

Strip-Till Farmer

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Clearing The Path To 200-Bushel Strip-Tilled Corn

Fertility adjustments and equipment customization helps strip-tiller Loran Steinlage manage residue, boost yields and increase soil health on his northeastern Iowa farm.

By Jack Zemlicka, Technology Editor

When West Union, Iowa, strip-tiller Loran Steinlage built his first berms 10 years ago, he did it with an old planter stripped down to just row cleaners.

The setup was admittedly crude, but Steinlage figured it would at least give him a sense if strip-till would be a window to managing corn-on-corn residue on his farm.

“We’d been no-tilling for years and I was trying to figure out how to make corn-on-corn work,” he says. “We’d have 3 to 4 years of residue build up and it was getting extremely difficult to plant into it. I liked what I saw with the potential of strip-till to clear that seedbed and place fertilizer more effectively.”

Steinlage strip-tills about 700 acres of corn-on-corn. He’s frequently adopting and testing different equipment setups and experimenting with fertilizer-application methods, which have helped increase yields and improve soil health.

“I keep tinkering to try and make things better,” he says. “It takes a lot of thinking ahead to make it work. You can’t just wake up today and say, ‘I’m going to start strip-tilling.’ It’s a year round effort.”

Evolving Equipment

Steinlage built his first strip-till rig in 2006, using a modified 12-row Rawson zone-till bar. He used a three-coulter setup — a lead coulters and two pitched coulters in back — to build the berms.

The design was purely to get strips built in the fall. Two years later, Steinlage modified the rig to eventually be able to apply fertilizer.

“We finally broke down and put a shank on it. We used a vertical-tillage blade and had an anhydrous shank and a closing disc,” he says. “It was simple, effective and it worked flawlessly.”

He typically builds his strips 8 to 10 inches wide and about 6 to 8 inches deep. But Steinlage says the biggest drawback to the early setup was it didn’t have individual row control: When running over rolling hills, sometimes the shanks would go too deep, and other times they would barely graze the surface.

“I wasn’t comfortable applying anhydrous with that unit at the time,” he says. “I was leaning toward a liquid-fertilizer program for phosphorus and potassium, but then I started looking for a dry-fertilizer box to put on the Rawson unit.”

The Right Tool

Ultimately, Steinlage found the setup he was looking for with a 12-row Kuhn Krause Gladiator unit with a mounted Montag fertilizer box.



PLOTTING A COURSE. West Union, Iowa, farmer Loran Steinlage adopted the strip-till nearly a decade ago to help stabilize his corn-on-corn operation and better target fertilizer application. He runs a 12-row Kuhn Krause Gladiator unit with mounted Montag fertilizer box and his 10-year running yield average is 205 bushels per acre.

The row units have a straight coulter in front with row cleaners, and an anhydrous mole knife followed by two closing discs and rolling chain basket.

“Now, we’re able to get our fertilizer down in the band where I want it to be,” he says. “If anything, the rig is a little too aggressive sometimes.”

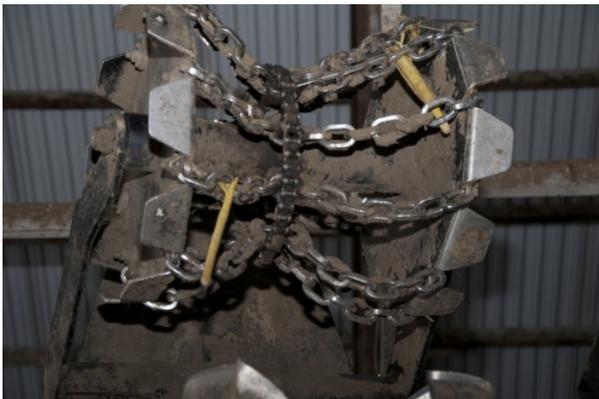
This past fall, Steinlage fastened a metal chain around the middle of the rolling basket chains to make sure the strips don’t get flattened.

“The chain basket is great, except it almost works too well in the fall as it was pulverizing the strip,” he says. “In fall, we want it chunky and probably don’t need a basket, but it’s part of the row unit on the Gladiator.”

Residue Management

While strip-till has helped improve his corn-on-corn operation, Steinlage utilizes other tools to promote breakdown of the cornstalks. His primary goal each year is to get the stalks matted down before building strips.

After harvest, Steinlage runs a Besler rolling stalk chopper ahead of the strip-till rig to grind up the stalks while they still have moisture in them. According to his stalk nitrate tests, getting the moist stalks in contact with the ground can increase microbial matter without having to spray urea-ammonium nitrate.



FIT TO BE TIED. This past fall, Steinlage fastened a metal chain around the middle of the rolling basket chains on his Gladiator strip-till rig to make sure strips don’t get flattened. “In fall, we want it chunky and probably don’t need a basket, but it’s part of the row unit on the Gladiator,” he says.

“We’ve got a nice seedbed to plant in, but and in some areas I’m going from peat to gravel in the same pass, so the system needs to be adaptable.”

Increasing Fertility

With confidence in his equipment setup, Steinlage says his primary goal now is to fine-tune his fertility program.

“The biggest thing I’m after is long-term efficiency,” he says. “I’m not doing much with cutting rates, and applying basically removal rate for everything. Right now, I want to get my nutrient levels in optimum range before I worry about really getting into things like variable-rate.”

He applies potassium and phosphorus removal rates in the fall with the strip-till rig, based off soil testing. Steinlage also applies a base rate of anhydrous in the fall, which is typically 50 units per acre.

This past fall, he increased the base rate to 100 pounds per acre after seeing some eye-opening results while applying anhydrous. In last year’s corn in one field, every other row was a foot taller where the base rate was higher.



MANAGING RESIDUE. Prior to building his strips in fall, Steinlage runs a Besler rolling stalk chopper, which leaves residue intact, but doesn’t allow the residue to blow like a regular stalk chopper. He tries to run the chopper behind the combine to size the stalks while they are still juicy.

“We’re still leaving the residue intact, but it’s just enough ground contact that it pinches the stalks into the ground and doesn’t blow like a regular stalk chopper,” he says. “I want to keep every stitch of residue I can in the field. The rolling chopper creates a “residue mat” and a lot of times we’ll chop those green stalks and by the time we strip-till, it looks like chopped corn silage.”

Steinlage also modified his 12-row John Deere planter with Dawn Equipment closing wheels and row cleaners to help clear the strips ahead of planting. He’s also added Precision Planting’s vSet seed metering system and plans to add electric drives for 2014.

His current planter setup allows for faster adjustments to accommodate variable ground. This past year, his corn populations ranged from 33,000 to 42,000 seeds per acre, but Steinlage is working toward experimenting more with variable-rate seeding.

“When I was pulling my pre-season nitrate tests, every 5 feet we saw a nice green streak,” he says. “I’m on RTK so it’s as straight as can be in this farmer’s field. Once I looked at it, I noticed those streaks were where my sidedress-rig tracks ran from the previous year.”

Steinlage pulled samples from those areas and found there was 25 pounds more nitrogen in the soil.

“If we would have applied 25 pounds per acre more last fall we probably could have gotten another 25 bushels per acre,” he says. “It’s one of those things where we live and learn.”

Two years ago, he shifted the strips 7.5 inches and sidedressed every 60 inches, so the plants should benefit from being closer to the nitrogen band. This past year, he experimented with shifting only 3 inches.

“We went to a higher rate of anhydrous this past fall to try and mask that difference because we couldn’t figure out why it never showed up until last year,” Steinlage says. “My guess is we never got enough moisture to diffuse the nitrogen.”

In spring, Steinlage will sometimes apply a small amount of ammonium thiosulfate and micronutrients with his planter and then sidedress the balance of nitrogen. In most years, he applies 190 units per acre of nitrogen total on his farm.

“My record is 0.6 pounds of nitrogen per bushel of corn,” Steinlage says. “But we didn’t hit that this past year.”

For the most part, Steinlage relies on tissue samples, pre-season nitrate tests and soil sampling to guide his fertility decision-making. But he also takes into account how the crop looks in the field, to verify that he’s on the right path.

So far, the results have supported his decisions. In summer 2012, Iowa NRCS representatives visited Steinlage to conduct a handful of soil tests. The results showed that in some fields, soil organic matter levels were pushing 5.6%, and in one 6-inch area of a root pit they found 16 earthworm holes.

Soil health is also translating to sustainable yields. His farm average with corn is over 200 bushels per acre, and his 10-year running average is 205 bushels per acre.

“We’ve got excellent soil health and our proven averages reflect that,” Steinlage says.

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