



Mike Hermanson, Story City, Iowa, mounted 34 of the new Mini-Warrior™ strip-till row units on 20-in. centers on a 60-ft. folding toolbar.

## “No Plug” Strip-Till System Uses Coulters To Work Zones

By Lorn Manthey

Row crop farmers looking for a new method of handling strip-tillage, seedbed preparation, and fertilizer application at the same time have a new implement to consider. Mini-Warrior row units from Environmental Tillage Systems (ETS) of Faribault, Minn., use a single 20-in. 8-wave coulters to create zones 4 to 6 in. deep and 7 to 9 in. wide. Two 24-in. containment coulters trail the wavy coulters and roll the churning soil into a 2 to 4-in. high berm that's ready for planting within a few hours. Liquid or dry fertilizer can be placed in front of or behind the main coulters.

Unlike most strip-till machines that use a mole knife, disk-shaped closing coulters, and crumbling devices, the Mini-Warrior has no cutting knife and just three moving parts: the single wavy coulters and the two saber tooth containment coulters. The coulters are kept in the ground by a single 10-in. pneumatic spring that provides 400 lbs. of down pressure. For tougher conditions, twin bags can be used to provide about 800 lbs. of down pressure. A hydraulic-powered compressor supplies the air pressure, which can be regulated from 5 to 80 lbs. at the tractor seat to match soil conditions.

“Each row unit operates independently on the toolbar and maintains constant down pressure,” says Mark Bauer of ETS, who adapted the design from his popular Soil Warrior™ row units (see Vol. 30, No. 2). “Operating depth is controlled by various settings on the containment coulters mounting arms. Each row unit has 18 in. of vertical travel to ride up and over obstructions in the row. All three coulters mount on oil bath spindles which don't require greasing. We built these row units to be simple, efficient and very durable. Each row unit weighs about 280 lbs. and has brackets to mount on a 7 by 7 frame.”

The Mini-Warrior was used on several thousand acres of spring seedbed in Iowa and Wisconsin last spring. Both of the producers using the new row units adapted them especially for their farming operations.

Ronnie Treinen of Lodi, Wisconsin mounted 8 Mini-Warrior row units on a 24-

ft., 7 by 7 Yetter bar with lift assist wheels, spacing the units 36 in. on center. A rear hitch pulled his fertilizer cart. “I was able to run this zoning machine in corn stubble, bean stubble, alfalfa ground and pasture, making just one pass before my planter,” said Treinen. “I did about 600 acres this spring running 8 miles an hour, applying dry fertilizer in the same pass. The zones were perfect to plant into, the fertilizer was well incorporated, and my crop came up with great emergence,” he added.

Treinen was especially pleased with how the Mini-Warrior row units handled rocky ground and tough conditions. “I went over some of the zones twice because of tough compaction but otherwise everything was a single pass and plant. I never had to stop while covering all those acres and never had a breakdown. These row units worked great and saved me a huge amount of time and fuel. With the mole knife machine that I used in the past I would have to fix 20 to 30 shear bolts a day.”

On a much larger scale, Mini-Warrior row units were used on a 36-row machine by Mike Hermanson of Story City, Iowa. Hermanson purchased a 60-ft. Houck bar built by Wil-Rich Manufacturing of Wahpeton, N. Dak. The huge folding rig has a 1,600-gal. liquid fertilizer tank and rides on 24-in. tracks. Hermanson mounted 34 Mini-Warrior row units on 20-in. centers, skipping two rows for the wheel tramlines. He pulled the rig with a Deere 9400T at speeds ranging from 7 to 9 mph.

Using RTK guidance, Hermanson's cousin Nick did spring tillage on about 3,500 acres of corn and soybean stubble in 2007, applying 70 units of 32 percent N in front of the wavy coulters. “The RTK let us till and fertilize the same zones that we placed in the fall of 2006 with the Soil Warrior,” said Hermanson. That machine, however, was only a third the size....12 row units on a 20-ft. bar.

Hermanson's Mini-Warrior machine was able to cover nearly 50 acres an hour on the



Strip-tillage row units from Environmental Tillage systems have a single 24-in., 8-wave coulters followed by two saber-tooth containment coulters. There's no shank or conventional row cleaners. A unique air spring system provides down pressure.



Hermanson's 60-ft. Houck bar is carried by 24-in. wide tracks. He pulls it with a Deere 9400T at speeds ranging from 7 to 9 mph.

large central Iowa fields. Two 36-row planters followed the Mini-Warrior, one set up for planting into soybean ground and another set up to apply additional nitrogen for corn on corn.

“We had real good conditions for about a week, then got dumped on with a 4 to 5-in. rain that shut us down for 10 days,” Hermanson related. “The newly planted corn emerged evenly after the hard rains and there was no washing in the zones. Some of our heavier ground was real wet after those rains, but we were able to get across those fields by running shallower,” he added.

Hermanson said attaching the Mini-Warrior units to the large bar required considerable adjusting at first, because the bar was originally designed for planter row units. “Once we got it dialed in, the machine ran smoothly, applying fertilizer and placing zones 4 to 5 in. deep in last year's corn zones and in soybean stubble.” The only breakdown they experienced was a broken track on their last day of tilling.

With the success of Mini-Warrior units in these applications, Bauer said the company is moving ahead with production for 2008 delivery. “We think these row units prepare



Hermanson covers 50 acres per hour with his big strip-till machine, which is followed closely by 36-row planters.

an ideal seedbed before planting and can apply liquid or dry fertilizer. We don't use row cleaners because the cutting action of the wavy coulters tears residue apart and provides a real decent zone.” Bauer added that “the Mini-Warrior can be used to condition existing zones, and also to place new zones in previously unworked fields with lighter soil.”

For more information, contact: FARM SHOW Followup, Environmental Tillage Systems, 16936 Cannon City Blvd., Faribault, Minnesota 55021 (ph 507 332-2231; www.soilwarrior.com).



Near Lodi, Wis., 8 Mini-Warrior strip-tillage units were mounted on a 24-ft. Yetter toolbar by Ronnie and James Treinen.