06-032</td>
<td>Developing Role Models for Antibiotic Stewardship and Biosecurity on Dairy Farms</td>
<td>$125,145</td>
<td>Ron Wohrle Tacoma Pierce County Health Dept Monica Raymond</td>
</tr>
</tbody>
</table>
No-till Livestock-Grain Rotation for Diversified Farms

$125,122

Dave Huggins
USDA-ARS
Stephen Bramwell
WSU Dept. Crop and Soil Sciences
Lynne Carpenter-Boggs
Washington State University

Oilseed Farm-to-Market Demonstration

$77,688

Kimberly Morse
Whitman Conservation District

Interactions Among Organic Fertility, Mustard Green Manures, and Insect Biocontrol by Entomopathogenic Nematodes

$138,922

Ekaterini Riga
Washington State University
William Snyder
Washington State University

Producing Organic Vegetable Seed

$154,293

Matthew Dillon
Organic Seed Alliance

Rose habitats to enhance leafroller biological control in pome fruits

$105,149

Thomas Unruh
USDA-ARS

Implementing Noxious Weed Control Through Multi-Species Grazing

$187,935

Dr. Donald D. Nelson
Washington State University

Farming for the Future: Cultivating the Next Generation of Farmers

$145,800

Brad Gaolach
Washington State University Extension
Dr. Marcia Ostrom
School of Environment, Washington State University

Mustard Green Manures for Potato Production

$45,653

Andrew McGuire
Washington State University Extension

Assessing Soil Quality in Intensive Organic Management Systems

$107,696

David Granatstein
WSU Tree Fruit Research and Extension Center
Craig Cogger
WSU Research and Extension Center

Development and Implementation of Integrated Pest Management of Burrowing Shrimp on Washington State Commercial Oyster Beds

$179,064

Steven Booth
Willapa Bay Grays Harbor Oyster Growers / PSI

Integrating Biological Control into Cole Crop Production in the Pacific Northwest

$63,841

William Snyder
Washington State University

Management of Perennial Wheat as a Sustainable Alternative Cropping System in the Pacific Northwest

$242,035

Jon Johnson
Washington State University - Puyallup Res. & Ext.

Management of Perennial Wheat as a Sustainable Alternative Cropping System in the Pacific Northwest

$63,641

Stephen Jones
Crop and Soil Science Dept. WSU

Demonstrating, Evaluating, and Extending Diversified Direct-Seeded Cropping Systems for Grower Risk-Management in the Inland Northwest

$53,687

Diana Roberts, PhD
WSU Extension
Dennis Roe
USDA-NRCS

Enhancing biological control in mating disruption pear orchards by understory management

$110,497

David Horton
USDA-ARS

Hybrid Poplars in Natural Buffer Systems for Agricultural Pollution Reduction and Income Enhancement

$157,721

Barry C. Moore
Washington State University
### SW97-011
Sustainable Crop Production Practices with Mixed Leguminous and Non-leguminous Cover Crops

- **SARE Support**: $118,000
- **Project Leaders**: Shiou Kuo
  - Washington State University (WSU) Research and Extension Center

### SW97-034
Enhancing No-Till and Conservation Farming Success Through the Use of Case Studies, Conferences, and Workshops to Facilitate Farmer to Farmer Learning in The Pacific Northwest

- **SARE Support**: $125,842
- **Project Leaders**: Tim Veseth
  - Washington State University, Dept. of Crop and Soil Sciences

### SW97-043
Building Community Support for Agriculture on the Urban Edge

- **SARE Support**: $113,000
- **Project Leaders**: Dyvon Havens
  - WSU/Skagit County Cooperative Extension

### SW95-020
Sustainable Community Food Systems - A Catalyst for Rural Environment and Economic Regeneration - A Proposal for an Economic Feasibility Study

- **SARE Support**: $59,448
- **Project Leaders**: Fenton P. Wilkinson

### SW94-008
Fall-Planted Cover Crops in Western Washington: A Model for Sustainability Assessment

- **SARE Support**: $80,000
- **Project Leaders**: Wilbur Anderson
  - Washington State University (WSU), Puyallup Research and Extension Center

### SW94-023
Apple Production Without the Input of Neuroactive Insecticides

- **SARE Support**: $268,000
- **Project Leaders**: Jay F. Brunner
  - Washington State University

### LW89-017
Silvopastoral Alternatives for Fruit Growers

- **SARE Support**: $65,641
- **Project Leaders**: Linda Hardesty, Ph.D
  - Washington State University

### LW88-002
Options to Enhance the Sustainability of Dryland Cereal Cropping in the Northwest

- **SARE Support**: $470,000
- **Project Leaders**: David Granatstein
  - WSU Tree Fruit Research and Extension Center

### 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>
| WRGR22-009 | Restoration and Resilience: Sustaining forest productivity in the face of current and emerging threats | $89,178      | Kirk Hanson
  - Northwest Natural Resource Group
  - Stacey Dixon
  - Snohomish Conservation District
  - Dr. Gregory Ettl
  - University of Washington, School of Environmental and Forest Science
  - Tami Miketa
  - Washington Department of Natural Resources Small Forest Landowners |
| WRGR21-009 | Building a grassland grazing association to support conservation grazing on working lands in southwest WA | $80,000      | Dr. Sarah Hamman
  - Ecostudies Institute
  - Stephen Bramwell
  - WSU Dept. Crop and Soil Sciences
  - Marty Chaney
  - Natural Resources Conservation Service
  - Christina Chaput
  - Thurston County - Community Planning and Economic Development Department
  - Sarah Moorehead
  - Thurston Conservation District
  - Mary Root |
| WRGR21-003 | Increasing Farm Resiliency Through Implementing and Modeling Pollinator Habitat | $84,480      | Alison Nichols, Alison Nichols
  - Pierce Conservation District
  - Rusty Milholland
  - Washington Farmland Trust |
| RGR20-001  | Beneficial Insects in the Vineyard                                            | $43,515      | lynda oosterhuis
  - Walla Walla County Conservation District |
### The Soil Health Stewards: Establishing a Producer-Driven Soil Health Research Network in Northeastern Washington

**Grantee:** Alex Case-Cohen  
**SARE Support:** $70,583  
**Project Leaders:** Pend Oreille Conservation District  
Jeanne Bateman  
Stevens County Conservation District  
Dave Hedrick  
Ferry Conservation District  
Dean Hellie  
Stevens County Conservation District  
Nils Johnson  
Washington State University Extension  
Charlie Kessler  
Stevens County Conservation District  
David Marcell  
Pend Oreille Conservation District  
Leslie Michel  
Washington State Department of Agriculture

### On-Farm Cover Crop Use, Evaluation, and Data Sharing with the Western Cover Crop Council

**Grantee:** Doug Collins  
**SARE Support:** $49,983  
**Project Leaders:** WSU  
Nick Andrews  
Oregon State University  
Lauren Golden  
University of Idaho  
Clare Sullivan  
Oregon State University

### The Peri-urban Agriculture Network: Strategies for Agricultural Viability in Urbanizing and High Land-Use-Pressure Regions

**Grantee:** Justin O’Dea  
**SARE Support:** $49,928  
**Project Leaders:** Washington State University  
Hannah Clark  
American Farmland Trust  
Dr. Lauren Gwin  
Oregon State University  
Dr. Laura Lewis  
Washington State University  
Nellie McAdams  
Rogue Farm Corps  
Lane Selman  
Oregon State University

### Professional Development Program Grants

<table>
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<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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</table>
| WPDP21-030   | Visualizing Microbial Agroecology                                              | $100,000     | Maren Friesen  
Washington State University  
Dr. Douglas Finkelnburg  
University of Idaho  
Dr. Christina Hagerty  
Oregon State University  
Dr. Clain Jones  
Montana State University  
Carol McFarland  
Washington State University Farmers Network  
Dr. Renee Petipas  
Washington State University  
Marissa Porter  
John I Haas Inc  
haiying tao  
Washington state university |
| WPDP21-008   | Digital Agriculture Training Workshop: Managing Input Using On-farm Data       | $76,365      | haiying tao  
Washington state university  
Drew Lyon  
Bruce Maxwell  
MSU  
Dr. Sanaz Shafian  
University of Idaho |
| PDP20-002    | Farmland for the Next Generation Training in the Pacific Northwest            | $74,903      | Addie Candib  
American Farmland Trust |
PDP20-003  The Soil Life Short Course: Empowering Ag Professionals to Recognize, Quantify, and Conserve Beneficial Soil Animals  $64,985  Eric Mader  The Xerces Society  Stephanie Frischie  The Xerces Society  Eric Lee-Mäder  The Xerces Society  Corin Pease  The Xerces Society

WPDP19-10  Enhancing the Understanding of Opportunities for Nutrient Recycling and Food Safety in the Pacific and Mountain Northwest  $75,000  Dr. Joe Harrison  Washington State University  Thomas Bass  Montana State University  Dr. Lide Chen  University of Idaho  Doug Collins  WSU  Dr. April Leytem  USDA ARS Northwest Irrigation and Soils Research  Dr. Rhonda Miller  WSARE  Dr. Ruijun Qin  Oregon State University  Elizabeth Whitefield  Washington State University Extension

WPDP19-22  Advancing expertise in Honey Bee Stock Improvement Techniques: Stock Selection, Germplasm Cryopreservation and Instrumental Insemination  $71,500  Dr. Walter Sheppard  Department of Entomology, Washington State University  Susan Cobey  Washington State University  Dr. Brandon Hopkins  Washington State University  Dr. Timothy Lawrence  Washington State University

WPDP19-23  Guiding Farmers to Legal Resiliency through Farm Law Education for Washington Ag Professionals  $16,362  Rachel Armstrong  Farm Commons  Libby Reed  SnoValley Tilth
WPDP19-09  Inland Northwest Pasture Calendar for Agricultural Professionals $74,623 Dr. Steve Fransen, PhD Washington State University Sergio Arispe, PhD Oregon State University Mylen Bohle Oregon State University Brendan Braze Oregon State University USANRCS Tim Deboodt Oregon State University Scott Duggan Oregon State University Richard Fleenor USANRCS Leticia Henderson Oregon State University Tipton Hudson Washington State University Scott Jensen University of Idaho Rich Koenig, PhD Washington State University Dr. Don Llewellyn Washington State University Extension Ian McGregor, M.S. Oregon State University, Klamath Basin Research and Extension Ce J. Shannon Neibergs Washington State University Steve Norberg, PhD Washington State University Cory Owens, M.S. Natural Resources Conservation Service Glenn Shewmaker University of Idaho Guojie Wang Oregon State University - Eastern Oregon Agricultural Research C Carmen Willmore University of Idaho Extension

WPDP19-05  In-Service Training for Biodegradable Mulch $74,580 Dr. Carol Miles WSU Mount Vernon NWREC

EW18-016  Healthy Soil, Healthy Region $67,692 Leslie Michel Okanogan Conservation District

EW17-021  Westside Pasture Calendar for Agricultural Professionals in the Pacific Northwest (PNW) $74,555 Dr. Steve Fransen, PhD Washington State University

EW16-021  Climate Adaptation Training for Foresters $58,461 Kirk Hanson Northwest Natural Resource Group

EW15-012  Implications of Water Impacts from Climate Change: Preparing Agricultural Educators and Advisors in the Pacific Northwest $75,000 Dr. Joe Harrison Washington State University

EW12-026  Technical Service Provider Training to Improve Services for Family Forest Landowners $43,874 Lindsay Malone Northwest Natural Resource Group

EW11-019  Forage and Pasture Educational Program for Professionals in the Northwest $71,058 Glenn Shewmaker University of Idaho
**EW10-016**  
Forestry Certification Training for Agency Field Staff  
$48,000  
Lindsay Malone  
Northwest Natural Resource Group

**EW10-017**  
Organic Seed, Soils, and Sustainable Business: Three Intensives and an Online Tutorial  
$76,712  
Micaela Colley  
Organic Seed Alliance

**EW08-005**  
Training and Connecting Agricultural Professionals Through an Immersion Field Course and the Cultivating Success Instructor Training Program in Washington  
$29,599  
Catherine Perillo  
Washington State University

**EW07-009**  
Western Region Dairy Odor and Air Quality Education  
$89,236  
Dr. Pius Ndegwa  
Washington State University

**EW04-015**  
Sustainable Small-Acreage Farming from Field to Table  
$57,220  
Debra Kollock  
WSU Stevens County Extension

**EW03-003**  
Feeding Management in Nutrition and Nutrient Management for Livestock & Poultry Professionals  
$99,635  
Lynn Vanwieringen  
Washington State University

**EW02-003**  
Sustainable Agriculture and Education Grant  
$19,500  
Judy Janett  
Washington Ag in the Classroom  
John Brugger  
USDA Rural Business Cooperative Service  
Shirz Vira  
USDA NRCS  
Cheryl Dehaan  
Whatcom Farm Friends  
Diane Gasaway  
Northwest Cooperative Development Center

**EW01-006**  
Noxious Weed Control Through Multi-Species Grazing  
$64,501  
Dr. Donald D. Nelson  
Washington State University

**EW98-008**  
Organic Food Production and Marketing — Educational Resource Development  
$19,100  
Leslie Zenz  
Washington State Dept. of Ag.

**EW98-009**  
Alternative Crops for Dryland Agriculture in the Intermountain Pacific Northwest  
$67,500  
Edward Adams  
Washington State University Cooperative Extension

**EW96-004**  
Extension Faculty Learning with Farmers – A Seminar Series on Sustainable Agriculture  
$36,424  
Diana Roberts, PhD  
WSU Extension

**EW96-006**  
Organic Food Production and Marketing - Tours and Resource Guide  
$17,050  
Leslie Zenz  
Washington State Dept. of Ag.

**FARMER/RANCHER 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>
| FW22-389  | Investigating the Addition of Clay to Feedstocks for Increased Nutrient Density and Carbon Stabilization in Compost | $24,745 | David Bill  
Midnight’s Farm |
| FW21-373  | Adoption of Rootstocks for Sustainable Wine Grape Production in Columbia Valley, Washington | $25,000 | Kevin Judkins  
Inland Desert Nusery, Inc. |
| FW21-374  | Ecological and Economic Impacts of Transition to an Apple/Hay Agroforestry System | $24,818 | Nichlos Pate  
Raising Cane Ranch |
FW20-360  Minimizing inputs with fall seeded cover crop mixes in the high precipitation zone of the Palouse Region  $19,998  Frank Wolf  Lester Wolf Farms, Inc.

FW20-362  Manure and Pasture Management to Reduce Swine Parasites in Western Washington Organic Pastured Pork Production  $19,899  Katie & Matthew Pencke & McDermott Alluvial Farms

FW19-347  Sheep Grazing in Potato Production Systems  $16,300  Dr. Jessica Gigot  Harmony Fields

FW19-353  Optimizing Amendment and Seeding Rate for Heritage Spring Wheat Production in Western Washington  $19,432  Nathan Hodges  Barn Owl Bakery & Heritage Grains

FW18-030  Does More Diverse Plant Architecture in Pollinator Habitats Influence Native Pollinator and Beneficial Insect Abundance and Diversity?  $20,000  Susan Fluegel  Grey Duck Garlic, LLC

FW18-021  Evaluating the impact of aeration and over-seeding on soil health, forage quality and forage quantity in perennial hay pastures in Western Washington  $19,948  Adam Greene  Oak Knoll Farm

FW18-041  A rapid method to screen oyster broodstock for resistance to Ostreid Herpesvirus  $25,000  David Nisbet  Goosepoint Oyster Co.

FW18-039  Quantifying the impact of feed hydration and fermentation on poultry nutrition and farm economics  $19,814  Matt Steinman  Foothill Farms

FW17-015  Development of a Locally-Adapted Apple Rootstock for the Maritime Northwest  $13,988  Eric Lee-Mader  Eric Lee-Mader

FW16-020  Cryogenic Preservation of Oyster Gametes to Improve Hawaii and West Coast Oyster Stocks  $25,000  David Nisbet  Goosepoint Oyster Co.

FW15-024  Do Soil and Foliar Applied Minerals Improve Soil Health, Nutrient Density, and Flavor in organic Blueberries  $14,969  Larry Bailey  Clean Food Farm

FW15-044  Cover Crops for Hop Production in Semi-arid Yakima Valley, Washington  $15,144  Sarah Del Moro  Inland Desert Nursery

FW14-012  Natural predators as a means to limit wildlife damage at the dairy-fruit interface  $24,287  John Steensma  Steensma Dairy

FW12-035  Comparing Organic No till with Conventional Tillage methods when Direct Seeding Vegetables and Incorporating Cover Crops  $14,701  Gary Miller

FW12-074  Study and Control of Pseudomonas Syringae on Blueberry Plants  $14,120  Parmjit Uppal  Fraser Valley Packers (US) Inc.

FW10-062  NOP Compliant Antimicrobial Rinses on Leafy Greens and the Effect on Foodborne Pathogen Indicator Presence  $14,944  Dan Hulse  Tahoma Farms
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<th>Institution(s)</th>
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<tr>
<td>FW10-069</td>
<td>Cover cropping and seasonal landscape fabric mulch for weed and mummy berry control in organic blueberries</td>
<td>$12,138</td>
<td>Amy Turner, Mylind Fawcett</td>
<td>Blue Dog Farm, WSARE</td>
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<td>FW09-016</td>
<td>Local Farms, Health Kids — The Small-Scale, Sustainable Producer’s Role in This Legislatively Mandated Opportunity</td>
<td>$14,600</td>
<td>Laura Plaut</td>
<td>Common Threads Farm</td>
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<td>FW08-007</td>
<td>Integrated Nutrient Management for Small Swine and Sheep Production</td>
<td>$8,905</td>
<td>Bruce Dunlop</td>
<td>Lopez Island Farm</td>
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<td>FW07-008</td>
<td>Farm Duckweed Harvesting</td>
<td>$8,519</td>
<td>Jerry Darnall</td>
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<td>FW07-009</td>
<td>Leafy Spurge Management in Shrub Steppe Rangeland</td>
<td>$10,000</td>
<td>Craig Madsen</td>
<td>Healing Hooves LLC</td>
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<td>FW06-002</td>
<td>Evaluation of Digested Manure on Potatoes and Raspberries</td>
<td>$19,575</td>
<td>Darryl Vander Haak</td>
<td>Vander Haak Dairy</td>
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<td>FW06-007</td>
<td>Rhizoctonia and Soil Compaction Under Direct Seed</td>
<td>$6,894</td>
<td>Ron Jirava</td>
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<td>FW06-018</td>
<td>Evaluation of Environmentally Sustainable Methods to Control Dagger Nematode Infestation in Blueberry Production</td>
<td>$9,842</td>
<td>Michael White</td>
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<td>FW06-020</td>
<td>Strategies for Building Regional Markets for Pastured Poultry Growers</td>
<td>$11,360</td>
<td>Jamie Henneman</td>
<td>Lazy Lightning Ranch</td>
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<td>FW06-309</td>
<td>Organic Seed Producer Database</td>
<td>$15,960</td>
<td>Matthew Dillon</td>
<td>Organic Seed Alliance</td>
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<td>FW06-311</td>
<td>Youth Entrepreneurs in Agriculture</td>
<td>$7,739</td>
<td>Joan Vance</td>
<td>Washington State University</td>
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<td>FW06-325</td>
<td>On-farm Evaluation and Demonstration of Small-scale Biogas Technology</td>
<td>$20,000</td>
<td>Chad Kruger</td>
<td>Washington State University</td>
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<td>FW05-025</td>
<td>Determining the Feasibility of Compost Production from Agronomic Waste and Wood Byproducts through Mushroom Cultivation Techniques for the Small Farmer</td>
<td>$2,419</td>
<td>Christopher Tchudi</td>
<td>Fido's Farm</td>
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<td>FW04-006</td>
<td>Agricultural Science Class: Principles of Ecological Food Production</td>
<td>$7,441</td>
<td>Henning Sehmsdorf</td>
<td>S&amp;S Homestead Farm</td>
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<td>FW04-040</td>
<td>Mobile Poultry Processing Feasibility Study</td>
<td>$9,637</td>
<td>Louis Sukovaty</td>
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<td>FW04-105</td>
<td>Felted Wool for Orthotic Use</td>
<td>$10,382</td>
<td>Jayne Deardorff</td>
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<td>FW04-116</td>
<td>Producer, Retail, Consumer Demo Program for Fresh Pears</td>
<td>$14,907</td>
<td>Sherry Amos</td>
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<td>FW04-305</td>
<td>Bio-Intensive Forage and Hay Production</td>
<td>$7,499</td>
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<td>FW03-106</td>
<td>Application to Develop a Business Plan for a USDA-certified Mobile Livestock Unit</td>
<td>$14,988</td>
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<td>FW03-202</td>
<td>Controlling Flea Beetles in Arugula Using Traps and Sprays</td>
<td>$7,500</td>
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<td>FW03-308</td>
<td>Planned Grazing as a Means of Enhancing the Ecosystem and Improving Range for Big Game and Livestock</td>
<td>$5,000</td>
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<td>FW03-317</td>
<td>Use of Interseeding Grass Technology to Reduce Nitrate Concentration in New Seeding Grass Silage</td>
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<td>FW02-019</td>
<td>Mechanical Introduction of Soil Nutrients through a mulch layer</td>
<td>$12,400</td>
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<td>FW02-037</td>
<td>South Whidbey Tilth Forest Restoration for Sustainable Wildcraft Production</td>
<td>$3,000</td>
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<td>FW02-038</td>
<td>On-farm composting for residue management in Spokane County, WA</td>
<td>$14,992</td>
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<td>FW02-043</td>
<td>Alternative Crops to Sustain Native Alfalfa Pollinators</td>
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<td>FW01-019</td>
<td>Tilth-Agroforestry Niche Demonstration Project – Native Forest Restoration for Sustainable Wildcraft Production on the Farm</td>
<td>$4,500</td>
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<td>FW01-052</td>
<td>Application of Oyster Shell Mulch for Lavender Production</td>
<td>$6,000</td>
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<td>FW01-081</td>
<td>Sustainable Small-Scale Grain Raising</td>
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<td>FW00-014</td>
<td>On-Farm Biodiesel Production from Waste Vegetable Oil</td>
<td>$1,805</td>
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<td>FW00-022</td>
<td>Rotating Vessel Composter for Small Farms</td>
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<td>FW00-040</td>
<td>Alternative Crops No-Till Field Trials</td>
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<td>FW00-041</td>
<td>Demonstration Project to Promote Niche Farming in Heirloom Vegetable Varieties</td>
<td>$4,425</td>
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<td>FW99-013</td>
<td>Options for Asparagus Cover Crops</td>
<td>$3,817</td>
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<td>FW99-036</td>
<td>Managing Grasshoppers in Tree Fruit Using Pastured Poultry</td>
<td>$1,732</td>
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<td>FW99-063</td>
<td>Compost Thermal Subsidies in Commercial Passive Solar Greenhouse Design</td>
<td>$1,750</td>
<td>Rebecca Thistlewaite</td>
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<td>FW99-089</td>
<td>Harvesting Alternatives for Burdock as an Alternative Crop in an Organic Production System</td>
<td>$3,000</td>
<td>Del Wisdom</td>
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<td>FW98-002</td>
<td>Baby Corn-Alternative Crop for Southwest Washington</td>
<td>$3,460</td>
<td>Owen Schaffner</td>
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<td>FW98-067</td>
<td>Low Cost Vacuum Silage in the Pacific Northwest</td>
<td>$3,460</td>
<td>Tim Clark</td>
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<td>FW98-082</td>
<td>Alternative Techniques for Control of Apple Replant Disease</td>
<td>$3,200</td>
<td>Fred Barkley</td>
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<td>FW97-010</td>
<td>Bamboo Alternative Crop for Southwest Washington</td>
<td>$2,000</td>
<td>R.D. Northcraft</td>
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<td>FW97-019</td>
<td>Vegetation Management on Small Acreages Using Short Duration, Intensive, Rotational Grazing</td>
<td>$2,043</td>
<td>Terry Swagerty</td>
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<td>FW97-033</td>
<td>Release of the Predator Mite, Amblyseius fallacis to Control Spider Mites in Red Raspberries and Reduce Reliance on Pesticides</td>
<td>$1,850</td>
<td>Brian Cieslar Curt Mayberry Farm</td>
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<td>FW97-046</td>
<td>Dryland Corn Production in Columbia and Walla Walla Counties (WA)</td>
<td>$3,000</td>
<td>David Carlton</td>
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<td>FW97-051</td>
<td>Small Farm Harvest Labor Reduction Project</td>
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<td>Therese Critchley</td>
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<td>FW96-014</td>
<td>Improved Nitrogen Utilization and Herbicide Reduction Through Relay Intercropping</td>
<td>$4,230</td>
<td>Gene Tinkelberg</td>
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<td>FW96-016</td>
<td>Weed Control in Organic Apple Orchard</td>
<td>$2,550</td>
<td>Gary Holwegner</td>
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<td>FW96-041</td>
<td>Alternative Crop Production in a “Direct Seed Annual Crop Intense Rotation Program”</td>
<td>$4,400</td>
<td>Karl Kupers</td>
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<td>FW96-042</td>
<td>Carrot Rust Fly Control</td>
<td>$1,150</td>
<td>Betsie DeWreede</td>
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<td>FW96-055</td>
<td>Achieving Sustainability in San Juan County Hay Fields</td>
<td>$2,750</td>
<td>Julie Matthews</td>
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<td>FW96-067</td>
<td>Organic vs. Synthetic Fertilizer-Container Nursery Trials</td>
<td>$4,575</td>
<td>Nils Sundquist Sundquist Nursery</td>
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<td>FW95-008</td>
<td>Managing Riparian Areas with Remote Livestock Watering Facilities</td>
<td>$5,000</td>
<td>Craig Boesel</td>
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</table>
**FW95-057**  Intensive Grazing in Asian Pear Orchards  $899  R. Bruce Gregory  Mitchell Bay Farm & Nursery  

**FW95-100**  Relay/Cover Crop for Corn  $5,000  Jerry Van der Veen  

## GRADUATE STUDENT GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
| GW21-228  | Understanding the impact of the peaola microbiome on soil fertility, crop yield, and plant nitrogen content | $29,982 | Maren Friesen  
Washington State University  
Janice Parks  
Washington State University  |
| GW20-208  | Enhancing the Ecological and Socioeconomic Benefits of Silvopasture Systems in Washington State through Participatory Research and Education | $24,998 | Dr. Marcia Ostrom  
School of Environment, Washington State University  
Mark Batcheler  
Washington State University  
Lynne Carpenter-Boggs  
Washington State University  
Dr. Mark Swanson  
Washington State University  
Mark Batcheler  
Washington State University  |
| GW18-039  | Assessment of the Positive and Negative Effects of Earwigs in Apple Orchards | $17,875 | Dr. David Crowder  
Washington State University  
Robert Orpet  
Washington State University  |
| GW18-034  | Understanding the Molecular Basis of Plant Response to Organic Versus Conventional Fertilizer Using A Metatranscriptomic Approach | $25,000 | Amit Dhingra  
Washington State University  
Seanna Hewitt  
Washington State University  |
| GW18-152  | Rapid Estimation of Straw Residue Decomposition in Winter Wheat | $24,627 | Dr. Arron Carter  
Washington State University  
Nathan Nielsen  
Washington State University  |
| GW17-058  | Effects of Subsurface Micro-irrigation on Water Use Efficiency and Grapevine Growth | $25,000 | Dr. Pete Jacoby  
Washington State University  
Xiaochi Ma  
Washington State University  |
| GW17-019  | Biodegradable plastic mulches: performance, degradation, and impacts on agroecosystems | $23,063 | Markus Flury  
Washington State University  
Henry Sintim  
Washington State University  |
| GW17-021  | Introducing Organic Quinoa and Grain Cropping Systems in the Palouse | $24,979 | Dr. John Reganold  
Washington State University  
Rachel Wieme  
Washington State University  |
| GW17-025  | Evaluating the exclusion and non-target effects of shade netting on apple orchards | $23,678 | Dr. Elizabeth Beers  
Washington State University  
Adrian Marshall  
WSU Tree Fruit Research Extension Center  |
| GW16-021  | Identification of peony diseases in the Pacific Northwest and Alaska | $24,979 | Gary Chastagner  
Washington State University  
Andrea Garfinkel  
Washington State University  |
| GW16-033  | Assessing the effects of non-honeybee insects on pollination in diversified organic farms | $24,871 | Dr. David Crowder  
Washington State University  
Rachel Olsson  
Washington State University  |
<table>
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<tr>
<th>Project #</th>
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<th>Project Leaders</th>
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| GW16-055 | Seed Transmission and Management of White Leaf Spot and Light Leaf Spot Pathogens in Brassicas in the Pacific Northwest | $15,675      | Dr. Lindsey du Toit Washington State University  
                          |                                                |   | Shannon Carmody Washington State University |
                          |                                                |   | Cornelius Adewale Washington State University |
| GW15-022 | Promoting Native Bee Health and Pollination Services on Diversified Organic Produce Famis | $24,918      | Dr. David Crowder Washington State University  
                          |                                                |   | Elias Bloom Washington State University |
| GW14-011 | Old World Honey Bee Populations: A Genetic Resource for U.S. Honey Bee Breeding | $20,865      | Dr. Walter Sheppard Department of Entomology, Washington State University  
                          |                                                |   | Megan A. Taylor Washington State University |
| GW11-005 | Combining Trap Cropping with Companion Planting to Control the Crucifer Flea Beetle | $8,270       | William Snyder Washington State University  
                          |                                                |   | Joyce Parker Washington State University Department of Entomology |
                          |                                                |   | Dr. Ashfaq Sial Washington State University  
                          |                                                |   | Ashfaq Sial Washington State University |
| GW09-015 | Habitats and landscape interactions of tachinid parasitoids important in biological control of leafrollers (Lepidoptera: Tortricidae) in central Washington tree fruit | $11,910      | Vincent Jones Washington State University  
                          |                                                |   | Nik Wiman Washington State University Tree Fruit Research and Extension Center |
| GW09-021 | Sustainable root rot and soil management in raspberry                          | $17,628      | Thomas Walters Washington State University-NWREC  
                          |                                                |   | Jessica Gigt Washington State University |
| GW08-001 | Using Bluegrass Straw to Modulate the Elevated Dietary Crude Protein and Phosphorus Caused by Including Distillers Grains and Solubles in Dairy Diets | $14,914      | Ronald Kincaid Washington State University  
                          |                                                |   | Stacey Cobb Washington State University  
                          |                                                |   | Adrina Huisman Washington State University |
| GW08-005 | Characterization of soils properties associated with suppression of Fusarium wilt in spinach seed crops, and development of a quantitative molecular assay for Fusarium oxysporum f. sp. spinaciae. | $19,960      | Dr. Lindsey du Toit Washington State University  
                          |                                                |   | Emily Gatch Washington State University |
| GW06-011 | Soil Community Structure, Function, and Spatial Variation in an Organic Agroecosystem | $10,000      | Doug Collins WSU  
                          |                                                |   | Craig Cogger WSU Research and Extension Center |
| GW06-018 | Bluegrass Straw in Dairy Diets to Enhance Environmental Quality                | $9,920       | Ronald Kincaid Washington State University  
                          |                                                |   | Elizabeth O’Rourke Washington State University |
| GW06-021 | IPM and Biological Control of Meloidogyne chitwoodi and the Colorado Potato Beetle | $10,000      | Ekaterini Riga Washington State University  
<pre><code>                      |                                                |   | Donna Henderson Washington State University |
</code></pre>
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<tr>
<th>Project Code</th>
<th>Description</th>
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<th>Principal Investigator(s)</th>
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| OW19-342     | Investigating the elasticity of biochar: manure handling, compost feedstock, soil amendment and carbon storage. | $49,988   | Dr. Nathan Stacey  
Washington State University  
Doug Collins  
WSU  
Alana Siegner  
University of California, Berkeley |
| OW19-350     | Seedling Release and Young-Stand Thinning as a Way to Increase Forest Health and Production | $49,884   | Kirk Hanson  
Northwest Natural Resource Group  
Lindsay Malone  
Northwest Natural Resource Group |
| OW18-018     | Surveying the distribution of introduced wireworms in Washington State and evaluating trap cropping as a low-cost management option | $49,576   | Dr. Brook Brouwer  
Washington State University Extension |
| OW17-051     | Sustainable Crop-Livestock Integration for the System Health in the Dryland Inland Pacific Northwest | $47,344   | Leslie Michel  
Okanogan Conservation District |
| OW15-008     | Optimizing nitrogen management on organic and biologically-intensive farms | $49,997   | Doug Collins  
WSU |
| OW14-003     | Accelerating Adoption of Sustainable Practices for Small Forest Producers | $47,167   | Lindsay Malone  
Northwest Natural Resource Group |
| OW12-030     | Companion and Cover Cropping for Eastern Washington Dryland Grain Farms | $49,986   | Diana Roberts, PhD  
WSU Extension |
| OW11-315     | Composted Horse Manure and Stall Bedding Pilot Project | $39,410   | Caitlin Price Youngquist  
Snohomish Conservation District |
| OW10-310     | Sustainable Alternatives to the Conservation Reserve Program (CRP) | $50,000   | Dr. Donald D. Nelson  
Washington State University  
Stephen Van Vleet  
WSU |
| FW03-302     | Determination of Whole Farm Nutrient Flows on a Dairy Operation | $6,000    | Dr. Joe Harrison  
Washington State University |

**Total funding from the USDA SARE program to Washington**  
$11,628,924

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).