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Charlie's Best Year by Dan Rasmussen

While the state was flooding in the second week of September from weekly heavy rainfall, I watched Charlie Totton pound in an infiltration ring in his native grassland during a Grazing School event north of Chamberlain. As he poured in a quart of water, which would be equivalent to a one-inch rain event, I timed how long it took for the soil to absorb it. It took just 15 seconds during one of the highest rainfall weeks in South Dakota recorded history.

I asked Charlie if there was a flooding crisis on his ranch. Charlie's response went something like, "This is the best year I have ever had."

A few miles down the road from Charlie's ranch, soybean fields were eroding soil, fertilizer and chemicals in record amounts. Yet the Totten ranch was not experiencing the problems caused by flooding being reported around the state. At the same time, the media is proclaiming the environmental benefits of the soy-based Impossible Burger.

As I was skimming the Google news feed, there were three articles that caught my attention. All were anti-beef. In the following weeks, I read and researched all three. The common theme between the articles was support for a report put together in Europe, called EAT-Lancet, calling for severe reductions in red meat consumption.

I will skip all the hate mongering comments directed toward beef producers in the Impossible Burger articles that resembled the front page of the Enquirer. Instead, I want to focus on the land and living with nature. Consider the wet, wet summer of 2019 we have experienced. Governor Kristi Noem described it as one of the worst natural disasters in the state's history. Roads washed away, dams washed out and soil erosion on tilled fields reached an all time high. Clearly lots of people suffered along with the land. All because it rained.

In the South American rain forest, cattle are wrongly being blamed for deforestation. Trees are being cut and burned at an alarming rate. Generally speaking, after the trees are gone, cattle graze on the aftergrowth for a year then the soil is plowed, and soybeans and field peas are planted, satisfying the ever-increasing demand for plant protein from the environmentally conscious west. The three anti-beef articles I read all condemned livestock for destroying the rainforest. Soybeans and field peas, unless



Charlie Totton (left) sharing at the 2019 South Dakota Grazing School. (Photo by Kate Rasmussen, September 2019)

Charlie's Best Year Continued by Dan Rasmussen

managed in a regenerative fashion, are currently being farmed around the world with significant negative impacts on soil health. Under poor management, cattle can have a negative impact on soil health as well.

A severely overgrazed pasture on one side of the road can be in drought while at the same time a well-managed pasture on the other side of the road can be experiencing an average year. Unhealthy versus healthy soil can make this much difference. Healthy soil holds more water. Add one percent of organic matter and the soil will absorb up to another inch of rain. Well managed native pasture does a fantastic job of holding rainfall. Brian Jorgensen, a rancher and farmer in southern South Dakota, recently sat on a producer panel at the South Dakota Soil Health School. During his presentation on the panel, Brian stated, "I look to our native pasture to learn how to improve our farm ground." Jorgensen has bet his career on the concept of working with nature instead of against it. At the Jorgensen farm all fields are no-till, cover cropped and integrate livestock into the field rotation.

Dwayne Beck is the manager of Dakota Lakes Research Farm near Pierre, S.D. Speaking at the Soil Health School, Dr. Beck stated, "At Dakota Lakes, our cropland is healthy enough to absorb a two-inch rain event in nine minutes. You can walk on the field behind the pivot and not get your feet muddy." Mr. Beck went on to explain how integrating livestock into their crop rotations is key to maintaining healthy soil.

Years ago I asked the famous grazing guru, Allan Savory, what he wanted people to remember him for. His answer went something like this, "I have spent my life blowing a whistle and yelling to the rest of the world, 'YOUR GOING THE WRONG WAY'." Mr. Savory recently did a Ted Talk explaining this statement in detail. In short, he says, we need more well-managed grassland on the planet. We need more livestock. We need to do a better job of managing our agricultural soils. We need to learn from nature how to maintain healthy land.

The EAT-Lancet Report came out in January of 2019 recommending the human race reduce red meat consumption to 1/10 of what we currently eat. This is less than one hamburger per week. Current science is promoting diets rich in animal fats, therefore abandoning the USDA food pyramid. EAT-Lancet is going the wrong way to save the planet.

The bottom line is the environmental footprint of farmers and ranchers across America has room for improvement. This process must be incentive based, often referred to as incentive-based conservation. As the war on beef continues, those of us managing grassland like Charlie does, are seeing cattle prices going down for our efforts. This is counter-productive for land conservation. Saving the planet starts with having more cattle on the planet, not fewer. Saving the planet starts with converting marginal cropland to grassland. Saving the planet starts with looking at soil science not political agendas.

Dan Rasmussen is a third-generation cattle rancher living in south central South Dakota. Dan served on the board of the South Dakota Grassland Coalition for 18 years and is currently the education coordinator for the Coalition. The comments in the above article are intended to further through education the benefits of healthy, well-managed grassland and regenerative farmland.

The Green Side Up by Pete Bauman, SDSU Extension

South Dakota Grassland Coalition Board Doubles Down on New Education Initiatives

Regular members of the South Dakota Grassland Coalition are well aware of the fantastic reputation the Coalition has for working with partners to deliver top-quality education. This reputation, and responsibility, is not taken lightly by the Coalition's volunteer board of ranchers and grass-based producers, who work diligently to provide anyone who is interested in improving their grassland operation. From the young producer/beginner to the established rancher, the Coalition's focus on quality grassland management and partnerships is a model that is recognized across the country.

Within the last couple of years, the Coalition's board has recognized the immensity of the need to offer all facets of education related to grasslands. Thus, to help meet this need, the board was expanded from seven to nine members, and through various partner support grant-funded staffers and contractors have been added to help address education, outreach, and funding needs. These efforts have re-established the Coalition's education program as a sound investment for partner funds, and thus the portfolio of education opportunities is growing.

Over the last couple of years, flagship programs like the annual Grazing School and annual Winter Road Show have been complimented by additions such as the annual Grassland Management School, pasture walks, annual planner featuring SD ranchers, and additional invited speaker road shows covering the state. More recently, with the help of additional grant-funded staffers like Education Coordinator Dan Rasmussen, the Coalition offers additional pasture walks, tours, and an incredible ranch consulting/alumni program tailored to meet the ongoing needs of grazing and grassland school alumni as they grow their grass-based enterprises.

Today, the Coalition is again taking steps to expand its educational footprint to reach even more producers in need. Through a grant from the Natural Resources Conservation Service, the Coalition will be offering several new educational programs over the next few years in addition to the programs already established.

The first such program that will be available stems from a recognition that nature always wins. Always. The agony of the Atlas Blizzard and recent wet and cold springs have left some livestock producers searching for alternatives to herd management that better fit their ranch socioeconomic and natural environments. In response to this need, the Coalition's board and invited ranchers held a series of 'café talks' across the state during the spring of 2019 to better gauge an appropriate strategy. As a result, the Coalition plans to host a series of partial-day workshops in February where board members and invited guests will share their own experiences and answer questions about managing livestock in-sync with natural weather patterns and family needs, including adjustments in calving dates to meet critical environmental, economic, and labor concerns.

Secondly, the grant will fund a new project aimed at improving grassland manager education related to use of chemicals on pastures. This need stems from the rapid rise in use of chemicals to control noxious weeds, invasive species, and broadleaf plants in general. Often, a holistic understanding of pasture ecology, livestock grazing preferences, and herd management can lead to improvements in pastures with an avoidance, reduction, or complete elimination of chemical inputs.

Third, the funding will support new programs aimed at bolstering the Coalitions ability to offer continuing education to alumni of annual schools and other events. The Coalition board recognizes the critical need

The Green Side Up Continued on Page 4

The Green Side Up Continued by Pete Bauman

for continued support of its members, and these funds will help shape those programs. Finally, the new funding will assist the Coalition and partners in offering education on use of prescribed fire in grassland management. Specifically, the Coalition and partners help to develop a sound strategy that allows private landowners to participate in basic hands-on fire training to help meet this growing need.

So, stay tuned. As these programs roll out Judge Jessop, Dan Rasmussen, myself, and others will do our best to keep the Coalitions members and others informed.

Pete Bauman is an Extension Range Field Specialist in Watertown, SD.



Winter Road Show, Annual Meeting, and HRM Schools

The SD Grassland Coalition will be hosting their **Annual Meeting** on Tuesday December 17 in conjunction with the Annual **Winter Road Show** featuring Joshua Dukart. The annual business meeting will convene right after lunch. The theme of this year's Winter Road Show is Holistic Resource Management. Joshua Dukart is a trained HRM educator and ranches in western North Dakota. Dukart will cover topics from converting a ranch from 'crisis' management to holistic management, creating a profitable ranch business, and more.



Joshua Dukart

The Winter Road Show will be hosted in Watertown (Dec 16), Chamberlain (Dec 17), Belle Fourche (Dec 18), Hot Springs (Dec 19), and Faith (Dec 20). The daily workshop will run from 10am until 3pm. Event is free for all current SD Grassland Coalition members and \$30 for non-members.

This winter the SD Grassland Coalition will be featuring a 4-day **Holistic Resource Management (HRM) School** in Mitchell (Jan 27-30) and in Wall (Feb 10-13).

The HRM Schools will feature Roland Kruse and Patrick Toomey of Crossroads Ranch Consulting. Registration is available on their website <https://www.crossroadsranchconsulting.com/>.

Each HRM School will run 9am until 4pm each day. Lunch will be provided.

Expect to:

- ◆ Improve decision making
- ◆ Improve quality of life
- ◆ Improve health of animals
- ◆ Improve health of land
- ◆ Learn to create a profitable ranch business using HRM principles



Healthy Soil Healthy Food by Garnet Perman

We recently attended a session of “Edible Landscapes,” a two-day Soil Health Summit held at Bismarck State College. The ND meetings are always very informative and usually include a human health component. This meeting was designed to include urban agriculture producers as well as farmers and ranchers. John Stika, author of *A Soil Owner’s Manual*, an urban farm designer from the Twin Cities area, a local farm to table grower and a scientist researching heavy metals in soils were on the program. Lyle also presented management techniques used on our ranch. We found what Dan Kittridge, an organic farmer from central Massachusetts is going to be most intriguing.

Kittridge grew up on an organic farm and eventually returned to it following college but struggled making a living. Disease and pests ate into profits. As often happens, an aha moment generated new ways of thinking about his farm management and goals: he realized that larvae eating plants alive, which was “normal” in the garden, is not usually seen in nature. Healthy plants resist pests. He delved into soil health principles which led to an interest in the nutrients present in the food we eat. One of the first changes was a switch from tillage which he now describes as “genocide” to no-till.

He compared the uptake of nutrients in plants to a newborn baby’s need for colostrum. Just as colostrum enables the establishment of healthy gut flora in mammals, plants also need the right minerals and microbes for the most efficient nutrient cycling. “Our focus should be on producing nutrition,” he said, “We need life in our food because we live in symbiosis with many microbes.”

As he studied nutrient density, he discovered that almost no information was available on the nutritional variations within foods and no simple way to determine it existed. He envisioned enabling consumers to choose the most nutritious food in the produce aisle figuring that would bring about change in the current model of food production that tends to focus on yield rather than nutrition. Bionutrient Food Association was born. The organization’s focus has been three fold: First, develop a user friendly tool that enables consumers and producers to determine nutrient content of a variety of food items. A first generation hand held scanner, ala Star Trek, using spectrophotometry to reveal mineral content and other nutritional compounds such as phenols has been developed. The vision is for a simple tool for consumers and a more sophisticated one for farmers and wholesalers to be available in the near future.

Second was to determine what exactly is quality? Data was needed to document variation in nutrition for vegetables, fruits and meats. Tests on carrots and spinach in the northeast quadrant of the US have been completed. Vegetable samples from many sources including backyard gardens to supermarket produce were tested. Each type of food needs a data set of its own and costs about \$75,000 to test. Money is the limiting factor, but with interest in what they are trying to achieve increasing, they hope to test enough foods including meat products to have a comprehensive set of data within five years. Interestingly tests so far have found no connection between labels and quality. Organic carrots don’t necessarily have the higher nutrient levels than inorganic. Walmart spinach may contain higher nutrient levels than Whole Food spinach because of transportation times and conditions and shelf turnover.

Widely varying nutrient levels led to the third focus: How is quality achieved? The indication is that the healthier the soil, the higher the nutrient content. The most effective production method will vary with location so they are gathering information to understand which environmental conditions contribute to quality. Kittridge is adamant that the data they’ve collected be open to the public. They are also very interested in forming partnerships with food producers and stakeholders nationwide. The opportunity to contribute to their research by being a “citizen scientist” is explained on their website, bionutrient.org. The organization also has a Facebook page.

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

West River Extension Update by Krista Ehlert

Hello from Rapid City, SD! I know the SDGC board members quite well and have started to develop relationships with the larger membership of the SDGC. However, some of you may not know who I am. I'm Krista Ehlert and I'm an Assistant Professor in the Department of Natural Resource Management and the State Extension Range Specialist with SDSU. I started this position in August 2018. I grew up in Wisconsin, where my mom's side of the family has a large, 5th generation dairy operation near Madison. I attended a small college in Minnesota for my undergrad and continued to Montana for my M.S. and Ph.D. My graduate work focused on ecologically-based invasive plant management in rangelands, and I was lucky enough to have advisors who had Extension positions and was able to get my feet wet with Extension programming.

To date, most of my Extension programming has focused on youth education and farm and ranch stress. In this article, I highlight my work on youth education. I firmly believe that learning is paramount to how you move through life – it helps shape your world view and the lens through which you view problems and develop solutions. My youth programming covers all age ranges – from 1st and 2nd graders to 8th graders to high school students. One example is an exercise I developed for students (1st grade to 6th grade), where we talk about “ice cream plants” and “celery plants.” I stress that ranchers have pastures with both of these types of plants, and that cows *really* like ice cream plants – but just like those 2nd graders, they need a bit of celery or all the ice cream will be gone. I then ask the students how ranchers keep the cows from eating all the plants. Some of these young people delightfully shout out the obvious – “they move the plants!!!” After a discussion about why we *don't* want to move the plants, they then get to the right answer – “*they move the cows!!*” We finish our discussion by talking about how moving the cattle keeps grass and other resources available for things like wildlife, recreation, and hunting. This exercise gets kids thinking about the importance of plants, how some plants are different than others, and the importance of the land to the rancher.

Another big Extension push on my end was writing and receiving funding through a SARE grant to develop a sustainable agriculture curriculum for middle school students. The key purpose of my grant is to increase agricultural literacy among youth. The National Research Council in 1988 concluded that “most Americans know very little about agriculture, its social and economic significance in the United States, and particularly, its links to human health and environmental quality.” This is even more evident in a 1993 report by the U.S. Department of Agriculture, which surveyed approximately 2,000 high school students and adults from Indiana, Michigan, and Missouri. Respondents were asked if they knew the answer to five statements under different concept areas (e.g. Significance of agriculture, Plants in agriculture, Animals in agriculture). Nearly 20% of respondents were wrong or didn't know if it was true or false that “Hamburger is made from the meat of pigs.” What?!? Thus, my grant focuses on an “Adopt-a-Rancher” component, where ranchers provide vlogs (video blogs) to classrooms and help develop field trips to their ranches. Students and educators will learn about the local, national, and worldwide impacts sustainable agriculture has on people, the economy, and the protection of natural resources. This project will result in increased awareness of youth about sustainable agriculture, including challenges faced, impacts of management strategies, and career opportunities.

Next time I will give an update regarding some innovative research ideas we have going on with collaborators to use technologies such as virtual fencing, drones, and ear tags to detect estrus in beef cattle. Stay tuned!



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

By: Emily Helms

Excellence in Range Management: Conner Ranch

Go north (or west or east) from Belle Fourche and you will find an endless, open prairie. Cattle and sheep have grazed this country for the last 100 years or so. Before domesticated livestock, the bison, elk, pronghorn, and deer were the major players on the landscape. Along with these major players, minor players existed as well – these were the smaller mammals and birds that lived on the prairie. These minor players included grassland nesting birds like the lark bunting, McCown's longspur, and Baird's sparrow – and maybe most importantly: the sage grouse.

Over the years, the sage grouse has seen a decline in population. This population decline is due to many different factors including: grassland conversion to cropland, development of infrastructure, and fragmentation of habitat. Ranchers across the sage grouse range have been working to increase the bird's presence on the landscape by installing conservation practices and using grazing management to improve sage grouse habitat.

The Conner Ranch, located near Belle Fourche and owned by Dan and Cindi Connor, is one of these ranches. The ranch has prime sage

grouse habitat which includes areas of big sagebrush and healthy riparian zones. They also have a lek activity occurring on their property – which include male grouse dancing their ancient mating rituals.



Mitch Faulkner (NRCS) discusses sage grouse habitat requirements on the Conner Ranch (Photo by Sandy Smart).

The Connors have implemented conservation practices to help protect sage grouse habitat while also increasing the value of their grasslands. They make sure to leave enough grass at the end of the year for wildlife habitat and soil health. They utilize a deferred rotational grazing system which allows plants to recover after being grazed during the growing season. To help implement their grazing management, they have installed pipelines and water tanks to ensure each pasture has a dependable water source whenever grazing will occur in that area. Grazing land infrastructure is important to help facilitate good grazing management.

The Connors also focus on managing for healthy riparian areas – the interfaces between grassland and creek water. Their riparian areas teem with well-vegetated creek banks and a wide floodplain. The management of these zones consists of exclusively grazing the area in the winter period after the riparian vegetation has gone dormant. Healthy riparian areas are important to sage grouse habitat because this is where the grouse find bugs and other food during the hot summer days.

The Connors have been featured by the SD Grassland Coalition in their “Amazing Grassland” video series and 2019 Grassland Planner. They were also awarded the Society for Range Management Excellence in Range Management award at the state level in South Dakota and at the International level as well. Check out their Amazing Grassland video on YouTube by searching for ‘Dan and Cindi Conner’ or look them up with the rest of the Amazing Grassland videos on the SD Grassland Coalition website <https://www.sdgrass.org/amazing-south-dakota/>.



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Calendar of Events

Event	Date	Location	Contact Person	Phone
Leopold Conservation Award Presentation at the SD Cattlemen's Convention	Dec 4	Pierre	Judge Jessop	605-280-0127
Winter Road Show with Josh Dukart	Dec 16-20	Various locations	Judge Jessop	605-280-0127
Annual SDGC Meeting	Dec 17	Chamberlain	Judge Jessop	605-280-0127
HRM School	Jan 27-30	Mitchell	Judge Jessop	605-280-0127
HRM School	Feb 10-13	Wall	Judge Jessop	605-280-0127

Please remit any comments, suggestions, or topics deemed necessary for further review to: Sandy Smart, SDSU Box 2140B, Brookings, SD 57007, alexander.smart@sdstate.edu, (605) 688-5503