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## Less is more

By **ROD SWOBODA**

**W**HEN the ground is dry enough to do tillage, it is dry enough to plant. So why do tillage? Why not just plant? That thought is crossing the minds of more farmers this rain-delayed spring. Wanting to save time and fuel costs, they're giving no-till and strip till a second look.

Managing corn residue, particularly on high-yielding soils that tend to be wet, is a challenge that keeps a lot of farmers from adopting no-till. "To overcome the challenge of crop residue at planting, you must start at harvest," says Mahdi Al-Kaisi, Iowa State University Extension soil management specialist. "How you manage residue on the field after harvest is critical to providing a good seedbed environment."

Many farmers chop stalks after harvest, but chopped residue is more apt to plug implements and planters. Al-Kaisi suggests operating the combine's corn head as high as practical at harvest, 12 inches

**GOOD STAND:** "Strip till lets you get a nice, uniform stand as you plant into clean strips, but you still leave plenty of crop residue," says Mark Thompson.

### Key Points

- There's renewed interest in reducing tillage to save costs.
- In soils that stay wet, it's hard to get no-till to work well.
- Strip till can be a good alternative system to use.

or more, for better results.

Instead of no-till, an alternative system to manage crop residue with minimum soil disturbance is strip till. "Strip tillage is an excellent choice in areas where wet soil conditions are dominant in early spring and during planting," says Al-Kaisi, "especially on flatter fields with soils that don't have good internal drainage."

### Best of both systems

Strip till marries the best aspects of conventional tillage with the benefits of no-till. In the fall, a tool bar applicator knives fertilizer into the ground, and its attachments create strips of exposed soil. Crop residue is deposited between the strips. In spring, the strips of soil warm up and dry faster than the rest of the field.

Using residue cleaners and planting into the 8-inch-wide strip-till zone has improved germination and resulted in better stands for Mark Thompson, a Webster County farmer. He sees better water infiltration and improved soil tilth. With less tillage and fewer trips over the field, strip till means less crop production cost, and there's no loss in yield.

Usually fertilizer is knifed-in with the strip-till machine in the fall. Some do it in early spring before planting.

"We don't chop or disk stalks. We don't do anything before pulling in with the strip-till machine," says Thompson.

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### 'Operation Strip Till' gets rolling

**T**WO north-central Iowans have put their heads together and created an opportunity for farmers interested in trying strip till on their farms. Iowa Learning Farm cooperator Dave Nelson, and Doug Seltz, a Webster County Soil and Water District commissioner, conceived a way for area farmers to get their toes wet without taking the full plunge.

"Operation Strip Till" is the coordination of a leased tractor, strip-till fertilizer machine and several equipment operators. The strip-till rig will match up with either 12- or 16-row planter sizes, is equipped for fall application of anhydrous or dry fertilizer, and uses GPS autosteer so rows will be straight for spring 2009 planting. For a fee (to cover equipment rental only), farmers can have a portion of their acres strip tilled.

Webster County farmers interested in trying the system can call Nelson at 800-362-1640. For information about strip till and no-till, contact your Iowa State University Extension area field agronomist.

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**IN ACTION:** The strip-till applicator uses air delivery to get fertilizer from the hopper to the fertilizer placement units on the tool bar.



# Strip-till tactics

By ROD SWOBODA

**S**TRIP till isn't about better yields; it's about better economics. That's how Mark Thompson views it. Considering the rising cost of fuel, fertilizer, machinery and other crop production expenses, the benefits of strip till continue to add up.

There's less tillage with strip till, corn gets off to a good start and the controlled traffic pattern reduces compaction. Efficiency is gained by banding fertilizer and planting the seed on those strips. Plus, strip till saves soil and conserves moisture for the crop to use later.

Looking for a way to reduce tillage and still handle crop residue, Thompson, a Webster County farmer, switched to strip till from a disk-chisel system seven years ago. On one farm, he has 200 acres that has been corn on corn for seven years and strip tilled for five years. "Corn on corn is a little tricky," he says. "Planting corn into bean stubble with strip till is relatively easy."

## Two trips, then plant

Regular no-till doesn't work well on the flat, black land near Ft. Dodge where the Thompsons farm. Much of north-central Iowa has soils that stay cooler and wetter in spring. "That's why no-till hasn't been adopted here by many farmers," says Dennis Schulte, district conservationist, USDA Natural Resources Conservation Service in Webster County.

"Strip till is a good soil, energy and cost-saving alternative," adds Schulte. "By creating narrow-width tilled and slightly raised strips of soil to plant into, you can have a warm, dry seedbed and still keep the benefits of reduced soil disturbance across the field."

The first few years Thompson strip tilled, he rented a couple

## Key Points

- Strip till is an alternative to conventional tillage and no-till.
- It creates a soil environment that enhances germination.
- Fertilizer application, tillage are performed in one operation.

of different fertilizer placement machines. "We had issues with fertilizer rates and cleaning the residue off the strip, and with crop residue in the seed zone," he says. "That cost us some stand and some yield."

So they built their own strip-till rig. They mounted a Fargo air box hopper on a running gear and attached a tool bar. The tool bar has Yetter fertilizer placement units, which are fertilizer knives with crop residue managers.

"We like the economics of strip till," says Thompson. "It eliminates field passes, and saves time and fuel. We just go over the field twice with the strip-till machine and then plant. For corn on corn, that's a lot cheaper compared to what we did with tillage."

The first trip is in the fall, knifing phosphorus and po-

tassium fertilizer in strips. In spring, they come back with the strip-till fertilizer applicator again, this time knifing in dry urea nitrogen just ahead of corn planting. They no longer use anhydrous ammonia.

Thompson plants corn with a Case IH Cyclo planter. It has finger-type trash whippers to move any crop residue off the strip. "The planter helps clean the strip if some crop residue happens to get pushed back on top of it," he explains. "Most of the time the planter's trash whippers don't have to do much because the strip was initially cleaned by the strip-till machine, which also has residue managers on it."

## See the difference

The planter is 12 rows wide, the strip-till machine is 12 rows and harvest is with a six-row corn head.

Prior to 2008, Thompson didn't have GPS or autosteer. He did everything by sight. It wasn't perfect, but he kept the planter on the strips most of the time. Once in a while, the planter got off the strips of black soil and planted into crop residue in the row middle,

**CLEAN START:** "We like the residue managers mounted on the fertilizer placement units. They leave a nice clean strip to plant into in high-residue fields," says Mark Thompson.

and you could see a difference in corn plant height and color. Plants growing in the cooler soil with crop residue weren't as tall or as green as corn growing in the strips.

"This spring we added GPS," explains Thompson. "We're not using an RTK [real-time kinematic] system; it's just the WAAS [Wide Area Augmentation System] signal. But it's working well. We lay out the strips with the GPS autosteer and follow them when we plant."

Thompson shares some machinery, including the strip-till rig, with farmers Jon and Brian Larson. One thing all three try to do with strip till is minimize fertilizer cost per acre.

More crop residue covers the fields between the rows, adding organic matter to the soil so more N is supplied by organic matter. How much N is mineralized or released varies year to year, but the N supplied by soil organic matter has al-



lowed the farmers to reduce the rate of commercial fertilizer applied. The late-spring soil nitrate test is used to keep tabs and fine-tune N rates.

The weed control program is all postemergence. Thompson likes to rotate Liberty and Roundup corn to avoid weed resistance developing. He adds a broadleaf herbicide, such as Callisto, to the Roundup herbicide to kill waterhemp.

On fields where soybeans are rotated with corn, these farmers used to plant soybeans on the strips. It worked well. But last year they switched to drilling with a 20-foot-wide no-till drill to save time. "With three of us farming together, we can start drilling beans earlier and don't have to wait for a corn planter to finish the corn before it's available to plant beans," says Thompson.

## System's advantages add up

**W**ITH strip till, the result is a nice, mellow strip to plant into. The black strip absorbs sunlight, warms up faster and gives corn a quicker start. However, some of the system's other advantages aren't as obvious.

For example, tillage destroys earthworm populations. No-till or strip till do just the opposite. If you leave nearly all the crop residue on the field surface and most of the soil undisturbed, earthworms will flourish.

Strip till has produced

many more earthworms for Mark Thompson and farming partners Jon and Brian Larson.

"Previously, when we were doing full width tillage, we didn't have hardly any earthworms," notes Thompson. "Now the worms do the tillage for us very inexpensively. Since starting strip till, our soil tilth has improved. We have a lot more pores in the soil created by worms and better water infiltration as a result."

"I'm not saying strip till offers a huge yield advantage," says Thompson. "But our strip till

**MORE WORMS:** With more residue and no tillage between rows, earthworm populations can increase greatly, helping improve soil tilth.

yields are competitive with, if not better than, other systems."

There are times when strip till shows a yield advantage especially in a hot dry summer. By not tilling and by leaving more crop residue on top of the soil between the rows, the soil acts like a sponge and stores moisture when it rains. "Also, the strip till corn has deeper



roots because the fertilizer is concentrated in the strips," he says. "That's another benefit. It all adds up."