

A REGENERATIVE RANCHING PUBLICATION FROM NOBLE RESEARCH INSTITUTE

LEGACY

SPRING 2025 | VOL. 19, ISSUE 1



Restoring A Family Legacy

At Arrowpoint Cattle Company, the second generation of the Roberts family works to revitalize and regenerate their Colorado ranchland.

ALSO INSIDE:

Spring's arrival to southern Oklahoma brings a welcome change of scenery to Noble's ranches.

For this innovative vineyard director, growing grapes and grazing sheep combine for a bounty of benefits on Paicines Ranch.


Three ranchers share what it's like to transition to a regenerative mindset and adopt new practices for the good of their soil.

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FEATURES

SPRING 2025 | VOL. 19, ISSUE 1



14

PAIRING GRAPE VINES WITH GRAZING

AT A VINEYARD IN CENTRAL CALIFORNIA,
Kelly Mulville grazes sheep beneath the vines year-round,
creating surprising benefits.

COVER STORY

22

RESTORING A FAMILY LEGACY

At Arrowpoint Cattle Company, the second generation of the Roberts family works to revitalize and regenerate their Colorado ranchland.

32

FINANCIAL RESOURCES TO SUPPORT YOUR REGENERATIVE RANCH

Grants, scholarships and cost-share programs can help fund regenerative education and conservation practices.

36

REGENERATIVE RANCHING: ARE WE THERE YET?

Three ranchers' stories about the journey — not the destination — of regenerative ranching.

42

ADVOCATING FOR CHANGE

The driving force behind Texas' "Local Yocal" beef, barbecue and more spreads the gospel of sustainable, local food production.

DEPARTMENTS

4

FROM OUR RANCHES

Spring's arrival to southern Oklahoma brings a welcome change of scenery to Noble's ranches.

10

REGENERATIVELY SPEAKING

A new scholarship and upcoming dates for Noble's regenerative ranching courses, plus our roundup of news, podcasts and social media accounts to explore.



44

DO-IT-YOURSELF

Elevate your brunch game with this delicious beef and veggie frittata, plus how to build an effective ranch first-aid kit — just in case.

48

BEFORE YOU GO

Get to know Isabella Maciel, Noble systems researcher and co-lead of a major regenerative research project.



ON THE COVER

Wooly and resilient Highland cattle are well-suited for the harsh Rocky Mountain winters at Arrowpoint Cattle Company, Nathrop, Colorado.

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Noble Research Institute is the nation's largest nonprofit, serving farmers and ranchers with research, education and mentorship for regenerating soil health to improve their land, livestock and livelihood. Since 1945, Noble Research Institute has been a leading, trusted resource in agricultural research and education dedicated to land stewardship. Demonstrating our ongoing commitment to regenerating our nation's grazing lands, Noble actively manages 13,500 acres of working ranchlands to provide real-world insights and applications for farmers and ranchers. To learn more about Noble Research Institute, visit www.noble.org.

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THAT FIRST STEP



Four years ago, when Noble set out on our journey to revitalize grazing lands through regenerative ranch management, we had to first decide how and where to start that transition on our own ranches. It's the same challenge producers all over the country face (a few of them are featured in this issue of *Legacy*).

Our commitment to restoring the land came with the added pressure of doing so as quickly as possible. As an educational organization dedicated to sharing the outcomes of this transition, we pursued a more aggressive path of change than might be necessary for a typical ranch operation. We invested in water infrastructure, fencing projects and brush control to bring about substantial change in short order. We further added multiple grazing species.

Going back to our research roots, we ask big questions and test theories of management that most universities or individual operations will not pursue. Then, we share what we learn — good and bad, successes and failures — to shorten the learning curve as much as possible for other producers.

Standing at the start line of any big project can feel daunting. However, change is rarely accomplished in one step or in a single moment. Rather, progress occurs one day — and one challenge — at a time.

When our Noble course facilitators and regenerative ranching advisors meet with producers, they recommend starting a ranch transition one step at a time. It's certainly not novel advice, but the idea bears repeating: Small changes add up.

Take the story of Kelly Mulville for example (p. 14). He serves on our Producer Advisory Panel and offers valuable insights into how thinking outside the box — incorporating sheep to graze his vineyard year-round — helped improve soil health, increase grape production and reduce irrigation costs.

In Colorado, Nancy Roberts shares the story of how she's restoring the soil on her family's Arrowpoint Ranch (p. 22). They moved through several grazing plans before they found a strategy that works for their land, cattle and family. What she calls her ranch's "work-in-progress" status is a reminder that getting started is the first move of any transition or transformation.

Looking back now, I'm glad Noble didn't wait for the "right time" to transition our ranches to regenerative management. In the last four years, we've learned more than I thought possible about how to help producers regenerate their land and improve their profitability. And none of it would have been possible without taking the first step, however small, toward a goal that sounded a little unthinkable at the time.

I believe the lesson tucked into these stories, if one chooses to see it, is the motivation to change stems from a willingness to believe in a better future. It is a realization that we have the power to do something good today that will meaningfully improve our land, ranches and livelihoods — and it doesn't hurt that we also positively impact the communities around us.

Maybe you have already taken your first (or 20th) action, or you are looking for guidance to help you start. Either way, Noble is here to help with all aspects of your work. In the end, we seek to save U.S. grazing lands and keep farmers and ranchers on the land. For us, it all started with a step.

A handwritten signature in black ink, appearing to read "Steve Rhines".

Steve Rhines, PRESIDENT

FROM OUR RANCHES

▼ Ranch manager Joe Pokey moves cows and calves from the north to the south end of Noble's Oswalt Ranch in Marietta, Oklahoma.

NOBLE RANCHES

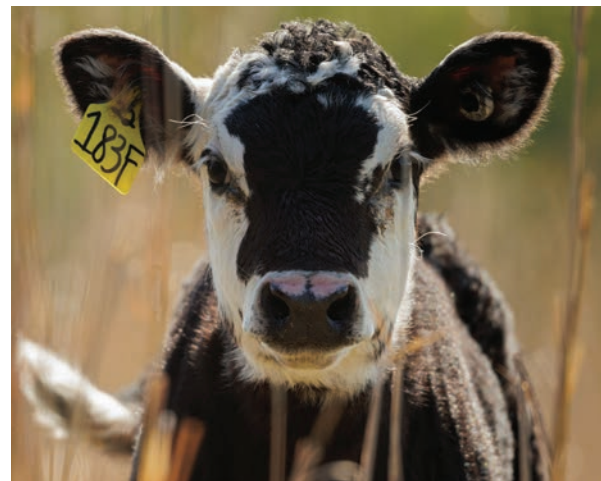
Growth, Movement and Optimism

SPRING ARRIVES ON NOBLE RANCHES and ranches across the country in a whirl of new herd members, pasture checks and putting new strategies to the test.

PHOTOGRAPHY BY ROB MATTSON

ON THE MOVE

Noble Ranches team members (from left) Kye Henington, Joe Pokay and Clint Hartman work to trailer sheep for transport to our Red River Ranch from Coffey Ranch in Marietta, Oklahoma. Grazing animals are moved between ranches in response to forage availability and each ranch's grazing plan.



[Above] A calf on a mild, sunny April afternoon on Noble's Coffey Ranch.

[Left] Ranch team member Frank Rhoades repairs polywire fencing on Oswalt Ranch in Marietta, Oklahoma.

FROM OUR RANCHES

SPRING GRAZING

A cow and her calf relax in tall residual forage as new plants green up in April at Coffey Ranch.



[Right] Guilherme De Souza Congio, Ph.D. (right) and Myoung-Hwan Chi, Ph.D. (left) conduct water infiltration tests at a multitude of long-term study locations, while also pulling soil samples and recording observational data at Red River Ranch in Burneyville, Oklahoma.



FROM OUR RANCHES



1.



2.



3.



4.

1. Research team member Brian Williams works to gather data from ponds and collect samples of aquatic life species at a pond on Oswalt Ranch in Marietta, Oklahoma. 2. Sheep graze a silvopasture pecan orchard as part of Noble's effort to reduce dependence on herbicides and mechanical mowing on Noble's Conrad-McMillan Pecan Farm in McMillan, Oklahoma. 3. A calf waits to be moved into a new grazing section of the pecan orchard at Red River Ranch. 4. Ranch managers Kevin Pierce (left) and Kye Henington catch, tag and castrate a bull calf at Red River Ranch. Tagging and castrating calves in the field rather than herding the cows and calves into sorting chutes is a practice Noble's staff undertook when the ranches transitioned to spring calving.

SILVOPASTURE IN SPRING

Cows and calves rest in one of the pecan orchards at Red River Ranch in Burneyville, Oklahoma.



FROM OUR RANCHES

[Below] Noble Ranches General Manager Joe Pokay wrangles a lamb as the team sorts and processes the herd of ewes and lambs at Coffey Ranch.

[Bottom] Randy Redden uses a no-till drill to plant summer cover crops in a pasture on Noble's Headquarters Ranch in Ardmore.



REGENERATIVELY SPEAKING

▶ Dusty Baker, owner of Cross Timbers Bison, loads cover crops into a no-till drill and records a video about the process for his social media accounts.

EXPANDING YOUR RANCH'S SOCIAL NETWORK

Sharing Your Ranching Story on Social Media

POSTING ON SOCIAL MEDIA can be a great way to share your ranch's story, connect with a like-minded community and answer consumers' questions. Ranchers and Noble staff share tips for how to get started and make the most of your online presence. 🌱

READ MORE HERE:



SCHOLARSHIPS FOR RANCHERS

Noble Partnership Makes Education More Accessible

THROUGH A PARTNERSHIP with Powerflex Supply and the National Grazing Lands Coalition, Noble is excited to present the Land & Legacy Scholarship, a program centered on providing registration assistance to producers attending online or in-person delivery of Noble educational courses. Scholarships are granted quarterly, and the next opportunity to apply begins May 10. Interested producers can apply online: grazinglands.org/noble-survey. 🌱

READ MORE HERE:



California Board Defines Regenerative Agriculture

California has defined regenerative agriculture as a continuous process focused on soil health, biodiversity and sustainable farming to improve ecosystems and support farmers. 🌱

READ MORE HERE:



Nothing Goes to Waste on This Highly Diversified 6,000-Acre No-Till Operation

The Allred family's 6,000-acre no-till farm in Washington thrives on regenerative practices, turning every byproduct into value. By integrating livestock, upcycling waste and using natural systems, they've improved soil health, reduced costs and boosted sustainability. 🌱

READ MORE HERE:



REGENERATIVELY SPEAKING

SOCIAL MEDIA ACCOUNTS TO FOLLOW

From Our Feeds

Get info and inspiration from what other regenerative ranchers and like-minded peers are saying.

PAICINES RANCH, FACEBOOK

Follow the journey of the diversified Paicines Ranch in Paicines, California. From multispecies grazing to their lodging and dining experiences, they share how the team makes everything happen for the sake of leaving the land better.

bit.ly/paicines-ranch

TEXAS SMALL PRODUCERS INITIATIVE, INSTAGRAM

The Texas SPI provides research, education and training to small and mid-sized producers. Follow along for announcements about their online courses, webinars, in-person workshops and field days on farms and ranches throughout Texas.

bit.ly/Texas-SPI

ROOTS SO DEEP, YOUTUBE

Can cattle really graze in winter? They can at Jackknife Creek & Cattle in Canada.

bit.ly/winter-grazing-canada

NATIVE HABITAT PROJECT, YOUTUBE

Based in Northern Alabama, forestry and native landscape specialist Kyle Lybarger helps his viewers identify native and invasive species and shares his experiences restoring native landscapes around the southeast.

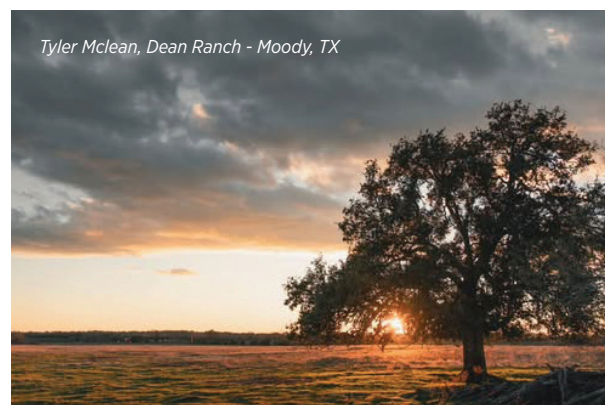
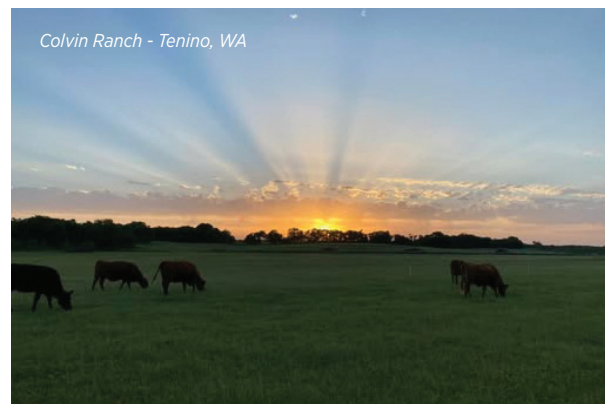
bit.ly/native-habitat-project

FROM OUR FOLLOWERS

Sunrises and Sunsets from Regenerative Ranches Around the Country

FOLLOW US HERE:

Follow Noble Research Institute on Facebook for opportunities to submit your ranch photos to be featured.



3 Podcast Episodes To Listen To

Listen to these recommended episodes on your favorite podcast app.



AHA 1881

E36: Hugh Aljoe, The Regenerative Cow

Noble's Hugh Aljoe answers the question: What makes a cow truly fit for a regenerative ranching system?



RANCHING RETURNS

211: Kit Pharo - Converting to Low-input Ranching

Jared Luhman and his guest, Kit Pharo, respond to a listener question about how to convert from a high-input cow/calf herd and operation to a low-input operation.



WORKING COWS

E409: Planning for Profitable Market Transaction

Marketing is a big lever for the average ranch. How do we push that lever with the right information at the right time to help us make profitable market transactions? Nelson Koehn developed his Value of Gain website to help people do just that.



NOBLE RESEARCH INSTITUTE'S

Upcoming Courses

LEARN MORE HERE:



Noble Land ESSENTIALS

Harness the power in your soil for better forage, better livestock and better returns.



AUG. 6-7
Jefferson City, Missouri

NOV. 11-12
Bluffton, Georgia

Noble Grazing ESSENTIALS

Use your available forages to get the best out of your livestock and grazing land.



MAY 6-8
Bluffton, Georgia

JUNE 4-6
Jefferson City, Missouri

Business OF Grazing

Discover how to make your grazing strategies work for your bottom line.



SEPT. 23-25
Jefferson City, Missouri

NOV. 18-20
Winter Garden, Florida

Noble Profitability ESSENTIALS

Improve your business skills with financial tools to maximize your ranch's profitability.



JULY 11-12
Kansas City, Missouri



PAIRING GRAPE VINES WITH GRAZING

AT A VINEYARD IN CENTRAL CALIFORNIA,

Kelly Mulville grazes sheep beneath the vines year-round, creating surprising benefits.

BY LAURA BRENNER

Incorporating livestock into a crop production system can be tricky. You won't typically see cattle or sheep grazing among sweet corn stalks, strawberry plants or tomato vines. And for good reasons. But viticulture — the cultivation and harvest of wine grapes — at Paicines Ranch has something other production systems don't: a vertical trellis and Kelly Mulville's tenacious mind.

At the San Benito County ranch in central California, Mulville is experimenting with year-round grazing on a section of their vineyard. So far, it's yielded a number of beneficial outcomes, including more harvestable fruit, greater water-holding capacity in the soil and an impressive surge in ecosystem diversity in and around the vineyard.

A REAL-WORLD EDUCATION

Mulville is the vineyard director at Paicines Ranch. He's spent the last two decades in the viticulture industry, with a focus on creating healthier, more-productive vines by restoring the ecosystems where grapes are grown. Part of that restoration includes incorporating grazing livestock, specifically sheep, in the vineyard.

"I'm not a wine geek by any means. For me, it's about restoring the ecosystem, and wine just turns out to be a good starting place for that," says Mulville.

But growing grapes isn't where Mulville first established his interest in ecology and agriculture. When he was only 11 years old, he got interested in falconry. Then, at 14, he read *Silent Spring* by marine biologist Rachel Carson. Carson's 1962 book uncovered the human and environmental harm caused by the use of DDT, a chemical insecticide, to control disease-carrying insects during World War II. DDT also was commonly used in agriculture after the war.

He learned DDT had been linked to a decline in raptor populations because of the chemical's impact on shell development in female raptors. The more contaminated insects the birds ate, the worse the problem became. Reading the book changed Mulville's outlook on both the world and on the use of chemicals on his family's produce farm. By his mid-teens, Mulville began making management decisions for the vegetable crops.

"I took over because I wanted to do it organically. I was doing that while I was in high school and right after high school, until I had a big crop failure one year," he says.

That crop failure was the catalyst for him to seek an apprenticeship at the University of California Santa Cruz's Ecological Horticulture program. It was there, working on a farm next to the Western Raptor Breeding Center, that he realized how his two interests overlapped, and he was on a path to make a positive difference.

"They were flying falcons nearby and I thought, 'I could have ended up on either side of this fence,'" Mulville says. "But I chose the side that addressed a cause of the problem, which was pesticides causing thin shells in the raptors, meaning they're unable to reproduce."

In the years since, Mulville has worked on ranches across the western and southwestern United States in both crop and livestock operations. Prior to joining Paicines Ranch in 2014, he found an opportunity to combine the two in a unique way when he worked at his first California vineyard.

"Just by putting in that vineyard, I thought, 'Gosh, it seems like it'd be great to have sheep in here,'" he says. "I got in touch with some people in California that were doing it, but it was not that common."

With limited access to tried-and-true methods, Mulville had to get creative as he retrofit that first vineyard in order to graze sheep.



Paicines Ranch vineyard director Kelly Mulville has two decades working in viticulture, but is "not a wine geek by any means."

Sheep grazed in the vineyard are sorted to be loaded and sold to Dylan Boeken, shepherd and founder of Boek House Hearth & Husbandry.



ADJUSTING VINEYARD LAYOUTS FOR GRAZING

The first time Mulville decided to graze sheep during the growing season, he was nervous. He'd grazed cattle and sheep during the fall, winter and spring – after grapes had been harvested. But never while vines were full of ripening fruit.

"Since I've been working with livestock, both cattle and sheep, I was familiar with electric fence. So, I set up a system where, on either side of the main trellis, I put a hot wire, offset just below the fruit," he says. "With that, I figured the sheep would not try to eat the fruit or the shoots capturing sunlight to ripen the fruit. But whatever came down into their browsing zone was theirs to take."

Mulville estimated where the best location for the hot wire would be and tested it out. To his surprise, his first attempt worked. The sheep grazed year-round without interfering with the grapes. But it wasn't until the enterprise had a couple of growing seasons of success that he realized

the environmental benefits of the pairing. In the third year of year-round grazing, he decided to run the numbers on his experiment.

"I looked at the system and asked myself, 'What were the water savings, if any? What cost were we able to reduce through grazing in the vineyard?'"

Mulville did the math and realized he had saved between \$500 and \$1,000 per acre over that year.

"One of the big surprises was we had a 90% reduction in irrigation use compared to the control site. The winemaker and I both just thought, 'How can that be?'" he says.

"I think a big part of it was that a lot of vineyards in California are over-irrigated. But for us that year, the way that I determined when to irrigate was primarily by watching the shoot tips. When the tips slow down you need to add irrigation, and that year I only irrigated once."

Grazing livestock in the vineyard improved soil health and structure, and with it, water-holding capacity, meaning longer periods between rain or irrigation events didn't limit the vines' growth.

The system worked so well, the winemaker encouraged Mulville to write an article about his experience. He did, and it was published in *Australian & New Zealand Grapegrower & Winemaker* magazine and, later, *Acres U.S.A.* magazine.

His success led to more opportunities to share his experience and to a new job working for Sallie Calhoun of Paicines Ranch.

A FRESH START

"The funny thing was, I'd been modifying existing vineyards so that you could graze them throughout the growing season," says Mulville. "But what I really wanted was to start from the ground up and redesign the way that we grow grapevines."

Calhoun hoped to give Mulville the opportunity to do just that. She purchased the storied California ranch a few years before with the intention of restoring native grasslands to the ranch and reviving ecosystems within

“I’m not a wine geek by any means. For me, it’s about restoring the ecosystem, and wine just turns out to be a good starting place for that.”

—KELLY MULVILLE

the land through regenerative practices. She offered Mulville a role in helping shape the future of the ranch, especially its vineyard.

“When she offered me a position at Paicines Ranch, I said, ‘I don’t know how to build a vineyard to graze year-round. I have ideas, but I’ve never done this before so I can’t guarantee you anything. It could be a complete disaster.’ And she said, ‘Well, let’s try.’”

Mulville’s experiences at other vineyards informed his plans for Paicines Ranch. He started in 2017 with a 25-acre vineyard divided into two parts.

There are a couple of issues Mulville knew he had to contend with: food safety and crop damage. Luckily, Paicines grows wine grapes, which go through a fermentation process that ensures the final product — wine — won’t carry any livestock pathogens.

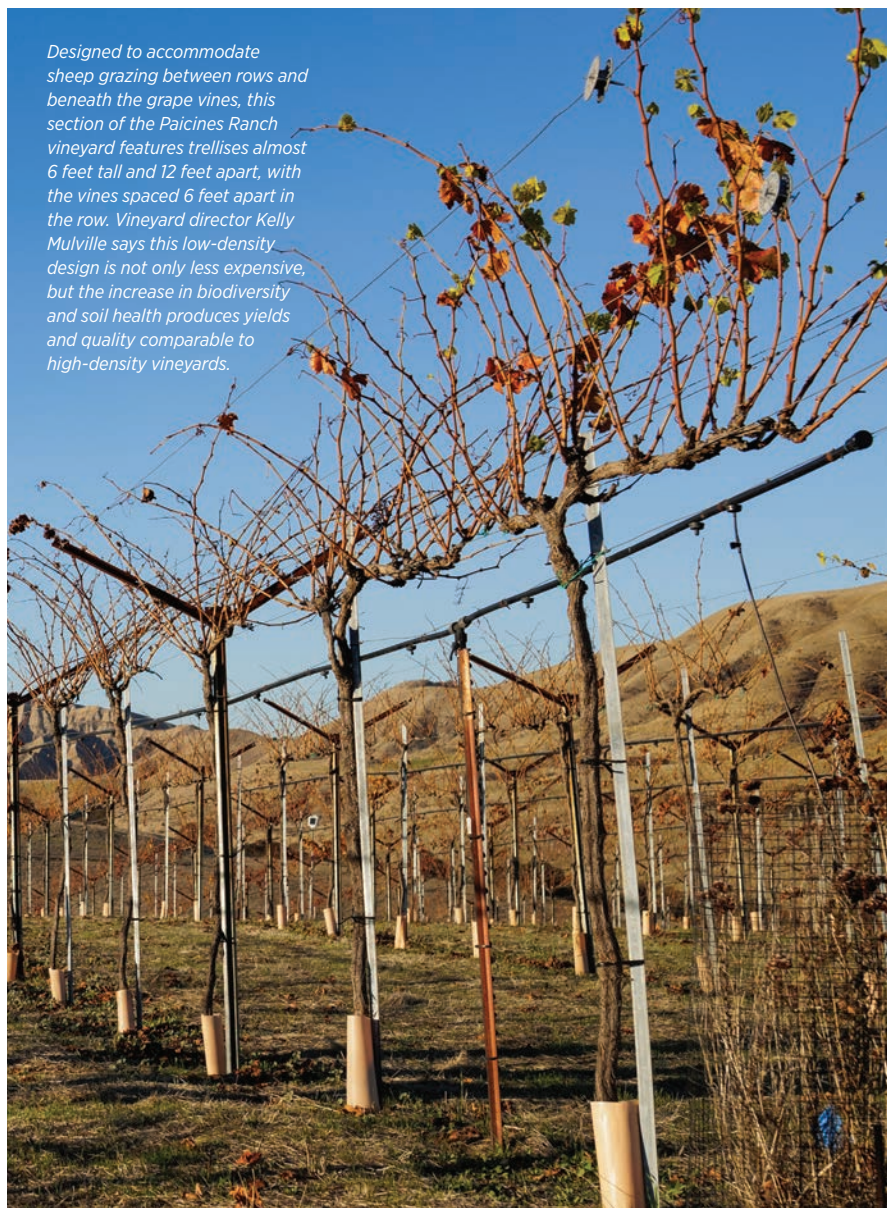
“If there was some type of biological organism that might be problematic, the fermentation would take care of that,” he says.

When designing a vineyard from scratch, Mulville knew he had to take into account not only what’s best for the grape vines but also for the sheep. So he built a taller trellis system that allows sheep to graze underneath without disturbing the fruit-bearing ends of each vine.

Because the grazing-based vineyard at Paicines Ranch is half as dense with vines as most vineyards in California, Mulville’s trellises are almost 6 feet tall and spaced 12 feet apart, two to three times the industry standard. What’s more, each vine is spaced 6 feet apart. When vines are mature, they grow beyond the trellis tops and lay horizontally across a few wires, keeping the fruit out of reach of hungry sheep.



Kelly Mulville and Elaine Patarini lead a tour of the Paicines Ranch vineyards for Noble’s Charles Rohla and Will Moseley.



Designed to accommodate sheep grazing between rows and beneath the grape vines, this section of the Paicines Ranch vineyard features trellises almost 6 feet tall and 12 feet apart, with the vines spaced 6 feet apart in the row. Vineyard director Kelly Mulville says this low-density design is not only less expensive, but the increase in biodiversity and soil health produces yields and quality comparable to high-density vineyards.

Sheep graze near where guests have come to enjoy a scenic outdoor lunch at The Overlook on the ranch.



“We have almost half the density of vines and half the trellis infrastructure. This means it’s less expensive to establish a vineyard like this, but at the same time we are getting yields that are comparable to higher-density plantings and quality that is comparable to some of the best vineyards in the state.”

Mulville believes the high yields can be attributed to his focus on biodiversity and soil health. The trellis system allows the fruitbearing shoots to shade the rows where the sheep graze. The added shade keeps the vineyard floor cooler and the sheep comfortable. And that’s just one of the many symbiotic benefits Mulville has discovered in his vineyard’s ecosystem.

COMPOUNDING BENEFITS FOR GRAPES AND SHEEP

Mulville approaches his work like a researcher. He’s set up a test plot and a controlled section of the vineyard to compare outcomes between the two sections.

“We are doing a lot of monitoring — soil health, soil microbes, plant species, insects — and we’re learning a lot about bird species,” he says. He’s recently partnered with a Ph.D. student who is working with several vineyards in central California to compare plant diversity.

In 2017, the ranch conducted a botanical survey on what is now part of the vineyard. At that time, there were 11 species of plants growing. Fast forward to 2024, the same site now has more than 100 species of plants.

“Before we planted the vines, we had three years of cover crops and holistically planned grazing to increase soil health,” Mulville says. “Those plants reseeded themselves, and I’ve not planted any cover crops in the last four years. Most of the plants growing in here now are native plants.”

Mulville believes there’s a natural — perhaps even necessary — compatibility between grazing animals and grape vines. When he compares his grazed vineyard to the control section, he can pinpoint the difference.

“Most plants allow themselves to be grazed. If they didn’t want to be grazed, they could produce thorns or toxins. But there are numerous plants

that can be grazed — including grape vines. For ecological symbiosis to occur, there need to be benefits going both ways.”

A lifelong student, Mulville investigated this relationship further. He discovered that as an animal grazes a plant, they leave behind saliva. The chemical makeup of the animal’s saliva stimulates the plant to regrow.

“We’re seeing that when the sheep are in contact with the vines, especially during the growing season, the Brix level goes up,” says Mulville. Brix is a method of measuring sugar content in grapes and other crops, but it’s also an indicator of vine health. Higher Brix

“Our soil health is improving. Soil carbon levels and the water-holding capacity are going up, which reduces irrigation needs.”

—KELLY MULVILLE

levels contribute to an increased resistance to insect and disease damage which reduces the need for additional inputs.

“The compounding effect of that is a dramatic increase in biodiversity. Our soil health is improving. Soil carbon levels and the water-holding capacity are going up, which reduces irrigation needs.”

By focusing on restoring biodiversity and soil health, Mulville has been able to amplify outcomes for both sheep and grapes.

“The more we learn to stay out of the way and allow nature to flourish, the healthier the ecosystem becomes and the less work it takes,” he says.





SAVING TIME AND MONEY WITH GRAZING

Since bringing in sheep to graze the vineyard year-round, Mulville has noticed several benefits to vine health and productivity, soil health and ecosystem diversity. But he's also measuring how this system affects his time and budget.

"In this system, the sheep do a lot of the work formerly done by humans, tractors and inputs," says Mulville. "The sheep can browse-graze the floor vegetation, which eliminates mowing between the row, and they graze under the vines, which reduces under-vine cultivation. And the sheep recycle those nutrients through their digestive system, creating fertilizer — especially the urine — that's concentrated and available to the grape vines."

This past growing season, Mulville sprayed foliar fertilizer four times. When he compares that to other vineyards in the area, he said he finds the majority of vineyards in California are probably doing 10 to 18 sprays a year.

While sheep play a large role in reducing the need to fertilize, Mulville also changed how he evaluates the need to fertilize. Instead of using plant tissue samples, he now does sap analysis. He feels this method gives him a more accurate read on what the plants need at a given moment.

"As we've continued addressing nutrient deficiencies and built up the soil health through proper grazing management, we've been able to use less and less of those sprays," he says.

He's hopeful his approach will catch on at other vineyards. Mulville is committed to continuing to learn and refine his approach, all while finding ways to share what's worked and what hasn't worked for him. Last year, Paicines Ranch offered a workshop on regenerative wine growing that garnered a lot of attention and attendance.

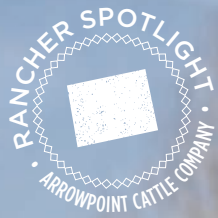
Even though interest is starting to bloom among growers, he knows it's going to take time. Few understand better than Mulville the patience and persistence needed when waiting for an ecosystem to evolve. 🌱



[Top] Mary Rowen, who works in Paicines Ranch sales, walks daily with the "hospitality" sheep who give guests a hands-on ag experience with an integral part of the ranch and vineyard. [Bottom] Wild deer help with plant control and fertilize the soil.

As sheep graze rolling hills on Paicines Ranch, cattle gather for water and mineral in a paddock in the lower-basin pasture. Both cattle and sheep help build soil health through proper grazing management.





Grazing for regrowth: Nancy Roberts with her Highland cattle at Arrowpoint Cattle Company.



RESTORING
A
FAMILY
LEGACY

AT ARROWPOINT CATTLE COMPANY, the second generation of the Roberts family works to revitalize and regenerate their Colorado ranchland.

BY KRISTINA TOBER

Below the headwaters of the Arkansas River, in the shadow of the Collegiate Peaks of the Sawatch Range, lies the Upper Arkansas River Valley. With a rich agricultural history of cattle and food production, this land now faces unprecedented challenges from a drier, more extreme climate.

Ranchers who rely heavily on runoff from annual snowpack now face longer, hotter summers and unpredictable snowfalls. At the same time, competition for land has driven up prices and strained natural resources as the region increasingly draws recreational enthusiasts. The Roberts, like so many ranching families today, have needed to find sustainable ways to ranch in a changing landscape.

CHANGING PRACTICES FOR THE BETTER

In 1968, C.J. “Doc” Roberts purchased 600 acres outside Nathrop, Colorado, and started what became Arrowpoint Cattle Company LLC. A doctor by profession, Roberts chose ranching as his passion

project and selected Highland cattle for their naturally lean meat and resilience in the harsh Rocky Mountain winters.

Today, Arrowpoint is owned and managed by Roberts’ daughters, Nancy Roberts and Leslie Trexler, who assumed responsibility for the ranch in 1999 after their older brother died. While (Nancy) Roberts resides on the ranch full-time, Trexler, now a retired teacher in Denver, comes up every summer to support the operation.

For years, the women’s father and brother had managed the ranch “as it’s always been done,” Roberts says. Decades of overstocking pastures and almost continuous grazing had left the dry land stressed and in need of recovery. Roberts and Trexler committed to not only maintaining the family legacy but restoring it, too. For them, it’s not just about running a profitable ranch. They’re intent on revitalizing and regenerating the land, community and valley they call home.

Roberts explains: “Regenerative wasn’t even a well-known concept in ranching, but I knew I needed the ranch to look better, to do better, to have bet-

ter grass. We went through a bunch of iterations to come up with grazing plans, to move the cows through and find other pastures so we weren’t putting so much pressure on the home pasture.”

Today, they “graze for regrowth” — letting pasture conditions dictate when it’s time to move the cattle. They also rotate cattle based on their calving schedule.

“We like to keep the cattle close and on the home ranch when we’re calving,” adds Roberts. “So they’ll hit those pastures in the spring and won’t graze them again for at least another year.”

As the season progresses, they move their herd to two different parcels they’ve acquired farther south in the San Luis Valley or to leased land allotted by the Bureau of Land Management. Here, too, they are focused on regeneration.

For example, in the coming year, Roberts hopes to access more water points by drilling a well on one parcel, which will allow them to move the herd more often and to graze in smaller pastures for more impact. On their BLM allotments, they’re trying a new strategy: feeding the cattle minerals mixed

With long hair flowing, Arrowpoint’s Highland cows and calves run to a central corral for processing.





VIRTUAL FENCING

Nancy Roberts helps load her shaggy Highland cattle at the foot of the Collegiate Peaks of the Sawatch Range in Colorado's Upper Arkansas River Valley. The Vence collars they wear use GPS, sound cues and a humane electric pulse to keep the grazing herd within virtual fence lines.

With their strong bloodlines and thick, long coats, Highland cattle are well-suited to cold Colorado winters and are less vulnerable to disease.



with the seeds of grass and cool-season native plants and relying on the animals to spread the seeds in manure as they move across the land.

"It's all a work in progress," Roberts says. "We have ideas; we try new things; we see how it works. That's how you move it forward."

In summer 2022, Arrowpoint joined five other ranchers in a pilot program run by the local U.S. Forest Service office, Upper Arkansas Conservation District and the Central Colorado Conservancy to introduce Vence virtual fencing. Using GPS, sound cues and a humane electric pulse, Vence collars allow ranchers to influence the move-

ment of the cow-calf pairs and manage grazing with less on-the-ground labor.

Arrowpoint has also changed when it calves. Moving calving later to April through June when grazing new-growth pastures saves them from having to rely as heavily on hay and feed supplements. Highland calves typically leave the ranch when they are between 24 to 30 months old. With an average head count of 70 moms, the Arrowpoint herd fluctuates a lot, normally maxing out at around 200 animals. Roberts relies on hay for winter feed, adding small amounts of protein and brewers' grain to support her breeders.

PATIENCE AND PARTNERSHIPS ARE PAYING OFF

After 25 years running the ranch, Roberts admits it's still a work in progress.

"Our intent is to make the ranch 100% regenerative, but reality is something different," she says. "It's a process. Dryland fields recover at a much slower pace than our irrigated pastures. And sometimes it just takes longer than you hope."

Over the years, she's been diligent about learning new strategies and techniques and seeking advice. In February 2023, Roberts attended the Society for Range Management conference in Idaho. She was approached by a researcher from Colorado State University who invited Arrowpoint to participate in a study on the impacts of regenerative grazing. In part funded and managed by Noble Research Institute, the Metrics, Management and Monitoring study (also known as the 3M project) is a five-year study led by researchers from 11 nonprofit organizations, private research organizations and public universities in the United States and the United Kingdom. In the U.S., the project includes 60 ranch sites of all different sizes from five states (Colorado, Michigan, Oklahoma, Texas and Wyoming).

Specifically, the 3M project is focused on quantifying the impacts of soil health and regenerative practices and will examine how management decisions impact the overall ecosystem. Considered one of the most robust investigations of ecosystem function, the project will quantify soil health metrics, measure the impact of management practices on soil health and carbon sequestration, and determine the socio-economic impact of these practices on rural well-being and resilience. Initial sampling at Arrowpoint was completed in late summer/early fall of 2024 and included soil cores, forage samples and water impact-related measurements.

In addition to gaining insights on her own ranch, Roberts cites the peer-to-peer learning opportunities from this project as key to inspiring greater change.

“I feel lucky to have this community and mentorship,” she says. “To be able to meet regularly with my ‘hub’ reminds me that I’m not on my own out here. It’s been a tremendous help to meet like-minded individuals who are struggling with the same things, who have different ideas you can learn from.”

MARKETING MEAT RAISED WITH FEWER INPUTS

The sisters are proud of the progress made in restoring their ranchland and are quick to emphasize that raising Highlands isn’t a hobby. They are raising a commodity to sell, and they need to rely on a consistent market to ensure their financial stability.

For almost 15 years, Arrowpoint has partnered with Eddyline Restaurant in nearby Buena Vista, Colorado. Highland beef is desired for being naturally

lean, well marbled, tender and flavorful, with little outside waste fat. Unlike many restaurants, Eddyline is willing to purchase the whole animal, saving Arrowpoint from having to find markets for less-premium cuts from those carcasses.

In addition to the cattle, Arrowpoint is in its third year raising pigs. They purchase weaners from a local operation, raise and sell them. Arrowpoint also earns income from horse-hay sales and beef shares sold locally and across the Front Range.

More than 20 years ago, Arrowpoint stopped using herbicides or pesticides on their pastures and quit administering hormones or antibiotics to their

“It’s been a tremendous help to meet like-minded individuals who are struggling with the same things, who have different ideas you can learn from.”

—NANCY ROBERTS

animals. (With their strong blood lines and thick, long coats, Highland cows are less vulnerable to stress-related and bovine diseases.) While the ranch hasn’t applied for organic certification given the cost and amount of paperwork, Arrowpoint has committed to maintaining their organic practices. They are currently working on becoming an Audubon Certified bird-friendly ranch, which should enable them to earn a higher premium and expand markets for their products.

Matt Anderson, Arrowpoint’s ranch manager, has built a solid relationship with a local independent slaughterhouse and will, if needed, transport their cattle

Arrowpoint Cattle Company employee Matt Anderson sorts cattle for weaning and vaccinations before the move to spring turn-out.



A herd dog stands guard as Matt Anderson urges the cattle on.



“I’m so grateful to be able to show that you can be a beef producer and do it with respect and kindness to the animals and still improve the land.”

—NANCY ROBERTS

for many years, recognizing the importance of giving ranchers a voice and supporting efforts to preserve and protect the local ecosystem so many people depend upon.

“I’m hopeful,” adds Roberts. “At least in my valley, the family ranch is still alive. We may be decreasing, but all we can do is help each other out and uplift our agricultural community.”

to Montrose to another processor. Roberts admits Arrowpoint is largely at the mercy of the processors’ schedules, but they plan ahead as much as possible (often scheduling a year out).

“These local processors are overloaded,” she says. “I am thankful that there are people willing to do this on a small scale. I wouldn’t want to send my cows to one of the big slaughterhouses. They may do it for a lot less money, but you’re not always sure what you’re getting back — and that’s the whole point of this, isn’t it?”

PRESERVING THE LOCAL AGRICULTURAL HERITAGE

Like so many ranchers across the West, Roberts acknowledges the pressures felt from changing demographics, rising land costs and the shift away from rural communities. In Colorado, agriculture accounts for just over 1% of private-sector employment, with cattle and calves as the leading agricultural commodity. According to the USDA’s 2022 Census of Agriculture, Colorado leads the nation in the loss of farmland while pastureland values have steadily increased.

Fortunately, Coloradans continue to value agriculture. The state has an abundance of public and nonprofit entities focused on preserving agricultural land, conserving natural resources and keeping open spaces for all citizens to enjoy. Counties like Chaffee are being proactive about supporting agriculture while welcoming the income from recreation and ecotourism.

Several years ago, Chaffee County conducted a survey to determine local priorities and found 98% of residents value agriculture (these findings are similar to a statewide survey by the Colorado Department of Agriculture that found over 90% of Coloradans believe it’s important to preserve land and resources for food security and want to purchase food products that support the local economy). To keep working lands working, the county added a tax to support agriculture and fire readiness and to mitigate the impact from more recreationists. These tax dollars fund a Common Ground grant program that is used to support local projects such as a ditch restoration project along the Arkansas River.

Roberts has also been on the Upper Arkansas Conservation District Board

LESSONS LEARNED

When asked about the changes on her ranch, Roberts says she’s learned to accept questions, ignore the negativity and be grateful. Fortunately, Arrowpoint has been able to match its operation to its landscape and grow into a successful market. Roberts is building community both in the Upper Arkansas River Valley and in ranching more broadly through Noble. She’s also found a ranch manager and team who are enthusiastic about change and willing to try different things.

Roberts readily admits that if the transition to regenerative grazing was easy, everyone would be doing it. But, like her father, she is passionate about the land and the Highlands they raise and is dedicated to leaving her legacy better than she found it.

“Gratitude is probably my biggest accomplishment,” she concludes. “I’m so grateful to be able to show that you can be a beef producer and do it with respect and kindness to the animals and still improve the land. And I’m grateful to have an incredible network of people involved and supporting our transition.” 🌿



PRESERVING FAMILY RANCHING

"At least in my valley, the family ranch is still alive," Nancy Roberts says. "We may be decreasing, but all we can do is help each other out and uplift our agricultural community."



A wooden desk with several papers, a calculator, and a pen. The papers are scattered across the desk, and the calculator is on the left side. The background is a blurred office setting.

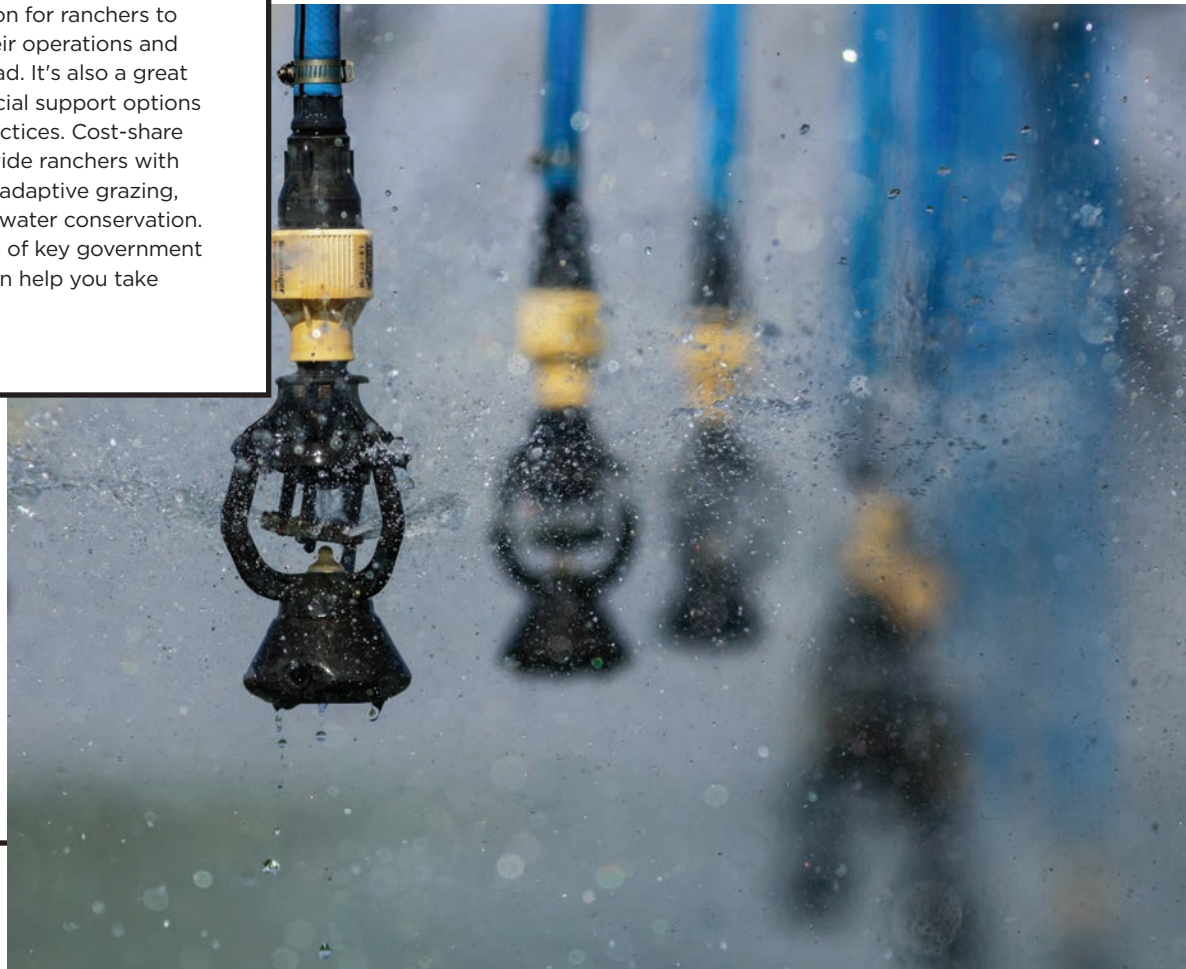
FINANCIAL RESOURCES TO SUPPORT YOUR REGENERATIVE RANCH

GRANTS, SCHOLARSHIPS AND COST-SHARE PROGRAMS
can help fund regenerative education and conservation practices.

BY MADDY BEZNER

Spring is a prime season for ranchers to take stock, assess their operations and plan for the year ahead. It's also a great time to explore financial support options for regenerative ranching practices. Cost-share and grant programs can provide ranchers with funds to adopt practices like adaptive grazing, soil health improvement and water conservation.

Below, we outline six types of key government and private programs that can help you take action this season.



1. ENVIRONMENTAL QUALITY INCENTIVES PROGRAM (EQIP) - USDA NRCS

What it offers: The Environmental Quality Incentives Program, managed by the USDA's Natural Resources Conservation Service, provides financial and technical support to implement conservation practices on working lands.

How it helps: Ranchers can receive cost-share payments to adopt practices like rotational grazing, improved water management and cover cropping — all of which contribute to regenerative ranching goals.

Why you should apply: EQIP helps offset the costs of new equipment, seed and infrastructure improvements needed to establish regenerative systems.

How to get started: Contact your local NRCS office to discuss your goals and learn how EQIP funding could support your operation. Applications are accepted on a rolling basis, but funding cycles vary by state.

More information: nrcs.usda.gov/programs-initiatives/eqip-environmental-quality-incentives

2. CONSERVATION STEWARDSHIP PROGRAM (CSP) - USDA NRCS

What it offers: While EQIP helps ranchers start new conservation projects, the Conservation Stewardship Program rewards producers who maintain and expand their conservation efforts.

How it helps: Through CSP, ranchers receive annual payments for continuing existing conservation practices and implementing new enhancements, such as grazing plan improvements or wildlife habitat development.

Why you should apply: If you're already practicing regenerative methods like rotational grazing or pollinator habitat creation, CSP can provide financial support for ongoing stewardship.

How to get started: Connect with your local NRCS office to discuss your eligibility and submit an application. As with EQIP, funding cycles are state-dependent, so apply early.

More information: nrcs.usda.gov/programs-initiatives/csp-conservation-stewardship-program



3. SUSTAINABLE AGRICULTURE RESEARCH AND EDUCATION (SARE) GRANTS

What it offers: The SARE program funds on-farm research and educational initiatives focused on sustainable and regenerative agricultural practices.

How it helps: Ranchers can apply for grants to conduct farm trials, test regenerative methods or create educational content for their communities.

Why you should apply: If you're looking to experiment with innovative approaches to regenerative ranching, SARE grants can support your research efforts.

How to get started: Applications for SARE grants are region-specific. Visit the SARE website to identify your region's grant opportunities and deadlines.

More information: sare.org/grants

4. REGIONAL CONSERVATION PARTNERSHIP PROGRAM (RCPP) - USDA NRCS

What it offers: The RCPP leverages partnerships with non-governmental organizations to provide financial support for local conservation projects.

How it helps: Ranchers can participate in regional conservation efforts aimed at improving water quality, managing drought risks and supporting regenerative grazing initiatives.

Why you should apply: RCPP projects are tailored to local needs, giving ranchers the opportunity to engage in community-driven conservation goals.

How to get started: Contact your local NRCS office or conservation district to learn about ongoing RCPP projects in your area and how you can participate.

More information: nrcs.usda.gov/programs-initiatives/rcpp-regional-conservation-partnership-program



5. SCHOLARSHIP AND GRANT OPPORTUNITIES TO ATTEND NOBLE COURSES



What they offer: Noble Research Institute, together with industry partners, offers financial support to help ranchers attend Noble's educational courses on regenerative practices through scholarships and grants.

- **Land & Legacy Scholarship:** Covers full registration fees for Noble's educational courses, in partnership with Powerflex Supply and administered by the National Grazing Lands Coalition.
 - **Who can apply:** Farmers and ranchers interested in regenerative ranching and land stewardship.
 - **How it works:** Applications are reviewed quarterly. If not selected in one round, applications are automatically reconsidered. Apply at www.grazinglands.org/landandlegacyscholarship.
- **Rancher Resilience Grant:** Provided through the National Cattlemen's Beef Association, it reimburses registration fees and hotel costs for eligible courses.
 - **Who can apply:** Livestock producers seeking to improve their operations.
 - **How to apply:** Visit the Rancher Resilience Grant (ncba.org/producers/rancher-resilience-grant) webpage to get started.

More information: Learn more about both programs and how to apply at noble.org/scholarships.





6. PRIVATE FUNDING OPPORTUNITIES

STEWARD

What it offers: Steward is a crowdfunding platform where investors support regenerative agriculture projects with low-interest loans.

How it helps: Ranchers can secure loans to purchase equipment, upgrade infrastructure, or make operational changes to transition to regenerative practices.

Why you should apply: This alternative financing model offers more flexible terms than traditional bank loans.

How to get started: Visit gosteward.com to explore eligibility and application details.

IROQUOIS VALLEY REIT

What it offers: Iroquois Valley REIT (real estate investment trust) provides long-term leases, mortgages and financial support to regenerative producers.

How it helps: Ranchers can access funding for land purchases, infrastructure improvements and other regenerative farming needs.

Why you should apply: If you're transitioning to regenerative ranching, Iroquois Valley REIT financial backing can support land access and operational improvements.

How to get started: Contact Iroquois Valley to discuss available opportunities and application requirements. Visit iroquoisvalley.com.



Transitioning to regenerative ranching is possible and practical with the right support. Programs like EQIP, CSP, SARE, RCPP and private initiatives from Noble Research Institute and others are designed to make the transition feasible, even for ranchers working within tight budgets. You can gain the skills needed to grow your ranch by leveraging these resources. 🌱



Ashley Licking sits for a portrait at her family's ranch, ICE Cattle Company, in Guide Rock, Nebraska.



Regenerative Ranching: ARE WE THERE YET?

THREE RANCHERS' STORIES about the journey —
not the destination — of regenerative ranching.

BY LAURA BRENNER

◀ Ashley Licking

GUIDE ROCK, NEBRASKA

Ashley Licking describes herself as a fifth-generation farmer and a second-generation rancher. Before she was born, her father added a herd of cattle to the family farm. By the time she was 14, she owned her first cows.

Licking says she can't imagine any other life for herself. After graduating from the University of Nebraska with a degree in animal science, Licking returned home this past December to begin the process of taking over the ranching side of the business.

"I have my own herd of 10 or 12 cattle I bought over the years," she says. "Now that I'm back home, I'll start purchasing the large herd from my dad and managing it."

Licking's management goals still need to align with her family's farming schedule. But she's eager to build on what her family has done to promote soil health and conservation of the land.

About three-quarters of the farm's acreage is cropland for corn and soybeans. For as long as Licking can remember, her dad planted cover crops in the fall, winter-grazed corn stubble and then grazed the cover crops in the spring. The remaining acreage is dedicated to pastureland.

"Here in south central Nebraska, it's kind of hilly and mostly introduced grass out there," she says. "We rotationally graze our pastures to maximize the forage value and our cattle's growth."

A LEGACY OF CONSERVATION

As Licking gets her start in ranching, she is interested in what she can do to improve soil health in her pastures. An interest in conservation runs in her family.

"My grandpa was the first person in our area who stopped tilling his soil. I don't remember how he learned about it, but he stopped tilling," she says. "Of course, he got a lot of grief about that, because everyone around us tills their soil, but he instantly saw profits from

**"I WANT TO CONTINUE TO
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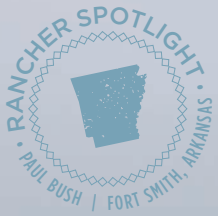
—ASHLEY LICKING

it. He saw that the soil held together better, held nutrients better, and the crops just performed better."

As a child, Licking recalls her dad using a moisture meter to check soil moisture levels. She was surprised to see that after three weeks without rain, the untilled soil retained considerable moisture.

"I remember watching my dad and thinking it was interesting that so much moisture can be held underground."

Licking doesn't yet know all the science behind why no-till and cover crops are good for the soil, but she aims to learn. She's attended field days and webinars but wants to dive deeper into how she can be doing more for



Paul Bush on his ranch in Fort Smith, Arkansas.

her soil and her pastures. As she gets started managing grazing on her farm, she wants to answer big questions.

"I'd be really interested to learn what cover crops are best, specifically for where we farm." Licking says. "I'm eager to learn why what we do works and continue it. But I don't want to ever just settle for what my dad or my grandpa thought was good enough. I want to continue to learn how I can make a better impact on our soil and the cattle and then educate other people too."

◀ Paul Bush

FORT SMITH, ARKANSAS

For more than two decades, Paul Bush has tended livestock and land as a way to release stress and keep in shape, he says. Farming is what occupies his time and mind outside of his 9-to-5 job.

Bush's farm in Fort Smith, Arkansas, is a mix of cattle and sheep raised on grass and sold to friends and neighbors. Through most of Bush's farming career, he raised crops and cattle conventionally, but three years ago he felt like there had to be a better way for him.

"I had to pay a guy two-for-one to cut my hay," Bush says, recalling his lightbulb moment. "The guy drove off with 50 of my 75 bales, and I thought, 'Wow, what did I just do?'"

On Bush's small-scale operation, investing in hay-making equipment to bale pastures himself didn't make sense. Then, another option began to take root within him. Bush learned about the University of Arkansas' 300 Days Grazing program a few years before. Neighbors and other farmers dismissed the idea of a grazing season that long as theory, but not a reality in their region.

"Then I met a fella at the feed store who was a former county extension agent," he says. "He said he had to un-learn everything from his career. He encouraged me to watch videos from Gabe Brown." At the same time, Bush was introduced to Noble Research Institute on social media. Both resources were game changers.

Bush watched the videos from Brown's Ranch in North Dakota and

"I SEE IT AS AN INVESTMENT, NOT JUST IN THE QUALITY OF MY SOIL. I HAVE IMPROVED THE QUALITY OF MY FOOD SOURCE; I'VE INCREASED THE VALUE OF MY LAND, AND I HOPE I'M CREATING A LEGACY."

—PAUL BUSH

from Noble, and was convinced regenerative management would help his farm.

"The first thing I did was plant a batch of 12 different seeds to break away from just bermudagrass," he says. "I wanted to break the monoculture, improve mycorrhizal fungi and try other new ideas I had learned."

He waited and hoped. But his dreams were dashed by the weather that year.

"That seed was a total flop, because it didn't rain for weeks after I planted it," Bush says. Even so, he was not put off his new direction. He returned with persistence.

"The second year, I planted a mix and let it grow to maturity. That pasture was improved radically. I decreased the woolly croton and the broomsedge," says Bush. "Because of letting it grow and shading out the weeds, you can already see what's different about that pasture."

His successful second attempt brought about enough visible change to renew his motivation. His neighbors, however, only noticed unkempt fields that they thought needed to be mowed.

"The back of my farm is on the state highway so people see it, and if they pay attention, they'll ask, 'Are you ever going to eat that grass?' or 'Why don't you cut it?'," says Bush. "I mean, I have a couple of people just begging me to cut the property. But I just say 'No, that will be for the cows in the winter.'"

Over time, Bush has worked toward a few specific changes to his farm. He wants to reduce or eliminate his reliance on hay for his livestock and the need to spray herbicides.

"Today I'm going to winter with far less hay than before. I'm still cautious

about it and I still have a backup. But it's much less than I used to carry," says Bush. "My goal now is, other than the fence lines and a few really noxious weeds, to never spray it again."

He's learned that the transition on his farm under this management style will take time.

"There's still a way to go on the pasture," he says. "But I see the good spots getting better, and the bad spots getting good. So, it's just an ongoing process. You're never done."

Bush attributes his success so far to patience, an open mind and good mentors.

"I was blessed to find those people that have been resources for me. There's more regenerative mentors out there than you realize."

WILLING TO TRY AND FAIL

"One of the biggest things in a regenerative mindset is the ability to fail," says Bush, a concept he first became open to during a course at Noble. "One thing I really appreciate about Noble is their encouragement to just do something. You're not going to turn it around in a day. But encouraging the ability to try, over and over, asking, what works and what doesn't work?"

Attending Noble classes has given him useful resources, he says, including a network of support, practical solutions and confidence that regenerative farming is the right way to move forward on his farm.

Bush is in the throes of transition now. He's a few years in, and yet several years from achieving his goals. Although he's not seeing big financial benefits yet, he's excited about the benefits in other areas and is optimistic for the future.

"Not everything worthwhile hits your pocketbook," he says. Bush looks forward to sharing his passion for farming with his grandsons, who he hopes will enjoy spending time in the pastures and caring for livestock as much as he does.

"I see it as an investment, not just in the quality of my soil. I have improved the quality of my food source; I've increased the value of my land; and I hope I'm creating a legacy."



“I THINK ONE OF THE CHALLENGES WHEN PEOPLE MOVE TOWARD REGENERATIVE PRACTICES IS REMEMBERING THAT WE’RE TRYING TO UNDO GENERATIONS OF PRACTICES THAT DEPLETED THE SOIL AND MADE IT MORE DEPENDENT ON SYNTHETIC INPUTS, AND THAT TAKES TIME.”

—MARK THOMAS

Annette and Mark Thomas of Enid, Oklahoma, with their daughters.

← Annette & Mark Thomas ENID, OKLAHOMA

Twelve years ago, when Mark and Annette Thomas bought two quarter-sections of land in northwest Oklahoma to start their ranch, they are sure they raised some eyebrows. Most families who farm and ranch in the region have ties that run generations deep. The Thomases introduced a new last name to the area and brought with them a different philosophy on land management.

“We’ve been here 12 years, and people know us, and I think some of them are opening up to what we’re doing, even if it doesn’t fit their operation,” says Annette.

Initially, it was simply choosing to use no-till planting methods. But over time, the couple introduced multi-species cover crops, rotational grazing and biological-based fertilizers.

The Thomases have always practiced no-till planting to protect the arid, sandy topsoil. But in 2015, they felt the need to make bigger changes when the cattle market sank. The couple switched from a conventional cow-calf operation to a birth-to-finish grass-fed beef operation, as Mark refers to it.

“We moved away from trying to make a cash crop, realizing that direct marketing the beef we were producing was the most valuable cash crop for us,” he explains. Instead of planting and harvesting crops, the couple planted more cover-crop mixes to graze on their crop ground and started no-till interseeding more of their permanent pastures for year-round high-quality forage.

To satisfy their growing grass-finished beef sales, the couple expanded their grazeable acres and enhanced rotational grazing opportunities with additional fencing and solar water systems.

Mark works off the farm marketing grass and forage seeds. At a trade show he attended for work, he heard an entomologist present about the impact chemicals have on soil health and the insects, worms and microbes that live in or around soil. It was Mark’s first “aha” moment for transitioning their farm toward a regenerative approach.

“I came back and told Annette that those dewormers and synthetics that are going into our cattle end up in our

soil and they’re impacting the dung beetles,” he recalls. “Because at that time, we didn’t have dung beetles on our ranch.”

Dung beetles are considered a keystone species, an essential part of an ecosystem whose presence or absence affects many other parts of the ecosystem’s health. The couple consulted with their veterinarian and switched to a dewormer that was classified as safer to use around dung beetles. Ultimately, they opted to end mass-deworming their herd.

“Because of our rotational grazing schedule, we didn’t need to deworm everything once or twice a year,” says Mark. “Then, all of a sudden, the dung beetles are showing up and breaking down manure pats within six to 12 hours.”

That was the Thomases’ second lightbulb moment. The return of dung beetles to their ranch motivated them to continue prioritizing the six soil health principles across their land.

“Now our goal is to reduce chemical inputs, our chemical disturbance, and we try to use as many biologicals as we can instead,” says Annette. “We’ve gotten into using humic acid, fulvic acid, making compost tea or compost extracts, sea kelp, sea minerals, molasses, those types of things.”

HAVING GUIDES MAKES A DIFFERENCE

Annette knows how some of these things sound to the conventional agriculture community. She jokingly calls this new frontier of inputs the “wild west,” as there is a bit of trial and error involved. However, the Thomases have an experienced guide to lead them through their transition, and it’s made all the difference to them.

“Jimmy Emmons has been a great mentor to us. He lives and ranches out in this part of the country, so he has similar environmental situations and has helped us greatly,” says Mark.

Emmons is the senior vice president of Trust in Food’s Climate-Smart Programs and the owner of Emmons Farms in Leedey, Oklahoma. He’s also a generous

mentor to farmers and ranchers like the Thomases. Emmons talks Mark and Annette through challenges and connects them with resources.

Mark describes Emmons as someone who helped them take their ranch to the next level, soil health-wise.

“Annette has a master’s degree in ruminant nutrition, and when Jimmy explained the microbiome of the soil, we understood the importance of the soil microbiome to forage health as the rumen microbiome to cattle health,” says Mark.

When the Thomases stepped back and looked at their ranch as a whole, the interconnection of soil, forage and cattle health became clearer. Their first instinct to practice no-till was helpful, but not enough to return life to their soil.

“No-till is just one of the principles, but it just can’t be used by itself,” says Mark. “I think one of the challenges when people move toward regenerative practices is remembering that we’re trying to undo generations of practices that depleted the soil and made it more dependent on synthetic inputs, and that takes time.”

Patience and tenacity are the hallmarks of the Thomases’ success after seven years of practicing regenerative management on their ranch. There have been setbacks, like the time they planted cover crops on leased pasture and decided to stop driving past it to check on progress because the seed hadn’t taken hold.

“It can be honestly kind of depressing,” recalls Annette. “But then we went back later in the summer, and there was a lot of life out there. There were forages, and when we got a rain, the soil absorbed it. It’s really bounced back, but that took three years of just continuing those practices even when it didn’t seem like much was happening.”

A reminder that even when crops fail, you may still be making progress in soil health. But there’s an upper limit to tenacity on a ranch because it is a financial commitment. Knowing when to hit the pause button on a project or section of land is also part of the Thomases’ strategy to keep the transition within their budget and learn to make it to the next good growing season. 🌱

LEARN MORE ABOUT
THE 6 SOIL HEALTH
PRINCIPLES HERE:



Matt Hamilton, grass-fed beef processor and proprietor of the Local Yocal butcher shop, restaurant and western goods store in McKinney, Texas.



ADVOCATING FOR CHANGE

THE DRIVING FORCE behind Texas' "Local Yocal" beef, barbecue and more spreads the gospel of sustainable, local food production.

BY LAURA BRENNER

When Matt Hamilton attended Oklahoma State University in the mid-1990s, his course on agricultural finance taught him a disappointing lesson. At the time, the national return on equity for farming and ranching was a meager 3-4%. He leaned over and said to a friend, "I can't borrow money for that, so I guess we aren't going back to the farm, are we?"

Throughout this childhood, Hamilton saw the challenges farmers and ranchers faced. Economic pressures and changes in government programs that might have been well-meaning ultimately forced many multi-generation farms to be sold at auction for pennies on the dollar of what they were worth. The chip on his shoulder grew when he graduated from college and worked for an agricultural chemical company.

"The company I worked for at the time made a glyphosate product for a large ag chemical company," says Hamilton. "And I'll never forget learning that we were making this product for \$2.50 a gallon in our manufacturing plant, selling it to that company, who sold it back to our distribution division for \$45 a gallon. Then we sold it to farmers and ranchers for \$55 to \$60 a gallon."

Hamilton couldn't believe what he heard. He pictured the farmers and ranchers he grew up with struggling to survive while C-suite executives at big chemical manufacturers got rich. He left the industry and worked in construction, tractor sales, then bioremediation, while also running one of his family's farms on evenings and weekends.

Despite leaving the chemical industry, the chip on his shoulder never melted. His desire to return to agriculture and make an impact on the community bubbled under the surface. During the 2008 recession, Hamilton hatched a plan. He thought he could overcome traditional farm economics by selling regenerative, grass-fed beef directly to local consumers.

"My wife and I are high-capacity people. As a high-capacity person, I get bored with one thing. So obviously I spin off these other things," Hamilton says, explaining how his market stand blossomed into Local Yocal, a regionally renowned grass-fed beef processor

and wholesaler for some of Texas's best restaurants and barbecue joints. "I like diverse business challenges. It gives me new things to learn."

In addition to the wholesale market, Hamilton's enterprises in McKinney, Texas, include a retail butcher shop, a restaurant, a western goods store and his popular Steak 101 course that breaks down 18 cuts of meat along with myths about the beef industry.

"Along the way, God made clear to me that full-time ranching is not in the cards for me. He had something else planned. A lot of people can raise calves, but not a lot of people can reach the consumer. Not a lot of people can talk to other farmers and ranchers or industry groups," says Hamilton.

He's in a position to bridge the gap between ranchers, industry leaders and consumers. And with a career of sales presentations behind him, Hamilton's equally at home in a paddock sorting cattle or in his restaurant explaining what 'regenerative grass-fed' beef is to customers over a LoYo Burger.

It's this particular interest - moving the industry forward through more regenerative methods - that caught the attention of Noble Research Institute. And vice versa.

SHARING A PASSION FOR REGENERATIVE RANCHING

A few years ago, Charles Rohla, a regenerative ranching advisor at Noble, called Hamilton to ask a favor.

"We're changing direction. Are you familiar with regenerative ranching?" recalls Hamilton of the original conversation. He'd never heard of regenerative ranching per se, but as Rohla continued, Hamilton realized it encompassed everything he'd been trying to do from Day 1.

When Rohla asked him to be on Noble's Producer Advisory Panel, Hamilton didn't have to think about it too much. He said yes.

"To be a part of supporting the mission that Noble's after - the acres and the people that we're looking to transition in the next 10 years. To be a part of bringing regenerative ranching into a mainstream forum. And if that can impact families who produce food and families who consume food, then that's

a success for me," Hamilton says.

Hamilton has a heart for farmers and ranchers. As a kid, he watched as friends and neighbors fought to keep their farms and ranches afloat. He knows it's a labor of love for every farmer and rancher. But he's also heard dozens of stories from customers about the impact his meats have had on their health.

"When it gets really tough and you're thinking 'is it worth it?' I remember these people come in and they tell

you about how the food has impacted them. They show you the weight they've lost, or that they no longer need medications," says Hamilton. "It's made a monumental difference to them just having a store where they can buy trusted products."

Hamilton is never lukewarm on a subject. If he's going to invest his time and energy into something, he's going all in. That's been his approach with Noble, too. He serves on the advisory panel but also supports Noble's mission through financial contributions. He leverages his Local Yocal storefront as a space for like-minded ranchers to gather for learning sessions and even hosted a recent Noble Profitability Essentials course.

"We're not going to wave a magic wand all the sudden, boom," says Hamilton with a wave of his hand. "It's going to take a lot of people turning the wheel in different places to turn around American agriculture." 🌱

"When it gets really tough and you're thinking 'is it worth it?' I remember these people come in and they tell you about how the food has impacted them."

—MATT HAMILTON

DO-IT-YOURSELF



▼ A one-skillet meal with a protein punch: beef and veggie frittata.



IN THE KITCHEN

Beef and Veggie Frittata

ELEVATE YOUR BRUNCH GAME and boost your protein intake with this beef and veggie frittata from Beef Loving Texans. Loaded with a variety of vegetables and succulent beef, this egg dish is not only delicious but an excellent way to start your day. Plus, it's a great option to increase vegetable consumption without compromising taste.

INGREDIENTS AND SUPPLIES:

- 1 pound ground beef (93% lean or leaner)
- 4 small, red-skinned new potatoes (about 6 ounces), cut into 6 wedges each
- ½ cup water
- 1 cup thinly sliced yellow onion
- 1 small zucchini, cut lengthwise in half, then crosswise into ¼-inch-thick slices
- 1 teaspoon salt, divided
- ½ teaspoon pepper, divided
- 6 large eggs
- 2 tablespoons chopped fresh basil
- 3 tablespoons shredded Italian cheese blend
- ½ cup chopped tomato

20
MINUTES
Prep Time

50
MINUTES
Cook Time

6
SERVINGS



INSTRUCTIONS:

1. Heat oven to 350°F. While the oven preheats, combine potato wedges and water in a 10-inch nonstick ovenproof skillet and bring to a boil. Reduce the heat, cover and simmer 8 to 10 minutes or until potatoes are tender.
2. Remove potatoes from skillet and keep warm. Pour off any remaining water from skillet.
3. In same skillet, brown ground beef with onion over medium heat for 6 minutes, breaking beef up into ¾-inch crumbles.
4. Add zucchini. Cook 2 to 3 minutes or until zucchini is just tender. Pour off drippings.
5. Return potatoes to skillet. Add ½ teaspoon salt and ¼ teaspoon pepper; mix thoroughly.
6. Whisk eggs, basil and remaining ½ teaspoon salt and ¼ teaspoon pepper in large bowl. Pour evenly over beef mixture in skillet. Sprinkle with cheese.
7. Bake in 350°F oven for about 18 to 20 minutes or until eggs are set.
8. Top frittata with chopped tomato and cut into 4 to 6 wedges to serve. 🍴



COOKING TIP:

Cooking times are for fresh or thoroughly thawed ground beef. Ground beef should be cooked to an internal temperature of 160°F. Color is not a reliable indicator of ground beef doneness.

Recipe courtesy of Beef Loving Texans. For more beef recipes, visit beeflovingtexans.com.

DO-IT-YOURSELF

IN THE FIELD

Build Your Own Ranch Truck First-Aid Kit



MAKING A KIT tailored to your ranching lifestyle is simple, and it can help you be prepared for whatever comes your way.

Emergencies on the ranch don't always happen close to where help is available. Having a well-stocked first-aid kit in your truck or UTV can make all the difference in managing injuries quickly and effectively.

START WITH THE BASICS

The foundation of any first-aid kit should align with guidelines from the American Red Cross or the Occupational Safety and Health Administration. Many pre-made kits available online or in stores come stocked with essentials such as:

- Bandages of various sizes
- Sterile gauze pads and medical tape
- Antiseptic wipes and antibiotic ointment
- Scissors and tweezers
- Medical gloves, such as nitrile powder-free gloves
- CPR (resuscitation) mask
- Instant cold packs
- Hand sanitizer

These kits are a great starting point and often come in compact, organized cases. However, they may need a few upgrades to handle the unique challenges of ranch work.

ADD RANCH-SPECIFIC ITEMS

Ranchers face risks that go beyond the typical scrape or cut. Here are two must-have additions to your kit:

1. **Burn treatments:** Accidents involving welding, hot machinery or UTVs are common on the ranch. Burn gels and dressings, such as Water-Jel, not only soothe burns but can also be used to treat insect bites and fire-ant bites/stings.
2. **Eyewash Solution:** A sterile eyewash solution is invaluable for flushing debris from your eyes after working in dusty or windy conditions. It can also double as a wound irrigation tool for cleaning cuts before bandaging them.

CONSIDER A TRAUMA KIT

For those managing large properties or working in remote areas, a trauma kit can be a critical addition. Response times for EMS may be delayed, so being prepared to handle serious injuries is essential. A good trauma kit should include:

- CAT tourniquets: One-handed, self-applied tourniquets for stopping bleeding (named CAT for combat applied tourniquet)
- Large trauma bandages
- Elastic wrap bandages

STORAGE AND MAINTENANCE

Where you store your first-aid kit is just as important as what's in it. The best spot is somewhere easily accessible, like under the back seat or under the dashboard. Out of sight often means out of mind, so make sure it's in a location where you'll see and remember it.

Regular maintenance is key. Inspect your kit often, especially to check items like sterile water that could freeze in winter.

BE READY WHEN IT COUNTS

Emergencies can strike when you least expect them. Having a comprehensive first-aid kit in your ranch truck means you're prepared to handle injuries until help arrives. Take the time to assemble a kit that fits your needs, remember to check it regularly, and be sure everyone on the ranch knows where to find the kit in their truck or UTV. 🙌





Q&A with Noble's 3M Research Co-Lead Isabella Maciel

BY LAURA NELSON

Isabella Maciel serves as a Noble Research Institute systems researcher and co-lead of the landmark Metrics, Management, and Monitoring: An investigation of Pasture and Rangeland Soil Health and its Drivers, also known as the 3M Project.

The five-year, \$19 million project has marshaled the research capacity of 11 nonprofit organizations, private research organizations and public universities in the United States and the United Kingdom. This project is gathering data across 60 ranches covering 1.69 million acres of land in Oklahoma, Texas, Michigan, Colorado and Wyoming.

Q: *Before co-leading this project for Noble, you had an extensive research career studying many aspects of greenhouse gas emissions in beef production systems. How did you get started in that field of study, and when did you know this was the research you would pursue?*

A: For that, I need to go back to Brazil. I was born and raised on my father's ranch in the southeast of Brazil. When I was a kid, we barely needed to buy anything. We produced most of the food we ate. Between my uncles and my dad, we had rice; beans; meat from pigs, cows, and chickens; fresh eggs; milk; cheese and more.

Since I was little, I knew I wanted to do something related to agriculture and livestock. Vet school was when I got really fascinated with beef cattle, and the possibility of producing sustainable meat. It is important to demonstrate that cattle are not the problem, and there are ways to mitigate their emissions. After coming to the U.S., I studied more about how the soil plays a key role in sequestering carbon and offsetting the emissions from the beef cattle system. It was when I realized that how we manage our ranches can

impact society as a whole. Greenhouse gases research not only impacts farmers and ranchers, but all of society. I became deeply fascinated by the idea of contributing to that.

Q: *So you went from this intimate, on-the-land knowledge to seeing a much bigger picture, and now, you're tying the two back together in your research at Noble. What excites you about the 3M Project?*

A: What excites me the most about this project is the opportunity to collaborate with 60 producers across the U.S. This project is studying the real-life practices and management on these ranches, and how this impacts soil health, which is incredibly valuable. Each ranch is uniquely diverse, and this project will provide valuable insights into how management practices influence the land. The climate of your location and the management you are doing impact the land.

Q: *What kind of innovative methods are you using, and what unique information are you collecting across these ranches?*

A: We are gathering hundreds of ecological samples, including soil cores, forage samples, energy flux measurements and water impact data. In addition to the ecological assessments, the project aims to explore the socio-economic challenges that hinder the adoption of soil-health-focused management practices in cow-calf operations.



It's easy to set up research to measure the soil outcomes, but when you talk about ranches, you have a real person there, and how they are feeling impacts their decision-making. They are not only asking, 'Am I profitable?' or 'Am I producing meat?' but, 'How is my well-being?' and, 'Are my kids going to be able to continue this work that I started?' or, 'What will happen here after I have passed on?' These are some of the questions we are exploring. This is a unique aspect of this project.

Q: *Who do you look to for inspiration today?*

A: I look to people like my dad who spend their whole lives in agriculture, trying to continue the work they learned from their parents. This is who I look to when I need to get inspiration for this work. When I moved here, I felt bad because I wondered, 'Why am I not at home helping him?' And now I feel like by being here, researching, working with all these ranchers, I'm helping him even more. Now I know I'm doing the right thing because I can always think about him and ask, 'How would we use this information we are generating here to help ranchers like my dad to do better?' 🌱



MAKING AN IMPACT IS

Always in Season

SAVE THE DATE

Noble Giving Day

 *Sept. 19, 2025*

We hope you will join us on the anniversary of our founding for Noble Research Institute's annual day of giving.

We need your support to transform millions of acres of grazing lands.

What will your impact be?

“The individual farmer or landowner must, of necessity, be the most powerful agent in conserving and improving our soil.”

- Lloyd Noble
FOUNDER, NOBLE RESEARCH INSTITUTE



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RANCHING WITH NATURE

A herd of Highland cattle follow Bob Alexander as he brings them down from the mountain at Arrowpoint Cattle Company's pastures near Villa Grove, Colorado. Read how sisters Nancy Roberts and Leslie Trexler are restoring their family's ranch with regenerative practices in our cover story, page 22.