What is SARE?

Since 1988, the Sustainable Agriculture Research & Education (SARE) program has been the go-to USDA grants and outreach program for farmers, ranchers, researchers and educators who want to develop innovations that improve farm profitability, protect water and land, and revitalize communities. To date, SARE has awarded over $359 million to more than 8,143 initiatives.

SARE is grassroots with far-reaching impact

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

SARE communicates results

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

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

Washington

Project Highlight: Fostering Better, More Sustainable Forests

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

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

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

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

SARE in Washington

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

$11,779,240 in total funding

193 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: **193 grants**
- 50 Research and Education
- 27 Professional Development Program
- 74 Farmer/Rancher
- 10 On Farm Research/Partnership
- 25 Graduate Student
- 7 Research to Grass Roots

Total funding: **$11,779,240**
- $7,988,593 Research and Education
- $1,643,435 Professional Development Program
- $735,565 Farmer/Rancher
- $439,352 On Farm Research/Partnership
- $504,628 Graduate Student
- $467,667 Research to Grass Roots

Find a complete list of projects on page 3.

SARE's Impact

- **53 percent** of producers report using a new production technique after reading a SARE publication.
- **79 percent** of producers said they improved soil quality through their SARE project.
- **64 percent** of producers said their SARE project helped them achieve higher sales.

Learn about local impacts at: [western.sare.org/sare-in-your-state/washington](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](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](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.
AGRICULTURE PROJECTS FUNDED IN
WASHINGTON
by USDA's
Sustainable Agriculture Research and Education (SARE) Program

Washington has been awarded $11,779,240 grants to support 190 projects, including but not limited to, 47 research and/or education projects, 27 professional development projects and 74 producer-led projects. Washington has also received additional SARE support through multi-state projects.

RESEARCH AND EDUCATION GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
</table>
| SW22-937   | Water Quality Effects of Multifunctional Working Buffers for Seasonally Wet Farmland | $336,119     | Carrie Brausieck
Snohomish Conservation District
Gwendolyn Hannam
Whidbey Island Conservation District |
| SW22-939   | Pre and Postharvest Disease Management of Pome Fruit to Support an Expanding Organic Production in the Pacific Northwest | $349,612     | Dr. Achour Amiri
Washington State University
Karina Gallardo
Washington State University |
| SW22-943   | Forest-Cultivated Mushroom Production for Pacific Northwest Diversified Farms and Startups | $174,951     | Justin O’Dea
Washington State University
Eric Jones
Oregon State University
Patrick Shulls
Washington State University, ANR Extension Unit
Kevin Zobrist
Washington State University |
| SW21-925   | Genomic Selection as a Risk Management Tool for U.S. Dairies                  | $349,876     | Dr. Holly Neibergs
Washington State University
Dr. Amber Adams-Progar
Washington State University
Dr. Joseph Dalton
University of Idaho
J. Shannon Neibergs
Washington State University |
| SW21-926   | Diversifying Northwestern fields and palates                                 | $349,999     | Dr. Kevin Murphy
Washington State University
Stephen Bramwell
WSU Dept. Crop and Soil Sciences
Dr. Girish Ganjyal
Washington State University - School of Food Science
Justin O’Dea
Washington State University |
| SW20-916   | Wigging out, then wigging in: removing earwigs from stone fruit and augmenting them in pome fruit | $348,733     | Dr. Rebecca Schmidt-Jeffris
USDA-ARS
Rick Hilton
Oregon State University
Nathan Moses-Gonzales
M3 Consulting Group
Dr. Louis Nottingham
Washington State University
Dr. Ashley Thompson
Oregon State University
Dr. Northfield Tobin
Washington State University |
<table>
<thead>
<tr>
<th>Project Code</th>
<th>Project Title</th>
<th>Budget</th>
<th>Principal Investigator</th>
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</table>
| SW18-103     | Ecological and Economic Benefit-Cost Comparison of Grazed and Ungrazed Prairie Land for Critical Species Protection in Western Washington | $248,229   | Stephen Bramwell  
WSU Dept. Crop and Soil Sciences |
| SW18-031     | Exploring relationships between pollinators and canola on the Palouse         | $207,134   | Dr. David Crowder  
Washington State University |
| SW16-013     | Bovine-avian interactions on dairies: improving cow welfare and farm economic stability by implementing effective and sustainable pest bird deterrence methods | $238,105   | Dr. Amber Adams-Progar  
Washington State University |
| SW15-061     | Developing Agronomic Strategies to Optimize Production of Quinoa and Hulless Barley on No-till Farms in the Palouse Region of Idaho and Washington | $223,119   | Dr. Kevin Murphy  
Washington State University |
| 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           | $121,092   | Dr. Carol Miles  
WSU Mount Vernon NWREC |
<table>
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<tr>
<th>Project Code</th>
<th>Project Title</th>
<th>Budget</th>
<th>Principal Investigator(s)</th>
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</thead>
</table>
| SW06-013    | Enhancing Sustainability of Small Fruit Production in the Pacific Northwest    | $170,929 | Craig MacConnell Washington State University  
|             | Through Educating Producers on Consensus-derived Scouting and Decision-making  |        | 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  
<p>|             |                                                                                |        | 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 Oyster Growers / PSI |
| SW03-101    | Integrating Biological Control into Cole Crop Production in the Pacific Northwest | $63,841 | William Snyder Washington State University |
| SW03-115    | Riparian Buffers: Function, Management, and Economic Implications for Agriculture | $242,035 | Jon Johnson Washington State University - Puyallup Res. &amp; Ext. |
| SW01-039    | Management of Perennial Wheat as a Sustainable Alternative Cropping System in the Pacific Northwest | $63,641 | Stephen Jones Crop and Soil Science Dept. WSU |</p>
<table>
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<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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</table>
| SW00-020  | 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       |
| SW99-011  | Enhancing biological control in mating disruption pear orchards by understory management | $110,497     | David Horton  
USDA-ARS          |
| SW98-006  | Hybrid Poplars in Natural Buffer Systems for Agricultural Pollution Reduction and Income Enhancement | $157,721     | Barry C. Moore  
Washington State University |
| SW97-011  | Sustainable Crop Production Practices with Mixed Leguminous and Non-leguminous Cover Crops | $118,000     | Shiou Kuo  
Washington State University (WSU)  
Research and Extension Center |
| SW97-034  | Enhancing No-Till and Conservation Farming Success Through the Use of Case Studies, Conferences, and Workshops to Facilitate Farmer to Farmer Learning in The Pacific Northwest | $125,842     | Tim Veseth  
Washington State University, Dept. of Crop and Soil Sciences |
| SW97-043  | Building Community Support for Agriculture on the Urban Edge                  | $113,000     | Dyvon Havens  
WSU/Skagit County Cooperative Extension |
| SW94-008  | 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 |
| SW94-023  | Apple Production Without the Input of Neuroactive Insecticides                | $268,000     | Jay F. Brunner  
Washington State University |
| LW89-017  | Silvopastoral Alternatives for Fruit Growers                                  | $65,641      | Linda Hardesty, Ph.D  
Washington State University |
| LW88-002  | Options to Enhance the Sustainability of Dryland Cereal Cropping in the Northwest | $470,000     | David Granatstein  
WSU Tree Fruit Research and Extension Center |

**RESEARCH TO GRASS ROOTS GRANTS**

<table>
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<tr>
<th>Project #</th>
<th>Project Title</th>
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<th>Project Leaders</th>
</tr>
</thead>
</table>
| WRGR22-009| Restoration and Resilience: Sustaining forest productivity in the face of current and emerging threats | $89,178      | Kirk Hanson  
Northwest Natural Resource Group  
Stacey Dixon  
Snohomish Conservation District  
Dr. Gregory Ettl  
University of Washington, School of Environmental and Forest Sci  
Tami Miketa  
Washington Department of Natural Resources Small Forest Landowne |
**Building a grassland grazing association to support conservation grazing on working lands in southwest WA**

**WRGR21-009**

- **SARE Support**: $80,000
- **Project Leaders**:
  - Dr. Sarah Hamman
  - Ecostudies Institute
  - Stephen Bramwell
  - WSU Dept. Crop and Soil Sciences
  - Marty Chaney
  - Natural Resources Conservation Service
  - Christina Chaput
  - Thurston County - Community Planning and Economic Development Department
  - Sarah Moorehead
  - Thurston Conservation District
  - Mary Root

**Increasing Farm Resiliency Through Implementing and Modeling Pollinator Habitat**

**WRGR21-003**

- **SARE Support**: $84,480
- **Project Leaders**:
  - Alison Nichols
  - Pierce Conservation District
  - Rusty Milholland
  - Washington Farmland Trust

**Beneficial Insects in the Vineyard**

**RGR20-001**

- **SARE Support**: $43,515
- **Project Leaders**:
  - Lynda Oosterhuis
  - Walla Walla County Conservation District

**The Soil Health Stewards: Establishing a Producer-Driven Soil Health Research Network in Northeastern Washington**

**RGR20-005**

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

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

**WRGR19-02**

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

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

**WRGR19-04**

- **SARE Support**: $49,928
- **Project Leaders**:
  - 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. Clay 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
Inland Northwest Pasture Calendar for Agricultural Professionals

WPDP19-09

$74,623

Dr. Steve Fransen, PhD
Washington State University
Sergio Arispe, PhD
Oregon State University
Mylen Bohle
Oregon State University
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

In-Service Training for Biodegradable Mulch

WPDP19-05

$74,580

Dr. Carol Miles
WSU Mount Vernon NWREC

Healthy Soil, Healthy Region

EW18-016

$67,692

Leslie Michel
Okanogan Conservation District

Westside Pasture Calendar for Agricultural Professionals in the Pacific Northwest (PNW)

EW17-021

$74,555

Dr. Steve Fransen, PhD
Washington State University

Climate Adaptation Training for Foresters

EW16-021

$58,461

Kirk Hanson
Northwest Natural Resource Group

Implications of Water Impacts from Climate Change: Preparing Agricultural Educators and Advisors in the Pacific Northwest

EW15-012

$75,000

Dr. Joe Harrison
Washington State University

Technical Service Provider Training to Improve Services for Family Forest Landowners

EW12-026

$43,874

Lindsay Malone
Northwest Natural Resource Group

Forage and Pasture Educational Program for Professionals in the Northwest

EW11-019

$71,058

Glenn Shewmaker
University of Idaho
<table>
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<th>Project #</th>
<th>Project Title</th>
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<th>Project Leaders</th>
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<tr>
<td>EW10-016</td>
<td>Forestry Certification Training for Agency Field Staff</td>
<td>$48,000</td>
<td>Lindsay Malone</td>
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<td>EW10-017</td>
<td>Organic Seed, Soils, and Sustainable Business: Three Intensives and an Online Tutorial</td>
<td>$76,712</td>
<td>Micaela Colley</td>
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<td>Organic Seed Alliance</td>
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<td>EW08-005</td>
<td>Training and Connecting Agricultural Professionals Through an Immersion Field Course and the Cultivating Success Instructor Training Program in Washington</td>
<td>$29,599</td>
<td>Catherine Perillo</td>
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<tr>
<td>EW07-009</td>
<td>Western Region Dairy Odor and Air Quality Education</td>
<td>$89,236</td>
<td>Dr. Pius Ndegwa</td>
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<td>EW04-015</td>
<td>Sustainable Small-Acreage Farming from Field to Table</td>
<td>$57,220</td>
<td>Debra Kollock</td>
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<td>WSU Stevens County Extension</td>
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<td>EW03-003</td>
<td>Feeding Management in Nutrition and Nutrient Management for Livestock - Poultry Professionals</td>
<td>$99,635</td>
<td>Lynn Vanwieringen</td>
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<td>EW02-003</td>
<td>Sustainable Agriculture and Education Grant</td>
<td>$19,500</td>
<td>Judy Janett</td>
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<td>Washington Ag in the Classroom</td>
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<td>John Brugger</td>
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<td>USDA Rural Business Cooperative Service</td>
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<td>Diane Gasaway</td>
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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</td>
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<tr>
<td>EW98-008</td>
<td>Organic Food Production and Marketing - Educational Resource Development</td>
<td>$19,100</td>
<td>Leslie Zenz</td>
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<td>EW98-009</td>
<td>Alternative Crops for Dryland Agriculture in the Intermountain Pacific Northwest</td>
<td>$67,500</td>
<td>Edward Adams</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>
<td>Diana Roberts, PhD</td>
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<tr>
<td>EW96-006</td>
<td>Organic Food Production and Marketing - Tours and Resource Guide</td>
<td>$17,050</td>
<td>Leslie Zenz</td>
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**FARMER/RANCHER GRANTS**

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<th>Project #</th>
<th>Project Title</th>
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<tbody>
<tr>
<td>FW22-389</td>
<td>Investigating the Addition of Clay to Feedstocks for Increased Nutrient Density and Carbon Stabilization in Compost</td>
<td>$24,745</td>
<td>David Bill</td>
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<td>Midnight’s Farm</td>
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<td>FW21-373</td>
<td>Adoption of Rootstocks for Sustainable Wine Grape Production in Columbia Valley, Washington</td>
<td>$25,000</td>
<td>Kevin Judkins</td>
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<td>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>
<td>$19,998</td>
<td>Frank Wolf, Lester Wolf Farms, Inc.</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>
<td>$19,899</td>
<td>Katie &amp; Matthew Pencke &amp; McDermott, Alluvial Farms</td>
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<td>FW19-347</td>
<td>Sheep Grazing in Potato Production Systems</td>
<td>$16,300</td>
<td>Dr. Jessica Gigot, Harmony Fields</td>
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<td>FW19-353</td>
<td>Optimizing Amendment and Seeding Rate for Heritage Spring Wheat Production in Western Washington</td>
<td>$19,432</td>
<td>Nathan Hodges, Barn Owl Bakery &amp; Heritage Grains</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>
<td>$20,000</td>
<td>Susan Fluegel, Grey Duck Garlic, LLC</td>
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<td>FW18-021</td>
<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>
<td>$19,948</td>
<td>Adam Greene, Oak Knoll Farm</td>
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<td>FW18-041</td>
<td>A rapid method to screen oyster broodstock for resistance to Ostreid Herpesvirus</td>
<td>$25,000</td>
<td>David Nisbet, Goosepoint Oyster Co.</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>
<td>$19,814</td>
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<td>FW17-015</td>
<td>Development of a Locally-Adapted Apple Rootstock for the Maritime Northwest</td>
<td>$13,988</td>
<td>Eric Lee-Mader, Eric Lee-Mader</td>
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<td>FW16-020</td>
<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>
<td>$14,969</td>
<td>Larry Bailey, Clean Food Farm</td>
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<td>FW15-044</td>
<td>Cover Crops for Hop Production in Semi-arid Yakima Valley, Washington</td>
<td>$15,144</td>
<td>Sarah Del Moro, Inland Desert Nursery</td>
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<td>FW14-012</td>
<td>Natural predators as a means to limit wildlife damage at the dairy-fruit interface</td>
<td>$24,287</td>
<td>John Steensma, Steensma Dairy</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>
<td>$14,701</td>
<td>Gary Miller</td>
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<td>FW12-074</td>
<td>Study and Control of Pseudomonas Syringae on Blueberry Plants</td>
<td>$14,120</td>
<td>Parmjit Uppal, Fraser Valley Packers (US) Inc.</td>
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<td>FW10-062</td>
<td>NOP Compliant Antimicrobial Rinses on Leafy Greens and the Effect on Foodborne Pathogen Indicator Presence</td>
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| FW10-069     | Cover cropping and seasonal landscape fabric mulch for weed and mummy berry control in organic blueberries | $12,138        | Amy Turner  
Blue Dog Farm  
Mylind Fawcett  
WSARE                                                 |
| FW09-016     | Local Farms, Health Kids - The Small-Scale, Sustainable Producer’s Role in ThisLegislatively Mandated Opportunity | $14,600        | Laura Plaut  
Common Threads Farm                                                                 |
| FW08-007     | Integrated Nutrient Management for Small Swine and Sheep Production   | $8,905         | Bruce Dunlop  
Lopez Island Farm                                                                 |
| FW07-008     | Farm Duckweed Harvesting                                             | $8,519         | Jerry Darnall                                                                 |
| FW07-009     | Leafy Spurge Management in Shrub Steppe Rangeland                    | $10,000        | Craig Madsen  
Healing Hooves LLC                                                                 |
| FW06-002     | Evaluation of Digested Manure on Potatoes and Raspberries            | $19,575        | Darryl Vander Haak  
Vander Haak Dairy                                                                 |
| FW06-007     | Rhizoctonia and Soil Compaction Under Direct Seed                    | $6,894         | Ron Jirava                                                                 |
| FW06-018     | Evaluation of Environmentally Sustainable Methods to Control Dagger Nematode Infestation in Blueberry Production | $9,842         | Michael White                                                                 |
| FW06-020     | Strategies for Building Regional Markets for Pastured Poultry Growers | $11,360        | Jamie Henneman  
Lazy Lightning Ranch                                                                 |
| FW06-309     | Organic Seed Producer Database                                        | $15,960        | Matthew Dillon  
Organic Seed Alliance                                                                 |
| FW06-311     | Youth Entrepreneurs in Agriculture                                   | $7,739         | Joan Vance  
Washington State University                                                                 |
| FW06-325     | On-farm Evaluation and Demonstration of Small-scale Biogas Technology | $20,000        | Chad Kruger  
Washington State University                                                                 |
| FW05-025     | Determining the Feasibility of Compost Production from Agronomic Waste and Wood Byproducts through Mushroom Cultivation Techniques for the Small Farmer | $2,419         | Christopher Tchudi  
Fido's Farm                                                                 |
| FW04-006     | Agricultural Science Class: Principles of Ecological Food Production | $7,441         | Henning Sehmsdorf  
S&S Homestead Farm                                                                 |
| FW04-040     | Mobile Poultry Processing Feasibility Study                          | $9,637         | Louis Sukovaty  
Crown "S" Ranch                                                                 |
<p>| FW04-105     | Felted Wool for Orthotic Use                                         | $10,382        | Jayne Deardorff                                                                 |
| FW04-116     | Producer, Retail, Consumer Demo Program for Fresh Pears              | $14,907        | Sherry Amos                                                                 |</p>
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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</td>
<td>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</td>
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<td>FW03-308</td>
<td>Planned Grazing as a Means of Enhancing the Ecosystem and Improving Range for Big Game and Livestock</td>
<td>$5,000</td>
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<td>FW03-317</td>
<td>Use of Interseeding Grass Technology to Reduce Nitrate Concentration in New Seeding Grass Silage</td>
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<td>Mechanical Introduction of Soil Nutrients through a mulch layer</td>
<td>$12,400</td>
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<td>FW02-037</td>
<td>South Whidbey Tilth Forest Restoration for Sustainable Wildcraft Production</td>
<td>$3,000</td>
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<td>FW02-038</td>
<td>On-farm composting for residue management in Spokane County, WA</td>
<td>$14,992</td>
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<td>Alternative Crops to Sustain Native Alfalfa Pollinators</td>
<td>$4,500</td>
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<td>FW01-019</td>
<td>Tilth-Agroforestry Niche Demonstration Project - Native Forest Restoration for Sustainable Wildcraft Production</td>
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<td>FW01-052</td>
<td>Application of Oyster Shell Mulch for Lavender Production</td>
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<td>FW01-081</td>
<td>Sustainable Small-Scale Grain Raising</td>
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<td>FW00-014</td>
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<td>FW00-022</td>
<td>Rotating Vessel Composter for Small Farms</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>
<td>$3,817</td>
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<td>FW99-036</td>
<td>Managing Grasshoppers in Tree Fruit Using Pastured Poultry</td>
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<td>FW99-063</td>
<td>Compost Thermal Subsidies in Commercial Passive Solar Greenhouse Design</td>
<td>$1,750</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>FW98-002</td>
<td>Baby Corn-Alternative Crop for Southwest Washington</td>
<td>$3,460</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>
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<td>Bamboo Alternative Crop for Southwest Washington</td>
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<td>Vegetation Management on Small Acreages Using Short Duration, Intensive, Rotational Grazing</td>
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<td>FW97-033</td>
<td>Release of the Predator Mite, Amblyseius fallacis to Control Spider Mites in Red Raspberries and Reduce Reliance on Pesticides</td>
<td>$1,850</td>
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<td>FW97-046</td>
<td>Dryland Corn Production in Columbia and Walla Walla Counties (WA)</td>
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<td>FW97-051</td>
<td>Small Farm Harvest Labor Reduction Project</td>
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<td>FW96-014</td>
<td>Improved Nitrogen Utilization and Herbicide Reduction Through Relay Intercropping</td>
<td>$4,230</td>
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<td>FW96-016</td>
<td>Weed Control in Organic Apple Orchard</td>
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<td>Alternative Crop Production in a &quot;Direct Seed Annual Crop Intense Rotation Program&quot;</td>
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<td>FW96-042</td>
<td>Carrot Rust Fly Control</td>
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<td>Achieving Sustainability in San Juan County Hay Fields</td>
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<td>FW96-067</td>
<td>Organic vs. Synthetic Fertilizer-Container Nursery Trials</td>
<td>$4,575</td>
<td>Nils Sundquist Sundquist Nursery</td>
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<td>FW95-008</td>
<td>Managing Riparian Areas with Remote Livestock Watering Facilities</td>
<td>$5,000</td>
<td>Craig Boesel</td>
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**FW95-057**  Intensive Grazing in Asian Pear Orchards  $899  R. Bruce Gregory
  Mitchell Bay Farm & Nursery

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

### GRADUATE STUDENT GRANTS

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<td>GW22-238</td>
<td>Significance of seedborne Stemphylium vesicarium in Stemphylium leaf spot of spinach</td>
<td>$25,322</td>
<td>Dr. Lindsey du Toit  Washington State University  Kayla Spawton  Washington State University, Northwestern Washington Research and Extension Center</td>
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<td>GW21-228</td>
<td>Understanding the impact of the peaola microbiome on soil fertility, crop yield, and plant nitrogen content</td>
<td>$29,982</td>
<td>Maren Friesen  Washington State University  Janice Parks  Washington State University</td>
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<td>GW20-208</td>
<td>Enhancing the Ecological and Socioeconomic Benefits of Silvopasture Systems in Washington State through Participatory Research and Education</td>
<td>$24,998</td>
<td>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</td>
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<td>GW18-039</td>
<td>Assessment of the Positive and Negative Effects of Earwigs in Apple Orchards</td>
<td>$17,875</td>
<td>Dr. David Crowder  Washington State University  Dr. Robert Orpet  Washington State University</td>
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<td>GW18-034</td>
<td>Understanding the Molecular Basis of Plant Response to Organic Versus Conventional Fertilizer Using A Metatranscriptomic Approach</td>
<td>$25,000</td>
<td>Amit Dhingra  Washington State University  Seanna Hewitt  Washington State University</td>
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<td>GW18-152</td>
<td>Rapid Estimation of Straw Residue Decomposition in Winter Wheat</td>
<td>$24,627</td>
<td>Dr. Arron Carter  Washington State University  Nathan Nielsen  Washington State University</td>
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<td>GW17-058</td>
<td>Effects of Subsurface Micro-irrigation on Water Use Efficiency and Grapevine Growth</td>
<td>$25,000</td>
<td>Dr. Pete Jacoby  Washington State University  Xiaochi Ma  Washington State University</td>
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<td>GW17-021</td>
<td>Introducing Organic Quinoa and Grain Cropping Systems in the Palouse</td>
<td>$24,954</td>
<td>Dr. John Reganold  Washington State University  Rachel Wieme  Washington State University</td>
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<td>GW17-025</td>
<td>Evaluating the exclusion and non-target effects of shade netting on apple orchards</td>
<td>$23,678</td>
<td>Dr. Elizabeth Beers  Washington State University  Adrian Marshall  WSU Tree Fruit Research Extension Center</td>
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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  Washington State University  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>
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<td>Dr. David Crowder, Washington State University, 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, Washington State University, 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, Washington State University, Elias Bloom, Washington State University</td>
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<td>GW14-011</td>
<td>Old World Honey Bee Populations: A Genetic Resource for U.S. Honey Bee Breeding</td>
<td>$20,865</td>
<td>Dr. Walter Sheppard, Department of Entomology, Washington State University, Megan A. Taylor, 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, Washington State University, 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, Washington State University, Nik Wiman, Washington State University Tree Fruit Research and Extension Center</td>
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<td>GW09-021</td>
<td>Sustainable root rot and soil management in raspberry</td>
<td>$17,628</td>
<td>Thomas Walters, Washington State University-NWREC, Jessica Gligot, WSU</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, Washington State University, Stacey Cobb, Washington State University, Adrina Huisman, 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, Washington State University, Emily Gatch, 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, WSU, Craig Cogger, WSU Research and Extension Center</td>
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<td>GW06-018</td>
<td>Bluegrass Straw in Dairy Diets to Enhance Environmental Quality</td>
<td>$9,920</td>
<td>Ronald Kincaid, Washington State University, Elizabeth O'Rourke, Washington State University</td>
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GW06-021 IPM and Biological Control of Meloidogyne chitwoodi and the Colorado Potato Beetle $10,000 Ekaterini Riga Washington State University Donna Henderson Washington State University

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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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<td>OW19-350</td>
<td>Seedling Release and Young-Stand Thinning as a Way to Increase Forest Health and Production</td>
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<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>
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<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>
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<td>OW14-003</td>
<td>Accelerating Adoption of Sustainable Practices for Small Forest Producers</td>
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<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>
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<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</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>
</tr>
</tbody>
</table>

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

$11,779,240

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

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