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This soil near Ft. Pierre, SD, has been removed by the wind from fields and piled along fences. Those fields are losing their most fertile soil, and the blown dirt reduces the fence's effectiveness. USDA NRCS South Dakota photo.

Healthy land management can prevent dust storms

By Stan Wise

This spring, dust storms made headlines across the western United States, including South Dakota. Blowing soil created driving hazards due to low visibility, and accumulated wind-blown silt even forced boat ramp closures near Fort Pierre.

"The dust storms of the past few weeks, I've never seen them this bad," Natural Resources Conservation Service State Soil Scientist Nathan Jones said. "The road to my house – I live off gravel – it was even blacked out by dust being blown across the road."

It might be tempting to blame the dust storms on high winds, but as Jones said, "The wind never stops in South Dakota."

The real issue, he said, is how people are managing their land.

"The biggest problem is people leaving their ground uncovered," Jones said. "If we look at a lot of the native range in western South Dakota, there's always grass. There's always something covering the soil surface. So, when something happens and the soil is left uncovered, it blows, and the soils in western South Dakota, especially, are kind of fragile, and when they're mismanaged, they blow and erode really, really bad."

Soil can be exposed through tillage or being left uncovered by crop residue or cover crops after harvest. In livestock operations, overgrazing is also a problem, Jones said. "Eventually, you lose your good native range vegetation, the stuff that's tasty to the animals. You get into a bare ground situation," he said.

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Sign up for 2022 Soil Health School!

See Page 5 to learn more about the 2022 Soil Health School to be hosted on the Bruce Carlson and Anthony Bly farms Aug. 31-Sept. 2 near Garretson, SD.

No matter the reason, once the soil is exposed to wind or rain, it's vulnerable to erosion. Even land managed with no-till practices can erode if it is left uncovered.

Dean and Candice Lockner run a custom grazing operation near Ree Heights, SD. "We had crop ground right next to us — neighbors — and they were using a no-till operation, and they were having dust storms," Dean Lockner said. "They were doing no-till, and then that fall they turned the cows in, and they grazed it down to the dirt, and then they wondered why the land blew. These people said, 'Well, we were doing no-till,' and they had cattle on the land, but the land was barren. It was bare dirt. The cattle had eaten everything off of it that was there to hold it."

A serious problem

These dust storms pose several difficulties for South Dakota ag operations and their surrounding communities.

"Well obviously, we're losing topsoil," Jones said. "We talk about water as our most limiting factor as far as growing stuff in South Dakota, but if we lose our topsoil then we don't have the nutrient-rich part of the soil surface for plants to grow in, and then we're left growing in subsoil where there are less nutrients, where it's just harder for plants to survive and thrive."

Dust storms also increase the risk of vehicle accidents. "A few years ago, we had a place on Highway 14 between Highmore and Miller where the road was blacked out, basically, due to a dust storm, and there was a traffic accident caused by that," Jones said.

Jones also mentioned that air quality is an issue. "I think more and more we're running into people who have asthma or some sort of breathing issues," he said. "If you've planted crops and you've fertilized, then now you have fertilizer-tainted soil blowing through the air that you're breathing into your body, and that's never a good thing."

Land management solutions

The good news is that land can be managed to minimize erosion.

"I used to have about 1,500 acres of crop ground, and we used to farm it, and we're at the foothills," Dean Lockner said. "I was seeing a lot of soil erosion coming out of the Ree Hills on crop ground. I didn't like it, and when the ranch came under my management, I decided I wanted to correct that. I think long-term. I expect this land to be here for a long time, and I want to take care of it that way."

"Part of our transition, though, had to do with obviously just observation," Candice Lockner said. "You know when you see the water ruining the roads or you see the dust storm causing traffic accidents, you have to say, 'Okay, so I see what's causing it,' and when we realize that we are causing it, then what can we do about it?"

The Lockners converted their cropland to grassland and started a custom grazing operation. "Basically, the way the markets are, it is our most economical option for us to do, to not own the livestock and just custom graze for other people."

To protect their grassland and their soil, the Lockners use rotational grazing. "We typically rotate the cattle every three to four days in the springtime and maybe up to a week to 10 days, at the most, later in the fall when the grass isn't growing as fast," Dean Lockner said.

By moving the livestock quickly over smaller portions of pasture, the Lockners give their grassland plenty of time to recover from grazing. That keeps healthy plants and healthy roots in the soil to



This cereal rye cover crop near Colome, SD, was planted after last year's oat harvest. It is protecting the soil from erosion, and its roots are feeding soil microbes. It will continue to grow, and soybeans will be planted into it this summer. After it is terminated, its residue will control weeds, protect the soil surface, and add carbon to the soil as it breaks down. Photo courtesy of Van Mansheim.

protect it from erosion.

"There is no dust blowing here, and we can show the pictures in 2018 of our grassland right beside the field that's blowing. There's nothing blowing on our grassland," Dean Lockner said. "We have pictures of a vehicle coming out of the dust storm, and you know it's clear once they got to our grassland, but just beside our grassland, you couldn't see the vehicle a couple hundred yards into it. That's how bad it was. We're seeing that all the time."

There are good land management options for farmers growing crops, as well.

"If you're a farmer and you're cropping your soil, you've got to leave it covered. Don't till it. That's probably the biggest problem is tilling your ground cover under. We want to leave that soil armor on the surface," Jones said. "We need to have a diverse crop rotation so that we're getting in some heavy residue crops along with some of the lighter ones like soybeans or peas — those leave almost nothing to protect the soil surface."

While it might not be an option for every producer in every year, growing a cover crop or an overwintering cash crop like winter wheat can be an excellent way to improve and protect the soil.

"Going in and planting a cover crop after you harvest is going to leave a root growing in the soil to help your biology, but it also will put something green above ground catching sunlight, using photosynthesis to create sugars for your microbes and then protecting the soil surface," Jones said.

The payoff

By using land management practices that protect the soil, producers can improve their profitability, improve their operational resilience, and reduce their stress levels.

"We are doing less and are more profitable than we ever were when we were working our tails off," Dean Lockner said. "It's astonishing, and it doesn't sound logical, and I still have that battle within my own heart: Something's wrong, I'm not suffering enough."

"We actually went for our annual physicals, and she kept telling us all these things were better. What were we doing different?" Candice Lockner said. "And honestly, we didn't know what we were doing different until we got home and realized that our life is just more sane and balanced, and we could actually take care of ourselves."

Membership Minute: Adam and Lisa Bernard

Adam Bernard is a fourth-generation farmer and rancher who manages his family's operation near Jefferson, SD, with his wife, Lisa; his daughter, Adison; and his son, Tate.

Adam's family homesteaded the farm in 1909. His father, Marc, and his uncle, Pierre, started using no-till practices in the 1990s. Adam took over 10 years ago, and he has expanded soil health strategies on the operation. "I am fully committed to having soil health at the top of the list as the major priority on our farm and ranch," he said.

For many years, Bernard Farms was a no-till corn and soybean operation. However, once Adam added small grains into the rotation as cash crops – wheat, rye, barley, oats – and inter-seeding clover with small grains, his soil health improved dramatically. "I would highly recommend adding the small grains into a row crop operation. This gives operators opportunities to add major value," he said. "Get away from the mono and get in with diversity."

Cover crops move the needle

Adam also introduced cover crops. "It started with single-species cover crops flown on with an airplane, and now we plant 10- to 15-way mixes with a no-till drill every season after small grains," he said. After corn harvest, Adam also drills in rye, from "October all the way into January, if weather permits, to try to establish a living root, even if it doesn't grow until early next spring."

Once Adam started planting cover crops, he added a small herd of "low-maintenance, low-input" cattle and sheep. He sells grass-finished beef and lamb directly to customers, and that business is growing. He is

improving infrastructure with high-tensile fences and livestock watering systems, using rotational grazing practices, and is re-seeding row crop land with a native-perennial mix. "We are expanding the size of our livestock numbers as we implement more native perennial crops back onto the land," he said.

Adam said he focuses on being a low-input, low-maintenance operation. "Two years ago, I started trying non-GMO corn and soybeans. Going backwards, right? That's all I plant now," he said. "It has worked out well for our operation. Lower inputs, more return-on-investment."

All of these practices are an extension of Adam's goals for his operation. "We are going to continue to learn and educate ourselves to become better stewards of what the good Lord has provided for us," he said. "We are going to continue to improve our soil's overall health while we look for ways to have more fun and less stress." Adam said his best day on the farm is a "nice, sunny, mild day; winds 10-15 miles per hour; animals have been moved to a new paddock, enjoying the fresh, juicy grasses; and we head to a lake for some fun in the sun!"

Soil health practices improve sustainability, reduce operator stress, and allow for more outstanding days just like the one Adam described. "Once a person understands that soil is a living, breathing thing, you will grasp soil health," Adam said.



Adam Bernard's son, Tate, checks seed placement as the father and son team plant soybeans into a green rye cover crop. Photo courtesy of Adam Bernard.



Adam Bernard is using diverse rotations, low disturbance, cover crops, residue, and livestock integration to improve the soil health on his operation near Jefferson, SD. Photo courtesy of Adam Bernard.

Upcoming Soil Health Events

[June 2-3](#)

Landowner Fire Workshop
Astoria, SD

[June 3-4](#)

2022 Bird Watching Tour
Highmore, SD

[June 7](#)

Sustainable Ag Tour
McLaughlin, SD

[June 14-15](#)

South Dakota Rangeland/Soil Days
Murdo, SD

[June 21-23](#)

West River Grazing School
Wall, SD

[July 12-15](#)

Young Producers Ranching for Profit School
Huron, SD

[July 26-28](#)

East River Grazing School
Marvin, SD

[Aug. 9](#)

SD Leopold Conservation Award Tour of Bien Ranch
Marshall County, SD

[Aug. 31-Sept. 2](#)

South Dakota Soil Health School
Garretson, SD

[Sept. 13-15](#)

South Dakota Grazing School
Chamberlain, SD

[Jan. 24-25](#)

South Dakota Soil Health Conference
Sioux Falls, SD

Access Our Events Calendar [HERE](#).



The Butte-Lawrence-Jackson 4-H Range Team. Courtesy photo.



The Wessington Springs 4-H Range Team. Courtesy photo.

South Dakota performs well at National Land, Range & Homesite Judging Competition

By Dave Ollila, SDSHC Soil Health Specialist

After two years of cancellations, a record attendance of more than 1000 FFA and 4H members competed in the National Land, Homesite and Range Judging Contest, according to the Oklahoma Association of Conservation Districts, the contest's principal sponsor. The Cheyenne-Arapaho agency North of El Reno, OK, hosted the Range and Land Judging event on May 5, 2022.

National championship trophies were awarded to team and individual winners in each category of the competition, including land judging, range judging, and homesite evaluation. Each category included FFA and 4-H divisions.

In the Range Judging 4-H Competition, the Butte-Lawrence-Jackson 4-H Range Team brought home the national championship! Individually, 8 points separated the top 3 scores. Farynn Knutson of Kadoka was recognized as the national champion individual followed by Morgan Mackaben of Belle Fourche placing second, Tate Ollila of Newell placing third, and Bennett Gordon of St. Onge placing eighth. The team is coached by Brandy Knutson and Dave Ollila.

Reserve Champions turned out to be another South Dakota team! The Wessington Springs 4-H Range Team was comprised of Kristie Munsen, who placed fifth, Quinten Christensen, who placed 11th, Kaden Wolter who placed 12th, and Austin Schimke who placed 14th. The Wessington Springs 4-H Range Team is coached by Craig Shryock.

The Kadoka FFA Range Judging Team placed eighth in the FFA Range Division. Team members included Tyler Ring, Emily Zickrick, Maxwell Zickrick and Madison Brown. The team was coached by Brandy Knutson, FFA advisor. Other South Dakota teams participating included Hitchcock-Tulare FFA and Webster FFA.

The McCook County 4-H Homesite Judging team captured a national championship as well. Team members included Ella Stiefvater (second place), Grace Diogiovanni (fifth place), Jonathon Schock (17th place) and Mason Pulse (19th place). The McCook County team was coached by Terry Rieckman.

The Wessington Springs 4-H Homesite Team received fourth place honors. Team members included Cheyenne Burg (eighth place) Braydin Labore (16th place), Blake Larson (18th place) and Carter Gaikowski (27th place). The team was coached by Lance Howe and Craig Shryock.

The Willow Lake FFA Land Team placed a very admirable eighth place out of 100 teams in the National Land Judging Contest. Team members included Jack Bratand, Maddie Urke, Emma Peterson and Wyatt Anderson. The Willow Lake FFA Land Team was coached by Dan Tonak. Other South Dakota land judging teams included Hitchcock-Tulare FFA, West Central FFA, Philip FFA and Tripp County 4-H.

Also attending to provide technical assistance included Sandy Smart, South Dakota State University Extension Agriculture and Natural Resources Senior Program Leader; Tyler Swan, Natural Resources Conservation Service Soil Conservationist; and Lance Howe, NRCS Regional Soil Scientist.

The land, range and homesite evaluation opportunities offered in South Dakota are coordinated by members of the South Dakota Section of the Society for Range Management. The state sponsored events are supported with technical assistance from personnel within NRCS, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, South Dakota Game, Fish and Parks, SDSU Extension, area ranchers and other range and soil professionals.

Financial sponsors for this unique national educational opportunity include South Dakota Section of the Society for Range Management, South Dakota Soil Health Coalition, South Dakota Grassland Coalition, South Dakota Stockgrowers Association and the South Dakota FFA Foundation.

Youth wishing to participate in these events need to contact their county's 4-H program coordinator or their school's FFA Advisor. The 4-H Range and Land Judging Team qualification contest will occur in Murdo at the South Dakota Rangeland/Soils Days, June 14-15. For more information contact Valerie Feddersen at the Jones County Conservation District at 605-669-2404, ext. 3.

Soil Health School offers life-changing networking opportunities

By Stan Wise

In 2019, Mitchell, SD, producer Mike Blaaid found like-minded producers and experts at the South Dakota Soil Health School, and meeting them helped him make some big changes in his operation.

"I just had specific ideas I wanted to see what they thought of," Blaaid said. "I feel like conventional people – even talking to crop insurance people and the seed guy – they don't quite understand what I'm trying to do and why I'm trying to do it different, but having people like the Board members of the South Dakota Soil Health Coalition, who have very open minds and are willing to listen and kick around ideas and maybe think about stuff a little bit different, that's huge for me."

At the time, Blaaid was managing the grazing operation on a ranch, but he had concerns about how the property's cropland was being managed. The support and knowledge he received at the school helped him take the next step. "It just solidified how I feel, and having their positive reinforcement and networking with them, it was really big for me. It really inspired me to do better and eventually rent the whole ranch so I could implement these changes I learned about at the school," Blaaid said.

After Soil Health School, Blaaid took over the ranch's cropland and changed how it was managed, introducing no-till practices, cover crops, and integrating livestock on cropland. He is a custom grazer, and he is using cover crops to improve his soil structure and produce more forage for livestock. "I really try to implement all five of the soil health principles on all my acres when I can," he said.

Meeting other producers, SDSHC Board members, and experts at Soil Health School opened Blaaid up to a network of supportive people who still help him today. "I work with guys like (SDSHC Soil Health Technician) Austin Carlson. He helped me with a cover crop mix, and he visits me occasionally," Blaaid said. "I feel like it's not as taboo anymore to be talking about this stuff. Nobody is doing exactly what I'm doing in my area, but I'm not as much of an outlier now. There are people in the state doing cool stuff all over the place."

People who want to learn more about sustainable agriculture and network with experienced soil health producers and industry



Instructor Lee Briese, center, leads a discussion from a soil pit at the 2021 Soil Health School. SD Soil Health Coalition photo.



Participants at the 2021 Soil Health School learned to calculate the available forage in a cover crop. SD Soil Health Coalition photo.

experts can register for the 2022 Soil Health School, Aug. 31-Sept. 2, hosted on the Bruce Carlson and Anthony Bly farms near Garretson, SD.

South Dakota State University Extension Soils Field Specialist Anthony Bly said this year's school will include a focus on the importance of erosion control and that attendees would get to experience all of the elements of a diverse rotation. His farm uses a five-year rotation, and the Carlsons use a three-way rotation.

"We're going to show exactly why we do what we do," Bly said. "It will be made clear."

Soil Health School includes classroom presentations and discussions as well as field tours and exercises. Various cash crop and cover crop rotations will be demonstrated in the working fields of the host farms, and cover crop grazing exercises and information will focus on both cattle and sheep. Class size is limited to 30 people so that participants can have more contact with instructors and SDSHC Board members.

The cost to attend Soil Health School is \$150 for the first person from an operation and \$75 for each additional person from that operation. A block of rooms has been reserved for a nightly rate of \$98.10 at the Quality Inn in Brandon, SD. Participants can learn more and register at www.sdsoilhealthcoalition.org/event-calendar/soil-health-school/.



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Sustainable Ag Tour June 7 in McLaughlin

Join a FREE Sustainable Ag Tour on June 7 at the Candice and Bob Mizera Farm near McLaughlin, SD! If you want to see all five soil health principles in action, this is the tour for you! You'll see diverse croplands, cover crops, livestock integration, good grassland management, and a rainfall simulator. Free lunch included! Busses to the field start loading at 10 a.m. Please register for lunch counts at tinyurl.com/MizeraTour2022.

Tour location: 25796 113th St., McLaughlin, SD. Directions: From McLaughlin, go 3 miles south on Hwy 63 and 7 miles west on 113th Street. Mizera operation will be on the right.

This tour is sponsored by the South Dakota Soil Health Coalition and South Dakota Farm Bureau.

Don't miss this excellent tour! Questions about the workshop should be directed to Cindy Zenk at 605-280-4190 or cindy.soilhealth@sdconservation.net.

Let on-farm researchers know what you need!

Producer Survey

Want accurate and relevant on-farm research data but aren't finding it? Researchers need your input to make changes to their programs! Please consider participating in this survey designed to gauge producers' opinions about on-farm research, its importance, and their willingness to participate in it. The results of this survey will help research institutions fine-tune their on-farm research programs. Make your voice heard! You can find the survey at tinyurl.com/OnFarmSurvey.

Integrate Livestock In Your Operation! Find More Forage!

Will you have crop residue, cover crops, or grassland available for custom grazing this year? Are you looking for sources of forage to lease for your livestock? The **South Dakota Grazing Exchange** is a great place to list your resources and make private grazing agreements with others to meet your needs! It's easy to use and free! Learn more at www.sdgrazingexchange.com.