WESTERN SARE
Sustainable Agriculture Research & Education

SIMPLY SUSTAINABLE

Advancing Innovation in Sustainable Agriculture
March 2026

Protecting Oysters in Washington

page 4

Domes Link Wyoming to the Pacific Islands

page 8

Opportunities in Agrotourism

page 10

Seeing Sustainable Agriculture All Around is Truly Heartening

Darrell Donahue

WESTERN SARE REGIONAL COORDINATOR'S COLUMN

Hello from "warm winter" Bozeman!

I hope that everyone had great holidays with family and friends. I feel fortunate to have been selected to be the Regional Coordinator (RC) of Western SARE, as of September 2025.

Growing up on a farm in rural North Carolina, the ideas of sustainable agriculture were far-fetched for me. I first became acquainted with the SARE program when I was a faculty member at the University of Maine. I served as a co-PI on a couple grants and then served on their Administrative Council as well. It was a great experience and made the idea of sustainable agriculture real for me. As I have progressed through my career, I have "kept an eye" on SARE and have encouraged faculty and producers who are forward-leaning leaders in agriculture to consider applying for a SARE grant.

As I have started as the RC, I have thought a lot about sustainable agriculture. I feel strongly that sustainable agriculture, as SARE defines it, IS what we should be doing to protect future of agriculture in the U.S. and around the world. I want to make sure that we are doing agriculture sustainably so that my great-grandchildren have the opportunity to be part of our great U.S. agriculture system. I feel fortunate to be working in sustainable agriculture – our future is why!

As we are entering a new year, I know that we will have some challenges, just as we do each year. I am thankful that Western SARE has a strong staff ready to face the challenges we could see. We are hoping that our Request for Applications from

See DONAHUE, page 18

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Cover Photo

Emma Guerrini Romano applies baking soda to control burrowing shrimp. Photo by Jennifer Ruesink.

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Page 3: Dr. Frankie Crutcher, Vishal Monga
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Page 19: Emma Guerrini Romano
Back page: LD Productions

Safeguarding Chickpea

from Foliar Disease Ascochyta Blight

Montana chickpea growers – who produce a third of the U.S. chickpea crop – face a serious foliar crop disease known as Ascochyta blight.

It's caused by a poorly understood pathogen-*Ascochyta rabiei* that requires growers to make multiple fungicide applications each season. That's not only expensive, it's a recipe for fungicide resistance development.

"Some fungicides are already losing their sensitivity towards Ascochyta," explained Vishal Monga, a PhD student at Montana State University. "And because of the large number of fungicide applications needed, Ascochyta blight is the primary limiting factor to farmers integrating chickpeas into their rotations."

In Montana chickpea is often rotated with wheat. The fungus can be present both in chickpea seeds and crop residue. It survives Montana winters, and the fungus spores emerge and spread by wind in the spring, travelling up to 10 miles from the original source.

What growers need to know – and Monga is researching with funding from a Western SARE Graduate Student grant – is exactly what conditions lead to spore dispersal, when growers should make the first fungicide application, and how often they will need to make repeated applications of different fungicides to effectively manage the disease. In his study, Monga is rotating between fungicides with different modes of actions to discourage resistance development in the pathogen.

Ascochyta blight symptoms

Montana State University PhD student Vishal Monga samples chickpea foliage.

"We are interested when the spores are released," Monga explained. "We have placed chickpea residue from the previous year in eight locations around the state, so that the residue can overwinter and we can assess if our Montana climate is favorable to spore production."

Surrounding the chickpea residue will be spore traps and chickpea seedlings grown from certified disease-free seed of varieties known to be susceptible to Ascochyta blight. Monga will re-

See CHICKPEA, page 15

It's Oysters vs. Shrimp

in Washington's Willapa Bay

For the past century, a silent war has waged in the tidal mudflats of Washington's Willapa Bay. The combatants: native burrowing shrimp versus farmed Pacific oysters.

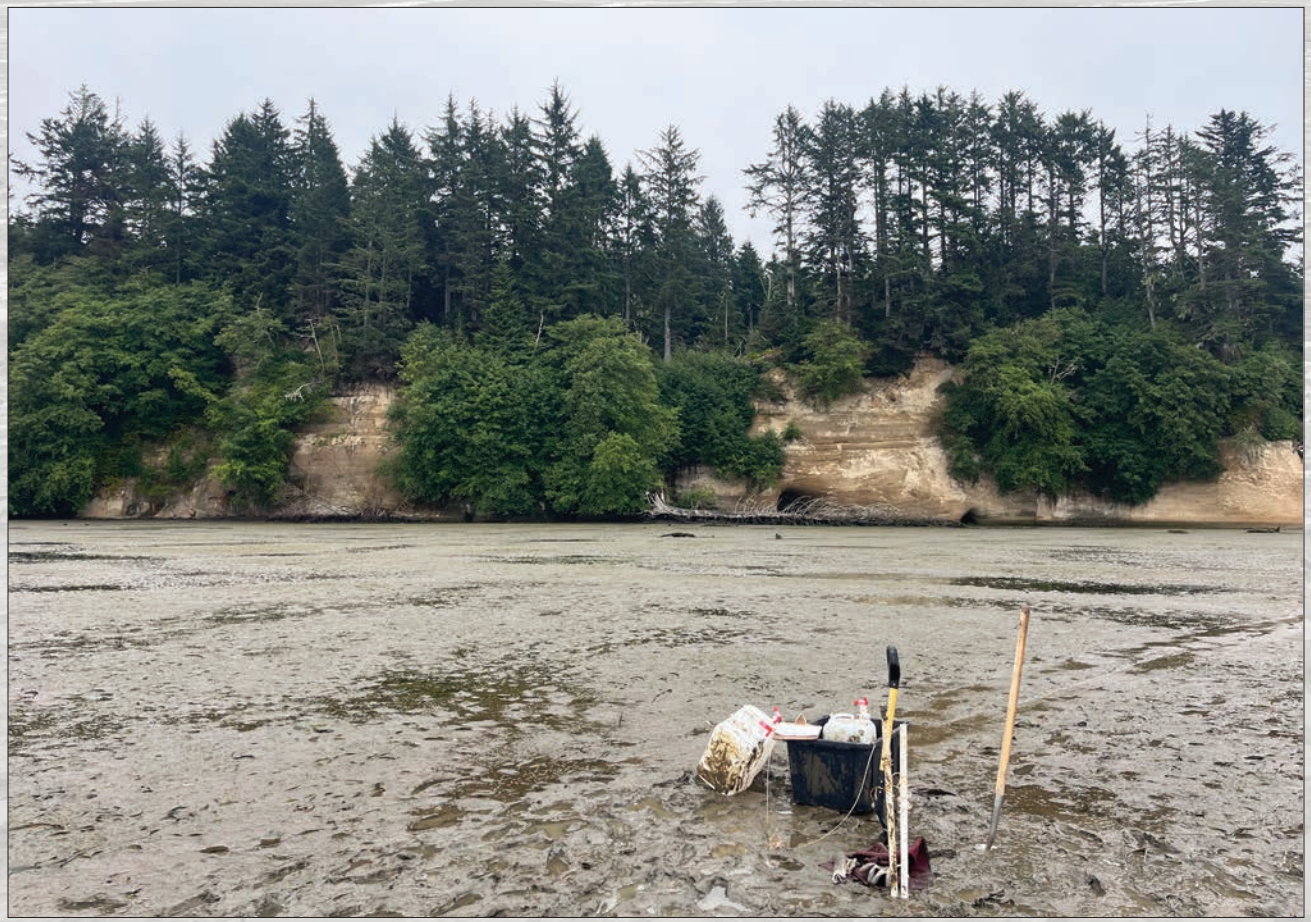
Right now, the shrimp have the upper hand, but the oysters' allies have been testing new weapons, hoping to turn the tide. One of those weapons? Sodium bicarbonate – the baking soda sitting in many kitchen cupboards.

Emma Guerrini Romano, a doctoral student at the University of Washington, is a new recruit to the battle – on the oysters' side.

"Willapa Bay produces about a fourth of the oysters produced in the United States," she explained. "It's a very large industry, primarily for canned and jarred oysters."

Oyster farmers have traditionally seeded the mudflats with baby oysters, or spat, letting them grow and mature in the mud and harvesting them when they reach market size. There are alternatives to this "bottom-culture" growing system – securing oysters in bags attached to long lines or bags floating on the tides – but they require large investments beyond the means of many of the bay's smaller producers.

The burrowing shrimp were first described as pests in the scientific literature in the 1920s, killing oysters essentially by accident.



Mudflat of Willapa Bay, Washington where experiments were conducted.

University of Washington PhD students Elissa Khodikian (left) and Emma Guerrini Romano (center) in the mud with professor Andrea Durant during baking soda applications.

"The way the shrimp kill oysters is through their burrowing behavior," Guerrini Romano explained. "They are really, really effective burrowers, and just one shrimp can displace 20 to 50 milliliters of sand a day. And they can grow in densities of up to 500 shrimp per square meter."

That many shrimp kicking up that much sediment buries growing oysters in the mud, causing them to suffocate and die.

Growers used to put down gravel to discourage the shrimp, and then for many years sprayed the mudflats with a broad-spectrum insecticide to kill the shrimp. It worked, but consumer pressure and regulatory changes ended the practice about 10 years ago.

"Since then, oyster farmers have been losing a massive amount of their land to this pest," Guerrini Romano said. "The shrimp are completely uncontrolled. They go where they want and their movements are unpredictable."

But they also live in deep burrows that contain little oxygen, high concentrations of sulfides and high accumulations of waste products. It's a difficult environment to live in, and University of Washington scientists funded by the state's Integrated Pest Management working group hypothesized that by making the conditions ever so slightly more difficult – changing the pH of the water in the burrow perhaps – that the burrow could become fatal to the shrimp.

"That's where the idea was born to use baking soda," Guerrini Romano explained. "Baking soda makes water more basic, shifting the pH higher, which can convert non-toxic ammonium to its toxic form of ammonia."

The initial lab experiments were a success.

"We put a bunch of baking soda in the water of burrowing shrimp and they die," she said.

A couple of problems. Guerrini Romano is a physiologist, and when she looked at the biological responses of the shrimp to the baking soda she found it wasn't the change in pH that killed them, but an imbalance of chloride. (The baking soda adds a bunch of sodium and carbonate to their environment but little chloride and that lack is fatal to the shrimp.)

And even though it meant the initial hypothesis was wrong, baking soda still killed the shrimp.

See OYSTERS, page 19

Send in the Sheep

Using Targeted Grazing to Help Manage Invasive Cheatgrass in the West

Targeted grazing – using livestock to intentionally manage vegetation – can excel at treating large patches of edible invasive plants and also create fuel breaks to reduce wildfire risk.

Dr. Kelly Hopping at Boise State University has received a series of Western SARE Research and Education grants to examine and show how sheep can be used to manage cheatgrass, an invasive, fire-prone species.

Her initial Western SARE project in 2022 explored the overall effectiveness and practicality of using sheep to control cheatgrass. Her latest project, awarded in 2025, extends the earlier research and builds on it. The new research measures the ecological impacts of sheep trampling and gathers insights from herders and sheep producers about how environmental and herding factors contribute to variations in treatment effects.

It also builds on a Western Integrated Pest Management Center-funded research project by Briana Swette, a postdoctoral fellow working with Hopping.

Swette's research aimed to learn why U.S. Forest Service staff don't use targeted grazing more often to manage vegetation in national forests. She interviewed Forest Service staff working in Washington, Oregon, Nevada, Utah, Idaho and Wyoming about their attitudes on targeted grazing and barriers to using it in the forests, including social and institutional ones.

The biggest barrier?

Staff attitudes about the tools' effectiveness and perceived norms in the agency about targeted grazing.

> ***In December, Hopping and Swette were awarded a grant from the National Forest Foundation to support a targeted grazing collaborative group on the Sawtooth National Forest that will be focused on developing an effective targeted grazing planning process.***

"It wasn't a funding constraint or a policy constraint, but more just they hadn't considered it," Swette said. "There were no norms around using the tool. Their bosses weren't talking about it. Nobody was coming to them with ideas. There just wasn't a lot of conversation about targeted grazing at the time of the interviews."

But, Swette learned, staff that knew someone else doing targeted grazing, even if it was in a different system, were more likely to consider using it themselves. In fact, some interview participants said they may propose targeted grazing to their team now that they were exposed to the idea through the interview process.

In partnership with the Forest Service and funded by Western SARE, Swette and Hopping also began building an atlas of targeted grazing

While much of the early research looking at targeted grazing to manage cheatgrass focused on cattle, new Western SARE-funded research shows the utility of using sheep.

projects on national forests, which they plan to make available as an online, interactive map.

Distributing the atlas, which includes projects that did not work or that were too expensive to continue (because it's just as important to know when targeted grazing isn't a feasible solution) will be one of the outreach strategies in Hopping's new grant.

"Our outreach efforts will provide up-to-date resources for federal agency staff, sheep producers, and other partners about how targeted grazing is being tested and used on public lands," Hopping said. "Through local media, podcasts, a brief documentary film and expanded distribution of K-12 education materials, we will continue to raise public awareness of cheatgrass invasion and sheep grazing as a potential tool to help restore degraded rangeland ecosystems."

Hopping's current project includes research partners at Boise State, Brigham Young University, University of California Cooperative Extension and the U.S. Forest Service.

Project number SW25-012

DOMES

Bridging Agriculture in Wyoming and the Pacific

At first glance, agriculture in Wyoming and agriculture on Hawaii or Guam don't have much in common.

But growers in both the tropical Pacific and the northern prairie can benefit from enclosed production spaces – structures like hoop houses, high tunnels or geodesic domes – which is why Wyoming-developed domes have been popping up in the islands.

It's a roundabout tale that began during a Pacific islands agricultural needs assessment funded by the Western Integrated Pest Management Center in 2018. Those initial pre-pandemic meetings led to follow-up sessions that in 2023 reached University of Wyoming Extension Specialist Jeff M. Edwards.

"I was invited to a needs assessment session in Hawaii, where enclosed-space production is something growers wanted to explore further," he explained. "I was able to tell them, 'I might have a solution.'"

Edwards has been studying enclosed space production since 2009 and looking at domes ever since he was asked to help put together a dome that had been delivered to a local school.

"There was an 8-page instruction sheet at the very bottom of the box, it had no plans for a door and no covering material," he said. "It was a mess and the kit cost $5,000."

Knowing there had to be a better way, Edwards

See DOMES, page 14

Peggy McKibbon and Pepe Miranda, both from Hawaii, toured domes in Wyoming last fall.

Agrotourism

Montana Conference Builds Stronger Collaborations

The Montana Agritourism Association (MAA) hosted their successful two-day 2nd annual conference, "Opening the Gate: Unlocking Agritourism Opportunities to Connect, Collaborate, and Innovate" in November with over 160 attendees. The conference met its stated goal of bringing together farmers, ranchers, tourism partners, educators, and community leaders and in creating a space to connect, learn, and imagine what's next for Montana agritourism.

This conference is a direct result of a Western SARE Professional Development Program grant, Montana Agritourism Fellows Program: Developing Leaders to Advance Sustainable Agritourism."

Project leader, Montana State University Professor Shannon Arnold says, "We were excited to see all the participants attend and actively engage in the conference activities. Our hope is that each attendee left with a deeper understanding of agritourism and its potential to strengthen both the agriculture and tourism industries."

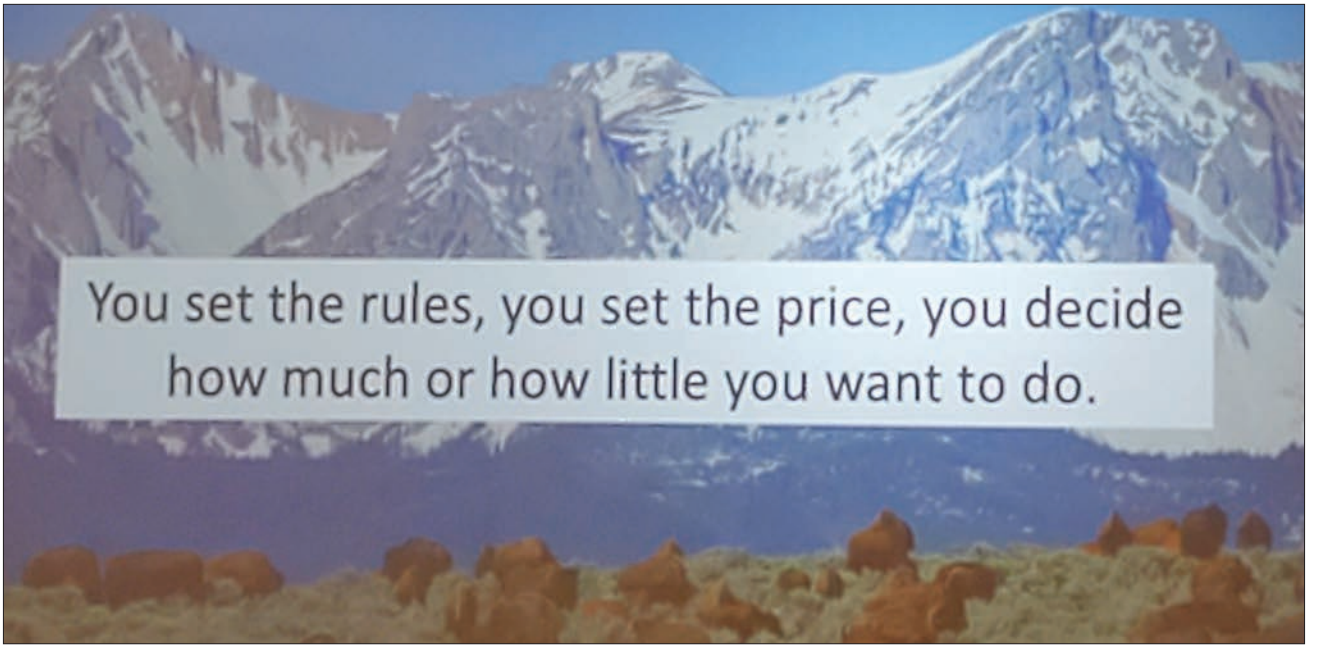
An organic goat dairy was on the tour.

The conference provided opportunities for everyone, regardless of where they were on their journey – for those just getting started, those who are already welcoming visitors and want to elevate the experience, and those thinking long-term sustainability.

Matt Skoglund, founder and operator of North Bridger Bison, kicked the day off with a strong message that there is "no box of agritourism," reminding farmers and ranchers they can go big or stay small, and they make the rules.

"You figure what to do based on what you like to do, and importantly what you don't like to do. You're the boss." This reminder encouraged people to not feel overwhelmed as they start planning their agribusiness operations.

Carla Leligdowicz attended hoping to get clarity on the ins and outs of starting an agritourism business.



Presentations educated participants on the how-tos of agrotourism.

"I was also hoping to meet people in the same place that I am in. I got both of those things and more. One major highlight was learning of the resources available to me as I navigate starting my business. I left with contacts and resources, new marketing insights, and a desire to go again next year and learn more."

Other speakers reinforced the idea that agritourism means different ideas to different people, but the critical point to remember is that by adding agritourism to a farming operation, one is moving from a transactional model to a relationship model. Examples and ideas discussed included farm stays, workshops, farm dinners, farm stands, weddings, photo shoots, wine tasting, and more. As tourism grows in Montana, there are significant opportunities to diversify income. Having the tourism industry sit down with the agriculture industry can only increase these opportunities, according to conference organizers. And producers stated that agritourism allows them to educate the non-farming community about where their food comes from.

Farm Tours

Over 40 people attended a half day of farm tours prior to the conference to see agritourism examples for themselves. Attendees could choose from:

- Amaltheia, an organic goat dairy and vegetable farm. They host tours, U-picks and will be adding a farm stay.
- The Wool Mill & Serentiy Sheep Farm Stay, a small-scale wool processing facility offering rustic farm stays and tours on a diversified family farm.
- Four Daughters Farm, a flower farm with a U-pick, subscription and farm store options.
- Bodhi Farms offering hospitality, educational camps and culinary experiences for guests and local residents.

Nate Brown, Amaltheia, focuses on "expanding to things without a lot of overhead to make it easy for everyone." And LaVonne Stucky, Serenity Sheep Farm and Wool Mill, noted that while in the past people stayed at her farm stay because it was an easy place to stop on the way to the airport, now her customers want the experience of staying in historic cabins and sheepherder wagons on a working sheep ranch.

Western SARE's regional coordinator Darrell Donahue says of his experience, "I really liked the variety I saw in both of my stops. At the stop

See AGROTOURISM, page 12

Agrotourism: Montana meeting

Continued from page 11

I spent the most time with was really good, the host farmers (a wife and husband team) were very generous with their information and answers. They were honest about the good and the bad. On the other stop, the hosts talked about the balance between getting their work done and interacting with the "tourism" part, a good frank discussion."

Says Arnold, "The farm tours were a vital part of the conference, giving participants the chance to see agritourism in action and connect firsthand with the farmers, practices, and stories that bring this industry to life."

Agritourism Fellows

Arnold says that the successful conference and the MAA grew directly from her Western SARE project developing agritourism leadership. Her professional development program project trained a cohort of leaders, the Montana Agritourism Fellows, who in turn will educate farmers, ranchers, and communities about sustainable agriculture and agritourism. Fellows were agricultural operators and professionals uniquely poised to educate about sustainable agritourism, including extension and tourism professionals, economic development specialists, agricultural educators, and government officials.

The project created a community education digital repository, fact sheets, logo, educational outreach plan, the agritourism conference, and the initial formation of a statewide agritourism association. Twenty-eight people applied to be a Fellow and 12 were accepted for the two-year program.

Fellow Tana Canen, Mahlstedt Ranch, says "The highlight of being a Fellow was being part of a very diversified group who became friends. We all are the face of agritourism, yet so different in who we are, what we offer, and how we present agritourism."

In February 2025, the MAA was officially founded with initial priority areas in education and resources, professional development, farm tours, advertising, membership, and the annual conference. An executive board consisting of Fellows members and agritourism producers was created. Tana, who joined the board after being a Fellow, states "MAA is important because now individuals and businesses who are on the ground offering agritourism can capture, direct, and lead the future of the industry and work to protect all that we hold dear."

"The Western SARE grant made this conference possible by bringing participants together to learn, collaborate, and expand their understanding of agritourism. Its support has not only strengthened our educational efforts but also paved the way for a Montana Department of Agriculture Specialty Crop Block Grant, which will fund an Agritourism Specialist to advance the industry over the next two years," notes Arnold.

Yurts are one option for farm-stay housing.

Project number WPDP22-021

Testing Prickly Pear Cactus as a Crop and Fire Break

Liron Brish sees protecting farming in the United States as his life's mission. The tech innovator has launched several ag-focused ventures (including a new banking platform called Thombar for specialty crop growers) and he and his wife bought 10 acres in the hills above Santa Barbara, California to farm themselves.

There were just a few problems.

The avocado orchard on the property – and the irrigation system that fed it – had burned in a wildfire in 2018. Brish could have repaired the system and replanted avocado as many of his neighbors did, but had reservations.

"We're in California," he explained. "Maybe it's not such a good idea to reinvigorate a very water-intensive crop, no matter how much I love avocados. Water is only going to get more scarce and more expensive."

Brish also learned after the fire that while the avocado trees burned, some plants didn't.

"I started hearing, I'll call them rural myths, about people who had a whole bunch of cactus or succulents or agave that protected their homes during the fire," he said. "The fire didn't burn through those areas."

So he started looking for alternative crops that he, and perhaps others in similar dry, fire-prone environments, could grow profitably. With a Western SARE Farmer/Rancher grant he identified opuntia, or prickly pear cactus.

"Not only does it have sweet fruit, but researchers have been doing a lot of testing of it as a cattle feed or a biofuel to produce sustainable aviation fuel," Brish said.

He consulted with John Cushman, a University of Nevada researcher to identify a variety that can stand up to the area's roaring evening winds and met with the fire department about where to plant the cactus to be an effective firebreak.

Prickly pear planted as a crop and firebreak.

"They were very interested because they had heard the same rural myths about cactus," he said. "They came and looked at the property and topography and said from a firebreak perspective, the ideal scenario would be to grow these on the ridge between my property and the Los Padres National Forest, so if a fire burns up to that ridge it doesn't jump over."

See CACTUS, page 15

Domes: From Wyoming to Hawaii

Continued from page 9

found an unpatented design for a 22-foot-diameter dome. He refined the design and developed a materials list and construction manual so folks could build the domes themselves. Materials – all available at large home centers – cost about $2,500. He's led dome-building workshops and erected 30 throughout Wyoming.

In early August, as part of a Western Sustainable Agriculture Research and Education program grant, Edwards led a two-day whirlwind tour through several of those domes, showing prospective dome-builders from Hawaii how they are being used in Wyoming.

Pepe Miranda, an agronomist with Farms and Coffee Solutions, was one of the tour participants.

"In Hawaii, we have a 365-day-a-year growing season yet 95 percent of our produce is imported," he said. "There are a lot of people interested in producing more of our own food on the islands but just need a little encouragement. A little excitement."

He's hoping erecting a dome for the Koni School District (which has an aquarium containing two sharks at one if its campuses) will inspire young islanders to take more interest in farming.

"I know the ag teachers there and every Friday they hold a school market," he said. "This can add to it."

Peggy McKibbin of Hekela Ranch was another tour participant and sees domes as a way to protect the market vegetables she grows on her multi-generational family farm.

"They'll definitely provide protection from the wind and be a barrier to bugs," she said. "After seeing these, I'm convinced it will help my farm."

In Wyoming, domes protect vulnerable plants from the state's abrasive, drying winds and extend the growing season up to 45 days in both the spring and fall. In the islands, abrasion protection and pest control are likely to be the primary benefits of the domes.

"It's not just protection from the wind, but from natural rainfall where we think domes will help," Edwards said. "On the islands, the rain carries volcanic ash that abrades plants and allows diseases to start."

This winter, Edwards will be part of a group building several domes in Hawaii, experimenting with the designs to adapt the dome to the tropical climate.

"One idea we have is to raise the base two feet and wrap the lower level with screen material rather than solid plastic, and use screens on the peak as well," he said. "That'd maximize airflow and keep the temperature inside the dome down."

One stop on the tour was the Urban Thistle Farm in Casper, Wyoming, a community garden sponsored by the Casper Housing Authority that has three domes filled with growing produce. Steve Lovelace, a retired schoolteacher, volunteers on the farm and used to be a proponent of high tunnels.

"I taught geometry so I like rectangles," he said. "Rectangles are cozy. And I was totally a fan of high tunnels until I experienced domes. Domes are the way to go. They are really solid, stronger than high tunnels and the shape of the dome sheds snow really well."

Hopefully, Hawaii never has to test that last bit…

The construction manual can be downloaded at: www.wyoextension.org/publications/Search_Details.php?pubid=2151&pub=B-1387

Project number WPDP25-006

Cactus: Potential biofuel for aviation

Continued from page 13

So last fall, Brish cleared more of the most flammable vegetation on his property and planted 600 linear feet of prickly pear cactus in a pattern he hopes will create an effective firebreak but also leaves paths for firefighters to weave their way through with shovels and hoses should the area ever be threatened with wildfire again.

If and how long it'll take the cactus to grow into an effective firebreak – and a profitable crop – is an open question, but Brish thinks it's one worth answering. Because the obvious alternative of simply replanting avocado doesn't strike him as viable in the long term.

"We're in a high fire danger area so as you can imagine it's also a high-cost insurance area," he said. "Having an avocado orchard and all that flammable material right next to your house doesn't seem sustainable."

Project number FW25-013

Can prickly pear be a crop in high-fire areas?

Chickpea: Helping an IPM program

Continued from page 3

cord detailed weather data and look to pinpoint the conditions that lead to spore release.

"The next objective for this study is to determine the best timing of fungicide application for the growers," he said. "We are testing four timings of fungicide application with two different frequencies of applications."

The four fungicide application timings are early application, first appearance of symptoms, flowering and late flowering. Each of those timings will also be tested with an every-two-week reapplication timing and an every-four-week timing.

With the data from all those applications and timings, Monga hopes to be able to provide growers with a clear recommendation of when to begin treating the disease, and how often. And even then, it'll only be an element of an overall control strategy for the pathogen.

"Ascochyta is a disease and you can't rely solely on fungicides," he said. "You have to use integrated control. You need to get the certified seed. You need to get it treated. You need to get the best available varieties in the market. In a growing season, you should do a protective application, at least. But if there is a high pressure, it is highly recommended you should rotate your crops away from chickpea for two to three years to break the disease cycle."

Project number GW25-004

Bee Friendly Farming for Oregon Wine Grapes

Oregon wine grape growers recognize the value of pollinators. The hope is that their region will see a greater number of pollinators with the addition of more beneficial plantings on vineyards. In this Professional + Producer project, growers worked closely with Dr. Andony Melathopoulos, Oregon State University, to identify which beneficial plantings were already established onsite and what were the gaps they needed to fill to increase and diversify pollinator species.

Improving Environmental and Economic Outcomes for Sugar Beet Farmers

The Western Sugar Co-operative invested in re-analyzing their fertilizer use and found on a small scale that they can grow the same amount, and maybe higher quality, of sugar beets with reduced nitrogen. This Western SARE grant allowed them to test on a much larger scale, eliminating risk for farmers. By focusing on maximum pound of sugar per acre instead of highest yields, the farmers are finding that they can reduce their input costs and improve the sustainability of their farms.

Western SARE has produced a series of videos with LD Productions showcasing successful projects conducted around the region with strong engagement with farmers and ranchers. Visit our YouTube channel - @westernsare1229 to view these videos and more to come. Our previous series which focused on Farmer/Rancher projects is also on the channel.

Nevada-Grown Specialty Crops: Diversifying Farms through Novel Management Techniques

Dr. Felipe Barrios-Masias, University of Nevada, worked with the Desert Farming Initiative and local growers exploring technologies such as grafting and irrigation management that are important to small growers in such a dry valley. They discuss what they found, how much more opportunity there is for Nevada agriculture, and how farmer Rob Holley cut his water use in his tomato tunnels by 50%.

New Video Series Shows SARE Successes

Working in Partnership to Remediate Acidic Soils

This project conducted in partnership with University of Idaho Extension and local farmers is a great example of Western SARE's Professional + Producer program. Barley farmers in Eastern Idaho are facing reduced yields due to acidic soils and are starting to incorporate liming as a remediation practice. But they need more information on how it affects soil fertility and pH. The research conducted in partnership, and on-farm, are helping farmers use just what they need. As one farmer said, they are all so busy it's nice to have help in fine-tuning applications so that they are sustainable and not wasteful. This "how-to" video demonstrates how the partners designed and conducted their research.

Combining Sustainable Agriculture Practices and Technology to Reduce Water Footprint

Water scarcity is a growing challenge. Producers are facing pressure to do more with less. Dr. Matt Yost and Dr. Neil Hansen in Utah collaborated with farmers to investigate different approaches and technologies for water management. They wanted to find what combinations worked and what the ideal combination would result in the most efficient use of water. One of the farmers involved in this Research & Education project, Tanner Holt, noted that any gains discovered today puts farmers ahead, which is critical in today's economy and possibly the difference between staying in business or not.

Donahue: Favorable first impressions

Continued from page 2

USDA-NIFA comes in on the normal schedule, as in previous years, rather than what we experienced in 2025. Each year that there is an administrative change, we often have "blips" during the transition period, and 2025 was no different. We have appreciated our grantees' patience and understanding as we navigated through the transitions in 2025. Personally, I want to thank the Western SARE staff for working diligently to get the funding back to our grantees once the stop work order was lifted. Additionally, the staff worked swiftly to determine a new schedule for the granting process this year, once our RFA was approved through the USDA-NIFA process. As we move into the new year, we are better prepared to meet the challenges that we face with a full Western SARE staff – yay!

Since arriving in Montana, I have been able to visit some local farms as well as attend a couple conferences in the region. The first was the 2025 Regenerate Conference in Santa Fe, New Mexico. I was heartened at this conference in so many ways. The people attending, mostly producers, seemed to have sustainable agriculture at the forefront of everything they thought about in their day-to-day operations. It came through talking with them during breaks and meals. I also saw two and three generations of producers (little ones in strollers even!) at the meeting. I came away with a lot of pride in what we do and knowing there are people out there thinking about this every day. I also attended the "Opening the Gate: Unlocking Agritourism Opportunities to Connect, Collaborate, and Innovate" conference in Montana and went on a couple agri-tourism tours. What I saw and heard was overwhelming. Producers on my tours were all interested in doing something similar at their farm. The energy that these producers exuded was so positive – I feel that those producers are learning new and innovative ways to bring people together so that more folks understand where food comes from, firsthand. Like the Regenerate Conference, the Agri-tourism conference really energized me and made me understand what we do is important to the future.

As I look through the stories in this issue, I see a lot of hope for sustainability's future. These stories show innovative and creative solutions. These stories are science-focused and ones where people are working together and learning from each other. And they are focusing on applied, hands-on solutions to challenges. We are constantly learning from each other, and I am fortunate to be in a place where those around me are thinking about making our footprint sustainable – thank you for this opportunity. I hope you have a good spring ahead. Enjoy this issue.

Cultivating Change: Voices in Sustainable Agriculture

Starting in March, Western SARE will host quarterly live Zoom events, featuring three project leaders presenting sustainable ag question and results. Each roundtable will address a specific topic. The three speakers will include a producer, an ag professional and a researcher. Participants will leave with a better understanding of current research and practical ideas for on-the-ground implementation. Plenty of time will be provided for engaged conversations.

We are starting with new technologies, including water management and virtual fencing.

Email Stacie Clary at sclary@sare.org for more information.

Oysters: Using baking soda against shirmp

The project team prepares for their field experiments in Willapa Bay, Washington.

Continued from page 5

Guerrini Romano got a Western SARE Graduate Student grant to scale up the research and begin field trials. Then bigger problems surfaced.

"The big one was the concentration of baking soda required," she said. "When we were doing the application in the lab, we were using 70 grams of baking soda per liter of seawater. If you scale that up to the amount of land that farmers have, it's thousands of pounds of baking soda per acre – we would literally wipe out the entire supply of baking soda in Washington. That would be costly and inefficient."

For her field trials, she tested smaller-scale applications, putting baking soda in five-gallon buckets set on top of shrimp burrows, letting tidal action and the density of baking soda sink to naturally replace the seawater in the burrows.

"We found fewer shrimp beneath the buckets with baking soda," Guerrini Romano said. "It might by that the shrimp were sensing the baking soda in their burrows and leaving. Or it might be that the design is flawed. We'll repeat the trials in 2026 to help determine which."

If the shrimp are indeed fleeing the baking soda, it means the chemical – or one like it – can potentially be used as a deterrent.

"Can we take the response created with baking soda that kill burrowing shrimp and mimic them with some other salt or chemical?" she said. "Can we create a chemical application method that gets directly into the burrows? Most importantly, could farmers use this method?"

Mechanical control is also being tested in the bay by University of Washington scientists Dr. Jennifer Ruseink, Guerrini Romano's advisor, and Dr. Alan Trimble. Two approaches, compaction and vibration, collapse the burrows and entomb the shrimp. Vibration works – the shrimp can't burrow out fast enough to escape – but cost and scalability are potential issues.

"There is research on biological controls using microbes headed by the Invasive Species Corporation, mechanical controls by Drs. Ruesink and Trimble, and the chemical control research I'm doing that leverages the shrimps' physiological weak points," Guerrini Romano said. "It's a bit of a giant ball game."

There's a term for that ball game, of course: integrated pest management.

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Spotlighting Western SARE Success

To showcase some of the great work being done throughout the West by Western SARE grant recipients, we recently partnered with LD Productions to produce a series of videos highlighting recent projects.

They are fabulous!

Page 16

Dr. Andony Melathopoulos, Oregon State University