

CROPS

HCC's Smart Till 'in a class of its own'

By TYLER HARRIS

DON Hanson learned firsthand the differences between the rich black soils of northern Iowa and the clay loam of central Missouri. "It's pretty rare in Iowa, if you dig a hole, that the water doesn't go down very fast," he says. "This soil [in Missouri] is pretty tight."

After he moved to his farm near Kingdom City, Hanson initially used the same tillage practices he had used in Iowa. "I washed the soil so bad, it was pitiful," he says. "My yields started going down."

So he started no-tilling, which helped yields for three or four years, before the ground started to get greasy and then formed a hard crust. For farmers in Missouri like Hanson, conservation is a top priority. No-tilling is often used on highly erodible ground, although it can bring challenges. "One of the worst problems in this country is the ground is so tight, you can't get any water in it," he says.

For about 15 years, Hanson used aeration tillage, which greatly improved soil structure. The last three years, he has used HCC's Smart Till, which he says has advantages over other aeration tillage tools.

Aeration tillage, a type of vertical tillage, is the class HCC's Smart Till fits best with, says Nebraska-based agronomist Daniel Davidson. "It's kind of in a class of its own." Smart Till fits different operations including no-till because of how it fractures stalk res-

Key Points

- The Smart Till's tines fracture compaction while leaving soil structure intact.
- Tine design and weight make it easy to penetrate soil.
- Reducing compaction means better infiltration and aeration, and less runoff.

idue and soil compaction, Davidson says.

"A disk will just cut a cornstalk in pieces," he explains. "The Smart Till cracks it open so it decays faster." Cracking the stalk and preparing it to take in moisture allows soil microbes to enter and break it down. Some farmers find they are leaving most of the residue on the top inch or two of soil, instead of burying it 4 or 5 inches deep, as you might do with a conventional-till system.

The Smart Till has a unique way of leaving residue. "It stretches that stalk out," Hanson says. "And it lays it down the whole width of the row." This weaves a pattern, covering the entire ground and leaving a minimum amount of soil exposed.

Smart Till breaks up compaction

The Smart Till system fractures the crust. The system's tines run at an angle and fracture compaction. "As they come in and they twist out of the soil, they fracture any compaction," Davidson explains. "At the same time, you open the soil up for infiltra-



BREAK THE CRUST: Don Hanson has been using the Smart Till for three years. It helps break up the hard crust no-tilling can create in the clay loam soil on his farm near Kingdom City.



TINE COMPARISON: Some aeration tillage tools require additional weight to penetrate the ground. However, the Smart Till's tine design and weight make tines penetrate the ground without extra weight. "Your tooth design on these is quite a bit heavier," Hanson explains. "Without any weight, it stays in the ground."

tion and aeration. It warms and dries faster in the spring."

Other aeration tillage tools cost less, but Davidson says they are less efficient because they require additional weight to go into the ground. "With the angle of these faces on the Smart Till's tines, they just go in the ground by themselves," he says. "It actually pulls easier."

Hanson says other systems use four tines, rather than the Smart Till's three. An extra tine would raise the wheel up while another tine is in the ground. "With the Smart Till, the third tine is pulling the next tine down," says.

Due to the extra weight required to penetrate the ground, which can total 8,000 pounds, other systems can create more compaction and are more difficult to pull; the Smart Till works well at 8 to 10 mph.

The Smart Till's weight is well suspended on tires, Davidson says. "The only weight that's penetrating is the weight of the tine itself," he says. "That thing slices in and slices out, based on the angle and the patented design of that tine."

The angle and motion of the tines prevent compaction as well. "It has a twist



FRACTURING TINES: Compaction in soil is inevitable. The Smart Till system's tines run at an angle and fracture compaction, which also opens up the soil for infiltration and aeration, holding water better and reducing runoff.

to it, and that twist creates a fracture," Davidson says. "That fracturing action counteracts any of these sidewall forces." The harrow modules and tines on the Smart Till system are adjustable for different angles, Hanson says. "You can get just about as much action as you want."

Better productivity

More infiltration means less erosion and runoff. "When you open the soil up and get more infiltration, you can store more water," Davidson explains. "Now you're getting more water in the soil and getting reduced soil erosion, as well. In a wet year when it rains too much, it's going to absorb more water, in which case it won't run off."

Water was an issue for Hanson this summer, but the improved infiltration paid off last fall. "It's unbelievable the difference in that bean ground versus the ground I didn't go over," he says. "We ended up with close to 30-bushel beans last fall. The beans did far better than I could have dreamed for the heat and drought we had."

In the end, better infiltration and aeration pay off. "All that leads to better soil productivity, better crop productivity. You can probably get into the field earlier," Davidson says.

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