

STRIP-TILL APPROACH OFFERS FARM BENEFITS

By Christy Couch Lee



STRIP-TILL APPROACH: Doug Martin (left) and his father, Jeff, have been using strip till for no-till corn. They see the benefits of improved residue management while still holding soil in place.

Continuity can sometimes lead to great results. Just ask Jeff and Doug Martin, who farm near Mount Pulaski. The seventh and eighth generations of their family to farm in the area, this father-son team places conservation as a high priority in their operation. For several years, they have planted corn on corn in a strip-tillage system on 85% of their acreage, with the remaining 15% being planted in a no-till corn-soybean rotation.

They say no-till and strip till provide incredible benefits to their land in terms of soil quality, wind and water erosion control, and microbial activity in the soil. In addition, while their yields have increased through the years, their nitrogen application has remained constant; they attribute this to a higher level of organic nitrogen in the soil resulting from their no-till practices.

Jeff says they began no-tilling in 1982 on 20 acres, and gradually built up their no-till acreage with time.

However, on the wet, black soils of their land in southern Logan, DeWitt, Sangamon and Macon counties, he says, they found challenges with the soil drying out in the spring.

“We moved to strip tillage, which doesn’t disturb the soil much,” Jeff says. “With the high plant populations and more residue of continuous corn, the ground dries out better with strip till. We get the residue away from the seed, and they get off to a better start.”

They have planted continuous strip-till corn heavily for the past five years. By moving residue, Jeff says, strip tillage allows every kernel an equal chance to thrive.

“We can plant every kernel the same,” he says. “When we make the strip in the fall, the whole length of the strip is the same. There are no wheel tracks in the strip, and we can get a better, more even emergence in a beautiful seedbed. We don’t touch that soil from fall on.”

In addition, the Martins have seen an increase in organic matter, im-

ADVICE FROM AN EXPERT

DAN TOWERY, Ag Conservation Solutions, Lafayette, Ind., says continuous no-till and strip tillage can greatly improve soil quality and organic matter with time – but it must be continuous.

“If you’re doing tillage every other year, your soil improvement doesn’t change much,” he says. “I often work with growers who want to improve their soils and make them better than they are today. If we are going to double our yields in the next 40 years, better soils will be needed, along with improved genetics and other technological advances. Continuous no-till is a tool for producers to keep in their toolbox to better cope with the biggest extreme – too much or not enough rain.”

Towery says a field in continuous no-till for at least five years shows an advantage in low-moisture conditions.

“When it turns dry in July or August – which it frequently will – the no-till corn will have another 14 to 21 days before it starts to curl,” he says.

One of the greatest benefits of no-till, compared to conventional tillage, is reduced erosion, Towery says.

“From conventional tillage to continuous no-till, you can see a greater than 95% reduction in soil loss,” he says.

And strip tillage provides additional benefits, depending on the situation.

“We know we have a lot of residue in no-till fields,” Towery says. “That residue somewhat acts as a blanket, keeping the soil cold and wet in the

spring. Strip tillage allows a little tillage zone, with about 30% of the soil seeing some disturbance. That zone will be warmer and dryer – especially in poorly drained and somewhat poorly drained soils.”

Towery recommends farmers begin small with no-till corn. Learn and then make refinements to practices and tools, he says.

“You need to ease into it,” he says. “You want to phase it in, because there is a learning curve. Do your homework. Go to meetings and workshops. Talk to other successful no-till farmers.”

He says the easiest way to begin no-tilling is with your soybean crop.

“Beginning with soybeans is easy,” Towery says. “You may not see a big yield increase, but it will at least be equivalent. So why till it two or three times?”

For those who wish to eventually plant no-till corn on corn, Towery recommends a wait period.

“I like to see fields in a continuous no-till system for five years before you think about doing no-till corn on corn,” he says. And on poorly drained soil, strip till is a good option for corn after corn.

Towery says the benefits of a no-till or strip-till system can be great. The key is patience.

“It doesn’t happen right away,” he says. “We all want instant gratification. But it takes time for soils to change.”

proved soil structure and reduced erosion through their strip-till and no-till practices.

“When the raindrop hits the soil particle, you can have erosion,” Jeff explains. “But when the raindrop first hits the residue, there’s a reduction of erosion and more infiltration to the soil.”

He also says this process allows the roots to grow deeply, gathering nutrients including nitrogen. This deep root system could be one reason the Martins have been able to effectively manage their nutrient application.

ONLY WHAT’S NEEDED

The Martins have broadcast phosphorus and potassium for years, applying anhydrous in the fall. However, they are gradually transitioning to variable-rate technology methods, only applying the nutrients where they are needed.

With nitrogen, however, the Martins aren’t afraid to experiment a bit.

Jeff says they have begun sidedressing 28% nitrogen on 20 of their wettest acres to avoid leaving nitrogen on the soil through the winter. On their better ground, they apply 5 to 10 pounds of nitrogen at 28% as a herbicide carrier. And on some land, they have experimented with flying on nitrogen.

“We’re looking at the 300-bushel potential,” Jeff says. “We’re not sure we’ll be able to get the nitrogen on all at one time. So we’re trying to figure out the best deal.”

Their five-year yield average is 185 bushels for corn.

“And it’s going up every year, with normal conditions,” Doug says. “We’ve raised several 200-plus fields, with a 230- to 240-bushel average.”

He says as yields continue to increase on their farm, their nitrogen application has remained constant.

“With continuous no-till, we have increased residue and organic matter, helping to hold our levels where they’ve been,” he says.

“If you look at the yields, we’re putting on the same rate as we did 10 years ago: 180 to 200 pounds per acre of anhydrous ammonia,” Doug says. “We haven’t necessarily decreased our application rate, but we haven’t increased, either. And now we are planting corn after corn. It’s not always cheaper, but we’re trying to get things more uniform. We hope to get better efficiency out of our nitrogen.”

Jeff believes the great earthworm population and microbial activity resulting from no-till methods helps distribute the nutrients throughout the field.

“Our earthworm population makes miles of burrows, and that fertilizer and residue is recycled and distributed through those burrows,” Jeff says. “And with 150- to 200-bushel continuous corn, you’d think there would be a great deal of residue, but there’s not much. It breaks down quickly with the microbes and earthworms.”

Despite quick breakdown, Doug says, the greatest challenge is also the residue. However, with the purchase of a vertical-tillage tool, he believes that task is much more easily managed.

“It has helped us manage the residue much better,” he says. “We strip till with a 16-row bar and plant with a 24-row planter.

“It’s not always perfect, but the benefits far outweigh the challenges.”

And, Jeff says, there are the obvious challenges of a wet fall and not being able to get into the field for a strip-tillage pass.

WORD TO THE WISE

For a producer considering no-till or strip till on his or her farm, the Martins recommend keeping an open mind and doing it right.

“Do your research, and don’t do it halfway,” Jeff says. “Do it right, and then you’ll feel more comfortable. If you have problems, find someone who has encountered that problem, and find out how to fix it.”

Couch Lee writes from Wellington.

GETTING GOOD NO-TILL CORN

THERE ARE several key steps to a good establishment of no-till corn, says Dan Towery, Ag Conservation Solutions, Lafayette, Ind. Although all are not always required in an ideal growing season, if the weather doesn’t cooperate, trouble can ensue. To ensure the best stand possible, Towery suggests the following:

■ **Add drainage.** “If a field is poorly drained, tile drainage is needed before you begin a no-till corn system,” he says.

■ **Prepare the field.** Towery suggests ensuring the pH, potassium and phosphorus are at maintenance levels before you begin a no-till practice.

■ **Remove compaction.** “If a field has compaction, you need to take care of that ahead of time, either with a ripper or by planting a cover crop to break up compaction,” Towery says.

■ **Use residue managers.** “These are a ‘must’ to move that residue,” he says. “If the soil is cold and wet, you need to get some sun and air to it, so it can warm up.”

■ **Remove coulters.** “These can actually cause more problems by bringing up wet soil,” Towery explains.

■ **Apply starter fertilizer.** “This is essential – especially the nitrogen,” he says. “The soil can be a little cooler, and we need that corn to get off to a good start.”

■ **Control planter speed.** “There may be more planter bounce with no-till, so make sure you are getting uniform seed placement, especially if planting over 5 mph,” Towery says. “We generally recommend planting at less than 5 mph, to reduce planter bounce and to get the corn to come up as uniformly as possible.”

■ **Implement weed control.** “This is a given,” he says. “Control winter annuals in the fall, and use multiple modes of action.”


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