



Grassroots

VOLUME 23 ISSUE 4

JULY 2021

BOARD OF DIRECTORS

Brett Nix, Chair

**Jim Faulstich,
Vice Chair**

**Larry Wagner,
Secretary**

**Mike McKernan,
Treasurer**

Bart Carmichael

Dugan Bad Warrior

Pat Guptill

Riley Kammerer

Jeff Zimprich

INSIDE THIS ISSUE:

Blue-Green Algae 2-3

Increasing Stocking Rates 3-4

Drought Assistance from USDA 4

Weed Control, One Bite at a Time 5

Eastern Red Cedar Tree Control Using Goats 6

SRM Corner: Remembering Bob Gartner 7

Range 101: Warm-Season Growth Curve By Sandy Smart

During drought years it is often easier to observe the differences between warm-season and cool-season plants. This is especially true in July. I have been collecting biomass samples every two weeks from a grassland near Brookings which is comprised of mainly Kentucky bluegrass (cool-season), smooth brome (cool-season), and big bluestem (warm-season) (see photo to the right and below). Last year this plot looked very different with much more cool-season (Kentucky bluegrass and smooth brome) dominating the canopy (see photo below).

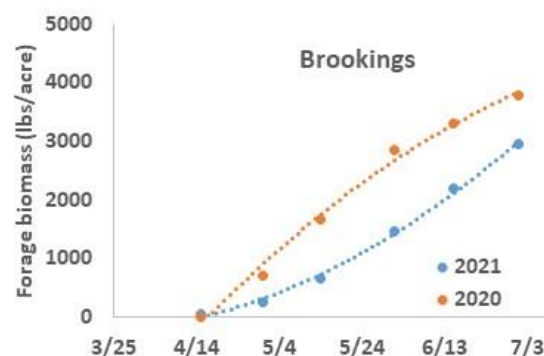


Kentucky bluegrass in the foreground (thin leaf grass; cool-season) and big bluestem in the background (broad leaf grass; warm-season). (Photo by Sandy Smart)

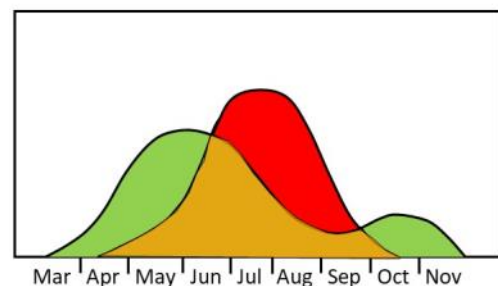


Kentucky bluegrass and smooth brome dominate this grassland in 2020. (Photo by Sandy Smart, June 15, 2020).

The 2021 growth curve (blue dots and line) looks quite different than 2020 growth curve (orange dots and line) because the cool-season contribution is much less this year (see graph to the right-middle). The 2021 growth curve will likely follow the generalized growth curve (depicted in red and orange in the figure to the right). I expect the peak in August and then level off after that. The dry conditions this spring/summer made for a more pronounced warm-season curve for biomass accumulation in my grassland this year because the contribution from cool-season grasses was less compared with 2020.



Forage biomass from a grassland in 2020 and 2021 collected every two weeks near Brookings, SD.



Generalized growth curve for cool-season grasses (green) and warm-season grasses (red) with overlap (orange).

Blue-Green Algae and Livestock by Adele Harty and Robin Salverson

With the expanding drought conditions across Western South Dakota, there are increased concerns about livestock water quality. One water quality concern stems from the algae blooms on stock dams. The predominant question is whether the algae presents health concerns for livestock. Depending on the type of algae, it can be a concern. With warmer temperatures, the conditions are right for blue-green algae blooms.



About Blue-Green Algae

Blue-green algae does not look like traditional green algae, which typically forms in a mat on the surface of the water. Rather it can appear like small grains of green sand at the water surface. There are different types of blue-green algae that have varying appearances. Some may resemble spilled paint around the edge of the stock dam, some will give the entire water source a pea-green appearance, while others will have a teal green appearance. Different species of blue-green algae contain various toxins, which can poison livestock, resulting in rapid death.

Blue-green algae will bloom when weather is hot and winds are calm. As the algae begin to die, gas is produced in the cells causing the colonies to float to the water surface. The wind blows the algae blooms to the shorelines resulting in their concentration and easy access to livestock. Identification of blue-green algae blooms in water can be difficult because the blooms appear and disappear rapidly.

Livestock Toxicity

Blue-green algae blooms can contain neurotoxins (nervous system damage) or hepatotoxins (liver damage), depending on the type that is present. If water containing blue-green algae is consumed by livestock, death will typically occur within 24 hours or less following ingestion. Cattle, sheep, horses and small animals are all susceptible to these toxins (and humans!). Due to the rapid advancement to death, the observation of clinical signs including tremors, paralysis, respiratory failure, and diarrhea are not often seen. The most frequent indicator of toxicity from blue-green algae is to find a dead animal close to the contaminated water. If the animal survives initial poisoning, photosensitization (sunburn) will be noticeable, however the animal will likely die later due to liver failure. There is not a standard treatment for blue-green algae toxicity due to the rapid progression to death.

Sampling and Testing

If you suspect that you have lost livestock to blue-green algae toxicity, work with your veterinarian to collect the appropriate samples to confirm or deny the blue-green algae toxicity. A complete set of tissues (liver, brain, stomach contents) and a water sample are needed for diagnosis. The water sample should be taken from areas within the stock dam where the algae is

Blue-Green Algae Continued on Page 3

Blue-Green Algae Continued by Adele Harty and Robin Salverson

concentrated. [This video](#) from Kansas State Veterinary Diagnostic Laboratory describes what blue-green algae can look like on the dam and how to collect water samples. The samples can be submitted to the [Kansas State Veterinary Diagnostic Laboratory](#) for analysis. This lab can test for the presence of blue-green algae along with specific toxins.

Management Considerations

The only sure way to prevent blue-green algae poisoning is to remove animals from contaminated water. Move them to a pasture with a water source free of blue-green algae. If this is not possible, control access to the dam, especially in areas downwind, which is where the concentration occurs. Pump water from below the surface in the middle of the stock dam to a holding tank so that the scum on the top can be avoided. If you suspect a blue-green algae bloom in your stock dam, the first priority is to move the livestock to a clean water source and then send samples of the water to a lab for analysis.

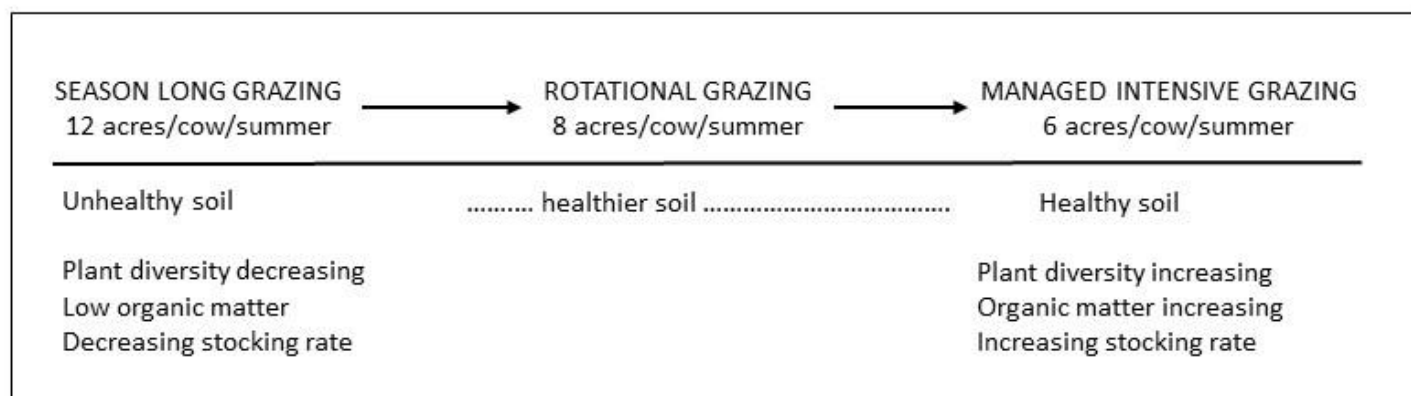
Adele Harty is an SDSU Extension Cow/Calf Field Specialist located in Rapid City and Robin Salverson is an SDSU Extension Cow/Calf Field Specialist located in Lemmon



Increasing Stocking Rates: Here is how it Works by Dan Rasmussen

Increasing stocking rates is the goal of every land manager wanting to keep the wolf away from the doorstep. That is just about all of us. However, we are limited on the number of livestock our land will sustain year after year. There is a 'silver bullet' in ranching and that is healthier soil. Managing rangeland for soil health isn't just an idea, it is the idea. When increasing stocking rates is the goal then improving soil health is how to get there.

Consider the line graph showing unhealthy soil on the left and increasing healthy soil on the right. We all fall somewhere on this line. (Stocking rates are an example only.)



The key to learning how to increase stocking rates in a sustainable manner is learning how to make pasture soil healthier. This is accomplished by resting the plants after being grazed. By rotating the cattle through pastures the plants are allowed to recover and leave dormant plant matter on the ground for the soil bugs to consume. This process creates organic matter in the soil. Over time, a properly managed rotationally grazed pasture will increase organic matter compared to a season long grazed pasture.

Increasing Stocking Rates Continued by Dan Rasmussen

The point is to not increase stocking rates until the soil is healthy enough to increase organic matter levels while being grazed. A pasture that has been overgrazed for many years will require time to recover. **Feed the soil first, then increase stocking rates.**

Once you learn to observe how the land responds to your grazing plan, the plan can be adjusted to increase soil health. Nature will move to a healthier state if we play by her rules. This will mean adjusting management. Holistic Resource Management (HRM) teaches land managers how to change the ranch management culture in order to play by nature's rules and increase rangeland production. Each ranch is unique; but some of the common changes are moving calving dates to the summer, winter grazing more and feeding hay less, and adding a yearling enterprise allowing for immediate destocking in drier years while maintaining the cow herd.

In conclusion, increasing stocking rates must start with healthy soil. This may require a change in the ranch management model and even a change in the ranch culture. Making healthy soil a priority will pay for years to come.

Planning for soil health and more productive rangelands is taught each year at the Grazing Schools in Wall, Chamberlain, and Watertown. Find out more at www.sdgrass.org.

Dan is a third-generation cattle rancher living in south central South Dakota. Dan served on the board of the Grassland Coalition for 18 years and is currently the education coordinator and manages the Grazing School Follow-Up Consulting for the Coalition.

Drought Assistance from USDA: CRP Haying and Grazing by Sandy Smart

As this year's drought intensifies, folks are quickly running short of forage. Pastures did not produce as much as in a normal year and are not going to last under normal stocking rates. The same goes for hayland. The USDA has opened up Conservation Reserve Program (CRP) land for haying or grazing if your county has been designated in D2 for more than 8 consecutive weeks during the growing season or if they are in D3 or higher on the Drought Monitor. CRP can be used as an option in a drought management plan, however, there are some caveats to consider. You can't use CRP until the primary nesting season is over (August 1). You need to visit your USDA NRCS/FSA Service Center to get permission to hay or graze it and you need to have a management plan. Those already utilizing CRP under the normal haying and grazing option may have additional considerations. If utilizing CRP at this time of year, especially if the CRP is a warm-season dominated grass stand, it can be injured by cutting too close to the ground because the grass is in a rapid stem elongation phase. Cool-season dominated grass stands will be quite mature at this time and will be of generally poor quality. Grazing might be a better option. It is less harmful to the stand and you can set the stocking rate to leave sufficient residual. There are also restrictions on how much CRP can be used. Managers might also need to keep in mind how the use of CRP (haying or grazing) will impact the quality of habitat for wildlife. If you rely on hunting income you might have to balance the pros and cons of using CRP for your livestock operation. Drought planning is very important and CRP can be used if the USDA allows it. For questions regarding drought planning, reach out to your local NRCS office, a range management field specialist in Extension, or a mentor on the SD Grassland Coalition website.

Weed Control, One Bite at a Time by Garnet Perman

We're in our third year of custom grazing sheep at Rock Hills Ranch. Our pastures have a diverse mix of grass, forbs, and shrubs, some of which cattle won't consume. Western snowberry has been problematic ever since Lyle and I arrived here 45 years ago. Leafy spurge moved in more recently as has Canada thistle and wormwood sage. Chemical treatment is labor intensive, expensive, and not all that effective. Trying to teach the cows to eat western snowberry and using flea beetles on the leafy spurge helped, but not enough. Lyle and Luke knew sheep or goats were a solution as they prefer eating broad leaf plants, but keeping them on the property and safe from coyotes were issues.



Sheep grazing leafy spurge on Rock Hills Ranch (Photo by Garnet Perman July 2021).

Custom grazing sheep owned by the Van Well family from Watertown solved those problems. They provide a shepherd from Peru, herding and guard dogs and a 4-wheeler for every 1000 head (called a band) of sheep. A band of mix wool breeds and hair sheep grazed in 2019. Last year and this year we have two bands. The shepherds spend most of the day with the sheep and return to eat and sleep in living quarters we provide. A remodeled fish shack on wheels gives them a place to get out of the elements and store gear near the sheep. They are on the ranch from May until November.

Herding a loose band of sheep in our hills proved problematic as small groups would end up out of sight of the bigger herd and drift off to the neighbor's property. High intensity, short duration grazing provided by 2-3 acre paddocks fenced with two strands of electric polywire keep the animals together and effectively impact snowberry and spurge. A new pen is built for each band for each day. They are herded to the same water tank around noon each day and remain there until late afternoon when they are moved into fresh grazing pens. The water pen is fenced with more durable electric netting. Sick animals are moved to an isolation pen near ranch headquarters.

When feasible, the sheep follow the cattle. It has not worked for our operation to comingle because of water and guard dog issues. The sheep target areas with high populations of leafy spurge twice, once early in the year and later in the summer to prevent seed formation. The sheep readily eat snowberry and spurge and some wormwood. Canada thistle appears to be their least favorite. Once the paddocks are rested and rained on the regrowth is lush and green. Thick stands of snowberry and spurge are thinning out, allowing the grass to compete.

According to Luke, this year, the sheep are harvesting between 35-40 animal days per acre in the areas with a lot of leafy spurge and/or snowberry. The cows are taking 23-26 animal days per acre on the same type of pasture, primarily because they aren't utilizing the snowberry and spurge. If we value the grazing at \$32 per animal unit month, that means the sheep generate about \$14/acre more than just the cows. Last year, with twice over grazing on the spurge areas, we harvested 56 animal days per acre, while the cow/calf pairs were doing 30-32 on average once through and up to 40-42 if grazed twice.

Sheep will be part of the Rock Hills Ranch grazing plan for as long as Van Wells want to bring them as it's turned a liability into a profitable enterprise that better utilizes all available forage and helps control invasive plants.

Garnet Perman is a freelance writer and ranches with her husband, Lyle, near Lowry, SD.

Eastern Red Cedar Tree Control Using Goats by Sandy Smart

Eastern red cedar (*Juniperus virginiana* L.) is a native tree to the eastern half of the US. It has been slowly spreading into the Great Plains over the last 100 years. Historically, fire and grazing have kept this tree from overtaking our grasslands. If you think back to what life was like on the Great Plains several hundred years ago, there would have been periodic fire and a diverse group of ungulates grazing the prairie landscape. Some of these ungulates, like pronghorn antelope, would have consumed woody vegetation as part of their diet.

It makes sense that fire suppression and changes to the distribution of native ungulates, would be partially responsible for the increase in woody encroachment we are noticing today. However, I think the major culprit is likely the planting of cedar trees in shelter belts. Regardless, cedar tree encroachment is becoming a serious problem on some grasslands in South Dakota.

The Mid-Missouri River Prescribed Burn Association (MMRPBA) is doing its part to help producers use prescribed fire as one of the tools in the toolbox. In addition, mechanical control such as shearing can also be used. A group of folks from SDSU, MMRPBA, and the US Army Corp of Engineers got together to plan a research/demonstration project using goats to control cedar trees. So far the team has completed one field trial and one pen trial with more planned this summer and fall.

What we have learned so far is that goats will eat broad-leaved trees and shrubs first (as in this photo). Then they will eat forbs and grass, and finally they will eat the bark off the cedar tree trunk and branches (photo far right). Goats did the same thing in our pen study except they did consume more of the needles on branches of smaller trees. This is on going research and more data will be shared later. Goats are another tool in the toolbox that shows promise in controlling eastern red cedar tree encroachment in grasslands.



Eastern red cedar trees in Brule County (Photo courtesy of Sandy Smart July, 2020).



Goat browsing a deciduous tree (left) and the bark from the trunk and branches of a cedar tree was removed by goats (right) in Gregory County. (Photo courtesy of Sandy Smart June, 2021).

C
O
R
N
E
R

- News from the SD Section of the Society for Range Management

Remembering Bob Gartner by: Pat Johnson

Frank Robert "Bob" Gartner passed into the rangelands of heaven on June 26, 2021.

Bob was born Nov. 7, 1928, in Chicago, IL. He earned his B.S. in Range Management at the University of Wyoming in 1950. After serving two years in the U.S. Army during the Korean War, he was employed by the College of Forestry & Natural Resources at U.C., Berkeley, and completed his M.S. degree in Range and Forest Sciences there in 1956. Bob started his career teaching Range Science courses at SDSU from 1956 to 1964. Bob and his wife Barbara moved to Laramie, WY in 1964, where he received his Ph.D. After graduating, he taught Range Science courses at Colorado State University. Bob and Barb returned to Rapid City in 1968, where Bob was again employed by SDSU. He retired from SDSU in 1998 after nearly 50 years of an esteemed career in range and forest land research and education. Governor Janklow proclaimed Jan. 31, 1998, as "F. Robert Gartner Day" and awarded the lifetime title of Professor Emeritus of Range Science. Bob is survived by his wife, Barbara; son, Brett; daughter, Gina Lundstrom; grandchildren, Jayla and Alex; and Boots, his beloved poodle. He was preceded in death by a brother, Edward, who died as an infant; his mother, Esther; and father, Frank.

Bob was a Life Member of the Society for Range Management. He joined SRM on 1/1/1950, shortly after its founding. At the International level of SRM, he served on the Board of Directors and participated in many committees. He was also a member of the SD Section of SRM and served as President, Vice-President, and on the Board of Directors, as well as on various committees. His active involvement in the South Dakota Section of SRM cannot be overstated.

Bob's work on, and on behalf of rangelands was extensive. He taught range courses early in his career and mentored graduate students and technicians throughout his tenure at South Dakota State University. He provided leadership as the 5-state coordinator of the Old West Regional Range Program beginning in 1976. Outcomes of that program included the organization of youth range camps in each of the five states (South Dakota, North Dakota, Nebraska, Wyoming, and Montana), and the development of the Old West Regional Range Judging contests, all of which continue to this day. They also developed three films on rangeland management. Bob conducted extensive research in several areas, including the impacts of contour furrowing and ripping on claypan, showing significant vegetation change occurring once the pan was disrupted. He also studied the use of prescribed fire on range and forested lands, examining, among other things, how fire might be used to control bluegrass encroachment. He has the honor of being the first person to ignite a prescribed burn in the Black Hills. He subsequently conducted prescribed burning on several ranches and properties in the region. Bob's work had a huge influence on the use of fire for desired outcomes by the Black Hills National Forest and Wind Cave National Park.

Bob loved his work with ranchers, students, and land management agency personnel. His influence on all of those continues to this day. He loved working outdoors, especially on the prairies and forested rangelands of South Dakota. Spending time with family, friends, and amazing neighbors, often over a glass of wine were moments he cherished most. One of Bob's last wishes was to specifically thank all the many landowners, land managers, and students in SD, WY, ND, NE, CO, and CA -- all of whom touched his life and helped him to develop a strong land, water, wildlife, and conservation ethic.

Those of us who were honored to know and work with Bob lift a glass of good red wine in his memory for a job well done.

A memorial has been established with the South Dakota Section, Society for Range Management specifically for undergraduate education: SD-SRM Endowment, Attn: Dr. Ehlert, 711 N. Creek Drive, Rapid City, SD 57701. Bob's full obituary can be viewed at <https://www.osheimschmidt.com/obituary/frank-bob-gartner>. Online condolences can be left at www.osheimschmidt.com.



Sandy Smart
Box 2140B, 139C McFadden
Biostress, SDSU
Brookings, SD 57007

Calendar of Events

Event	Date	Location	Contact Person	Phone
Pasture Walk	August 10	Cooper Gordon Ranch, Tulare	Dan Rasmussen	605-685-3315
	August 12	Pat Guptill Ranch, Wall		
SD Grazing School	August 11-13	Marvin	Dan Rasmussen	605-685-3315
Pasture Walk	August 17	Dugan Bad Warrior Ranch, Dupree	Dan Rasmussen	605-685-3315
	August 18	Doug Hansen, Mitchell	Judge Jessop	605-280-0127
SD Grazing School	Sep 14-16	Chamberlain	Judge Jessop	605-280-0127

Please remit any comments, suggestions, or topics deemed necessary for further review to: Sandy Smart, SDSU Box 2207D, Brookings, SD 57007, alexander.smart@sdstate.edu, (605) 688-4940

