South Dakota Soil Health Coalition

Soil Visions

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Treating Problems, Not Symptoms

Conference brings soil experts to Aberdeen

By Stan Wise

Soil health is the new hot topic in agriculture. It's showing up everywhere from government policy discussions to industry initiatives, from news articles to documentary films.

Why is it so important?

"Soil health is the foundation of the whole food production system and life itself. Everything comes from the soil and returns to the soil," South Dakota State University Extension Soils Field Specialist Anthony Bly said. "You may think that's a biblical thing, but it's reality. It's truth."

Anthony Bly

Jay Fuhrer

Kris Nichols

Steve Kenyon

Bly, along with several other speakers, will bring his soil management expertise to the Sixth Annual Soil Health Conference, Jan. 18-19, at the Best Western Ramkota Hotel in Aberdeen, SD.

"We degrade our soil health, we degrade our soil, we degrade our food production system, and the scarcity of food increases, and it'll change society," Bly said. "If we want to maintain our free society and be able to make our own decisions, we need strong natural resources, and soil is probably the most important."

Burleigh County (ND) Soil Conservation District Conservationist Jay Fuhrer agrees that the problem of degraded soils must be taken seriously.

"If we look at our present resource concerns in the Northern Plains, we all kind of know what they are. It's wind erosion. It's water erosion. It's salinity. It's carbon deficient soils. We know this," Fuhrer said. "It's very similar to resource concerns that have been identified since agricultural production was documented. These are a lot of things that brought down civilizations."

Fuhrer, who is an educator at the Menoken Research Farm near Bismarck, ND, worked for the U.S. Department of Agriculture Natural Resources Conservation Service for 40 years.

"I think really what we're talking about here would be the difference between treating a symptom and treating a problem," he said.

Fuhrer said the first half of his career was spent treating the symptoms of degraded soils, and that frustration led him on "a quest for somewhat of a bigger picture in terms of what was happening and why." As he learned more about soil health and how to improve it, he could begin to treat the real problem

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Multi-species Grazing Benefits Land Management

Watertown rancher Rick Smith has seen benefits in broadleaf weed control and operational resiliency by grazing sheep with cattle and horses on his pastures.

See Page 4 to learn more.

Conference — Continued from page 1

The 2022 Soil Health Conference will be held Jan. 18-19 at the Best Western Ramkota Hotel in Aberdeen, SD. SDSHC photo.

instead of just the symptoms.

"My goal is real simple," Fuhrer said. "My goal is to farm forever. When I have that as my goal, it helps me put a lot of other things in perspective."

Kris Nichols, senior soil scientist for the Food Water Wellness Foundation, said that unlike many other tools in agriculture that only address one issue, soil health management is "a consortia of activity that can have cascading impacts that could be beneficial."

Those beneficial impacts address a variety of issues, she said.

"It isn't just helping with nutrient cycling and nutrient availability," Nichols said. "It can help with water infiltration rates and water holding capacity, can help with reducing compaction for better root growth, can help with aeration, being able to get good gas exchange between the soil and the surface."

One exciting benefit of soil health is the nutritional value of food, Nichols said.

"I think one of the things that is really starting to occur is a lot of discussion around linking the soil microbiome to the gut microbiome of animals," she said. "And so, as we start to gain more understanding of the soil functions to be able to provide all of those elements that we need for our own health as animals, we are really seeing how that soil microbiome is basically setting up what the gut microbiome needs."

Another major benefit of improved soil health is resilience to weather extremes.

Steve Kenyon operates Greener Pastures Ranching, a custom grazing operation in Alberta, Canada. He uses regenerative grazing practices on roughly 3,500 acres which he uses to graze about 1,400 head of cattle. Those practices paid off this year.

"Our growing season here, precipitation averages 15 inches per season. This year we were under four," Kenyon said. This severe drought had only a minor effect on the land he has managed for 20 years. "We barely noticed it. Cattle didn't go home early. We didn't destock. We still grazed until the middle of October at least," he said. "The land we've only been managing for three years? Yeah, it was severely affected by the drought."

While researchers and producers are increasing the agricultural industry's understanding of soil health, most producers haven't yet adopted soil health management practices.

"We've made some progress, but it's never – I hate to sound like a dissatisfied conservationist – but it's never enough," Fuhrer said.

"Modern agriculture right now grows plants from the soil. They put inputs into the soil, they grow a plant, they harvest that plant, and they take those nutrients off the land," Kenyon said. "We need to change how we think. My thought process right now is we need to grow the soil from the plant."

The South Dakota Soil Health Coalition is working to educate more producers and landowners about the benefits of soil health practices and increase sustainable agriculture production with events like the Soil Health Conference in Aberdeen. Kenyon, Fuhrer and Nichols will join Bly as keynote speakers at the conference. With discussion panels, breakout sessions, social events, award presentations, and student photo and essay contests, the event will offer useful information for attendees regardless of their level of soil health knowledge.

"I think you've got to have an open mind, no matter where you're at. If you think you're doing well with soil health, there's another level," Bly said. "Never close your mind to new ideas and new ways of trying things."

Registration for the conference is $50 per person, and there will be an option to view portions of the event online. Students may register for the conference at no cost, and they may enter photo and essay contests for a chance to win up to $400. More information about the conference may be found at www.sdsoilhealthcoalition.org/soil-health-conference. Questions about the event may be directed to the South Dakota Soil Health Coalition at 605-280-4190 or sdsoilhealth@gmail.com.

Membership Minute: Jim and Claire Williams

Jim and Claire Williams raise corn, soybeans, winter wheat, and mixed hay, and they move yearling steers on grass on their operation near Herrick, S.D.

"We started cross fencing the grass and adding water in 1994," Jim Williams said. "We have not tilled since 2004 and started cover crops a few years later."

A neighbor sparked an interest in soil health for Williams when he was a child. As he grew older, he learned about the power of plant and root diversity and the importance of soil microorganisms and minimum disturbance when creating a healthy system.

"I decided to pursue soil health on the farm after pulling soil samples in the native pastures and garden and found that the base saturation and soil pH were exactly what I was trying to achieve in the farm fields," Williams said. "I knew it would take a very diverse system to fix the soil."

Williams said the most important lesson he has learned in business is that he doesn't have to "have the 'biggest' or the 'best.'" Instead, he said, the bottom line is what counts.

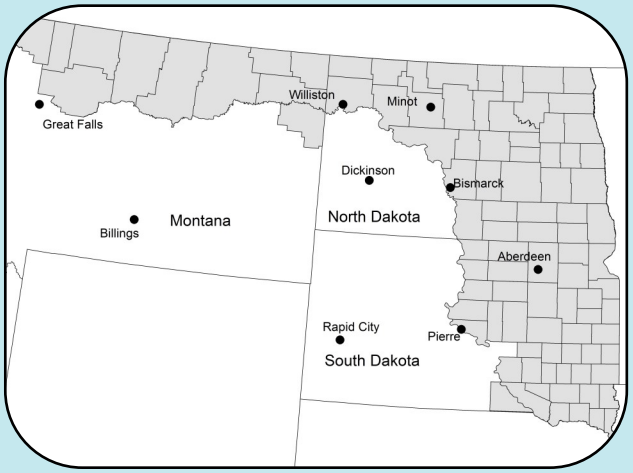
Williams said his practices are focused on taking care of the biology in the soil, and he has an eye on the future of his operation.

"My long-term goal for the farm is to find a like-minded young family to take over," he said.

Jim and Claire Williams have been using cover crops on their operation near Herrick, SD, for more than a decade. Courtesy photo.

Take a Survey for a Chance to Win a Yeti Cooler!

If you own, rent, or operate land in any of the counties depicted in gray in the map to the right, you can participate in a survey for a chance to win a Yeti cooler.



The survey is being conducted by Kaylan Kemink, a doctoral student at James Cook University in Australia, in partnership with Ducks Unlimited. The goal of the survey is to improve non-profit and government organizations' understanding of how well they are communicating the benefits of conservation programs in your area. The results will be used in research publications, reports, science conferences, journal articles, and theses. They will also contribute to recommendations about communication and education programs for Ducks Unlimited in the Great Plains region.

Any personally identifying information about survey participants obtained during this study will be kept confidential. Survey results and data will be anonymized prior to sharing or publication.

To complete the survey, visit tinyurl.com/surveyjcu. In order to enter the drawing for the Yeti cooler, the survey must be completed by Dec. 10, 2021.

For questions or concerns about the survey, contact Kaylan Kemink at 701-595-6947 or kaylan.carrison@my.jcu.edu.au.

Upcoming Soil Health Events

Nov. 30-Dec.1
Ag Horizons Conference
Pierre, SD

Nov. 30-Dec.1
SD Cattlemen's Assn. Annual Convention
Rapid City, SD

Dec. 7
Managing Soil: Maximizing Profit Conference
Yankton, SD

Dec. 8
Livestock Environmental Training for CAFOs Workshop
Huron, SD

Dec. 9
SDSHC Board Meeting

Dec. 9
South Dakota Soil and Water Conservation Society Annual Conference
Online

Dec. 14
South Dakota Grassland Coalition Annual Meeting
Pierre, SD

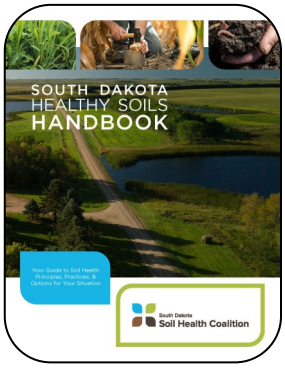
Dec. 14-15
2021 Soil Management Conference
Mankato, MN
And Online

Dec. 16
2021 Central Dakota Ag Day
Carrington, ND

Jan. 18-19
Soil Health Conference
Aberdeen, SD

Jan. 27-29
Northern Plains Food & Farming Conference
Fargo, ND

Access Our Events Calendar HERE.



Rancher Finds Benefits in Multi-species Grazing

By Stan Wise

Rick Smith didn't set out to start a multi-species grazing operation when he took over his family's farm southwest of Watertown, SD. With higher farm commodity prices in the 70s, he was growing more grain, but when the 1980s Farm Crisis struck, he decided to plant most of his land back to grass and raise more cattle. Everything else came later.

"It was kind of one of those things, the old 4-H projects. I had three daughters, and they kind of got going on the sheep," Smith said. "So, then it kind of just grew, and we got a few more of those, and along the way my wife was interested in horses."

Today, he has a 110-head cow-calf herd and a retired band of 15 broodmares from his years of horse breeding. He also has an 80-head ewe flock and does dry lot lamb finishing and breeding ram sales. Smith's cows graze separately, but he will allow his ewes to graze with either his yearling heifers or his horses.

While he didn't add the sheep to his operation because he wanted to improve his land management, Smith has found they have certain benefits.

Rick Smith grazes cattle, horses and sheep on his pastures and cover crops near Watertown, SD. USDA-NRCS SD photo.

Weed control

"If nothing else, it's a tremendous weed control," he said. "The ewes prefer any broadleaf weed or clover over grass."

Before Smith started grazing sheep, he sprayed his pastures for weeds once every four or five years. "When we started running the sheep," he said, "it was like, 'Wow. There's nothing up there to go spray.'"

It took a little time, however, for Smith to figure out the best way to use the sheep for weed control. He first tried to graze them rotationally as he does his cattle and keep them moving between different paddocks using hotwire. That's when he discovered the sheep preferred some of the weeds and clovers, but only if they were under 6 inches tall. "If they get taller than that, (sheep) won't touch 'em," he said. When he would move the sheep back into a paddock they hadn't grazed in a while, the weeds would be too tall, and the sheep wouldn't eat them.

So, Smith decided that if the sheep preferred the weeds but only when they're smaller, he would let them have continuous access to a larger portion of land and let them move anywhere they want and feed on the plants that they prefer. All of Smith's sheep pastures have perimeters of five barbed wires with posts about 16 feet apart. His cross fences for horses and cattle allow sheep to travel under a raised wire in traffic areas.

"You'll see them on one side of the quarter, then the other side of the quarter, then back down in the bottom, and up on top – all in a morning," he said. "They're just searching out those little tidbits along the way."

Anywhere the ewes are allowed to graze continuously, they will control or eliminate almost any broadleaf weed. The exceptions to that, Smith said, are cockle bur, biennial thistle and star thistle. He said the sheep will keep Canada thistle from spreading, but they won't eliminate it.

Resilience

South Dakota Soil Health Coalition Soil Health Specialist Dave Ollila pointed out that grazing multiple species of livestock can play a role in soil health because small ruminants like sheep and goats will feed on some of the broadleaf plants. "Those broadleaf plants are deeper rooted," he said, "so they're going to bring up nutrients from deep in the soil profile, which will be consumed by the ruminants and then returned to the topsoil via urine and manure."

Besides multi-species grazing, Smith uses many other management practices that have a positive effect on his soil. Nearly all of his feed is grown on his operation. His pastures are balanced between native range managed for warm season grasses, warm season planted natives and cool season mixtures. His crop rotation includes corn, oats, forage winter wheat, forage barley, and cover crops following early small grain forage harvests. His crops are managed with no-till practices, and the winter accumulation of manure is hauled out to his corn silage fields cut in the fall. His management practices have protected his soil from erosion, kept it productive, and increased its water infiltration rate.

While healthy soil is one way Smith's operation has become more resilient, his diversified revenue stream is another. He is somewhat insulated against downturns in any one market, and he can take advantage of increased prices in the grain markets, the cattle markets, and the lamb markets.

Producers who would like to take advantage of some of the benefits of adding a species to their operation without risking the investment have an option. The South Dakota Grazing Exchange (www.sdgrazingexchange.com) is a free website where landowners with pastures or crop residue can connect with livestock producers of all types to form private grazing agreements.

When adding a new livestock species to your operation, Smith has one piece of advice.

"Learn all you can about the species you are adding before trying it," he said. "There is nothing wrong with asking questions. We never know it all."

Producers who wish to learn more about multi-species grazing can contact South Dakota State University Extension Sheep Field Specialist Jaelyn Quintana at 605-394-1722 or Jaelyn.Quintana@sdstate.edu or SDSU Extension Range Field Specialist Jessalyn Bachler at 605-374-4177 or Jessalyn.Bachler@sdstate.edu or the South Dakota Sheep Growers Association at www.sdsheepgrowers.org. To learn more about the soil health benefits of incorporating different livestock species onto cropland, producers can contact the South Dakota Soil Health Coalition at sdsoilhealth@gmail.com or 605-280-4190.

Milpa Gardens Can Build Soil Health and Communities

By Stan Wise

Sometimes a little chaos provides an opportunity for growth. That's certainly the case with a chaos garden, also called a milpa garden. It's a similar concept to the three sisters garden in which the three "sisters" of corn, beans and squash are planted together because each one benefits the growth of the others. The corn provides a tall stalk for the beans to climb, the beans fix nitrogen in the soil, and the large leaves of squash shade the ground, preserving moisture and suppressing weeds.

In a milpa garden, even more types of plants are included in the mix, and rather than being planted in neat rows, the vegetables are spread evenly across the garden. The result is a chaotic tangle of produce that offers more than just food.

This year, South Dakota Game, Fish and Parks District Park Supervisor Ryan Persoon discovered that a milpa garden can help bring a community together. This spring, he was approached by Dan Forgey, South Dakota Soil Health Coalition Board member and longtime Cronin Farms agronomy manager, who had a bag of seed.

"He mentioned he had this bag of seed that, at the time, he described as a milpa garden and a community garden," Persoon said. "I didn't know anything about what this was. Community kind of stuck in my head."

Persoon runs the West Whitlock Recreation Area, which is next to a resort with summer residents, and he thought he could plant the garden in the park, and the people in the resort community could help grow the garden and then reap some of the rewards by taking some produce.

"At the time I didn't really know what was in this bag of seed," he said. "It was entertaining for us to plant this, see it grow, and see what would come to fruition and how it would impact our community. And I have to say it was quite the project. It was something I was very proud to be involved in."

The community became very involved in the garden. "The excitement of the unknown was what we enjoyed the most out of it," Persoon said. "It was thick. There was a lot of stuff to sort through. People enjoyed looking through it to find what they wanted, and that adds to the excitement of it."

Persoon said the garden contained several different types of squash, pumpkins, turnips, Swiss chard, and other produce. "I saw certain people putting their names on some squash because they didn't want them picked before they were ripe," he said. "It's a community, so everybody kind of shared in it, and it was really quite neat."

In addition to bringing the community together, the garden benefitted pollinators and wildlife. "It was attractive for pollinators, for birds, and I have no doubt this winter when a lot of the brassicas and the squash, the pumpkins freeze down, the deer are going to be all over those squash and pumpkins," Persoon said.

Next year, he said, "we're definitely going to do something like this again if not pretty much exactly the same thing again."

A milpa garden also offers soil health benefits.

"All of the soil is pretty well covered, and there's something living on almost every square inch," SDSHC Soil Health Technician Baylee Lukonen said. "When they call this a chaos garden sometimes, that's exactly what it is. The plants are all working together."

Lukonen grew a milpa garden on her farm near Watertown this year. "It was really cool to see that certain plants that have vining tendencies would actually vine up the sunflowers or the taller millet," she said. "That's how they were getting their sunlight. It's just really cool to see all of it working together aboveground, and if it's working together aboveground, there's definitely a lot happening belowground that we can't see."

This chaos garden in the West Whitlock Recreation Area entertained local residents who enjoyed searching through the garden for the different types of produce they wanted. Courtesy photo.

Lukonen also used her garden to interact with the community. She invited the local Boys and Girl Club to bring students out to her farm each week to learn about soil health and pollinators.

"We thought it was a great idea," Watertown Boys and Girls Club Prevention Coordinator Brad Drake said. "We're always looking for additional programs for the kids, particularly if there's an educational component."

"The Boys and Girls Club brought out a group of about 10-15 kids every Thursday for a good portion of the summer," Lukonen said. "We just taught them about different things in the soil, soil properties, and we also taught them about the milpa garden and how everything that is in the milpa garden can grow together without being separated and planted into rows, which is different than your traditional garden."

The students ranged in age from 8 to 12 years old.

"There was a real emphasis on soil health, of course, so they talked a lot about cover cropping," Drake said. "It wasn't always the same kids each week that went out, but some of them got to see the whole process from the planting, to learning why it was important, to how these various crops have benefitted the soil, and different nutrients they added or drew up and made available."

Lukonen said the only challenging aspect to a milpa garden is that it is difficult to harvest, but she had a suggestion on how to make it easier. "Next year I think we are going to create walkways," she said. "If we want the kids to help with the harvest, we're going to have to make walking paths throughout."

Gardeners who are interested in trying a milpa garden can contact the South Dakota Soil Health Coalition at sdsoilhealth@gmail.com or 605-280-4190.

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Donating this Giving Tuesday?

From field tours to the Soil Health School, from developing resource materials to making school visits, the SD Soil Health Coalition is working hard to spread the word about the benefits of soil health management.

If you think we're doing a good job and you're planning to donate on Giving Tuesday, you can help promote soil health. The Coalition is a 501c3 organization, and you can make tax deductible donations at www.sdsoilhealthcoalition.org/memberships-donations or mail them to 116 N. Euclid Ave., Pierre, SD 57501.

Registration is officially open for the

6th Annual Soil Health Conference!

The 2022 Soil Health Conference is just around the corner, so don't wait to sign up to hear our excellent lineup of keynote speakers and participate in exciting breakout sessions! The conference will be held Jan. 18-19 at the Best Western Ramkota Hotel in Aberdeen, SD. There will also be contests with prizes for students, award presentations, and the chance to socialize with other producers! A block of rooms has been reserved at the hotel under "SD Soil Health Coalition" for attendees. Learn more about this event at www.sdsoilhealthcoalition.org/soil-health-conference/.

Know of opportunities for young producers?

The South Dakota Soil Health Coalition would like to create a webpage to list any available opportunities for young people to either work in sustainable agriculture or learn more about sustainable agriculture. These could be internships, jobs, competitions, scholarships, conferences, land available for lease, or even livestock available for custom grazing. If you know of any such opportunities, please contact the SD Soil Health Coalition at 605-280-4190 or sdsoilhealth@gmail.com.