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Cover crops like this one can be planted on hayland after haying to provide nutritious forage for livestock in fall and winter and improve soil health. USDA NRCS South Dakota photo.

Making Cover Crops Work

Understand Objectives and Keep It Simple

By Stan Wise

Producer and South Dakota Soil Health Coalition Soil Health Specialist Dave Ollila has a message for producers who might be interested in planting cover crops.

"The first thing is to understand what your objectives are and keep it simple," he said.

A cover crop is a crop that is planted – usually after the harvest of a cash crop – for reasons other than commodity production, such as additional livestock forage, erosion control, and soil health improvement. Cover crops allow living roots to stay in the soil for longer portions of the year, feeding soil biology, improving water infiltration rates, holding the soil in place, and aiding nutrient cycling.

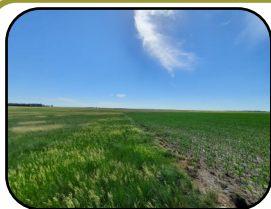
Goals

Ollila's crop and livestock operation is near Newell, SD, in the western part of the state where moisture is a concern and forage production can be a challenge. "For me, personally, feed is a big thing," Ollila said. "So, the two things that we're looking for is another feed source and then that living root to keep the biology active."

Other cover crop goals could include weed suppression and improving marginal land.

"Some of those cereal grains and a few of the broadleaves do a great job in suppressing weeds. Like winter rye – putting that in at a heavy rate will out-compete a lot of weeds," he said. "What problems are

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Consider All Options Before CRP Removal

See Page 4 to learn more about the benefits of the Conservation Reserve Program and the potential hazards of removing land from the program.

you having in your soil and what are you trying to solve? If you have a salinity issue, then you need to get a little more focused on cover crops that are going to take up salt and help reduce that.”

Perennials are especially useful for improving soils. “I don’t think enough people give perennials consideration as cover crops, and as cover crops, they’re better than an annual any day,” Ollila said. “You’re looking at five to seven years before you decide to put that into production again, but they’ll do more to clean up soil and improve the soil health with such little input, and in the meantime while you’re letting that happen, normally you’re grazing that or you’re getting some forage production out of it.”

Frequent concerns

Some producers might not want to plant cover crops because they’re concerned the covers will use soil moisture. “That might be true in the short term, but in the long term it’s going to actually hold more moisture, and it’s going to provide nutrients,” Ollila said. “If we can put a cover crop in there to not only graze but to grow tall enough to catch snow, we’ve benefited ourselves. Out here, I consider stubble height in native rangeland and tame pastures and cropland all to be important because I want to catch snow. If we can keep this stubble height high enough to get moisture plus residue, which the cover crops will supply, then we get a greater return.”

Some producers who are new to cover crops may be worried they don’t have the equipment needed to plant them. “The conservation districts have done a great job in acquiring no-till drills for folks to rent and to be able to do that, at least on a small scale, to try that out,” Ollila said.

The cost of seed is another reason some producers might be wary of cover crops. Ollila explains that seed costs don’t have to be prohibitive. “There’re plenty of purveyors of cover crop seed at reasonable prices, and you can certainly get that acquired somewhere between that \$20 and \$25 an acre range if you want to keep it simple,” he said. “I’ve gone so far as some years I’ve just bought feed oats — not seed oats but just feed oats that are clean — and planted them. You’re not looking at trying to make a grain crop out of it; you’re just trying to get something to grow.”

“Rye and field peas are a pretty simple deal,” Ollila said. “If you want to put that in knowing that the peas are not going to overwinter but the rye will be there, that would be one of your best choices. Any of those winter annuals, winter wheat, rye, or triticale, they’re relatively cheap, and you can seed them accurately with virtually any drill, and if you do have some good soil tilth, even an old double disc drill with some decent pressure would plant that.”

Return on investment

An important point when considering cover crops is finding a way to make them pay for themselves. For Ollila, the feed value of cover crops and their soil health benefits make the decision to plant them an easy one.

“In the past, you know, third week of June, we took a hay crop off of wheat hay, and then we’d leave it until next spring — what a tremendous waste that we used to do, doing that,” he said. “Now we can come in with warm season covers, and we can potentially get another hay crop, and if not that, certainly a grazing crop plus all the residue and the living plants in the soil.”

Ollila said that nutrition values of cover crops for livestock should be considered. “By the time you get into August, a lot of those



This full season cover crop was planted in 2021 to improve soil health and provide additional forage for cattle. SDSHC photo.

native pastures, those protein levels are dropping off to about eight percent, which will still take care of a cow and a calf, but it’s nothing like the 14 to 17 percent analysis I’ve had on cover crops, and some of them have pushed to 22 percent,” he said.

Ewes will produce more lambs when grazed on the more nutrient-dense cover crops in the fall, Ollila said. There are benefits for cattle, as well. “We calve in May, and so by the time we get to September, we’re getting into some pretty poor forage, and those calves are still growing, and we don’t want the cows to drop their milk production. So, it works great to move them into another high-nutrient-level food source,” he said. “And so, the calves are getting more protein through what they consume, and then not to mention that the cows begin milking at a higher level again at a time of year when they’re usually dropping off.”

Grain producers can also reap value from cover crops through improving nutrient levels in the soil. “If we’re a grain farmer and all we do is do wheat on wheat or corn on corn, we’re reducing our biology because we don’t have diversity in our soil. That reduces our ability to utilize nutrients, so we’re looking at that cover crop providing us nutrients,” Ollila said. “We’re wanting it to provide cover. We’re hoping that it will catch snow and the diversity that we put in there will fire up some of our soil biology and at the same time some of those deep-rooted ones will go down and get us some nutrients to bring up to the growth zone.”

The most important value that cover crops can provide any type of producer is a living root in the soil, Ollila said.

“The point of that cover crop is to provide that living root. Then that root provides you everything else,” Ollila said. “So, your ability to build residue, sequester carbon, develop soil biology, pull nutrients up into the root zone, provide channels for water infiltration and the movement of nutrients within the soil profile. That one thing is that living root.”

Producers interested in planting cover crops are encouraged to reach out to the South Dakota Soil Health Coalition, their local conservation district, the Natural Resources Conservation Service, and South Dakota State University Extension for advice and potential resources.

More information about cover crops can be found at www.sdsosoilhealthcoalition.org.

Membership Minute: Dennis and Jean Fagerland

Dennis and Jean Fagerland run a diversified cattle and crop operation in the northeast corner of South Dakota on top of the Coteau Hills. Their family of five children and 11 grandchildren live relatively close to them and often help them out, especially with the cattle.

They switched their crop operation to minimum tillage many years ago and then converted all their fields to no-till practices. For the past 11 years, they have planted cover crops and fall-seeded rye to keep the ground covered and something growing in their fields for a longer portion of the year. The cover crops have allowed the Fagerlands to pull the cattle off pastures earlier in the fall and give the grass a rest before winter. Grazing the cover crops benefits both their cattle and their soil.

No-till, cover crops, and livestock integration have increased the organic matter in their fields and pastures, and they have seen the benefits of soil health improvement in both wet and dry years. Their soil temperatures are cooler, and their land allows water to infiltrate the soil rather than running off, making maximum use of every rain that falls.

Their commitment to soil health began when they started seeing the financial benefits of lower inputs and better yields. They began attending conferences and visiting with others who shared their stories.

The Fagerlands note that it is important to always have a plan and a willingness to be flexible if changes need to be made. "A normal year is a bonus. You don't get many of them," they said.

"I enjoy a gentle rainy day, so you can slow down to see the crops and pastures respond to the soil health practices you are working hard to use," Dennis said. "It is knowing you are trying to do the best you can with the resources that you have been given to be a good steward of the land for the next generation."



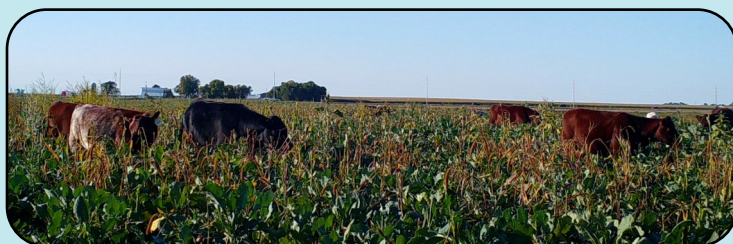
Dennis and Jean Fagerland stand in big bluestem and Indiangrass in their calving pasture where they reintroduced native grasses. They only use this pasture during calving and then let it rest. Courtesy Photo.

Cover Crop Grazing Calculator Available on Mobile Devices

Now you can make quick calculations in the field to determine the available forage in your cover crop using a free mobile app! Quickly calculate forage demand, grazing days, and grazing acres in the palm of your hand! No pencil necessary!

This mobile app is NOT available in app stores! It can only be accessed via this link: tinyurl.com/CoverCropGrazingCalculator.

Questions about the app can be directed to the South Dakota Soil Health Coalition at sdsoilhealth@gmail.com or 605-280-4190.



Grazing Cover Crop Calculator Form

Email

example@example.com

Field Number (if applicable)

Step 1: Estimate Total Production

Dominant Season for Cover Crop *

- ☐ Warm-season
☐ Cool-season
☐ Mix of warm- and cool-season

Average Cover Crop Height (inches) *

ex: 23

Total Production for Warm-Season Dominant Crops (lbs/acre)

Total Production for Cool-Season Dominant Crops (lbs/acre)

Total Production for Mix of Warm- and Cool-Season Dominant Crops (lbs/acre)

Upcoming Soil Health Events

July 21

Soil Health Tour
Kolousek Farms
Wessington Springs, SD

July 26

Menoken Farms Tour
Menoken, ND

July 26-27

Spink County Bus Tour
Dakota Lakes Research
Farm & Cronin Farms
Pierre, SD &
Gettysburg, SD

July 26-28

East River
Grazing School
Marvin, SD

Aug. 4

Forage Field Day
Haskell Ag Lab
Concord, NE

Aug. 9

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

Aug. 11

South Dakota
Soil Health Coalition
Board Meeting
Pierre, SD

Aug. 31-Sept. 2

South Dakota
Soil Health School
Garretson, SD

Sept. 13-15

South Dakota
Grazing School
Chamberlain, SD

Jan. 24-25

South Dakota
Soil Health
Conference
Sioux Falls, SD

Access Our Events
Calendar [HERE](#).

CRP: How Does It Fit in Your Operation?

By Stan Wise

With the current high commodity prices, agricultural producers and landowners may be tempted to remove acres from the Conservation Reserve Program, but there are important factors they should consider before making that decision.

The Conservation Reserve Program, or CRP, is a conservation program in which landowners remove enrolled land from production and plant species that will protect the soil, improve the environment, and provide wildlife habitat. In return, they receive a rental payment from the U.S. Department of Agriculture.

The program can be a way to guarantee income from marginally productive land while improving the soil and providing wildlife habitat.

"There's a lot of good opportunity to help cut costs and manage general farm operations, cutting down on inputs on marginal acres, especially some of these wet areas," South Dakota Game, Fish and Parks Private Lands Habitat Biologist Ben Lardy said. He said that the program can help address saline soils and help producers "raise their actual production history, get rid of those areas that are dragging down yields." With a higher actual production history, producers can receive higher crop insurance payments in the event of disasters.

Local wildlife and pollinators also benefit from the additional habitat. "A lot of these CRP areas historically have been phenomenal places to hunt, and they hold a lot of wildlife and great value to sportsmen," Lardy said. "I mean, just about everybody likes to see wildlife, deer, pheasants, and ducks in their backyard."

Run the numbers

If, despite these benefits, landowners are tempted by high commodity prices to remove land from the CRP program, Frankfort, SD, producer and South Dakota Soil Health Coalition Board member Brian Johnson offered some advice for them.

"I would say they need to do their research and run the numbers," Johnson said. "As far as leaving it in grass and leaving it in CRP contracts, whether you want to go to crop production, they need to look at the data and see if those areas can actually have a positive return on investment. Because typically a lot of these tougher, marginal acres, with the input costs, are difficult to return a positive ROI."

"You've got to think long term, as well," Johnson said. "Because these prices aren't going to stay here forever. They're going to go back to normal, and you have to factor those prices in when you're running your numbers."

Lardy agreed. "Those acres were put in by somebody – either yourself or maybe a previous landowner – for a reason. They might be highly erodible, they might be wet, they might be just generally kind of poor, crappy soils," he said. "So I would definitely be cognizant of that and make sure that you're not getting yourself in over your head just by chasing those dollars for a year or two and then find out that you're fighting just a mess down the road and might end up going right back to the original plan in the end."

Consider grass

If producers decide to take land out of CRP, there are ways to manage it to maintain the soil health benefits that the program provides.

"Try to be mindful of the fact you had 10-plus years of soil building going on there, building organic matter and carbon in the soil," Lardy said. "The last thing I'd say is not to go out and try to turn that whole thing over with a moldboard plow and kind of revert the



Frankfort, SD, producer Brian Johnson removed this land from the Conservation Reserve Program two years ago, and he has kept it planted with grass. He allows cattle to graze it along with cover crops or crop residue on neighboring cropland. This practice allows the land to remain productive despite salinity issues. Courtesy photo.

progress that had been made over those years."

Two years ago, Johnson renewed most of his CRP land, but he decided to remove a small portion of his land from the program. However, the soil had salinity issues, and Johnson determined it would be more productive in grass rather than crops.

"There were a few tracts we did not re-enroll and instead we are leaving them as grass on our farm," Johnson said, "but it gives us the option then to graze them every few years when we've got cattle out on that cropland on the adjoining field, so they can utilize the grass there and dip it down every few years instead of just depending on a clipping every five years or so, depending on your CRP terms."

When Johnson has a cover crop or heavy crop residue on the cropland adjoining his former CRP land, he lets his cattle graze the cropland and the grass at the same time. With his diverse rotation, that means the grass gets grazed, at most, two out of every three years.

"It's definitely improved the quality of the soil, not only where the grass is at but the cropland acres right next to it because it's taking care of the salinity issues as well as improving the water infiltration, which has helped the crops that are in the adjoining field," Johnson said, "So it's something that we look to keep in grass for years to come."

"There are many options for expiring CRP as far as if you're looking for additional grass or pasture. Game, Fish and Parks, the Wildlife Service, and many other entities can help with infrastructure – fence and water development – on those acres," Lardy said.

"There's also the Grassland CRP program, which is kind of made for expiring CRP to turn into a working lands grazing or haying situation that still will pay you an annual payment, and you can still also graze or hay and utilize that grass."

If former CRP land is to be converted to cropland, Lardy said it should be managed with sustainable agriculture practices. "Ideally, you'd be doing as limited tillage as possible," he said. "You'd be able to hay that off in the late summer of the last year of your contract. Remove that residue. Spray it out. That way you're not losing that organic matter that's been built and that carbon that's been built over the years with those deep-rooted perennial grasses."

To learn more about the Conservation Reserve Program, contact the Farm Service Agency South Dakota State Office at 605-352-1160. To learn more about sustainable land management practices and potential cost-share programs, visit www.sdsoilhealthcoalition.org or contact the SDSHC at sdsoil-health@gmail.com or 605-280-4190.

SDSHC Announces Student Video Contest

The 2022 Soil Health Demonstration Student Video Contest is open! This contest is open to all K-12 students in South Dakota. The first place entry will receive \$1,000, and the second place entry will receive \$500!

This is an excellent chance for students to show off their grasp of soil health concepts and earn money to further their soil health journey! The Coalition wants to see your best soil health demonstration videos! Rainfall simulation, water infiltration, “soil your undies,” slump test, slake test... if it demonstrates soil health, then it qualifies! Get creative with your scripts and video editing! The deadline for the contest is Oct. 14, 2022. If students have questions or need specific supplies for their demonstration, they can contact the Coalition at sdsoilhealth@gmail.com or 605-280-4190.

Learn more about the contest and download entry forms at www.sdsoilhealthcoalition.org/2022-video-contest/.



Still Time to Register for Soil Health School

Space is still available to join this the 2022 Soil Health School to be held Aug. 31-Sept. 2 on the Bruce Carlson and Anthony Bly farms near Garretson, SD!

This is an outstanding opportunity not only to learn more about soil health, but also to network with producers and experts and brainstorm solutions for land management challenges on your operation!

The school includes classroom presentations and discussions as well as field tours and exercises. Various cash crop and cover crop rotations will be demonstrated in the working fields of the host

farms, and cover crop grazing exercises and information will focus on both cattle and sheep. Class size is limited to 30 people so that participants can have more contact with instructors and SDSHC Board members.

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





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2023 Soil Health Conference Registration Open

The 2023 Soil Health Conference will be held Jan. 24-25 at the Best Western Plus Ramkota Hotel in Sioux Falls and will feature keynote speakers Dr. Kris Nichols, Rick Clark, Mitchell Hora, Roy Thompson, and more!

Don't miss this outstanding opportunity to learn more about soil health land management practices! In addition to the keynote speakers, this conference will feature breakout sessions, discussion

panels, award presentations, demonstrations, vendor booths, student contests, and more!

Early registrations are appreciated for planning purposes. Registration for the Soil Health Conference and Annual Meeting is \$50 and includes all event materials and meals as well as a free South Dakota Soil Health Coalition membership or membership renewal if so desired.

More information and registration options are available at www.sdsoilhealthcoalition.org/soil-health-conference/.



Producer Survey

Purdue University is working with The Nature Conservancy to understand the role of farmer-to-farmer or peer networks in promoting agricultural conservation programs and practices. These networks seek to create and facilitate platforms for farmers to learn from each other and take on leadership and mentoring positions in their community. Your insights will help us understand how effective the South Dakota Soil Health Coalition is, how you participate in the network, and how beneficial participating is to you and your agricultural operations. We appreciate your input and participation. You can find the survey at tinyurl.com/FarmerToFarmerSurvey.