

Immediate release

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First Time No-tillers

As the national price of diesel fuel averages around \$5.40/gallon, many farmers are considering no-tilling both soybeans and corn for the first time. Also, due to wet weather and a late planting window, getting crop seed in the ground becomes even more important. Here are a few tips that may help improve your first year no-till crop yields.

First, scout your fields. Weeds like purple dead nettle, henbit, dandelion, chickweed, yellow rocket, ragweed and marehail can be problems and require a good burndown herbicide. Most farmers will use glyphosate (Roundup®) but remember that as a chelator, glyphosate ties up many micronutrients, especially iron, manganese, zinc, and copper, so minimize its use.

Second, check for slugs and other pests, especially in weedy fields. Ferroyx® is a new slug bait that has a 40-day residual. The pellets are very small and the slugs ingest it. The rate is 10-15#/A and costs \$11-\$16/A. If you are not sure how many slugs you have, place a few boards or shingles flat on the ground in several places and check in a few days. There is no Midwest research on slug numbers, but Oregon State University research shows that more than 5 slugs per shingle is an issue. Slugs thrive in moisture cooler weather, when crops grow slowly.

One major downfall to no-tillers is that it often takes 3-7 years to make the transition to no-till. No-till soybeans are more resilient and fairly easy to no-till while corn is less forgiving. Ideally, the best time to no-till, is to plant when the soil is a little warmer, at least 50°F. Several veteran no-tiller's in Northwest Ohio wait until the water temperature in Lake Erie's western basin reaches 50°F, in central Ohio 48°F, and in southern Ohio 45-46°F. Usually planting starts earlier in the South due to warmer soil temperatures. Lake Water temperature, correlates fair well to soil temperature when soils are wet.

One reason farmers till soil is to warm it up. Every tillage pass evaporates about .5 to 1.0 inch of water. It takes 10X more energy to warm up water than it does air. When soils are a little cold, getting the soil to dry out warm it up. For no-tillers, they have to either wait for warmer temperatures by planting later, or they improve their soil structure over time (3-7 years). No-till with cover crops create macroaggregates, large soil peds, that allow water to infiltrate and drain away. Unfortunately, tillage destroys these aggregates. Many nutrients are stored in these aggregates, so most crops benefit upfront from this fast nutrient release.

In tilled fields, poor soil structure and soil compaction are major issues. This creates a major problem for farmers switching to no-till. Poor soil structure does not allow water to infiltrate easily, so ponding or standing water occurs. Soil compaction keeps the soil saturated and keeps soils cold in the spring. Ideally, adding live roots from cover crops not only adds soil organic matter to improve soil structure, live roots also build soil macroaggregates where carbon and nutrients are stored. Tillage can partially fix these problems short-term, but it becomes like a drug addiction. For first time no-tillers, you have to adjust your planting equipment and nutrient management system to counter these effects.

First year no-tillers should plant their crops a little shallower, 1.5-2.0 inches deep. Due to expected compaction issues, the soil will be colder the deeper you plant. As your fields improve with better soil structure and less compaction, farmers should plant deeper. Once tillage is eliminated, plan to plant cover crops to make no-till work better. Live roots add macroaggregates and break up about 8-12 inches of soil compaction per year, going down to 30 inches in 3 years. Live roots promote soil microbes with 1,000-2,000X more soil microbes around the roots than in the bulk soil. Each soil microbe is a soluble bag of fertilizer for your crops. If planning to plant cover crops in the fall, watch for herbicide carryover. Consider planting earlier maturing crops to help get cover crops planted timely.

For first-time no-tilling corn into soybean stubble, row cleaners are helpful to move the residue off the row and to warm up the soil. If planting green into a cover crop, they may be a hindrance. One key to success is to have sharp disc blades to cut residue. Many veteran no-tillers are now removing the front coulter, because then the weight is transferred to your disc blades. For corn nutrient management, no-till corn needs more nitrogen upfront so apply 40-60 pounds N at planting with adequate sulfur, calcium and micronutrients (zinc, copper, manganese). For more no-till info, go to hoormansoilhealth.com.