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PROFILES IN soil health

Cassie and Will Cannon
Prairie City, Iowa
Crops: corn and soybeans
Planting: no-till
Covers: cereal rye



Will Cannon: The Trusted Tenant

by Jason Johnson, USDA-NRCS, Iowa
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Focus on the biology of the soil – instead of the chemistry of farming – and find the most efficient equipment for seeding cover crops. That’s advice Jasper County farmer Will Cannon gives to Iowa corn and soybean producers struggling to establish cover crops on their farms.

Cannon, who grows mostly corn and soybeans on about 1,400 acres with his wife Cassie, has been farming full-time since 2013. Before that, he worked a full-time agribusiness job in Ames and farmed part-time for about 15 years.

Cannon said he has learned that you can’t manage two years the same way. “Many farmers are more familiar with applying ‘X’ amount of chemicals and expecting ‘Y’ result,” he said.

Variables such as weather, soil types, equipment, and available help on the farm impact successfully growing and terminating cover crops, says Cannon. “You have to focus on soil conditions. This is about biology,” he said.

Cannon is a well-respected person in conservation circles. In fact, he farms land for former USDA-Natural Resources



When his spray ran out, Will Cannon decided to leave a small section of cereal rye grow in a soybean field. He later terminated the cover crop, but Cannon is going to pay attention come harvest to see how soybeans respond in that area.

Conservation Service (NRCS) State Agronomist Barb Stewart and Master Farmer and Jasper Soil and Water Conservation District Commissioner Gordon Wassenaar. Cannon says he currently has 15 landlords.

The cover crop planting process has evolved over that last decade. “When I first started using cover crops, I exchanged ideas with Barb and Gordon,” said Cannon.

With Stewart, he says there was a lot of brainstorming, creativity and thinking outside the box. “There were three years where we experimented with cover crops



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on Barb's farm and it was hit and miss," he said. "We started by aerially seeding turnips and cereal rye."

Will has farmed Stewart's land since 2008. "We brought him on as a beginning farmer and have been crop sharing 50-50 ever since," said Stewart. "One of the stipulations in the lease is it has to be no-tilled or strip-tilled and cover cropped."

"Will has been very good at looking at new ideas and figuring out how to make it work in his system. We have experimented with various types of cover crops, as well as different methods of planting cover crops and cash crops into cover crops. We are pleased with the working relationship we have had over the years."

Evolution of a Cover Crop Seeder

With Wassenaar, they built new equipment to find the easiest, most efficient way to plant cereal rye as soon as possible after harvest. "We started by rebuilding a minimum till drill that could be used to drill into soybean residue," he said. "We used heavier springs on it but were asking it to do things it wasn't really designed for. It was super cheap to build, though, and helped us prove our method before bigger investments."

After three or four years, he began using a vertical tillage tool on the cornstalks and hired a co-op to broadcast the seed with fertilizer. "Then, we added an air seeder to the vertical till," said Cannon. "Our goal was to seed cover crops within 24 hours of the combine and the retailer just couldn't reliably do that for us."

Cannon says his most recent cover crop success is due to a little ingenuity. After some years of using the vertical tillage tool that Cannon says burned \$3,000 of diesel fuel to put on a cover crop, he built a faster, more effective tool. He purchased a 40-foot rolling harrow soil conditioner with two sets of rolling baskets that have serrated edges. He retrofitted the harrow with a Hiniker air seeder box originally used to plant soybeans and mounted that on the tongue with air lines running out.

The 40-foot harrow lines up with their planter/strip-till machine so we can use the exact same guidance lines. The airlines distribute cover crop seed between the corn rows. In soybean stubble, he follows the guidance line and plants the cover crop into a 15-inch band between future corn rows. In corn stalks, the harrow broadcasts seed across the entire width. The harrow also helps incorporate the seed below the corn residue and smash the remaining corn stalk and root ball with virtually no tillage.



Iowa farmer Will Cannon shows Iowa NRCS Soil Health Specialist Hillary Olson the implement he uses to seed cover crops in the fall. Cannon built the system himself, which allows him to be more efficient during the busy harvest season.

"Now we have a tool that we can run across every acre, without the tillage before it," said Cannon. "This seeder is faster, less expensive to run, uses much less horsepower, and goes through corn and bean stubble much easier. If you're going to plant cover crops, you have to do it right."

Cannon says there are companies out there now that have developed a similar one-pass cover crop seeder option for a rolling harrow.

Cover Crop Benefits

Cover crops may not produce immediate financial benefits, says Cassie Cannon. "It takes a while to build up that organic matter in the soil," she says.

Will Cannon says the most obvious soil improvements are in the eroded areas. "Since using cover crops, we've noticed a change in color on some of the eroded side hills," he said, "but the biggest change is that my bad spots are shrinking more every year."

He's also noticed that his crops are less stressed during dry conditions, compared to fields that have been tilled. "We also use less nitrogen – typically .6 or .7 units per bushel – compared to 1 or 2 that a lot of farmers use," said Cannon.

Harvest Still Hectic

The Cannons admit the fall harvest season is still hectic, trying to plant cover crops on all 1,400 acres in about 15 different locations across the county. They hire seasonal help to plant the cover crops for a few hours each evening after harvest.



Will and Cassie Cannon show Iowa NRCS Soil Health Specialist Hillary Olson (middle) the condition of their no-till soybean field. Soybeans are suffering a little from moderate drought conditions, but years of no-till and cover crops have improved soil conditions to help the crops to be more weather resilient.

"It gets stressful to get it all done in the fall, but the long-term benefit is worth it because we're preserving ground for our kids," said Cassie Cannon. "You have to keep that in mind during the hard times because it's not easy."

The process of seeding cover crops isn't the only thing that has changed in the past 10 years. Cannon says he felt like he was on his own in the beginning, trying to figure out how to best plant, establish and terminate cover crops. "Now, there is more of a community out there," he said. "And there is more information out there."

Cannon says he feels he's considered young in the farm industry. "We haven't been reached out to a lot by many (statewide), but we are sharing our knowledge and experiences through field days, news segments, and social media," he said, "so we feel like we are reaching others in our area more and more as the years pass."

For producers who are just trying cover crops for the first time, Cannon's recommendation is to plant cereal rye before soybeans. "It's simple, the beans are forgiving, and cereal rye is easier to manage," he said. "We've put cereal rye on as late as December and in the spring it's there and growing."

What's Next for Cannon?

Cannon recently experimented with letting cereal rye head out and planting soybeans into the green growing rye. He allowed the beans to grow with the rye for a while and then terminated the rye in late May or mid-June.

"Yield results on that experiment have been good or better yields on my better soils and similar or lower yields on my poor soils," he said.

Ultimately, Cannon says he would like to extend the crop rotation on some of his acres to a third, fourth, and fifth crop. His brother is building a cattle herd, so Will is adding some annual forages to the crop rotation on some acres.

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