

Winter Issue 2020

# SOUTH DAKOTA SOYBEAN LEADER

A publication of the South Dakota Soybean Association

## 2020 End of Year Check-In

- ▶ Paving the Future of Precision Agriculture
- ▶ Hit the Road with U.S. Soy
- ▶ Soybean Groups Support Farmer Well-being
- ▶ Soybean-based Asphalt Sealant applied to Sioux Falls Streets
- ▶ Importance of Precision Technology

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SOUTH DAKOTA SOYBEAN LEADER

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## PRESIDENT'S OUTLOOK



How about this fall's harvest?! Being able to roll through the fields with dry tires and harvest a very respectful crop ahead of schedule is a blessing, too bad we didn't catch a couple of rains to really top off the yields. We have seen an increase in agricultural commodity exports leading to higher prices not seen for a long time. With this year's yields and better prices, we can look ahead to next year with an improved optimistic view.

What is your winter to-do list? I tend to have two, the first is the farm repair list which is a big dry erase board inside the shop door and the second is a personal list that mainly resides in my head. Over the years, I have learned to do a couple of those personal projects for myself first. It doesn't matter what it may be, a simple afternoon road trip to finally restoring that favorite tractor, just put yourself first for a change. So let's all take a deep breath, relax and recharge for the upcoming year with all of its challenges.

Over the years, I have referred back to an old Successful Farming article that reads "Fortunate is the son who works in the shadow of his father's experience and knowledge. And doubly fortunate is the father who is associated with the reflected glory of his son's achievements." I was fortunate to get dad out during one of his doctor visits to take in some pickup "window farming" this fall and it was great to see him and a good friend of ours interact together.

It is alarming to look back to March when the pandemic started to where it is today. I personally fought the battle with cancer three times and won, and I don't care to battle this disease. Let's all be smart about the gatherings we choose to attend, wear masks, and socially distance. With respect to the health and safety of our growers, we cancelled the AgOutlook trade show. This has been a long time highlight for us and we look forward to next year. In the meantime, we are working on a special AgOutlook edition magazine that should be in your mailbox later this winter. Commodity Classic, which was to be held in San Antonio in March, was also cancelled. Details of how business meetings are to be held at both of these events are still being worked out. The SD Soybean Yield contest did occur and results will be coming out soon.

As you read this issue of our magazine you may notice a few minor changes as we have changed editors. Our main goal remains the same, keeping the soybean growers engaged and informed in all aspects of soybeans from raising to exporting.

Take Care Everyone!

Jeff Thompson, *SDSA President*



**PAGE 12**

Sioux Falls reduces maintenance and repair costs on city streets by using soybean-based asphalt sealant.



# PAVING THE FUTURE of Precision Agriculture

By Sadie Vander Wal

Living in the heart of the Midwestern prairies, South Dakota State University has been making an impact in research, education and outreach through its land grant mission since 1881. With deep roots in agriculture, SDSU's College of Agriculture, Food and Environmental Sciences is no stranger to generating innovative solutions to meet the demands of our growing world. In fact, a potential solution to that demand came to life right at SDSU in the form of the nation's first four-year degree in precision agriculture.

Over the past several years, precision technology has revolutionized the way we produce food and fiber. As a result, the use of GPS navigation, satellite imagery or drones is no longer uncommon on agricultural production operations. However, as technology has evolved, the need for trained professionals with the knowledge of how to operate and improve such technology has only increased with time.

The solution to this growing demand? A bachelor's degree in precision agriculture from SDSU.

Recognizing the region's need for graduates with strong skill sets in the precision agriculture field, SDSU filled the void by creating an academic minor in precision agriculture in 2014. After the minor quickly gained popularity, the college began constructing a curriculum consisting of both agronomic and agricultural engineering courses. From there, the SDSU Department of Agronomy, Horticulture and Plant Science and Department of Agricultural and Biosystems Engineering produced the nation's first four-year degree in precision agriculture.

"Our precision agriculture students are not only learning about equipment, but also about agronomy, soil science and data analytics before putting all of the pieces together to understand how technologies work and how they can be applied to any given farmer," South Dakota Corn Endowed Dean of the College of Agriculture, Food

and Environmental Sciences John Killefer said. "We need graduates who understand the broad spectrum of the field of precision agriculture, and we developed this program to fill that need."

Prior to SDSU's program, only technical programs offered a degree in precision agriculture. The difference between these two-year programs and SDSU's bachelor's program lies in the focus of their curriculums. While many technical programs concentrate on how to use agricultural equipment and technology, SDSU broadens the field through training in several aspects of agronomy, agricultural engineering and other related courses to provide students with the knowledge of how to adapt to the changing needs of the industry and create innovative solutions that will result in a larger profit for the producer.

"Using technologies that capture data can allow farmers to make better management decisions," Killefer said. "The better we can manage those decisions, the more economically viable and sustainable we become."

When it comes to soybean production in South Dakota, the science generated in precision technology goes beyond precise seed placement. Harnessing a more stabilized yield across a field can be difficult to achieve in areas with high amounts of variability, which is common in the Midwest. Precision technologies enable producers to stabilize soybean yields across differing parts of the field, increasing the average yield potential and the ability to market more bushels of grain at harvest. While contributing to the production of these technologies, SDSU is also training its students to understand the engineering behind the technology and the specific needs of the soil and its crops.

"Tools are just toys unless you really know how to use them and put them to work," Agronomy, Horticulture and Plant Science Department Head Dr. David Wright said. "Our program familiarizes students with these technologies to help both the farmer and retailer make a profit."

Soon, undergraduate students' learning experiences will be further enhanced at SDSU through the Raven Precision Agriculture Center, a 129,000-square-foot building on the northwest edge of campus that will provide new opportunities for laboratory and classroom capabilities. The cutting-edge facility will allow the university to

continue to lead the nation in precision agriculture education, research and extension, bringing agronomy, engineering and computer science disciplines all under one roof.

"Our faculty, students and industry partners can attack the issues facing agriculture together in one space, engaging in rich conversations and getting better results," Killefer said.



With construction on the Raven Precision Agriculture Center scheduled to conclude in summer 2021, the college will welcome students to the new facility in time for fall 2021 classes.

"I'm really excited about the space we will have," Agricultural and Biosystems Engineering Department Head Dr. Van Kelley said. "This will be the first time in many generations we will be able to have hands-on laboratory experiences with full-sized equipment every month of the year."

As the world continues to grow, the agriculture industry quickly adapts its technologies to sustain the future. SDSU strives to work ahead of this fast-paced curve by preparing students to create solutions for any challenge that may arise. ■

COVID is a challenge for the SD Soybean Checkoff and the SD Soybean Association, but it has also taught board and staff members valuable lessons and efficiencies. We participate in-person at local events such as Ag Day at Washington Pavilion in Sioux Falls following suggested health guidelines, but much of our business has turned virtual.

Two-thirds of our soybeans are exported to other countries. Our foreign customers want to visit our farms, look at the crop, see the care taken to produce it, personally witness the quality of the soybeans on-farm, and in recent years, ask about soil care and sustainability. They recognize that SD farmers produce the highest quality soybeans in the world. Our soybeans are exceptionally clean, remain cold most of their stored life, and the unique amino acid complex of SD soybeans provides tremendous feed value.

Our customers want a personal relationship with the people who produce soybeans, similar to how each of us wants a personal relationship with people we do business with on the farm. Close relationships create bonds leading to greater trust and shared financial benefit.

Due to COVID, we replaced in-person trade team visits with board member on-farm videos, complete with language translation, to send to current and prospective foreign customers. Staff has designed several virtual booths promoting SD soybeans at virtual international conventions attended by thousands of participants worldwide. Featured speakers have included Secretary of Agriculture Sonny Perdue. The virtual events have a look and feel of a real convention, including an entry lobby with a booth display area, a theater for speakers, a meeting hall for breakout sessions, and even a help desk. There is time allocated so foreign participants can “visit” our booth and communicate in real-time with SD checkoff board and staff members. Language translation is seamless.

The virtual world helps us communicate with our customers during this challenging time, and we will utilize some of these practices in the future. But meeting with customers in-person, shaking hands, looking one another in the eye, and breaking bread together is necessary to establish close bonds and maintain long-term relationships.

## GTE

The U.S. Soy Global Trade Exchange was held jointly with USSEC and SSGA as a virtual conference. More than 1007 unique participants for over 60 countries were represented. Through the evaluation form for the GTE we learned 87% of participants said they learned new information about U.S. soy characteristics that will be beneficial to their business. The conference covered global innovations, world soy supply and demand and the high-quality advantages of U.S. Soy and specialty grains through live panel discussions, 360-degree farm tours, personalized one-on-one meetings and a digital trade show in which South Dakota Soybean had a booth. Four geographically U.S. farmers provided crop updates straight from their farms. Dawn Scheier participated in a panel representing the Pacific Northwest. For more information on the Global Trade Exchange, visit [ussec.org](http://ussec.org)



## Global Aquaculture Alliance Virtual Conference

The Global Aquaculture Alliance’s Virtual Conference brought together people and businesses from numerous areas with an interest in aquaculture. The conference began with updates on shrimp and finfish production over the last several years as well as a short term outlook for the next 2-3 years. COVID-19 and its effect on seafood production and demand were a major topic as well, with many experts predicting a positive outlook in the next year or two. The conference wrapped up with discussions on aquaculture production techniques as well as the interaction of aquaculture and wild fisheries.

## Health Care Connect

SD Soybean attended Health Care Connect for our second year in a row. As the only agriculture related booth present, this event hosted a tremendous opportunity to connect with consumers through SD Soybean’s Hungry for Truth platform. Health Care Connect is a free public event. Those that attend, receive a t-shirt, a flu shot if desired, can give blood, have blood pressure taken, receive a free bike helmet, learn about nutrition, health services, skin cancer, be entertained and enjoy a free lunch, plus much more! Learn more about the event at [www.healthconnectsd.org](http://www.healthconnectsd.org)



## Ag Day at the Pavilion

SD Soybean, along with 10 other vendors, sponsored a booth for Ag Day at the Pavilion in Sioux Falls. SD Soybean’s booth included a bucket filled with harvest-ready soybean plants for children to see, touch, and break open pods. Attendees had the opportunity to talk about soybean harvest and see pictures of animals that eat soybeans as well as a display of products that people will find in their kitchen cupboards that contain soybeans like peanut butter, chocolate, and ranch dressing. Motor oil, lip balm, and make-up are also items that contain soybeans and were included in SD Soybean’s display. Many people are very surprised by how many products they use frequently that contain soybeans. Find more information about Ag Day at the Pavilion at [www.washingtonpavilion.org](http://www.washingtonpavilion.org)

## USDA Announces Appointments to USB

The U.S. Department of Agriculture announced the appointment of 19 members and one alternate to serve three-year terms on the United Soybean Board. Todd Hanten of Goodwin, SD was appointed and began a three year term in December 2020.

## Export of Soybean Meal and Soybeans to Asia Project by AGP/Soybean Research and Development Council

Three SD Soybean farmers were featured in a virtual trade tour as a part of the Export of Soybean Meal and Soybeans to Asia Project. Instead of trade teams traveling for the usual harvest crop tour, the project interviewed and filmed producers from Iowa, Minnesota, South Dakota and North Dakota with the goal to walk overseas customers through all different aspects of harvest and highlight the families and farms supplying them. The videos are featured in English and Chinese on Youtube and can be found on [sdsoybean.org](http://sdsoybean.org)

SOUTH DAKOTA SOYBEAN ASSOCIATION

## AGOUTLOOK 2020

Like many other events, South Dakota Soybean Association’s AgOutlook will look different this year. We will be publishing an AgOutlook Special Edition Magazine that includes sponsorship opportunities for everyone as well as featuring speakers on our website. This year’s theme is “Always Growing” and our wish is to maintain and increase relationships with our growers – join us for AgOutlook by reading our magazine and enjoying speaker information and more on our website. Additional event and sponsorship information is available at [www.sdsoybean.org](http://www.sdsoybean.org)

## African Trade Exchange

South Dakota Soybean Research and Promotion Council had a virtual booth at the African Trade Exchange sponsored by the United States Soybean Export Council. Many notable speakers presented from around the world. John Coumantaros, Chairman of the Flour Mills of Nigeria mentioned that he believes the United States will become a great trading partner with Nigeria.

Emily French of Consiliagra gave a positive global market outlook for soybeans and corn. Supplies have been tightening as demand increases. Dr. Andrew Muhammad, a trade expert, also shared positive news but questioned whether tight supplies might harm soy demand.

Ed Beaman, Chief Operating Officer at USSEC, spoke of the worldwide protein deficit. People in developing countries often choose soy because it is an important protein source at a low cost. Making an effort to serve those countries’ needs opens the door to future opportunities for U.S. farmers. As those countries’ economies develop, aquaculture and poultry industries become more prominent, requiring more soy. WISHH (World Initiative for Soy in Human Health) plays an important role in those countries.

Find more information on WISHH and the African Trade Exchange online at [www.wishh.org](http://www.wishh.org)



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**\$1.2 BILLION IN REVENUE**  
for South Dakota Soybean Farmers

## HIT THE ROAD WITH U.S. SOY: UNITED SOYBEAN BOARD RESEARCH CREATES NEW MARKETS FOR SOYBEANS

**ST. LOUIS** — Whether you're hitting the road for a run or a drive, you can now do so with soy-based rubber technology. U.S. soy is now available in Skechers footwear, thanks to their collaboration with The Goodyear Tire & Rubber Company — opening the door to a new market for U.S.-grown soybeans.

The United Soybean Board regularly collaborates with Goodyear on research to learn how to incorporate soy into its rubber technology. This research led to the discovery that soybean oil could not only improve tire flexibility across temperatures but also provide enhanced grip on road surfaces, making it an ideal choice for Goodyear's all-weather tire line. Building off Goodyear's discovery, Skechers utilized the same technology to deliver grip, stability and durability for select models of their running shoes, and incorporated the rubber into more styles throughout 2020.

"This collaboration is an example of two trusted brands coming together to create a high-tech product that will truly benefit our consumer," said Michael Greenberg, president of Skechers.

Today, there are more than 1,000 different soy-based products available, including everything from turf grass to machinery lubricants to asphalt. USB is committed to continuing its work to research, develop and expand new uses, including these tires and shoes, to build demand for U.S. soybean farmers.

"U.S. soybean growers are pleased to see this multiplier effect growing from their own collaboration with Goodyear through the soybean checkoff," said USB Director Ralph Lott II, a USB director and soybean farmer from New York. "USB worked with Goodyear to support their innovation with U.S. soy that is now available in four lines of Goodyear tires. We're enthusiastic that consumers have a new choice for performance as well as sustainability with U.S. soy in a range of Skechers footwear."

Once just a byproduct, soybean oil is now a lucrative value driver for farmers, being used as a sustainable, environmentally friendly and functional replacement for petroleum in industrial products. Now, both Goodyear tires and Skechers shoes utilize soybean oil. In fact, Goodyear recently announced it will be increasing its use of soybean oil in 2020 by 25%, with even loftier goals for inclusion by 2040.

*"Goodyear has always worked to create innovative products that provide consumers with high-performance tires, and now we're using that same ingenuity to enable consumers to wear high-performance shoes," said Christian Jurado, Goodyear's global director of licensed products.*

Skechers' soy-based shoes are available in stores and online now in the Skechers GOrun collection. The brand shared plans to expand the range of styles and colors available through 2020, including branching out into trail, work and safety footwear categories for men, women and children. All models utilizing the soybean oil will be labeled as having Goodyear Performance Outsoles.

Goodyear's soy-based tires are also available in the U.S. and Canada in several sizes and styles, including some of their top-performing tires: the Assurance® WeatherReady®, Eagle Exhilarate™, Eagle® Enforcer® All Weather® and the Assurance ComfortDrive®.

To learn more about these innovations and soy-based products, visit [soynewuses.org](http://soynewuses.org). ■

# growing ROI IS WHAT WE DO

Our mission is simple: to grow profit #Croppportunity for South Dakota soybean farmers. Last year, that came to \$1.2 billion in economic impact. And we're always seeking more uses and markets to help keep this number on the rise. And if you're wondering how much higher we can go ...

**JUST WATCH US**



**#CROPPORTUNITY**

### ABOUT UNITED SOYBEAN BOARD:

United Soybean Board's 78 volunteer farmer-directors work on behalf of all U.S. soybean farmers to achieve maximum value for their soy checkoff investments. These volunteers invest and leverage checkoff funds in programs and partnerships to drive soybean innovation beyond the bushel and increase preference for U.S. soy. That preference is based on U.S. soybean meal and oil quality and the sustainability of U.S. soybean farmers. As stipulated in the federal Soybean Promotion, Research and Consumer Information Act, the USDA Agricultural Marketing Service has oversight responsibilities for USB and the soy checkoff.



# SOYBEAN GROUPS SUPPORT FARMER WELL-BEING

Uncertainty is taking a toll on the mental health of farmers in the U.S.

With plummeting farm income, low commodity prices and high input costs, stress is front and center for farmers and farm families. Current challenges remind many of those faced in the 1980s. Add in a global pandemic and, for some, it may feel like the walls are closing in.

## FARMER STRESS IS GROWING

There's often a stigma around mental health, especially in the farming community. But mental health isn't just a mental illness. It includes our entire mental well-being: how we behave, think and feel. Mental health concerns include severe stress, pervasive worry, lack of sleep and loss of connection. When difficulties begin to impact daily life, they move toward more dangerous issues such as crippling anxiety, self-harm or even suicidal ideation.

"As farmers, we are all faced with varying levels of anxiety resulting from a host of concerns — the coronavirus pandemic, weather issues, China trade problems and other farm stressors," said Kevin Scott, soybean farmer from South Dakota and chair of the American Soybean Association C-19 Task Force.

According to the U.S. Centers for Disease Control and Prevention, research shows farmers experience comparatively higher levels of distress and depression than the general population, including a suicide rate that is 1.5 times higher than the national average. Additionally, they are often less likely to seek help for mental health

concerns. Adding to the stress, farming is one of the most dangerous occupations; in fact, it's comparable to mining as one of the leading most dangerous occupations.

Row crop farmers generally face many of their daily challenges and tasks solo. They often work long hours and may have limited social interaction throughout their days. Even though farmers may be chatting in the cab or talking shop at the diner, their daily conversations aren't usually about how they're coping with the stresses of farm life. With the dangerous work of farmers — long days, heavy equipment — mental health becomes even more high stakes.

"Stress levels have crept up out there in farm communities for some time now," said Scott. "But knowing there are compounding issues out there and knowing how to talk about them and work to reduce them are two different things."

## HELP IS AVAILABLE TO FARMERS

Farmer mental health is a top priority of organizations who support farmers. A thriving farm is nothing without a healthy farmer. ASA, your soy checkoff and state soybean affiliates want all farmers to be healthy and to understand help is always there when needed.

These organizations have teamed up to launch a joint campaign offering tips, warning signs and resources to help farmers take control of their mental health while facing new challenges related to COVID-19 in addition to farm hardships. Farmers are famously private. And yet, it's important they seek help for their emotional

struggles, even if it feels intimidating or nerve-wracking. Depression and anxiety are nothing to be ashamed of. In times of crisis, they can arise just like the common cold.

If you are a farmer experiencing thoughts of depression, anxiety, self-harm or suicide, tools and resources are available to help. Talk about it with those close to you, other farmers or trained professionals. When the problem is ignored, things can, and will, escalate.

## HOW FAMILIES AND COMMUNITIES CAN HELP

Often, identifying mental health difficulties includes family, friends and coworkers paying attention. There are warning signs and symptoms when someone is experiencing extreme stress, anxiety or feelings of depression. If you are close to a farmer and notice changes in their behavior, be willing to raise the issue. Resources are also available to help you initiate conversations with someone showing signs of troubling or deteriorating mental health.

Rural communities also help combat mental health difficulties among their farmers. Those within the community can help farmers by talking through concerns, difficulties and stresses. Sometimes, all a farmer needs is a friend to discuss what they are going through and point them to the right sources for help. There are various state-specific resources for communities to use.

Every farmer faces uncertainty. As the agriculture industry continues to face challenge on top of challenge, farmers benefit when mental health is openly talked about and understood. Farmers, you are not in this alone. Spend the time to take control of your mental well-being. If you or someone else is struggling, reach out for resources or a listening ear. ■

*I am sometimes embarrassed about the things that concern me. Simple mistakes, market moves, weather, and deciding who to do business with are so much harder now than when I was younger. Why? I don't understand. My family and I have so many blessings, including financial well-being and good health.*

*It is so tough to admit that I have stress, depression, and anxiety. Some farm friends have expressed confronting similar pressures. I had no clue until they mentioned it. There is comfort in knowing that I am not alone and can face those mutual challenges with someone I know personally. I encourage others to open up to family and friends. It is very hard, but it is the first step in the healing process.*

*- Todd Hanten  
SD Farmer and SDSRPC Board Director*



## WHERE TO GET HELP:

■ **Farm Aid Hotline 800-327-6243**

■ **US Department of Health & Human Services:**

- [www.mentalhealth.gov](http://www.mentalhealth.gov)
- [www.samhsa.gov/find-help/national-helpline](http://www.samhsa.gov/find-help/national-helpline)

■ **South Dakota Department of Social Services:**

- [dss.sd.gov](http://dss.sd.gov)

■ **Farm and Rural Stress Hotline - Avera:**

- [www.avera.org/services/behavioral-health/farmer-stress-hotline](http://www.avera.org/services/behavioral-health/farmer-stress-hotline)

■ **National Farmers Union Farm Crisis Center:**

- [www.farmcrisis.nfu.org](http://www.farmcrisis.nfu.org)

■ **Mental Health America - Mental Health Screening:**

- [screening.mhanational.org/screening-tools](http://screening.mhanational.org/screening-tools)

■ **SDSU Extension**

*For mental health questions and additional resources, contact:*

- **Andrea Bjornestad**, 605-688-5125, SDSU Extension Mental Health Specialist. *For information about Mental Health First Aid Training, contact:*
- **Lorna Saboe-Wounded Head**, 605-782-3290, SDSU Extension Family Resource Management Field Specialist; or
- **Heather Gessner**, 605-782-3290, SDSU Extension Livestock Business Management Field Specialist.

■ If it's an emergency, **Call 9-1-1**

■ For **FirstLink** Help Line, **Call 2-1-1**

■ **National Suicide Prevention Hotline** (available 24 hours/day), **1-800-273-8255 | Text HOME to 741741**

# SOYBEAN-BASED ASPHALT SEALANT APPLIED ON SIOUX FALLS STREETS



As all South Dakotans know, road maintenance is a never ending challenge. South Dakota roads see some of the most extreme weather in the nation, from freezing winters to sweltering summers, and asphalt can only withstand so much wear before it needs repairs. Thanks to a rural/city collaboration and research backed by the South Dakota Soybean Research and Promotion Council, a new soybean-based sealant was applied on streets in Sioux Falls.

The City of Sioux Falls and the South Dakota Soybean Checkoff partnered to apply a soybean-based asphalt sealant to a portion of 57th Street and on streets in a residential neighborhood on the east side of Sioux Falls.

City officials are eager to test the new product and see what positive changes it could bring for Sioux Falls. “Our street network is our largest single asset in our city.” Said Mayor Paul TenHaken. “We’re looking for new innovative ways to provide sustainable and economically friendly solutions to maintaining our infrastructure in our cities and also our environment.”

When applied to the surface of an asphalt road, RePlay, a BARGEN Inc. product, uses soybean oil as a binding agent to add flexibility, durability, grip, and longevity to the road. Previous applications have increased the life of asphalt up to seven years. Additionally, as a bio-based product, it is a safer and cleaner alternative to other asphalt sealants.

Another win is for people living along the streets being treated. Unlike oil-based preservatives, RePlay actually smells good. “While that’s a small thing, it is nice. It’s nice to sit out here and smell that citrus smell which actually smells good,” said Mayor TenHaken.

*“The goal is to reduce maintenance and repair costs. It’s a natural replacement for petroleum alternatives, reduces our carbon footprint, helps reduce taxpayer costs and inconveniences of road repair while using the renewable, sustainable soybean produced by farmers,” says Jerry Schmitz, SD Soybean Executive Director.*

Development of new uses of soybeans creates a larger demand for high-quality soybeans grown in South Dakota. The SD Soybean Checkoff along with the United Soybean Board (USB) are dedicated to the research and development of these new uses and markets for farmers.

Full press release and video of the application are available at [sdsoybean.org](http://sdsoybean.org) ■



# RURAL/CITY PARTNERSHIPS ADD VALUE TO COMMUNITIES

There are two seasons in South Dakota; winter and road construction. We have all followed pace cars, been stuck in traffic, or followed detours as construction crews complete the necessary repairs to keep our roads safe and drivable. What if we could extend the life of the roads, streets, bridges, driveways, parking lots and sidewalks, so repairs are not required as often, saving taxpayers and homeowners time, money and inconvenience? And what if farmers benefited financially from the effort of extending roadway life? It all sounds like a fairytale but has, in fact, become a reality through a partnership between soybean checkoff and industry partners.

Soybean farmers are bringing the creativity and innovation that makes them successful on the farm to the marketplace. In their quest to create new uses for soybeans, they realized one of the possibilities for a new use was beneath them. Soy can provide excellent adhesion and serve as a sealant against moisture. Harness those attributes, and you can extend the life of asphalt and concrete. Throw in the environmental benefits of using soy over petroleum or chemical agents, and you have a fairytale solution for protecting roads, saving money, and financially benefiting farmers and their communities.

After several successful tests, the soy preservatives have been made commercially available. Sioux Falls has applied a soy preservative to streets in a residential neighborhood and a busy commercial area, but this only the beginning for South Dakota. Soy preservatives could also help to protect township, county, and state roads and bridges. They could be used on parking lots of city, county and state buildings. Imagine the benefit it could bring to roads in the Black Hills or the parking lot at Mount Rushmore.

A number of South Dakota farmers are also Township board members, County Commissioners, and State Legislators. Please discuss the benefits that soy preservatives could provide for the communities you represent. Together, we can make this fairytale become a reality throughout the state of South Dakota. ■

*“We’re using a product made from soybeans grown just a few miles from here that’s used to help extend the life of roads. It’s helping soybean prices and helping soybean farmers create a demand for the soybean oil that is produced.”*

*- David Iverson  
United Soybean Board Secretary*





# THE VOICE OF AG IN UNISON

In addition to a global pandemic and a hotly-contested Presidential election, the year 2020 will be remembered for another milestone: the year South Dakota agricultural organizations came together to tell a unified story.

The media reports that followed the outbreak of COVID-19 were not positive for agriculture. Stories of dairies dumping milk when schools and restaurants closed, animals euthanized for lack of processing capability, and store shelves that were void of some food products scared consumers. Independent surveys noted that 75-80% of consumers believed the pandemic exposed a fundamental flaw in the U.S. food system that needed to be addressed.

And yet, as spring turned to summer, you saw agriculture at work across South Dakota. The sight of cattle grazing and planters crossing the fields seemed in direct contrast to what we were hearing in the news. The fact is there was a ripple

in the food chain when the pandemic reached America. The chain wasn't broken; it was interrupted. But let's face it, that's a hard story to tell to the average shopper who struggles with understanding that milk doesn't originate from the cooler in the back of the store. It was time to change the narrative.

That narrative started to change when a couple ag groups saw an opportunity to get out the message that agriculture is still growing strong. They called a meeting of agricultural stakeholders: commodity groups, financial institutions, conservation organizations, educators, government agencies, and advocacy groups. Those stakeholders formed a task force to hire an advertising agency from South Dakota with the goal of getting the positive message out to the consumer.

As with any new endeavor, the effort took longer than expected to launch. How could all these entities agree on messages and images that tell the all-encompassing story of the "web" of agriculture working together: growers, processors, truckers, grocery stores, food banks, restaurants – the thousands of people who bring food from the field to the table and make South Dakota great? How could we start to get the consumer to understand how social, economic and natural factors disrupt one sector, causing everyone to feel the ripple effect?

It was possible and it's happening. The Unified Ag Story will premier early in 2021 with a foundational video, website, and television commercials.

So stay tuned – South Dakota agriculture is unified and has a dynamic story to share. And we'll tell it together. ■

~ Don Norton,  
Chairman of the Uniting Ag Media Campaign

# NEXT LEVEL SOYBEAN PRECISION

In the relentless pursuit of increased farm efficiency and profitability, Mustang Seeds will be piloting an innovative crop management technology designed specifically for soybeans. Optimus was developed by Mustang Seeds' sister company GDM and will be used on a pilot scale in 2021.

"Optimus is a recommendation engine that GDM is developing since 2019 and currently being tested in Argentina and Brazil, doing variable rate population prescriptions on soybeans," says Mustang Seeds CEO Terry Schultz. "Optimus does variable rate populations, variable rate nutrition recommendations for soybeans and also, if growers have dual hybrid planter, it will help with recommendations for dual varieties on soybeans as well."

In addition to using the Optimus program in South America, GDM is developing a breeding program since more than a decade in US.

"We are going to take that data to make recommendations for our piloted Mustang growers in 2021," Schultz says.

Variable rate technology is familiar to many growers, but to this point, most efforts have focused on corn production. Optimus is a recommendation engine built for soybeans that will deliver variable rate prescriptions for each environment.

"There are a lot of farmers using variable rate for corn planting, but it's rare that you hear of someone using it for soybean planting," explains Mustang Seeds Precision Ag Specialist Grant Schmiege. "It's interesting to look at variable rate on soybeans because it's simply never been done around here. That's why GDM is really excited for us to be testing Optimus in our area because it's going to show results that we've never seen before."

While Mustang Seeds won't know how well Optimus performs until next year, Schmiege is convinced that results achieved in other areas can be duplicated in the Upper Midwest.

"I think it's going to be huge," Schmiege says. "Just looking at the data we've seen and the trials we're going to have next summer, I think we're going to see some awesome results."

Schultz says the value in variable rate technology is to place the right amount of seed and nutrients in the right spot, which creates efficiency for the farmer. But variable rate technology can also be a tool for disease management by controlling plant populations. Growers with multi-variety capable planters can also manage disease pressures by placing resistant varieties in troublesome areas.

"The majority of farmers have the capability to do the variable rate seeding and nutrients," Schultz says. "Growers can manage diseases like white mold by lowering plant populations while farmers with iron deficiency chlorosis can manage those spots by increasing populations."

Schultz says the company will be working with piloted growers as well as Mustang Seed growers who use variable rate to compare how the new proprietary GDM technology works with farmers' operating systems.

Whether its exclusive genetics or proprietary precision ag programs like Optimus, Schultz says those tools brought about through Mustang Seeds partnership with GDM will help Mustang Seeds growers expand profits and the efficiencies on their farms.

"Mustang is continuing to innovate, whether it's in the genetic platform or precision ag platform, we're keeping our customer's best interest in mind," Schultz says. "As long as our growers and customers are profitable, that in turn is better for us. We're keeping our customers in mind whether its traits, genetics, precision ag, or keeping efficiency on the farm."



To learn more about what Mustang Seeds has to offer, visit [www.mustangseeds.com](http://www.mustangseeds.com).

## UNITING AG SPONSORS

- SD Soil Health Coalition
- SD Soybean
- SD Ag Foundation
- SD Dept of Tourism
- Midwest Dairy
- SD Wheat Commission
- SD Dept of Agriculture
- Sioux Falls Chamber of Commerce
- SD Sheep Growers Association
- SD No-Till Association
- SD Stockgrowers Association
- SD Farm Bureau Federation
- Farm Families
- SD Grassland Coalition
- SD Cattleman's Association
- Central Plains Dairy Foundation
- SD Association of Conservation Districts
- SD Agricultural & Rural Leadership
- SD Farmers Union
- SD Pork Producers Council
- SDSU
- Elevate Rapid City
- SD Poultry Industry Association
- SD Association of Cooperatives
- SD Dept of Natural Resources
- SD Retailers Association





# IMPORTANCE OF PRECISION TECHNOLOGY

## RATE CONTROL

Precision agriculture allows farmers to be more productive, environmentally and economically sustainable, all while utilizing fewer inputs and less labor.

Farmers have access to a large suite of technologies that improve efficiency and productivity. Application rate control was one of the earliest advancements in precision agriculture. It gave farmers the ability to dynamically adjust and control application rates for chemicals and fertilizer based on speed. Rate control was a monumental innovation that increased sprayer efficacy. Today, rate control technology recognizes and compensates for machine turning and adjusts the application rate across the boom or toolbar width to ensure uniform and precise application.

Introducing Global Positioning Systems (GPS) to rate control increased the ability for precision solutions

based on immediate location in addition to ground speed. Variable-rate application helps farmers pinpoint fertility applications to enhance highly productive areas in their fields. It gives them the ability to manage input costs to maximize productivity and profits. GPS technology allows Section control to recognize areas of the field that have already been covered or identified as non-application zones to maximize efficiency, reduce inputs, and protect sensitive areas. Operators can use coverage maps from previous applications to identify areas that do not require treatment. Doing so maximizes productivity and gives the operator confidence in their application, especially around waterways and ditches.

## MACHINE CONTROL

GPS based guidance is utilized worldwide to minimize pass to pass overlap and significantly reduce operator fatigue.

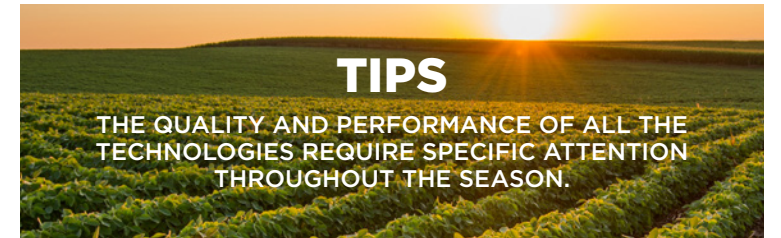


Guidance technologies have advanced to combine GPS, visual corrections, and radar-sensors. Non-contact stereo vision cameras use guidance controllers and non-contact radar sensors to steer equipment in row crops with sub-inch accuracy. If rows disappear due to washouts or other factors, the systems will automatically and seamlessly transition between GPS and vision-based guidance. The systems can also provide hillside compensation and functions to compensate for slopes reducing crop damage from manual steering and reducing operator fatigue.

## CONNECTIVITY, DATA, AND PRODUCTIVITY TOOLS

Wireless data connectivity is available for growers and retail applicators. Features offered include file transfer of applied and variable rate prescription maps, tools for tracking fleets of machines and assets, machine analytics that provide information on a series of operational metrics, and service/support. Some systems enable sharing actual job data such that multiple machines can enter and work together on performing a specific job. These machines can be working simultaneously or separately, depending on what suits the operation's needs. Retailers utilizing these systems often experience a dramatic increase in flexibility and productivity. ■

CONTENT ABOVE PROVIDED BY TRAVIS BUNDE, RAVEN INDUSTRIES



**TIPS**  
THE QUALITY AND PERFORMANCE OF ALL THE TECHNOLOGIES REQUIRE SPECIFIC ATTENTION THROUGHOUT THE SEASON.

- 1** **STAY CURRENT WITH ALL NEW SOFTWARE RELEASES AND UPDATES**  
*Staying up to date on your field computer and controllers with the latest software version will ensure all systems are compatible and functioning at their highest level.*
- 2** **PERFORM CALIBRATION ACTIVITIES THROUGHOUT THE SEASON.**
- 3** **TAKE TIME TO SETUP AND CONFIGURE THE OPERATION OR JOB SCREEN**  
*This ensures the applicable information is presented in a way that is easily consumed, so operators can focus on the job.*





# Hungry for Truth

Hungry for Truth is an initiative from South Dakota Soybean Research & Promotion Council, the soybean checkoff organization, designed to open conversations about food between South Dakotans and the farmers who grow it. We're putting it all on the table to have open, honest conversations about how our food is raised and its safety.

Healthy eating begins on the farm where farmers raise nutritious crops by protecting them from diseases, pests and harsh weather from planting to harvest. Healthy eating continues in your home with proper storage, handling, preparation and cooking. Explore our site to find healthy eating and food safety tips, delicious recipes to share with your family and meet a few local farmers along the way!

Follow along with Hungry for Truth at [hungryfortruthsd.com](http://hungryfortruthsd.com) or on our social media @HungryforTruthSD

Here are a couple recipes from our farmers to try this holiday season!



## NUTMEG/RUM STICKS COOKIES

### COOKIE

- 1 cup butter creamed
- 3/4 cup sugar
- 1 egg blended together
- 1 teaspoon vanilla
- 3 teaspoon rum
- 3 cups flour
- 1 teaspoon nutmeg
- 1/4 teaspoon salt

Cream butter, gradually add sugar and beat until light and fluffy. Then add the egg, vanilla and rum. Fold in flour nutmeg and salt. Roll dough on sugar board to about 5/8 inch roll and then cut in 2" pieces. (So the end result will look like a log) Bake at 350 degrees in a preheated oven for 10 to 12 minutes. Let the cookies cool before frosting.

### FROSTING

- 1/3 cup butter creamed
- 1 teaspoon vanilla
- 2 cups powdered sugar
- 5 teaspoon Rum

Beat together all ingredients until smooth. For thinner or thicker frosting add more or less Rum. The strong rum taste will go away after the frosting dries.



Dawn Scheier is the Treasurer of the SD Soybean Research and Promotion Council and currently farms full time with her husband Pat in Salem, SD, where they raise corn and soybeans.



David Struck is a fourth-generation soybean, corn and wheat grower who farms with his wife, Brenda, son Brady and dad, Duane. Dave serves as the Vice Chairman of the SD Soybean Research and Promotion Council.

## STUFFING

- 1 lb. roll pork sausage
- 3/4 c. celery (chopped fine)
- 3/4 c. onion (chopped fine)
- 1 (10 3/4 oz.) can cream of celery soup
- 1 soup can milk
- 2 tsp. Poultry seasoning (without salt)
- 3/4 tsp. Sage
- 12 slices day old bread (6 cups)

Saute sausage, onion, and celery until sausage is light brown and vegetables are tender. Add soup, milk and spices. Heat to mix. Pour over cubed bread, mix thoroughly. Bake in a 325° oven in a 2 quart casserole, one hour or until light brown.



## DIY SOY CANDLE

Candles are a classic Christmas gift. This year, try elevating your gift-giving with DIY soybean candles. The benefits of soy candles are something of a gift themselves too. Soy candles last longer, carry scent stronger and burn cleaner with less soot. Even better, they're easy to make at home!

### WHAT YOU'LL NEED:

- Glass jar
- Soy wax flakes
- Essential oils
- Candle wicks
- Wooden skewer
- Double-sided tape

### HOW TO:

1. Measure a piece of wick that's 4 inches taller than your glass jar. Tie a knot on one end of the wick. Place a piece of double-sided tape at the bottom of the glass jar and then stick the knot to the tape. Use the wooden skewer to push the knot firmly onto the tape.
2. Melt the soy wax in a saucepan on medium heat or melt the wax in a microwave-safe container in 1-minute intervals in the microwave. Stir occasionally until smooth and completely melted.
3. Take the wax off the heat and let cool for 5 minutes. Once the wax has cooled, mix in your preferred essential oil and stir. Add 4 drops per cup of melted wax.
4. Pour the wax into your glass container, leaving an inch of room at the top.
5. Wrap the wick around a wooden skewer and rest the skewer horizontally across the glass jar to keep the wick centered while the wax dries.
6. Once the wax has cooled completely, trim the wick so only an inch remains at the top.

Yes, it's really that easy! You can get creative by personalizing the glass jars with fun labels, ribbons, and other decorations to make this gift perfect for your loved ones. Not only that, this gift is guaranteed to have so much more love and thought put into it than any candle you can buy from the store. Happy candle making!



# SOUTH DAKOTA CHECKOFF FUNDING

## Helps WISHH Kickstart Sales for AGP Soybean Meal

**A** Cambodian feed mill purchased its first 12,900 metric tons of AGP soybean meal this year through the work of the ASA's World Initiative for Soy in Human Health (WISHH) Program. The sale is an example of what SDSRPC District 4 Director Craig Converse describes as, "WISHH starts from scratch to build new markets for our soybeans."

"We are working with countries that don't import our soybeans at all, and it's far more complicated than just going to find a buyer in that country," says Converse who serves on the WISHH Program Committee and traveled with WISHH to Cambodia and Myanmar in 2019.

"WISHH has to do everything from in-country market assessments to education on the importance of protein in human and animal diets to how to mix proper feed rations with soybeans rather than kitchen scraps.

"It's a long-term process, and we have our success stories," he adds. "WISHH is well positioned for more success."

"We are building the system to connect trade," says District 3 Director Dawn Scheier who also volunteers her time on the WISHH Program Committee alongside soybean growers from across the nation. "Building market systems take years. Just look at China. We must always be exploring new markets.

"Over the past seven years, WISHH leveraged every \$1 of state checkoff funding it received into \$6 of outside funding to develop new markets for soy in feed and food," Scheier adds. "South Dakota soybean growers get a measurable return on their checkoff investment in WISHH."

SDSRPC was one of the state checkoffs that created WISHH two decades ago. This year, 23 Qualified State Soybean Boards as well as the United Soybean Board supported WISHH. Scheier emphasizes that these checkoff resources are vital so WISHH's team has the required leverage to capture outside funding.

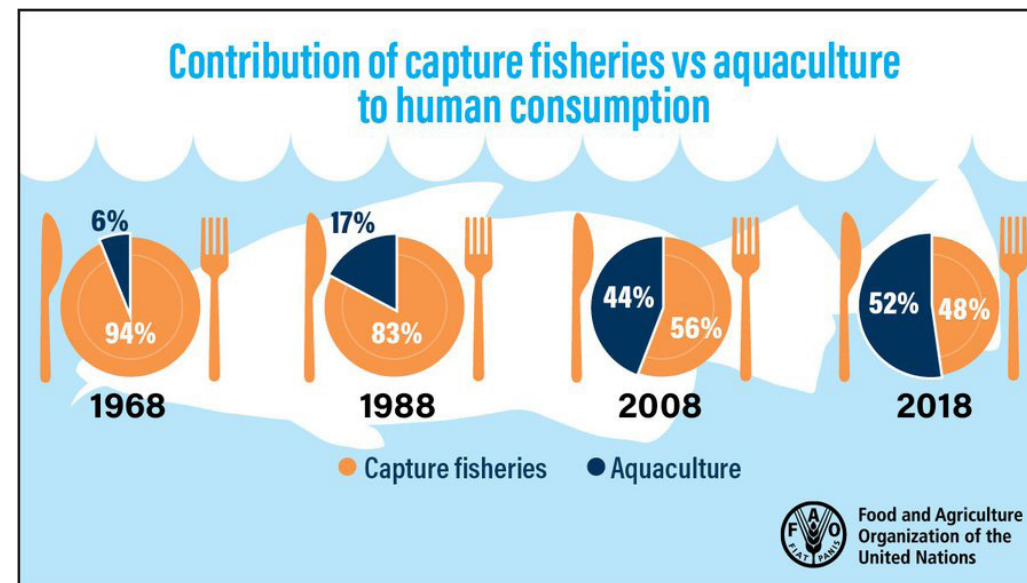
Checkoff funds contributed to WISHH's ability to work with multiple U.S. universities as well as Cambodian strategic partners to create the extensive network and plans for the five-year USDA-funded Commercialization of Aquaculture for Sustainability Trade (CAST)-Cambodia project. Cambodia has approximately 46,000 aquaculturalists, as well as 895 community ponds and 309 fish hatcheries. CAST's collaboration is what drove demand for the AGP soybean meal purchase from the feed mill that is introducing soy-based feeds to fish farmers and feed sellers who are part of the CAST project.

Mike McCranie, who represents South Dakota soybean growers on the United Soybean Board, joined other U.S. soybean growers to visit the CAST project in January 2020. "I saw how WISHH's work was laid out to achieve goals," McCranie says. "It's like spring planting. You have to lay down the seed and fertilizer. I am pleased to see it starting to grow."

The establishment and development of an aquaculture association is foundational to WISHH's long-term strategy. Launched in September, the Cambodian Aquaculturist Association (CAA)'s membership ranks swelled to 163 in its first 45 days. Cambodia's Minister of Agriculture, Forestry and Fisheries presided over the inaugural CAA meeting. He stressed CAA's importance to the Ministry's initiatives to grow the quantity and quality of Cambodia's aquaculture industry's production.

CAA members also showcased their feed and other products in September at their first trade show, creating new linkages between buyers and sellers. "The event raised awareness of how important the aquaculture industry is and showed unity that it is recognized and supported," says the CAA board member who is an ADM customer and a distributor of fish feeds made with U.S. soy.

Aquaculture is one of the big trends that WISHH's strategies cultivate in Africa as well as Asia. The U.N.'s Food and Agriculture Organization (FAO) found a 527%



increase in global aquaculture production from 1990 to 2018. The FAO "State of the World's Fisheries and Aquaculture 2020" (SOFIA) report says a priority needs to be further developing aquaculture in Africa and in other regions where population growth will challenge food systems the most.

WISHH is ahead of this trend. In 2020, WISHH worked on aquaculture in eight African countries, reaching two new countries and laying the foundation for more in 2021. Despite COVID-19 challenges, WISHH made progress on its strategy to improve local fish feed production and processing in Africa by having 15 strategic partners from Nigeria, Ghana, Tanzania and Togo trained virtually on improved feed production. WISHH used funding from USDA's Foreign Market Development and Agricultural Trade Promotion Programs for the training.

WISHH is also leveraging checkoff dollars with USDA funding to send its first team of experts to Kazakhstan and Uzbekistan where they will conduct market assessments in late 2020. Based in Asia, their expertise covers market strategies, transportation, economics, poultry, and livestock, as well as social and cultural factors. After analyzing the assessment findings, WISHH will determine whether it should launch further activities in these frontier markets that could enter the U.S. soy export pipeline.

"WISHH is the frontline entity to go into markets that are emerging, small markets. Some don't exist at all," says McCranie. "WISHH lays the groundwork, and once those markets have started to develop then it passes on these opportunities to the U.S. Soybean Export Council."

Photo caption: A WISHH strategic partner purchased 12,900 metric tons of AGP soybean meal in 2020 to manufacture floating fish feed that WISHH's aquaculture project in Cambodia is using to demonstrate the benefits of high-quality fish feeds made with U.S. soy. Farmers report the feed makes the fish grow at unprecedented rates. ■



Copperhead Ag products provide superior control and advanced performance for increased yields in every type of soil.

# CLOSE IN ON BIGGER YIELDS

## AG INNOVATOR

KEVIN BERG, Copperhead Agricultural Products

By Amanda Radke

Emery native Kevin Berg was working in his machine shop one day when his neighbors Dave and Todd Terveen stopped in with a new idea. The Terveens farm in the area and had brainstormed a solution for a common corn planting problem that they thought Kevin could help them create. “The Terveens and I worked together in 2008 to create a new type of corn planter attachment, the Furrow Cruiser spiked closing wheel, that would increase farmers’ bottom lines,” says Kevin, who now owns and operates Copperhead Ag with the Terveens. “With our spiked closing wheels, we can achieve better seed to soil contact with more uniform emergence for corn and soybeans.”

Kevin leaned on his mechanical engineer skills he obtained at the South Dakota School of Mines and Technology to develop and manufacture the product, and it didn’t take long for farmers to take notice of this practical solution to their planting needs. In a recent trial study of conventional tillage, the Furrow Cruiser increased early emergence by 10% compared to standard closing wheels with a 5% yield increase. In contrast to purchasing new equipment, he says this simple addition to existing machinery maximizes the field’s potential without breaking the bank. “In these tough economic times farmers created by low commodity prices, we’ve happened to have our two best years yet,” shares Kevin. “Farmers need to add value to their harvest but are looking to improve upon existing equipment instead of buying new to keep inputs as low as possible.”

In addition to the closing wheels, Copperhead Ag, located in Hartford, SD, sells gauge wheels, arm repair kits, closing wheel bracket repair kits, mud scrapers and concaves for combines. The nationwide company is continually seeking to expand, and on the manufacturing side of the business — First Manufacturing — they are

constantly seeking the next big idea that could assist area farmers. “Growing up on a farm in Emery, we were always fixing equipment and working on machinery,” says Kevin. “I’ve always been mechanically inclined, and I’m happy to have a career where I can serve the farming community by looking at parts and figuring out how to make them better and cheaper.” In recent years, Kevin has started farming himself, and he says it’s nice to test-drive his products firsthand. “It’s nice to be able to work with our products and make sure they are working as they are supposed to,” explains Kevin. “It’s been a dream of mine to farm, and it’s very fulfilling to see your own products in action.”

For Kevin, the Terveens and the entire crew at Copperhead Ag and First Manufacturing, the goal is to serve their customers and to continue to develop and add new products that complement each other. “We want to create products that enhance a farmer’s profitability,” shares Kevin. “Every decision we make is to improve upon that and make farming easier for our customers.”



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ADVERTORIAL





# SOIL HEALTH PRACTICES REVIVE SALINITY AREAS REGENERATING DEAD ZONES

By Lura Roti for South Dakota Soil Health Coalition

**W**hite desert is how Frederick farmer, Don Nickelson, used to describe the saline patches on his land. “Nothing would grow there,” says the crop and cattle producer.

Hitchcock farmer, Scott Hamilton understands. Saline patches began showing up on his land in the 1990s. “If nothing will grow, not even (the weed) kochia, you know the land is in pretty tough shape.”

Although their approaches vary, both farmers discovered by implementing soil health practices, they were able to restore life to these former dead zones.

## GEOLOGICAL ROOTS

Although landscape, soil type and climate may differ, the root of salinity issues on the land today stem from a common source that dates back to geology 65 to 145 million years ago, explains Cheryl Reese, South Dakota State University Senior Lecturer in the Department of Agronomy, Horticulture and Plant Science. “Most of the interior of the United States, from Texas to North Dakota - including South Dakota - was covered by a shallow, in-land, sea.” She explains, shale a type of sedimentary rock, was deposited at the bottom of this sea for millions of years. “The shale contains salts because it was deposited in a marine environment,” Reese says.

What remains today of this prehistoric sea are those salty shale deposits. The salts in this deposit are highly soluble in water. As the groundwater, water tables rise, due to increased precipitation, salts from this old marine deposit can seep to the soil surface and form white patches on the

surface of fields and pastures, often referred to as saline seeps.

The location of a saline seep depends on a number of factors. These factors include how close the shale deposit is to the soil’s surface and how the water moves under the surface of the land. For example, if water percolating through the soil meets an impermeable soil horizon (layer) then water will be forced to flow along this border and potentially form a saline seep on the side of a hill.

## LET MOTHER NATURE BE YOUR GUIDE

Sometimes the solution is right in front of you. This was the case for Scott Hamilton. For years, he’d been trying to get crops to grow on some saline patches. But instead of progress, the patches increased in size. Then, one day he looked across the road. Just a few yards away, on pastureland, he noticed quite a few forages growing.

“I thought, why am I fighting this? If plants are growing on that side of the road, why aren’t they growing on this side of the road.”

He realized, that instead of working to get specific crops to grow, he would experiment with a variety of forages to see what would grow in saline soils. “In native prairie, there are up to 300 different species of plants in one spot,” he says. “So, if one plant can’t grow, another one does. That is what I wanted - to put together a blend that is diverse enough to work all the time.”

Working with Millborn Seeds he began trying different blends and ratios until they came up with a diverse blend that worked: tall wheatgrass, AC Saltlander green

wheatgrass, Garrison creeping foxtail, intermediate wheat grass, and salinity max alfalfa.

In fact, the blend works so well, the company named it “The Hamilton.”

“Neighbors would stop and ask me what I was doing. I explained it to them and told them to call Millborn and tell them you want The Hamilton,” he says.

Today, instead of trying to get corn or soybeans to grow, Hamilton raises about 3 to 3.5 tons of forage per acre for his cattle.

“By not fighting nature, I am not spending money on those areas,” Hamilton says. “Sure, if I try and convert it back to crop production, it would probably work for a little while, but it would go back to saline after a while. Since I can’t farm the saline or salt spots most of the time anyway. Why fight it?”

Contact your local seed dealer or technical representative to create a mix customized for your area, management needs and goals.

## BACKED BY SCIENCE

Growing a diverse mix of salt tolerant perennial grasses on saline areas is a proven solution, explains Reese.

“It goes back to plant roots and transpiration (water movement through the plant),” she says. “The roots of perennial grasses go down very deep and can potentially lower the ground water table which is the source of the salts coming to the surface when the ground is not covered with vegetation.”

She adds, the longer there is a living root on soils susceptible to saline issues, the better. “That is why planting cover crops after winter wheat or spring wheat is a good idea. It provides a source of organic acids and carbon for the soil microbial population and may potentially keep the water table lower.”

## LET THE COWS DO THE WORK

After wracking his brain to try and fix the “white deserts” on his land, crop and cattle producer Don Nickelson decided to put his cattle to work for him.

Four years ago, he began bale grazing the saline patches on his land. An idea that came to him after attending SDSHC Soil Health School.

“I had limited time and limited resources. But I learned, keeping things covered is one of the principles of soil health. This ground was uncovered. It was too wet in the spring to do anything with it. And come summer, it was cracked and looked like a white desert.”

He stacked bales of hay close together - only 10 to 12-feet apart. “Having livestock, I knew a lot of things grow in barn lots once you pull the cows. I knew the cows would be standing around trampling the hay and manure into the ground. I knew something would grow without me having to do too much work.”

Nickelson was right. Within a season, seeds brought in with the bales began to grow. “Some people think of it as weeds growing. I only call it a weed if it is competing with something else,” he says. “I think of it like a scab. It looks kind of ugly, but that’s how healing starts.”

Along the edges of the saline patches, he began no-till drilling some salt tolerant grasses, like Garrison creeping foxtail. “I am amazed how much it has changed in the last few years. They are not

100 percent. And it never will be my highest producing areas of the field. I will always treat it as forage grass and utilize it for my livestock.”

He likens the process of converting white deserts to lush pasture to rescuing a calf during calving season. “It’s like when you save a calf that otherwise would have died - that ground was essentially dead - and I was able to save it by getting some plants growing on it.”

To learn more about how soil health practices can improve your land and connect with soil health technicians or producers in your area willing to mentor, visit [www.sdssoilhealthcoalition.org](http://www.sdssoilhealthcoalition.org). ■

## WHAT’S THE DIFFERENCE BETWEEN A SALINE PATCH AND AN ALKALINE PATCH?

Nothing. Although in the past, areas where salts are at the surface have been commonly referred to as alkaline patches, according to Cheryl Reese, some folks use these two descriptors interchangeably.

However, the South Dakota State University Senior Lecturer in the Department of Agronomy, Horticulture and Plant Science says there is a difference between the types of salts in the soil. The terms used are saline and / or sodic’ soils.

“Saline means salt concentrations, in general, are too high. If a landowner requests a soil test for salinity, total calcium, magnesium and sodium-based salts are measured. A separate test is completed to determine sodium presence.”

## WHY IS THIS IMPORTANT?

Because high salt concentration (salinity) prevents seed germination for most common row crops.

Sodic soils or soils with high sodium salts add another problem. Soils high in sodium are prone to dispersion at the surface; the surface of the soil looks like concrete and is completely sealed up Reese explains. “Once a soil surface is dispersed, erosion problems occur during precipitation events. The results are tons of soil are lost, leading to degradation of the land and silting in of local streams and rivers.”



PHOTO COURTESY OF SDSU

Cheryl Reese, South Dakota State University Senior Lecturer in the Department of Agronomy, Horticulture and Plant Science (far left).



PHOTO COURTESY OF USDA-NRCS SD

Frederick crop and cattle producer, Don Nickelson, put his cattle to work helping him repair saline patches on his land. Four years ago, he began bale grazing the saline patches. An idea that came to him after attending SDSHC Soil Health School.



Using native prairie as a guide, Hitchcock farmer, Scott Hamilton worked with a grass seed company to develop a blend of perennial grasses that would thrive on saline patches. Today, what was once unproductive cropland, is now yielding more than 3 tons of forage each year for his cattle to graze.



After wracking his brain to try and fix the "white deserts" on his land, crop and cattle producer Don Nickelson decided to put his cattle to work for him. Four years ago, he began bale grazing the saline patches on his land. An idea that came to him after attending SDSHC Soil Health School. This is a photo of a former white desert.



Using native prairie as a guide, Hitchcock farmer, Scott Hamilton worked with a grass seed company to develop a blend of perennial grasses that would thrive on saline patches. This photo shows the land the first year he worked to get a perennial grass blend to establish.

**THE HAMILTON MIX**

- Tall Wheatgrass ..... 25%
- AC Saltlander Wheatgrass ..... 20%
- Garrison Creeping Foxtail ..... 20%
- Intermediate Wheatgrass ..... 20%
- SalinityMax™ Alfalfa ..... 15%

*These amounts are based on percentage of full seeding rate and are included as an example. Contact your local seed dealer or technical representative to create a mix customized for your area, management needs and goals.*

Visit [www.sdsoybean.org](http://www.sdsoybean.org) and complete our Farming Practices/Soil Health Survey for the chance to win a **\$250 VISA GIFT CARD!**

# Helping people help the land.

The Natural Resources Conservation Service (NRCS) helps American farmers, ranchers, and forest landowners make conservation work for them. Through the system of more than 300 practices we promote, conservation planning helps people to improve production, reduce input costs, and conserve natural resources for the future. We also provide financial resources through the Farm Bill to help with the cost of getting conservation on the ground.



## Giving advice & solutions

We provide free, **one-on-one, personalized advice** on the best solutions to meet the unique conservation and business goals of those who grow our nation's food and fiber.



## Providing support backed by science & research

We generate, manage, and share the data, the research and the proven standards that enable partners and policymakers to make decisions informed by objective, reliable science.



## Keeping working lands working

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## CONTROLLING WEEDS IN SOUTH DAKOTA SOYBEANS

By Barb Baylor Anderson

**H**erbicide-resistant and difficult-to-control weeds cause yield loss and significant management costs to South Dakota soybean farmers. That is why the South Dakota Soybean Research and Promotion Council has invested checkoff funds over the years in evaluating the best options for weed control. More issues are developing with use of glyphosate, dicamba and other chemistries.

Weed specialists helped establish demonstration plots the last couple of years in three areas of South Dakota to highlight today's best herbicide options and application timings for resistant weed control in soybeans. They also assessed alternative herbicide treatments on glyphosate-resistant waterhemp by exploring more modes of action. Researchers continue assessment of the agronomic traits offered by Xtend and Enlist soybean varieties and also are exploring simulated drift on non-dicamba soybeans to determine any effects on yield.

"What we have learned for resistant waterhemp is that you should apply a preemergence herbicide and then use a trait seed program," says Johnson. "Balance (active ingredient isoxaflutole) is effective for long-term preemergence control and Liberty, Enlist or Xtend will work as long as weeds are sprayed in the 2-4-inch range. Bigger weeds see less control."

Work specific to dicamba includes where it may be the best fit in South Dakota. So far, Johnson says it is critical for controlling heavy kochia pressure and for kochia resistant to Group II and glyphosate chemistries. He says farmers can use dicamba in rotation with other products.

"We will take and share from these and other plots data on weed efficacy, crop injury ratings and yield. Cost of treatment will also be calculated," says Johnson. "Farmers can find the results in the annual SDSU Extension WEED Project

Data book and in an updated weed control section of the SDSU Pest Management Guide-Soybeans and IGrow Soybean Production manual."

Finally, Johnson notes two processing plants in South Dakota are now purchasing non-GMO soybean varieties. He advises farmers who want to take advantage of the premium programs for conventional soybean production to plan an effective weed control program in advance. ■



Paul Johnson, SDSU weed science coordinator

"Resistance is a concern. The first thing farmers should do each year is plan a good program starting with a pre-emergence product to significantly improve control. Look at a variety of possibilities with traits and chemicals and have a conventional backup plan," says Paul Johnson, South Dakota State University (SDSU) weed science coordinator and project researcher.

## MEET TAYLOR ELVERSON



Good health is a major part of life, right? We eat well, drink water, exercise, practice self-care, and go to our doctor appointments all to keep our body and mind healthy. It's the same story on the farm with livestock, vehicles, equipment, fences, and grain dryers. You wouldn't let your hired man drive your tractor around without ever changing the oil or cleaning the air filter. My point is that everything needs a tune-up now and then to keep it working at its best. So, why should soil be any different? Farmers and the agriculture industry recognize the importance of soil health for long term profitability and sustainability. How can we expect to produce the best crops, without any tune-ups to our soils?

Hello! My name is Taylor Elverson, and I am the Soil Health Coordinator for South Dakota Soybean. I am so excited and looking forward to helping you learn ways to improve your soil health! I grew up in Trimont, MN on a small crop farm where my dad raised corn and soybeans. My three brothers and I always loved to be outside, so that's what drew me to agriculture when I started college. I graduated from South Dakota State University in 2015 with a B.S. in Agronomy and completed two years of graduate school at SDSU to attain a M.S. degree in Plant Science in 2017. My graduate school focus was sunflower pathology. I loved getting that exposure to a new crop. After graduate school, I accepted a position with Corteva Agriscience as a Research Associate in their corn

breeding program at Orange City, IA. I performed many roles at the station collecting data, managing summer crews, analyzing UAV data, and managing experiments. It was a wonderful learning experience and I was amazed at the engineering and technology that goes into developing commercial corn hybrids. A little over a year ago, my husband and I took over as Pioneer Sales Representatives from a retiring dealer in the area.

My dad is still farming today with two of my brothers and their operation has grown and diversified with hog barns and custom farming/spraying. I met my husband John during my freshman year at SDSU, and we got married in August of 2017. We currently live on an acreage outside Sherman, SD where John and his dad raise corn, soybeans, and have a small herd of cows. We stay very busy with our corgi, the farm, and our seed and chemical business – and we love any chance we get to spend time with family and friends.

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