What is SARE?
Since 1988, the Sustainable Agriculture Research & Education (SARE) program has been the go-to USDA grants and outreach program for farmers, ranchers, researchers and educators who want to develop innovations that improve farm profitability, protect water and land, and revitalize communities. To date, SARE has awarded over $389 million to more than 8,542 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: Advancing the Frontier of Sustainable Agriculture in...
Washington

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

$12,492,230
in total funding

200 grant projects
(since 1988)

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

Total awards: 200 grants
- 51 Research and Education
- 27 Professional Development Program
- 74 Farmer/Rancher
- 12 On Farm Research/Partnership
- 26 Graduate Student
- 9 Research to Grass Roots
- 1 Education Only

Total funding: $12,492,230
- $8,301,718 Research and Education
- $1,643,435 Professional Development Program
- $735,565 Farmer/Rancher
- $589,038 On Farm Research/Partnership
- $533,724 Graduate Student
- $638,793 Research to Grass Roots
- $49,957 Education Only

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
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 $12,492,230 grants to support 197 projects, including but not limited to, 48 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.

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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</thead>
<tbody>
<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, WSU Extension Regional Small Farms Program, Dr.Carol Miles, WSU Mount Vernon NWREC, Clea Rome, 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, Snohomish Conservation District, Gwendolyn Hannam, Whidbey Island Conservation District</td>
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<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, Washington State University, Karina Gallardo, 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, Washington State University, Dr.Eric Jones, Oregon State University, Patrick Shults, Washington State University, ANR Extension Unit, Kevin Zobrist, Washington State University</td>
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<tr>
<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, Washington State University, Dr.Amber Adams-Progar, Washington State University, Dr.Joseph Dalton, University of Idaho, J. Shannon Neibergs, Washington State University</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, 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</td>
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<tr>
<td>Project Code</td>
<td>Title</td>
<td>Cost</td>
<td>Principal Investigators</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&lt;br&gt;USDA-ARS&lt;br&gt;Rick Hilton&lt;br&gt;Oregon State University&lt;br&gt;Nathan Moses-Gonzales&lt;br&gt;M3 Consulting Group&lt;br&gt;Dr. Louis Nottingham&lt;br&gt;Washington State University&lt;br&gt;Dr. Ashley Thompson&lt;br&gt;Oregon State University&lt;br&gt;Dr. Northfield Tobin&lt;br&gt;Washington State University</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&lt;br&gt;Washington State University</td>
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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&lt;br&gt;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&lt;br&gt;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&lt;br&gt;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&lt;br&gt;Ann Kennedy&lt;br&gt;Washington State University/ARS</td>
</tr>
<tr>
<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&lt;br&gt;Social and Economic Sciences Research Center</td>
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<tr>
<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&lt;br&gt;WSU</td>
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<tr>
<td>SW10-052</td>
<td>Native Habitat Restoration, Sustainable IPM and Beneficial Insect Conservation</td>
<td>$191,106</td>
<td>Dr. David James&lt;br&gt;Washington State University</td>
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<tr>
<td>SW09-050</td>
<td>Development of Organic Hop Production in the Pacific Northwest</td>
<td>$123,465</td>
<td>Dr. Kevin Murphy&lt;br&gt;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&lt;br&gt;USDA-ARS&lt;br&gt;Peter Landolt&lt;br&gt;USDA ARS</td>
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<tr>
<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&lt;br&gt;USDA-ARS</td>
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<tr>
<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&lt;br&gt;Washington State University</td>
</tr>
<tr>
<td>Project Number</td>
<td>Project Title</td>
<td>Amount</td>
<td>Principal Investigator(s)</td>
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</tbody>
</table>
| 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  
WSU Whatcom County Extension                                            |
| SW06-032       | Developing Role Models for Antibiotic Stewardship and Biosecurity on Dairy Farms | $125,145 | Ron Wohrle  
Tacoma Pierce County Health Dept  
Monica Raymond                                                                  |
| SW06-066       | 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                                               |
| SW05-129       | Oilseed Farm-to-Market Demonstration                                           | $77,688  | Kimberly Morse  
Whitman Conservation District                                                     |
| SW04-113       | 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                                                  |
| SW04-115       | Producing Organic Vegetable Seed                                               | $154,293 | Matthew Dillon  
Organic Seed Alliance                                                           |
| SW04-136       | Rose habitats to enhance leafroller biological control in pome fruits         | $105,149 | Thomas Unruh  
USDA-ARS                                                                    |
| SW03-006       | Implementing Noxious Weed Control Through Multi-Species Grazing               | $187,935 | Dr. Donald D. Nelson  
Washington State University                                                   |
| SW03-016       | 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                            |
| SW03-018       | Mustard Green Manures for Potato Production                                   | $45,653  | Andrew McGuire  
Washington State University Extension                                             |
| SW03-040       | 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                                               |
| SW03-046       | Development and Implementation of Integrated Pest Management of Burrowing Shrimp on Washington State Commercial Oyster Beds | $179,064 | Steven Booth  
Willapa Bay Grays Harbor OysterGrowers / PSI                                    |
| SW03-101       | Integrating Biological Control into Cole Crop Production in the Pacific Northwest | $63,841  | William Snyder  
Washington State University                                                     |
Riparian Buffers: Function, Management, and Economic Implications for Agriculture

$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

Sustainable Crop Production Practices with Mixed Leguminous and Non-leguminous Cover Crops

$188,000

Shiou Kuo
Washington State University (WSU) Research and Extension Center

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

$125,842

Tim Veseth
Washington State University, Dept. of Crop and Soil Sciences

Building Community Support for Agriculture on the Urban Edge

$113,000

Dyvon Havens
WSU/Skagit County Cooperative Extension

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

$59,448

Fenton P. Wilkinson

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

$80,000

Wilbur Anderson
Washington State University (WSU), Puyallup Research and Extension Center

Apple Production Without the Input of Neuroactive Insecticides

$268,000

Jay F. Brunner
Washington State University

Silvopastoral Alternatives for Fruit Growers

$65,641

Linda Hardesty, Ph.D
Washington State University

Options to Enhance the Sustainability of Dryland Cereal Cropping in the Northwest

$470,000

David Granatstein
WSU Tree Fruit Research and Extension Center

Project #

Project Title

SARE Support

Project Leaders

WRGR23-002
Building Access to Growing Mushrooms with the Squaxin Island Tribe

$71,126

Jade Frolic
Metamimicry
Mack Kleiva
Metamimicry

WRGR23-004
Supporting transition to integrated pest management in pear and apple with education and training in European earwig releases

$100,000

Dr.Robert Orpet
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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</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 Sci  
Tami Miketa  
Washington Department of Natural Resources Small Forest Landowne |
| 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 De  
Sarah Moorehead  
Thurston Conservation District  
Mary Root |
| WRGR21-003 | Increasing Farm Resiliency Through Implementing and Modeling Pollinator Habitat | $84,480      | 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 |
| RGR20-005  | The Soil Health Stewards: Establishing a Producer-Driven Soil Health Research Network in Northeastern Washington | $70,583      | Dean Hellie  
Stevens County Conservation District  
Alex Case-Cohen  
Pend Oreille Conservation District  
Dave Hedrick  
Ferry Conservation District  
Charlie Kessler  
Stevens County Conservation District  
Leslie Michel  
Washington State Department of Agriculture |
| WRGR19-02  | On-Farm Cover Crop Use, Evaluation, and Data Sharing with the Western Cover Crop Council | $49,983      | Doug Collins  
WSU  
Nick Andrews  
Oregon State University  
Lauren Golden  
University of Idaho  
Clare Sullivan  
Oregon State University |
| WRGR19-04  | The Peri-urban Agriculture Network: Strategies for Agricultural Viability in Urbanizing and High Land-Use-Pressure Regions | $49,928      | Justin O’Dea  
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
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-Mader
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
<table>
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<th>Project Title</th>
<th>Amount</th>
<th>Principal Investigator</th>
<th>Institution</th>
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</thead>
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<tr>
<td>WPDP19-09</td>
<td>Inland Northwest Pasture Calendar for Agricultural Professionals</td>
<td>$74,623</td>
<td>Dr. Steve Fransen, PhD</td>
<td>Washington State University</td>
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<td></td>
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<td>Sergio Arispe, PhD</td>
<td>Oregon State University</td>
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<td>Mylen Bohle</td>
<td>Oregon State University</td>
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<td>Brendan Braze</td>
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<td>Tim Deboodt</td>
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<td>Scott Duggan</td>
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<td>Leticia Henderson</td>
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<td>Tipton Hudson</td>
<td>Washington State University</td>
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<td>Scott Jensen</td>
<td>University of Idaho</td>
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<td>Rich Koening, PhD</td>
<td>Washington State University</td>
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<td>Dr. Don Llewellyn</td>
<td>Washington State University Extension</td>
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<td>Ian McGregor, M.S.</td>
<td>Oregon State University, Klamath Basin Research and Extension Ce</td>
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<td>J. Shannon Neibergs</td>
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<td>Steve Norberg, PhD</td>
<td>Washington State University</td>
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<td>Cory Owens, M.S.</td>
<td>Natural Resources Conservation Service</td>
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<td>Guojie Wang</td>
<td>University of Idaho - Eastern Oregon Agricultural Research C</td>
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<td>Carmen Willmore</td>
<td>University of Idaho Extension</td>
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<td>WPDP19-05</td>
<td>In-Service Training for Biodegradable Mulch</td>
<td>$74,580</td>
<td>Dr. Carol Miles</td>
<td>WSU Mount Vernon NWREC</td>
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<tr>
<td>EW18-016</td>
<td>Healthy Soil, Healthy Region</td>
<td>$67,692</td>
<td>Leslie Michel</td>
<td>Okanogan Conservation District</td>
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<td>EW17-021</td>
<td>Westside Pasture Calendar for Agricultural Professionals in the Pacific Northwest (PNW)</td>
<td>$74,555</td>
<td>Dr. Steve Fransen, PhD</td>
<td>Washington State University</td>
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<td>EW16-021</td>
<td>Climate Adaptation Training for Foresters</td>
<td>$58,461</td>
<td>Kirk Hanson</td>
<td>Northwest Natural Resource Group</td>
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<td>EW15-012</td>
<td>Implications of Water Impacts from Climate Change: Preparing Agricultural Educators and Advisors in the Pacific Northwest</td>
<td>$75,000</td>
<td>Dr. Joe Harrison</td>
<td>Washington State University</td>
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<tr>
<td>EW12-026</td>
<td>Technical Service Provider Training to Improve Services for Family Forest Landowners</td>
<td>$43,874</td>
<td>Lindsay Malone</td>
<td>Northwest Natural Resource Group</td>
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<td>EW11-019</td>
<td>Forage and Pasture Educational Program for Professionals in the Northwest</td>
<td>$71,058</td>
<td>Glenn Shewmaker</td>
<td>University of Idaho</td>
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<tr>
<td>Project #</td>
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<td>Project Leaders</td>
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</table>
| 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**

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<tr>
<th>Project #</th>
<th>Project Title</th>
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<th>Project Leaders</th>
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</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  
Frank Wolf  
Lester Wolf Farms

FW20-362  Manure and Pasture Management to Reduce Swine Parasites in Western Washington Organic Pastured Pork Production  
Katie Pencke  
Alluvial Farms

FW19-347  Sheep Grazing in Potato Production Systems  
Dr. Jessica Gigot  
Harmony Fields

FW19-353  Optimizing Amendment and Seeding Rate for Heritage Spring Wheat Production in Western Washington  
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?  
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  
Adam Greene  
Oak Knoll Farm

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

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

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

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

Larry Bailey  
Clean Food Farm

FW15-044  Cover Crops for Hop Production in Semi-arid Yakima Valley, Washington  
Sarah Del Moro  
N/A

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

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

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

FW10-062  NOP Compliant Antimicrobial Rinses on Leafy Greens and the Effect on Foodborne Pathogen Indicator Presence  
Dan Hulse  
Tahoma Farms
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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</td>
<td>Blue Dog Farm</td>
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<td>Mylind Fawcett</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>
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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>
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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>
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<td>FW06-309</td>
<td>Organic Seed Producer Database</td>
<td>$15,960</td>
<td>Matthew Dillon</td>
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<td>FW06-311</td>
<td>Youth Entrepreneurs in Agriculture</td>
<td>$7,739</td>
<td>Joan Vance</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>
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<td>FW04-040</td>
<td>Mobile Poultry Processing Feasibility Study</td>
<td>$9,637</td>
<td>Louis Sukovaty</td>
<td>Crown 'S' Ranch</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>
<td>Dr. Steve Fransen, PhD Washington State University</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>
<td>Carey Hunter</td>
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<td>FW03-202</td>
<td>Controlling Flea Beetles in Arugula Using Traps and Sprays</td>
<td>$7,500</td>
<td>Andrew Stout Full Circle Farm</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>
<td>Doug Warnock Solar $</td>
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<td>FW03-317</td>
<td>Use of Interseeding Grass Technology to Reduce Nitrates in New Seeding Grass Silage</td>
<td>$6,000</td>
<td>Dr. Joe Harrison Washington State University</td>
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<td>FW02-019</td>
<td>Mechanical Introduction of Soil Nutrients through a mulch layer</td>
<td>$12,400</td>
<td>Peter Savage</td>
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<td>FW02-037</td>
<td>South Whidbey Tilth Forest Restoration for Sustainable Wildcraft Production</td>
<td>$3,000</td>
<td>Michael Seraphinoff South Whidbey Tilth</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>
<td>David Ostheller</td>
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<td>FW02-043</td>
<td>Alternative Crops to Sustain Native Alfalfa Pollinators</td>
<td>$4,500</td>
<td>Mark Wagoner</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>
<td>Mike Reichner WSU Coop Ext.</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>
<td>Joseph Gabiou</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>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>
<td>Mark Miller</td>
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<td>FW99-036</td>
<td>Managing Grasshoppers in Tree Fruit Using Pastured Poultry</td>
<td>$1,732</td>
<td>Terry Swagerty</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>
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<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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<tr>
<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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| FW97-033    | Release of the Predator Mite, Amblyseius fallacis to Control Spider Mites in Red Raspberries and Reduce Reliance on Pesticides | $1,850    | Brian Cieslar  
|             | Curt Mayberry Farm                                                         |           |               |
| FW97-046    | Dryland Corn Production in Columbia and Walla Walla Counties (WA)            | $3,000    | David Carlton |
| FW97-051    | Small Farm Harvest Labor Reduction Project                                   | $2,500    | Therese Critchley |
| FW96-014    | Improved Nitrogen Utilization and Herbicide Reduction Through Relay Intercropping | $4,230    | Gene Tinkelberg |
| FW96-016    | Weed Control in Organic Apple Orchard                                        | $2,550    | Gary Holwegner |
| FW96-041    | Alternative Crop Production in a “Direct Seed Annual Crop Intense Rotation Program” | $4,400    | Karl Kupers |
| FW96-042    | Carrot Rust Fly Control                                                     | $1,150    | Betsie DeWreede |
| 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 |

* FW99-063: Compost Thermal Subsidies in Commercial Passive Solar Greenhouse Design by Rebecca Thistlewaite (Budget: $1,750)
* FW99-089: Harvesting Alternatives for Burdock as an Alternative Crop in an Organic Production System by Del Wisdom (Budget: $3,000)
* FW98-002: Baby Corn-Alternative Crop for Southwest Washington by Owen Schaffner (Budget: $3,460)
* FW98-067: Low Cost Vacuum Silage in the Pacific Northwest by Tim Clark (Budget: $3,460)
* FW98-082: Alternative Techniques for Control of Apple Replant Disease by Fred Barkley (Budget: $3,200)
* FW97-010: Bamboo Alternative Crop for Southwest Washington by R.D. Northcraft (Budget: $2,000)
* FW97-019: Vegetation Management on Small Acreages Using Short Duration, Intensive, Rotational Grazing by Terry Swagerty (Budget: $2,043)
* FW97-033: Release of the Predator Mite, Amblyseius fallacis to Control Spider Mites in Red Raspberries and Reduce Reliance on Pesticides by Brian Cieslar (Budget: $1,850)
* FW97-046: Dryland Corn Production in Columbia and Walla Walla Counties (WA) by David Carlton (Budget: $3,000)
* FW97-051: Small Farm Harvest Labor Reduction Project by Therese Critchley (Budget: $2,500)
* FW96-014: Improved Nitrogen Utilization and Herbicide Reduction Through Relay Intercropping by Gene Tinkelberg (Budget: $4,230)
* FW96-016: Weed Control in Organic Apple Orchard by Gary Holwegner (Budget: $2,550)
* FW96-041: Alternative Crop Production in a “Direct Seed Annual Crop Intense Rotation Program” by Karl Kupers (Budget: $4,400)
* FW96-042: Carrot Rust Fly Control by Betsie DeWreede (Budget: $1,150)
* FW96-055: Achieving Sustainability in San Juan County Hay Fields by Julie Matthews (Budget: $2,750)
* FW96-067: Organic vs. Synthetic Fertilizer-Container Nursery Trials by Nils Sundquist (Budget: $4,575)
* FW95-008: Managing Riparian Areas with Remote Livestock Watering Facilities by Craig Boesel (Budget: $5,000)
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| 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 |
| 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 Universityist  
                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 |
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<th>Grant Number</th>
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<td>GW16-021</td>
<td>Identification of peony diseases in the Pacific Northwest and Alaska</td>
<td>$24,979</td>
<td>Gary Chastagner, Andrea Garfinkel, Washington State University</td>
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<td>GW16-033</td>
<td>Assessing the effects of non-honeybee insects on pollination in diversified organic farms</td>
<td>$24,871</td>
<td>Dr. David Crowder, Rachel Olsson, Washington State University</td>
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<td>GW16-055</td>
<td>Seed Transmission and Management of White Leaf Spot and Light Leaf Spot Pathogens in Brassicas in the Pacific Northwest</td>
<td>$15,675</td>
<td>Dr. Lindsey du Toit, Shannon Carmody, Washington State University</td>
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<td>GW15-022</td>
<td>Promoting Native Bee Health and Pollination Services on Diversified Organic Produce Farms</td>
<td>$24,918</td>
<td>Dr. David Crowder, Elias Bloom, Washington State University</td>
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<td>GW11-005</td>
<td>Combining Trap Cropping with Companion Planting to Control the Crucifer Flea Beetle</td>
<td>$8,270</td>
<td>William Snyder, Joyce Parker, Washington State University Department of Entomology</td>
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<td>GW09-015</td>
<td>Habitats and landscape interactions of tachinid parasitoids important in biological control of leafrollers (Lepidoptera: Tortricidae) in central Washington tree fruit</td>
<td>$11,910</td>
<td>Vincent Jones, Nik Wiman, Washington State University Tree Fruit Research and Extension Center</td>
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<tr>
<td>GW09-021</td>
<td>Sustainable root rot and soil management in raspberry</td>
<td>$17,628</td>
<td>Thomas Walters, Jessica G. Got, Washington State University-NWREC</td>
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<td>GW08-001</td>
<td>Using Bluegrass Straw to Modulate the Elevated Dietary Crude Protein and Phosphorus Caused by Including Distillers Grains and Solubles in Dairy Diets</td>
<td>$14,914</td>
<td>Ronald Kincaid, Stacey Cobb, Washington State University</td>
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<td>GW08-005</td>
<td>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.</td>
<td>$19,960</td>
<td>Dr. Lindsey du Toit, Emily Catch, Washington State University</td>
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<td>GW06-011</td>
<td>Soil Community Structure, Function, and Spatial Variation in an Organic Agroecosystem</td>
<td>$10,000</td>
<td>Doug Collins, Craig Cogger, WSU Research and Extension Center</td>
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### ON FARM RESEARCH/PARTNERSHIP GRANTS

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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, Washington State University, Doug Collins, WSU, Alana Siegner, University of California, Berkeley</td>
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<tr>
<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, Northwest Natural Resource Group, 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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<td>OW12-030</td>
<td>Companion and Cover Cropping for Eastern Washington Dryland Grain Farms</td>
<td>$49,986</td>
<td>Diana Roberts, PhD, WSU Extension</td>
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<td>OW11-315</td>
<td>Composted Horse Manure and Stall Bedding Pilot Project</td>
<td>$39,410</td>
<td>Caitlin Price Youngquist, Snohomish Conservation District, Dr. Caitlin Youngquist, SnapLands</td>
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<td>OW10-310</td>
<td>Sustainable Alternatives to the Conservation Reserve Program (CRP)</td>
<td>$50,000</td>
<td>Dr. Donald D. Nelson, Washington State University, Stephen Van Vleet, WSU</td>
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<tr>
<td>FW03-302</td>
<td>Determination of Whole Farm Nutrient Flows on a Dairy Operation</td>
<td>$6,000</td>
<td>Dr. Joe Harrison, Washington State University</td>
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### EDUCATION ONLY 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>EDS19-13</td>
<td>Southern Organic Seed Summit</td>
<td>$49,957</td>
<td>Jared Zystro, Organic Seed Alliance</td>
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Total funding from the USDA SARE program to Washington
$12,492,230

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