SOUTH DAKOTA GRASSLAND COALITION

Grassroots

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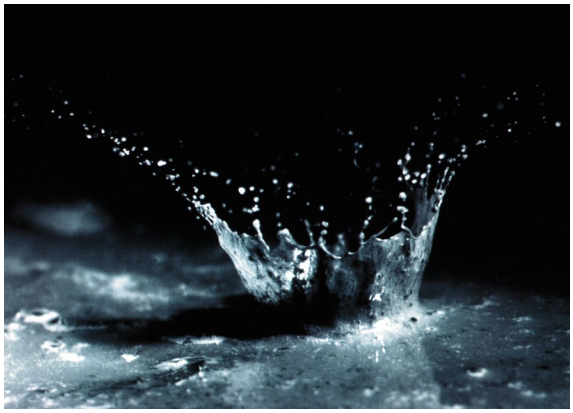
INSIDE THIS ISSUE:

Soil Health on Rangelands: Water Cycling by Sandy Smart

In the last Issue I wrote about soil health and the biotic state. In this issue, I want to focus on the water cycle. How would you know if a pasture is showing signs of an inefficient water cycle? Indicators to evaluate the water cycle include gullies, blowouts, pedestaling, water flow patterns, and amount of litter. Water infiltration is mainly affected by soil texture (size of soil particles; sand, silt, or clay), soil structure (arrangement of soil particles), slope, and vegetation.



Soil erosion by water begins when a raindrop splash dislodges soil particles (NRCS Photo Gallery).

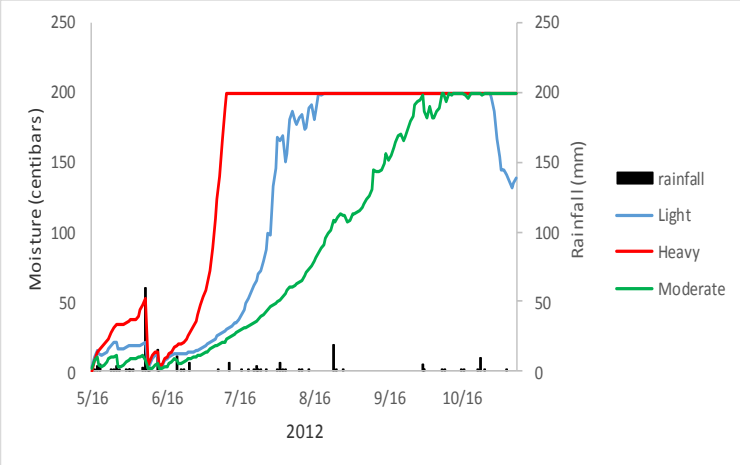
As managers, we can only control the type and vigor of the vegetation that grows on the land. Vegetation directly impacts the contribution of organic matter (roots and root exudates), which affects microbial activity and soil binding (soil aggregation from microbial gums). Vegetation and how intensely it is grazed also impacts the amount and type of litter on the surface. Rangeland, either sandy or clay soil types, had lower water infiltration rates from pastures managed with less litter and comprised of shorter species than pastures with more litter and taller species.

In the 1960s, SDSU with help from the Soil conservation Service set up experimental watersheds on the stocking rate study at the Cottonwood Range and Livestock Experiment Station. This study measured water and sediment runoff from heavily, moderately, and lightly grazed mixed-grass prairie rangeland. Runoff from the heavily grazed pasture was twice that of the lightly grazed pasture. Water lost as runoff causes gulley erosion and was identified as the main culprit of sediment flow from the Bad River Watershed into the Missouri River (read the whole article at http://www.joe.org/joe/2015april/rb6.php).

Sediment from the Bad River entering into Lake Sharpe at Ft. Pierre (Photo by Kurt Reitsma).

Water cycle Continued on page 2

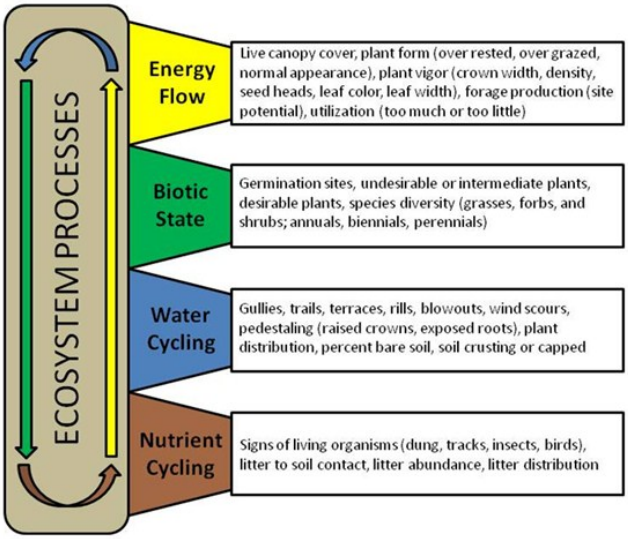
Water Cycle Continued by Sandy Smart



Soil moisture at 3 inch depth measured during the grazing season of 2012 at the Cottonwood Range and Livestock Research Station in heavily (red line), moderately (green line), and lightly (blue line) grazed pastures (Smart et al. Unpublished data).

The other side of the water cycle occurs when there is not enough rain. Recently, SDSU researchers measured soil moisture status of the heavily, moderately, and lightly grazed pastures at Cottonwood during the drought of 2012. The heavily grazed pasture dried out about two weeks earlier than the moderately or lightly grazed pasture after major rainfall events (see figure on left).

Changing the amount of litter is probably the most effective management strategy to improve the water cycle. Healing gullies and blowouts using a combination of mechanical renovation and seeding, or feeding livestock hay and allowing them to trample organic matter into the soil will only temporarily fix the problem if the proper amount of litter and residual vegetation is not left at the end of the grazing season. Setting the correct stocking rate and providing seasonal deferments or an entire year rest will provide vegetation that can be trampled by livestock or knocked down by snow to add litter to the soil surface. Letting vegetation grow tall and mature followed by high stock density grazing is a very useful way to speed up this process. Producers must be careful to monitor animal performance while using this technique because the forage will be mature and low in forage quality. Long-term management toward more diverse mid- to tallgrass species is the best strategy to ensure an effective water cycle. Rangelands that have mid- to tallgrass species produce more biomass and litter and have higher infiltration rates.



Ecosystem processes and monitoring diagram (modified after Pyke et al. 2002; Pellant et al. 2005; Orchard 2013).

SDSU Extension

Sandy Smart is a Rangeland Management Extension Specialist and Professor in the Department of Natural Resource Management at SDSU. He coordinates the USDA-SARE program for South Dakota.

New Zealand Study Abroad: A Grass-fed Experience by Emily Helms

At the beginning of May, I took a trip to New Zealand as part of a study abroad class offered at South Dakota State University. My class spent the semester learning about New Zealand agriculture and culture and culminated with a 10-day trip around the island nation. We traveled throughout the country touring many different types of farms: horticulture, dairy, beef, sheep, deer (raised for venison and velvet—a high dollar industry), and orchards (ate kiwi off the vine!). We learned about the native people—the Maori—and their culture. We also visited with an industry group: Beef + Lamb New Zealand (which is somewhat like our check-off programs here), as well as a government agency: Ministry for Primary Industries—which is similar to our Department of Agriculture. We were also able to stay overnight with a farm family to get the whole experience.

Kevin McDonald trying on his new SDGC hat. McDonald is the owner of Kairuru Polled Herefords, a farm with the genetics to finish beef on grass.

Ryegrass and clover forage mix.

New Zealand is a small country with a proportionally large amount of production. They export about 90% of the products they produce. Every producer we talked with was well aware of global markets—because they have no farm subsidies they have to be diverse and know their markets well!

We also learned that grass is the backbone of New Zealand agriculture. New Zealand producers base most of their production for dairy, sheep, deer, and beef on grass. They manage their grazing lands very intensively—using soil tests and nutrient management to get the most out of their pastures. They also graze very heavily (high utilization)—in order to keep the grass from going to seed and to keep the forage values high. I was surprised to find out that most of their pastures are filled with familiar forages: perennial ryegrass and white clover!

I was also given the chance to spread the word about the South Dakota Grassland Coalition, by offering hats to some of the New Zealand producers. Thanks to the SDGC for donating the hats!

One of many cow selfies with the gorgeous New Zealand scenery in the background.

Emily Helms finished her MS degree under Dr. Sandy Smart. She is beginning her range management career with the NRCS in Burke, SD—to see more about the trip visit 2015NewZealandAg.blogspot.com

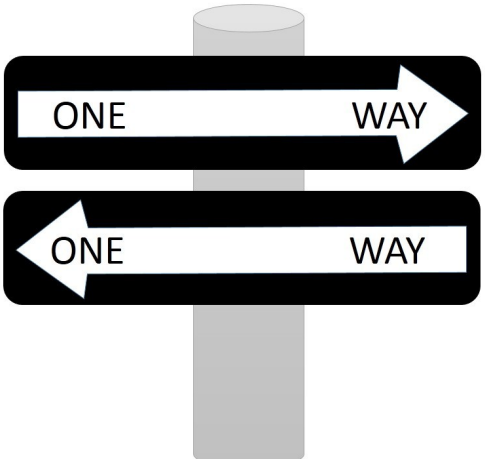
Ranching For Profit is not an Oxymoron by Dave Pratt

At the Ranching For Profit School we start our discussion about profit by asking participants if they could pay…

- cash rent for the land their livestock graze. (Even if they own the land, the livestock business has to pay market rate rent to their land business.)
- the full cost of labor. (Everyone, even family members should be paid what it would cost to replace the work they do.)
- interest on all of the assets used in production, including the cows.
- all of the production costs.

Any money left over at the end of the year is profit. Judged by this definition most American ranches produce a loss more often than a profit and even with recent record cattle prices many say they are still losing money.

How do ranches that don't make profit survive? It's simple. Most ranches are subsidized. I'm not talking about government subsidies. We subsidize ourselves. We have become reliant on off-farm income. We don't pay ourselves what it would cost to replace the work we do. We've gotten by because land values have appreciated, allowing us to borrow more or sell our over-valued ranch and migrate to another where appreciation hasn't been as extreme. Perhaps the ultimate subsidy is inherited wealth. How many of us would be ranching today if we hadn't inherited our ranch?



Part of the problem with profit in ranching is a widely held paradigm that without personal subsidizes ranching isn't profitable, or that making a profit in ranching is completely dependent on things beyond our control (e.g. weather, prices and government regulation). I can't tell you how many people have told me that "*Ranching For Profit* is an oxymoron." (They are much more comfortable when I offer to discuss "ranching for less loss.")

But ranching can be profitable. Profit in ranching boils down to three things. At the *Ranching For Profit School* we call them "the three secrets." They are: reduce overhead costs, improve the gross margin per unit and, if the gross margin is good, increase turnover.

Overhead costs are those costs that don't change very much as livestock numbers change. Most overheads fall into one of two categories: land or labor. Any costs related to land (e.g. rent, repairs to fences, corrals, pipelines and water troughs) are overheads. Likewise, any costs related to labor (e.g. salaries and benefits, vehicles and machinery) are labor overheads. Economists sometimes call these costs "fixed costs." But they are not fixed. They can be changed.

Ranching for Profit on page 5

Ranching For Profit Continued by Dave Pratt

Gross margin per unit measures the economic efficiency of production. It is calculated by subtracting costs directly associated with an enterprise from the total value produced by that enterprise. Direct costs are those costs that increase or decrease as cow numbers increase or decrease. Direct costs include feed, health, freight, marketing commissions and interest on livestock loans.

We calculate the gross value of production by subtracting livestock purchases from livestock sales and adding the change in inventory value from the beginning of the year to the end.

Turnover refers to the total value a business produces. Turnover can be increased by increasing the scale of enterprises and by adding new enterprises, provided those new enterprises produce healthy gross margins that more than cover any new overhead costs they may create.

Historically our industry has tried to increase profit by increasing production per unit. This strategy has made us more productive, but it hasn't made us more profitable. In fact, it has led us to be more reliant than ever on self-subsidization.

Increasing production per unit often means increasing inputs and our spending on direct costs. The bigger problem is that inputs require *inputting*. Inputting requires labor and facilities. That means higher overheads. On most conventionally-run ranches overheads account for 80% of the total costs. These ranches are often very productive but they are rarely profitable.

There are some pundits who encourage ranchers to take the opposite approach, claiming that "no inputs equals more profit." But indiscriminately cutting costs is not an effective strategy. As Stan Parsons use to say, "You cannot starve a profit into a business."

The most profitable approach lies between the two extremes. It involves selecting animals to fit the environment and structuring enterprises so that they are in synch with nature's cycles. Businesses that follow this strategy let nature do most of the work and minimize the need for inputs and inputting. The few inputs they do provide give a big bang for the buck.

Some things are beyond our control, but there are many more things affecting profit that we can impact. Whether markets are up or down, whether it's a wet year or a drought, thousands of *Ranching For Profit* alumni prove every year that ranching can be profitable.

Dave Pratt will teach *The Three Secrets for Increasing Profit* at Ranching For Profit Workshops December 15, 16 and 17 hosted by SDGC. Dave will also lead Hard Work & Harmony, a workshop on working together in family businesses at the SDGC annual meeting December 18.

Dave Pratt, Ranch Management Consultants, Inc.

2015 Pheasant Hunting Outlook: Better, but Could be Improved

by Garnet Perman

Game Fish and Parks 2015 Pheasant Brood Survey Indicates Pheasant Numbers are up 42 percent statewide from 2014, the second consecutive year of gain from a historic low in 2013. The numbers are similar to the 2011 count when hunters harvested 1.56 million roosters. According to the survey pheasant numbers should again be highest along the Missouri River corridor in the regions around Winner, Chamberlain, Pierre and Mobridge. Great pheasant abundance also exists in the James River Valley in the regions near Mitchell, Huron and Aberdeen. Two relatively mild winters and adequate moisture in both 2014 and 2015 have been a factor in the recovery. Prairie grouse numbers are also showing improvement. "Grouse respond negatively to drought," said Travis Runia, SD GF&P biologist. The number of pheasants per mile is still down 30% from the 10 year average. Weather impacts pheasant numbers short term, but habitat is still king long term. "Habitat continues to be at the forefront of the conversation and is a crucial factor in pheasant numbers," stated SD GF&P Secretary Kelly Hepler. "Bird numbers are higher in parts of the state where quality habitat conditions still exist, primarily on grasslands including those enrolled in the Conservation Reserve Program as well as fields of cereal crops such as winter wheat."

Habitat losses in terms of CRP contracts from 2007-2014 have been greatest in the northeastern quadrant of the state with Campbell and Day Counties suffering the largest percentage of loss. The most dramatic overall decrease in pheasant numbers are in the Aberdeen, Watertown and Brookings survey areas. The Yankton and Sioux Falls areas have long suffered from loss of quality habitat. However, the remaining CRP acres have been relatively stable for the past 10 years and the brood survey shows a rebound that exceeds the 10 year average. Loss of CRP is a concern as the new Farm Bill reduced the national acreage cap.

An eight point plan of action to improve upland game habitat came out of the 2013 Governor's Pheasant Habitat Summit. Of the eight points, three have been completed with the other actions in progress. #2) A South Dakota Habitat Conservation Fund has been established. The state legislature appropriated funds to add to private funding. A work group was formed to determine how to turn funding into habitat and a Board of Directors has been appointed to govern the fund. #6) The SD Dept. of Agriculture petitioned the USDA-RMA asking that all 66 counties be eligible for crop insurance coverage on winter wheat starting in 2016. This was granted. Winter wheat buffers habitat loss in central South Dakota which has seen a significant loss of CRP over the past 10 years. #8) South Dakota also supported increasing the Federal Duck Stamp from $15 to $25. The legislation was passed by Congress and signed by the president.

Private land owners still remain the best source of habitat management. Ongoing points of action that may be of special interest to SDGC members are recommendations to SD School and Public Lands to include a land management plan as a condition for securing a lease, and a SD Conservation Certification to be initiated by the SD Dept. of Agriculture. Watch for the upcoming "Habitat Pays" education and awareness program, a joint venture by SD GF&P and the SD Dept of Agriculture to connect farmers and ranchers to appropriate habitat resources and help them implement wildlife habitat where it makes the most sense to do so. More information about the 2015 Brood Survey and the Pheasant Summit Points of Action are available on the SD GF&P website.

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

Cover Crop Survey Opportunity by Brooke Brunsvig

Hi, I'm Brooke Brunsvig, a graduate student at SDSU trying to get a picture of the integrated crop/livestock systems in the state. Incorporating livestock grazing crop residue is important for the improvement of soil health. Improving soil health has great potential to reduce both production and financial risk to individual producers and environmental costs and risks to society. Grazing a cover crop in the stubble of a cash crop can further decrease financial risk by pushing back the date at which feed needs to be hauled to livestock. My goal is to determine how grazing a cover crop mixture can be implemented in this system and if there are any setbacks to the integrated operation using this practice.

Cannulated heifer calf grazing cover crops in wheat stubble at the SDSU research farm in Brookings, SD. (Photo by Brooke Brunsvig).

This survey aims to determine the frequency of livestock grazing associated with crop production as well as interest in greater integration with cover crops, perceived obstacles, and perceived beneficial opportunities. I'd greatly appreciate you taking a couple minutes to complete my short survey. http://questionpro.com/t/ALiVRZSwh0

Dr. Michele Dudash—SDSU New Faculty Spotlight by Sandy Smart

Dr. Michele Dudash was raised in suburban neighborhoods along the Delaware River in both New Jersey and Pennsylvania. She is a first generation college graduate. Michele has been married for 34 years to Professor Charlie Fenster, an accomplished evolutionary geneticist. They have two children Tommy and Katie.

Michele comes to us from the University of Maryland, College Park where she progressed from Assistant to Full Professor. She worked on both animal and plant systems throughout her career primarily in natural field settings. Michele studied pollinator issues related to habitat selection, inbreeding depression, global climate change, and the role of the environment in mediating ecological and evolutionary responses in nature. She is excited to be the new Head of the Department of Natural Resource Management at SDSU.

Dr. Michele Dudash, Department Head of Natural Resource Management at SDSU

She was attracted to this position at SDSU because of her love of the expansive grasslands and the big sky in the Great Plains. Additionally, it is a very exciting time to be in South Dakota because of the region's critical importance in helping feed the planet. Furthermore, the growing acknowledgement that we must accomplish this important task in a sustainable way allows us the opportunity to become a national and international leader.

Sandy Smart
Box 2170, ASC 219, SDSU
Brookings, SD 57007

Calendar of Events

Event	Date	Location	Contact Person	Phone
SRM-SWCS Annual Meeting	Oct 8-9	Brookings	Sandy Smart	605-651-0766
SDGC Winter Road Show Annual Meeting	Dec 14-18	Chamberlain	Judge Jessop	605-280-0127
Jim Gerrish	Feb 15-20	TBD	Judge Jessop	605-280-0127

Please remit any comments, suggestions, or topics deemed necessary for further review to: Sandy Smart, SDSU Box 2170, Brookings, SD 57007, alexander.smart@sdstate.edu, (605) 688-4017