South Dakota Soil Health Coalition

Soil Visions

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The 2023 Soil Health Conference will be held Jan. 24-25 at the Best Western Ramkota Plus Hotel in Sioux Falls. South Dakota Soil Health Coalition photo.

2023 Soil Health Conference

Speakers say solving ag problems starts with the soil

By Stan Wise

For fifth-generation Indiana crop and livestock producer Rick Clark, soil health and regenerative agriculture are about stewardship.

"You have to be good stewards of the land," he said. "If you think it's OK to watch your topsoil blow away in the wind, then I guess regenerative is not for you. But you need to be a good steward to the land and at least start thinking about how we can hold what precious soil we have left."

Food Water Wellness Foundation Senior Soil Scientist Kris Nichols agrees. "We have one problem in agriculture, and that problem is that we don't have enough soil," she said. "And if we solve that problem, all of the other issues that we're having will be solved."

Her observation certainly seems to have held true on Clark's farm in west central Indiana where he grows corn, soybeans, wheat, alfalfa, peas, milo and cover crops and raises cattle and sheep.

Clark said that when he started using no-till practices and cover crops 15 years ago, he did it to fight erosion. With the addition of other practices like a diverse crop rotation, livestock integration, good residue management, and planting green into cover crops, he has also seen many other benefits.

Continued on Page 2

Growing Connections Mentor App released!

See Page 5 for more information about a new app that will help you form relationships with soil health mentors and get answers to your questions in the palm of you hand!

Conference — Continued from page 1

"You're seeing the benefits of armoring the soil, the benefits of increasing water infiltration rates, increasing water holding capacity, building aggregate stability – all of these things you see happening when you start doing these regenerative practices," he said. "We have aggregate stability that is 6 to 8 inches deep. We have water infiltration rates that are 20 inches an hour. We have earthworm counts on our farm that are one and a half to 2 million earthworms per acre."

Indiana producer Rick Clark uses the principles of soil health and regenerative agriculture practices to improve his soil and realize significant savings on input costs. Courtesy photo.

These benefits are showing up on Clark's bottom line.

"We're heading into year nine of not adding any phosphorous or potassium now on the farm," he said. "We're saving over 50 percent on fuel. We've reduced our tractor fleet by two-thirds. We've eliminated inputs of fertilizer or herbicides or insecticides. We no longer seed treat."

Clark said that he started with soybean genetics not covered by patents and is growing soybean seed for his operation using epigenetics. "Epigenetics is basically keeping seed and allowing that seed to adapt to your system," he said. Clark said that he will have enough seed to plant two-thirds to three-fourths of his 2023 soybean crop. The reduced seed cost, combined with the other benefits of soil health practices, adds up to significant savings on his operation.

"When you add all that up on our farm, we're saving about $2 million a year in inputs," Clark said. Over the entire operation, he said those savings average out to approximately $300 per acre.

Nichols said there's no set recipe of practices to achieve the kind of soil health benefits Clark has seen. "There are multiple paths, multiple options and opportunities that can exist out there for farmers and ranchers to determine how it is that they would like to go forward within their systems and put these things in place that are going to work the best for them with the resources that they have in the environment that they're in," she said. "This is really about thinking about how the entire system functions together."

Clark said the first step for producers wishing to improve their operations is a simple one. "The first thing to do is to go to the South Dakota Soil Health Coalition Conference," he said.

Both Clark and Nichols will be keynote speakers at the 2023 Soil Health Conference, Jan. 24-25 at the Best Western Plus Ramkota Hotel in Sioux Falls. Other keynote speakers will include Mitchell Hora, a seventh-generation Iowa farmer and CEO/Founder of Continuum Ag, and Roy Thompson, a South Dakota producer connecting soil health with human health. The conference will also feature breakout sessions, discussion panels, award presentations, contests, social activities, and networking opportunities. The event is also being held in conjunction with the Midwest Cover Crop Council's annual meeting and conference, which will take place on Jan. 23 at the same location.

"The Soil Health Conference will offer useful information and unique experiences for everyone, regardless of where they are on their soil health journey," South Dakota Soil Health Coalition Coordinator Cindy Zenk said. "From students to gardeners, from producers to industry professionals, anyone involved in agriculture will find something valuable at this event."

Kris Nichols is the senior soil scientist for Food Water Wellness Foundation. Courtesy photo.

"You cannot underestimate the power of what goes on at a conference," Clark said. "It's not so much going into that room and listening to those great speakers speak. It's going into the hall and finding people that think like you do or who are trying to do the same things you want to do and trade contact information and stay in touch and then go out to the restaurant and eat dinner with different folks. That's where you make the great contacts."

Those contacts are extremely important, Clark said, once planting season starts and the conference is several months in the past. "April and May rolls around, and they're like, 'No, wait a minute, what did that wacky guy from Indiana say about are we supposed to do this or are we doing that? I don't remember what he said. Who am I going to call, and who am I going to talk to?' So, we need that local support group," he said.

Registration for the 2023 Soil Health Conference is $50 per person. Students may register for the conference at no cost, and they may enter an essay contest 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 Vote During 2023 Annual Meeting

The South Dakota Soil Health Coalition Board of Directors decided during the October 13, 2022, meeting to hold a vote on an amendment to Coalition's by-laws at the Coalition's annual meeting during the 2023 Soil Health Conference. The proposed amendment adds a sixth item within "ARTICLE VI - BOARD OF DIRECTORS Section 1. The role of the Board of Directors" of the by-laws regarding a conflict-of-interest statement:

6. Disclose any conflict of interest when considering taking an action or entering a transaction that might benefit the private interests of a director or otherwise violate state and federal laws governing conflicts of interest applicable to nonprofit, charitable organizations.

All current members of the South Dakota Soil Health Coalition are encouraged to participate in the annual meeting at the 2023 Soil Health Conference, Jan. 25th at the Best Western Plus Ramkota Hotel in Sioux Falls. Additional agenda items include the election of three director seats, year in review, financial report, and recognizing award recipients of the Friend of Soil Health and Legacy Awards. If you have any questions regarding the annual meeting, contact Cindy Zenk at 605-280-4190.

Membership Minute: Ben Bogenhagen

Ben Bogenhagen farms and ranches with his father near White Lake, South Dakota. He also raises Simmental bulls, has a registered herd of approximately 100 cows, and farms roughly 500 acres. He and his wife, Brianna, have four children who are heavily involved in sports.

Bogenhagen uses no-till practices and minimal vertical tillage in his farming operation, and he grazes his cattle on cover crops. He follows small grains with full season cover crops, and for three years he grew cover crops between 60-inch rows of corn. One new practice he is implementing is growing a very diverse mix of cover crops – one that includes more species than just brassicas – after small grains.

Ben Bogenhagen follows his small grains with a very diverse cover crop mix. Courtesy photo.

In this field, Ben Bogehagen seeded soybeans and cover crops between 60-inch rows of corn. After corn harvest, he was able to graze 113 cows on 33 acres of the soybeans and cover crops for 30 days. Courtesy photo.

"My neighbor talked me into trying cover crops, and they made a lot of sense," he said. "My long-term goals are to increase organic matter, increase water infiltration, and extend my grazing season with cover crops."

Bogenhagen says his best day on his operation is when he moves cows into new cover crops.

He said the most important lesson he learned is, "You can do everything perfect, but if God doesn't give you rain, it doesn't matter."

Bogenhagen's soil health goals will help him maximize the benefit of every drop of rain that falls on his land.

Soil Health Conference Student Essay Contest

The South Dakota Soil Health Coalition is excited to announce a student essay contest for the 2023 Soil Health Conference, Jan. 24-25 in Sioux Falls, SD. The contest is open to students in the following divisions: middle school, highs school and post-secondary students. Cash Prizes and hoodies will be awarded to winners in each of the age categories. The top prize in the post-secondary division will be $400, and the top prize in the middle school and high school divisions will be $200.

To enter the contest, each student should submit an original essay, not to exceed 300 words in length, written in response to one of the following questions:

1. How does soil health affect your future?
2. How does diversity benefit agriculture?

Participants are encouraged to be creative with their entries!

Essays must be submitted via email to sdsoilhealth@gmail.com. Each essay must be accompanied with the following information:

1. First and last name of the student essayist.
2. Name of school or institution attended by the student.
3. Grade of the student (for middle school and high school students).
4. Student address.
5. Student phone number.

Entries must be submitted no later than January 8th, 2023. Contest winners will be announced during the Soil Health Conference.

Upcoming Soil Health Events

Nov. 29-30
Ag Horizons Conference
Pierre, SD

Dec. 2
Managing Soil: Maximizing Profit Conference and SE Research Farm Annual Meeting
Yankton, SD

Dec. 5
World Soil Day

Dec. 12-14
South Dakota Cattlemen's Assoc. Convention
Pierre, SD

Dec. 12-14
Dakota Innovation Research and Technology Workshop
Fargo, ND

Jan. 23
Midwest Cover Crops Council Conference
Sioux Falls, SD

Jan. 24-25
South Dakota Soil Health Conference
Sioux Falls, SD

Jan. 26-28
Northern Plains Sustainable Ag Society Food and Farming Conference
Fargo, ND

Feb. 27
Soil Health Awareness Day
Pierre, SD

March 4
Ag Day at Washington Pavilion
Sioux Falls, SD

Access Our Events Calendar HERE.

Adding Life to the Soil: Experimenting With Compost

By Stan Wise

Healthy soil requires healthy, active biology beneath the surface. This includes bacteria and fungi. While the five principles of soil health – soil cover, minimal disturbance, living roots, diversity, and livestock integration – all work to protect and promote these critical organisms, some researchers and producers are experimenting with methods to jumpstart the growth of soil biology to improve soil health.

One popular method is to grow fungi and bacteria in a compost pile and then use the compost to make a liquid extract that can be applied to fields using foliar sprays, in-furrow treatments, and seed coatings.

Creating the mix

"Composting is mixing the right materials in the right ratios," South Dakota Corn Director of Sustainability Jim Ristau said. While there are several different methods, he said, "It's a matter of mixing carbon and nitrogen and moisture and then managing the heat and oxygen."

Ristau said that in an aerobic compost, "you're trying to get about a 30-to-1 carbon-to-nitrogen ratio in the pile." He said that dried out straw or hay could be a source of carbon in the pile while manure or alfalfa could be a source of nitrogen. Charts can be found online that indicate how much carbon and nitrogen are in common source materials, he added.

"You're going to want about 30 percent green material that has some moisture to it," Ristau said.

Another key ingredient, Ristau said, is some undisturbed soil rich with the native microbiology. This soil could come from an old shelterbelt, homestead, or native grass prairie. "You're inoculating a pile with that biology," he said.

Jim Williams is a producer near Herrick, SD, who grows corn, soybeans, wheat, and cover crops. He started no-till practices in 2004 and cover crops in 2008.

"I made my first compost in 1969," Williams said. "I was only in seventh grade."

At a young age, Williams mastered compost for his garden, but after attending a compost workshop led by Elaine Ingham in 2018, he decided to use compost extract to improve his farm, as well. "I knew the extract was going to work because I had enough compost experience from the past that I just instantly knew it was right," he said.

Williams now sprays compost extract on his fields, uses it as an in-furrow treatment, and coats his seed with it, as well. He credits the practice with improving compaction in his fields. Williams makes 50-foot windrow-style piles with a soaker hose on top for moisture. "I like straw, but it has to be straw that hasn't had fungicide and insecticides," he said. He also uses some immature grass hay, alfalfa hay, and some fresh-cut grass from his road ditches, which have a lot of medium red clover in them. "I like to add some fresh grass to the piles because it's got the live organisms," he said.

Jim Williams of Herrick, SD, creates a new 50-foot windrow-style compost pile. Courtesy photo.

Williams also uses hay off a native prairie, aged manure, compost from a previous pile, wood chips (which must be aged for six months before use in a compost pile), and undisturbed soil from a tree row, old homestead site, or native prairie – wherever is likely to have healthy fungal life.

Finally, Williams adds rock dust or soft rock phosphate, bone meal, blood meal, soybean meal and dried molasses.

Managing the pile

Once the materials are added to the compost pile, it will begin to heat up, even in cold temperatures.

"It works just fine in the dead of winter," Ristau said. "It's amazing."

The pile needs to reach an internal temperature of 131 degrees Fahrenheit for three days, and then it's ready to be turned. If the temperature goes higher than that, it will need to be turned sooner. "If it gets to 150 then you don't want to go more than two days, and if it gets to 165 you want to turn it," Williams said. "And that's kind of the rule of thumb. I mean, it can be at 165 for a day, but then you want to turn it because if it gets hotter than that, it starts killing the good microorganisms."

Williams said his piles need to be turned four or five times before the temperature drops, and then he lets them sit for 10-11 months; though, Ristau said the pile could be ready for extraction in as few as 30-60 days.

Applying the extract

To create an extract, Williams and Ristau use similar methods. They place some of the compost in a 500-gallon conical tank of water and run forced air into the bottom of the tank. After that aeration process, some of the material sinks to the bottom of the tank and some floats to the top. Williams and Ristau harvest about 350 gallons from the middle of the tank, filter it, and put it in an 800-gallon sprayer. The sprayer is then topped off with water and a diluted food source for the microorganisms, which could include molasses or fish hydrolysate. Then it's ready for the field.

"I spray in the fall after harvest on the ground, and then I use it in-furrow when I plant," Williams said. "Corn I like to spray about 5-6 inches high and then for sure again before I can't get through it. Beans I like to spray at first trifoliate then at first bloom, and wheat gets sprayed in the fall and then in the spring when it's maybe three- to five-leaf and then at first head when it's heading."

Researchers are still working to determine the value of compost and the best composting methods and applications. "Even though these practices are not what most farmers are doing to meet the fertility needs of the growing crop, we need to explore the potential for this to work," Ristau said. "The upside potential of reducing fertilizer input costs and improving nutrient efficiency would be a huge benefit to improving the sustainability of our farms and ranches."

For his part, Williams is pleased with the results on his farm. "I'm not going to stop doing it," he said.

To read a full version of this article with more photos, visit tinyurl.com/2022CompostArticle.

To learn more about soil health management practices, visit www.sdsoilhealthcoalition.org.

New Growing Connections App Creates Soil Health Social Network

By Janelle Atyeo
For South Dakota Soil Health Coalition

South Dakota farmers, ranchers and gardeners are making strides in improving soil health, and they're willing to share what works and what doesn't. A new app from the South Dakota Soil Health Coalition aims to make it easier to reach out to fellow farmers and soil health experts.

Growing Connections, accessible as a smart phone app and from a web browser, is like a social network focused on soil health. Users can post questions about no-till practices and cover crops, for example, and get feedback from those with experience. They can participate in group discussions or reach out directly to a mentor who has expertise in a certain practice or knowledge of a particular region of the state.

"It seems like anyone involved in soil health is more than willing to share their experiences with anyone that will listen," said Darin Michalski, who runs a cow-calf operation west of Willow Lake.

It was helpful for him to reach out to a friend when he started transitioning to no-till, he said, especially when resisting the temptation to till again.

"Is there any AA for no-tillers?" he said.

With the Growing Connections app, finding answers to soil health questions has never been more convenient. Experienced professionals and producers have volunteered to offer their advice as mentors on the app, making the process of finding trustworthy information quick and easy. South Dakota Soil Health Coalition photo.

That's where Growing Connections can help. With a network of farmers, gardeners, agronomists and soil health experts, there's sure to be someone with suggestions for solving a problem. Growing Connections users can also post articles or learn about events related to soil health.

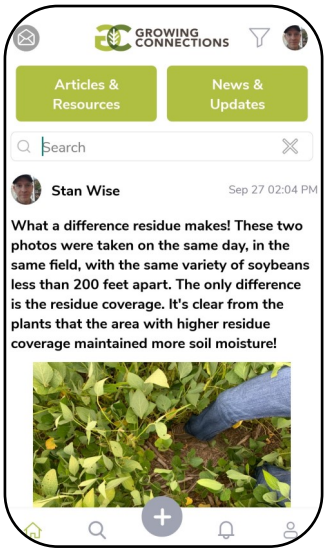
It's a time saver, as Caputa rancher Shawn Freeland sees it.

He and Michalski learned much of the soil health practices they use on their farms by attending tours and workshops, hearing talks by experts in the industry like Cronin Farms agronomy manager Dan Forgey from Gettysburg, and gathering opinions from others they met at conferences and events.

Not everyone can take time to get away, said Freeland, who serves as vice chairman of the South Dakota Soil Health Coalition board of directors.

Growing Connections can provide instant feedback.

"Our goal was to be able to connect producers in the palm of their hands," said Cindy Zenk, coordinator for the South Dakota Soil Health Coalition.



Users can post questions and observations publicly on the Growing Connections app, or they can post questions to individual mentors or to all registered mentors. Users will be able to search for mentors by area of expertise or geographic location. South Dakota Soil Health Coalition photo.

If farmers out in their corn field notice the crop isn't emerging, for example, they can take a photo or video, post it to Growing Connections and get a response immediately. They can connect with others and choose the best management decision to make their operation more sustainable, Zenk said. Professionals from South Dakota State University Extension, the Natural Resources Conservation Service and the South Dakota Grassland Coalition can give feedback, as well as other farmers and ranchers.

"It's an opportunity to connect," Zenk said.

Users can search for mentors by name, area or by project, such as cover crops, livestock, or no-till gardening. Questions can be posed to the entire group of registered mentors or users can interact one-on-one with a single mentor. Users can reach one another by messaging through the app or making a phone call.

Zenk hopes it will help people make connections more quickly and that those relationships will be long-lasting.

"The best people to learn from are the people who are doing it," she said.

Michalski, the Willow Lake farmer, likes the concept. "I like that everybody is available to talk," he said.

Freeland wishes he would have had a mentor readily available to answer questions as he started implementing soil health practices at his ranch on the edge of the Black Hills.

"It would have been a lot easier to get on and find someone to chat with," he said. "There might have been somebody closer."

Both men are more than willing to share what they've learned. They've hosted tours and regularly answer questions about rotational grazing and grazing cover crops, for example.

Freeland hopes that the app and the social network it creates will help speed the process of improving soil health across South Dakota.

"Soil health is bigger than just raising healthier crops or higher yielding crops," he said. "It's a lasting change for generations to come. If we can accelerate that process and get the word out quicker with this app, I think that's what we're after."

The app is available for free in the Apple App Store and Google Play store, and the web version can be found at www.growingconnectionsapp.com.

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116 N Euclid Avenue
Pierre, SD 57501

Phone: 605-280-4190
Email: sdsoilhealth@gmail.com
Website: sdsoilhealthcoalition.org

Soil Health Coalition participates in 2022 South Dakota Day of Giving

Throughout the year, the South Dakota Soil Health Coalition works to help educate the public about the benefits of soil health and sustainable agriculture production. Through workshops, field tours, coffee breaks, farm visits, conferences and schools, we try to help gardeners, producers, and landowners learn about practices that will make their land more resilient to floods and droughts, will keep their soil and nutrients on their land, will improve local water quality, will help reduce their input costs, and will help reduce their stress levels. We administer a grant project that offers financial and technical assistance help producers adopt some of those practices. And we help the next generation of South Dakotas learn about these important land management strategies through many visits with students in our state's schools.

This year, the Coalition is participating in the South Dakota Day of Giving, November 29th. This is a day set aside for citizens of South Dakota to remember the important work conducted by non-profit organizations throughout the state. If you would like to help us in our work, you can renew your membership and make a donation at www.sdsoilhealthcoalition.org/memberships-donations/. If you would like to learn more about the South Dakota Day of Giving, visit www.southdakotagives.org.