

Soil Visions

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<u>Board of</u> Directors	September is School Time! SD Producers and Area Specialist Share Their Experiences
Dennis Hoyle,	September 4-6, 2019
Levi Neuharth,	Designed for agriculture producers and others interested in managing their soils for resiliency and profit, the Soil Health School brings together soil health experts, experienced producers and those new to soil health, to discuss tried and true management practices.
Vice Chair Terry Ness, Treasurer	"Attending the Soil Health School changed my whole perspective on soil," explains Don Nickelson, a Frederick farmer. Prior to attending the Soil Health School, Nickelson had been struggling to farm saline areas of a field. He implemented what he learned and instead of crops, he planted salt- tolerant perennial grasses for grazing and forage. "Today, I think about treating the cause of soil issues, instead of symptoms. I'm doing this with my kids in mind. I want to pass on good soils and
Dan Forgey	management principles instead of bad habits."
Doug Sieck	During the Soil Health School held on Kurt and Kathy Stiefvater's farm, participants will get to see for themselves how management practices like no-till and cover crops impact soil health. They can check out soil pits to see how roots burrow into soil structure and allow for water and nutrients to penetrate the clay and the alkaline earth. Stiefvater will also demonstrate how soil health practices
Bryan Jorgensen	improve soils resistance to compaction and ruts as well as livestock integration. Plus, there will be plenty of time for Q & A with experts and experienced producers like SD Soil Health Directors and Stiefvater.
Jason Kontz	Registration is limited so do not wait. Send in your registration today!! "For anyone interested in soil health, this is one of the best events to attend," says Leola farmer, Trevor Zantow. "The presenters are not only involved in the practices but are knowledgeable of the science. This
Shawn Freeland	experience helped build my confidence to change my farming practices."
Candice Mizera	To attend the 2019 Soil Health School, register at <u>www.sdsoilhealthcoalition.org</u> and click on the Events tab.
Inside this issue:	For more information on the Soil Health School, the scholarship available or if you have questions about the event, contact Cindy at sdsoilhealth@gmail.com or call 605- 280-4190.
Mob Grazing 2 Totton Style	SCH001
Leopold Award 3	Course the Cost of U
Phosphorus DLR.F 4	Save the Date!!
Check out Calen- 5 dar of Events	Soll Health Conference and Annual Meeting January 15-16th, 2020 Ramkota Watertown
Cover crops 6	Dr. Christine Jones, Derek Axten, Tom Cannon and much more!

Improving Grass Production & Protecting Native Species With Mob Grazing S.D. Rancher Shares His Success Story By Kara Pugsley

Grazing to maintain the health of native grasses is an important strategy for ranchers in South Dakota, and for Charlie Totton, learning how to manage his grasslands has been a key tool which has allowed him to improve the health of his soil and operation as a whole. Totton ranches in Brule County with his wife Tanya. Their seed stock/cow calf operation is located 8 miles north of Chamberlain, SD. They've been ranching there since the fall of 1997.

Mob Grazing: Allowing for Uninterrupted Growth of Grasslands

Totton practices mob grazing on his ranch of 4,000 acres, a practice where he concentrates grazing during June, July and August on just 400 of his total acres. "That's only 10% of our ranch, but during this time period it benefits the whole ranch by keeping the cows off of the majority of acres during the growing season. By bunching them up like that, we have a lot of grass that's not getting interrupted – it's growing at its highest potential."



Totton's main priority has always been to protect the native species of grasses. "The reason we're trying to protect the warm season species is that they are what get grazed out with season-long grazing," he explains. "Your more productive warm season grasses will get shorter and shorter if you don't manage them properly."

Totton's method works well for him, and he typically has 200 cows grazing 10 months out of the year. "No one else I know in my area grazes 10 months a year," he said. "People have gotten to where they think they have to feed cows in the wintertime, and it's just a habit. I believe it isn't necessary."

"Before we started mob grazing, we'd put cows in the pasture for the whole summer, and what we found was the plants they grazed off first would try to regrow, and your little regrowth is like your ice cream. So, the cows would come back and re-graze the same spot rather than grazing the whole big pasture, to get the nutritious little regrowth or the ice-cream."

Better Grass Production, Water Infiltration and Wildlife

Totton noticed differences in his grass production after he transitioned to mob grazing. "The experts will tell you that as far as mob grazing, you really want to eat or trample the majority of the plant to the ground to see if your nutrient cycle is efficiently working," he explains. "If you trample it to the ground - your microorganisms are recycling it. Whereas if you leave it standing it oxidizes, and you're letting carbon back in the air instead of sequestering the carbon into the soil."

Water infiltration was another big improvement for Totton's soil. "There's been a tremendous difference in infiltration year-round," he explains. Managing the grass is the main way Charlie and Tanya have improved the water infiltration of their land compared to others in their area. Totton sees the difference every spring. "Typically, my neighbor's dam is run over with water while mine will be low in the spring."

He's also been able to cut back on chemicals as the mob grazing has helped control undesirable plants and weeds. He is able to do spot spraying now versus blanket spraying. "The problem with spraying pastures is you end up killing good plants along with the bad plants."

Since implementing mob grazing, Totton notes he's seen an increase in wildlife, specifically more deer, pheasants and other birds. Having a good grazing rotation has helped him create a good habitat for wildlife. "If you want a good place to hunt, you have to have healthy grass – and the only way to accomplish that is to manage your grasslands."

Bottom line, Totton says mob grazing has helped him work with nature and not against it. Proper grassland management is key to the overall soil health of any grazing operation and can provide for healthier cattle, increase infiltration and wildlife habitat, as well as production and protection of native grass species. In his experience, people always find excuses not to manage their land. Many of the excuses he's heard are comments like, "the land is too rough," or it's "too far from water." "Every place is manageable if you just put enough thought into it," says Totton. "If you look at how rough my place is - we use the rough land for dormant grazing." To read the article in its entirety visit www.sdsoilhealthcoalition.org or contact Cindy 605-280-4190.



Soil Health News

Keeping Our Soils Covered and Productive

One of the five basic principles of soil health is to keep them covered as much as possible, whether that be with a living cover or plant residues. This provides numerous benefits such as preventing wind and water erosion, reducing evaporation rates, reducing drastic temperature fluctuations, protecting soils from harmful compaction, suppressing weed growth, and providing habitat for the surface dwellers of the soil food web. More stable soil temperatures increase the survival of microflora, which



help with nutrient uptake. This, in combination with many of the benefits listed above, allow for protected soils to be more productive, increasing overall soil health significantly.

In order to increase awareness of these benefits and the importance of increasing skin protection, the "Protect Yourself and Your Soil" collaborative project was created in June. Both Avera Health and the SDSHC will be distributing wider brim hats and educational information throughout the summer, highlighting facts about the skin and soil connection, as well as tips to avoid negative health effects. "It is our hope that this unique collaboration will increase the quality of life for South Dakota farmers, ranchers, gardeners, and the general public while also promoting the protection and enhancement of one of the state's most important resources" said Cindy Zenk, SDSHC Coordinator . **Hear Dr. Greenway, Avera Health at Dakotafest on August 21st!**

Keep Em Covered Protect Your Skin and Soil

Spink County Farmer's Awarded 2019 Leopold Winner

On July 16 the Johnson Family, Alan and Mickie and their son, Brian and wife, Jamie along with their children Ella (age 12), Lila (age 10), Leo (age 7) and Evelyn (age 3) hosted the field tour of their operation near Frankfort . Johnson's were named the 2019 Leopold Winner in April, and will be honored at the SD Cattlemen's Convention in December 2019 on hand to make the presentation included David Bailey, Sand County Foundation; Lyle Perman, SD Cattlemen's and Jim Faultich, SD Grassland

SD Cattlemen's and Jim Faulstich, SD Grassland Coalition.

Brian shared the family 's journey which started with his great grandfather and 160 acres. Alan adopted no-till practices in 1986, and currently the Johnson's include diverse crop rotations, cover crops, rotational grazing and livestock integration on cropland. Johnson's farm 1800 acres of cropland and 500 acres of grassland and raise beef cattle. Johnson family provides the evidence



that you do not have to sacrifice production for conservation; or profitability for sustainability .









2019 Leopoid Conservation Award

Soíl Health News

Soil Biology Aids in Phosphorus Efficiency By: Jamie Chalcraft

Phosphorus is the second most important nutrient only to nitrogen. Phosphorus is an essential plant macro-nutrient for regulation of protein synthesis, cell division, and tissue growth for normal growth and vigor, root development, delayed maturity, and disease resistance . There are normally high levels of phosphorus in the soil, however approximately 95-99% of this is in the unavailable or insoluble organic



and inorganic phosphate forms . Plants take up P as orthophosphate from the soil solution . Insoluble forms are not readily available in the soil solution, and unavailable forms need chemical changes to be taken up by the plant. Soil organisms such as bacteria and fungi living in the bulk soil or rhizosphere as well as mycorrhizal fungi which supply P to the plant, produce a variety of acids and chelating agents which facilitate the solubilization of phosphate from inorganic soil P . Current Phosphorus recommendations from soil laboratories estimate available P soil stores and projected crop need based on yield goals and assume surface broadcast and conventional tillage is used . However, no-till brings forth the question of the efficiency of broadcasting P . Research done at the Dakota Lakes research farm, highlighted at the farm tour on June 27th, 2019, suggest more can be done to increase the efficiency of phosphorus fertilizer in the soil .

Dakota Lakes found applying Phosphorus fertilizer (MAP) in bands at seeding was more efficient than broadcasting MAP at seeding . By placing with the seed, Phosphorus efficiency increased, allowing less P to be applied . Dakota Lakes also found that even with low soil P levels averaging around 5ppm, biomass yield and P uptake by the plant without P fertilizer was equal or greater to that of the 200 lb/Acre MAP applications . The lack of difference was likely due to the increased presence of mycorrhizal fungi in the unfertilized strips, which are known to form associations with plant roots and transport P and other nutrients . The increased mycorrhizal fungi in the unfertilized strips, suggest Phosphorus fertilizer additions may lower mycorrhizal fungi populations or activity in the soil . Dakota Lakes attribute their increased mycorrhizal fungi activity in general to their well-managed biology due to reduced till, diverse rotations, and high crop residue in their system.

The study provides proof that Dakota Lakes Research Farm's well-managed no-till soil, has biology working for them, and may be reducing their commercial input needs. It also suggests there is more to the story when it comes to the complex interactions between the living components in the soil and fertilizer efficiency, directly influencing fertilizer rates needed to grow a crop up to the yield goal.

Soil Health Sit Downs

SDSHC started an outreach program to connect with members and others interested in or wanting to know more about soil health.

SDSHC staff have held several sit downs throughout the state. Watch the events calendar and emails for dates and time of these events. If you are interested in an event in your area contact SDSHC to start the process.



PROTECT YOURSELF & YOUR SOIL <u>Keep 'em Covered</u> Studies have shown that every inch of brim So if you consistently wear REDUCES a 4 inch brimmed hat, the risk of you **reduce** your skin cancer over a lifetime by LIFETIME RISK Avera 🕷 Soil Health Coalition **PROTECT YOURSELF & YOUR SOIL** Keep 'em C<u>overed</u> More stable soil temperature regimes increase survival CROFLORA, hich help with nutrient uptake

vera

SDSHC In the Field

SDSHC partnered with three producers and planted cover crops in 60" corn rows in various areas in South Dakota. With the challenges the spring brought the plots will be an avenue to gain insight on potential options for a corn grower. Below are pictures from some of the sights in South Dakota.

Watch for data in future issues, one field tour on 30th of July is scheduled!











Photos: Top leftplanting cover crops in corn field. Another planter planting cc and ground after planting.

Middle: Cover Crops emerging . Middle bottom: Significant growth on CC and Corn .

Above photo: Both corn and cover crops

Future lies with our Youth

SD Soil Health Coalition continues the effort to educate and reach our future producers by adding a youth representative to the Coalition!

Ally Binger, sophomore agronomy and soil science student joins the directors and staff promoting improved soil health. Binger was raised near Tulare with her three older siblings by her parents Brett and Susan Binger. *When asked what her vision or goals for the future of soil* health were Binger energetically replied " My goal for The

Future of Soil Health in South Dakota is for more producers to understand the importance of utilizing the five soil health principles into their own farms. Over time, if soil health becomes first priority, farmers will realize what it takes for their crops to come up at their full potential."



<u>Calendar Of</u> Events:

July 30 Soil Health Field Tour 60" corn row Interseeding Tour Milbank

July 30 Soil Health Sit Down Minnehaha County

July 30 Soil Health Sit Down St Lawrence

August 1 Moody County Soil Health Tour **Dell Rapids**

August 7 Forage Fiesta Field Dav—SDSU SE Research Farm

August 13 Soil Health Sit Down Huron

August 16 Soil Health Sit Down Kennebec

August 19-20 Hughes County **Conservation District** Bus tour

> **August 20-22** Dakotafest

August 20-22 American Grassland **Conference ND**

August 22 Board of Directors Mitchell

August 23 Soil Health Sit Down Ft Pierre

 $4^{\text{th}}-6^{\text{th}}$ September Soil Health School, Salem

September 10 Carbon Tour Stehly Farms-Page 5 Mitchell



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Cover Crops 2019- What to Plant When by Sara Bauder

As many South Dakota producers look to cover crops to build soil health and/or provide supplemental forage after a soggy spring, many questions are arising regarding management decisions, specifically, species selection and planting timing.

There is no 'hard and fast' blanketed mix that can be recommended to all producers, as each grower is in a unique circumstance with different production environments, soil types and management techniques. Rather than seeking the 'go-to' mix of your neighbor's choosing, ask yourself a few fundamental questions before planting a cover crop. Below are some of the critical questions producers should consider before planting cover crops on prevent plant acres this season.

Herbicide history Insurance and Government Guidelines Purpose Seed availability and price Crop rotation Termination Weed Control Soil Fertility Planting time



Extension

Although there are many factors to take into consideration, cover crops can be an excellent tool to mitigate the challenging planting season. Cover crops not only reduce fallow acres but also enhance soil health and provide supplemental forage. For more information, please do not hesitate to contact your nearest SDSU Regional Extension Center, local NRCS office, or SDSHC for cover crop recommendations and other assistance. See Full Article



South Dakota Grazing Exchange

