THE LEADING EDGE

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A PUBLICATION DEDICATED TO MAXIMIZING YIELD POTENTIAL

Spike Closing Wheels Seal the Deal

Growers committed to conservation tillage are making a good choice for the environment and for their bottom line. In the past, planting tools like smooth closing wheels necessitated that growers wait until their minimum- and no-till soils were warm and dry to begin spring planting.

But waiting for ideal conditions means producers may miss their window of opportunity and be forced to contend with typical late-spring rains. The last three years, growers in the Midwest faced heavy, almost-daily, spring rains that delayed planting and resulted in later harvest dates.

According to Paul Jasa, University of Nebraska agricultural engineer and no-till specialist, "Planting corn late can get you into a lot more trouble than planting early. The penalty for planting one week early is usually a lot less than planting late."i

Jasa says that research indicates yield loss typically starts on corn planted after May 15. It can go down 1 percent every day after that.

Solutions for Conservation Tillage

Fortunately, tools are now available that avoid the pitfalls of early planting in cool, damp soils. Spike closing wheels are designed to ensure effective seed-trench closing and make earlier planting dates a possibility, even in less than ideal planting conditions.

Spike closing wheels facilitate consistent seed placement in tough conditions, helping producers meet plant population and spacing targets, as well as improving seed-to-soil contact. Poor seed spacing and seed-to-soil contact hurt emergence. For every 1,000 plants lost per acre, yield drops 8 bushels.

Growers using well-designed spike closing wheels on their planting setups also reap the benefits of:

- Faster warming of the seedbed.
- Avoidance of root-growth-inhibiting compaction.
- Fractured soil for ideal seed-trench closing, even in severe conditions.
- An environment that encourages even emergence.

The Right Configuration

To get the benefits listed above, producers have several configuration options to consider. The right configuration of wheels may vary from year-to-year based on weather and soil conditions, and may be determined by the farming practice used.

One spike wheel and one press wheel

One spike wheel and one press wheel – The rubber wheel will firm one sidewall, preventing too-quick drying, while the spike wheel provides enough fracturing of the other sidewall to properly close the seed trench and allow for easy emergence. Proper adjustment of distance between the two wheels is critical. This configuration may be most appropriate for conservation- and minimum-tillage soils and conditions that range from relatively dry to cool and moist. In most cases, this configuration is used in conjunction with a no-till coulter.


Two spike wheels

Two spike closing wheels – In strict no-till conditions, this more aggressive setup may be the answer to improve trench closing in cool, wet soil. Both sidewalls will be fractured to help avoid compaction. Typically, when two spike wheels are used, there is no coulter in the system.

Two spike closing wheels and a drag chain - If growers are using one of the above configurations and still find that soil is uneven or open over the seed trench (recommended when using two spike wheels), consider adding an optional drag chain to level the crumbled soil. Drag chains are an economical and easy-to-install addition that can make a big impact. Soil may be warmed more consistently, contributing to even emergence.

Two spike closing wheels and a firming wheel – A firming wheel is an option to consider in place of a drag chain. A firming wheel trails the spike wheels to firm the seed zone for ideal seed-to-soil contact.

Additional Tips for Optimal Spike Closing Wheel Performance

- Prior to planting, perform maintenance checks on the spike wheels. Look for worn brackets that may cause misalignment. Also check to ensure the bearing is in good shape.
- Verify that the closing wheels are the same distance from the center of row.
- Adjust the closing wheel arm to run level and also center it over the seed slot. It's easy to let the closing wheel's arm dip down at the rear, especially when running one spike wheel with a smaller smooth wheel. If the arm is too low at the back, the gathering action of the wheel is reduced, sometimes to the point that closing the seed trench is impossible.
- Even with the right closing wheel, down-force should be adjusted to account for soil type and condition. In general, down-force can be set in the low- to mid-range for adequate closing pressure.
- For best results, the seed trench should be closed using residue-free

soil, which eliminates the chance for air pockets. This can be accomplished by using a row cleaner best matched for the soil conditions with the closing wheels.

- Do not let the desire to plant early interfere with good judgment. To plant, soil temperature should be 50 degrees, or be rapidly increasing to that mark.

Early Planting Is an Option for Conservation Tillage

No technique or fertilizer can rescue crops from the effects of improper closing procedures, and few practices have been proven to boost yields as much as early planting. When the desire to plant early in conversation tillage conditions presents less-than-ideal soil conditions, spike wheels rise to the occasion, fracturing the soil along the seed trench, reducing compaction, and improving seed-to-soil contact.

i http://cornandsoybeandigest.com/corn/Plant-Late-Yield-Loss-0401/

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