



# AFS SOIL COMMAND™

TECHNOLOGY FOR AGRONOMICALLY CORRECT TILLAGE



# UNLOCK YOUR SEEDBED'S AGRONOMIC POTENTIAL WITH AFS SOIL COMMAND.

AFS Soil Command helps producers overcome unseen challenges to unlock more of a field's full agronomic potential. Producers can now use technology to identify and correct misadjusted settings, optimizing the productivity of every tillage pass to create a perfect seedbed.

## CREATING A POSITIVE ENVIRONMENT FOR AGRONOMIC PERFORMANCE.

Seedbed conditions — a core principle of Case IH Agronomic Design™ — affect germination, plant development and, ultimately, yield potential. When you pull your planter into a field, you expect a soil surface that looks ready to plant — a field with a smooth consistency as far as the eye can see. But an ideal seedbed reaches much deeper. The agronomic qualities you can't see are as important as the ones you can see.

## CROP RESIDUE MANAGEMENT.

Case IH tillage tools help you cut, size and mix crop residue to reduce erosion and increase production capacity. This **effective crop residue management** allows you to speed up residue breakdown in the soil to more quickly recycle the nutrients held up. This provides a soil/residue mixture that allows moisture to penetrate the subsoil faster and decreases erosion through improved porosity and drainage.

## SOIL TILTH.

Ideal soil composition — known as soil tilth — is **50% soil and 50% pore space**, with water and air equally distributed within the pore space. Soil compaction eliminates this needed pore space and is a common yield-robbing culprit. Proper primary tillage using a Case IH disk ripper effectively **fractures compaction to increase soil tilth** and encourages vigorous root development, which promotes better stands and higher-yielding plants. You will see **soil warm faster and more evenly for earlier spring planting**, increased water absorption and a reduction in ponding.

## SEEDBED CONDITIONS.

Case IH tillage tools give you the flexibility to **finish the field to match your farming practices**. Creating a first-pass surface that settles level prior to secondary tillage and planting maximizes each plant's yield potential, which leads to a more uniform plant stand. Put the finishing touches on your seedbed with a smooth surface and seedbed floor to create an ideal growing environment.



# IS YOUR SEEDBED MAKING THE GRADE?

Every seedbed has agronomic potential waiting just below the surface. Producers just need the right tools to find it. For the first time, with Case IH AFS Soil Command, producers are able to see the agronomic quality of the seedbed — all from the tractor cab. AFS Soil Command helps producers advance from productive tillage to agronomically correct tillage by measuring and optimizing the agronomic performance of the seedbed.



Uneven floor.



Even floor.

## GET MORE OUT OF YOUR SEEDBED WITH AFS SOIL COMMAND TECHNOLOGY.

If the seedbed is the home you've built to foster your crop's early development, think of the seedbed floor as the foundation. It is the base on which your seed environment is formed. And just as the foundation is critical to any structure, **optimizing the agronomic quality of the seedbed floor sets the stage** for your crop to reach its full yield potential.

## THE SEEDBED FLOOR DEFINED.

The seedbed floor is the narrow layer between worked and unworked soil, commonly at the depth the seed is placed. **When created with the right tool that's properly adjusted**, the seedbed floor is smooth, level and consistent across the full width of your tillage equipment.

Because the **seedbed floor is where your planter rides, it needs to be firm** to support the row unit and provide a smooth ride.

## ADVANTAGES.

- Consistent seed spacing and depth is necessary for fast, uniform germination and emergence.
- A flat and consistent floor allows for consistent seminal root development when the plant is young.
- Consistency in the floor flatness and firmness can help roots grow at a slight angle toward more moisture and nutrients, instead of sideways, which could delay plant development.

## THE TILLAGE-PLANTER RELATIONSHIP

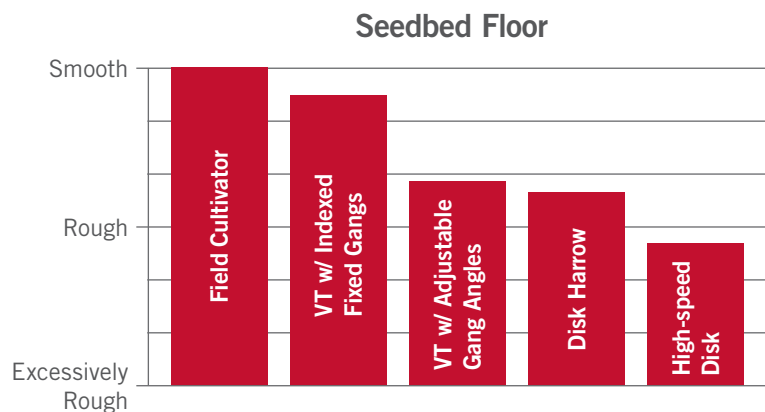
# TAKE A SYSTEMS APPROACH TO PLANTER-READY FIELDS.

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.



### UNDERSTAND HOW DIFFERENT TOOLS IMPACT THE SEEDBED.

Different tillage tools can adequately achieve certain components of a high-efficiency seedbed. But Case IH agronomist field tests prove a field cultivator does the best job of bringing together all the elements and is the most commonly used implement for the final tillage pass before planting. However, a field cultivator is not a fit for every farming operation. It is helpful to understand how different tools can impact seedbed preparation, particularly the creation of a smooth, consistent seedbed floor.



### SMOOTH SEEDBED FLOOR = UNIFORM EMERGENCE.

A rough seedbed floor can make the planter row unit bounce, causing uneven seed placement (spacing, skips and depth). But analysis from the University of Wisconsin Extension shows that seeding depth and its impact on uniform emergence are a greater yield determinant than plant spacing.<sup>1</sup> High-speed planting or using a planter that isn't designed for high-speed planting only amplifies these challenges.

- Varying seed depth leads to poor uniformity in germination and emergence.
- Research shows that uneven emergence can lead to less leaf area, dry matter accumulations and early emerging plants outcompeting the straggler plants for sunlight.<sup>2</sup> The result is reduced yields at harvest.

<sup>1</sup> Lauer J. Effect of Corn Spacing and Emergence Variation on Grain Yield. University of Wisconsin, 1575 Linden Drive – Agronomy, Madison, WI 53706

<sup>2</sup> Liu W, Tollenaar M, Stewart G, Deen W. Response of Corn Grain Yield to Spatial and Temporal Variability in Emergence. Crop Science. Crop Science. 2004;44(3):847-854.

# BUILDING A HIGH-EFFICIENCY SYSTEM.

Achieving maximum yield potential depends on seed-by-seed precision. When your tillage regimen and planter work in harmony, you create a high-efficiency system.



Day of Emergence*	Day 1	Day 2	Day 3	After Day 3	Average
Number of Plants Emerged	59	6	3	2	70
Average Weight of Ears at Harvest (oz.)	10.79	7.65	8.2	3.05	10.19
Percent of Ears	84.3	8.6	4.3	2.9	100
Yield (bu./A)	217	154	165	61	205

*25,400 ears per acre; hand-harvested from 40-foot length of row*

## BUILDING A HIGH-EFFICIENCY SYSTEM.

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.

- The suite of Case IH soil management tools and 2000 series Early Riser® planter complement each other — first creating a high-efficiency seedbed and then delivering the ultimate in seed-placement accuracy.
- The latest monitoring and control technology for tillage — AFS Soil Command from Case IH — gives you the tools you need for agronomic seedbed optimization.



## AT 10 MPH, SMALL BUMPS MAKE A BIG DIFFERENCE.

- At 10 mph, your planter travels 14.667 feet per second.
- At a population of 36,000 seeds per acre in 30-inch rows, each planter row places one seed every 5.81 inches.
- That's about two seeds per linear foot per row and 28 to 30 seeds per second per row.

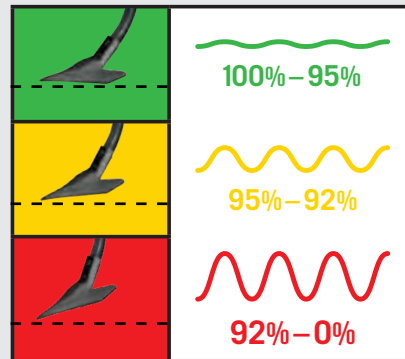
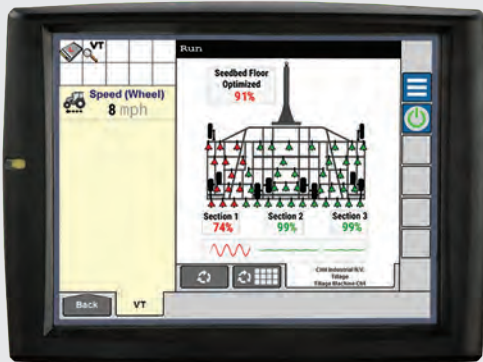
Now consider how many seeds end up above the intended planting depth each time a row unit bounces or rides over an imperfection in the seedbed floor.

- Even the latest hydraulic downforce technology can't eliminate the bump that caused their reaction in the first place.
- It takes time for the row unit to settle down to the seedbed floor. In just a quarter-second, your planter travels more than 3½ feet and places seven to eight seeds — each potentially inconsistent with its intended position. And, when it comes to optimal seed placement, time is bushels.

\*Source: Keith Balderson and Wade Thomason, 2016, Corn Emergence Evaluation, Virginia Cooperative Extension, Virginia Tech-Virginia State University, CSES-157NP

# AFS SOIL COMMAND TECHNOLOGY SUITE.

Whether there's a seasoned farmer or unskilled operator in the cab, this advanced suite of tillage technology adds precision to soil management. AFS Soil Command offers both seedbed sensing and agronomic control technologies to help optimize through measurement, monitoring and control and to provide data to inform decisions that can boost yields down the road.



## MONITOR AGRONOMIC QUALITY.

- Built on Agronomic Design™ principles, AFS Soil Command **helps producers fix seedbed issues before they become an issue** for the planter.
- Sensors mounted to select shank assemblies on the Tiger-Mate™ 255 field cultivator **alert the operator when the shanks begin to float**, resulting in an uneven seedbed floor.
- The Advanced Farming Systems (AFS) Pro 700 display interface makes it **easy for operators of any skill level** to effectively monitor the Tiger-Mate 255 field cultivator.
- Green, yellow or red performance indicators are simple and easy to understand.

## RELIABLE SENSING TECHNOLOGY.

AFS Soil Command **integrates reliable precision technology** into each tillage pass.

- **Factory-installed sensors are seamlessly integrated** into the Tiger-Mate 255 to provide real-time, quality feedback to the operator on any ISOBUS-VT-compliant display.
- Sensors are built with dependable AFS components, matching the performance and ruggedness of the field cultivator.
- Operators can focus on creating an agronomic seedbed floor, instead of tending to their machine.

## ADVANTAGES.

- Delivers real-time feedback from the seedbed to help the operator make yield-enhancing adjustments.
- Eliminates the irregularities that lead to an uneven seedbed floor and planter row unit bounce.
- Seedbed sensing technology creates an agronomic seedbed floor.
- Producers can measure and optimize the agronomic quality of their seedbed — right from the tractor cab.





### AGRONOMIC CONTROL TECHNOLOGY.

Adjust the settings to optimize each tillage pass. Producers can make agronomically correct adjustments from the seat of the tractor, ensuring the entire machine is properly set.

AFS Soil Command agronomic control technology is available on the Constant Level Tiger-Mate™ 255 field cultivator, the single-fold True-Tandem™ disk harrows and vertical tillage tools, and the Ecolo-Tiger® 875 disk ripper. This allows producers to precisely coordinate control of every component of their tillage equipment to optimize machine settings as field conditions change. When shank depth is adjusted, all other functions of the machine — including fore/aft leveling, disk gang depth, leveler depth, crumbler pressure and stability wheel position — react to remain optimized for a smooth and consistent seedbed floor.



All functions of AFS Soil Command can be mapped during operation to keep records of settings and to maximize yield potential. Once a field is completed, wirelessly transfer the data to the AFS Connect portal and transfer the data to AFS Software.

AFS Soil Command Features	Ecolo-Tiger 875	Tiger-Mate 255	True-Tandem 345/375	True-Tandem 335VT/Barracuda
Fore/Aft Adjustment	✓	✓	✓	✓
Disk Gang Depth	✓			
Disk Frame Depth			✓	✓
Shank Depth	✓	✓		
Leveler Depth	✓			
Crumbler Pressure	✓	✓	✓	✓
Shank Seedbed Sensor		✓		
As-tilled Mapping	✓	✓	✓	✓
AFS Connect Data Transfer	✓	✓	✓	✓

# SPRING TILLAGE.

## TIGER-MATE 255 FIELD CULTIVATOR.

The industry-leading Tiger-Mate 255 field cultivator creates an ideal seedbed, and producers may choose to further enhance the agronomic quality of that seedbed with two innovative AFS Soil Command technology offerings: seedbed sensing technology and agronomic control technology. Producers can use this technology to make yield-enhancing adjustments and eliminate the irregularities that lead to an uneven seedbed floor and identify and correct misadjusted settings across the entire machine to create an ideal seedbed.



### HYDRAULIC FORE/AFT CONTROL.

Fore and aft levelness delivers a consistent seedbed finish to complement seed placement during planting.



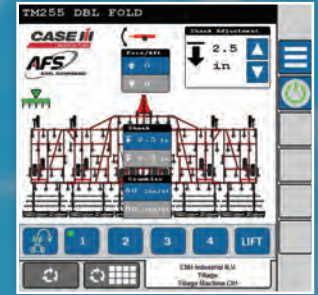
### MECHANICAL BACKUP.

All functions can be operated mechanically should a failure occur.



### RUGGED, RELIABLE INTERNAL POSITION SENSORS.

Depth and fore/aft cylinder position sensors are protected in harsh conditions.



### INTUITIVE USER INTERFACE.

All functions can be set individually via the ISOBUS-compliant display and then saved to 1 of 4 presets.







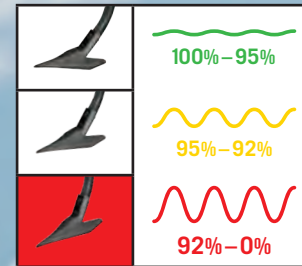
### SHANK DEPTH.

A properly set shank depth allows the Tiger-Mate 255 field cultivator to precisely condition the seedbed surface and seedbed floor to create the ideal environment for each seed.



### CONTROL VALVES.

Implement-mounted control valves are placed near the function being controlled to provide precise control and repeatability.



### SHANK SEEDBED SENSOR.

Sensors mounted to select shank assemblies alert the operator when the shanks begin to float, resulting in an uneven seedbed floor.



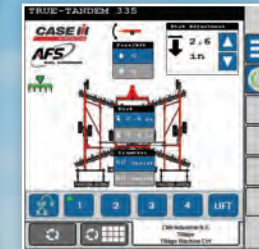
### CRUMBLER PRESSURE.

Crumbler pressure reacts when the field cultivator frame depth is adjusted, allowing for consistent clod sizing and finish.

# DUAL-SEASON TILLAGE.

## SINGLE-FOLD TRUE-TANDEM 335VT AND 335 BARRACUDA VERTICAL TILLAGE.

Case IH True-Tandem vertical tillage is for a shallow and time-efficient tillage pass that slices through residue, mixes soil with the residue and levels the soil surface. Used in both fall or spring, Case IH vertical tillage technology can be complemented with AFS Soil Command agronomic control technology to optimize fore-aft adjustment, disk frame depth and crumbler pressure for optimal residue management and seedbed creation.



### INTUITIVE USER INTERFACE.

All functions can be set individually via the ISOBUS-compliant display and then saved to 1 of 4 presets.



### HYDRAULIC FORE/AFT CONTROL.

Fore and aft levelness delivers a consistent seedbed finish to complement seed placement during planting.



### MECHANICAL BACKUP.

All functions can be operated mechanically should a failure occur.



### RUGGED, RELIABLE INTERNAL POSITION SENSORS.

Depth and fore/aft cylinder position sensors are protected in harsh conditions.



#### **CONTROL VALVES.**

Implement-mounted control valves are placed near the function being controlled to provide precise control and repeatability



#### **VT FRAME DEPTH.**

Properly set disk frame depth lets the True-Tandem 335VT or 335 Barracuda vertical tillage tool precisely condition the seedbed to create an ideal environment for each seed.



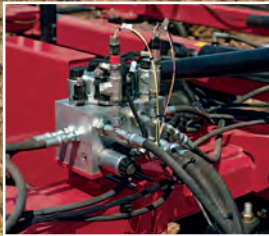
#### **CRUMBLER PRESSURE.**

Crumbler pressure reacts when the VT frame depth is adjusted, allowing for consistent clod sizing and finish, soil particle stratification and surface leveling.

# DUAL-SEASON TILLAGE.

## SINGLE-FOLD TRUE-TANDEM 345 AND 375 DISK HARROWS.

Case IH True-Tandem disk harrows effectively slice through residue, uproot root balls and help level the soil surface. Used as a fall residue management tool or a spring seedbed preparation tool, True-Tandem disk harrows can now be paired with AFS Soil Command agronomic control technology. This advanced technology helps to optimize settings and adjustments that are critical to creating a smooth and consistent seedbed floor.



### DISK FRAME DEPTH.

Properly set disk frame depth lets the True-Tandem 345 and 375 disk harrow precisely condition the seedbed to create an ideal environment for each seedbed.



### MECHANICAL BACKUP.

All functions can be operated mechanically should a failure occur.



### RUGGED, RELIABLE INTERNAL POSITION SENSORS.

Depth and fore/aft cylinder position sensors are protected in harsh conditions.



### CONTROL VALVES.

Implement-mounted control valves are placed near the function being controlled to provide precise control and repeatability.



### INTUITIVE USER INTERFACE.

All functions can be set individually via the ISOBUS-compliant display and then saved to 1 of 4 presets.



### HYDRAULIC FORE/AFT CONTROL.

Fore and aft levelness delivers a consistent seedbed finish to complement seed placement during planting.



### CRUMBLER PRESSURE.

Adjustable Crumbler downforce allows for consistent clod sizing and finish, soil particle stratification and surface leveling.

# FALL TILLAGE.

## ECOLO-TIGER 875 DISK RIPPER.

Ecolo-Tiger® 875 disk ripper helps prepare an ideal seedbed by properly sizing clods and residue to set the stage for a more effective and efficient spring tillage pass. Use AFS Soil Command agronomic control technology to ensure proper settings and adjustments. When the shank depth is adjusted, all other functions of the machine — fore/aft leveling, disk gang depth, leveler depth and crumbler pressure — react to remain optimized for peak agronomic performance.



### CRUMBLER PRESSURE.

New, adjustable Crumbler downforce allows for consistent clod sizing and finish, soil particle stratification and surface leveling.

### LEVELER DEPTH.

Adjust leveler depth to precisely fill the shank paths and create a high-efficiency seedbed.

### CONTROL VALVES.

Implement-mounted control valves are placed near the function being controlled to provide precise control and repeatability.



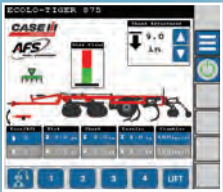
### RUGGED, RELIABLE INTERNAL POSITION SENSORS.

Depth and fore/aft cylinder position sensors are protected in harsh conditions.



### SHANK DEPTH.

A properly set shank depth allows the Ecolo-Tiger disk ripper to precisely fracture the compaction layer to maximize water infiltration and fertilizer mixing and encourage proper root growth.



### INTUITIVE USER INTERFACE.

All functions can be set individually via the ISOBUS-compliant display and then saved to 1 of 4 presets.



### HYDRAULIC FORE/AFT CONTROL.

Fore and aft levelness delivers a consistent seedbed finish to complement seed placement during planting.



### DISK GANG DEPTH.

Disk gang depth adjustments maximize cutting and soil mixing. A new spring pack position sensor advises the operator if the gang is being over-pressured so corrections can be made before damage occurs.



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