

## THE TILLAGE-PLANTER RELATIONSHIP

### Take a Systems Approach to Planter-ready Fields



By Jim Henry, Case IH Agronomy and Innovations Manager

New planter technology allows for high-speed planting. But it's your seedbed that sets the speed limit for your planter. So, rather than approaching your final tillage pass as a way to get your fields ready to plant, think of this step as getting your fields ready for your planter.

That's the goal in creating a high-efficiency seedbed, one with a level and smooth seedbed floor: To provide an environment suited to high-speed planting where the planter can consistently and reliably place seeds at the right depth and spacing. Ultimately, this leads to uniform germination and emergence and gives plants the best opportunity to achieve their full yield potential.

Despite all the advancements in planter technology — from residue managers to hydraulic downforce — it remains a reactive system; the planter row unit must constantly react to ever-changing field conditions.

- *Residue managers can help clear the way for gauge wheels, yet the ride of the unit's disk openers on the seedbed floor plays an even bigger role in seed placement and depth.*
- *Hydraulic downforce can help maintain engagement with the seedbed floor, but it cannot perfectly smooth a rough ride. Additional downforce is the result of sensing a rough ride, which with conventional style row units can create side-wall compaction and hinder fast, healthy root development.*
- *High-speed planting makes the bumps bigger. No matter how quickly planter row units can react, the faster you travel, the more row feet you cover before they settle back to the seedbed floor, and, thus, the more seeds improperly placed.*
- *Oftentimes the planter reacts to agronomic inconsistencies it shouldn't have to encounter in the first place. Fixing seedbed problems before your planter pass can significantly improve seed placement accuracy.*

Reducing the number and degree of reactions you ask your planter to make starts with a more proactive approach to the seedbed floor. The smoother and more consistent it is across the entire field, even as soil conditions change, the less reaction is required by the planter. And that allows for higher-speed planting, fewer adjustments and increased efficiency without sacrificing yield.

#### Is High-speed the Right Speed?

High-Efficiency Farming is most accurately measured by bushels in the bin at the end of the season rather than in miles per hour or acres covered on planting day. But that doesn't mean you can't achieve High-Efficiency Farming and higher speeds.

The right tillage tool, properly adjusted and operated, can create a high-efficiency seedbed with an ideal seedbed floor. In fact, research shows that operating the Tiger-Mate™ 255 field cultivator at higher speeds — even up to 10 mph — can help optimize agronomic quality of the seedbed.<sup>1</sup>

A higher operating speed, combined with a firm, yet flexible shank design that maintains a level sweep, can increase soil movement and mixing. The swept-back, high-concavity shank design helps soil ramp up and explode higher for better clod sizing and a more level surface finish. Maintaining a level sweep prevents gouging for a smooth seedbed floor that allows for high-speed planting.

However, just because you can plant up to 10 mph doesn't mean you should. Aim to plant at an optimal speed — one that allows your planter to achieve peak performance and consistency, according to the field conditions and to how those conditions often change across the field.

## Angle in on a Smoother Ride

Conducting each field pass at an angle to the previous one long has been standard practice in crop production. When it comes to making the final tillage pass before planting, consider making a change.

Operating your planter at an angle to that last tillage pass forces the row unit to ride over any imperfections in the seedbed floor. For example, if you use a tandem disk to create your final seedbed, planting in the same direction will help disk openers ride more smoothly.

In contrast, planting at an angle creates opportunity for row-unit bounce each time the disk opener rides over any potential imperfections created by other tillage tools. Higher-speed planting only amplifies this bounce. Making both passes in the same direction also helps manage wheel traffic.

However, even with similar direction a rough seedbed floor may influence the depth that the seed is placed at. If we introduce inconsistencies in planting seed on top of the ridges (firmer soil) vs. in trenches (on top of loose soil) differences in soil density, moisture, temperature can lead to inconsistent germination and inconsistent stands.

## Align Implement Widths, Control Traffic

One of the most often-overlooked opportunities to keep tillage and planting equipment working toward the same goal is to match their operating widths. Yet, for various reasons — different tractor sizes,

equipment availability, operational changes — tillage tools and planting equipment can fall out of sync.

Equal widths between these two implements, and running them in the same direction, helps maintain seedbed floor consistency, soil moisture and temperature uniformity across the width of the planter for more even germination and emergence.

Another advantage to same-sizing your final tillage implement and your planter is wheel traffic. Case IH designed the Tiger-Mate field cultivator and Early Riser® planters for controlled wheel traffic. Pairing implements of equal widths aligns wheel paths to help minimize compaction across the field.



# SET YOURSELF UP FOR AN EFFICIENT AND AGRONOMIC PLANTING SEASON.

While it's easy to understand the importance of a properly set tillage tool for high-quality seedbed, it's often overlooked, especially as a planting season wears on. The last day of seedbed preparation should be examined as intently as the first. Field conditions change, and intended settings of the tillage tool can become misadjusted.



That's why a high quality seedbed surface and floor depend on a well-set seedbed preparation tool.

While fore/aft levelness and mainframe-to-wing levelness typically stay put, they should not be ignored throughout the spring season. The seedbed floor should be examined regularly to evaluate if the front of the tool is operating at the same depth as the rear and the left wing is running the same depth as the right wing. To check, perform a "kill stall" during normal operation and wipe away the top layer of loose soil to find the seedbed floor behind the tillage tool. Check for any inconsistencies in depths between the front and rear of the machine along with inconsistencies in the sections of the tillage tool.

Other settings like tire pressure and depth along with general conditions of shanks, sweeps and shank mounts should be checked on a daily basis. A well-tuned and well-set tillage tool leads to an even more productive, efficient and agronomic system.

<sup>1</sup>Parli, B. (2016). Soil Management Plots.