Soil Health Conference
Annual Meeting
January 22-23, 2019
Speakers Discuss Future Research & Upcoming Projects

The South Dakota Soil Health Coalition is extremely pleased to announce the three speakers who will be showcased at the 2019 Annual Meeting and Conference, January 22-23, on the campus of South Dakota State University (SDSU). Keith Berns of Green Cover Seed will speak both the evening of the 22nd as well during the main event the next day. Additional speakers include Allen Williams, Livestock Management and Agricultural Consultant, and Dwayne Beck, Research Manager at Dakota Lakes Research Farm. All three of these speakers are well known for their many contributions to the soil health movement both in South Dakota and surrounding regions and because of this were asked more in-depth questions about future research and upcoming projects in a recent interview.

Keith Berns hails from Bladen, NE and has been utilizing no-till on the ground he and his brother farm since the late 1980's, has integrated cover crops onto the operation since 2008, earned a Master's Degree in Agricultural Education from The University of Nebraska, taught Agriculture and Computer courses for 10 years, and co-founded Green Cover Seed in 2009 “to share the benefits of cover crops and no-till farming with the community.” Over the years his company has grown to supply producers with a wide variety of cover crop seed options, educational resources, as well as to develop their “SmartMix Calculator” which enables the user to create their own custom cover crop mixes weighing the strengths and weaknesses of each variety included. Keith was honored by the White House when he was named a “2016 Champion of Change for Sustainable and Climate-Smart Agriculture” and is listed as one of the National Association of Conservation Districts (NACD) “Soil Health Champions”.

When asked about current and future projects Keith highlighted one from each side of his life, on the farm as well as related to the seed business. On the farm, Keith and his brother have been very excited about a recent investment in composting equipment which will allow more of the materials from seed cleaning such as packaging, Continued On Page 2......
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and “waste” plant material to be composted and then applied to fields on site. He hopes that utilized in conjunction with cover crops this will help to reduce waste, increase efficiency and capture and incorporate additional carbon into the soil. Future goals as they relate to Green Cover Seed include continued research and testing of new and interesting cover crop varieties. Suppliers continue to suggest different plants grown in other countries and Keith is excited to begin trials and see what application they may have in future cover crop mixes.

Allen Williams is a sixth-generation farmer whose family has been farming in South Carolina since 1840. Allen has experience raising cattle, hogs, chickens, and sheep, as well as the management of both row crops and orchards. He holds both a bachelor's and master’s degree in Animal Science with a minor in Poultry Science from Clemson University, earned a PHD in Animal Genetics and Physiology from Louisiana State University, spent 15 years teaching and performing research, and currently operates his own Livestock Management and Consulting business. His business’s concentrations include: pastured protein, soil health, adaptive management and regenerative agriculture and he has worked with ranchers and row crop producers in the United States, Canada, Mexico, and South America. As a partner in “Soil Health Consultants, LLC” along with other prominent experts such as Ray Archuleta, David Brandt and Gabe Brown many of Allen’s future projects are related to the expansion of educational events and services provided by the Consultants.

One of the biggest undertakings of the Consultants has been teaching “Soil Health Academy” in the U.S., Canada, and Mexico. Allen and team hope to continue to broaden the reach of these schools by working to offer scholarships to groups such as veterans and minorities and continue to train “Teaching Teams” of qualified experts that can further spread the soil health and regenerative agriculture message. Future work on an existing Soil Carbon Project, which compares data collected from both operations using conventional and regenerative agricultural practices, will expand to include the Upper Midwest as the next targeted region. Efforts to better connect large scale food production companies with those within their supply chain will continue and several documentary film and mini-series video projects which address soil health and various regenerative agriculture topics will continue towards completion.

Dwayne Beck, Research Manager at Dakota Lakes Research Farm in Pierre, SD and Professor in the Agronomy, Horticulture, and Plant Science Department at SDSU is well known for the extensive list of research he has performed there from 1990 through present day. He holds a bachelor’s in chemistry from Northern State University and a PHD in
Agronomy (Soil Fertility) from South Dakota State University. He also held the position of Research Manager at SDSU’s James Valley Research Center from 1983-1990 before assuming his current position. Dwayne’s research centers around “the development of programs that have allowed producers to adopt true continuous no-till techniques with diverse rotations in a large portion of central South Dakota and throughout the grassland ecosystems of North America.”

When asked about current and future projects he expressed that it is his intent not only to research what works in both irrigated and dryland situations but to learn how managing these no-till systems as an all-encompassing ecosystem can be implemented at the field scale and the impacts it can have. Several current and future projects of note include a study on the negative long term impacts of field fires specifically in no-till situations with high residue, an examination of data from work done 25 years ago comparing grassland, conventional, and no-till sites adjacent to one another including current conditions at these sites, as well as a continuation of livestock integration projects at the Dakota Lakes Research farm which is now in its fourth year.

To Register or for more information about the 2019 Annual Meeting and Convention please visit the event page on our website at https://www.sdsoilhealthcoalition.org/annualmeeting/

Blowing the Whistle on Marketing Claims

Marketing or Real Data?

- The best way to determine if a product or practice is effective is to ask for the data and research backing a company’s claims.
- Sometimes, companies leave this vital information off of advertising because many view it as confusing and unnecessary.
- Knowing that a product has been tested and shown to make a difference should be a deciding factor when making purchases.

For more info on Understanding Ag Research

For the first time Grow by FarmHer was held in South Dakota at the Swiftel Center in Brookings, this past Tuesday. The day-long event was a great opportunity for young women to connect with peers, listen to dynamic speakers, and meet industry leaders. Tickets were sold out for the event, 150 young women ages 16 to 22 were in attendance.

Our partnerships were on full display as we shared sponsorship with the SD Conservation Districts and the Natural Resources Conservation Service. We were able to converse with many of the attendees at our shared booth and many walked away with a bag overflowing with information on conservation, leadership, and various career opportunities.

FarmHer is an organization that highlights women in agriculture through photography, events and their show on RFD-TV. Traveling across the nation collecting stories and showcasing women working in agriculture at all levels on a national platform. To learn more about this organization go to https://farmher.com/pages/about.
Soil health pays off in crop resiliency

Central South Dakota farmer Terry Ness became a fast believer in the benefits of building soil health. It was in his second year of managing his fields without tillage that the heavy rains came. One June day dumped 11 inches of rain on already saturated soils at his farm near Pierre, South Dakota. While soil washed away with the rain from neighboring fields, his stayed in place. He had no runoff.

“I knew what I was doing was the right thing, but that hammered it home,” said Ness who serves as treasurer for the South Dakota Soil Health Coalition board.

His field captured excess rain, and judging by the good yields he had in future drier years, his crops had tapped into that stored moisture.

More recent years have brought drought conditions to central South Dakota.

Ness got another reminder in spring 2018 that no till and cover cropping are worth the effort. When he was hosting a field day at his place, Natural Resources Conservation Service (NRCS) soil scientists dug soil pits in his field. It was the first time in his 42 years of farming that Ness got a good look at what was happening below the surface. One pit was dug on a little knoll that was a problem spot when Ness started his career. The dark, nutrient-filled topsoil withered away, and the knoll had started to fade to a light brown.

After 28 years with a no till system, and seven years of planting cover crops, plus diversifying the types of crops planted there and adding livestock to the mix, Ness saw changes for the better. The soil pit revealed that his attention to soil health had helped build six inches of top soil on top of the little knoll.

“It was shocking,” he said, recalling a statistic he learned in college that says it takes 500 to 1,000 years to build an inch of top soil.

No till helps speed the soil building process along, said Jason Miller, NRCS conservation agronomist in Pierre. The light brown soil on the unhealthy knoll was a sign that the soil was losing organic matter to tillage and erosion. And in that eroded area, calcium carbonate, or lime, from the subsoil was creeping closer to the surface, he said. It’s ideal to have at least 10 inches of top soil, Miller said, and no till helps build organic matter and protect the soil. Growing crops that produce a high amount of residue builds organic matter faster, he said. High-carbon crops include small grains and corn.

About 50 miles upstream the Missouri River from Ness’s country, the Cronin family has made small grains a regular part of their farm’s crop rotation in the name of soil health. Near Gettysburg, South Dakota, an area where fields are a patchwork predominately of wheat, corn, sunflowers, and soybeans, the Cronins grow 11 different crops, including flax, lentils, forage peas, field peas and forage barley.

Diversifying into minor grains and specialty crops has brought a huge benefit for staples like corn the Cronins grow, said Tregg Cronin, part of the fourth generation on the farm.

“We’re seeing improvements in our fields. We’re seeing it in better water infiltration rates,” Cronin said. “These fields that have the diversity have the better soil structure.”

Better soil structure has paid off over the last two years. Summer 2017 brought serious drought conditions. The Cronin farm went 60 days without a meaningful rainfall, but they harvested some pretty solid crops in the fall.

“The diversification of soil health practices was what allowed us to hold on,” Cronin said.

Miller explained the role residue plays in building soil health. When crop residue breaks down, it feeds the soil biology. It helps produce substance that holds the soil together. Even as it’s breaking down, residue serves as an armor protecting the soil biology, he said. It intercepts raindrops and deflects wind.

“It’s the house, it’s the foundation. It’s the protection for the soil biology,” Miller said.

Dan Forgey has spent his farming career working with the Cronin family and rebuilding the soil. First they switched to no till, then they started adding cover crops in rotation, and also planting a full-season cover crop in some fields. The cattle graze that field when they come home for the winter, and Forgey said these changes helped build organic matter and rejuvenate fields at a faster pace.

Ness started planting full season cover crops on his farm when corn prices were low, and he said the payoff has been huge. He planted 22 species this year, and it turned into quite a jungle, he said. In the fall, it provided cover for pheasants, which he and his family love to hunt. After hunting season, his sheep graze there. Continued on page 5
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“IT works out pretty good for me, and then we're building soil health big time,” Ness said.
Healthy soils have helped make better crops on the Cronin farm, and it's been most notable over the last two, dry years. The Cronin fields are able to capture the rain and hold onto it when it comes. While neighboring corn fields were showing stress, the Cronin crop looked healthy and green.

“A lot of it is our soils paying us back,” said Forgey, another board member of the South Dakota Soil Health Coalition.
Every year they're raising tremendously better crops, he said.
Back in Pierre, Ness is surprised how well his corn has done on very little rain. Last year, one of his no-till fields averaged 100 bushels per acre on about 8 inches of rain. This year, he had less rain than average, but still managed to harvest 100-bushel oats, and he was anticipating big things from his corn again. Things were looking good ahead of harvest time.
His corn fields stayed green through September when his neighbors’ was burnt up with a frosted look from running out of moisture.
“I wouldn't trade his fields for mine,” Ness said.

Palmer throws curve ball in South Dakota Harvest

Palmer Amaranth, an annual weed in the pigweed family, brings concern to producers in South Dakota. Identified in central South Dakota fields, Palmer amaranth is known to grow to several feet tall and release millions of seeds when mature.

Scouting for weeds needs to be a constant management decision on farming operations throughout the growing season from early spring through harvest. In addition to scouting, crop rotations aids in weed management by providing effective herbicide options on Palmer Amaranth and other weeds, utilizing cover crops to prevent seeds from germinating, as well as bringing effective harvest option into play for example cutting of alfalfa normally prevents palmer from going to seed.

Brenda Siever, Plant Industry Manager with the SD Department of Ag presented at SDSHC board of directors November meeting. If you have questions on weeds, contact SDSU Extension. Being knowledgeable, aware and diligent is key to keeping weed infestation in South Dakota from spreading and protecting your bottom line.
World Soil Day (WSD) is held annually on December 5 as a means to focus attention on the importance of healthy soil and advocating for the sustainable management of soil resources.

For more information about this year’s World Soil Day as well as past years please visit www.fao.org/world-soil-day/about-wsd/en/.

### Calendar Of Events:

**November 27th-28th:**
Ag Horizons Conference
Pierre

**November 27th-29th:**
SD Cattlemen’s Association Convention & Trade Show—Huron

**November 28th:**
Conservation Planning Workshop Lower Brule
Rausch Pasture Walk

**November 29th:**
Managing Soil: Maximizing Profit 2018
Conservation Planning Workshop Crow Creek

**December 2nd-5th:**
National Grazing Lands Conference

**December 3rd:**
Conservation Planning Workshop Sisseton

**December 4th:**
Conservation Planning Workshop Rosebud

**December 11th:**
Ag United Annual Luncheon

**December 12th:**
SDGC Annual Meeting

**December 18th:**
Board of Directors Meeting
SDSU Ag Hall 107

**January 17th:**
SD No-Till workshop Wall

**January 22nd-23rd:**
SD Soil Health Coalition Conference Annual Meeting
Club 71—SDSU Brookings SD

Register Today!