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 $307 million to more than 7,384 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

$9,791,607 in total funding

182 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: **182 grants**

- 1 Enhanced State Grants
- 71 Farmer/Rancher
- 24 Graduate Student
- 10 On Farm Research/Partnership
- 25 Professional Development Program
- 46 Research and Education
- 5 Research to Grass Roots

Total funding: **$9,791,607**

- $23,031 Enhanced State Grants
- $661,002 Farmer/Rancher
- $474,311 Graduate Student
- $439,352 On Farm Research/Partnership
- $1,477,051 Professional Development Program
- $6,477,993 Research and Education
- $238,867 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](http://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](http://western.sare.org/state-pages/washington) to learn more.

Chad Kruger
Washington State University
(360) 416-5222
celkruger@wsu.edu

For detailed information on SARE projects, go to [www.SARE.org](http://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 $9,768,576 grants to support 178 projects, including but not limited to, 43 research and/or education projects, 25 professional development projects and 71 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>
| SW20-916   | Wigging out, then wigging in: removing earwigs from stone fruit and augmenting them in pome fruit                                                                                                               | $348,733     | Dr.Rebecca Schmidt-Jeffris  
USDA-ARS  
Rick Hilton  
Oregon State University  
Nathan Moses-Gonzales  
M3 Consulting Group  
Dr.Louis Nottingham  
Washington State University  
Dr.Ashley Thompson  
Oregon State University  
Dr.Northfield Tobin  
Washington State University |
| LS19-320   | Southern Organic Seed Summit                                                                                                                                                                                   | $49,957      | Jared Zystro  
Organic Seed Alliance |
| SW18-103   | Ecological and Economic Benefit-Cost Comparison of Grazed and Ungrazed Prairie Land for Critical Species Protection in Western Washington                                                                          | $248,229     | Stephen Bramwell  
WSU Dept. Crop and Soil Sciences |
| SW18-031   | Exploring relationships between pollinators and canola on the Palouse                                                                                                                                          | $207,134     | Dr.David Crowder  
Washington State University |
| 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 |
<table>
<thead>
<tr>
<th>Project Code</th>
<th>Title</th>
<th>Budget</th>
<th>Principal Investigator(s)</th>
</tr>
</thead>
</table>
| SW11-072     | Selecting management practices and cover crops for reducing tillage,  | $196,626 | Doug Collins  
|              | enhancing soil quality, and managing weeds in western WA            |        | WSU                                                            |
| SW10-052     | Native Habitat Restoration, Sustainable IPM and Beneficial Insect     | $191,106 | Dr. David James  
|              | Conservation                                                        |        | 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  | $120,598 | Lawrence Lacey  
|              | Pacific Northwest                                                   |        | USDA-ARS                                                       |
|              |                                                                    |        | Peter Landolt  
|              |                                                                    |        | USDA-ARS                                                       |
| SW08-052     | Assessing habitat and dietary switching by predators in a cover     | $121,092 | David Horton  
|              | crop system                                                         |        | USDA-ARS                                                       |
| SW08-102     | Combining trap cropping and natural-chemical lures to attract and    | $191,868 | William Snyder  
|              | kill crucifer flea beetles                                           |        | Washington State University                                   |
| SW07-503     | Supplemental R&E Funding from Innovative SARE Coordinator Programs  | $24,842 | Dr. Carol Miles  
|              |                                                                    |        | WSU Mount Vernon NWREC                                          |
| SW07-055     | A sustainable distribution and evaluation program for selected       | $172,938 | Dr. Walter Sheppard  
|              | honey bee stocks in the Pacific Northwest                           |        | Department of Entomology, Washington State University          |
| SW06-013     | Enhancing Sustainability of Small Fruit Production in the Pacific    | $170,929 | Craig MacConnell  
|              | Northwest Through Educating Producers on Consensus-derived Scouting and Decision-making Parameters |        | Washington State University                                   |
|              |                                                                    |        | Colleen Burrows  
|              |                                                                    |        | WSU Whatcom County Extension                                   |
| SW06-032     | Developing Role Models for Antibiotic Stewardship and Biosecurity   | $125,145 | Ron Wohrle  
|              | on Dairy Farms                                                      |        | 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    | $138,922 | Ekaterini Riga  
|              | Insect Biocontrol by Entomopathogenic Nematodes                     |        | 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                                   |
Farming for the Future: Cultivating the Next Generation of Farmers  $145,800  Brad Gaolach  Washington State University Extension  Dr. Marcia Ostrom  School of Environment, Washington State University

Mustard Green Manures for Potato Production  $45,653  Andrew McGuire  Washington State University Extension

Assessing Soil Quality in Intensive Organic Management Systems  $107,696  David Granatstein  WSU Tree Fruit Research and Extension Center  Craig Cogger  WSU Research and Extension Center

Development and Implementation of Integrated Pest Management of Burrowing Shrimp on Washington State Commercial Oyster Beds  $179,064  Steven Booth  Willapa Bay Grays Harbor Oyster Growers / PSI

Integrating Biological Control into Cole Crop Production in the Pacific Northwest  $63,841  William Snyder  Washington State University

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

Building Community Support for Agriculture on the Urban Edge  $113,000  Dyvon Havens  WSU/Skagit County Cooperative Extension

Sustainable Crop Production Practices with Mixed Leguminous and Non-leguminous Cover Crops  $118,000  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


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
### RESEARCH TO GRASS ROOTS GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>LW89-017</td>
<td>Silvopastoral Alternatives for Fruit Growers</td>
<td>$65,641</td>
<td>Linda H. Hardesty</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Washington State University</td>
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<tr>
<td>LW88-002</td>
<td>Options to Enhance the Sustainability of Dryland Cereal Cropping in the Northwest</td>
<td></td>
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<td></td>
<td></td>
<td>$470,000</td>
<td>David Granatstein</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>WSU Tree Fruit Research and Extension Center</td>
</tr>
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### PROFESSIONAL DEVELOPMENT PROGRAM GRANTS

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<th>Project #</th>
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<tr>
<th>Code</th>
<th>Title</th>
<th>Grant Amount</th>
<th>Names</th>
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<tbody>
<tr>
<td>PDP20-003</td>
<td>The Soil Life Short Course: Empowering Ag Professionals to Recognize, Quantify, and Conserve Beneficial Soil Animals</td>
<td>$74,966</td>
<td>Eric Mader, The Xerces Society, Stephanie Frischie, The Xerces Society, Eric Lee-Mäder, The Xerces Society, Corin Pease, The Xerces Society</td>
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<tr>
<td>PDP20-002</td>
<td>Farmland for the Next Generation Training in the Pacific Northwest</td>
<td>$74,903</td>
<td>Courtney Naumann, American Farmland Trust</td>
</tr>
<tr>
<td>WPDP19-09</td>
<td>Inland Northwest Pasture Calendar for Agricultural Professionals</td>
<td>$74,623</td>
<td>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, Don Llewellyn, Washington State University, Ian McGregor, M.S., Oregon State University, Klamath Basin Research and Extension, J. Shannon Neibergs, Washington State University, Steve Norberg, PhD, Washington State University, Cory Owens, M.S., Natural Resources Conservation Service, Glenn Shewmaker, University of Idaho, Guojie Wang, Oregon State University - Eastern Oregon Agricultural Research C, Carmen Willmore, University of Idaho Extension</td>
</tr>
<tr>
<td>WPDP19-05</td>
<td>In-Service Training for Biodegradable Mulch</td>
<td>$74,580</td>
<td>Dr. Carol Miles, WSU Mount Vernon NWREC</td>
</tr>
<tr>
<td>Project Code</td>
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<td>Amount</td>
<td>Principal Investigator(s)</td>
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</tbody>
</table>
| 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 |
| EW18-016    | Healthy Soil, Healthy Region                                                                                      | $67,692 | Leslie Michel  
Okanogan Conservation District |
| EW17-021    | Westside Pasture Calendar for Agricultural Professionals in the Pacific Northwest (PNW)                          | $74,555 | Dr. Steve Fransen, PhD  
Washington State University |
| EW16-021    | Climate Adaptation Training for Foresters                                                                         | $58,461 | Kirk Hanson  
Northwest Natural Resource Group |
| EW15-012    | Implications of Water Impacts from Climate Change: Preparing Agricultural Educators and Advisors in the Pacific Northwest | $75,000 | Dr. Joe Harrison  
Washington State University |
| EW12-026    | Technical Service Provider Training to Improve Services for Family Forest Landowners                                | $43,874 | Lindsay Malone  
Northwest Natural Resource Group |
| EW11-019    | Forage and Pasture Educational Program for Professionals in the Northwest                                         | $71,058 | Glenn Shewmaker  
University of Idaho |
| EW10-016    | Forestry Certification Training for Agency Field Staff                                                            | $48,000 | Lindsay Malone  
Northwest Natural Resource Group |
| EW10-017    | Organic Seed, Soils, and Sustainable Business: Three Intensives and an Online Tutorial                            | $76,712 | Micaela Colley  
Organic Seed Alliance |
| EW08-005    | Training and Connecting Agricultural Professionals Through an Immersion Field Course and the Cultivating Success Instructor Training Program in Washington | $29,599 | Catherine Perillo  
Washington State University |
<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>EW07-009</td>
<td>Western Region Dairy Odor and Air Quality Education</td>
<td>$89,236</td>
<td>Dr. Pius Ndegwa Washington State University</td>
</tr>
<tr>
<td>EW04-015</td>
<td>Sustainable Small-Acreage Farming from Field to Table</td>
<td>$57,220</td>
<td>Debra Kollock WSU Stevens County Extension</td>
</tr>
<tr>
<td>EW03-003</td>
<td>Feeding Management in Nutrition and Nutrient Management for Livestock &amp; Poultry Professionals</td>
<td>$99,635</td>
<td>Lynn Vanwieringen Washington State University</td>
</tr>
<tr>
<td>EW02-003</td>
<td>Sustainable Agriculture and Education Grant</td>
<td>$19,500</td>
<td>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</td>
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<tr>
<td>EW01-006</td>
<td>Noxious Weed Control Through Multi-Species Grazing</td>
<td>$64,501</td>
<td>Dr. Donald D. Nelson Washington State University</td>
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<tr>
<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 WSU Extension</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>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>
</tr>
<tr>
<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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<tr>
<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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<tr>
<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>
</tr>
<tr>
<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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<tr>
<td>Proposal Number</td>
<td>Project Title</td>
<td>Funding</td>
<td>Investigator(s)</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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<tr>
<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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<tr>
<td>FW18-039</td>
<td>Quantifying the impact of feed hydration and fermentation on poultry nutrition and farm economics</td>
<td>$19,814</td>
<td>Matt Steinman Foothill Farms</td>
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<tr>
<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>
<td>$25,000</td>
<td>David Nisbet Goosepoint Oyster Co.</td>
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<tr>
<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 Bleyhl Co-op</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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<tr>
<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>
<td>$14,944</td>
<td>Dan Hulse Tahoma Farms</td>
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<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 Blue Dog Farm Mylind Fawcett WSARE</td>
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<tr>
<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 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 Lopez Island Farm</td>
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<tr>
<td>FW07-008</td>
<td>Farm Duckweed Harvesting</td>
<td>$8,519</td>
<td>Jerry Darnall</td>
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<tr>
<td>FW07-009</td>
<td>Leafy Spurge Management in Shrub Steppe Rangeland</td>
<td>$10,000</td>
<td>Craig Madsen Healing Hooves LLC</td>
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<tr>
<td>FW06-002</td>
<td>Evaluation of Digested Manure on Potatoes and Raspberries</td>
<td>$19,575</td>
<td>Darryl Vander Haak Vander Haak Dairy</td>
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<tr>
<td>Project</td>
<td>Title</td>
<td>Amount</td>
<td>Principal Investigator</td>
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<td>FW06-007</td>
<td>Rhizoctonia and Soil Compaction Under Direct Seed</td>
<td>$6,894</td>
<td>Ron Jirava</td>
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<tr>
<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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<tr>
<td>FW06-020</td>
<td>Strategies for Building Regional Markets for Pastured Poultry Growers</td>
<td>$11,360</td>
<td>Jamie Henneman Lazy Lightning Ranch</td>
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<td>FW06-309</td>
<td>Organic Seed Producer Database</td>
<td>$15,960</td>
<td>Matthew Dillon Organic Seed Alliance</td>
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<td>FW06-311</td>
<td>Youth Entrepreneurs in Agriculture</td>
<td>$7,739</td>
<td>Joan Vance Washington State University</td>
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<td>FW06-325</td>
<td>On-farm Evaluation and Demonstration of Small-scale Biogas Technology</td>
<td>$20,000</td>
<td>Chad Kruger 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 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 S&amp;S Homestead Farm</td>
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<td>FW04-040</td>
<td>Mobile Poultry Processing Feasibility Study</td>
<td>$9,637</td>
<td>Louis Sukovaty 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>FW03-308</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 Nitrate Concentration in New Seeding Grass Silage</td>
<td>$6,000</td>
<td>Dr.Joe Harrison 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>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>FW01-052</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>
<td>$2,040</td>
<td>Henning Sehmsdorf S&amp;S Homestead Farm</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>
<td>Michael Seraphinoff South Whidbey Tilth</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>
<td>$3,100</td>
<td>Jack Caldicott</td>
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<td>FW00-040</td>
<td>Alternative Crops No-Till Field Trials</td>
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<td>Ron Jirava</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>
<td>Michael Seraphinoff South Whidbey Tilth</td>
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<td>FW99-089</td>
<td>Harvesting Alternatives for Burdock as an Alternative Crop in an Organic Production System</td>
<td>$3,000</td>
<td>Del Wisdom</td>
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<td>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>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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FW97-051  Small Farm Harvest Labor Reduction Project  $2,500  Therese Critchley
FW97-010  Bamboo Alternative Crop for Southwest Washington  $2,000  R.D. Northcraft
FW97-019  Vegetation Management on Small Acreages Using Short Duration, Intensive, Rotational Grazing  $2,043  Terry Swagerty
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
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
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
FW95-008  Managing Riparian Areas with Remote Livestock Watering Facilities  $5,000  Craig Boesel
FW95-057  Intensive Grazing in Asian Pear Orchards  $899  R. Bruce Gregory
                 Mitchell Bay Farm & Nursery
FW95-100  Relay/Cover Crop for Corn  $5,000  Jerry Van der Veen

GRADUATE STUDENT GRANTS

<table>
<thead>
<tr>
<th>Project #</th>
<th>Project Title</th>
<th>SARE Support</th>
<th>Project Leaders</th>
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<tr>
<td>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&lt;br&gt;             School of Environment, Washington State University&lt;br&gt;Mark Batcheler&lt;br&gt;Washington State University&lt;br&gt;Lynne Carpenter-Boggs&lt;br&gt;Washington State University&lt;br&gt;Dr. Mark Swanson&lt;br&gt;Washington State University&lt;br&gt;Mark Batcheler&lt;br&gt;Washington State University</td>
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<td>Grant No.</td>
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<td>Principal Investigator(s)</td>
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| GW19-192 | Genetic variation of Apis mellifera mating behavior under varied climatic conditions | $24,987        | Dr. Walter Sheppard  
Department of Entomology, Washington State University  
Melanie Kirby  
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 |
| GW18-039 | Assessment of the Positive and Negative Effects of Earwigs in Apple Orchards  | $17,875        | Dr. David Crowder  
Washington State University  
Robert Orpet  
Washington State University |
| GW18-034 | Understanding the Molecular Basis of Plant Response to Organic Versus Conventional Fertilizer Using A Metatranscriptomic Approach | $25,000        | Amit Dhingra  
Washington State University  
Seanna Hewitt  
Washington State University |
| 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 |
| 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 |
| GW16-021 | Identification of peony diseases in the Pacific Northwest and Alaska          | $24,979        | Gary Chastagner  
Washington State University  
Andrea Garfinkel  
Washington State University |
| GW16-033 | Assessing the effects of non-honeybee insects on pollination in diversified organic farms | $24,871        | Dr. David Crowder  
Washington State University  
Rachel Olsson  
Washington State University |
| GW16-055 | Seed Transmission and Management of White Leaf Spot and Light Leaf Spot Pathogens in Brassicas in the Pacific Northwest | $15,675        | Dr. Lindsey du Toit  
Washington State University  
Shannon Carmody  
Washington State University |
| GW15-012 | Climate-Sustaining Agriculture: Carbon Footprints of Organic and Conventional Onions and Wheat | $24,980        | Lynne Carpenter-Boggs  
Washington State University  
Cornelius Adewale  
Washington State University |
| GW15-022 | Promoting Native Bee Health and Pollination Services on Diversified Organic Produce Fams | $24,918        | Dr. David Crowder  
Washington State University  
Elias Bloom  
Washington State University |
| GW14-011 | Old World Honey Bee Populations: A Genetic Resource for U.S. Honey Bee Breeding | $20,865        | Dr. Walter Sheppard  
Department of Entomology, Washington State University  
Megan A. Taylor  
Washington State University |
| GW11-005 | Combining Trap Cropping with Companion Planting to Control the Crucifer Flea Beetle | $8,270         | William Snyder  
Washington State University  
Joyce Parker  
Washington State University Department of Entomology |
### GW10-003
A Proactive Approach to Understanding Resistance to Novel OP alternatives as a Strategy for Sustainable Management of Obliquebanded Leafroller

$21,239
Jay F. Brunner
Washington State University
Dr. Ashfaq Sial
Washington State University
Ashfaq Sial
Washington State University

### GW09-015
Habitats and landscape interactions of tachinid parasitoids important in biological control of leafrollers (Lepidoptera: Tortricidae) in central Washington tree fruit

$11,910
Vincent Jones
Washington State University
Nik Wiman
Washington State University
Tree Fruit Research and Extension Center

### GW09-021
Sustainable root rot and soil management in raspberry

$17,628
Thomas Walters
Washington State University
Jessica Gigot
WSU

### GW08-001
Using Bluegrass Straw to Modulate the Elevated Dietary Crude Protein and Phosphorus Caused by Including Distillers Grains and Solubles in Dairy Diets

$14,914
Ronald Kincaid
Washington State University
Stacey Cobb
Washington State University
Adrina Huisman
Washington State University

### GW08-005
Characterization of soils properties associated with suppression of Fusarium wilt in spinach seed crops, and development of a quantitative molecular assay for Fusarium oxysporum f. sp. spinaciae.

$19,960
Dr. Lindsey du Toit
Washington State University
Emily Gatch
Washington State University

### GW06-011
Soil Community Structure, Function, and Spatial Variation in an Organic Agroecosystem

$10,000
Doug Collins
WSU
Craig Cogger
WSU Research and Extension Center

### GW06-018
Bluegrass Straw in Dairy Diets to Enhance Environmental Quality

$9,920
Ronald Kincaid
Washington State University
Elizabeth O’Rourke
Washington State University

### GW06-021
IPM and Biological Control of Meloidogyne chitwoodi and the Colorado Potato Beetle

$10,000
Ekaterini Riga
Washington State University
Donna Henderson
Washington State University

### ON FARM RESEARCH/PARTNERSHIP GRANTS

<table>
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<th>Project #</th>
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<th>Project Leaders</th>
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</table>
| OW19-342  | Investigating the elasticity of biochar: manure handling, compost feedstock, soil amendment and carbon storage. | $49,988      | Dr. Nathan Stacey
Washington State University
Doug Collins
WSU
Alana Siegner
University of California, Berkeley |
| OW19-350  | Seedling Release and Young-Stand Thinning as a Way to Increase Forest Health and Production | $49,884      | Kirk Hanson
Northwest Natural Resource Group
Lindsay Malone
Northwest Natural Resource Group |
| OW18-018  | Surveying the distribution of introduced wireworms in Washington State and evaluating trap cropping as a low-cost management option | $49,576      | Dr. Brook Brouwer
Washington State University Extension |
| OW17-051  | Sustainable Crop-Livestock Integration for the System Health in the Dryland Inland Pacific Northwest | $47,344      | Leslie Michel
Okanogan Conservation District |
| OW15-008  | Optimizing nitrogen management on organic and biologically-intensive farms | $49,997      | Doug Collins
WSU |
<table>
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<tr>
<th>Project Number</th>
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<th>Principal Investigator(s)</th>
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| OW14-003      | Accelerating Adoption of Sustainable Practices for Small Forest Producers     | $47,167  | Lindsay Malone  
Northwest Natural Resource Group                                                |
| OW12-030      | Companion and Cover Cropping for Eastern Washington Dryland Grain Farms       | $49,986  | Diana Roberts, PhD  
WSU Extension                                                                           |
| OW11-315      | Composted Horse Manure and Stall Bedding Pilot Project                        | $39,410  | Caitlin Price Youngquist  
Snohomish Conservation District                                                         |
| OW10-310      | Sustainable Alternatives to the Conservation Reserve Program (CRP)            | $50,000  | Dr. Donald D. Nelson  
Washington State University  
Stephen Van Vleet  
WSU                                                                                 |
| FW03-302      | Determination of Whole Farm Nutrient Flows on a Dairy Operation                | $6,000   | Dr. Joe Harrison  
Washington State University                                                             |

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

$9,768,576

For further information on projects, contact Western SARE at (435) 797-2257 or wsare@usu.edu.
Sustainable Agriculture Research and Education (SARE) is funded by USDA’s National Institute of Food and Agriculture (NIFA).