

# Stick with it

## Key Points

- Try no-till and a cover crop and stick with it; soil can't be built overnight.
- Stop stirring the soil; tillage causes soil erosion and depletes organic matter.
- Beauty of cover crops is that something grows year-round to build soil.

By LYNN BETTS

**W**HAT'S the key to success for using cover crops in a no-till system? "The thing that might be different about us than most people is we've stuck with cover crops and no-till over time," says southeast Iowa farmer Steve Berger, "and now we're reaping the benefits of an improved soil structure." Berger and his wife, Julie, and his parents, Dennis and Janice, have no-tilled for about 40 years and used cover crops for the past 10 to 15 years with good success.

"We had a first this past year, with 320 bushels to 350 bushels an acre yield on our best cornfields," Berger says, "with an average of about 230 bushels an acre. That's probably 30 to 40 bushels above the county average, on similar soils. Soybeans have been yielding in the high 60s. A good share of those yields is from crops planted into a green cover crop."

## Every acre, every year

The Bergers plant cereal rye on every acre every year on their 2,000 acres of corn and soybeans in Washington County. The high yields tell Berger he can be successful in not only protecting his rolling land, but also improving the soil as he continues to bump yields higher.

"These past few years, when we started getting the 3- and 6-inch rains, there just wasn't any ground moving. The years of no-till and cover crops have made the ground a sponge to soak those rains up," he notes. "You're changing soil biology with this system, and that changes soil structure. The pore space is just so much better than with conventional tillage. Conventionally tilled fields are mush after a rain, but these soils are firm. We get into the field quicker after a rain both at planting and harvest."

He adds, though, that the soil change



**STOP SOIL EROSION:** A combination of no-till, cover crops, contouring and terracing has slowed soil erosion and, in some cases, stopped it on the Berger farm. They received the prestigious National Conservation Legacy Award earlier this year in recognition of their efforts. Steve Berger says his fields have healthier soil and better infiltration during heavy rains.

isn't immediate. "It might take seven to 10 years before you can see structure changes with no-till. You can maybe cut that to three to four years when you add a cover crop."

Sometimes farmers tell him that after a year or two of trying cover crops, it's just not working. "They're frustrated with one thing or another," says Berger. "I tell them it isn't something you can get in and out of; you have to stick with it. It's really a systems approach over time."

His system includes contouring and 14 miles of terraces, careful nitrogen and manure management, and pattern tiling. The system earned Berger the prestigious 2015 National Conservation Legacy Award from the American Soybean Association.

Berger has found over time there are four keys to cover crop and no-till success:

- Set your planter up correctly.
- Figure out how and when to apply nitrogen in your system.
- Manage insects.



**OPERATION HEAD START:** It depends on the year whether Steve Berger seeds the cover crop by air or with a drill. One way or another, though, he seeds every acre, every year to cover crops.

■ Give the soil profile time to change. "People who struggle with cover crops or no-till need to look closely at those four things," he says. "A yield drop might be caused by a planter setup that doesn't get the seed properly placed, or a failure to use nitrogen early, or letting armyworms get out of control. It's not that cover crops won't work. You just need to look at the whole system and pay attention to details. I think it's really important to have nitrogen on the planter, for instance."

Watching no-till and cover crops work together over the years, Berger reflects on what he and his dad have noticed:

■ Stress years, either wet or dry, have less impact on yields with no-till and cover crops. "I have reason to believe the synergy developed in soil biology with crops growing year-round can give even bigger yields in the future. Part of that thinking comes from watching my combine monitor pop 50 bushels higher as we've combined through old fencerows. To me, that's evidence of what not tilling

the soil can do for us."

■ They are beginning to think this system is having positive effects in disease resistance. "That may be due to better pore space and less saturated soils. We see less sudden death syndrome, for example."

■ Manure from a 20,000-head farrow-to-finish operation and pattern tiling, both known for producing higher yields, work very well as components of this system.

■ "Seeing the hills hold together during downpours has been a real reward for us. We know our soil structure is better. Crop scouts and others who come to the farm say they notice the soil is easy to probe and acts like a sponge."

■ This system helps with water quality. "We've had some low numbers on nitrates leaving our tile lines."

## Termination not a worry

"Years ago, we were concerned we had to get rye killed well ahead of planting," Berger says. "We thought there was an allelopathic effect on corn from cereal rye. Allelopathy does exist, but we're more concerned about the carbon-to-nitrogen ratio. We had several wet springs where we got squeezed on termination timing and learned we didn't need to kill rye 10 to 14 days ahead of planting. We kill the rye four to five days ahead of planting corn, and I'm comfortable with that. I like to let the rye grow as long as we can in spring to take full advantage of its benefits."

Berger cautions farmers who are new to cover crops to avoid cutting corners with herbicides. For successful termination, he recommends spraying glyphosate from midmorning to midafternoon. He has learned to add some nitrogen and a residual herbicide to the glyphosate for a one-trip weed and feed.



**NO FEAR OF GREEN SPRING:** Steve Berger has become much more comfortable with terminating rye closer to planting time in the spring. He lets it grow longer to get the most benefit from it.