October 2020

Range & Pasture Journal

~ Providing Stewardship Strategies For Northern Plains Grasslands ~

Range & Pasture Journal is sponsored by the S.D. Grassland Coalition and the Nebraska Grazing Lands Coalition

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NEBRASKA Grazing Lands Coalition

Nebraska Grazing Conference presentation videos available online

The annual Nebraska Grazing Conference held each August was conducted virtually this year, which means the presentation sessions have been recorded and are available for viewing anytime online.

Presentation topics included climate trends, new technology for ranch use, GrassCast and GrassSnap, a producer panel with Nebraska and Wyoming operators, and a series of speakers on the topic of prescribed fire.

The presentations are easy to access at the following website: https://grassland.unl.edu/ngc-virtual. The speakers and their presentation topic will appear on the schedule and simply click on the link to view the video.

Connect via Podcast

The Center for Grassland Studies has also developed a podcast to support its efforts in providing current and relevant information to a diverse audience interested in grasslands. Podcast episodes are developed from questions posed by stakeholders looking for information on issues of importance to them, and Center affiliates are called upon for their expertise to address the questions. The Center's annual Nebraska Grazing Conference and Fall Seminar Series are also sources for episodes.

To listen to current episodes, go to the Center for Grassland Studies Podcast channel on UNL MediaHub at mediahub.unl.edu/ channels/25356. New episodes, which average ten to fifteen minutes in length, are uploaded weekly. Eventually, all episodes will be archived in the outreach area of the Center's website for later access by audiences.

Winning Strategies for Woody Encroachment

Traveling Road Show will feature Dirac Twidwell UNL Associate Professor Rangeland and Fire Ecology

A Traveling Road Show is planned for this November in Nebraska through the partnerships of the Nebraska Grazing Lands Coalition, Nebraska Cattlemen's Association, Sandhills Task Force and the University of Nebraska Lincoln Extension.

Speaking during the roadshows will be Dirac Twidwell a Science Advisor for the USDA NRCS, Great Plains region, and a national science team member for a new Great Plains Grasslands Strategy under the Working Lands for Wildlife Program.

His program focuses on how relatively simple changes in rangeland vegetation affect every citizen in Nebraska. Dr. Twidwll has published in prestigious journals and has been an investigator on nearly $23 million in funding since joining UNL in 2013. His research has shown how natural disasters, collapses in rural livelihoods on working rangelands, the depletion of biological diversity, social programs like school funding, and the loss of unique cultural heritage are all threatened by the erosion of resilience in rangelands due to woody plant encroachment. Ultimately, the focus of his program is to create novel solutions to these types of threats and demonstrate how to enhance the resilience of working lands to better cope with the sustainability challenges of this century.

Twidwell presentation will include:

- Woody encroachment - national threat to the sustainability of rangelands
- Nebraska Sandhills ranked #2 globally as viable grassland region on Earth
- Intact grasslands less vulnerable to encroachment by Eastern Red Cedar (ERC)
- ERC encroachment poses new threats to Nebraska's livestock industry
- New earlier warning tolls and tracking the economic loss
- Past approaches versus new scientific solutions and winning strategies

4 Dates & Locations

The roadshow will be hosted at these four locations. Please be in contact with each Extension person for further information.

Monday, November 9, 2020 - 9:30 a.m. - 3 p.m. CST, Community Center, Bloomfield, Neb.. Contact Ben Beckman, Nebraska Extension - Cedar County - 402-254-6821.

Tuesday, November 10, 2020 - 9:30 a.m. - 3 p.m. CST, Loup County Ag Society Community Center, Taylor, Neb.. Contact Steve Niemeyer, Nebraska Extension - GLW Counties - 308-346-4200.

Thursday, November 12, 2020 - 9:30 a.m. - 3 p.m. CST, Thomas County Fairgrounds, Thedford, Neb. Contact TL Meyer, Nebraska Extension - Central Sandhills District - 308-645-2267.

Friday, November 13, 2020 - 9:30 a.m. - 3 p.m. MST, Crossroads Wesleyan Church, Imperial, Neb.. Contact Erin Laborie, Nebraska Extension - Furnas County - 308-268-3105

The program also includes presentations from NGLC Burn Coordinators Doug Whisenhunt and Alex Petersen plus local ranchers that have experience using prescribed fire.

There is no cost to attend and a meal will be provided.

Students and local FFA chapters encouraged to attend. Must preregister by November 6 to reserve a meal by calling the UNL Extension office for each location.

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The Nebraska Grazing Lands Coalition (NGLC) is a part of a national effort to enhance the resource stewardship and financial success of grazing land-dependent operations. Objectives of the 14-member NGLC board, made up of mostly ranchers, are to strengthen partnerships, promote volunteer assistance and participation, respect private property rights, encourage diversification to achieve and promote education, training and public awareness of the 23 million acres of grazing lands in Nebraska.

Specific projects include co-sponsoring statewide grazing conferences to pursue common interest with other grazing groups, hosting a carbon sequestration workshop to explain what it is and how ranchers may benefit, and monitoring and lobbying legislation on grazing issues.

On the Cover:

The Blair ranch in Butte County, S.D. is full of rocky terrain and rolling prairies. Occasionally there are trees like these that established in a natural spring area. The Blair's hosted the 2020 S.D. Leopold Conservation Tour on Sept. 29.

"A unified voice for managing South Dakota's grass resource"

The Coalition's goal is to provide local leadership and guidance in a cooperative effort, and provide information and technical assistance to grassland managers.

By focusing the collective power of resource management agencies, producer organizations, educational institutions, professional societies, environmental organizations and private grassland managers, much can be accomplished.

To that end, the Coalition is a major partner in the Grassland Management and Planning Project. For more detailed information on this project, visit sdconservation.org and click on Grassland.

To become a member, clip and mail the form below with your payment.

SD GRASSLAND COALITION MEMBERSHIP - $30/yr or $55/2 yrs.

Address _____

City State Zip _____

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Fax _____

E-mail Address _____

Return to: Judge Jessop
PO Box 401 • Presho, SD 57568

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SOUTH DAKOTA GRASSLAND COALITION

Stressing his point in Sturgis

Veterinarian Tom Noffsinger from Nebraska was in Sturgis, S.D., September 21 sharing his knowledge on low-stress livestock handling. The day-long workshop drew a crowd of nearly 30 participants and was sponsored by the South Dakota Grassland Coalition. Noffsinger also presented workshops in Belvidere, Akaska, Crooks and Yankton September 22-25. He highlighted how low-stress handling helps improve animal immune function, improves weaning, and creates a safer working environment.

Blair Brothers Angus Ranch hosts Leopold tour

By Codi Vallery-Mills

Cattle producers made their way north of Belle Fourche, S.D. on Sept. 29 for the Blair Brothers Angus Ranch Leopold Conservation Award Tour.

Chosen as this year's recipients, the Blair's received $10,000 and the crystal Leopold award in recognition.

Conservation has always been top-of-mind for the Blair family whose ranching roots stem back to 1905 when the Blair family homesteaded south of present-day Sturgis, S.D.

Today the family has two main ranching operations – located at Vale and Belle Fourche – along with summer lease ground that comprise 40,000 acres.

Brothers Rich and Ed Blair along with their sons, Britton and Chad and respective families operate the Angus seedstock firm and feedyard.

Ed says the family was rotational grazing long before it became a buzzword and a vegetative treatment system for their feedlot's lagoon system was the first of its kind in the state.

"We have learned through the years that doing things the right way with conservation in mind is not only the right thing to do but often the most profitable too," Ed says.

The tour was held at the family's Two Top Ranch purchased in the fall of 2014. At close to 18,000 acres of deeded and BLM land, the ranch is a prime setup for a year-round cattle operation.

The ranch was in good condition when the Blairs took over but there were updates that needed to be made and conservation concepts to be implemented.

Working with a multitude of conservation and wildlife agencies the Blairs have installed a well system that supplies more than 50 livestock water tanks by gravity flow through 30 miles of pipeline on the ranch. Wildlife friendly fences have been installed, rotational grazing has been implemented and considerations for the local sage grouse population have been made.

Photos continued on page 4

PHOTOS BY CODI VALLERY-MILLS

The Blair family accepts the South Dakota Leopold Conservation Award on Sept. 29. Shown from left, backrow: Chad, Rich, Jeanie, Amanda, Ed, Mary (holding Clara), Kelli (Blair) Doll, Eric Jennings with SD Cattlemen's, Brett Nix, SD Grassland Coalition, and Dave Bailey, Sand County Foundation. Middle row: Britton and Wanda Blair. Front row: Jack, E.C., and Kate Blair along with Beau Doll.

Upcoming Events

December 2020
Leopold Conservation Award Presentation
TBD

Tuesday, December 15, 2020
SD Grasslands Coalition Annual Meeting
(Virtual)

Farm apps for buying and selling

Gain an extra hand on the farm with these available apps:

TractorHouse – If you are in the market to buy or sell new or used machinery and farm equipment, this global app gives users access to thousands of sale listings. Its user-friendly interface allows you to easily search for equipment and parts, which can be bought directly or at auction.

Cattle Market Mobile – This handy tool collects data on current auction prices across the U.S. Using this information as a guide, farmers can see exactly how much they should be paying for steers, bulls, heifers and more.

FarmHedge – For an all-around app that connects farmers with multiple sectors of the agriculture industry, this real-time agribusiness app puts users directly in touch with suppliers of feed, fertilizers, parts and more. It allows producers to create personal and secure working relationships while also saving time and money.

Editor's Note: This information was excerpted from an article by Liam Doyle for Alltech.

Blair Brothers Angus Ranch hosts Leopold tour *Continued from page 3*

Tour participants loaded up on three flatbed trailers to take a tour of the ranch.

The ranch is made up of rolling prairies and large rock formations.

Eric Jennings president of the South Dakota Cattlemen's Association spoke a few words during the event. The Cattlemen's Association – among others – is a large supporter of the Leopold Conservation Award.

Dave Bailey with the Sand County Foundation commended the Blair family and other past Leopold winners in attendance for their work in grassland management and for "not being afraid to show and share what works."

The Two Top Ranch was first homestead by the Kinghorn family. Shown is what is thought to have been the original homestead.

At the start of the day local rancher and soil health technician Dave Ollila gave a presentation on local ranch history.

South Dakota ranchers Myron Weiss (left) and Jeff Dell get a closer look at the terrain while on the Blair tour on Sept. 29.

The Blair's Angus cattle are rotated through large 1600-acre pastures throughout the year.

Britton Blair (left) and Chad Blair are the next generation of Blair Bros. Angus Ranch. Chad manges day-to-day operations at the Two Top Ranch while Britton oversees activities at ranch headquarters near Vale, S.D.

South Dakota Grassland Coalition chairman Brett Nix congratulated the Blair family on their Leopold Conservation Award.

Every Acre Counts program available to all S.D. counties

Aims to address marginal lands

SDSU Extension has opened the Every Acre Counts program to include all counties in South Dakota with emphasis on the eastern side of the state.

The goal of Every Acre Counts is to improve the profitability, diversity and ecosystem benefits of agriculture by using precision technologies to help producers make informed management decisions for every acre of their operations. The focus of the program is on marginal lands impacted by wet conditions, saline or sodic soils and eroded areas. Program outcomes will provide producers with information needed to increase their return on investment and gain an enhanced land management approach that will benefit the sustainability of land, water and natural resources.

Millions of acres across the state are impacted by these low-yielding conditions, and the financial burden of attempting to produce crops on these marginal lands can be negative. By evaluating marginal acres and their return on investment, data summaries and conclusions obtained from this program can be shared with producers to assist in making informed decisions. SDSU Extension will work with landowners throughout the state to precisely quantify the technical metrics of their existing operations and generate an economic analysis report, which will provide the information needed to pinpoint and quantify marginal acres on each operation.

The South Dakota Habitat Conservation Fund, U.S. Department of Agriculture/Natural Resources Conservation Service in South Dakota and Pheasants Forever are currently providing program funding through grants. Program operations support is currently provided by Agtegra, South Dakota Corn, Ducks Unlimited, the South Dakota Soil Health Coalition and South Dakota Game Fish and Parks. Federal, state and local habitat and conservation programs will also be used to leverage funding.

Every Acre Counts will continue to help producers increase farm profitability, wildlife habitats and stakeholder confidence, improve soil health and water quality and enhance student learning through the next five years and beyond.

If you have issues with marginal lands and would like to learn more about this program, contact SDSU Extension Soils Field Specialist Anthony Bly at anthony.bly@sdstate.edu or 605.690.4563.

Web tool helps quantify greenhouse gases

American Farmland Trust shares publicly its CaRPE Tool TM, a web-based interactive tool that allows users to quickly visualize and quantify net greenhouse gas, or GHG, emission reductions resulting from the implementation of cropland and grazing land management practices. The user can quantify the current use and impact of key regenerative practices and then estimate the potential to sequester more carbon if these practices are applied more broadly, given the specific farmland resources in a state or region.

Find out more at https://farmland.org.

Kiss the Ground

Now out on Netflix is a documentary on climate change, soil health, food production and conventional agriculture.

Narrated by actor Woody Harrelson, the movie travels the globe seeking out examples of biosequestration done right.

A familiar face, North Dakota farmer Gabe Brown, is featured in the film.

Center of Excellence established to advance bison research, knowledge

Headquartered in Rapid City, S.D.

Officials from South Dakota State University (SDSU), the National Bison Association and the National Buffalo Foundation recently launched the Center of Excellence for Bison Studies, to be headquartered at SDSU's West River Research and Extension facility in Rapid City, S.D.

The Center will focus on research activities to improve bison herd health and production and the economic viability of both private and tribal bison producers.

The 2018 U.S. Farm Bill authorizes the USDA's National Institute for Food and Agriculture to recognize centers of excellence in research, extension and education in the food and agricultural sciences. The Center of Excellence for Bison Studies will be coordinated through SDSU, but will include active participation by researchers and extension officials from other land grant universities, including 1994 tribal land grant colleges and universities.

Plans for the Center of Excellence began in May 2017 when leaders of the National Buffalo Foundation, the National Bison Association's Science and Research Committee and Sinte Gleska University convened with SDSU researchers. Participants agreed on a number of research priorities, but recognized that a coordinated effort was needed to generate the resources to underwrite those initiatives.

"We will be pulling together the leading experts in their fields to help us gain a better understanding of this animal and the ecosystems it lives in, and to develop new resources for the people who raise bison," said Kristi Cammack, the newly installed Director for the Center of Excellence.

The Center of Excellence represents a significant milestone in the restoration of bison herds to North America, according to Dave Carter, Executive Director of the National Bison Association. "Our knowledge on how best to manage our herds has evolved through a lot of trial and error, supplemented by scattered studies at universities across North America. The Center of Excellence will bring together academicians, ranchers, and tribal bison managers in a collaborative commitment to help us be better stewards of our herds."

The National Buffalo Foundation, a 501(c)(3) charitable foundation dedicated to being the major trusted funding source for bison research and education, will embark upon a major fundraising campaign in the coming months to provide the resources to underwrite the Center's initial research projects.

Virtual fence research tested on large Nevada ranches

Paul Meiman, associate professor and Extension specialist in the University of Nevada, Reno College of Agriculture, Biotechnology & Natural Resources, is leading research on virtual fencing for ranches in Nevada.

When Meiman learned that local ranchers were interested in implementing virtual fencing for managing livestock, he saw the opportunity to conduct valuable research on this new tool.

So, he and a graduate student are working with the Maggie Creek Ranch, Cottonwood Ranch and virtual fencing company Vence to install towers to communicate with GPS collars worn by the cattle. When the cattle are near the boundary dictated by the computer system, they're signaled warnings through the collars, such as sounds and small electrical stimulation cues to keep them where they are supposed to be. The virtual fence boundaries can be placed almost anywhere and moved easily, unlike conventional fences. About 130 at each ranch are being used in the research.

Meiman's research is unique in the realm of virtual fencing due to both the scale and method. So far, virtual fencing has been studied using small numbers of animals (six to 30) on small areas of land (less than 30 acres). Meiman, however, is planning on using this technology on hundreds of animals and thousands of acres. His overall goal is to find the various ways this technology can help meet the needs of ranchers and sustain angelands for future ranching, wildlife and other purposes.

The project, a partnership of the College's Extension and Experiment Station units, the ranches, the Bureau of Land Management, and the U.S. Fish and Wildlife Service, is entering its second year of a three-year timeline.

PHOTO BY PAUL MEIMAN.
Paul Meiman and Nevada ranchers have started researching GPS-capable collars for cattle.

Silage safety resources available

The Keith Bolsen Silage Safety Foundation, a non-profit organization, is continuing with its mission to promote safe silage management practices for bunker silos and silage piles. The foundation provides educational resources and materials, and is available for presentations and training.

The foundation's website at silagesafety.org offers videos, presentations and published articles. Use the "contact us" form to order handbooks in English and Spanish, as well as to request safety training and consulting.

Understanding "Regenerative Ag"

From Noble Research Institute

Regenerative agriculture is the process of restoring degraded soils using practices based on ecological principles. Regenerative agriculture promotes:

- Building soil organic matter and biodiversity
- Healthier and more productive soil that is drought- and flood-resilient
- Decreased use of chemical inputs and subsequent pollution
- Cleaner air and water
- Enhanced wildlife habitat
- Capturing carbon in the soil to combat climate change

These outcomes may be achieved by strategically applying management practices based upon the five principles of soil health, which are:

- Keep the soil covered
- Minimize soil disturbance
- Keep living roots in the soil all year
- Increase plant diversity
- Integrate livestock properly

Taking this a step further, "regenerative grazing" complements these soil health principles. It is the essence of the principle, "integrate livestock properly."

On grazing lands, regenerative grazing means:

- Grazing for short periods.
- Grazing moderately in the growing season.
- Leaving adequate plant cover followed by adequate, planned recovery that is facilitated by effective multi-paddock grazing management protocols.
- Adjusting stock numbers to match forage biomass.

In other words, the grazing is planned, managed and in sync with the growing conditions at any given period of time.

Grazing toward a sustainable beef supply chain

Cross-industry collaboration is crucial to meeting the global demand for protein while also addressing the urgency of climate change and nature loss. Responding to this challenge, today the Walmart Foundation, Cargill and McDonald's are investing over $6 million in an initiative led by World Wildlife Fund that aims to make lasting improvements to the grasslands of the Northern Great Plains.

The new program, known as the Ranch Systems and Viability Planning (RSVP) network, will support ranchers across the ecoregion—focusing primarily on Montana, Nebraska and South Dakota—with technical expertise, training and tools to help advance grazing practices that improve the health of the land. By improving management of one million acres over five years and avoiding conversion, this effort will result in increased carbon storage and sequestration, improved water infiltration and better outcomes for biodiversity.

Livestock grazing and beef production in the U.S. can be part of a resilient, sustainable food system. Grazing lands cover about 40 percent of the United States. This includes iconic ecosystems and important wildlife.

Grasslands, rangelands and pasture also store abundant soil carbon. Without proper management, livestock grazing can lead to erosion, and it can decrease soil carbon storage. On the other hand, well-managed grazing can help secure clean water, enhance habitat, sustain rural communities and store additional carbon in the soil, which helps mitigate emissions.

Farmers and ranchers are the stewards of these lands, and as an industry, we need to support ongoing and increased efforts to maximize the positive effects of cattle production.

Walmart, Cargill and McDonald's aspire to source fresh beef products more sustainably by 2025, including prioritizing soil health, animal welfare and responsible use of antibiotics.

"Collaborative efforts like this can accelerate innovative, sustainable solutions and support ranchers in the beef supply chain," said Kathleen McLaughlin, EVP and chief sustainability officer for Walmart and president of the Walmart Foundation. "Sustainable grazing practices that improve soil health, absorb carbon and reduce water consumption can help to protect the land and people who depend on it."

This program supports the Walmart Foundation's focus to bring more sustainable, regenerative practices to the beef industry. The Foundation aims to build connections that can accelerate systems change and form communities of practice with grantees and leaders to share learnings, advance best practices, foster collaboration and scale collective impact. Investing in conservation activities in the Northern Great Plains supports the stewards of those lands and contributes to climate resilience efforts.

This partnership also supports McDonald's ambition to use its scale and many relationships from the farm to the restaurant to help significantly reduce greenhouse gas emissions and evolve the food system for a resilient and sustainable future. As the first restaurant company in the world to set an approved science-based target on climate action, McDonald's is partnering across the supply chain to employ a diverse set of strategies, which scale-up action across the industry.

And the project is also part of Cargill's BeefUp Sustainability initiative, which seeks to reduce greenhouse gas emissions throughout the company's beef supply chain by 30 percent by 2030, measured on a per pound of beef basis against a 2017 baseline. Earlier this year, Cargill launched two other programs to support this goal, including a grassland restoration effort and an initiative to implement proven soil health practices in cattle feed.

The Ranch Systems and Viability Planning initiative will begin rolling out in early 2021. World Wildlife Fund has deep relationships across the region with landowners and will be hiring place-based technical assistants who can enroll landowners who are interested in participating. In addition, landowners who are interested can enroll by contacting World Wildlife Fund's Sustainable Ranching Initiative staff members who work throughout the region. World Wildlife Fund will also work through local, state, and regional partners to gain input into the program and recruit participants.

Producers who choose to participate in this program will receive technical expertise, tools, and access to planning workshops and a cost-share program to develop plans tailored to their operation. This includes a baseline assessment of their ranch and ongoing monitoring of results to help ranchers adapt the plan to increase benefits and promote continued improved management of grasslands.

By enrolling in the program it does not open any marketing venues for producers looking to sell cattle direct to Walmart, Cargill or McDonald's. Producers will still need to market their cattle throught traditional marketing channels, according to Daniel Sullivan with Cargill.

Source: Walmart and Cargill

Guest Editorial: City perspective offers reminder of why we must continue to share ag's story

By Kindra Gordon

An off-hand comment made by a Millennial last winter is still rattling around in my head nine months later – and it's prompting me to remind others that our work in sharing the importance of agriculture – and farm and ranch lands – is a daily necessity.

Allow me to set the stage for what happened.

Last February – before Covid-19 prevented public meetings and gatherings – my husband, children and I attended a public forum where the local county was seeking input to guide strategic planning and development for our area over the next two decades. Since we live in the Black Hills where urban encroachment is prevalent, I was eager to attend and hear how these future issues may be addressed.

The county organizers were forced to set up extra chairs, as they were surprised by the more than sixty attendees who showed up representing a cross-section of ages and backgrounds. I was impressed that people showed a personal interest in contributing to the vision for their community and county for the future.

To get the event started, we were divided into small groups of 6 to 10 people and rotated around the room, stopping at different stations for several minutes to brainstorm ideas to various questions taped on white paper on the wall. I found myself in the group with the Millennial and a few others.

I don't recall the exact question that our group was stopped and addressing, but it had something to do with business development outside of city limits. I expressed my viewpoint that development should be planned and contained to minimize fragmentation to the forest and rangeland natural resources surrounding Black Hills cities. The Millennial disagreed and shared that she had recently gone through the zoning process for her new 500-person event facility with a large accompanying paved parking lot located five miles or so out of town. She expressed – and here's where things went awry for me - that the land she had purchased and put her new business on, which by the way was formerly undisturbed pasture, in her words, "wasn't being used for anything anyway."

As a life-long rancher's daughter with agriculture the focus of my family's daily life, you can imagine my reply.

I was in utter disbelief that someone could view a piece of grassland as producing nothing. What about the livestock that land had fed via grazing and haying? How about the habitat it provided for birds and wildlife – not to mention the pollinators and underground microbes that benefit our ecosystem? How about the simple beauty of open space and the irreplaceable value the land provided in filtering water for the region? What about the generations of ranch families that land once sustained?

How someone can live in our rural, agricultural state and have the view that grassland "isn't being used for anything" is a mounting challenge our industry faces.

It makes clear the continued need for sharing the importance and value from agriculture with this Millennial – and many, many others. Whether it is supporting ag education in your local school, posting ag content and photos on social media, or helping your own children become well-spoken about agriculture among their non-ag friends, we must all continue to help share the story that farmers and ranchers are the ones keeping our natural resources in tact for future generations – from being stewards of wildlife, soil health and water quality to raising the crops and livestock that puts food on everyone's tables. Farmers and ranchers ensure the land provides these essential services for everyone, let's not allow others to continue to take that for granted.

Weed Wise: Controlling Canada Thistle with Spike Seeding

By Pete Bauman and Kyle Kelsey, SDSU Extension

When Canada thistle germinates in grassland plantings it can be a source of contention. Specifically, neighbor complaints and obligatory involvement of county weed inspectors can escalate a Canada thistle issue and force a chemical application that be expensive, ineffective, or that compromises the health of the other species that are desirable in the planning.

At the site level, Canada thistle can be controlled through a variety of integrated pest management (IPM) tools, with a variety of mechanical, chemical, cultural, and biological controls proving effective. However, at large landscape-level scales, Canada thistle has largely proven to be a weed that cannot be eradicated in any practical sense, and thus options to learn to live with this plant are often explored. Some practical approaches to long-term control of Canada thistle include well-timed livestock grazing, biological control, and increasing competition from desirable plants.

Over the past decade, researchers and land managers from a variety of organizations have experimented with controlling invasion of Canada thistle in planted grasslands through increasing competition from desirable plants. Specifically, these researchers planted seed mixes that ranged between 23 and 39 different species of native plants, however, they added three to five selected native broadleaf plants (forbs) at a much higher seeding rate into the seed mix to provide intense competition for Canada thistle. The forbs were selected on practical measures of availability, cost, seeds per pound, quick establishment characteristics, and ability to be competitive with thistle. Trials included 'spiking' these forbs into the seed mix at a rate of three to 10 times higher than the typical seeding rate for the forb species across several sites in the region.

Initial test results of the spike method show favorable results. After six to seven years post-seeding, Canada thistle in the non-spiked plots averaged about 10 percent canopy cover while thistle in the spiked plots was around five percent. In addition, the forbs spiked into the mix at a high rate initially controlled the thistle through competition but ultimately did not overly dominate the plant community. Rather, overall plant richness and diversity were increased.

While it is premature to suggest this method of spiking competitive forbs into diverse seed mixes to control Canada thistle will work in all cases, the results are very encouraging and may point to an approach that allows natural competition to control Canada thistle over expensive chemical treatments that often do not have long-term effect or that compromise the health of non-target and relatively expensive desirable native plants.

Kansas research evaluates industrial hemp as cattle feed

A pair of studies at Kansas State University (K-State) is bringing new insight for utilizing industrial hemp in cattle feed.

After the 2018 Farm Bill legalized hemp production in the United States, interest has grown in industrial hemp as an agricultural commodity, including as feed for animals. FDA approval, however, through the Association of American Feed Control Officials would be required before hemp could be fed to livestock or pets.

"Although hemp can be legally cultivated under license in Kansas, feeding hemp products to livestock remains prohibited because the potential for cannabinoid drug residues to accumulate in meat and milk has not been studied," explains Hans Coetzee, professor and head of the anatomy and physiology department in the College of Veterinary Medicine.

With a $200,000 Agriculture and Food Research Initiative Competitive Grant from the USDA's National Institute of Food and Agriculture (NIFA) research is underway at K-State to establish concentrations of cannabinoids in livestock after exposure to industrial hemp.

"Industrial hemp is typically grown to produce oil, seed, fiber and medicines," said Michael Kleinhenz, assistant professor of beef production medicine. "While varieties of hemp may be planted for a single or dual purpose, such as for seed and fiber, byproducts consisting of leaves, fodder and residual plant fibers remain after harvest. These byproducts could serve as potential feedstuffs for animals. Because these are predominantly cellulose-containing plant materials, the ideal species for utilizing these feeds are ruminant animals, specifically cattle."

While there is interest in the use of hemp for cattle feeds, there are questions about whether the feed can be used safely because of concerns about tetrahydrocannabinol, or THC, intoxication and the presence of other bioactive cannabinoids. Kleinhenz noticed that most research was focused on humans, mice and swine, but not on cattle.

"This is surprising because cattle can readily utilize industrial hemp byproducts, as they can digest cellulose plant materials in their rumens," Kleinhenz said.

Kleinhenz is part of a multidisciplinary research team consisting of pharmacologists, toxicologists, analytical chemists and horticulture experts. The hemp used in the studies was grown at K-State's John C. Pair Horticultural Center near Wichita.

"We observed that the acidic cannabinoids, such as CBDA (cannabidiolic acid) and THCA (tetrahydrocannabinolic acid), are more readily absorbed from the rumen than other nonacid cannabinoid forms, such as CBD (cannabidiol) and CBG (cannabigerol)," Kleinhenz said. "Now that we have found that some cannabinoids are readily absorbed from the rumen, the next steps are to study the tissue and milk residue depletion profiles of these compounds after animal feeding experiments. The effects of cannabinoids on cattle are also unknown."

Follow-up experiments will include pilot studies to examine the effect of feeding hemp on animal behavior and immune function.

"Our goal is to fill in the knowledge gaps," Kleinhenz said. "Until feedstuffs containing hemp are established as safe in animals, our data will assist producers in managing situations involving intentional or unintentional hemp exposures."

The two published studies are "Nutrient concentrations, digestibility, and cannabinoid concentrations of industrial hemp plant components," which can be found in the Journal Applied Animal Science, and "Plasma concentrations of eleven cannabinoids in cattle following oral administration of industrial hemp (Cannabis sativa)," which was published in Scientific Reports.

Source: Kansas State University

Windrow grazing annual forages to extend the grazing season

By Aaron Berger, Nebraska Extension

In many areas, drought conditions have resulted in reduced forage production on rangeland and pasture. This is resulting in a shortage of feed for many producers and a need for forage between now and when cornstalks are available for grazing. Windrow grazing annual forages allows producers to cut the crop at an optimum time for quality and increase harvest efficiency through strip grazing the windrows.

Harvested feed costs can be one of the largest expenses to cattle producers. Windrow grazing, sometimes called swath grazing, is a management practice that can significantly reduce harvesting and feeding costs. Swathing the crop and leaving the windrows in the field provides several advantages.

- Eliminates the costs of baling and hauling bales off the field.
- Reduces labor and equipment costs associated with feeding.
- Returns some nutrients and organic matter from consumed forage back to the soil where the crop was grown.

In Nebraska, 75-80 percent of seasonal precipitation falls in the six-month period from April through September. Only 20-25 percent of precipitation falls from October through March. This seasonality of precipitation allows for swathing forage crops in early fall and preserving them through the fall and winter with minimal deterioration in quality due to weathering. Cool, dry conditions frequently associated with late fall and winter are favorable for preserving forage in a windrow.

Across Nebraska, the average amount of precipitation increases from west to east. Greater average precipitation in eastern Nebraska does increase the risk of windrow deterioration compared to drier conditions in central and western Nebraska.

Windrow grazing of warm season annual forages such as foxtail millet, sudan grass and sorghum x sudan grass hybrids can provide an excellent way to harvest these forages when they are at an optimum for quality and efficiently utilize them with minimal waste. Windrow grazing of cool season annual forages such as spring triticale, oats and spring barley planted in late summer can provide high quality feed for late fall and winter grazing as well.

Snowfall from October through March can be quite variable; however, extended periods when snow cover would prevent windrow grazing are limited. If cattle know that the windrows are present, they will dig through the snow to get to the windrows.

Be Aware: Nitrate Risks

When windrow grazing annual forages, nitrate poisoning is a potential risk. If possible, clip forages prior to swathing and have a nitrate test conducted to see what level of nitrates are present. If nitrates are high, raising the cutter bar higher can help to reduce the nitrate levels in forage placed in the windrow, as nitrates tend to be concentrated in the bottom third of the stem. Annual forages placed in the windrow should also be tested for nitrates prior to grazing. If nitrate levels are too high for grazing safely, the crop can be baled and then ground and mixed with other feeds to dilute the nitrates to a level that is safe for feeding.

A webinar titled Windrow Grazing in Nebraska is available that highlights more of the details of using this management practice at http://beef.unl.edu.

Nebraska to streamline Grassland/ Grazing options into single major

Grazing Livestock Systems, the first major offered through the Center for Grassland Studies at the University of Nebraska-Lincoln, is getting a facelift starting in Fall 2021.

This change will take the two grassland-focused majors that UNL's College of Agricultural Sciences and Natural Resources (CASNR) offers, Grassland Ecology and Management (GECM) and Grazing Livestock Systems (GRLS), and move them under the umbrella of a single major: Grassland Systems (GRAS).

The majors themselves aren't undergoing changes; they are just becoming options under the Grassland Systems major.

Grassland Ecology and Management focuses primarily on ecology and multiple uses of grasslands: the historical use of grasslands, how they function, and how to properly manage them for multiple uses with resilience in mind. Students are taught about the foundational components of grasslands, including ecology, soil science, plant physiology, and plant identification, and then how to use this foundation to learn about integrated grassland management for multiple uses, including water, wildlife, plant community production, recreation, and aesthetics. These students graduate with all the skills necessary for careers including habitat management, grassland/ rangeland management, conservation, ecosystem restoration, and environmental consulting.

Grazing Livestock Systems looks at the systems approach of grassland management from a producer's point of view. Not only do students learn the principles of grassland ecology, they also take courses in animal science and agricultural economics. The purpose of this undergraduate program is to prepare students to work in more agricultural production positions such as ranch managers and consultants, staff of USDA agencies, financial advisors, and research and extension technicians/assistants.

At the inception of Grazing Livestock System in 1999, the livestock production industry was less holistic than it is now and the major had a different curriculum than it does today. Today's landowners have evolved to incorporate more ecosystem services management into their land use plans, which has driven the two majors to overlap even more. Also, over the past 20 years, new careers have emerged that have diversified what was once available to graduates.

Given these changes in the realm of grassland systems and to prepare

Continued on page 8

Grazing Guide

A calendar listing of pasture and range events

**** Please note, all dates and events are subject to change amid COVID-19.**

2020

Nov. 5 North Dakota Grazing Lands Coalition Leopold Conservation Virtual Presentation, 1-2 p.m. CT, recognizing Dockter-Jensen Ranch, www.ndglc.com/ndlca

Nov. 5-6 Nebraska Section of SRM Virtual Annual Meeting, "New Technologies for Managing Rangelands," Lincoln, NE, register at https://unl.zoom.us/webinar/register/WN_vegnnpnXSwC4U0RXosKO8Q

Nov. 9 Nebraska Grazing Lands Coalition Traveling Road Show, "Protecting the Last Grasslands", Community Center, Bloomfield, NE, Contact Ben Beckman, Nebraska Extension - Cedar County - 402-254-6821

Nov. 10 Nebraska Grazing Lands Coalition Traveling Road Show, "Protecting the Last Grasslands" Loup County Ag Society Community Center, Taylor, NE, Contact Steve Niemeyer, Nebraska Extension - GLW Counties - 308-346-4200

Nov. 12 Nebraska Grazing Lands Coalition Traveling Road Show, "Protecting the Last Grasslands" Thomas County Fairgrounds, Thedford, NE, Contact TL Meyer, Nebraska Extension - Central Sandhills District - 308-645-2267

Nov. 13 Nebraska Grazing Lands Coalition Traveling Road Show, "Protecting the Last Grasslands" Crossroads Wesleyan Church, Imperial, NE, Contact Erin Laborie, Nebraska Extension - Furnas County - 308-268-3105

Nov. 11-12 Stockmanship Stewardship Virtual Experience, Visit stockmanshipandstewardship.org

Dec. TBD South Dakota Grassland Coalition Leopold Conservation Award Presentation

Dec. 15 South Dakota Grassland Coalition Virtual Annual Meeting. See www.sdgrass.org as more details become available.

2021

Jan. 12-13 North Dakota Grazing Lands Coalition Winter Conference

Feb. 7-11 Society for Range Management annual meeting, Boise Idaho. Now to be held virtually.

May TBD Grassfed Exchange, Fort Worth, TX

Dec. 6-9, 8th National Grazing Lands Conference, Myrtle Beach, SC

Have a Range & Pasture Event you would like others to know about? Send information to cattlenews@gwtc.net.

Prevent hay losses from storage damage

Hard work goes into making quality hay, so letting storage conditions degrade the quality, and in some cases, the quantity of the hay you worked so hard to make doesn't make sense. University of Nebraska-Lincoln (UNL) Extension Educators Brad Schick and Ben Beckham recently shared methods to prevent hay losses in the UNL Beefwatch newsletter.

Bale it right – The first step in preventing storage loss is to produce a tightly wrapped, densely packed bale at the proper moisture. Baling at correct moisture levels results in hay curing without excessive heating, mold growth, and dry matter loss. Maintain moisture levels below 20 percent for this to occur.

Not every forage lends itself to dense packing, but fine-stemmed hay made from grasses, small grains, and alfalfa are among those that generally make for tight, well-formed bales. Using a wrapping material that will keep the hay tight for an extended period can also prevent storage losses. Plastic sleeves and net wrap may physically block water from entering the bale, whereas twine wrapping is not able to do this.

Bale type also plays a role in storage loss. Round bales with layers going with the curve enable water to runoff the sides of the bales, allowing only small amounts of water to wick into the bale. A square bale's flat top does not allow water to roll off. Instead, water sits on top and soaks into the bale.

Keep it dry - Many haymakers say that you will pay for a hay barn whether you build one or not. Considering the projected losses for outdoor storage, this may be more than just a saying but a fact.

Hay stored inside can lose two percent to eight percent dry matter if stored for extended periods of time. Large round bales stored outside can range from five percent to 25 percent dry matter loss, depending on the climate.

Round bales are not as easy to store inside a barn or shed, but it is still important that they be covered or placed in a way that prevents moisture wicking.

When storing bales outside, keep the base dry. Hay can wick moisture through the bottom of the bales as well as the top. It is recommend to store hay on an elevated or well-drained surface such as old tires, crushed rocks, concrete, pallets, or railroad ties.

If bales are stored outside, consider using a tarp to cover the bales. Tarps will help protect bales from rain and wind without the investment of building a hay barn. The storage area still needs proper drainage, and, by stacking or pyramiding bales, you can cover more hay in a smaller area with less tarp compared to a single level of in-line bales.

If indoor storage or tarping are not feasible on your farm, consider how you place your bales when they will be exposed to the weather. For round bales, placing them end-to-end in rows three feet apart minimizes bale exposure and allows adequate airflow. Find an area with natural slope to store your hay. The slope causes water to run off instead of pool at the base of the hay.

No matter the type of bales, do not store hay under trees. When it rains, the trees will prevent the bales from receiving sunlight and airflow, which are two key factors in drying out bales after a precipitation event. If wind is a problem in your area, consider building windbreaks away from tree lines, in a well-drained area.

The extension educators cite a study performed with prairie hay in South Dakota that showed hay stored for one year, end-to-end, had a one percent dry matter loss. Individually stored bales had a four percdent loss, and pyramid storage had a 10 percent loss in dry matter.

The type of forage will play an important role in storage decisions. Beckham and Schick note, "Alfalfa is much more valuable and more susceptible to damage than grass hays when being stored. Other forages that are difficult to form a tight bale, such as sudangrass and millets, are highly susceptible to moisture penetration."

A study with prairie hay in South Dakota showed hay stored for one year, end-to-end, had a one percent dry matter loss. Individually stored bales had a four percent loss, and pyramid storage had a 10 percent loss in dry matter.

Factors to evaluate when considering energy/ industrial development on native grasslands

Helping landowners understand expectations and responsibilities

By Pete Bauman, SDSU Extension

Energy development (in the form of wind turbines or pipelines/oil wells) on private lands can result in land manipulation. Of particular concern is the manipulation of native grasslands and other sensitive areas and how it will affect those areas in the short-and-long-term.

SDSU Extension and partner organizations have developed a fact sheet titled Best Management Practices Guide for Restoration of Native Grasslands and Sensitive Sites Resulting from Energy or Industrial Development. This fact sheet is designed as a resource to landowners and energy representatives as a guide for negotiating and mitigating impacts to grasslands and sensitive sites and is available on the SDSU Extension website at https://extension.sdstate.edu/best-management-practices-guide-restoration-native-grasslands-and-sensitive-sites-resulting-energy.

Once native grassland is converted, it is impossible to completely restore all ecological functions of the soil and vegetation. Therefore, landowners contemplating allowing energy development should understand that a return to pre-disturbance conditions isn't feasible. If native grassland health is a goal, avoiding construction disturbance on these sites is the prefered option.

If energy development or other disturbances are allowed it is important that the landowner thoroughly understand the contract language and ensure that the contract reflects short-and-long-term expectations. Energy development easements or contracts that allow for construction of temporary roads or corridors may not adequately explain the level of manipulation planned for the site, and thus it is up to landowners to self-educate and be mindful of what is allowed under the contract.

Factors to Consider

The SDSU Extension fact sheet encourages landowners to carefully consider whether energy development is appropriate for their land. If the decision is made to participate in an energy development project, the fact sheet is designed to guide landowners and energy developers through a checklist of topics to consider for the native grassland or sensitive site prior to finalizing a contract. The list of topics includes:

1. Legal review of contract parameters and retention of copies of contracts and associated forms, permits, etc.
2. Seeking advice or input from a rangeland, pasture, grassland, habitat, or ecology professional
3. Understanding and clearly defining contract language
4. Ensuring existing contracts, easements, or agreements with agencies or lessees are considered and addressed accordingly
5. Ensuring permits are acquired if necessary for disturbance of ecological, historic, or sensitive sites
6. Ensuring soils are properly removed, stored, and returned to original contours and soil horizons in a timely manner
7. Defining vegetation restoration parameters, including seed bed preparation, planting technique and timing, and a list of native species to consider as well as avoidance of all non-native and invasive species
8. Defining post-planting management responsibilities and future costs of labor, equipment, and materials to manage restored corridors for long-term success, including but not limited to concerns with weed control, chemical applications, grazing management, etc.

The fact sheet provides landowners and developers a platform for mutual understanding of expectations on the front end, giving landowners a clear picture of short-and-long-term responsibilities of both parties.

This guidance will help landowners prevent poorly written or negotiated contracts that can leave them individually responsible for potentially long-term maintenance expenses of energy corridors.

Society for Range Management offers virtual meeting Feb. 15-18

The Society for Range Management (SRM) Annual Meeting is a legendary opportunity to gather ideas for rangeland management and absorb scientific information related to the land. Unfortunately, COVID-19 has limited in-person gatherings, so, the 2021 SRM Annual Meeting (initially planned for Boise, Idaho) will go virtual February 15-18. The meeting theme is "Rangelands – New Frontiers" and will highlight many new ideas and endeavors occurring on rangelands across the globe.

The event will include the familiar oral presentations, posters, symposia, workshops, and campfire conversations that are a part of traditional SRM meetings. The 2021 event will also include exceptional plenary sessions, interactive committee meetings, SRM awards and business sessions, plus opportunities to engage with colleagues and fellow SRM members.

SRM hopes to return to their standard face-to-face format in Albuquerque, N.M. in February 2022 when the organization will celebrate its 75th anniversary. For more information about the SRM meetings monitor: http://annualmeeting2021.rangelands.org/.

Neb. to streamline

Continued from page 7

students for the breadth of career opportunities, the merger of the two majors into Grassland Systems was a logical direction. The development of the new Grassland Systems degree program will not affect students currently enrolled in Grassland Ecology and Management or Grazing Livestock Systems; the designated degree program at their graduation will be either Grassland Ecology and Management or Grazing Livestock Systems.

The two student clubs associated with the two academic options, the Range Management Club and Grazing Livestock Systems Club, will remain separate entities, but have also acknowledged the benefits of working together in their areas of commonality to provide the best opportunities for their members.

To learn more, prospective students should contact Margo McKendree in the Center for Grassland Studies (mmckendree14@unl.edu).

Source: Center for Grassland Studies Summer 2020 newsletter