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 $410 million to more than 8,827 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 Washington

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

$4,503,371 in total funding

41 grant project

(since 1988)

For more information on these projects, see sare.org/projects, and search for project number OW17-051.

Project Highlight: Sustainable Crop-Livestock Integration for the System Health in the Dryland Inland Pacific Northwest

In north-central Washington, along the Canadian border, dryland wheat production has been the dominate production system for a century using a wheat-fallow rotation. Some wheat producers use direct-seed tillage to improve soil health, but that can lead to increased pesticide and herbicide use. Producers are interested in economically sustainable strategies for reducing pesticide use and further improving soil health. Leslie Michel, Washington Department of Agriculture wanted to experiment with a more biologically intensive and sustainable management system, integrating cover crops, and livestock to improve soil health, suppress weeds and reduce pesticide use.

She worked with five producers to integrate cover crops and cattle onto their fields before their wheat or other grain cash crops were grown. The results were encouraging but mixed. Most soil health parameters didn’t change significantly, and soil moisture was significantly lower in the grazed cover-cropped areas than the control plots. Despite that, plant-stand establishment and plant height in the following cash crop was the same and yields were similar. The cows and calves grazed on the cover-cropped plots did well. Since the trials, farmers continue to experiment with cover crops and grazing.

For more information on these projects, see sare.org/projects, and search for project number OW17-051.
SARE in Washington

Grants awarded
2019–2024

Total awards: **41 grants**
- 9 Farmer/Rancher
- 9 Research and Education
- 11 Professional Development Program
- 6 On Farm Research/Partnership
- 5 Graduate Student
- 1 Education Only

Total funding: **$4,503,371**
- $200,192 Farmer/Rancher
- $2,921,650 Research and Education
- $827,406 Professional Development Program
- $365,004 On Farm Research/Partnership
- $139,162 Graduate Student
- $49,957 Education Only

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:

- **7,829 farmers participated in a SARE-funded project**
- **1,164 farmers reported a change in knowledge, awareness, skills or attitude**
- **153 farmers changed a practice**

Learn about local impacts at: western.sare.org/sare-in-your-state/washington/

Photo credit: Faith Van De Putte

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/washington/ to learn more.

Chad Kruger
Center for Sustaining Agriculture & Natural Resources
(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 $12,946,970 grants to support 197 projects, including but not limited to, 50 research and/or education projects, 29 professional development projects and 76 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>
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<tbody>
<tr>
<td>SW24-004</td>
<td>Developing best practices for releasing lacewings in apples</td>
<td>$350,000</td>
<td>Dr. Rebecca Schmidt-Jeffris&lt;br&gt;USDA-ARS&lt;br&gt;Tianna DuPont&lt;br&gt;Washington State University Extension</td>
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<tr>
<td>SW24-007</td>
<td>Research, Education, and Network Development to Support Western Organic Flower Seed Production</td>
<td>$349,235</td>
<td>Micaela Colley&lt;br&gt;Organic Seed Alliance</td>
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<tr>
<td>SW23-951</td>
<td>Sweetpotatoes: Testing traits for increased market value and sustainable production for direct market farms in the maritime northwest</td>
<td>$313,125</td>
<td>Laurel Moulton&lt;br&gt;WSU Extension Regional Small Farms Program&lt;br&gt;Dr. Carol Miles&lt;br&gt;WSU Mount Vernon NWREC&lt;br&gt;Clea Rome&lt;br&gt;Washington State University</td>
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<tr>
<td>SW22-937</td>
<td>Water Quality Effects of Multifunctional Working Buffers for Seasonally Wet Farmland</td>
<td>$336,119</td>
<td>Carrie Brausieck&lt;br&gt;Snohomish Conservation District&lt;br&gt;Gwendolyn Hannam&lt;br&gt;Whidbey Island Conservation District</td>
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<tr>
<td>SW22-939</td>
<td>Pre and Postharvest Disease Management of Pome Fruit to Support an Expanding Organic Production in the Pacific Northwest</td>
<td>$349,612</td>
<td>Dr. Achour Amiri&lt;br&gt;Washington State University&lt;br&gt;Karina Gallardo&lt;br&gt;Washington State University</td>
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<tr>
<td>SW22-943</td>
<td>Forest-Cultivated Mushroom Production for Pacific Northwest Diversified Farms and Startups</td>
<td>$174,951</td>
<td>Justin O'Dea&lt;br&gt;Washington State University&lt;br&gt;Dr. Eric Jones&lt;br&gt;Oregon State University&lt;br&gt;Patrick Shults&lt;br&gt;Washington State University, ANR Extension Unit&lt;br&gt;Kevin Zobrist&lt;br&gt;Washington State University</td>
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<tr>
<td>Project Code</td>
<td>Title</td>
<td>Budget</td>
<td>Principal Investigators</td>
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<td>SW21-925</td>
<td>Genomic Selection as a Risk Management Tool for U.S. Dairies</td>
<td>$349,876</td>
<td>Dr. Holly Neibergs, Dr. Amber Adams-Progar, Dr. Joseph Dalton, J. Shannon Neibergs</td>
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<tr>
<td>SW21-926</td>
<td>Diversifying Northwestern fields and palates</td>
<td>$349,999</td>
<td>Dr. Kevin Murphy, Stephen Bramwell, Dr. Girish Ganjyal, Justin O'Dea</td>
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<tr>
<td>SW20-916</td>
<td>Wigging out, then wigging in: removing earwigs from stone fruit and augmenting them in pome fruit</td>
<td>$348,733</td>
<td>Dr. Rebecca Schmidt-Jeffris, Rick Hilton, Nathan Moses-Gonzales, Dr. Louis Nottingham, Dr. Ashley Thompson, Dr. Northfield Tobin</td>
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<tr>
<td>SW18-103</td>
<td>Ecological and Economic Benefit-Cost Comparison of Grazed and Ungrazed Prairie Land for Critical Species Protection in Western Washington</td>
<td>$248,229</td>
<td>Stephen Bramwell</td>
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<td>SW18-031</td>
<td>Exploring relationships between pollinators and canola on the Palouse</td>
<td>$207,134</td>
<td>Dr. David Crowder</td>
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<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</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</td>
</tr>
<tr>
<td>Grant Number</td>
<td>Project Title</td>
<td>Funding Amount</td>
<td>Principal Investigator(s)</td>
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</table>
| SW14-013     | Increasing adoption of reduced tillage strategies on organic vegetable farms in the maritime | $249,949       | Doug Collins  
|              |                                                                                 |                | WSU                                                           |
| SW12-122     | Soil Quality Assessment of Long-Term Direct Seed to Optimize Production         | $193,448       | James Harsh  
|              |                                                                                 |                | Ann Kennedy  
|              |                                                                                 |                | Washington State University/ARS                               |
| SW11-00B     | Evaluating the Western SARE Farmer/Rancher and AP Grant Programs: 2011 Survey Results from Grant recipients reflecting on their grant experience. | $22,035        | Dr.Danna L. Moore  
|              |                                                                                 |                | Social and Economic Sciences Research Center                   |
| SW11-072     | Selecting management practices and cover crops for reducing tillage, enhancing soil quality, and managing weeds in western WA | $196,626       | Doug Collins  
|              |                                                                                 |                | WSU                                                           |
| SW10-052     | Native Habitat Restoration, Sustainable IPM and Beneficial Insect Conservation   | $191,106       | Dr.David James  
|              |                                                                                 |                | Washington State University                                   |
| SW09-050     | Development of Organic Hop Production in the Pacific Northwest                  | $123,465       | Dr.Kevin Murphy  
|              |                                                                                 |                | Washington State University                                   |
| SW08-049     | Integration of Microbial Pesticides in Pome-Fruit Production in the Pacific Northwest | $120,598       | Lawrence Lacey  
|              |                                                                                 |                | USDA-ARS                                                     |
|              |                                                                                 |                | Peter Landolt  
|              |                                                                                 |                | USDA ARS                                                     |
| SW08-052     | Assessing habitat and dietary switching by predators in a cover crop system     | $121,092       | David Horton  
|              |                                                                                 |                | USDA-ARS                                                     |
| SW08-102     | Combining trap cropping and natural-chemical lures to attract and kill crucifer flea beetles | $191,868       | William Snyder  
|              |                                                                                 |                | Washington State University                                   |
| SW07-055     | A sustainable distribution and evaluation program for selected honey bee stocks in the Pacific Northwest | $172,938       | Dr.Walter Sheppard  
|              |                                                                                 |                | Department of Entomology, Washington State University          |
| SW07-503     | Supplemental R&E Funding from Innovative SARE Coordinator Programs             | $24,842        | Dr.Carol Miles  
|              |                                                                                 |                | WSU Mount Vernon NWREC                                         |
| SW06-013     | Enhancing Sustainability of Small Fruit Production in the Pacific Northwest Through Educating Producers on Consensus-derived Scouting and Decision-making Parameters | $170,929       | Craig MacConnell  
|              |                                                                                 |                | Washington State University                                   |
|              |                                                                                 |                | Colleen Burrows  
<p>|              |                                                                                 |                | WSU Whatcom County Extension                                   |</p>
<table>
<thead>
<tr>
<th>Project Code</th>
<th>Title</th>
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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>
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<tr>
<td>SW06-066</td>
<td>No-till Livestock-Grain Rotation for Diversified Farms</td>
<td>$125,122</td>
<td>Dave Huggins, USDA-ARS, Stephen Bramwell, Washington State University, Lynne Carpenter-Boggs, Washington State University</td>
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<tr>
<td>SW05-129</td>
<td>Oilseed Farm-to-Market Demonstration</td>
<td>$77,688</td>
<td>Kimberly Morse, Whitman Conservation District</td>
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<td>SW04-113</td>
<td>Interactions Among Organic Fertility, Mustard Green Manures, and Insect Biocontrol by Entomopathogenic Nematodes</td>
<td>$138,922</td>
<td>Ekaterini Riga, Washington State University, William Snyder, Washington State University</td>
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<tr>
<td>SW04-115</td>
<td>Producing Organic Vegetable Seed</td>
<td>$154,293</td>
<td>Matthew Dillon, Organic Seed Alliance</td>
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<tr>
<td>SW04-136</td>
<td>Rose habitats to enhance leafroller biological control in pome fruits</td>
<td>$105,149</td>
<td>Thomas Unruh, USDA-ARS</td>
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<tr>
<td>SW03-006</td>
<td>Implementing Noxious Weed Control Through Multi-Species Grazing</td>
<td>$187,935</td>
<td>Dr. Donald D. Nelson, Washington State University</td>
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<td>SW03-016</td>
<td>Farming for the Future: Cultivating the Next Generation of Farmers</td>
<td>$145,800</td>
<td>Brad Gaolach, Washington State University Extension, Dr. Marcia Ostrom, School of Environment, Washington State University</td>
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<tr>
<td>SW03-018</td>
<td>Mustard Green Manures for Potato Production</td>
<td>$45,653</td>
<td>Andrew McGuire, Washington State University Extension</td>
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<tr>
<td>SW03-040</td>
<td>Assessing Soil Quality in Intensive Organic Management Systems</td>
<td>$107,696</td>
<td>David Granatstein, WSU Tree Fruit Research and Extension Center, Craig Cogger, WSU Research and Extension Center</td>
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<tr>
<td>SW03-046</td>
<td>Development and Implementation of Integrated Pest Management of Burrowing Shrimp on Washington State Commercial Oyster Beds</td>
<td>$179,064</td>
<td>Steven Booth, Willapa Bay Grays Harbor Oyster Growers / PSI</td>
</tr>
<tr>
<td>Grant Number</td>
<td>Project Title</td>
<td>Amount</td>
<td>Principal Investigator</td>
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<tr>
<td>SW03-101</td>
<td>Integrating Biological Control into Cole Crop Production in the Pacific Northwest</td>
<td>$63,841</td>
<td>William Snyder</td>
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<td>SW03-115</td>
<td>Riparian Buffers: Function, Management, and Economic Implications for Agriculture</td>
<td>$242,035</td>
<td>Jon Johnson</td>
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<td>SW01-039</td>
<td>Management of Perennial Wheat as a Sustainable Alternative Cropping System in the Pacific Northwest</td>
<td>$63,641</td>
<td>Stephen Jones</td>
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<td>SW00-020</td>
<td>Demonstrating, Evaluating, and Extending Diversified Direct-Seeded Cropping Systems for Grower Risk-Management in the Inland Northwest</td>
<td>$53,687</td>
<td>Diana Roberts, PhD</td>
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<tr>
<td>SW99-011</td>
<td>Enhancing biological control in mating disruption pear orchards by understory management</td>
<td>$110,497</td>
<td>David Horton</td>
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<tr>
<td>SW98-006</td>
<td>Hybrid Poplars in Natural Buffer Systems for Agricultural Pollution Reduction and Income Enhancement</td>
<td>$157,721</td>
<td>Barry C. Moore</td>
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<tr>
<td>SW97-011</td>
<td>Sustainable Crop Production Practices with Mixed Leguminous and Non-leguminous Cover Crops</td>
<td>$118,000</td>
<td>Shiou Kuo</td>
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<tr>
<td>SW97-034</td>
<td>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</td>
<td>$125,842</td>
<td>Tim Veseth</td>
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<tr>
<td>SW97-043</td>
<td>Building Community Support for Agriculture on the Urban Edge</td>
<td>$113,000</td>
<td>Dyvon Havens</td>
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<td>SW94-008</td>
<td>Fall-Planted Cover Crops in Western Washington: A Model for Sustainability Assessment</td>
<td>$80,000</td>
<td>Wilbur Anderson</td>
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</table>
### PROFESSIONAL DEVELOPMENT PROGRAM GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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<tr>
<td>SW94-023</td>
<td>Apple Production Without the Input of Neuroactive Insecticides</td>
<td>$268,000</td>
<td>Jay F. Brunner Washington State University</td>
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<tr>
<td>LW89-017</td>
<td>Silvopastoral Alternatives for Fruit Growers</td>
<td>$65,641</td>
<td>Linda Hardesty, Ph.D Washington State University</td>
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<tr>
<td>LW88-002</td>
<td>Options to Enhance the Sustainability of Dryland Cereal Cropping in the Northwest</td>
<td>$470,000</td>
<td>David Granatstein WSU Tree Fruit Research and Extension Center</td>
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<tr>
<td>WPDP24-013</td>
<td>Creating an Online Toolbox for Understanding and Communicating Artificial Intelligence within Sustainable Agriculture</td>
<td>$99,982</td>
<td>Georgine Yorgey Center for Sustaining Agriculture &amp; Natural Resources</td>
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<td>Gwen-Alyn Hoheisel Washington State University</td>
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<td>Jordan Jobe Washington State University</td>
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<td>Dr.Alex Kirkpatrick, PhD Center for Sustaining Agriculture &amp; Natural Resources, WSU</td>
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<td>Chad Kruger Washington State University</td>
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<td>WPDP24-018</td>
<td>Enabling Smart Users of Big Landscapes with Stocksmart, a Decision Support Tool for Rangeland Professionals</td>
<td>$99,106</td>
<td>Tipton Hudson Washington State University</td>
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<td>Sonia Hall Washington State University</td>
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<td>Matt Rahr Univ. of Arizona</td>
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<td>WPDP21-030</td>
<td>Visualizing Microbial Agroecology</td>
<td>$100,000</td>
<td>Maren Friesen Washington State University</td>
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<td>Dr.Douglas Finkelnburg University of Idaho</td>
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<td>Dr.Christina Hagerty Oregon State University</td>
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<td>Dr.Clain Jones Montana State University</td>
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<td>Carol McFarland Farmers Network</td>
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<td>Marissa Porter John I Haas Inc</td>
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<td>Dr.haiying tao University of Connecticut</td>
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<td>WPDP21-008</td>
<td>Digital Agriculture Training Workshop: Managing Input Using On-farm Data</td>
<td>$76,365</td>
<td>Dr.haiying tao University of Connecticut</td>
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<td>Drew Lyon MSU</td>
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<td>Bruce Maxwell University</td>
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<td>Dr.Sanaz Shafian University of Idaho</td>
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<td>Title</td>
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<td>Leaders</td>
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<td>PDP20-002</td>
<td>Farmland for the Next Generation Training in the Pacific Northwest</td>
<td>$74,903</td>
<td>Addie Candib, American Farmland Trust</td>
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<td>PDP20-003</td>
<td>The Soil Life Short Course: Empowering Ag Professionals to Recognize, Quantify, and Conserve Beneficial Soil Animals</td>
<td>$64,985</td>
<td>Eric Mader, The Xerces Society, Stephanie Frischie, The Xerces Society, Eric Lee-Mäder, The Xerces Society, Corin Pease</td>
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<td>WPDP19-10</td>
<td>Enhancing the Understanding of Opportunities for Nutrient Recycling and Food Safety in the Pacific and Mountain Northwest</td>
<td>$75,000</td>
<td>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</td>
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<tr>
<td>WPDP19-22</td>
<td>Advancing expertise in Honey Bee Stock Improvement Techniques: Stock Selection, Germplasm Cryopreservation and Instrumental Insemination</td>
<td>$71,500</td>
<td>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</td>
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<td>WPDP19-23</td>
<td>Guiding Farmers to Legal Resiliency through Farm Law Education for Washington Ag Professionals</td>
<td>$16,362</td>
<td>Rachel Armstrong, Farm Commons, Libby Reed, SnoValley Tilth</td>
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</table>

- **PDP20-002**: Farmland for the Next Generation Training in the Pacific Northwest
- **PDP20-003**: The Soil Life Short Course: Empowering Ag Professionals to Recognize, Quantify, and Conserve Beneficial Soil Animals
- **WPDP19-10**: Enhancing the Understanding of Opportunities for Nutrient Recycling and Food Safety in the Pacific and Mountain Northwest
- **WPDP19-22**: Advancing expertise in Honey Bee Stock Improvement Techniques: Stock Selection, Germplasm Cryopreservation and Instrumental Insemination
- **WPDP19-23**: Guiding Farmers to Legal Resiliency through Farm Law Education for Washington Ag Professionals
<table>
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<tr>
<th>Project Code</th>
<th>Project Title</th>
<th>Funding</th>
<th>Project Lead(s)</th>
</tr>
</thead>
</table>
| WPDP19-09    | Inland Northwest Pasture Calendar for Agricultural Professionals               | $74,623   | Dr. Steve Fransen, PhD  
(Sergio Arispe, PhD  
Mylen Bohle  
Brendan Brazee  
USDA-NRCS  
Tim Deboodt  
Oregon State University  
Scott Duggan  
Oregon State University  
Richard Fleenor  
USDA-NRCS  
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 Center  
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 Center  
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) |
Climate Adaptation Training for Foresters $58,461 Kirk Hanson Northwest Natural Resource Group

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

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

Forage and Pasture Educational Program for Professionals in the Northwest $71,058 Glenn Shewmaker University of Idaho

Forestry Certification Training for Agency Field Staff $48,000 Lindsay Malone Northwest Natural Resource Group

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

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

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

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

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

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
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<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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<td>EW01-006</td>
<td>Noxious Weed Control Through Multi-Species Grazing</td>
<td>$64,501</td>
<td>Dr. Donald D. Nelson, Washington State University</td>
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<td>EW96-004</td>
<td>Extension Faculty Learning with Farmers - A Seminar Series on Sustainable Agriculture</td>
<td>$36,424</td>
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<td>FW24-017</td>
<td>Market Research for Market Readiness: upcycling pork organ meat into pet treats and pork fat into salve</td>
<td>$25,000</td>
<td>Katie Pencke, Alluvial Farms</td>
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<td>FW24-021</td>
<td>Investigating the Viability of Passive Aquaponics Systems: Sustainable Approaches to Eliminating External Heating Requirements</td>
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<td>Rachel Feston, Edible Acres</td>
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<td>FW22-389</td>
<td>Investigating the Addition of Clay to Feedstocks for Increased Nutrient Density and Carbon Stabilization in Compost</td>
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<td>FW21-373</td>
<td>Adoption of Rootstocks for Sustainable Wine Grape Production in Columbia Valley, Washington</td>
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<td>Kevin Judkins, Inland Desert Nusery, Inc.</td>
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<td>FW21-374</td>
<td>Ecological and Economic Impacts of Transition to an Apple/Hay Agroforestry System</td>
<td>$24,818</td>
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<td>FW20-360</td>
<td>Minimizing inputs with fall seeded cover crop mixes in the high precipitation zone of the Palouse Region</td>
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<td>FW20-362</td>
<td>Manure and Pasture Management to Reduce Swine Parasites in Western Washington Organic Pastured Pork Production</td>
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<td>FW19-347</td>
<td>Sheep Grazing in Potato Production Systems</td>
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<td>FW19-353</td>
<td>Optimizing Amendment and Seeding Rate for Heritage Spring Wheat Production in Western Washington</td>
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<td>FW18-030</td>
<td>Does More Diverse Plant Architecture in Pollinator Habitats Influence Native Pollinator and Beneficial Insect Abundance and Diversity?</td>
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<td>Susan Fluegel</td>
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<td>Evaluating the impact of aeration and over-seeding on soil health, forage quality and forage quantity in perennial hay pastures in Western Washington</td>
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<td>A rapid method to screen oyster broodstock for resistance to Ostreid Herpesvirus</td>
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<td>FW18-039</td>
<td>Quantifying the impact of feed hydration and fermentation on poultry nutrition and farm economics</td>
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<td>FW17-015</td>
<td>Development of a Locally-Adapted Apple Rootstock for the Maritime Northwest</td>
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<td>Cryogenic Preservation of Oyster Gametes to Improve Hawaii and West Coast Oyster Stocks</td>
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<td>FW15-024</td>
<td>Do Soil and Foliar Applied Minerals Improve Soil Health, Nutrient Density, and Flavor in organic Blueberries</td>
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<td>Cover Crops for Hop Production in Semi-arid Yakima Valley, Washington</td>
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<td>Natural predators as a means to limit wildlife damage at the dairy-fruit interface</td>
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<td>FW12-035</td>
<td>Comparing Organic No till with Conventional Tillage methods when Direct Seeding Vegetables and Incorporating Cover Crops</td>
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<td>Study and Control of Pseudomonas Syringae on Blueberry Plants</td>
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<td>NOP Compliant Antimicrobial Rinses on Leafy Greens and the Effect on Foodborne Pathogen Indicator Presence</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>
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<td>Integrated Nutrient Management for Small Swine and Sheep Production</td>
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<td>Leafy Spurge Management in Shrub Steppe Rangeland</td>
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<td>Evaluation of Digested Manure on Potatoes and Raspberries</td>
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<td>Rhizoctonia and Soil Compaction Under Direct Seed</td>
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<td>Evaluation of Environmentally Sustainable Methods to Control Dagger Nematode Infestation in Blueberry Production</td>
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<td>Strategies for Building Regional Markets for Pastured Poultry Growers</td>
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<td>FW06-309</td>
<td>Organic Seed Producer Database</td>
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<td>Youth Entrepreneurs in Agriculture</td>
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<td>On-farm Evaluation and Demonstration of Small-scale Biogas Technology</td>
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<td>Determining the Feasibility of Compost Production from Agronomic Waste and Wood Byproducts through Mushroom Cultivation Techniques for the Small Farmer</td>
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<td>Agricultural Science Class: Principles of Ecological Food Production</td>
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<td>FW04-040</td>
<td>Mobile Poultry Processing Feasibility Study</td>
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<td>Felted Wool for Orthotic Use</td>
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<td>Producer, Retail, Consumer Demo Program for Fresh Pears</td>
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<td>Application to Develop a Business Plan for a USDA-certified Mobile Livestock Unit</td>
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<td>Controlling Flea Beetles in Arugula Using Traps and Sprays</td>
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<td>Planned Grazing as a Means of Enhancing the Ecosystem and Improving Range for Big Game and Livestock</td>
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<td>Use of Interseeding Grass Technology to Reduce Nitrate Concentration in New Seeding Grass Silage</td>
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<td>South Whidbey Tilth Forest Restoration for Sustainable Wildcraft Production</td>
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<td>On-farm composting for residue management in Spokane County, WA</td>
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<td>Alternative Crops to Sustain Native Alfalfa Pollinators</td>
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<td>Tilth-Agroforestry Niche Demonstration Project - Native Forest Restoration for Sustainable Wildcraft Production on the Farm</td>
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<td>Application of Oyster Shell Mulch for Lavender Production</td>
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<td>Sustainable Small-Scale Grain Raising</td>
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<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>Alternative Crops No-Till Field Trials</td>
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<td>Demonstration Project to Promote Niche Farming in Heirloom Vegetable Varieties</td>
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<td>Options for Asparagus Cover Crops</td>
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<td>Managing Grasshoppers in Tree Fruit Using Pastured Poultry</td>
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<td>Compost Thermal Subsidies in Commercial Passive Solar Greenhouse Design</td>
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<td>Harvesting Alternatives for Burdock as an Alternative Crop in an Organic Production System</td>
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<td>Low Cost Vacuum Silage in the Pacific Northwest</td>
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<td>Alternative Techniques for Control of Apple Replant Disease</td>
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<td>Release of the Predator Mite, Amblyseius fallacis to Control Spider Mites in Red Raspberries and Reduce Reliance on Pesticides</td>
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FW96-055  Achieving Sustainability in San Juan County Hay Fields  $2,750  Julie Matthews

FW96-067  Organic vs. Synthetic Fertilizer- Container Nursery Trials  $4,575  Nils Sundquist  Sundquist Nursery

FW95-008  Managing Riparian Areas with Remote Livestock Watering Facilities  $5,000  Craig Boesel

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

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| GW24-013   | Tea Plant Propagation for Nursery Production                                  | $29,764      | Dr.Carol Miles  
                                                                                                                                                      |   |   | WSU Mount Vernon NWREC  
                                                                                                                                                      |   |   | Srijana Shrestha  
                                                                                                                                                      |   |   | Washington State University  
| GW23-245   | Overcoming Roadblocks to IPM Adoption in Washington Pears                     | $29,096      | Dr.Louis Nottingham  
                                                                                                                                                      |   |   | Washington State University  
                                                                                                                                                      |   |   | Molly Sayles  
                                                                                                                                                      |   |   | Washington State University  
| GW22-238   | Significance of seedborne Stemphylium vesicarium in Stemphylium leaf spot of spinach | $25,322      | Dr.Lindsey du Toit  
                                                                                                                                                      |   |   | Washington State University  
                                                                                                                                                      |   |   | Kayla Spawton  
                                                                                                                                                      |   |   | Washington State University, Northwestern Washington Research and Extension Center  
| 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  
Dr. 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  $24,954  
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

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

GW15-012  Climate-Sustaining Agriculture: Carbon Footprints of Organic and Conventional Onions and Wheat  $24,980  
Lynne Carpenter-Boggs  
Washington State University  
Cornelius Adewale  
Washington State University
GW15-022 Promoting Native Bee Health and Pollination Services on Diversified Organic Produce Famsi $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


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 Glgot WSU

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 Adriana 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
<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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<tbody>
<tr>
<td>GW06-021</td>
<td>IPM and Biological Control of Meloidogyne chitwoodi and the Colorado Potato Beetle</td>
<td>$10,000</td>
<td>Ekaterini Riga, Donna Henderson, Washington State University</td>
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<td>OW24-008</td>
<td>Using Native Forb Species to Enhance Forage Diversity for Livestock and Pollinators</td>
<td>$40,919</td>
<td>Walton Andrews, San Juan Islands Conservation District</td>
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<td>OW24-010</td>
<td>Assessing risk of False Blossom Disease and vector introduction and establishment to Washington and Oregon Cranberry Producing Regions</td>
<td>$74,527</td>
<td>Dr. Laura Kraft, Virginia Stockwell, USDA-ARS</td>
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<td>OW23-385</td>
<td>On-farm evaluation of shade cloth as a tool for reducing heat-related losses in tomato seed production</td>
<td>$74,757</td>
<td>Jared Zystro, Organic Seed Alliance</td>
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<td>OW23-386</td>
<td>Plant sap analysis as a diagnostic tool for winter wheat nutrient use efficiency</td>
<td>$74,929</td>
<td>Ryan Boylan, Palouse Conservation District</td>
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<td>OW19-342</td>
<td>Investigating the elasticity of biochar: manure handling, compost feedstock, soil amendment and carbon storage.</td>
<td>$49,988</td>
<td>Dr. Nathan Stacey, Doug Collins, Alana Siegner, Oregon State University, WSU, University of California, Berkeley</td>
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<td>OW19-350</td>
<td>Seedling Release and Young-Stand Thinning as a Way to Increase Forest Health and Production</td>
<td>$49,884</td>
<td>Kirk Hanson, Lindsay Malone, Northwest Natural Resource Group</td>
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<td>OW18-018</td>
<td>Surveying the distribution of introduced wireworms in Washington State and evaluating trap cropping as a low-cost management option</td>
<td>$49,576</td>
<td>Dr. Brook Brouwer, Washington State University Extension</td>
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<td>OW17-051</td>
<td>Sustainable Crop-Livestock Integration for the System Health in the Dryland Inland Pacific Northwest</td>
<td>$47,344</td>
<td>Leslie Michel, Okanogan Conservation District</td>
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<td>OW15-008</td>
<td>Optimizing nitrogen management on organic and biologically-intensive farms</td>
<td>$49,997</td>
<td>Doug Collins, WSU</td>
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<td>OW14-003</td>
<td>Accelerating Adoption of Sustainable Practices for Small Forest Producers</td>
<td>$47,167</td>
<td>Lindsay Malone, Northwest Natural Resource Group</td>
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Total funding from the USDA SARE program to Washington
$12,946,970

For further information on projects, contact Western SARE at (406) 994-4785 or wsare@montana.edu.
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