

CONSERVATION *Showcase*



Strip-Till Mitigates River Bottom Soils Issues

Strip-till is helping Monona County farmer Tom Niewohner overcome drainage, soil erosion and compaction issues on his 1,400-acre farm that sits along the Missouri River floodplain.

Strip-till is a system in which residue-free strips of soil are tilled ahead of planting using a knife apparatus, such as a fertilizer injection shank. The strips are approximately six inches wide, or about one-third the row width, and four to eight inches deep. Strip-till helps Niewohner reduce soil erosion, improve soil organic matter, and minimize CO₂ losses from the soil. The system is most beneficial on his farm in areas with cooler, poorly drained soils.

Niewohner says his Luton soils, formed in clay alluvium, drain poorly. "Compaction is related to how well soils drain," he says. "Strip-till helps eliminate compaction."

Making the Strips

Niewohner alternates strip locations by



Tom Niewohner kneels by his Orthman® 1tRIPr bar. He uses trash cleaners, a shank with tillage point and closing wavy coulters.

15 inches every two years. He strip-tills between corn rows in the fall and plants soybeans on them in the spring. That fall, he strip-tills on top of the old bean rows and applies N, P and K for the corn he will plant on those strips in the spring. In the fall, he moves over 15 inches and strip-tills between the corn rows, beginning the two-year process over again.

After planting, strips are at ground level, or one to two inches above ground. Niewohner estimates he places seed two to three inches above a conventionally-planted seedbed. "If you don't plant into raised strips, then you're actually creating a depression with the planter where water will sit in your rows," he says. "In my type of soil and cold-wet conditions, that is not a good thing."

Fertility Plan

In the fall, Niewohner places dry N, P and K and micronutrients six to eight inches into the strips directly over the old soybean rows. "I don't use a starter in the spring—the fall application acts as my starter," he says.



Niewohner has strip-tilled since 2002 in the Missouri River floodplain with excellent results.

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In the spring, he broadcast sprays 30 pounds of liquid 32% N after planting corn in the spring, and sidedresses another 120-140 pounds of liquid 32% N in late May.

Equipment

Niewohner uses an Orthman® “1tRIPr” bar with a 22-inch depth band opening coulter. He uses trash cleaners, a shank with tillage point and closing wavy coulters. Dry fertilizer tubs are attached to the back of the 1” x 4” shank that delivers the product in a vertical area four to eight inches deep.

“The Orthman® setup handles residue very well, plus the shank is strong enough to break up compaction,” he says. “Also, the depth band opening coulter and parallel linkage row unit keeps the tillage depth at the correct spot for good fertilizer placement.”

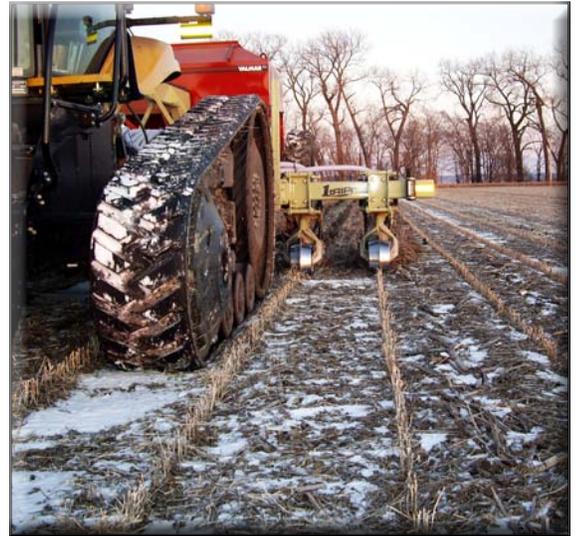
Niewohner uses a Trimble® RTK Autopilot system to keep the strips directly on top of the old row. “At planting time I gain most benefit using RTK to place the seeds directly in the center of the strips,” he says. “It promotes healthy root growth in all directions around the plant and that equates to better yields.”

He says finding the right equipment setup was the biggest challenge when he switched to a strip-till system in 2002. His original strip-till bar worked fine in soybean fields, but he had problems with residue in corn stalk fields. He says his Orthman strip-till unit handles corn residue very well.

Performance/Yields

Niewohner says his yield performance is especially good in years with cold, wet springs. In warm spring seasons where germination is good, he says his yields are similar to non-strip-till systems. “After about the third or fourth year (of strip-tilling), the soil structure changes to where residue breaks down easier,” he says. “I attribute that to more earthworm activity, which strip-till promotes.”

He says germination rates are very good, so he cut down the planting population on dryland corn acres. Niewohner also reports



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no disease issues with strip-till. “I actually get better root structure and standability with strip-till,” he says. “I have less weed pressure early in the season because of the residue in-between the rows. That keeps the ground cool.”

“Strip-till provides the best of both worlds – a warm, dry seedbed to plant on and moisture between rows for later use in the summer,” says Niewohner.

Management Tip

Niewohner recommends committing to strip-till for at least three years—don’t give up after the first year, if things don’t go exactly as planned. “What surprised me the most is how you can manage corn and soybean residue without doing any full width tillage,” he says.

EQIP Strip-Till Payments

The USDA’s Natural Resources Conservation Service (NRCS) provides payments through the Environmental Quality Incentives Program (EQIP) to producers who transition into strip-till or no-till. To participate in the strip-till or no-till EQIP transition, a three-year commitment is required, which offers \$15/acre the first year, \$25/acre the second year, and \$35/acre the third year. For more information about EQIP, visit the Iowa NRCS Web site at www.ia.nrcs.usda.gov or stop by your local USDA Service Center.

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