

Simply Sustainable

Grants and Education to Advance Innovations in Sustainable Agriculture



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Rockey Farms Builds a Tradition of Sustainability

Back in 1982, The Fixx had a hit with the song “One Thing Leads to Another.”

In south-central Colorado’s high desert, Rocky Farms has followed that path. Beginning with integrated pest management, the multi-generational family farm has experimented and implemented one new farming practice after another, steadily increasing their sustainability, profitability, soil health and crop quality.

And it began with IPM.

“My grandfather started the farm in 1938, raising potatoes and he had some pasture for sheep,” recalled Brendon Rocky, who runs the farm now with his brother Sheldon. “But the first shift for us as far as being more sustainable



Photo courtesy of Rocky Farms.

Scouting fields at Rocky Farms in Colorado’s San Luis Valley.

came 25, 30 years ago when my uncle wanted to really avoid toxic chemicals. He didn’t like being personally

exposed to them, didn’t think they were good for our soil and didn’t really think they were going to be good for our

consumers as well.”

So the farm started eliminat-

See ROCKEY, page 8

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Studying Pollinators and Canola in the Palouse

Once prairie land with mid-length perennial grasses, the Palouse region in eastern Washington and northern Idaho supported a diversity of native pollinators. As the prairie land and other natural habitat decreased due to the cultivation of wheat, the pollinator populations diminished as well.

However, as wheat growers began introducing canola into their rotations, anecdotal ev-

idence pointed to an increase of native bees, likely due to the large source of pollen and nectar in the canola fields. At the same time, canola yields in Canada, Europe, and the Palouse have been shown to be up to 33% higher when near tracts of prairie and other insect-friendly habitat.

While researchers are still working to determine more specifically the increase in yields adjacent to natural hab-

itat, it is clear that an increase in bees occurs in natural habitats, which leads to higher yields, says Dave Crowder, [Washington State University Crowder Lab \(entomology.wsu.edu/david-crowder/\)](http://Washington State University Crowder Lab (entomology.wsu.edu/david-crowder/)).

David Crowder and his team are curious about how canola fields and natural habitat interact, and how that interaction impacts both pollinators

See POLLINATORS, page 6

Western SARE and the Challenge of Creating a Sustainable Food Future

October 1, 2019, marked the first anniversary of Montana State University as Western SARE Regional Host Institution. A successful first year was possible thanks to the efforts of 18 agricultural professionals that provided leadership as members of the Western SARE Administrative Council, 24 State Coordinators that reached a broad audience across the region, and a team of 11 professionals that worked in California, Wyoming, and Montana.

Together we achieved numerous milestones. In 2019, Western SARE provided a record number of awards: we distributed more than \$5.5 million among 87 competitive and state implementation grants. These programs will help Western farmers and ranchers by enhancing the environmental, biological, social, and natural resource base of sustainable agriculture. Research and education activities supported by Western SARE encompass a wide range of topics including the creation of sustainable agriculture training networks in the Western Pacific, the enhancement of biodiversity and ecosystems services in small grain cropping systems, the establishment of approaches for rangeland restorations, and the development of bee protection protocols.

The programs highlighted here are just an example of the numerous research and education partnerships Western SARE has sponsored in 2019. But our work is far from being completed.

By the year 2050, it is estimated that 9.8 billion people will share the planet. Global population growth, shifting consumer demands, and unprecedented environmental and market conditions will test farmers and ranchers ingenuity. What are the best approaches to boost crop and pasture yields while preserving the biological, environmental, economic, and social resilience of agroecosystems? Can agriculture balance the multiple and complex needs of feeding more people with more nutritious diets while minimizing environmental and biological impacts? Can this be done through inclusive economic and social approaches? What are the new educational tools that will be needed to disseminate sustainable agriculture knowledge among farmers, ranchers, and consumers? How can we jointly enhance the economic, environmental, and social dimensions of agriculture?

After more than 30 years, Western SARE is a recognized driving force of research and education on agricultural sustainability. Every year, our research and education programs help folks from a wide range of backgrounds, disciplines, and perspectives to work together. This collaborative approach merges the in-depth intergenerational knowledge of agricultural producers with academic breakthroughs. In doing so, farmers, ranchers, and researchers are creating diversified and sustainable farms and farming landscapes. Furthermore, their work extends beyond the production realm into all the other parts, components, and people that compose the future of sustainable food systems.

As Regional Coordinator of Western SARE, I am looking forward to continuing working with everyone in the Western U.S. in this daunting but fascinating task.



Fabian Menalled

**WESTERN SARE
REGIONAL
COORDINATOR'S
COLUMN**

Fabian Menalled

Is Regenerative Agriculture the Next Evolution of Sustainable Farming?

Looking through all the projects funded by Western SARE since 1988, you'll find 173 with the word "sustainable" in the title, including 11 projects funded in 2019. That's not surprising.

What might be surprising is that same 31-year period, there have been only four projects with "regenerative" in their titles – and all four of those were funded this year.

Is regenerative agriculture the new sustainable agriculture? And what is it, anyway?

First thing to know is that there isn't one universally accepted definition of regenerative agriculture. For some, it's all about capturing carbon in topsoil to reduce the impacts of climate change. For others, it's a more holistic approach to farming that goes beyond just sequestering carbon.

At the American Society of Agronomy website we can read that regenerative agriculture "does not mean organic or conventional — it is a pathway for all producers to improve soil health and become more profitable." In this context, farmers and ranchers practicing regenerative agriculture aim at enabling landscapes to renew themselves and issues like weeds, pathogens and insect pests, nutrient deficiencies, and erosion are interpreted as signs of a poorly functioning farm ecosystem.

Built on biological and ecological principles and focused on soil health, regenerative agriculture aims at increasing biodiversity, improving nutrient and water cycle, enhancing ecosystem services, supporting carbon bio-sequestration, increasing climate resilience, and enhancing the overall social and economic sustainability of the farming enterprise.

Recent knowledge and technological advances allow farmers and ranchers

practicing regenerative agriculture to understand the biological complexity of the soil ecosystems and unlock solutions to their specific problems through five principles:

- Reduce mechanical and chemical disturbance
- Keep the soil covered
- Maximize diversity
- Keep a living root in the ground year around
- Integrate crop and livestock operations.

The four projects funded in 2019 with a regenerative agriculture focus embrace those principles. They are:

Conventional vs. Regenerative Almond Orchards, with Regards to Invertebrate Biomass and Biodiversity, Soil Health, Food Safety, and Profitability

Regenerative agriculture has the potential to increase biodiversity and promote key biological processes while reducing farmer investment in mechanical and chemical inputs over conventional monoculture production systems. Almonds are California's second highest grossing crop, and represent an excellent study system for comparing conventional and regenerative orchard management practices. This study provides an innovative systems-level comparison of best management practices in regenerative and conventional almond production in Central California.

Developing the Western Cover Crop Council and Promoting the Regenerative Agriculture Movement through Cover Crops and Human Health

This proposal will build the Western Cover Crop Council (WCCC), with the overall goal of increasing cover crop adoption across the West. The WCCC will gather data on cover crop adoption

and barriers to adoption by Western farmers through focus groups and a survey and use the data to inform cover crop outreach and research and build the WCCC network of cover crop-focused agricultural professionals and farmers. The WCCC network will coordinate outreach and research, foster cover crop business opportunities for farmers, and, ultimately, increase use of cover crops.

Regenerative Agriculture: connecting soil health, native bee habitat, and climate resilience through on-farm management strategies

This project will focus on and promote agricultural practices relevant to Oregon producers that effectively keep carbon-rich materials in the soil and support native bee nesting habitat, such as reduced tillage, cover cropping, perennial plantings, additions of organic matter and leaving crop stubble.

It will develop and provide educational materials focused on climate resilience, carbon sequestration and native bee health, and conduct outreach at Oregon's Small Farms Conference. Cooperators will host on-farm workshops to provide peer-to-peer learning opportunities that connect soil building strategies with those that support native bee habitat, and help create climate resilience for Oregon farmers.

Evaluating Forage Production and Ranching in Response to Regenerative Rotational Grazing on Dryland Pastures in Southwest Colorado.

This project will establish forage to support high-intensity short duration regenerative rotational grazing. A goal is to demonstrate that ecological health is improved on dryland pastures through regenerative grazing.

Western Sustainability Pioneer Award Winner

Larry Thompson

On July 23, Western SARE leaders presented the 2nd Annual **Western Sustainability Pioneer Award** to Larry Thompson, Thompson Farms in Damascus Oregon. Larry is one of the founding members of SARE, participating in his first grant proposal review panel 30 years ago. He was the first farmer to do so.

Larry has served Western SARE as an Administrative Council (AC) member, AC chair, and continued his leadership as a Western SARE Alum. When presenting the award to Larry, Al Kurki, PDP Associate Coordinator said, "For Larry's dedication of long hours to Western SARE, we need to thank not only Larry but Kathy Thompson and their kids for letting us borrow him for all of that work."

As an example of Larry's innovative work, Al described Thompson Farms as being surrounded now by housing, which presents special challenges that Larry met by drawing in the community through creating walkways to encourage people to come into his fields. Instead of being fearful of losing produce, Larry prefers to have the community help watch his farm and understand where their food comes from.

Thompson Farms not only sells at local farmers markets, but also to Kaiser Permanente Hospital employees and patients. Larry's smiling face can be seen on Kaiser's billboard in Portland. As Al stated, "Now, communities all over the country are asking why can't we feed people local, high quality food in hospitals and other institutions. Was Larry ahead of his time? Absolutely!

Last, but not least, Larry partnered with Mercy Corps to help immigrants get experience and a foothold in grow-



Larry Thompson with his daughter Michelle, left, and wife Kathy.

ing vegetables for commercial production.

"My limited remarks tonight capture what Larry, and Western SARE, believes in – sustainable agriculture is much more than how food is grown. It's also about who grows it and who eats it," concluded Al.

Larry accepted the award on behalf of his parents, who he knew would be proud, and his wife and children. He spoke with pride of being the first farmer to review grant proposals and serve on the Western SARE AC and the importance of always keeping the farmer upfront in the program.

He remembers that first meeting, "Researchers were asking why farmers were attending, stating that the program was not about farming but research!" Yet farmers had a vote and this has always been the cornerstone of the program.

Back in 1989 Larry had already reduced chemical use on his farm and incorporated cover crops. Larry is still innovating; describing a new program of "neighborhood markets" in five Portland food deserts. He's working to choose mom and pop locations and setting up stands with fresh fruits and vegetables.

"We're bringing food right to the people," Larry says about the successful program.

Western SARE created the **Western Sustainability Pioneer Award** to recognize the tremendous efforts made by many in the region that have contributed to agricultural sustainability and to bring increased awareness to sustainable agriculture leaders and their work.

Access SARE's Many Cover Crop Resources

SARE Outreach has released several free publications to assist farmers with invaluable information about cover crops.

Fact Sheets Identify Broad Benefits of Cover Crops

SARE's [Ecosystem Services from Cover Crops](#) fact sheets explore the many ways cover crops can enhance soil health and benefit the farm ecosystem, including:

- Improving soil conditions and preventing pollution
- Covering the soil to prevent erosion
- Keeping nutrients out of waterways
- Sequestering carbon

Check out these fact sheets at sare.org/Learning-Center/Top-ic-Rooms/Cover-Crops/Ecosystem-Services-from-Cover-Crops.

These free, downloadable, and printable fact sheets are an excellent resource for educators, Extension service providers, farmers hosting field days, and others.

Cover Crop Economics Report

To help farmers evaluate the benefits of incorporating cover crops into their production systems, SARE released a new report that examines the big question: "When do cover crops pay?"

Cover Crop Economics: Opportunities to Improve Your Bottom Line in Row Crops is now available for free in print and for download at sare.org/Learning-Center/Bulletins/Cover-Crop-Economics. This report is a great resource for farmers and educators alike.

Using data gathered from five years of national cover crop surveys, Cover Crop Economics addresses the economic returns that can be expected from cover crops under various management scenarios as they improve soil health over time. This report takes a comprehensive approach by identifying seven different management situations when cover crops pay off faster. They are when:

- Herbicide-resistant weeds are a problem
- Cover crops are grazed
- Soil compaction is an issue
- Cover crops are used to speed up and ease the transition to no-till
- Soil moisture is at a deficit or irrigation is needed
- Fertilizer costs are high or manure nutrients need to be sequestered
- Incentive payments are received for using cover crops

Soil Health Resource Series

SOIL HEALTH AND COVER CROP FACTS

Ten Ways Cover Crops Enhance Soil Health



Photo Credit: Rob Myers, North Central SARE

ABOUT SOIL HEALTH

Soil health is a hot topic these days, one that is justifiably receiving considerable attention from farmers and their farm advisors.

Whereas in the past, soil testing and evaluation focused more on chemical and physical measures, new research has shown that the biology of the soil is very important to its overall health and productivity.

An incredible diversity of bacteria, protozoa, arthropods, nematodes, fungi and earthworms create a hidden food web in the soil that affects how crops grow, how soil nutrients are cycled and whether rainfall is quickly absorbed into the soil and stays where crop roots can access that moisture.

The USDA Natural Resources Conservation Service (NRCS) has identified four basic principles or approaches for maintaining and improving soil health:

- Keep the soil covered as much as possible
- Disturb the soil as little as possible
- Keep plants growing throughout the year to feed the soil
- Diversify crop rotations as much as possible, including cover crops

Farmers can support these principles by using cover crops, which are conservation plantings of fast-growing annuals such as rye, clovers, vetches and radishes. Cover crops protect and improve the soil when a cash crop is not growing. In the case of summer commodity crops like corn and soybeans, cover crops can keep the soil covered in fall, winter and early spring. They make it easier to use no-till or other conservation tillage approaches that disturb the soil less, and they help with weed control. Plant diversity is helpful for soil organisms because it gives them a greater variety of food sources, and cover crops are an easy way to diversify a crop rotation that may otherwise see only one or two crops grown in a field. Adding cover crops to a rotation can greatly increase the portion of the year when living roots are present for soil organisms to feed on.

10 Key Impacts of Cover Crops on Soil Health

Besides contributing to the four basic goals or principles for soil health, there are a number of specific ways that cover crops lead to better soil health and potentially better farm profits.

- 1 Cover crops feed many types of soil organisms**
Most fungi and bacteria that exist in the soil are actually beneficial to crops. Many of these soil fungi and bacteria feed on carbohydrates that plants exude (release) through their roots. In return, some fungi and bacteria will trade other nutrients, such as nitrogen or phosphorus, to the crop roots. While cover crops directly feed bacteria and fungi, many other soil organisms eat the fungi and bacteria, including earthworms and arthropods (insects and small crustaceans like the "toby poly"). Thus cover crops can help support the entire soil food web throughout the year.
- 2 Cover crops increase the number of earthworms**
Earthworms are usually the most visible of the many organisms living in the soil. Cover crops typically lead to much greater earthworm numbers and even the types of earthworms. Some earthworms, like nightcrawlers, tunnel vertically, while other smaller earthworms, like redworms, tunnel more horizontally. Both create growth channels for crop roots and for rainfall and air to move into the soil.
- 3 Cover crops build soil carbon and soil organic matter**
Like all plants, cover crops use sunlight and carbon dioxide to make carbon-based molecules. This process causes a buildup of carbon in the soil. Some of that carbon is rapidly cycled through the many organisms in the soil, but some eventually becomes humic substances that can gradually build soil organic matter. A higher level of soil organic matter improves both the availability of nutrients and soil moisture for crops. www.sare.org/covercrops
- 4 Cover crops contribute to better management of soil nutrients**
By building soil organic matter, cover crops can gradually impact the need for some types of fertilizer. Just as important to nutrient management is the way cover crops can scavenge or collect any nutrients left at the end of a growing season, such as nitrogen left in the field after corn is done growing. The cover crop will hold that nitrogen rather than letting it escape into tile lines leading to rivers and lakes or drain away into groundwater. Eventually that nitrogen will be released the next season to help the next year's cash crops.
- 5 Cover crops help keep the soil covered**
When it rains on bare soil, the soil is much more likely to erode, form an impermeable crust and then overheat in summer when exposed to direct sun. Some bare soils can reach 140 degrees, hot enough to kill soil organisms and stress the crop from both heat and excessive soil moisture evaporation. The residue of a cover crop like cereal rye can protect the soil while cash crops are getting established and keep it from getting too hot.
- 6 Cover crops improve the biodiversity in farm fields**
Generally, the more plant diversity in a field and the longer that living roots are growing, the more biodiversity there will be in soil organisms, leading to healthier soil. Growing mixes of cover crops or adding a few different cover crop species to an overall crop rotation—such as cereal rye before soybeans, and oats, radishes or crimson clover before corn—improves diversity. Many Corn Belt commodity farmers are adding a third cash crop to their rotation, usually a small grain such as wheat, and then using the earlier harvest of wheat to grow a more diverse mix of covers for several months. They sometimes graze those cover crop mixes for extra profit and because animal manure benefits soil biology.
- 7 Cover crops aerate the soil and help rain go into the soil**
It's not just earthworms that open up soil channels for rain, but also the roots of the cover crops themselves. This is particularly the case where soil disturbance is minimal from tillage. The extra rain that gets into the soil instead of running off can make a big difference for crop yields, such as in mid-to-late summer in the Midwest, when the rain can come fast in thunderstorms and be followed by long dry spells. The extra aeration created by cover crop roots and earthworms also benefits crop roots and other soil organisms.
- 8 Cover crops reduce soil compaction and improve the structure and strength of the soil**
The typical solution to compaction from heavy farm equipment has been more tillage, but that provides only the briefest of benefits while compounding the problem in the long term. Excess tillage destroys soil structure, while cover crops and the soil organisms they feed create the glue (glomalin) that binds soil particles together, leading to better soil aggregation and strong soil structure. Research has shown that cover crops (with an assist from earthworms) help loosen compacted soil even more effectively than subsoiling equipment, which takes a lot of diesel fuel. A field with cover crops and minimal tillage, or better yet no-till, will lead to much better soil structure without compaction issues.
- 9 Cover crops make it easier to integrate livestock with field crops**
Beef cattle and other livestock are usually kept in pastures and out of crop fields, which has some conveniences but is not ideal for soil health. Think of buffalo herds foraging on prairies and you can see how natural systems evolved to have an integration of plants and grazing animals. The manure from livestock grazing on cover crops in a grain field can be beneficial for building organic matter and soil health. It is also a great way to get immediate profit from cover crops, as certain cover crop species can be very high-quality forage in late fall or early spring.
- 10 Cover crops greatly reduce soil erosion and loss**
On many fields that have some slope to them, half the topsoil has already been lost from the days when they were first farmed. The future success of farming and our food supply depends on keeping the topsoil we still have, and cover crops are exceptional at helping stop erosion. Using no-till with cover crops can reduce erosion to a tiny fraction of what it would otherwise be in a conventional corn and soybean system. Even with some light tillage, a field with cover crops is still much better protected, especially with winter annual cover crops like cereal rye.

Summary

Methods of improving soil health come back to the core principles identified by NRCS, including a greater diversity of plants, keeping the soil covered, having living roots in the soil throughout the year and disturbing the soil less. As we learn more about soil biology, it's clear that even modest use of cover crops makes a big difference for soil health. Further information on cover crops, including publications and videos of farmers talking about cover crops and soil health, are available from SARE at www.sare.org/covercrops. More information and fact sheets on soil health are available from NRCS at www.nrcs.usda.gov/wps/portal/nrcs/main/national/soils/health and from the Soil Health Institute at www.soilhealthinstitute.org.



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The Soil Health Institute is a national non-profit organization working to safeguard and enhance the vitality and productivity of soil through scientific research and advancement.

SARE Project Looks to Benefit Growers

POLLINATORS: WSU Team is Studying Native Bees and Canola

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and canola yields. Their project, which is in its second year, is exploring the relationships between landscape structure, bees (both native and honey bees), and canola yields and quality. They are also trying to determine how farm management practices affect nectar and pollen traits, including nectar quantity and sugar content, as well as amount of protein in the pollen.

In addition, the team is also working to clarify how growers might be able to modify their management practices to

promote high pollinator activity on their fields.

Their work has led to strong collaborations between researchers and growers, an increased interest from growers in managing for pollinators, and an opportunity to work with a national effort to come up with best management practices for pollinator protection in canola fields.

David and team member Rachel Olsson worked with other researchers from the Pacific Northwest, Oklahoma, Kansas, and the Dakotas in a working committee

of the [U.S. Canola Association](http://uscanola.com/) (uscanola.com/) and the [Honey Bee Health Coalition](http://uscanola.com/crop-production/pollinator-health/) (uscanola.com/crop-production/pollinator-health/). The committee wrote a white paper, “[Best Management Practices for Pollinator Protection in Canola Fields](http://uscanola.com/wp-content/uploads/2019/07/HBHC_Canola_030119.pdf).” (uscanola.com/wp-content/uploads/2019/07/HBHC_Canola_030119.pdf)

Sixteen farms are partners in the project, and both the [Pacific Northwest Canola Association](http://pnwcanola.org/) (pnwcanola.org/) and the Washington Oilseed Crop Association, have been pivotal in helping support the research and connecting the WSU team with growers, according to Vera Pfeiffer, WSU Post-Doctoral Researcher in the Crowder Lab. In addition to the 16 grower-partners, over 50 farmers have been reached through field days and meetings sponsored by the Associations. The team is reaching canola growers throughout Washington, northern Oregon, and northern Idaho.

David states “The outreach portion of the project has been great. There is a healthy skepticism from growers and scientists about pollinators because canola is both wind-pollinated and bee-pollinated. Growers want to know if bees really matter for their yields. They want to see the results in their own area. Our lab’s goal is to partner with growers to figure out the best management practices.”

During the course of the project, over 80 different species of native bees have been found in canola, which Crowder considers a lot given that the canola is grown in a region of wheat-legume rotations with limited resources for bees.

The team has also found that tillage impacts bees. Seventy percent of native bees nest in the ground and tilled acreage is disruptive by destroying nests and killing eggs and larvae.

Graduate student Rachel Olsson, who previously led a Western SARE graduate



WSU undergraduate research assistants Kennedy Langohr and Andrew Hansted hand netting bumble bees to non-lethal sample DNA.

Flowers and Pollinators in the Palouse

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student project on the effects on non-bee insects on pollination in diversified vegetable farms, finds the research interesting as the inland northwest is one of the only places in the world that can grow both winter and spring varieties of canola due to the high quality of soil and amenable climate.

“This gives us months of mass bloom of canola, which is very beneficial to early season bees. The bumble bee queen emergence is around the same time as first bloom and gets them a good start. For mid- season bees, there are huge flush floral resources available to them.”

Rachel is looking at how bees respond to different floral traits. Canola is actually three different species, each with its own properties. These properties – size or quantity of flowers, petals, etc, can influence the types of bees found. They are seeing a trend in the research that bees associate with flowers that are similar in size to their body.

Vera is contrasting yields with open pollination and attempting to quantify the impacts of pollination restriction. She is assessing how the timing of canola bloom and context of landscape influence bees.

The partnership with growers is key.

“Once you get out in the field and talk with growers, you notice things you didn’t expect. Growers notice what a researcher may not think of. The field days are just as beneficial for our team as for the growers. We’re learning a lot about how growers manage their canola, which helps us develop questions about how practices impact pollinator community,” says David.

Read more about the project: projects.sare.org/sare_project/sw18-031/

Read about Rachel Olsson’s project: projects.sare.org/sare_project/gw16-031/



Bumble Bee (*Bombus* sp.) drinks nectar from a canola flower

ROCKEY: Potato farm keeps building diversity and soil

(continued from page one)

ing chemical pesticides. It wasn't a big success.

"We had such a dysfunctional system at the time," Rockey said. "We had poor soil health and a real lack of diversity on the farm. We really didn't have a system created that could handle getting rid of the chemicals."

But instead of going backward, Rockey Farms pressed on. They'd been rotating barley as a cash crop with their potatoes, but a drought in the already water-limited area made that rotation impossible. They planted a cover crop. Year one it was all sorghum. But Brendon Rockey was already seeing the benefits of diversity and in year two, the cover crop was a seven-species mix.

"Watching these plants grow together, it just made so much sense to me," he said. "I could see them interacting with each other. Diversity became a foundation for us."

Except for the potatoes. That was still a monoculture, and that bothered Rockey.

"Then one day I was out in the potatoes and came across a patch of field peas that was growing volunteer," he said.

"And I remember thinking, 'Well, I don't think those peas are doing any harm.'"

So the next year, he pushed forward again. Despite having about six inches of rainfall annually to work with, Rockey intentionally planted peas with some of his potatoes. It worked.

"I was just so pleased with how well the two plants interacted with each other," he said. "They weren't creating competition, but were actually collaborating with each other. We didn't end up using any more water, and we had a slightly higher yield in the intercropped blocks. I was always taught that any plant out there that isn't your cash crop is creating competition, and that wasn't the case."

The next year, Rockey Farms pushed forward again, planting diverse companion crops in their potato fields, mostly legumes. Then seeing an increase in insect diversity, they added buckwheat and flower strips and companion flowering crops.

"It was amazing to me how many problems just disappeared by simply bringing diversity into the rotation."

Brendon Rockey

"I started discovering all of these things were stacking on top of each other and all the benefits I was getting from these practices," he said. "It was amazing to me how many problems just disappeared by simply bringing diversity into the rotation."

Higher quality – and profits – followed.

"I think a lot of times we get stuck in this dynamic that we always think that we have to grow more crop in order to make more money," he said. "We decided to do a higher quality crop and really became more efficient with our inputs. The way we're farming now, we feel like we've really eliminated a lot of expenses of growing the crops. Every time we spend the money now the focus is on investing in the soil."

And Rockey doesn't see these stacked benefits ending at the farm boundary. He believes one thing will continue to lead to another.

"For a while, we were stuck in this real linear mindset that whenever we had a problem we'd go out and try to kill the problem off," he said. "Adding living components to our farm are now controlling those insect populations. We're growing a crop to feed other people, so it's all about life. It was really confusing to me that with all this life, we were trying to solve our problems with death."

"So instead, now we want this dynamic living system that functions properly and in the end we end up with a good crop," he said. "And it's helping create healthier human beings as well. It's all about this positive life."

Rockey Farms story will be featured in an upcoming podcast by Western SARE.



Focusing on diversity has brought improvements in quality for Rockey Farms.

New SARE “Research to Grass Roots” Grants Focus on Getting Research Results Adopted

Over the years, SARE has provided millions of dollars for research into sustainable agriculture practices through competitive awards to university researchers, non-profit organizations, graduate students, extension agents, and directly to farmers and ranchers.

Grant recipients conduct their research, develop education and outreach activities, and write up their results and recommendations. SARE publicizes those results, through reports and newsletters like this, in the hope that others will learn about and adopt successful practices, spreading sustainable farming and ranching approaches across the country.

To jump-start adoption, Western SARE launched a new type of grant, called Research to Grass Roots. It awarded its first grants in the category in 2019.

“The circle wasn’t complete,” explained Larry Cundall, former chair of the Western SARE Administrative Council and proponent of the new grants. “We were investing money on research and education programs with an emphasis on farmer and ranchers problems, but never really got an answer back on whether it could work beyond their operation.”

The goal of the Research to Grass Roots grants was to encourage individual farmers or ranchers – or better yet a group of them – to identify two or three specific practices from earlier SARE-funded research and implement them on their land.

“Farmers and ranchers have to think holistically to make their operations work,” Cundall said. “The idea is that these grants could allow them to put that system together – some soil enhancement and pollinator protections in a rangeland project, for example. That’d be pretty cool stuff.”

Another potential benefit of the new grants is improving all of Western SARE’s other grants. One goal of the Research to Grass Roots program is to have the

recipients evaluate earlier grants and implement their results.

“It would be like a score card for the Administrative Council,” Cundall said. “Did it work or not? Was the previous research useful or applicable or not? We can use that information to improve how we write the call for proposals to make our grants better and more useful for producers throughout the West.”

Here are overviews of the first Research to Grass Roots Grants awarded in 2019:

Land and Water Stewardship Training for Livestock Owners

A workshop series utilizing best management practices and research to empower livestock manager stewardship actions, improving soil health and protecting water quality.

The project will convene a multi-disciplinary panel of conservation education staff, agency partners and private landowners to review current research, identify key learning objectives related to livestock management and incorporate those objectives into new curriculum materials. The workshop content and resources will be made available to other Puget Sound Conservation Districts for implementation.

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

This project extends cover crop research through on-farm demonstrations and develops tools for farmers to evaluate cover crops, share information, improve ecosystem services and reduce risk.

The project will support on-farm cover crop demonstrations in Washington, Oregon, and Idaho to highlight success from previous SARE cover crop projects; develop simple and systematic cover crop evaluation criteria for farmers, introduce producers to the recently

developed NRCS Pacific Northwest Cover Crop Selection Tool, and provide feedback on improving the tool content and accessibility.

Regenerative Agriculture: Connecting Soil Health, Native Bee Habitat, and Climate Resilience through On-Farm Management Strategies

This project promotes agricultural practices, relevant to Oregon producers, that connect climate resilience, soil building, and native bee nesting habitat.

This project will provide a clear path from research to education and outreach throughout Oregon. By supporting farmers with peer-to-peer learning opportunities, educational events and user-friendly resources, farmers will be better equipped to make informed decisions about how to plan for climate resilience. The goal is to show that by stacking functions, farmers are able to support native bees and other insects, improve soil health, sequester carbon in the soil, and better prepare their farm for weather extremes that may include floods and drought.

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

This project will develop a formalized network focused on farm viability in urbanizing regions, an associated annual conference and network website.

Results from a myriad of relevant SARE projects will be highlighted in the project deliverables and will inform the project trajectory. Importantly, the Network will be developed to be ongoing, expandable, adaptable, evolving platform to move agriculture forward as a vital, contemporary economic enterprise and occupation in the peri-urban context with nationwide impact.

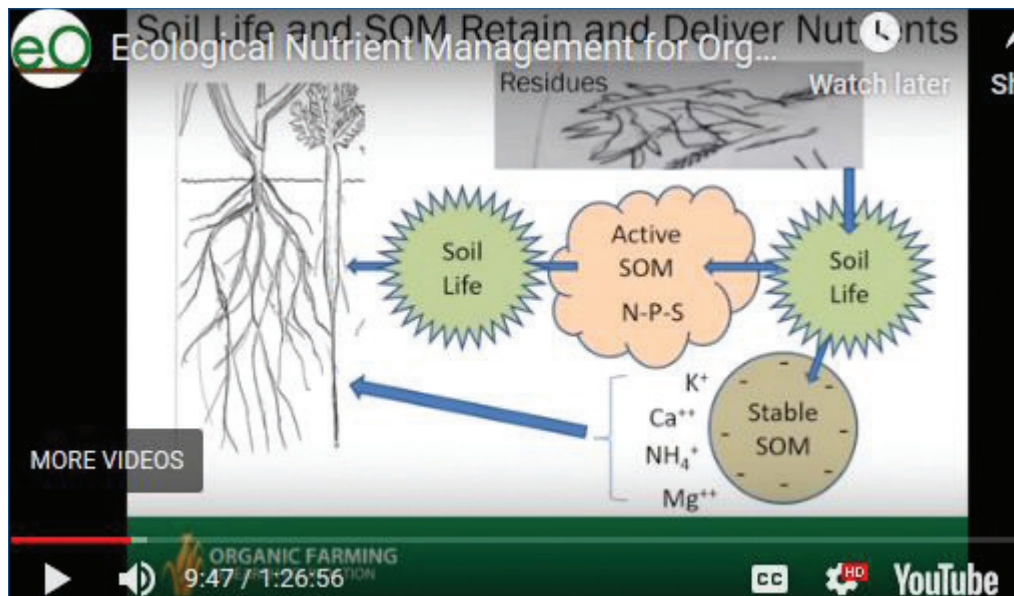
Organic Soil Health Webinars Available

A survey of organic farmers taken in 2015 highlighted a need for improved education on organic soil health, biology, and nutrient cycling. The [Organic Farming Research Foundation](#) (OFRF) strived to meet this need by publishing a series of guides on soil health and organic farming for organic and transitional farmers. Following the creation of the guidebooks, OFRF obtained funding from Western SARE to present the material to farmers, agricultural professionals, crop advisors, and mentor farmers via [eOrganic](#). These webinars prepare them to implement, share, or teach the practices and better understand the research needs of organic farmers. The live webinars were attended by 896 people and archived webinars have been viewed over 2,000 times.

The eight webinars are:

- Ecological Nutrient Management for Organic Production in the Western Region
- Ecological Weed Management for the Western Region
- Practical Conservation Tillage for Western Region Organic Cropping Systems
- Selecting and Managing Cover Crops for Organic Crop Rotations in the Western Region
- Breeding New Cultivars for Soil-Enhancing Organic Cropping Systems in the Western Region
- Preparing for Drought: The Role of Soil Health in Water Management in Organic Production
- Meeting Weather Challenges in the Western U.S.: Organic Practices to Mitigate and Prepare for Climate Change
- Soil Biology for the Western Region: Organic Practices to Recruit and Nurture Beneficial Biota in the Soil

“The goal of these webinars is to address the need for region-specific resources and knowledgeable Extension services related to organic soil health, biology,



A screen shot from one of the webinars.

nutrient cycling, and more,” said Brise Tencer, Executive Director at OFRF. “We’re so pleased with the response and continued use of these resources.”

The webinars were popular and successful.

Preparing for Drought was the most attended webinar. Said one participant: “The practical implementation ideas are so helpful as that is a big challenge for us. Love the example pictures and comments to see what works and what

is challenging.”

For each of the webinars in the series, 90-100% of participants said they’d recommend the webinars to others and up to 93% stated they would use the knowledge gained.

You can view all webinars at eorganic.org/node/27448

Read more about the funded project: projects.sare.org/sare_project/ew18-024/

Funded Projects for 2019

At recent Administrative Council meetings, 88 projects were funded for 2019. The funding for the year is \$5.74 million. The projects were funded under the Research & Education, Farmer-Rancher, Professional + Producer, Graduate Student, Research to Grassroots, and Professional Development grant programs. Thirteen states and protectorates received funding.

A list of projects by state can be found at westernsare.org/Projects/Funded-Projects-by-Year/2019-Projects.

To search by grants program or other criteria, visit the projects database at projects.sare.org/search-projects/.

New and Upcoming from Western SARE

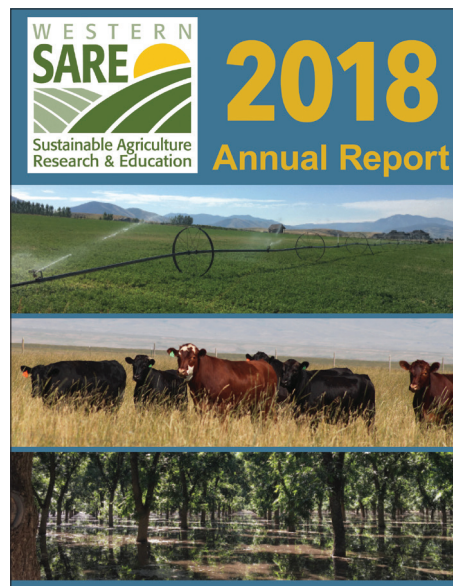
2018 Annual Report

Our 3rd Annual Report demonstrates the impacts Western SARE funding has had in the region. Read stories highlighting some of the great work being done in the West, view stats on the impacts on the agriculture community, and learn what funding went to which state.

From this report, we created our first interactive infographic with data and links to videos and stories from 2017-2018.

Download report: westernsare.org/Learning-Center/Fact-Sheets/2018-Annual-Report

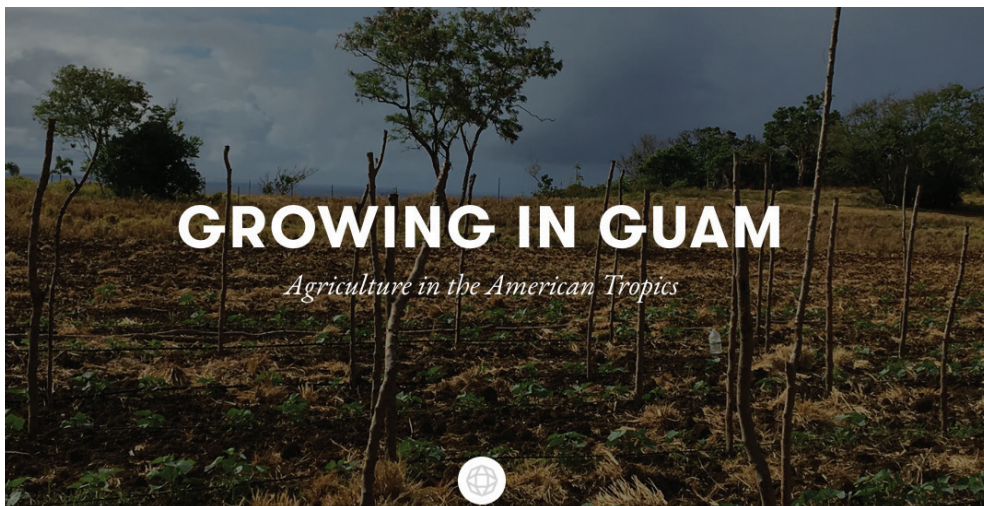
View infographic: westernsare.org/Learning-Center/Fact-Sheets/2018-Annual-Report-Impacts-of-Funded-Projects



Pacific Island Photo Galleries

Twenty-seven facilitators from Western SARE traveled to nine Pacific Islands in May 2019, meeting with and providing training to 200+ farmers, ag professionals, local officials, and teachers. Our team learned as much as we taught. The

Western SARE team visited numerous farms and livestock operations on all islands - learning directly from local producers about their successes and challenges. Facilitators gained a deep understanding of the challenges and opportunities of agriculture in the Pacific Islands. We also were exposed to the role culture and social context impacts entrepreneurial decisions and marketing, and we had direct exposure to the perils fragile ecosystems and extreme climate events (such as typhoons) can cause on tropical island communities.



A full report on the Pacific Island visits will be released in early 2020

Photo Gallery: Building Partnerships can be found at westernsare.exposure.co/building-ag-partnerships#

Photo Gallery: Growing in Guam can be found at ipmwest.exposure.co/growing-in-guam

Podcasts

To kick off 2020, Western SARE will launch a new podcast series, Fresh Growth; Approaches to a More Sustainable Future from Ag Practitioners in the American West.

It will feature successful producers, primarily younger generation working with their family or going through the transition from one generation to the next. They've embraced a sustainable approach and are making it pay. You'll learn about practices to improve soil health, use energy more efficiently, diversify crops, manage for wildlife, and more.

Look for details soon!



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- Instagram: <https://www.instagram.com/westernsare/>
- Online: westernsare.org

SARE is funded by the USDA National Institute of Food and Agriculture. USDA is an equal opportunity provider and employer.

Funding for Graduate Students Available

The Call for Proposals for the Graduate Student Grants in Sustainable Agriculture has been released. Deadline is February 11, 2020.

This grant program involves full-time graduate students enrolled in an accredited university of Western U.S., their academic advisor, and producers implementing projects to address identified needs in sustainable agriculture. With the collaboration of producers, projects must integrate rigorous research and education aiming to advance the three components of sustainable agriculture- environmental, economic, and social. It is expected that outcomes of funded projects will result in quantifiable benefits for producers, increase the preservation of the natural and social resources upon which agriculture relies, and be documented in scholarly journals and disseminated throughout educational outreach activities with producers and other agricultural stakeholders.

Graduate Student projects are limited to \$25,000 for up to two years. Graduate students are responsible for writing the proposals and their academic advisor should submit as PI. The Western SARE Administrative Council will select proposals for funding in July 2020.

For more information: westernsare.org/Grants/Types-of-Grants