COLLEGE OF AGRICULTURE, LIFE SCIENCES AND NATURAL RESOURCES



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On the cover:

Brian Mealor (baseball cap) and students collect plant biomass data at the Sheridan Research and Extension Center, Adam's Ranch.

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Looking to the future with confidence as we take on big changes!

Our college's emphasis is
Growing People, Knowledge, and
Communities and will remain so
as we join with the Department of
Botany, Department of Zoology
and Physiology, and the LIFE
undergraduate biology-teaching
program to form the new College of
Agriculture, Life Sciences and Natural
Resources. As our new college
grows, we are changing its name to
better represent the new diversity
and opportunity for collaboration
and growth.

As examples of new opportunities, botany faculty are collaborating with ag colleagues at the James C. Hageman Sustainable Agriculture Research and Extension Center near Lingle (SAREC) applying mathematical and field techniques studying population dynamics of plant communities. Having wildlife and fisheries biology and management join the college provides greater opportunities to collaborate on landscape, wildlife, livestock, and water resource management issues important to Wyoming. Two of our ag colleagues have joined the UW LIFE faculty, providing key undergraduate biology instruction to students across campus—Instructional Professor Amy Rhoad, recently our scholarship and internship coordinator at the college, and now a member of the veterinary science faculty, and

Assistant Instructional Professor, Liana Boggs Lynch, formerly with the Department of Ecosystem Science and Management and now with the botany faculty.

We know our roots are in agriculture, and we take that seriously in the way of research and education for students and the state. Statewide engagement and outreach to the youth across our state is a core mission of our college through UW Extension and we are grateful for the support we receive from our community for 4-H. This year, UW Extension received a remarkable gift for Teton County. Ann Ramsay, in honor of her late mother, Elizabeth McCabe, made a \$1.8 million gift to support 4-H and UW Extension employees located in Teton County. The Teton County 4-H Building in Jackson has been named in Elizabeth McCabe's honor.

What we do on a day-to-day basis has a direct impact on Wyoming. With that in mind, we continue to support our core mission in agriculture. There are big plans underway to increase focus in niche areas of agriculture, allowing these programs to build out needed expertise by adding focused faculty to the mix.

One area that is getting traction is the Agricultural Experiment Stations. Our new associate dean



Barbara Rasco

and AES director, Eric Webster, is creating momentum by taking care of necessary infrastructure improvements and providing new equipment while working on big plans for needed renovations. At the Laramie Research and Extension Center (LREC) they are continuing to focus on high-altitude research and ways to increase learning opportunities for students and the broader community. Eric's enthusiasm for LREC is summed up by—"7220 feet and growing!"

The Sheridan Research and Extension Center is having a big impact. A \$500,000 gift from the Joe and Arlene Watt Foundation will support collaborative applied and fundamental research along with hands-on educational opportunities to combat invasive grass species and restore healthy Wyoming rangelands. Regional collaboration is important, particularly with Sheridan College, and we are excited to launch our new

continues, page 2

Extension programming focuses on community

learning, collaboration

Thank you for reading our latest issue of AgNews. I am very proud of our University of Wyoming Extension educators, specialists, and administrative professionals. As you will see in the featured stories, UW Extension continues to provide community-based educational opportunities that are innovative, collaborative, and profoundly impactful. The extension programs featured in this publication reflect UW Extension's newly identified priorities to enhance our impacts on Wyoming communities by: 1) fostering economic vitality; 2) empowering Wyoming's future leaders; 3) protecting our natural resources; 4) improving health and wellness; and 5) supporting the production of food, fiber, and energy. These aspirational outcomes guide all UW Extension focus areas, including 4-H Youth Development, Community Vitality and Health, and Agriculture and Natural

Resources. As demonstrated in the following pages,
UW Extension succeeds through our partnerships, collaborations, and the resounding support of Wyoming community members. I hope you enjoy reading about our shared successes and I thank you for supporting UW Extension.

At the College of Agriculture, Life Sciences and Natural Resources we aim to be responsive to the changing needs of our students, stakeholders, and industry partners. No program reflects this commitment more than our new Ranch Management and Agricultural Leadership program. As discussed in this issue of *AgNews*, the program takes a new approach to education, where we integrate the expertise of our faculty with the insight of industry professionals and the



Kelly Crane

practical experiences of Wyoming ranchers and resource managers. We believe this approach will provide a richer learning experience for program participants, graduates who are better prepared to meet the needs of the workforce, and collaborations that will enhance our contributions to Wyoming agriculture.

 Kelly Crane, Associate Dean and Director, UW Extension

continued from page 1

undergraduate plant science degree program in plant production and protection that can be started and completed at Sheridan. Further, this program can feed directly into a graduate program in plant science with a student starting field research on site as an undergraduate.

Tied to our R&E Centers is a new initiative—the Wyoming Wool Initiative. This is a nonprofit supported by the College of Agriculture, Life Sciences and Natural Resources, private donations, and Mountain Meadow Wool, and sales of products including blankets made from sheep raised by our students on LREC. This summer is our inaugural Lamb-a-Year program, connecting producers with UW students. For additional information about the initiative, success stories, and impact, go to www.uwyo.edu/wyowool

— Barbara Rasco, Dean, UW College of Agriculture, Life Sciences and Natural Resources

Big changes in the Wyoming Agricultural

Experiment Station

It has been a fast year since my arrival at the University of Wyoming. One of the things the Wyoming Agricultural Experiment Station (AES) has tried to do is improve aging infrastructure and equipment on and off campus. Each year the AES receives federal funds from the USDA. These funds are often used to support faculty salaries, but the AES can also use these funds to purchase lab equipment and field implements, and to support graduate students. If you get a chance to visit our research and extension centers, you will see updated field equipment that was desperately needed. Within our campus departments the AES has helped fund new laboratory equipment, supplies, and graduate student research. To stay on the cutting edge of research, our faculty must have the latest tools and technology to compete with other universities for grant dollars.

In 2022, the AES received state funding to improve infrastructure at

the Research and Extension
Centers. The first new
facility will be a new feed
mill at the Laramie R&E
Center (LREC). A new feed
mill will give LREC the
ability to be more efficient
and allow production and
research capacity to increase.

There are several exciting research projects currently being conducted across the state that will have an impact on the Wyoming economy. At the Sheridan R&E Center, research is being conducted on invasive weeds on rangelands, dry bean variety development, row crop weed management, and many other projects revolving around production agriculture. At the Powell R&E Center research is being conducted on weed management, fertility, and plant breeding in a variety of row crops. High altitude livestock management research is being conducted at LREC that will



Eric Webster

improve production in Wyoming and other western states. The James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC) near Lingle has projects with beef cattle, row crop production, and forage crops.

Things are happening at the University of Wyoming campus in Laramie and at the R&E centers across the state. If you have the opportunity, please drop by one of the centers to see what is going on.

— Eric Webster, Associate Dean and Director, Wyoming Agricultural Experiment Station





Wyoming's new
Institute for Managing
Annual Grasses Invading
Natural Ecosystems
(IMAGINE) is on a mission.

A state-wide collaboration,
IMAGINE's purpose is to develop
long-term strategies for invasive
grass management on a landscape
scale—while empowering local
decision makers.

It all started with a simple question (or, perhaps, not so simple), posed to Wyoming ranchers and landowners, says Brian Mealor, director of IMAGINE. "What are some big issues that affect your agricultural operations, and how can we help?"

Getting rid of invasive grasses, like cheatgrass, medusahead, and ventenata, was at the top of the list. The issue wasn't new. Management and treatment efforts, led by various agencies and landowners, were already underway across the state.

Invasive annual grasses (IAGs) are more than an agricultural weed problem, Mealor says.
Estimates suggest that more than 50 million acres of rangeland are impacted by cheatgrass and other invasive grasses in the western

U.S. IAGs degrade grazing resources and wildlife habitat, as well as changing wildfire cycles.

A diverse partnership

Founded by a mix of public and private funding, IMAGINE is designed to expand research and monitoring of invasive annual grasses in conjunction with local control strategies and data collection.

The partnership includes a diverse group of organizations, including the University of Wyoming Agricultural Experiment Station, Wyoming weed and pest control districts, the Wyoming Game & Fish Department, and The Nature Conservancy. Other partners include the University of Wyoming Extension, Haub School of Environment and Natural Resources, and the Biodiversity Institute.

Embracing a new approach

It's an unconventional model—and that's why it works, says Slade Franklin, statewide weed and pest coordinator for the Wyoming Department of Agriculture.

IMAGINE targets informational gaps on IAGs by tapping into the strengths of all partners involved, including university researchers and "people on the ground who know what works." In many ways, IMAGINE's approach is a "reversal

Brian Mealor (baseball cap), director of IMAGINE, collects biomass data with students at a Sheridan research site.





Institute for Managing Annual Grasses Invading Natural Ecosystems

of duties, a reversal of knowledge sharing," Franklin explains.

Mealor, who is also director of the Sheridan Research and Extension Center, agrees. Weed and pest district supervisors, for example, possess a wealth of local knowledge and are often the go-to resource for invasive species management in their counties. UW researchers can complement their work, and that of other IMAGINE partners, by adding a data collection and analysis component to their IAG management practices.

Creating a state-wide monitoring network

Ian Tator, statewide terrestrial habitat manager for Wyoming Game & Fish, says the vision for IMAGINE is "the same vision that we have at Game and Fish: a future where we develop the tools, resources and

training to reduce the spread and coverage of IAGs in Wyoming."

Currently, Tator says, collaborative efforts are largely focused on remotely sensed imagery and modeling for IAGs. "This groundbreaking approach will help us refine a Wyoming-based model that will be used to determine the scope of infestation and extent of coverage for IAGs."



IMAGINE's monitoring network is designed to help streamline data collection across the state, says Jaycie Arndt, IMAGINE coordinator and UW Extension educator. Monitoring, which began in three counties in 2021, focuses on identifying annual grass populations, assessing the effectiveness of herbicide treatments, and confirming the accuracy of remote sensing data.

The network has since expanded to include projects in seven counties across the state. The ultimate



Brian Mealor, director of the Sheridan Research and Extension Center.

goal is to help facilitate "broader landscape-scale decisions based on results from different management techniques," Arndt explains.

Serving communities

A successful toolkit for combatting invasives must consider socioeconomic wellbeing as well as ecosystem health. IMAGINE's mission extends beyond environmental control of IAGs. Researchers are also working with stakeholders to study the socioeconomic impacts of invasives.

The institute seeks to "better understand the economic impact of invasive plants, at the county level and up to the state level—and the benefits of controlling these species long term," Mealor reports.

The institute recently received a \$500,000 gift from the Watt Foundation, matched by the state of Wyoming. The funding will further IMAGINE's capacity to "serve an important role to the people of Wyoming by increasing our ability to protect high-quality rangelands and to restore rangelands degraded by invasive species," says Mealor.

Successful research, management, and prevention strategies targeted at IAGs will require ongoing landscape-level data collection and widespread collaboration. IMAGINE is currently putting together an advisory board, which will include landowners as well as representatives from various state and federal agencies.

A one-stop shop

One of the institute's long-term goals is to develop a "one-stop shop" for resources and reporting related to IAGs.

"We've laid the groundwork for a central data clearinghouse related to invasive grasses information," Mealor reports. "We'd like to get to the point where landowners can report their own infestations and download data that are relevant." Collaborators for this project will include the Wyoming Natural Diversity Database, Wyoming Geographic Information Science Center, and others.

"IMAGINE has the capability of being a hub for data and information related to invasive annual grass management, not just for Wyoming, but for the entire Western region," says Franklin.

Imagine that.

To learn more about IMAGINE, visit wyagresearch.org/imagine or contact Brian Mealor at bamealor@uwyo.edu.

— uwagnews.com 6/20/2022

UW College of Agriculture, Life Sciences and Natural Resources pilots innovative program in ranch management and ag leadership

What if the students and teachers of ranch management and agriculture weren't just aspiring undergrads and academics but a more expansive network of leaders and learners?

This is the sort of question that inspired leaders in the University of Wyoming College of Agriculture, Life Sciences and Natural Resources to launch the new Ranch Management & Agricultural Leadership (RMAL) program.

A different approach

RMAL is designed to be a "truly integrated program," developed in response to workforce needs articulated by industry professionals throughout Wyoming, says Kelly Crane, director of the UW Extension and interim director of the new program. Through listening sessions held across the state, an integrated, interdisciplinary educational model emerged.

The RMAL program is three-pronged, explains Crane,

with for-credit courses and a bachelor's degree targeted at UW undergraduates, professional development opportunities for current ranch managers and producers, and ultimately, an institute for a select cohort of students interested in pursuing graduate-level work. "It's about integrating different disciplines as well as formal and nonformal learning and networking opportunities," he says.

Farm Credit Services of America provided a \$1.5 million gift, matched



Panelists at the Riverton seminar engage in a lively discussion on marketing strategies in the beef industry.

by the state of Wyoming, to kickstart the program. The winter 2022 seminar series combined professional development for industry professionals with a one-credit class for UW students. Each of the five events, held in Sheridan, Casper, Riverton, Laramie, and Evanston, were livestreamed for participants unable to attend in person.

Panelists of local ranchers, producers, ag business leaders, agency partners, and university researchers engaged in real-time discussions about topics ranging from rangeland management and new technologies to producer advocacy and marketing strategies. The seminar series also included a leadership symposium held in Casper. The program's focus on leadership and so-called soft skills is unique, RMAL Interim Director Crane explains.

So is its location. "It's about more than growing cows and making money. Most large ranches in this region balance endangered species, public and private lands intermixing, amenity values, hunting, tourism, and oil and gas development. Our program will teach students how to balance those," says Crane.

Wide-ranging relevance

Ella Bishop-Heil, conservation specialist for Pathfinder Ranches and graduate student in rangeland ecology and watershed management at UW, says "taking the RMAL seminar was a no-brainer—the course touched on extremely relevant topics while also showcasing new, emerging ideas in rangeland ecology."

"The RMAL seminar course not only complemented my professional growth as an ecologist, but also empowered my education as a graduate student. Presentation topics were applicable to what I'm learning in school and what I encounter at work—from cheatgrass treatments to GIS mapping," Bishop-Heil reports.

Brent Winters, unit manager at Sheridan Ranch, attended multiple seminars this winter, both in person and virtually. For him, many of the topics that panelists discussed were not new, but "it's always interesting to hear from people who are successful and have different ideas. Even if you don't necessarily agree, it makes you look at your operation and see if there's something you need to change."

For Winters, the leadership symposium in Casper was a standout. The presentation on vision, and sharing vision, "was a real-life lesson that everybody ought to hear occasionally. It had application to work, family, and lots of other things."

Facilitating discussion in the ag community

Like Winters, rancher Tyler Greer of Hyattville was already familiar with many of the topics presented but welcomed the opportunity to hear other perspectives. He noted that many panelists stressed the importance of working together rather than focusing on differences in management and marketing strategies. The theme of building a



UW Extension educator Chance Marshall presents at the RMAL session in Riverton, titled "What's the Beef?"

more cohesive ag community in the state resonated, he says.

Both of Greer's daughters work at the meat processing plant in Hyattville. They were particularly excited to attend the seminar in Riverton, which centered on beef production, processing, and marketing. "It got them excited about new avenues of generating revenue and how to expand business," says Greer. "Everybody brought home a different takeaway point."

That's exactly what the RMAL program aims to do: foster opportunities for discussion, collaboration, and networking between industry professionals, agency partners, students, and UW educators.

"I don't think there's any other place that has as many innovative and successful ranch managers as the state of Wyoming," Interim Director Crane comments. "They have as much to teach as they have to learn. Creating venues like the RMAL seminar series, where we can facilitate interaction between practitioners, community members, and students, is really important."

What's next?

Crane and other members of the RMAL leadership team are currently organizing an advisory committee of external stakeholders and UW representatives to help guide the program's development. The bachelor's degree in Ranch Management & Ag Leadership will roll out in the next year or so, integrating existing programs in animal science, rangeland ecology and watershed management, and ag business, says Crane.

The third component of the program, the RMAL institute, will open up possibilities for more intensive experiential learning, network-building, and a master's degree. Informal trainings, like the inaugural seminar series,

will continue to expand as well, offering industry professionals the opportunity to earn certifications and micro-credentials in topics relevant to their occupation.

For more information about the RMAL program, please contact Pepper Jo Six, director of development for the UW College of Agriculture, Life Sciences and Natural Resources, at (307) 766-4133 or pepperjo@uwyo.edu.

— uwagnews.com 6/9/2022



RMAL students and Shelby Rosasco, assistant professor and UW Extension beef specialist, listen to presentation by Clayton Bedke, graduate student in animal science, at the seminar held at the Laramie Research and Extension Center in April.

Wyoming Wool Initiative seeks to celebrate and expand sheep industry

Wyoming isn't wine country (though some intrepid growers might disagree). It's wool country.

As of the 2017 Census of Agriculture, Wyoming ranked number one in domestic wool production. But most of that wool is sold as a commodity in an international market, leaving the state before it is processed.

The Wyoming Wool Initiative sees this situation as an opportunity. It all started with a simple question, explains Whit Stewart, head of the UW Sheep Program and co-founder of the project: How do we help people get more for their wool?

Already a leader in the sheep industry, Wyoming is uniquely positioned to expand its impact. "With supply chains being disrupted and the world changing so quickly, the timing is right to take a different look at how we add value to our wool clip," Stewart says. "What if we



This year's throw, nicknamed "Wyoming Gold," measures 55 by 70 inches.

expanded markets, allowed producers to get involved in the value-added phase?"

Launched in summer 2022, the Wyoming Wool
Initiative is a nonprofit supported by the University
of Wyoming College of Agriculture, Life Sciences and
Natural Resources; University of Wyoming Extension;
Mountain Meadow Wool; and other partners. Its mission
is to lead innovative research and programming that
promotes and expands Wyoming's sheep industry.

The Wyoming Wool Initiative's current projects include the Wyoming Blanket Project, Lamb-a-Year program, and two sock production ventures. Testing of blockchain technology and a first-stage processing feasibility study are also underway.

The initiative is sustained by donations and the sale of locally produced wool products. Funds are used to support student internships and graduate assistantships; travel for wool judging competitions; and research and development for wool processing and manufacturing.

Fabric of the rural West

Stewart's quest to help Wyoming get more for its wool began in 2021 with a pile of warm, durable—and 100 percent Wyoming-made—wool throws.

He and Scott Lake, director of the Laramie Research and Extension Center, forged a partnership with Mountain Meadow Wool Mill in Buffalo to produce blankets using wool from the UW farm in Laramie. Lindsay Conley-Stewart, project manager of the Wyoming Wool Initiative, designed the first limited-edition blanket.

The pilot program proved to be a success, with 300 blankets sold to patrons in 29 states across the U.S. and internationally. Proceeds were used to support summer internships, travel costs associated with UW's wool judging program, and research conducted by graduate students in UW's sheep program.

Now part of the Wyoming Wool Initiative, the Wyoming Blanket Project will feature a new blanket design each year.

Blankets can be purchased online at https://bit.ly/wy-blanket-project-2022.

Marketing traceability with blockchain tech

As "made in the U.S." labels dwindle, making a product in Wyoming start to finish is already an accomplishment. But the Wyoming Wool Initiative is taking the concept a step further, experimenting with blockchain technology to document stages of production.

Blockchain is a digitized database that is shared and modified cryptographically, with the goal of improving product traceability, explains graduate student Courtney Newman, who is leading traceability efforts.

Blockchain-based traceability frameworks have the potential to increase transparency between producers, processors, and consumers. Newman's graduate work focuses on identifying where and how traceability records can add value—and whether it is cost effective for producers to utilize this new tool.

"The second run of the Wyoming Wool Initiative Blanket project is our first complete transparency loop from sheep to finished blanket and we hope consumers think it's as cool as we do!" Newman shares.



A Mountain Meadow Wool employee adjusts a spinning frame to produce thread for the 2022 Wyoming Wool Initiative blankets.

Dates, details, and processing information were recorded for each of the five stages of blanket production: shearing, first-stage processing, dyeing, spinning, and knitting.

Upon purchasing a blanket, customers can enter their blanket's number on sheepchain.org and trace its production journey. Videos of each processing stage are also available.

Launching the Lamb-a-Year program

While "Steer-a-Year" programs are common across the U.S., the Lamb-a-Year project is one of the first of its kind, says project manager Conley-Stewart.

The program, established in 2022, connects producers with UW students interested in the sheep industry. Participating producers donate a minimum of five lambs, which will be transported and finished at Double J Lamb Feeders in Ault, Colorado, in the fall.

As a part of the inaugural Lamb-a-Year course, UW students will be involved in the finishing and harvesting phases of lamb production. They will visit Double J Lamb Feeders multiple times to evaluate animal performance and learn about the lamb feeding industry.

Students will also collect carcass data at a lamb processing plant in Denver, which will be shared with participating producers.

Let's knock some socks off

The Wyoming Wool Initiative is currently involved in two sock-related endeavors, one in partnership with Mountain Meadow Wool and another with GRIP6, a Utah startup that manufactures belts, wallets, and socks.

The initiative recently purchased a heavy-duty boot sock machine that will be housed at Mountain Meadow Wool Mill. The new equipment is intended not only for teaching purposes but also to investigate whether value-added processing can be cost effective at a small scale, explains Stewart.

The Wyoming Wool Initiative is also working with regional partners like GRIP6 who share an interest in developing first-stage processing facilities.

In the wool industry, first-stage processing involves cleaning, or scouring, raw wool, then preparing it for spinning via combing and carding. Currently most Wyoming wool does not undergo this kind of processing until after it leaves the state.

GRIP6 is slated to release a new run of socks promoting the Wyoming Wool Initiative in fall 2022. While these socks will not be made exclusively with Wyoming wool, the company shares a commitment to expanding value-added manufacturing opportunities in the western U.S.

Investigating first-stage processing feasibility

Back on campus, the Wyoming Wool Initiative is partnering with the UW MBA program to assess whether building and operating a first-stage processing facility in Wyoming is a viable business venture.

"MBA students will be working on evaluating the business case for implementing first-stage processing of wool in a new regional study," explains Benjamin Cook, director of the UW MBA program. The idea is to build a business argument for advancing the wool-processing industry in Wyoming.

The feasibility study, funded with donations to the College of Business through the University of Wyoming Foundation, qualifies as an experiential learning project. Two to four MBA students will work on the study part-time during the upcoming fall semester.



Ag students and Kalli Koepke, UW sheep unit manager, keep sheep moving to the shearers at LREC during the center's annual shearing.

They'll begin by evaluating the size of the market and examining the volume of state and regional wool production to define the ideal size of the facility. They will also collect data on the costs of equipment, land, labor, and inputs like electricity, water, and detergents for cleaning the raw wool.

Members of the wool initiative team, including Whit Stewart and Scott Lake, will serve in an advisory capacity.

Preliminary results should be available by the end of the fall 2022 semester. "Both 'yes' and 'no' answers give good information," says Cook. "'No' just means we need to look at other ways—it's the process of elimination. Sometimes, the answer is not right now, but maybe five years from now."

Funds permitting, he'd like to see ongoing collaboration between the Wyoming Wool Initiative and UW College of Business. Once the initial feasibility study is complete, MBA students could potentially dive into topics like entrepreneurship, product innovation, and strategies for expanding the region's wool market and profit margins.

Honoring the past, leading the present

Wyoming already knows how to raise quality sheep and produce high-caliber wool.

The Wyoming Wool Initiative wouldn't exist without the state's rich tradition as a leader in the sheep and wool industry—or without the ongoing work of today's producers and researchers.

Going forward, the plan is to establish an advisory committee made up of ranchers, processors, and wool warehousers to guide the initiative. Ultimately, the goal is to build on the unique heritage of Wyoming's wool industry to support its future.

"We don't often celebrate the ag products that come from our land, our region," Stewart reflects. "A lot of what we're doing with this project is helping solve problems, but we're also celebrating an industry that's been important for a long time."

To learn more about the Wyoming Wool Initiative, please visit https://bit.ly/wy-wool-initiative or contact woolinitiative@uwyo.edu.

— uwagnews.com 8/19/2022



UW Extension and partners launch new summer internship for beginning ranchers and farmers



Titus Schadegg, GrowinG Beginner Farmers and Ranchers intern, Big Horn County, Wyoming.

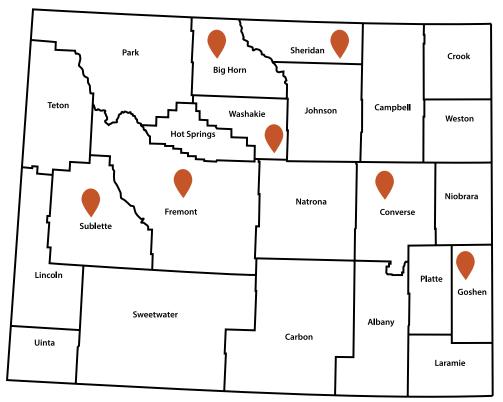
This summer, the University of Wyoming
Extension, in partnership with local producers
and the University of Wyoming College of
Agriculture, Life Sciences and Natural Resources,
launched the GrowinG Internship program for
beginning ranchers and farmers.

Interns assist their hosts with daily activities like herding cattle, branding, and fencing.

The program is intended to help beginning farmers and ranchers gain meaningful experience in agriculture by providing hands-on internships at working farms and ranches. The GrowinG project operates in cooperation with state producer organizations and educational institutions.

Partners include the Wyoming Stock Grower's Association, Wyoming Farm Bureau Federation, Wyoming Wool Growers, and Wyoming Crop Improvement Association, as well as Wyoming FFA and 4-H programs. In summer 2022, seven interns were paired with agricultural businesses at various locations across the state.

Tim Bauer of Boulder, Wyoming, interned in Sublette County; Jackson Haskell, a student at Sheridan College, in Washakie County; Jamie Kaste of Cheyenne in Sheridan County; Makenna McGraw, a UW student, in Converse County; Elijah Richardson of central Arkansas in Fremont County; Titus Schadegg of Casper in Big Horn County; and Samuel Warneke of York, Nebraska, in Goshen County.



Farmers and ranchers in seven Wyoming counties hosted interns as part of the inaugural GrowinG Internship Program.

Eligible applicants are individuals 18 years or older who identify as ready to begin farming or have been involved in farming or ranching for less than 10 years.

Accepted candidates work with the site host to establish start and end dates once a stipend has been awarded. Interns spend about 90 days on a host farm or ranch, learning from the manager and others while assisting with daily activities like branding, fencing, and irrigating.

Taking part in at least one agricultural educational event, such as a UW Extension workshop or Wyoming Stock Grower's Convention, within the time frame of the internship is also expected.

Throughout their internship, participants are required to document their learning experiences. "Work summaries are required weekly and are rolling in fast, now that the internships have begun," notes John Hewlett, project co-coordinator and ranching and farming specialist at UW.

"Weekly work summaries will help the intern reflect on day-to-day work and educational experiences throughout the

duration of internship," says Ben Rashford, head of the UW Department of Agricultural and Applied Economics and one of the project coordinators. "Summaries will be posted to the project site to help others understand the benefits of participation."

GrowinG interns who are also degree-seeking students are encouraged to seek academic credit for participating in the GrowinG Internship Program. Academic credit must be arranged in advance between the student and an academic advisor with the granting educational institution.

Online application forms for interns and hosts are available at GrowinG-WY.org. The project website also offers links to a collection of monthly articles and resources intended to assist beginning farmers and ranchers meet the challenges of getting started in agriculture.

For more information, visit GrowinG-WY.org or contact information@GrowinG-WY.

— uwagnews.com 6/9/2022

University of Wyoming sheep program certified AWA Level III

The University of Wyoming Sheep Program has become the first operation to reach Level III (Certified) status in the American Sheep Industry Association's American Wool Assurance Program.

"We have a 400-head commercial Rambouillet flock and we felt like the AWA Program really aligned with our operation from a teaching and research perspective," said University of Wyoming Assistant Professor and Extension Sheep Specialist Whit Stewart. "I think that people have a tendency to say, 'I don't want someone to tell me what to do,' but this program allowed us to take a critical look at our enterprise and find ways to improve."

It also made sense for the university to lead the way for the state's sheep producers in becoming certified in this voluntary, producer-driven program.

"From the extension side, we're always trying to educate our producers, and we couldn't do that as well as we need to if we didn't go through the process ourselves," Stewart said. "Helping our producers is a priority of our program."

The university allowed ASI to test the AWA Program audit instrument at the UW Sheep Unit in late 2021.

That audit process was completed recently, and now the university's wool can be stamped AWA Certified and with the AWA logo. Wool from the university flock is used to develop value-added products—such as university-branded blankets—and the proceeds from the sale of those products is being invested into the development of other regionally manufactured products.

Graduate student Courtney Newman was instrumental in the certification process and plans to use blockchain technology to source verify not only the university's wool clip, but also that of other producers across the state.

"ASI would like to congratulate the University of Wyoming for reaching Level III certification," said ASI Deputy Director Rita Samuelson. "The association also owes the university a debt of gratitude for its assistance in finalizing the audit process that will lead to producers throughout the United States having the opportunity to reach Level II (Process Verified) and Level III (Certified)."

— uwagnews.com 4/11/2022



Rambouillet ewes from the UW flock in Laramie. As of winter 2021, their wool is Level III AWA certified.

Y Cross Ranch funding provides significant support to UW students

The Y Cross Ranch Endowment is providing significant support to University of Wyoming Y Cross Scholars in the 2021–2022 academic year while also helping to ensure the future of agriculture and ranching in Wyoming and beyond.

"The Y Cross Ranch Endowment is not only the largest endowment in the College of Agriculture, Life Sciences and Natural Resources, but also one of the largest for the University of Wyoming," says Barbara Rasco, dean of UW's College of Ag. "In 2021–2022, it has funded 23 undergraduate and 11 graduate students. Its impact on research important to meeting needs of the ranching community is transformational."

The Y Cross Ranch Endowment supports undergraduate scholarships in the College of Agriculture, Life Sciences and Natural Resources; internships in animal science, meat science, and farm and ranch management; and stipends for graduate students conducting applied research on real-world issues in ranching, farming, and natural resource management.

The fund supports hands-on, experience-based learning opportunities outside the classroom including practical internships in livestock management, beef production, and meat science, as well as laboratory and field research on issues important to Wyoming agriculture.

Current graduate student research includes the use of blockchain in the sheep industry and to incentivize conservation; weed science in a rangeland setting; the use of cover crops to improve soil and forage quality; sustainability in the beef industry; assisting land managers with rangeland management and restoration; food fraud; the livestock supply chain; new invasive species; nonchemical methods of controlling pests; parasites in commercial cattle operations; brisket disease and congestive heart failure in cattle; statistical and spatial



Cattle at the 50,000-acre Y Cross Ranch, located at Horse Creek in Laramie County.

analysis of diseases in ecosystems; metabolites in cattle; forage productivity and carbon capture; reproductive physiology; and prescribed burns.

The 50,000-acre Y Cross Ranch, located in Laramie County, was donated in 1997 to UW and Colorado State University by the Patten-Davis Foundation (formerly the Courtenay C. Davis Foundation). The purpose of the gift was to help address problems and questions inherent to Western cattle ranching operations and, in doing so, to help sustain family ranching in the West.

Since it was established in 2016, the Y Cross Ranch Endowment has had a remarkable impact on the College of Agriculture, Life Sciences and Natural Resources. In addition to providing scholarships to undergraduate and graduate students, it has funded internships at the National Western Stock Show; provided a solid foundation for a new undergraduate internship initiative; established the Cowboy Branded Meats Program; and helped restart the meat judging program.

— uwagnews.com 3/28/2022

Wyoming Ranch Camp 2022

The Wyoming Ranch Camp was May 23–27, 2022, at the Queen Mountain Lodge on the Broadbent Ranch near Evanston. The Wyoming Ranch Camp is a hands-on ranch management seminar for recent high school graduates and college students. Participants learn ranch management through a 5-day camp covering plant science and ecology, soil science, animal science, economics, ranch recreation, and range management.

Tools for managing in today's challenging conditions

Ranchers face many challenges to operating a sustainable ranch. Wyoming's climate creates unique challenges and necessitates that a ranch manager be

2022 Ranch Camp cohort with instructors and hosts from the Broadbent Ranch.



Ranch camp participants help tag and vaccinate cows at the Broadbent Ranch.

extremely competent in managing range and pasture resources. Limited access to markets also increases the amount of management skill and commitment needed from a Wyoming rancher. Finally, land prices and values make it difficult to get started in ranching and also can reduce the margin of error as a rancher. It is imperative that young producers be given opportunities to hone and practice their skills to better prepare them for these challenges.

For more information email Hudson Hill at hrhill@uwyo.edu, or Chance Marshall at cmarshal@uwyo.edu.
— uwagnews.com 3/22/2022

Wyoming Ranch Camp Outline

Day 1: Economics. Participants learn the basics of a ranch business plan, economic tools for analyzing ranch decisions, and incorporation of risk management into a ranch business plan.

Day 2: Broadbent Ranch Tour and Ranch Diversification. Participants learn the benefits of ranch diversification and the importance of managing people, not cows.

Day 3: Plant, Soil, and Range Science.

Participants learn how to manage pastures and rangelands for long-term sustainability and calculate and manage stocking rates and grazing timing.

Day 4: Animal Science. Participants learn key considerations in managing herd genetics, nutrition, and health.

Day 5: Ranch Plan Day. Teams of participants work all week on developing a ranch plan for the host example ranch during the classes and in the evenings. On day 5 each team presents their plan to a panel of extension personnel and seasoned ranchers.

4-H educator uses UW MakeHER girls flex STEM expertise



Jaiden Booth, a student at Hanna-Elk Mountain School, in a MakeHERspace camp in Hanna.

A Carbon County 4-H educator is using MakeHERspace workshops to erase that girls' bland sugar-and-spice stereotype and replace it with accomplish and aspire.

Trained through the MakerHER Scholar Program at the University of Wyoming, Emily Haver was a member of the first group of volunteers who took what was learned back to their communities.

The volunteers delivered STEM/Maker workshops and camps aimed at inspiring young girls to get back up when they fall—however many times it takes to succeed.

"They are out there now delivering programs across the state," said Jane Crayton, director of the Coe Innovation Center at UW.

The MakeHER Scholar Program was created by the center and 4-H in partnership with the Wyoming Afterschool Alliance. Funding is through the STEM Next Foundation as part of the Million Girl Moonshot Program.

The volunteers received \$1,500 grants.

Makerspace is a term for the space where making happens, and

space program to help

MakeHER is the program she directs to inspire girls to opt into making and STEM (Science, Technology, Engineering, Mathematics), Crayton said.

"The volunteers learned how to engage girls in STEM education, design thinking and maker education, with a focus on opting into learning experiences," she said. "MakeHER Scholars learned best practices for delivering single-gendered programs for girls and co-gendered programs where boys also learn behavior to empower their female peers."

Crayton is seeking participants for the second group of MakeHER Scholars to be trained in 2022. For more information and to apply, vist https://bit.ly/makeher-scholars.

MakeHER Scholars completed a remote class that included finishing hands-on, project-based activities that encourage learning by doing, a 4-H motto.

"They sent us a whole box of kit materials so we could actually do the hands-on projects that we were then going to turn around and teach," said Haver, based in Rawlins. "And that made all the difference and made me a believer in STEM and the maker movement."

Haver said she is passionate about advancing girls' education.

"We all used to be makers, and we can all be makers again," Haver said. "And then, just encouraging girls to fail. Try, try; fail, fail; try again. It's the incapable part that the maker movement works to totally demolish. If you believe you are capable, you are automatically less vulnerable to outside dissenting voices and natural obstacles."

The MakeHER Scholar training trained the trainer.

"That sense of discovery, that 'I can do this' feeling is exactly what that grant was meant to create in young girls and making sure that that is created in the teacher," Haver said.

She added the 4-H MakeHer grant was an opportunity for the Carbon County 4-H program to reach youths who do not participate in traditional 4-H projects.

"I especially enjoyed the chance to interact with members of communities I don't work in very often because they are remote or very small," she said.

Haver partnered with the Boys & Girls Club of Carbon County to organize a girl's camp in Rawlins, and she directed a girls and boys camp in



Emily Haver, UW Extension 4-H, Carbon County

Hanna, which was combined because of overall fewer numbers there.

All camp equipment and snacks were funded through the 4-H MakeHER Scholar program.

"I love to create that self-confidence in being able to make things with your hands that I think kids in general don't get a lot of these days," Haver said. "That's the thing that really turned me on to the maker movement is we used to all be makers. If something broke, you fixed it. If you needed something, you made it."

The goal is to develop the belief in girls they are capable through experiences that teach skills in an encouraging environment that allows a girl to fail and try again, she said.

"That's something that is hard,"
Haver said. "It's hard for adults to do,
too. We're scared. We don't want to
fail. But you don't succeed unless you
fail a few times first."

— uwagnews.com 11/5/21

Drought management plan

As the spring grazing season approaches, it is important that you start to monitor the drought situation and be prepared.

The map from the U.S. Drought Monitor below shows the drought status across Wyoming in March 2022. Throughout the state, we were in a Moderate to Extreme drought.

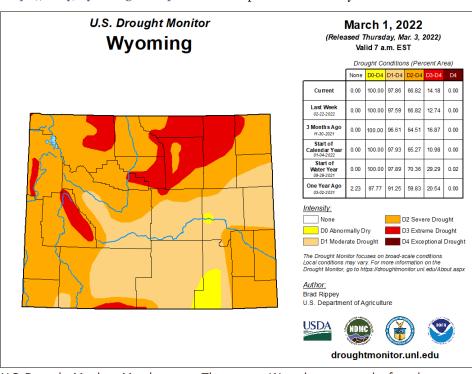
It is critical that you monitor your local drought status and create a drought management plan. The current Wyoming map can be found at https://bit.ly/wy-drought-map.

Tracking precipitation events

To better prepare for a drought, you must know key precipitation events associated with the plant community in your pastures. Pastures dominated by warm-season species thrive with May–July precipitation, but pastures dominated by cool-season species thrive with earlier precipitation events (April–May) (Stephenson, 2021; Arterburn, 2017). There is a correlation between the number of precipitation events greater than 0.10 inches and forage production: every event that

contributes more than a tenth of an inch of precipitation can result in an increase of forage biomass by 80 to 90 lbs. per acre (Stephenson, 2021). Therefore, it is important to track precipitation amounts.

Understanding the trigger dates for when precipitation is needed for the forage in your pastures can help improve your grazing management plan by ensuring that you are meeting livestock dry matter intake needs while not overgrazing pastures. To help native species recover properly during a drought, it is important to avoid overgrazing pastures. Therefore, a key component of a drought management plan is setting key dates when you will evaluate the total precipitation received (drought status). Successful management requires creating and regularly revisiting a drought management plan that realistically fits your goals, objectives, and resources.



U.S. Drought Monitor, March 1, 2022. The current Wyoming map can be found at https://bit.ly/wy-drought-map. The U.S. Drought Monitor is produced through a partnership between the National Drought Mitigation Center at the University of Nebraska-Lincoln, the United States Department of Agriculture, and the National Oceanic and Atmospheric Administration.

Setting goals

When creating a drought management plan, it is important to evaluate your objectives and goals. When creating objectives, consider what works best for your operation based on the resources available.

To make a sound decision, an appropriate decision period and objectives must be established.

The decision should implement

your objectives (Parsons, 2021). Additionally, you must create alternatives and evaluate those alternatives, considering tradeoffs and using sound reasoning based on your objectives and the resources you have available. Order matters: when making a proactive decision, it is important to create a clear set of objectives first, then evaluate the alternatives to reach these objectives. Finally, it is important to commit to your decision and implement the plan.

Considering a lease?

When leasing pasture ground, consider drought when creating the lease (Jansen, 2020). To implement drought in the lease, be explicit about the impacts of precipitation on forage to avoid overgrazing but ensure that you don't short your cattle on feed. The landlord and the lessee should agree on how much of the forage can be grazed and how cattle will be moved out. Additionally, a mutual agreement to adjust the rental rate if cattle are moved out early should be established in the lease. With clear communication, considering drought in the lease can reduce stress on both the landlord and the lessee.

Seeking federal assistance

Federal assistance is available to help mitigate the risk and losses caused by a drought. Pasture Range and Forage (PRF) is federally subsidized grazing land insurance based on rainfall (Jansen, 2020). The deadline for this is usually around

November, so producers should reach out to a United States Department of Agriculture (USDA) agent beforehand. The Farm Service Agency (FSA) provides financial assistance through livestock forage disasters program for producers who lease or own grazing

Drought Management Resources from UW Extension

Videos

- Managing Cattle in Drought Conditions, https://bit.ly/managing-cattle-in-drought
- Pasture Analysis to Adjust Herds for Another Drought, https://bit.ly/pasture-analysis-drought
- The Wyoming Conditions & Outlooks presentation is recorded on the third Thursday of each month starting in March 2021. Find the full playlist at https://bit.ly/outlook-conditions-playlist. The University of Wyoming Extension organizes this collaborative effort in partnership with the USDA, NOAA National Weather Service, NOAA's Missouri River Basin Forecast Center, USGS, the Wyoming State Climate Office, the Water Resources Data System, and the Office of the Tribal Water Engineer of the Eastern Shoshone & Northern Arapaho Tribes.

Publications

- Navigating Drought in Wyoming, https://bit.ly/B1325
- Comparison of Alternative Cattle Management Strategies Under Long-Term Drought, https://bit.ly/drought-cattle-management
- Considerations for Preparing a Drought Management Plan for Livestock Producers, https://bit.ly/livestock-drought-plan
- Two Common Drought Management Strategies and Some Considerations for Wyoming Cattle Producers, https://bit.ly/common-livestock-drought-strategies
- Managing your ranch during drought: Implications from long and short-run analyses, https://bit.ly/drought-ranch-management
- Recognizing and Responding to Drought on Rangelands, https://bit.ly/recognizing-drought
- Multiple Impacts Multiple Strategies How WY Cattle Producers Survive Drought, https://bit.ly/multiple-drought-strategies
- Flexible Grazing and Livestock Management Systems for Good and Bad Times, https://bit.ly/flexible-livestock-strategies

Barnyards & Backyards

 Forages, pastures and grazing resources, https://bit.ly/BB-forage-pastures land and are affected by drought over a period of time. However, there are compliances one must follow to be eligible. Before a grazing lease is finalized, consider taking it to an FSA agent for review and assurance that the drought plan in the lease follows their disaster program requirements (Beckman and Jansen, 2020).

Management options

There are several options to manage drought effects, but not all are realistic for all operations. You must decide how to manage your herd during a drought based on your objectives and resources. During drought, producers may cull underperforming cows, older cows, or cows with issues such as temperament or broken mouths (Arterburn, 2017). Additionally, producers may opt to do earlier pregnancy checks and sell open cows to free up grass for bred cows.

Another practice includes early weaning of calves and taking them to a dry lot (Rasby and McGee, 2011).

This allows cows to be maintained by grazing poor quality pastures or fed low quality feed because a dry cow requires less nutrients than a lactating cow. During a drought, it is critical that you calculate the amount of feed you will need, secure additional feed sources ahead of time, and compare different solutions.

Preparing for a drought puts you one step ahead in mitigating risk by ensuring that you have enough feed and forage for your herd without overgrazing and deteriorating your pastures.

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- Alex Orozco, UW Extension Educator, Crook County, uwagnews.com 3/17/2022. (Note: The article was posted with the March 1, 2022, drought map.)



Baked, boiled, mashed, grilled, roasted... oh, there are so many ways to enjoy potatoes!

In fall 2021, potatoes freshly dug at the James C. Hageman Sustainable Agriculture Research and Extension Center (SAREC) were distributed to food pantries across the state after a harvest on September 24.

"What we are doing today is using some of the excess potatoes that we typically have and we're going to be donating these to the Food Bank of Wyoming," said Brian Lee, the agricultural economist and a research scientist at SAREC.

SAREC sits just off Highway 157 in Goshen County. Fields of corn and potatoes grow behind the cluster of buildings and silos. Usually grown for research and outreach efforts, in 2021

some of the potatoes were destined for tables around the state thanks to a new partnership between SAREC, the UW Extension Cent\$ible Nutrition Program (CNP), and Food Bank of Wyoming.

"It is exciting to partner with SAREC because of the large crop of potatoes that could feed many people in Wyoming," said Mindy Meuli, director of CNP.

In late 2019, Lee reached out to Meuli about donating extra potatoes to support food security efforts in the state. In 2020, the COVID-19 pandemic prevented the potatoes from being donated, but this year, the pieces came together.

"We thought it was an obvious collaboration [between CNP and

SAREC] that should happen," said Lee. "So, Mindy helped coordinate with the food bank and the Challenge Academy and other UW personnel to make this happen."

The potatoes for this project come from a field used for SAREC outreach programs with elementary school students.

"We have elementary students come out from local communities and we go over a potato educational program and then we come out to the field and let the students have a chance to dig and also bag potatoes that they can take home," said Lee.

To help harvest the potatoes for donation, 20 cadets from the Wyoming Cowboy Challenge Academy (WCCA) joined staff from SAREC, UW Extension, and CNP. WCCA is an accredited special purpose school based in Guernsey, Wyoming. The school works with non-traditional learners to help them earn high school credits in a quasi-military environment, where they learn leadership and coping skills as well as the value of giving back to their communities. As part of the graduation requirements from the WCCA, cadets complete 40 hours of service to the community.

Community projects offer cadets different experiences, said Deidra





Cent\$ible Nutrition Progran

Extension

Fighting food insecurity in Wyoming

The Cent\$ible Nutrition Program is a hands-on cooking, nutrition, and physical activity program in Wyoming. Participants in CNP classes learn how to save money and time at the grocery store, cook quick and healthy meals, and stretch their food dollars. CNP is available in every county in Wyoming and the Wind River Reservation, and offers in-person and online classes to individuals and families as well as to groups through community agencies.

In addition to teaching classes, CNP collaborates with local partners on community projects. These projects aim to make the healthy choice the easy choice for everyone.

CNP is funded by the USDA Supplemental Nutrition Assistance Program and the Expanded Food and Nutrition Education Program. Programming is free to those who income qualify and participants receive free kitchen tools and a cookbook during classes. For more information, please visit uwyocnp.org.

Wilson, an English teacher at WCCA, who also attended the harvest.

"I think a lot of the community service that they do gives them different aspects of what job life looks like. It's a good way to give them chances to try something they've never tried before," said Wilson.

For Ethan Smither, a cadet returning to Wyoming from Illinois, the harvest day provided a sense of familiarity.

"I've worked on a farm, so it feels natural for me," Smither said.

The work also feeds into his interest for the future.

"After Challenge Academy I plan to go to the Airborne Rangers in the Army and then after that I'm going to try and start my own ranch, my own farm," he said, adding that he wants to stay in Wyoming.

Prior to the arrival of volunteers, the potatoes were dug up with a tractor and laid on the open ground. Under a warm autumn sun, the group of volunteers moved along the rows, picking out undamaged potatoes to bag. Bags were then loaded onto a flatbed trailer to be weighed before being loaded onto pallets to go in the Food Bank of Wyoming truck.

Nearly 6,500 pounds of potatoes were harvested and made available to food pantries in Wyoming.

"We are going to put the potatoes on our mobile pantries and give them to our partner pantries around the state," said Tony Woodell, director of Food Bank of Wyoming at the time. "This is a great gift and we look forward to sharing it around the state."

The mission of Food Bank of Wyoming is to ignite the power of community to nourish people facing hunger.

"This is a great illustration of that," said Woodell. "We are collaborating with communities, with growers, and with partners."



Lee said that potatoes are a good crop for a project like this because they store well, making their shelf life longer than many fresh produce items.

"One thing potatoes are really good at is feeding people," Lee added.

Concerns over shelf life is one of the challenges of providing fresh produce, according to Woodell.

"Any time we can provide produce to individuals, the nutritional value is high. The shelf life is usually short, so therefore to procure produce through local sources extends the shelf life because there is less transportation involved. Local produce allows people to have nutritious foods on their tables. At the end of the day, that's what we're all about," said Woodell.

While this was the first time SAREC, Food Bank of Wyoming, and CNP have collaborated, Meuli hopes this is just the beginning of a strong partnership.

"I hope to see more opportunities for UW research and extension centers to find ways to support local food pantries and food security efforts in the state," she said.

The local nature of this partnership is part of what makes it special.

"Everyone is excited to get a Wyoming product for Wyoming people who are facing hunger. We just want to say thank you to SAREC for providing the potatoes and we look forward to future partnerships," said Woodell.

Local gardening to address food insecurity

University of Wyoming Extension, Master Gardeners, and the Cent\$ible Nutrition Program (CNP) are partnering with First Lady Jennie Gordon's Wyoming Hunger Initiative (WHI) on the Grow a Little Extra project for a second year. Grow a Little Extra is part of WHI's Food from the Farm + Ranch program that aims to increase access to fruits and vegetables through donations of locally grown produce to anti-hunger organizations. Gardeners of all ages are invited to grow extra in their home or community gardens and then donate that food at their local extension offices. Donated garden



In 2021, Jace Mitchell grew carrots with seeds provided through Wyoming Hunger Initiative for his first 4-H project. He harvested 9 pounds of carrots he was able to donate to his local pantry, the Afton Food Pantry.

produce will be weighed and given to local anti-hunger organizations for distribution.

"The Cent\$ible Nutrition Program and UW Extension values the partnership with the First Lady's Wyoming Hunger Initiative to increase access to locally grown fresh produce to people in need. Together, we have been able to increase produce donations and nutrition education to food pantry and anti-hunger agency patrons," says Cent\$ible Nutrition State Director Mindy Meuli.

Wyoming Hunger Initiative is the official initiative of Wyoming's First Lady Jennie Gordon and is governed by the Board of Directors of the Wyoming Governor's Residence Foundation, a registered 501(c)(3) nonprofit organization. Visit www.nohungerwyo.org/grow to learn more about Wyoming Hunger Initiative's Grow a Little Extra program.

To further support this initiative, local CNP educators covering every county provided potato recipes and fact sheets at sites receiving potatoes, and were available to answer questions on preparation, storage, and food safety.

Kali, McCrackin Goodenough, UW
 Extension Cent\$ible Nutrition Marketing
 Coordinator, uwagnews.com 10/6/21

Explore UW Extension's latest publications

- B-1316 Wyoming Thistle Guide: Native and Non-native https://bit.ly/wy-thistle-guide. Order print copies from the Wyoming Weed and Pest Council at wyoweed.org/store.
- B-1340 Wyoming Vegetable & Fruit Growing Guide https://bit.ly/WY-fruit-veg
- B-1366 High-Altitude Baking—
 https://bit.ly/high-altitude-baking. Print copies available for \$26.50 + S&H.
- B-1373.1 Economic Assessment of a Water Demand Management Program in the Wyoming Colorado River Basin—https://bit.ly/water-demand-program
- B-1373.2 What Would the Regional Economic Impacts of a Demand Management Program Be, If The Consumptive Use Savings Came From Agriculture? https://bit.ly/demand-management-impacts
- B-1374.1 RD2H Migration Corridor Landowner Benefits Fact Sheet—https://bit.ly/rd2h-1
- B-1374.2 Landowner and Economic Benefits from Migration Corridor Designation in Wyoming https://bit.ly/WyoMigrationCorridor
- B-1375 Potomac Horse Fever—https://bit.ly/Wyo-PHF
- B-1378.1 Dietary Diversity—https://bit.ly/dietary-diversity
- B-1378.2 Biodiversity in the Food System https://bit.ly/food-biodiversity
- B-1378.3 Food Sovereignty—https://bit.ly/sovereignty-food
- B-1379 Supplementation Considerations for Ewes Managed on Dormant Winter Pastures and Rangelands Cover https://bit.ly/ewes-supplementation
- B-1380 Brome Seed Midge https://bit.ly/brome-seed-midge

- B-1381 Assessing 2001–2018 Total Personal Income and Its Components for the Rocky Mountain Region, Wyoming, and Its Counties https://bit.ly/wyo-personal-income
- B-1384 Wyoming Demand Management Feasibility Investigation: Stakeholder Engagement Process
 July 2019-December 2020—
 https://bit.ly/demand-management-process
- MP-151 Regional Climate Hub Partnerships Elevate Wyoming's Ability to Serve the People https://bit.ly/uwe-climate-hub
- MP-152 Food Preservation with Reduced or No Salt or Sugar—https://bit.ly/low-sugar-preservation
- MP-153 Wyoming 4-H Dog Show Guidelines https://bit.ly/wyo-4h-dog-show-22
- MP-154 Management of Insecticide Resistance in Alfalfa Weevil for the Intermountain West: Montana, Utah, Wyoming—https://bit.ly/alfalfa-weevil-management

Visit www.wyoextension.org/publications for more free publications.



Awards

UW Extension communications professionals receive national recognition

Two members of the 2021 University of Wyoming Extension communications team received national honors from the Association for Communication Excellence (ACE).

The association recognized **Tanya Engel** and **Steve Miller** of the UW Extension Office of Communications and Technology for their outstanding work on two annual publications produced by the College of Agriculture, Life Sciences and Natural Resources.

ACE is a professional organization that comprises communicators, faculty, and administrators from colleges of agriculture in land-grant universities and ag-related industries across the country.

Awards were presented at the June 2022 ACE Conference in Kansas City, Mo.

"It's gratifying to see our UW Extension communications team producing work that competes with the best products from some of the largest land-grant universities in the country," says David Keto, manager of the Office of Communications & Technology.

Reflections, the annual research magazine of the UW College of Agriculture, Life Sciences and Natural Resources, received a gold award in the technical publications category. Steve Miller, now retired, was the editor of the magazine and Tanya Engel was the graphic designer.

"Tanya Engel and Steve Miller (retired) have done a phenomenal job translating complex research into an eye-catching and easy to understand magazine that highlights the cutting-edge research of our Wyoming Agricultural Experiment Station," Keto remarks.

Downloadable copies of *Reflections* are available at https://bit.ly/waes-reflections-magazine.

Engel also earned a bronze award in the enhanced photo category for an

outstanding shot of
Pistol and Pete, UW's
draft horse team. The
photo is the cover image
for the 2022 Pistol
and Pete calendar and
features the two horses
standing in the doorway
of a historic building at
the UW farm in Laramie.



The winning photo and iconic calendar "do a great job bringing out the personality of our draft horse team," says Keto. Thanks to Engel's creativity, each year's calendar features a fresh set of fun (and sometimes funny) photos capturing Pistol and Pete in action.— uwagnews.com 7/6/2022

Wyoming Agricultural Experiment Station honors outstanding staff, researchers

The Wyoming Agricultural Experiment Station (WAES) recognized exceptional staff and researchers in the University of Wyoming College of Agriculture, Life Sciences and Natural Resources at the 2021–2022 awards banquet this spring.

- Ryan Pendleton, Greenhouse Operations Coordinator at the Laramie Research and Extension Center, and
 Samual George, Farm Manager at the Powell Research and Extension Center—Kathleen Bertoncelj WAES
 Staff Award
- Thomas Boothby, Assistant Professor, Department of Molecular Biology—2022 WAES Reflections Magazine Faculty Author Award
- Daniel M. Adamson, Ph.D. student, Department of Ecosystem Science and Management—2022 WAES Reflections Magazine Student Author Award

— uwagnews.com 6/30/2022

UW College of Ag & Natural Resources congratulates outstanding staff, educators

This spring, the University of Wyoming College of Agriculture, Life Sciences and Natural Resources celebrated faculty and staff members for their outstanding contributions to the university community.

"This was the first banquet we've had in two years, because of Covid. It was an amazing opportunity to get people together and recognize staff and faculty," says Dean Barbara Rasco.

Recipients of the 2021–2022 awards included staff and faculty from the college's business operations team and the Departments of Animal Science, Family and Consumer Sciences, Molecular Biology, and Plant Sciences.

Outstanding staff awards

- Winter Hansen, Assistant Director of Business Operations
- Ellyn Sturgeon, Office Associate, Department of Plant Sciences
- **Kyle Phillips**, Meat Laboratory Manager, Department of Animal Science
- Yana Nightingale, Office Associate, Department of Microbiology

Outstanding educator awards

- Randa Jabbour, Associate Professor and Graduate
 Program Coordinator, Department of Plant Sciences
- Treva Sprout Ahrenholtz, Senior Lecturer,
 Department of Family and Consumer Sciences
- uwagnews.com 6/28/2022

UW Extension celebrates outstanding performance with 2021 awards

At its annual spring conference in Laramie, the University of Wyoming Extension congratulated the following 2021 award recipients for their dedication and service.

- Megan Brittingham, Goshen County 4-H Educator— Jim Debree Excellence in Extension Award
- Joddee Jacobson, Natrona County 4-H Educator—UW Extension's Newer Employee Award

- Scott Cotton, David Keto, Kristi Hansen, John Hewlett, and Jennifer Thompson—Creative Excellence Recognition Award
- Billie Spoonhunter, CNP Educator, Wind River Indian Reservation—Linda Melcher Award
- Jess Dooley, Albany County CNP Educator—Newer CNP Educator of the Year Award
- Kristy Michaels, Big Horn County CNP Educator—CNP Youth Educator of the Year Award
- Wendy Nielson, Sweetwater County CNP Educator—
 CNP Adult Educator of the Year Award
- Lori Dickinson, Sheridan County CNP Educator, and
 Caitlyn Youngquist, Washakie County Extension
 Educator—Collective Impact Award
- Brittany Newlin, Senior Office Associate, Laramie
 County—Bright Future Award
- Rose Jones, Office Associate, Natrona County—
 Administrative Professional of the Year
- uwagnews.com 6/10/2022

UW Wool Judging Team finishes 2021–2022 season strong

The **University of Wyoming Wool Judging** team wrapped up a successful 2021–2022 season with a fourth-place finish at the San Antonio Livestock Show and Rodeo wool judging competition on February 11. It was the highest UW has placed in a Texas contest since the revitalization of the wool judging program.

"I am so proud of the team members, assistant coaches, and industry support that this program has received," says UW Wool Judging Head Coach and Extension Sheep Specialist Whit Stewart.

In San Antonio, the team finished fourth overall, fourth in oral reasons, fourth in placings, and fourth in the grading rail. "To consistently be in the top three to five in all our contests this spring really shows the dedication to the program we have built here at UW," Stewart remarks.

Members of this year's wool judging team included **Wyatt Crane** from Wheatland; **Macy Collins**, Meeker, Colo.; **Tessa Maurer**, Arvada, Colo.; **Casey Spencer**, Sonoma, Calif.; **Jacob**

Smylie, Douglas; **Kylie Strauch**, Van Tassell; and **Payton Timberman**, Moorcroft. Assistant coaches were Dylan Laverell,
Amy Newman, and Courtney Newman.

The team kicked off the season in December 2021 with an impressive first-place finish at the WildCat-Cowboy-Jackrabbit Invitational in Manhattan, Kan. In addition to earning high team overall, they were also the first team in reasons, placings, and grading rail.

At the 7220 Wool Judging Invitational in Laramie on January 11, 2022, the team placed second overall. They also finished as high team in placings, third high team on the grading rail, and the second high team in value-added.

Two days later, at the National Western Stock Show Wool Judging Contest in Denver, Colo., the UW team took fourth overall. They also placed second high team on the grading rail, third high team in reasons, first and second in value-added, and fourth in the hand-spinning contest.

In the fourth competition of the season, the Black Hills Stock Show in Rapid City, S.D., the UW wool judgers placed second overall. They were also the high team in reasons, placings, and value-added.

Incoming lead coach Courtney Newman says that the 2021–2022 judging season "was the best one yet. All seven team members worked extremely hard and they were rewarded with a successful season." More importantly, "Each one will use their skills to achieve great things in their studies and personal lives."

For team member Macy Collins, "Starting off as strangers and building an unbreakable bond after four months is the most rewarding aspect of wool judging. I will forever think of the wool judging team as family."

Coach Newman is already excited for next season. "We're looking forward to building off the success of last season and using the momentum those seven individuals brought to have an even more successful team next year."

To learn more about UW's wool judging program, please visit the University of Wyoming Extension Sheep Program page on Facebook. To inquire about joining future teams, please contact Whit Stewart at whit.stewart@uwyo.edu.

— uwagnews.com 5/25/2022

UW students, faculty win Western Society of Weed Science honors



Andrew Kniss

University of Wyoming students won a bevy of research honors during the recent Western Society of Weed Science (WSWS) meeting in Newport Beach, Calif.

Additionally, UW Professor

Andrew Kniss, head of the

Department of Plant Sciences,
was honored as a WSWS

Fellow for meritorious service to the organization.

Competing against students at institutions across the western U.S. and several Canadian provinces, the UW students—all in the Department of Plant Sciences in the College of Agriculture, Life Sciences and Natural Resources—came away with several first- and second-place awards.

"The success of UW students garnering awards at this meeting shows the strength of our graduate program in plant science, specifically weed science, at a national level," says College of Agriculture, Life Sciences and Natural Resources Dean Barbara Rasco. "Kudos to these students and to Dr. Kniss."

In the Master of Science section in agronomy, **Tyler Hicks**, of Fort Collins, Colo., took first place for his oral presentation, while **Ryan Johnson**, of Torrington, was second.

Joe Ballenger, a graduate student from Ankeny, Iowa, took first place for his oral presentation in the basic biology and ecology category.

Chloe Mattilio, a graduate student from Willow Street, Pa., won first place for her oral presentation in the "range, forestry, natural areas" category, while **Jodie Crose**, a graduate student from Oologah, Okla., was second.

Crose also received the Elena Sanchez and Rita Beard memorial scholarships, which support outstanding students and early career invasive species managers.

"Our students represented themselves and UW very well at this meeting," says Associate Professor Brian Mealor, director of UW's Sheridan Research and Extension Center. "I'm also pleased to see Andrew receive one of the highest honors awarded by WSWS, to which he has committed significant effort and time through the years."

— uwagnews.com 4/29/2022

UW Mortar Board Chapter honors 'Top Profs'

University of Wyoming President Ed Seidel hosted the members of UW's Cap and Gown Chapter of Mortar Board for the 42nd annual Top Prof dinner to honor the professors each member selected who have positively influenced their lives at UW.

These professors go beyond normal classroom expectations to help their students succeed.

"Top Prof' is an event that our members value greatly, as it allows students to recognize the faculty who have had an impact on their lives," says Christine Wade, an associate professor in the UW Department of Family and Consumer Sciences and the adviser to the UW chapter. "Faculty are always honored to be recognized as a 'Top Prof,' because this is a student-driven selection process."

Mortar Board is the premier national honor society recognizing college seniors for outstanding achievement in scholarship, leadership, and service. Mortar Board provides opportunities for continued leadership development; promotes service to colleges and universities; and encourages lifelong contributions to the global community. UW chapter members participate in numerous projects and activities throughout the year, both on campus and in the Laramie community.

"Any function that brings together our excellent students and faculty for an evening of recognition is a particularly special event," Seidel says. "Our faculty are often the unsung heroes on a daily basis, and I was honored to be part of this special evening."

Four faculty members within the College of Agriculture, Life Sciences and Natural Resources received "Top Prof" honors.

College of Agriculture, Life Sciences and Natural Resources Mortar Board students, their hometowns, and their Top Profs are:

Madison Blaeser, Bennett, Colo.—Kassandra
 Willingham, Department of Molecular Biology.

- Emily Eck, Forestville, Calif.—Kerry Sondgeroth,
 Department of Veterinary Sciences.
- Alexis King, Green River—Bridget Decker, Department of Molecular Biology.
- Connor Rindler, Laramie—Jill Keith, Department of Family and Consumer Sciences.

—uwagnews.com 1/26/2022

UW reclamation resource scientist receives lifetime teaching honor

A professor whose teaching and research focus on reclamation issues has been noted as having state and international significance has received a lifetime teaching honor from the College of Agriculture, Life Sciences and Natural Resources at the University of Wyoming.

Pete Stahl received the Andrew Vanvig Lifetime
Distinguished Faculty Achievement Award this month. The award
honors a senior faculty member with at least 15 years of service
in the college.

Nominator and retired professor and former department head Steve Williams said universities usually have some faculty members who emphasize their own achievements and seek recognition.

"There are others who seem somewhat under the radar but performing in magnificent fashion, generating highly applicable and useful products and not seeking recognition," said Williams. "Peter Stahl is one who is of this second type."

Stahl retired this year as director of the Wyoming Reclamation and Restoration Center (WRRC) in the college. He joined the university as a temporary assistant professor of soil ecology in 1995 and became full professor in 2009 in the Department of Ecosystem Science and Management.

Stahl received his bachelor's degree in plant pathology from Oklahoma State University and his master's and Ph.D. in botany from UW. He conducted postdoctoral work at the National Science Foundation Center for Microbial Ecology and the Long Term Ecology Research Site in Agricultural Ecology at Michigan State University, and at the National Soil Tilth Laboratory in Ames, Iowa.



Pete Stahl

Jay Norton, a professor of soil sciences and UW Extension soils specialist, first met Stahl at the tilth laboratory while working on his master's degree.

Stahl was a member of a group of scientists forging the foundations of what would later become the current soil health movement by developing methods for defining and quantifying soil quality, said Norton.

His later use of microbial phosolipid fatty acid analysis to identify and quantify soil organism functional groups, "Had a massive influence on understanding how drastic soil disturbance (such as strip mining) impacts soil ecology and how soil organisms support ecosystem recovery," said Norton.

He encountered Stahl again when working on his Ph.D. on soils at the Zuni Indian Reservation in New Mexico. Williams was a co-principal investigator on the grant and had assigned his post-doctoral student—Stahl—to implement much of the sampling.

"Pete was a joy to work with on the Zuni Reservation," said Norton. "His love of field work and zest for different cultural experiences and storytelling caused him to really hit it off with our Zuni farmer collaborators in ways that enriched the experience for all of us."

Stahl later encouraged Norton to apply for the fertility specialist position at UW.

Stahl's work the last 20 years has covered restoration and reclamation from drastically disturbed mined lands, burned sites soils invaded by unwanted plants, and oil and gas pad restoration as well as work in crop agriculture, said Williams.

The last 10 years Stahl has also engaged in research in Nepal, especially with forest restoration.

College of Agriculture, Life Sciences and Natural Resources Dean Barb Rasco commended Stahl for his long-time work in reclamation in the state, region, and world.

"Pete's work has had international impact through his leadership in programs across central and eastern Europe, Mongolia and Nepal," she said. "His engagement with Nepalese scholars across campus and at Tribhuvan University in Katmandu has done much to improve the environment and quality of life in that mountainous region of the world."

Stahl was named WRRC director in 2009. Housed in the Department of Ecosystem Science and Management, the center's focus is on energy and natural resource development activities.

Norton noted Stahl's efforts to ensure science-based restoration had a place at the table as the energy industry and the UW School of Energy Resources negotiated with state and federal agencies on how to protect, restore and mitigate valuable sagebrush-steppe grasslands for threatened sage-grouse and many other endemic wildlife species.

Stahl's work, and the work of the WRRC, has been critical to the sustainability of much of Wyoming's energy industry, but also the preservation and sustainability of wildlife, said Frank Galey, former agriculture college dean, now vice president and provost at Utah State University.

He also noted Stahl's engaging undergraduate and graduate students, stretching them and helping them to understand and become leaders in the field themselves.

Caley Gasch, an assistant professor of soil health research at North Dakota State University, is one of those former students.

Stahl clearly has an enthusiasm for the biological world below ground but recognizes the importance of framing that knowledge in a way that is relevant to other disciplines, land management, and agriculture, she said. "He instilled this perspective in me, as well as many other mentees, who now work in the balance of pursing basic, novel scientific questions while placing that work into a larger applied context," said Gasch.

Norton noted Stahl's influence on his peers.

"His generosity about providing opportunities for younger faculty members through his connections with funders of reclamation and restoration work, and enthusiastically sharing knowledge about basic microbial ecology, laboratory methods, teaching success and even the best ski slopes and fishing holes, has enhanced my success at UW and my love for Wyoming, as well as that of many of my colleagues," said Norton.

— uwagnews.com 12/22/21

UW livestock judging team sixth, two earn All-American honors

The University of Wyoming livestock judging team's sixth place finish at the North American International Livestock Exposition is the highest in school history, and two of its members were among 12 across the nation selected All-American.

Coach Curtis Doubet said **Holly Heckendorf** of Wellington, Colo., and **McKenna Carnahan** of Julesburg, Colo., earned the honor at the Nov. 16 competition in Louisville, Ky. UW has only had four previous All-Americans. Only four schools in the country had All-American award recipients at the competition.

The All-American award is a culmination of GPA, judging ability, community involvement, industry involvement, professional goals, and university activities.

Kemsley Gallegos of Laramie was ninth high in hogs, and Heckendorf was 10th high in cattle. The team was fourth high in sheep/goats, sixth high in cattle and in reasons, and was eighth high in swine.

— uwagnews.com 12/3/21

Wyoming elite 4-H livestock judging team second at Aksarben

The Wyoming All-Stars 4-H livestock judging team finished second in Aksarben Stock Show competition in Grand Island, Neb., in September.

Team members are **Riley Miller**, **Kolton Lake** and **Kymber Stinson**, all of Laramie; **Garrett Burkett** of Casper; and **Braden West** of Sheridan.

"The Wyoming All-Stars had a fantastic trip to Grand Island, where they competed against the best of the best in 4-H livestock judging," said Curtis Doubet, University of Wyoming livestock judging coach.

Stinson was ninth high overall, Burkett 10th, and Miller 11th high.

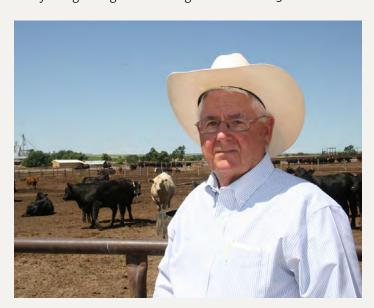
They earned the trip by being the five members of the Wyoming All-State senior team, competing at contests all summer and earning points based off their finishes, said Doubet. Their season culminated at the state fair, where they were recognized as the five best livestock judgers in the state.

"These students traveled with the university's livestock judging team all week in preparation for the contest and represented the youth in the state of Wyoming to the highest level," said Doubet.

— uwagnews.com 10/12/2021

Fourth-generation rancher, farmer receives Distinguished Alumni Award from UW

A fourth-generation rancher and farmer from Harrisburg, Neb., received a Distinguished Alumni Award from the University of Wyoming during Homecoming Week Oct. 16–23.



Gary Darnall

College of Agriculture, Life Sciences and Natural Resources alumnus **Gary Darnall** and other award recipients was recognized during campus activities Friday, Oct. 22; the parade Saturday, Oct. 23; and an announcement at the Homecoming football game against New Mexico. The college also hosted a reception for Darnall.

The UW Alumni Association (UWAA) and the UW Office of the President present the awards.

Darnall received the College of Agriculture, Life Sciences and Natural Resources' Outstanding Alumni Award in 2011. He graduated with a bachelor's degree in 1960 and a master's degree in 1962, both in agricultural economics.

Darnall said in a 2011 interview he had always intended to return to the livestock and farming operation that grew from his great-grandfather's homestead nestled against the Wildcat Hills near Harrisburg.

Darnall had attended UW on a track scholarship. His return to fulltime at the farm/ranch had to wait until farm economics changed in the early 1960s. The family was not sure if the operation would support Darnall, his wife, Emilie, two children, Lisa and Lane, and his parents, Harvey and Mattie.

After teaching classes at Western Nebraska College in Scottsbluff, Neb., and as a vocational agricultural teacher—all the while working at the farm/ranch—the economics changed and Darnall was able to join his father.

Darnall said he could not accomplish what he has done without advice and expertise from many others. He used his UW degrees to take his family's ranch and Darnall Feedlot to the next level of innovation. The ranch became one of the first feeders to adopt integrated pest management and no-till farming. It has grown to several thousand acres of grassland, dryland, and irrigated cropland; a commercial Angus cow herd; a yearling grazing operation; and a 22,500-head commercial American Angus Association-certified feedlot.

Darnall helped start the University of Nebraska-Lincoln Panhandle Research Feedlot, located near Scottsbluff, Neb. He has served on the external advisory board for the UW College of Agriculture, Life Sciences and Natural Resources as well as other boards and commissions. He also gives workshops and hires college interns. Additionally, he is a staunch supporter of UW

athletics, including the Steer-A-Year program. He and his ranch have earned many state and national honors.

In addition to Gary Darnall, Emilie, Lane and Lisa, and three of their grandchildren are UW graduates.

— uwagnews.com 10/12/2021

UW livestock judging team claims high honors at Aksarben contest

A team member won top individual and no other team had more members place in the top 10 than the University of Wyoming livestock judging team last week at the Aksarben collegiate contest in Grand Island, Neb.

"The team is off to a strong start with a third overall team finish at the Aksarben contest," said coach Curtis Doubet.

Kemsley Gallegos of Laramie claimed high individual overall. **Holly Heckendorf** of Wellington, Colo., was sixth high individual, and **Justin Doubet** of Parker, Colo, was eighth high individual overall.

UW was high team in sheep, second high team in cattle, third high in goats, and fourth high in team reasons.

The team competes in Hutchinson, Kan., this week at the Flint Hills judging contest before hitting the road again next week to the intercollegiate livestock judging contest during the state fair in Tulsa, Okla.

Team members in addition to Gallegos, Heckendorf, and Doubet are **McKenna Carnahan**, Julesburg, Colo.; **Macy Collins**, Meeker, Colo.; **Kenzie Morris**, Yuma, Colo.; **Cooper Carlson**, Atwood, Colo.; **Jacey Taylor**, Montrose, Colo.; **Grace Gullatt**, Salem, Ala.; and **Zach Davis**, Sebastopol, Calif.

— uwagnews.com 9/30/2021



Members of the 2021 livestock judging team.



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