FurrowForce™

The Goal Of A Closing System

The closing system is a critical aspect of the planter that leaves the operator questioning if it is set right or even if it is the right system for the field conditions. What spring pressure should it be set it to? Which of the dozens of wheel types do I use? Do I need to change settings during the season, throughout a single day, or even throughout a field. Current closing systems are attempting to address one aspect of closing but struggle to provide what is necessary for optimal emergence:

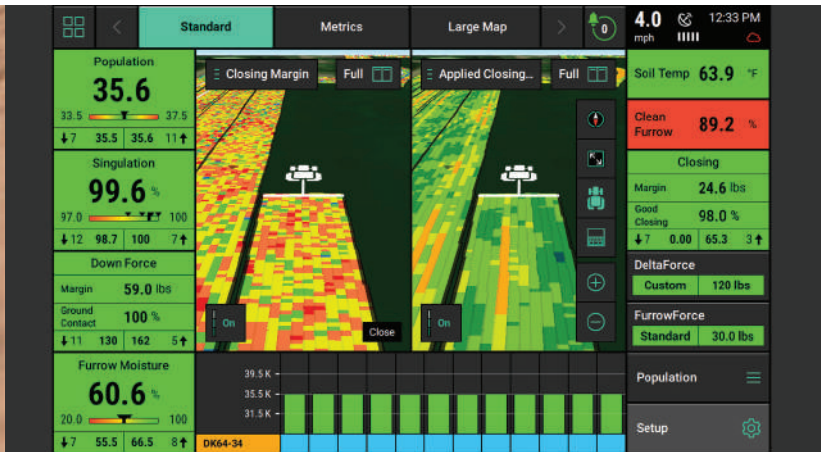
1. **No Slotting or Air Pockets**
2. **Mellow Path to the Surface**
3. **Moisture Retention in Loose Soil**

Correct closing means management of soil density to drive uniform seedbed moisture and temperature, minimizing delayed germination, inconsistent emergence, and lost yield. And you may not even be aware of these issues in your fields. Too much air in the soil after closing is your enemy, as either hidden air pockets in hard to close environments or loose soil that dries out quickly in easy to close environments.

Confidence That Your System Is Set Correctly

FurrowForce changes closing entirely, addressing all aspects of managing soil density through it's unique design as an automated two stage closing system with integrating sensing. The first stage closes the trench from the bottom up to eliminate air pockets and the second stage stitch wheel wheels firm the soil for moisture retention, fully managing the seedbed environment for consistent germination.

FurrowForce eliminates the guesswork of what notch to set your closing system to. The first and second stage are linked together with the remaining stitch wheel weight being measured by a load cell on each row and displayed in the cab on the 20|20 monitor. Using the load cell, a control module on each row automatically increases or decreases the force applied to the closing wheels, to ensure that the first stage wheels are successfully closing the trench and the second stage applying just the right weight for optimal seedbed moisture and soil density management. Across every acre, with FurrowForce, you can now be confident in your planter's ability to manage furrow closure for optimal germination and emergence.



Precision Planting®

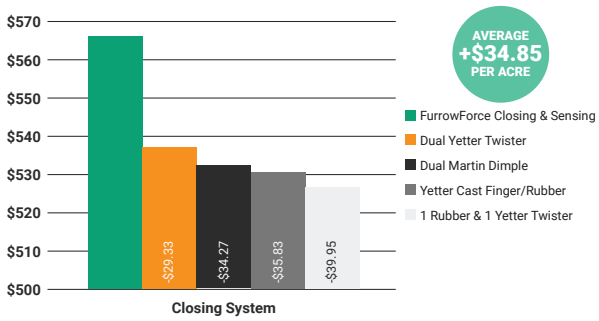
See The Difference

FurrowForce is an automated system, meaning that the operator in the cab sets a desired closing margin, or the amount of weight carried on the stitch wheels. As variation is encountered in the soil, as you change speeds, or as row unit downforce changes, the change in weight on the stitch wheels is sensed by the load cell and the control module changes the force applied to the entire system, keeping the first stage wheels at just the right pressure while maintaining ideal closing margin on the second stitch wheels to optimally firming the soil to manage soil density and moisture. It's a smart system that eliminates guesswork.

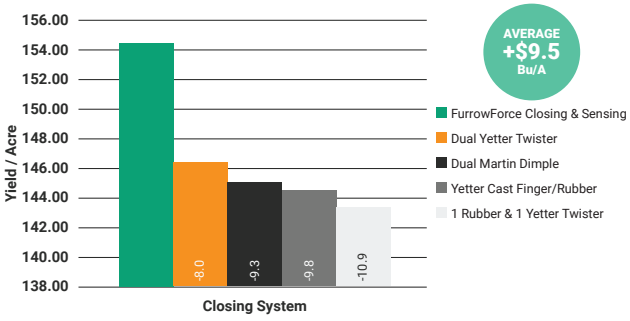
Get the confidence you deserve with FurrowForce, the automated two stage closing system with integrated sensing.

In 2019, various closing systems were studied at the Precision Planting Precision Technology Institute in Pontiac, IL. See the study results below, where sensing and control improved yield over traditional systems, in a continuous corn program.

2019 PTI Farm Closing System Study: Continous Corn $Return



2019 PTI Farm Closing System Study: Continous Corn Yield



Specifications

ROW UNIT

JOHN DEERE® 7200/7300/17XX/DB/17x5/ ExactEmerge

KINZE® 3000
PRECISION PLANTING® Ready Row Unit
WHITE® 9000
HARVEST INTERNATIONAL® LaserPro

OTHER REQUIREMENTS

20|20 (Gen 3) is required for sensing and control.

Air Supply - Precision Planting has options for compressors that are matched to your planter as part of the FurrowForce system.

Wheels - FurrowForce uses specific wheels from Precision Planting for the first and second stage.

Rocky Conditions - A rock guard from Precision Planting is required for FurrowForce when planting in fields with rocks.

SmartFirmer®

The Furrow - The Seed's Lifeline

Digging seeds is a time consuming yet important task at planting time. Getting your eyes on the furrow, where the seeds are placed, will allow you to understand if those seeds are in an environment to thrive. Does the seed have adequate temperature and moisture? Has it been surrounded by clean soil, free of residue? What is the power of the soil around each seed to feed the growing plant? Until now, you didn't know these things for every seed, you were simply guessing. With SmartFirmer you can now have eyes in the furrow.

Smarter Every Season

Soil warmth and moisture are the two most critical factors to consider at planting time for rapid, uniform germination to happen. SmartFirmer measures soil temperature in real time and displays it on the 20|20 allowing you to decide if the soil is warm enough for germination to happen quickly. Moisture can vary from heavy low ground to a sandy knob in the field, and SmartFirmer will show this change to you, allowing you choose to plant a little deeper to maintain adequate moisture. Mechanical problems on the row unit, such as a loose gauge wheel can cause dry soil to shower into the furrow. SmartFirmer would alert you to this, allowing you to look for the issue on the row unit and fix it.

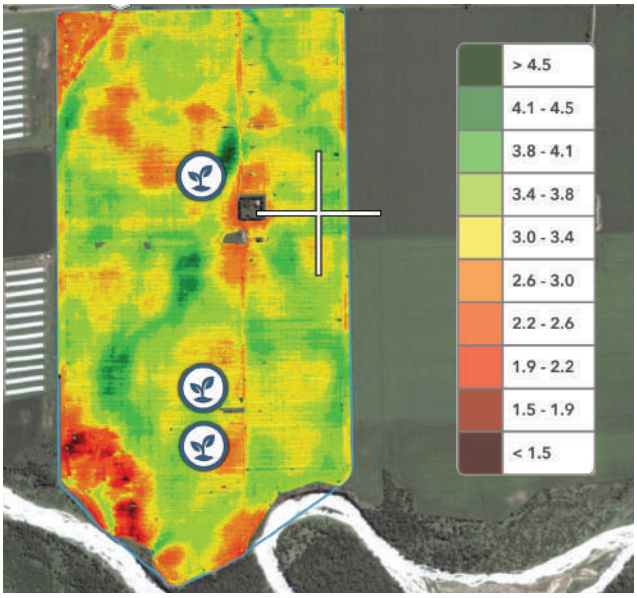
Residue Visibility

Old crop residue in the furrow hurts a seed's ability to germinate quickly, but it can also carry disease into the new crop. SmartFirmer senses residue in the furrow and displays a clean furrow metric on the 20|20. SmartFirmer residue sensing compliments a floating row cleaner control system like CleanSweep® by allowing farmers to have confidence that the furrow is cleared and that row cleaner settings are correct.

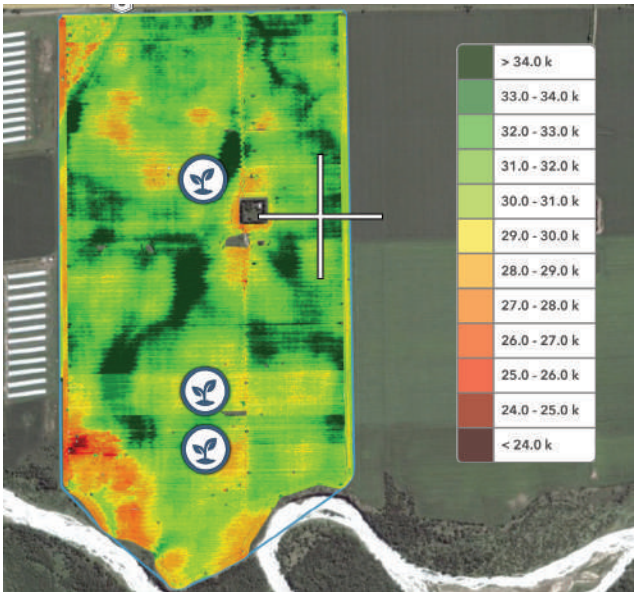
Precision Planting®

See The Difference

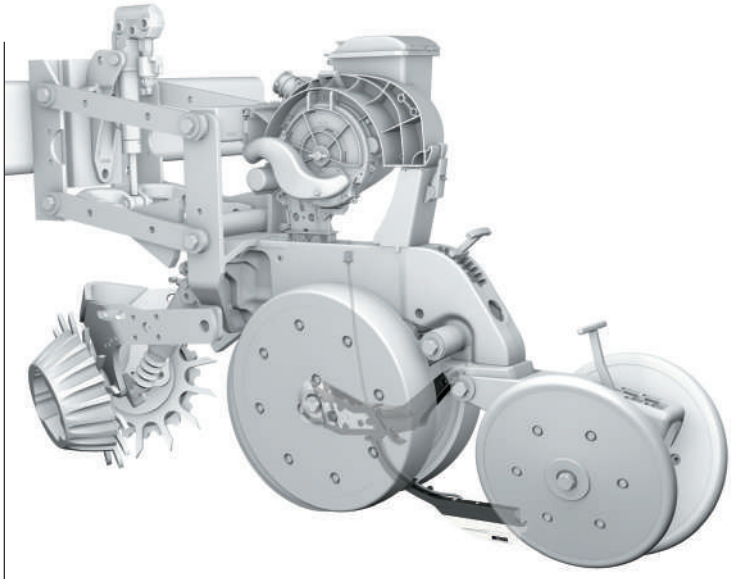
Organic matter is one of the most influential measurements for overall productivity of a soil. SmartFirmer provides a cost effective way to measure organic matter in every inch of the furrow. SmartFirmer can also act on those organic matter measurements when paired with Precision Planting control technologies. Plant population, hybrid, and fertilizer rate can all be controlled on-the-go as SmartFirmer detects different organic matter zones in the field. For farmers who have found variable rate technology too overwhelming, SmartFirmer provides a simple way to make the most out of every zone.



Organic Matter



Population



Compatibility

ROW UNIT

HARVEST INTERNATIONAL® LaserPro
JOHN DEERE® 7000/1700/7100/7200/7300/17XX/DB/17X5
KINZE® 2000/3000/4900
PRECISION PLANTING® Ready Row Unit
WHITE® 900

FurrowJet (Using a Mini SmartFirmer)

See below what happens to seeds that are not planted in adequate moisture to germinate. The plant on the left is two leaf collars behind, and most likely will not set an ear. SmartFirmer measures and displays furrow moisture on the 20|20 allowing you to make adjustments to get each seed into moisture for proper germination.

Precision Planting®

vSet®

Every 1% Loss in Singulation Costs You up to 2.5 Bu/A*

Meter performance is a key contributor to yield. If your meters perform at less than 99% singulation, you are losing out on yield. Walk your fields and measure off 17' 5" of one of your 30" rows. Is there one skip? Is there a double? Are there more? Can you afford that at today's grain prices?

Every Seed Counts

Planting refuge corn mixed in with your traits? Using high rate seed treatments or inoculants? Seed not consistently graded? Successfully singulating seed is getting harder. Not all meters can handle these inconsistencies in seed shape, size, and density. How well is your meter performing today?

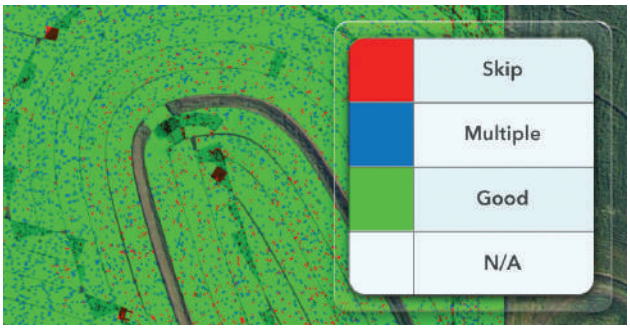
Get 99%+ Singulation in Corn with vSet

vSet uses a high vacuum setting and an aggressive singulator to properly singulate seeds across a variety of sizes and shapes. There is no need to change the disk, the singulator settings, or the vacuum level. By the time the disk passes the singulator, one seed is ready to drop down the tube. Every time. Just pour in the seed and plant.

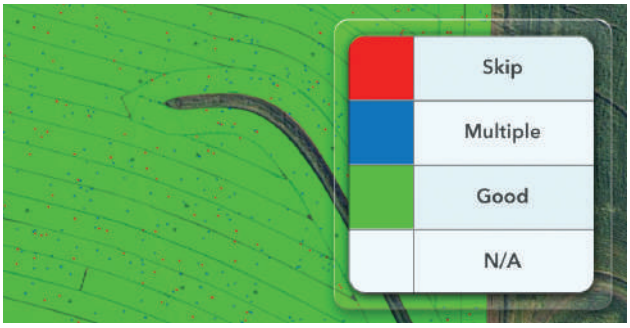
Precision Planting®

See The Difference

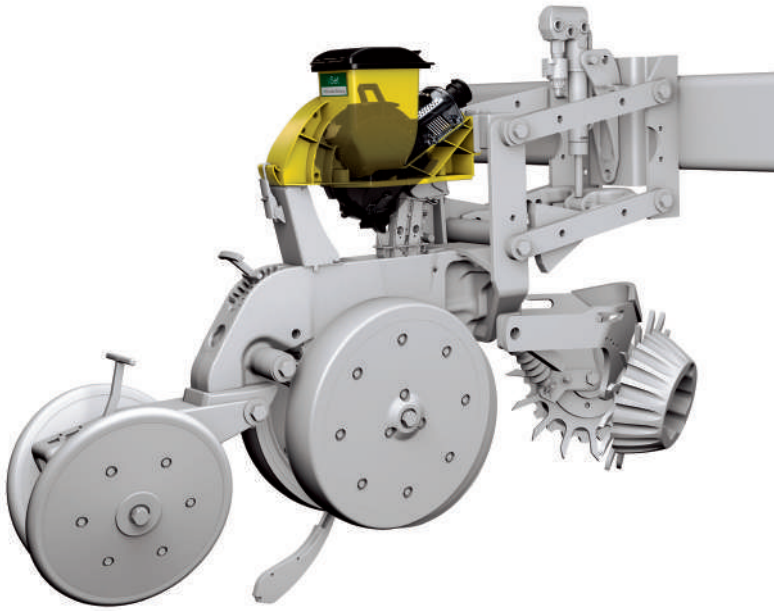
Compare this field planted in 2014 with finger meters to the same field in 2016 planted with vSet meters. This grower moved from 96.2% singulation to 99.7% singulation. At 2.5 bu/A per percentage point thats an increase of 8.75 bu/A just by changing up your meter.



Field planted in 2014 with finger meter. Average singulation was 96.2%, skips were 1.5% and multiples were 2.3%.



The same field planted in 2016 with vSet meters. Average singulation was 99.7%, skips were 0.1% and multiples were 0.2%.



Specifications

ROW UNIT

CASE IH® 1200/12X5/2000*
HARVEST INTERNATIONAL® LaserPro
JOHN DEERE® 7000/7100/7200/7300/17XX/DB/17X5
KINZE® 2000/3000/4900
PRECISION PLANTING® Ready Row Unit
WHITE® 8000/9000

CROP COMPATIBILITY

Corn
Soybeans
Sugar Beets
Sweet Corn
Popcorn
Edible Beans
Sunflowers
Cotton (singulated & hill drop)
Onions
Grain Sorghum
Pumpkins
Canola
Peanuts
Wheat

*vDrive required

WaveVision®

Better Data Leads to Better Decisions

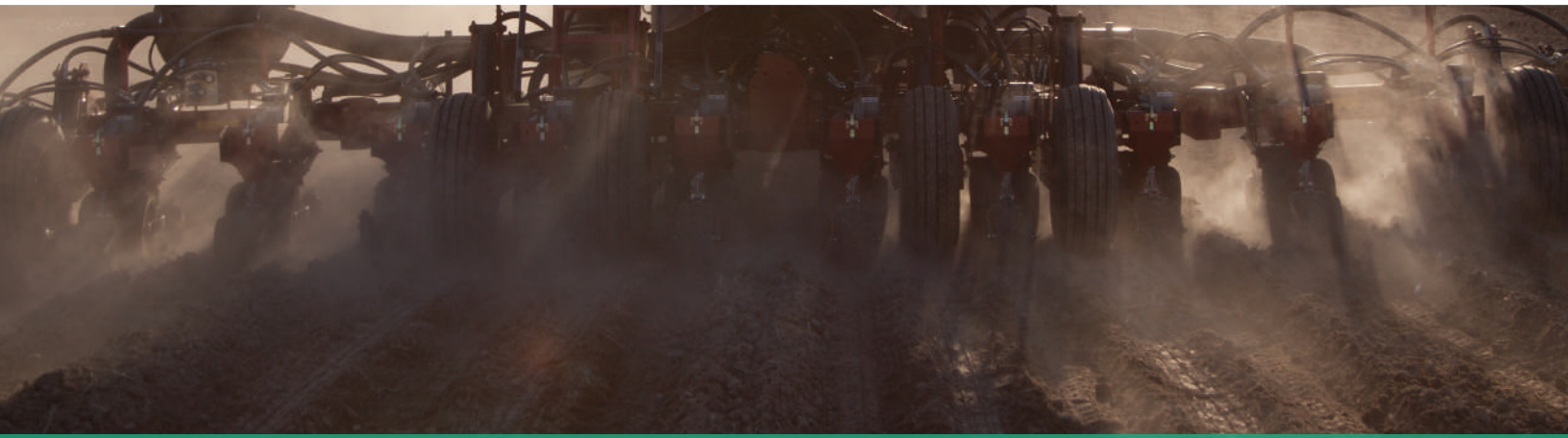
Knowing that your planter is putting down the correct population is vital. Dusty conditions and high populations make accurate population monitoring difficult. Measuring at the middle of the tube is fine for population, but how much does spacing change between the middle and bottom of the seed tube?

Not All Seed Tube Sensors Are the Same

Optical sensors require the seed to break a beam of light in the middle of the seed tube. Multiples, high populations, and dusty conditions challenge the accuracy of this technology. Also, sensing the seed in the middle of the seed tube provides a less accurate view of what spacing will look like in the field.

WaveVision Sees it All

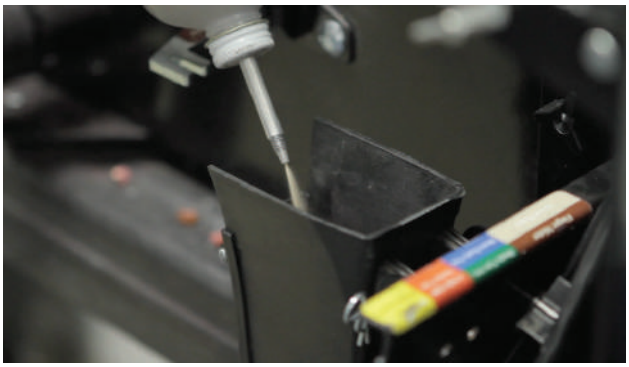
WaveVision eliminates these challenges. High frequency radio waves measure the density of anything passing through the seed tube taking a three dimensional view. WaveVision is not fooled by dust and multiples. By measuring at the bottom of the tube instead of the middle, it gives the best view of actual spacing in the field. Better data leads to better decisions.



Precision Planting®

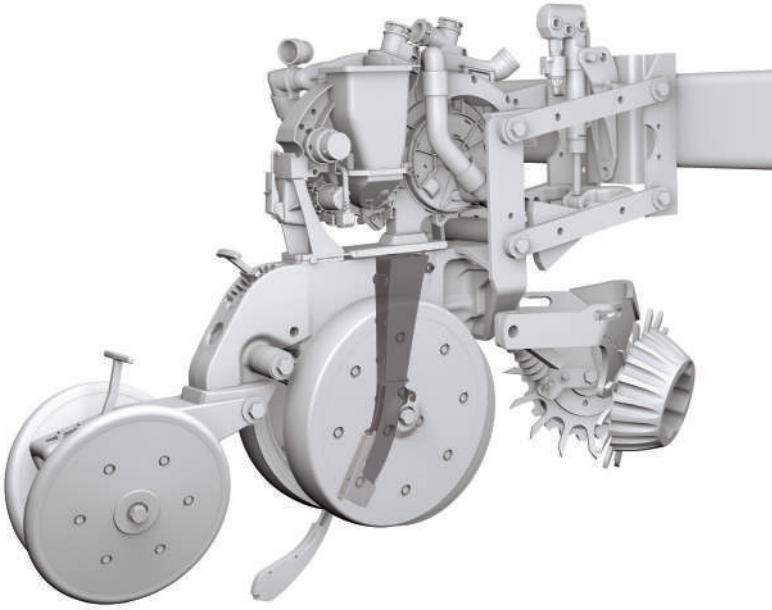
See The Difference

What happens when a WaveVision sensor encounters dust? What about other seed tube sensors? We attached an optical sensor and a WaveVision sensor to the same seed tube and shot graphite “dust” down the seed tube. Look at the results.



Shooting graphite “dust” down the seed tube.

The WaveVision sensor isn’t fooled by the dust like the optical sensor is. See the difference in what these two sensors report to the 20/20 SeedSense®.



Specifications

ROW UNIT

CASE IH® 1200/12X5*
HARVEST INTERNATIONAL® LaserPro
JOHN DEERE® 7000/7100/7200/7300/17XX
DB/17X5
KINZE® 2000/3000/4900
MONOSEM®
PRECISION PLANTING® Ready Row Unit
WHITE® 5000/6000/8000/9000

*2009 and newer only if vSet® and vDrive® installed

YieldSense®

Making Decisions in the Combine Cab

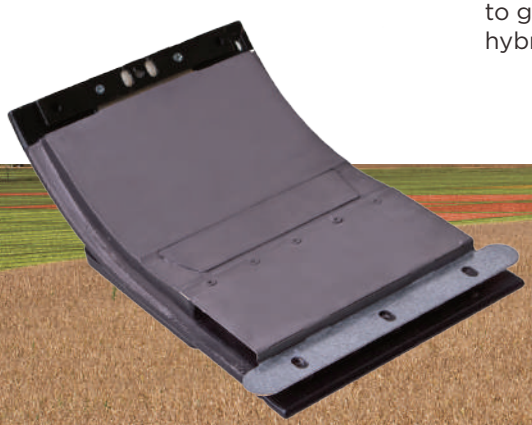
Accurate yield information is one of the most valuable decision tools in any farming operation. Knowing how the different hybrids and varieties yielded in different fields helps us make decisions about what we plant next year. Having better yield data leads to better decisions.

Spatial Accuracy Matters

Getting accurate yield data on a field-level is helpful, but calibrations are time consuming. Getting yield data that is spatially accurate within a field helps make even better decisions. A spatially accurate and easy to calibrate yield monitor provides the best information for the best decisions.

Setup is Simple with YieldSense

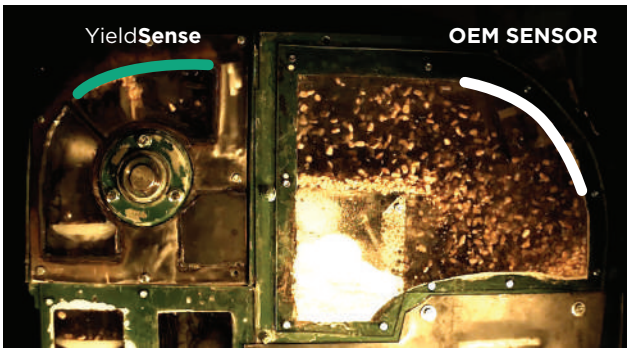
YieldSense is simple to use. One simple calibration per crop, per season is all you need to get started. Our unique grain property kit keeps the sensor calibrated as you change hybrids, varieties and moistures within fields, and from field to field.



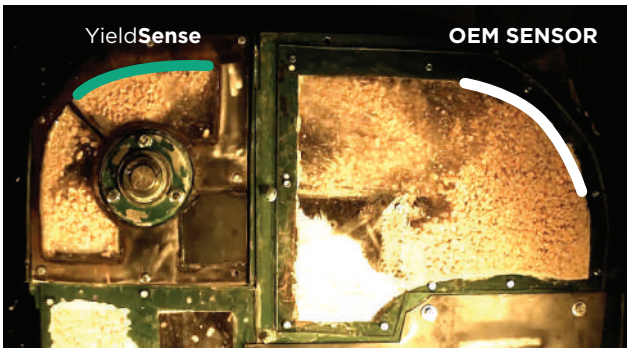
Precision Planting®

See The Difference

Relocating the flow sensor enables accuracy across varying flow rates. Redesigned paddles create a consistent throw of grain across the flow sensor. Check out the high speed screen captures showing grain flow at different bu/A and how the different sensors are reading the grain.

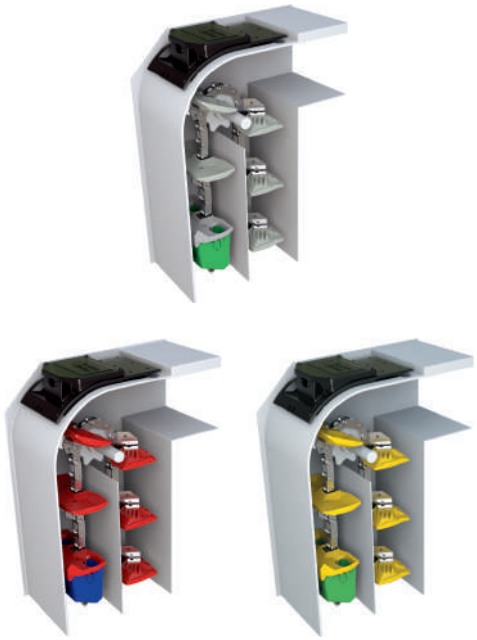


Showing low grain flow across sensor areas. Much of the grain doesn't even hit the other yield sensors (shown in white).



Showing high grain flow across sensor areas. Other yield sensors (shown in white) don't get an accurate reading because grain is hitting grain instead of the sensor.

The grain property bucket is the key to our single calibration. By throwing extra grain across the sensor one time per chain rotation, it enables YieldSense to accurately report yield as kernel properties and moisture levels change.



Specifications

COMBINES

CASE IH® 2X88/2X77/X088/X130/X140/X010/X120/X230/X240
JOHN DEERE® 9X00/9X10/9X50/9X60/9X70/S-Series
LEXION® all 400-Series/500-Series/700-Series

Conceal®

Where The Plant Needs It

Nitrogen is the nutrient needed by a corn crop in the largest quantity, and is the largest cost. You know that it has to be managed well to get the best yield possible from the fewest fertilizer dollars. A traditional broadcast method leaves the fertilizer prone to volatilization and loss, and also places the fertilizer evenly across the field, not right where the plant needs it. A better way is a band of nitrogen placed under the surface of the soil, which protects the nitrogen from volatilization, and puts the fertilizer right where the plant needs it.

When The Plant Needs It

From the time a plant emerges through the V8 growth stage, it is determining the maximum size of the ear it will produce. In this timeframe, yield is lost if the plant is nutrient deficient. Applying fertility with the planter a few inches away from the seed allows moisture to move the nitrogen into the soil profile so that the plant's crown roots will intercept the banded nitrogen right when the plant needs nitrogen; while it is determining its maximum ear size. Making sure that the plant has the fertilizer it needs at this point will help you maximize the return on each dollar spent on fertility.

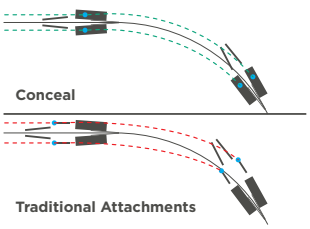
Simple Device For Optimum Fertilizer Placement

In order to accomplish the ideal placement of nitrogen, the attachment must do three things. 1. Always place the fertilizer below the soil surface, even over uneven terrain 2. Always maintain consistent placement of fertilizer relative to the seed, even around curves. 3. Never interfere with other aspects of row unit performance such as closing performance or depth control. Conceal accomplishes all three of these things with a knife that is tucked in a grooved gauge wheel, barely even noticeable on the row unit, yet doing the most consistent job of nitrogen placement on the market.

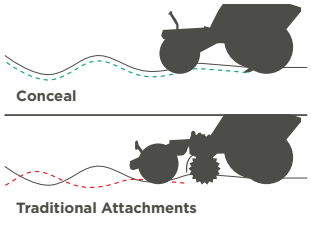
Precision Planting®

See The Difference

Whether you choose a single or dual band, the Conceal knife will maintain ideal placement because it is placing fertilizer right beside the seed, so curves or changes in the surface of the soil do not cause placement variation. Conceal uses the gauge wheel to power the knife through any rocks or residue that it encounters, and while the knife uses the gauge wheel as a guide, it is mounted separate from the gauge wheel and wont impact seeding depth because it is traveling independent of the gauge wheel. Conceal won't get fertilizer all over your planter, because it is, well, Concealed. Fertilizer placed in the soil, consistent with the seed, and it doesn't interfere with other portions of the row unit. Add Conceal today and get the perfect placement you want, and avoid the row unit and fertility placement issues that you don't want to be stuck with.

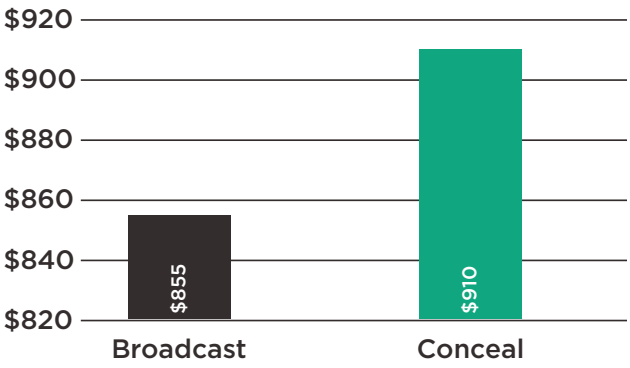


Conceal placement vs. Closing wheel or frame mounted placement around a curve.



Conceal placement over uneven terrain vs closing wheel or frame mounted placement over uneven terrain.

REVENUE / ACRE



In this 2017 study, applying banded nitrogen with Conceal provided an additional $55 per acre of revenue vs a pre-plant broadcast application of the same rate of 28% nitrogen. Conceal Program - 50% of nitrogen was applied in a band with Conceal during the planter pass. The other 50% of nitrogen was sidedressed at V3 with a coulter toolbar. Broadcast Program - 50% of nitrogen was broadcast on surface with sprayer pre-plant and incorporated. The other 50% of nitrogen was sidedressed at V3 with a coulter toolbar.

Specifications

ROW UNIT

HARVEST INTERNATIONAL® LaserPro
JOHN DEERE® 7200/7300/17XX/DB/17X5/7000
KINZE® 2000/3000/4000
PRECISION PLANTING® Ready Row Unit
WHITE® 8000/9000

COMPATIBLE GAUGE WHEELS

A special gauge wheel from Precision Planting is part of the Conceal system.

FERTILIZER USAGE GUIDELINES

Growers are advised to refer to their fertilizer consultants in determining maximum safe rates for their fertilizer product applied and soil type.

AirForce®

Incorrect Down Force is Costing You

Getting down force right while planting is a big factor in how a crop yields at harvest. Too much down force and sidewall compaction prevents good root system development. Not enough down force leads to inconsistent depth and uneven emergence. Put these two together and you can see why getting down force wrong can be so costly.

Down Force Requirements Vary Significantly Within Fields

As important as it is to get down force right, it isn't easy. What is right in one part of a field could be very wrong in another. Only a system that is continuously measuring and adjusting down force throughout the field will prevent the sidewall compaction and inconsistent depth that cost you yield.

AirForce Takes Control

Precision Planting's 20/20 system measures the down force requirements on the go and uses the AirForce system to adjust your planter's existing or newly installed air bags. By measuring and managing both Margin (excess weight on the row unit) and Ground Contact (the percentage of time with a minimum of weight present to guarantee depth and consistency), AirForce provides a planter-wide control solution to down force management problems.

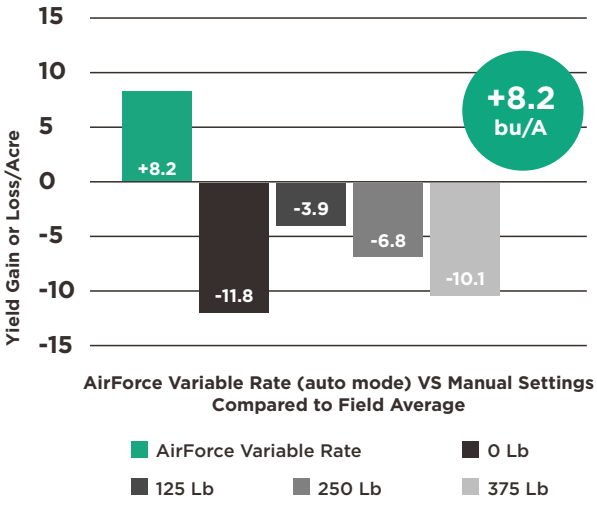
Precision Planting®

See The Difference

How much could incorrect down force be costing you?

Down Force Study

Becks® PFR AirForce 5 Year Study*



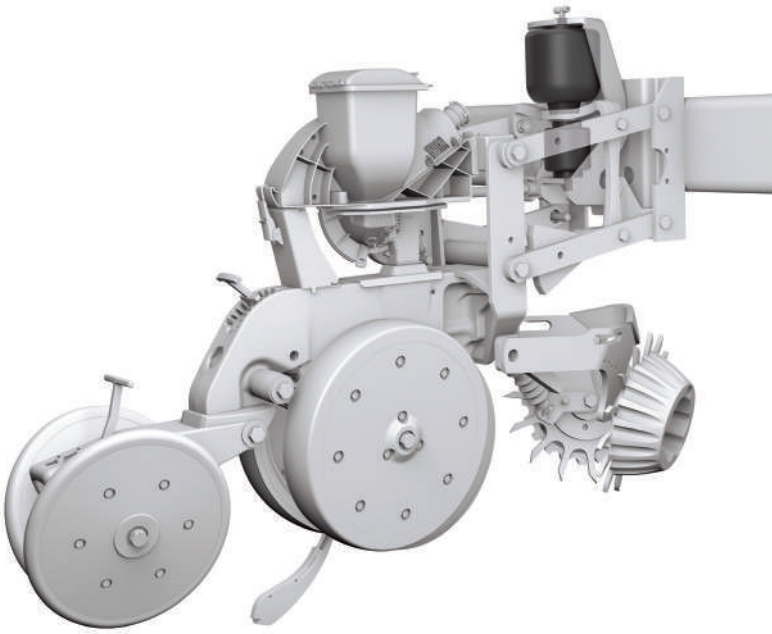
Good Down Force by the Numbers

Springs
65% or lower

AirForce
85%

DeltaForce®
98%

Good down force is defined as the percent of time row units plant at depth without excess compaction. These results are a direct result of the control aspect: Mechanical springs are commonly adjusted only once per field, AirForce adjusts planter-wide once per second, DeltaForce adjusts each row individually 5 times per second.



Specifications

ROW UNIT

CASE IH® 1200/12X5
GREAT PLAINS®
JOHN DEERE® 7000/7100/7200/7300/17XX/DB/17X5/ExactEmerge
KINZE® 2000/3000/4900
MONOSEM®
WHITE® 6000/8000/9000

HYDRAULIC REQUIREMENTS

3.5 GPM
Closed center system
2000 PSI minimum supply pressure
Electric compressor option available for 12 rows or less

MAX DOWN FORCE APPLIED*

400 lbs down force
200 lbs lift force

*Some systems are only capable of down force or lift force. Check compatibility guide for your specific planter.

vApplyHD™

Eliminate Row-by-Row Variability

Many growers today understand traditional liquid application hardware lacks even distribution across the field. However, they may fail to realize their current system could have 15-30% row-by-row variation of the application. This variation creates hidden hunger (unobservable deficiency) or over application, both impacting farm profitability. Do you know how much product is being applied on each row of your equipment?

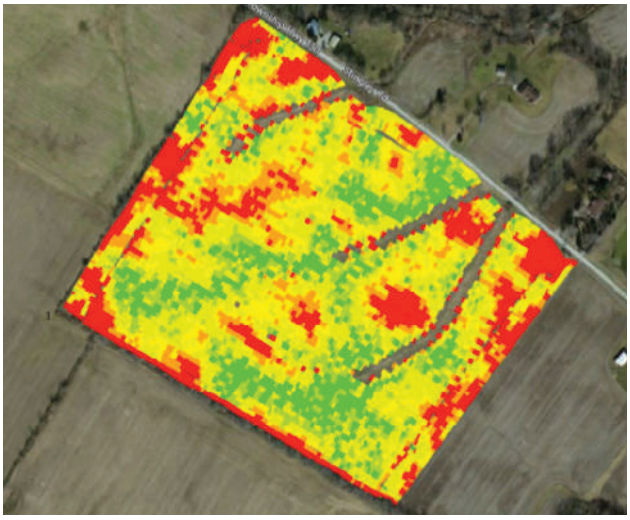
Row-by-Row Flow Control and Measurement

Remove row-by-row variability by accurately monitoring and controlling at the point of application. vApplyHD controls for swath, curves, changes in speed, and changes in rate on a row-by-row basis, all while consolidating your hardware from 7 pieces per row into one.

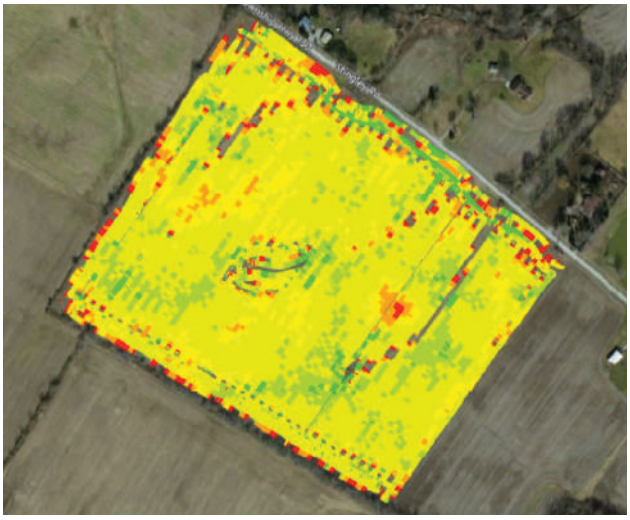
Precision Planting®

See The Difference

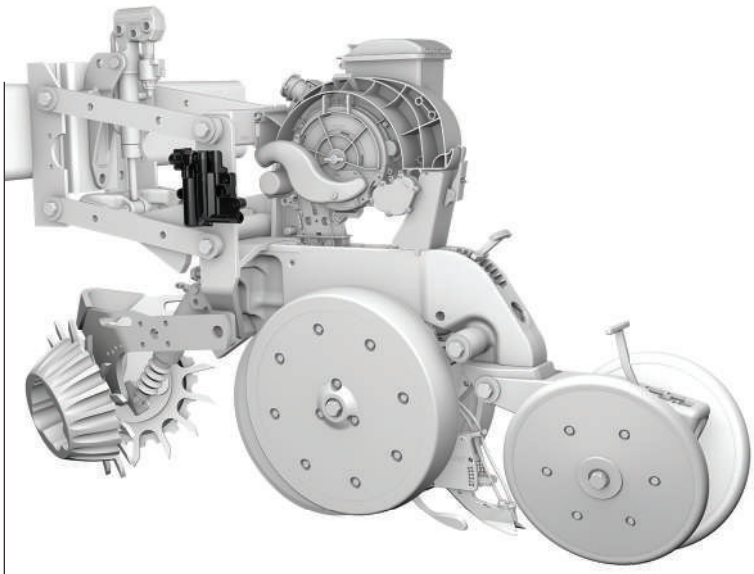
A Precision Planting customer from Wilmington, Ohio was planting and applying starter at a flat rate across a field with a significant variation in elevations and soil types. He decided to convert to vSet® Select and vApplyHD to better utilize his seed and starter in order to optimize his yield. Comparing two years of yield data which had very similar weather, he was able to show a 16 bu/A increase by varying starter applied on the planter along with hybrid and population, meanwhile reducing his total amount of starter by 30%.



2012 yield map **162 bu/A**
field planted with flat rate seed and flat rate pop-up



2016 yield map **178 bu/A**
field planted with variable rate seed and variable rate pop-up



Specifications

COMPATIBILITY

SRM systems

Side-Dress applicator

Up to (2) vApplyHD modules per row
and/or (2) FlowSense™ modules

Section control vApplyHD
(needs FlowSense on all rows)

Not compatible with suspension fertilizers

vApplyHD Module Compatible pump types
controlled by: (electrical, hydraulic, ground drive)

- Diaphragm
- Centrifugal
- Piston
- Electrical

vApplyHD is not compatible with Squeeze Pump

FLOW RANGES

Max sealing pressure 100 PSI

.05-3.0 GPM

(approx 3 GPA to 60 GPA assuming 30” rows)

Eliminate needs for orifices

High resolution data mapping

PLUMBING REQUIREMENTS

80 mesh strainer between tank and
vApplyHD modules

Manual pressure relief valve

System accumulator

Pump outlet pressure sensor

DeltaForce®

Incorrect Down Force Could Cost You up to 16 Bu/A*

Checking to make sure the planter is at the right down force setting is one of the most important things to do during planting. But checking the down force setting at one place in the field is just the starting point. The ultimate goal is to ensure down force is set correctly across the whole field, not just at one point. Seeds planted at a consistent depth help achieve uniform emergence which sets the stage for the rest of season.

Down Force Requirements are Variable by the Foot

The amount of down force needed varies drastically across the field, and even across the planter. Different soil types and textures, moisture in soil, or just the combine tracks from last fall create different environments for each row of the planter each year. Our research shows that the weight carried on the gauge wheels while planting can vary by over 800 lbs within 3 feet. As you plant across the field, your down force needs are changing, but is your planter?

DeltaForce Takes Control

You need a planter that can sense these changing environments and adjust each row automatically. DeltaForce takes your existing planter and adds a down force sensor and hydraulic cylinder to each row. This ensures all seeds are planted at the optimal down force, ensuring consistent depth while eliminating excess compaction, row by row.

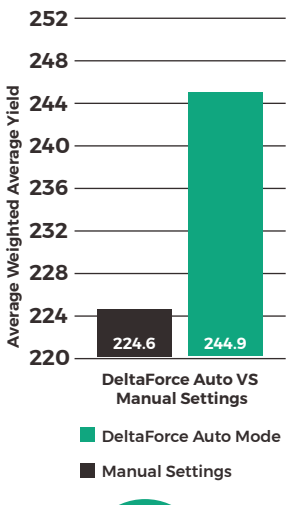
Precision Planting®

See The Difference

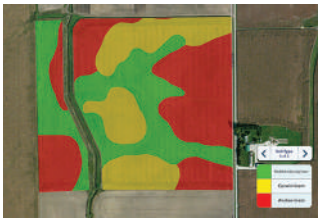
How much could you be losing in yield due to incorrect down force?

2016 Precision Planting Down Force Studies

Goodland, IN



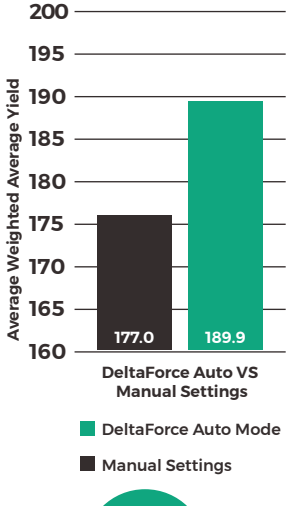
+20.3 bu/A



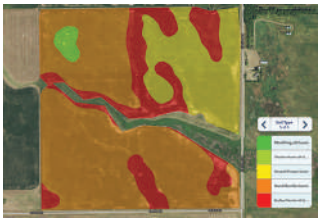
Planting Conditions:
Not too wet or dry resulting in favorable planting conditions. Significant residue due to no-till practice, rotodisc headers during harvest, and killed off cover crop.

Growing Conditions:
Overall good growing conditions. Fungicide application early to mid July after tassel. 1.85 inches of rain from planting through July 31st. June temperatures 1 to 2 degrees above normal, July was 1 to 2 degrees below normal while August was 2 to 4 degrees above normal.

Huron, SD

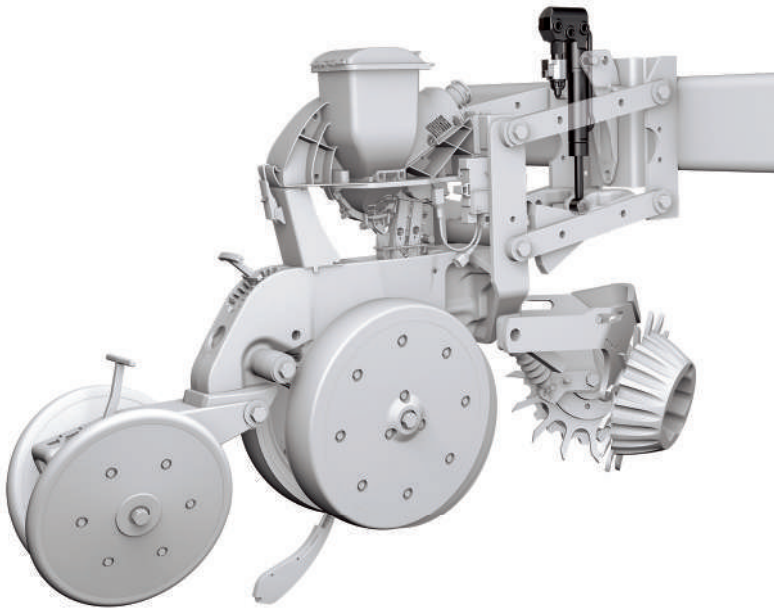


+12.9 bu/A



Planting Conditions:
Perfect planting conditions, with nothing to note.

Growing Conditions:
Near normal weather for the growing season, field had good germination with even emergence. There was adequate moisture that helped plants fill out the ears. Test weight was 58 lbs.



Specifications

ROW UNIT

CASE IH® 1200/12X5/2000
JOHN DEERE® 7000/7100/7200/7300/17XX DB/17X5/ExactEmerge
HARVEST INTERNATIONAL® LaserPro
KINZE® 2000/3000/4900
PRECISION PLANTING® Ready Row Unit
WHITE® 6000/8000/9000

POWER REQUIREMENTS

1 Amp/Row
2.25 Amp/Row with vDrive®

HYDRAULIC REQUIREMENTS

1/4 GPM/Row Max
Closed center system
2250 PSI minimum supply pressure

ALTERNATOR REQUIREMENTS

More than 16 Rows DeltaForce and vDrive or more than 32 rows of DeltaForce or vDrive requires an additional alternator

mSet™

Fields are Variable

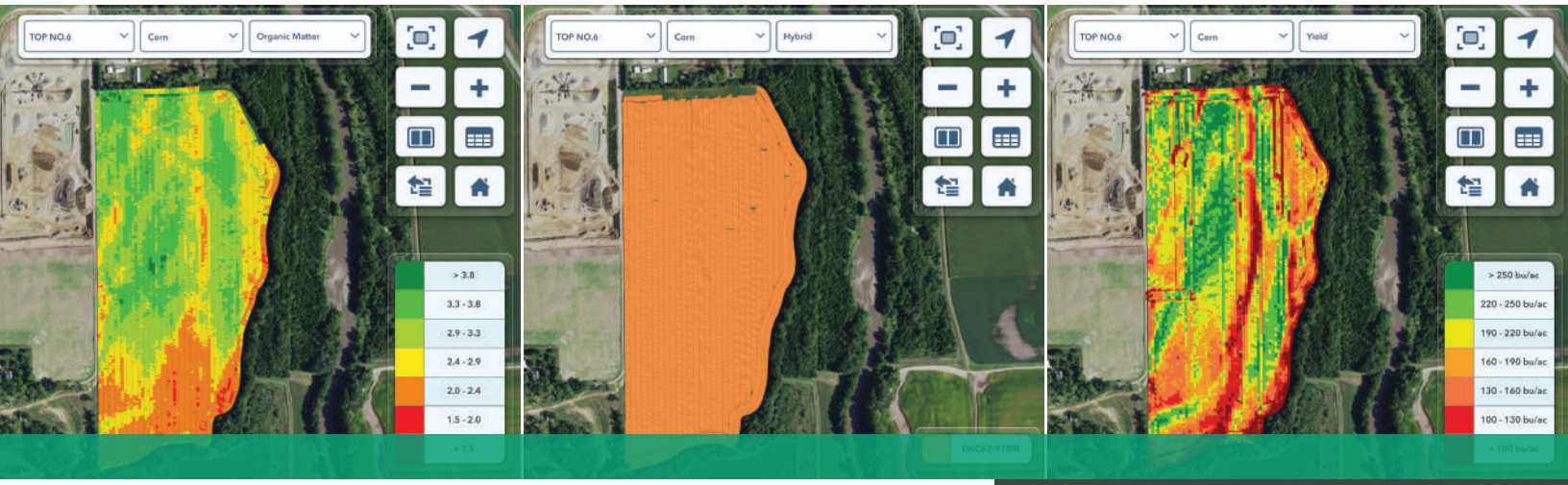
Most growers believe that their fields have some variation in them, however manage their fields the same from road ditch to fence. The many areas contained within those acres have widely varying levels of profit potential. Profitability is compromised when the entire field is treated the same rather than treating each variation in a way that maximizes its return.

Different Genetics Provide Different Results

Selecting the correct hybrid or variety for each field is one of the most impactful decisions that is made when planning for the growing season. The rolling timber field isn't planted with the same hybrid and population as the black river bottom ground or the sand knob. But what about when the rolling timber soil, black river bottom ground, and sand knob are all in the same pass of the same field? The hybrid that maximizes the best part of the field is typically selected, and the rest of the field is left to chance. Look at the variability in organic matter in the field below. Averaging the field by planting a single hybrid is leading to overspending on seed in the areas that are not capable of producing much.

Multi-Hybrid Planting with Speed

mSet allows for two hybrids to be planted in the field as the planter switches between hybrids when crossing into different zones. A single meter with a dual compartment hopper and a seed selector makes it simple. The seed selector fills the meter with a small pool of the hybrid you are planting, and when it's time to plant the other hybrid, it fills the meter with the other hybrid from the other section of the hopper. Transitions happen quickly thanks to a seed pool level sensor that tells the seed selector when more seed is needed. There are also no compromises. mSet is compatible with both seed tubes as well as SpeedTube® for maximizing acres per hour and gaining profitability from multi-hybrid planting.

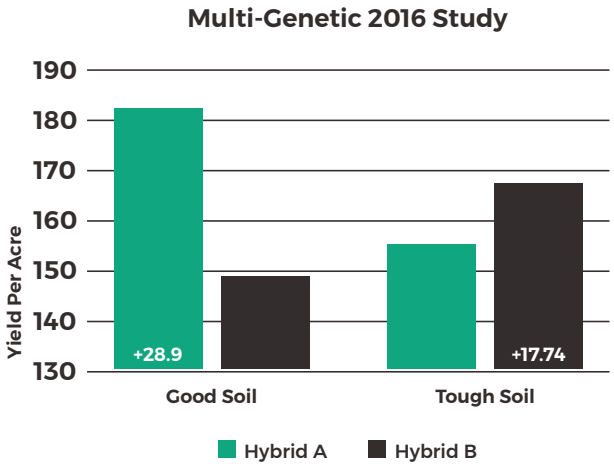


Precision Planting®

See The Difference

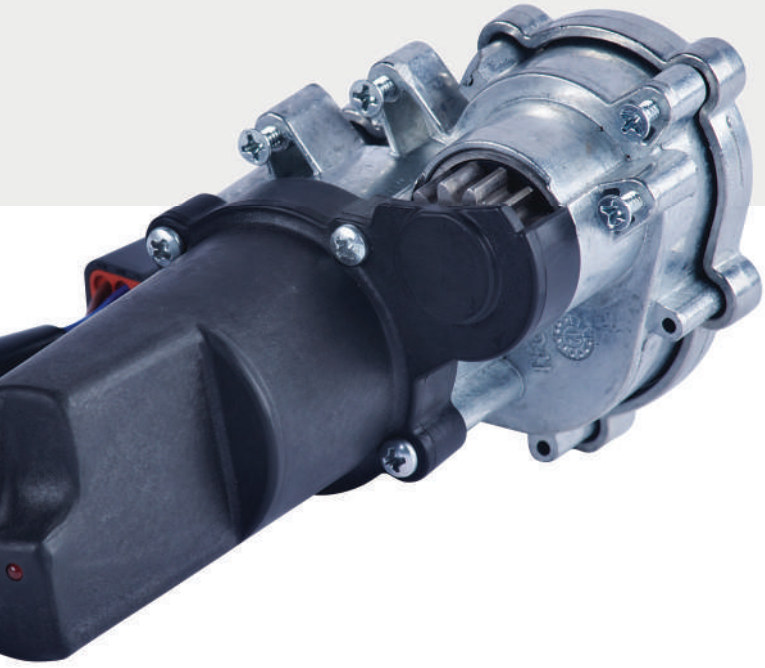
In this field, there are timber soils along the tree-line, as well as some gravel veins that run through the middle of the field. For years this field has seen reduced profit potential from being planted to a single hybrid.

See how mSet was utilized to plant the best hybrid for these different areas of the field.



Build for the Future

The Precision Planting vSet® meter and mSet™ multi-hybrid system allow you to build the system you will utilize now and in the future. If today you decide to add vSet to your planter with mini hoppers for a single hybrid and then in the future add the mSet seed selector, you use the hopper you already have. If you want to move from mini hoppers to a 1.6 bushel single hybrid or dual hybrid hopper, you simply add on to your existing mini hopper. A purchase today is an investment in your planter for the long term, without needing to switch out hoppers with each additional upgrade. Simply build upon the current hopper you have on your planter.



vDrive®

Reduce Complexity

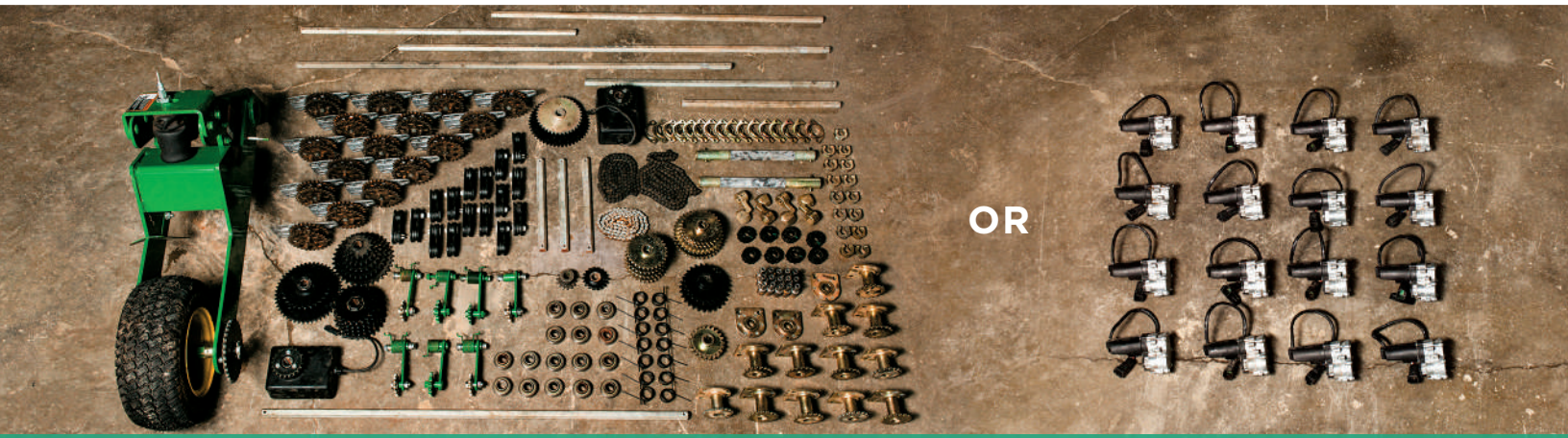
Today's standard drive systems are complex, made up of 138* parts that must work together perfectly to position your seed for success. Even with a well-maintained planter, every one of those parts in the system increases your risk of planting errors. Planting your crop is the most important thing you will do each year. You've picked the right hybrids, the right population, the right fertility plan. Do you want to risk all that on the performance of 138 interacting parts?

Drive Systems Can be Complicated

Ground and hydraulic drive systems are comprised of chains, sprockets, clutches, hex shafts, and bearings. It just takes one of these parts to fail to impact your planter's performance. You could have a kinked chain, a slipping drive wheel, a worn-out bearing, a failed clutch, or any number of issues that would result in poor singulation, spacing, or population.

vDrive is Simpler

vDrive replaces these 138 parts with 1 simple electric motor on each row, minimizing your risk and maintenance during planting.



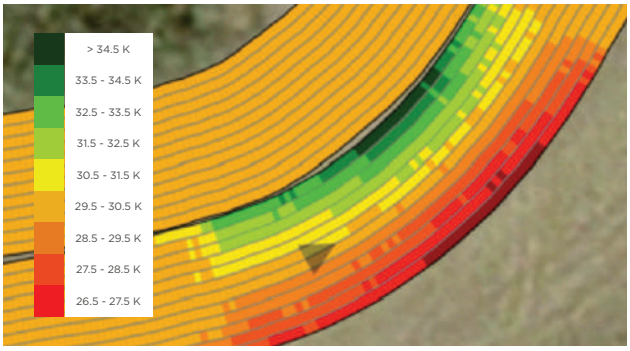
Precision Planting®

See The Difference

In this study, ears were harvested from 1/1,000 of an acre from the inside of the curve, the outside of the curve and the middle of the curve planted with a planter equipped with a hex shaft.

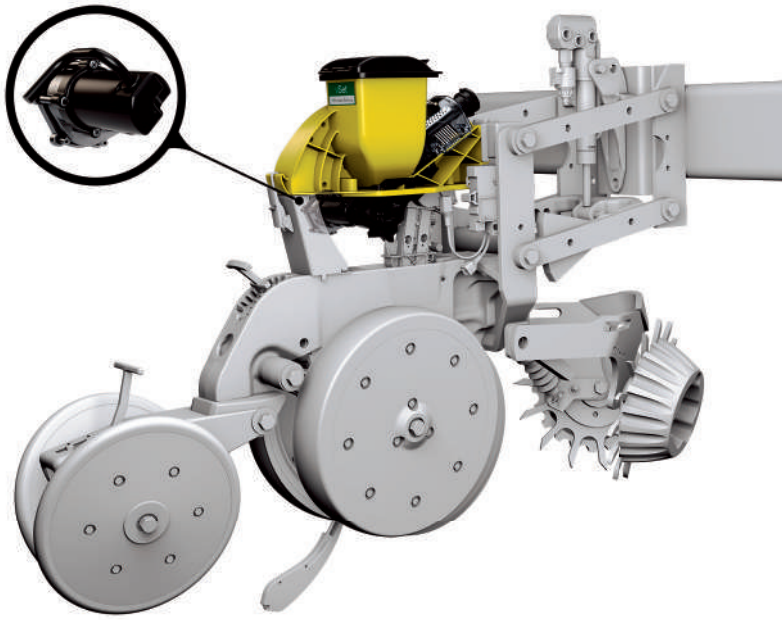
The outside of the curve had a 69.5 bu/A loss and the inside of the curve had a 51.5 bu/A loss. The center had a large gain in yield since it was planted at the correct population and spacing. vDrive accommodates for this issue around curves, adjusting population on each row to match the speed of the row.

Inside of the curve showing how close plants are planted together yielding a 51.5 bu/A loss.



Climate FieldView™ map showing the population difference between vDrive's turn compensation and a typical ground driven system.

See the difference in spacing that occurs without turn compensation on a planter and how that impacts yield.**



Specifications

ROW UNIT

CASE IH® 1200/12X5/2000
HARVEST INTERNATIONAL® LaserPro
JOHN DEERE® 7000/7100/7200/7300/17XX
DB/17X5
KINZE® 2000/3000/4900
PRECISION PLANTING® Ready Row Unit
WHITE® 8000/9000

POWER REQUIREMENTS

1.25 Amp/Row
2.25 Amp/Row with DeltaForce®
an alternator option is available

MOTOR ASSEMBLY

12V DC electric motor
gearbox
motor speed sensor
vDrive Module (VDM) in a sealed housing

SpeedTube®

Increase Planter Productivity

We've all been there. Heavy rains keep coming and you can't get in the field. When weather and planting conditions are ideal, you want to plant as much you can. You're currently limited though in your planting capacity because the mechanical capabilities of your current planter limit the speed at which you can plant without compromising performance.

2 Reasons Seed Tubes Struggle

As row units and meters bounce, seeds drop at different speeds, changing the spacing between them. Plus, as planting speeds increase, seeds increasingly bounce and roll in the seed trench.

SpeedTube Gives You a Better Way

Replace your existing seed tube with SpeedTube. It utilizes two feeder wheels to grab the seed off the vSet® disk and place it into a belt that controls the seed all the way into the trench. The independent electric drive within SpeedTube matches the ground speed of the planter, enabling an ideal drop of the seed into the trench. Go twice as fast through the field on the planter pass, while still maintaining the planting performance you want.

Feeder wheels grab the seed off the disk and place it onto the belt for delivery to the trench while maintaining superior singulation.

The belt controls the seed down the tube eliminating seed bounce and row unit ride issues.

The belt matches the speed of the planter and drops the seed exactly where it needs to be as SpeedTube eliminates seed roll and bounce.

Precision Planting®

See The Difference

What could a high speed planter do for your farm? How many more acres could you cover? We've taken the guess work out of this question and have compared a 2014, 1770NT CCS - 16 row planter to the same planter outfitted with SpeedTube and a 2014, 1770NT CCS - 24 row planter. Our data shows the average planting speed of the standard planters is 5 MPH, while the average planting speed of the SpeedTube planter is 8 MPH. SpeedTube costs **30% less** per acre than the existing 16 row and **32% less** per acre than the 24 row option, while planting **60% more** acres per hour than the original equipment*.

By The Numbers

EXISTING EQUIPMENT

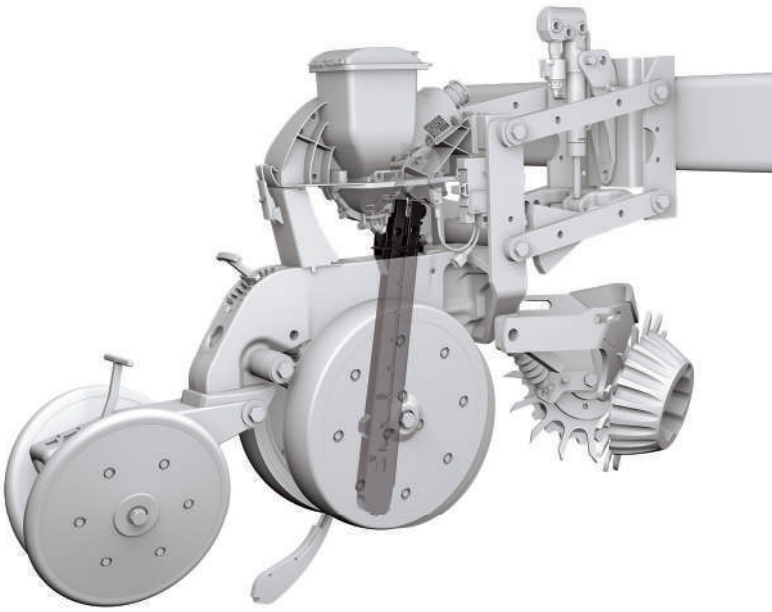
Planter	2014 - 1770NT CCS - 16 Row
Average Speed (MPH)	5
Acres/Hour	16.97
Increase Acres/Hour	0%

SpeedTube OPTION

Planter	2014 - 1770NT CCS - 16 Row SpeedTube
Average Speed (MPH)	8
Acres/Hour	27.15
Increase Acres/Hour	60%

24 ROW OPTION

Planter	2014 - 1770NT CCS - 24 Row
Average Speed (MPH)	5
Acres/Hour	25.45
Increase Acres/Hour	50%



Specifications

ROW UNIT

CASE IH® 1200/12X5/2000
HARVEST INTERNATIONAL® LaserPro
JOHN DEERE® 7200/7300/17XX/DB/17X5
KINZE® 3000
PRECISION PLANTING® Ready Row Unit
WHITE® 9000

POWER REQUIREMENTS

2.25 Amp/Row
3.25 Amp/Row with vDrive®
4.5 Amp/Row with vDrive and DeltaForce®

ALTERNATOR REQUIREMENTS

More than 12 Rows SpeedTube and vDrive or more than 8 rows of SpeedTube, DeltaForce and vDrive requires an additional alternator

SeederForce™

Hoping Leaves us in the Dark

When you are seeding, there is very little information to tell the operator how consistently the sections are seeding; it isn't until you have a run completely blocked or run out of seed that you are alerted. Depth is also important to have knowledge of while seeding. Checking depth is tedious, and very few spots in a field are checked. You hope your weight is being managed correctly. It's painful to see seeds on top of the ground knowing the only options are to increase down force across the seeder or add weight to the frame.

Coming Into the Light

With the 20|20 added to an air seeder, you have true visibility to row to row seeding distribution. Not just blockage sensing, 20|20 provides a map of which rows are over seeding and which rows are under seeding so that you can fix it. Combining seed and fertilizer? See instantly when one product runs out. The map will show you visually. Also, our proprietary down force sensors allow the operator to know how much weight is being carried on gauge wheels across the seeder, allowing the operator to make adjustments to set the down force on the seeder as well as possible.

SeederForce

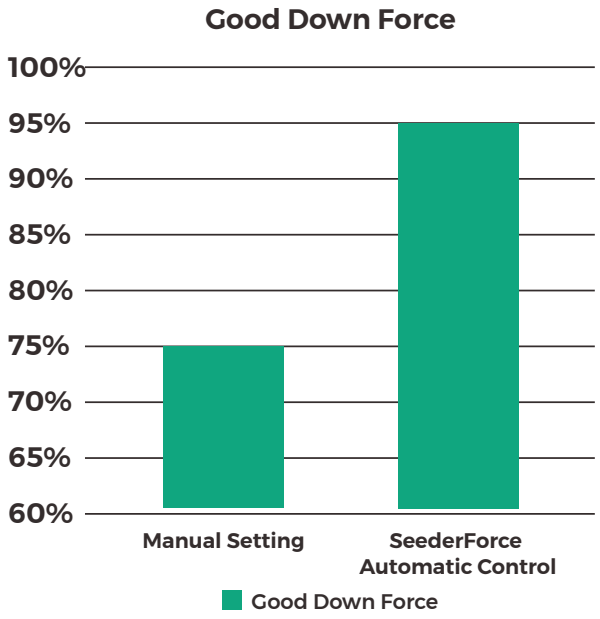
With 20|20 and down force sensors on each section as well as an automated hydraulic valve on each rockshaft, your seeder can start to utilize its weight wisely with SeederForce. Set a target gauge wheel weight, and when the down force sensors measure that a section is coming out of the ground, additional force is applied to that section. Another section carrying too much load on the gauge wheels? That section will automatically have less force applied to it so that the gauge wheels are not creating compaction in the root zone and inhibiting root growth. With SeederForce, each section gets the weight it needs, not more and not less, maximizing control of down force across the entire machine.

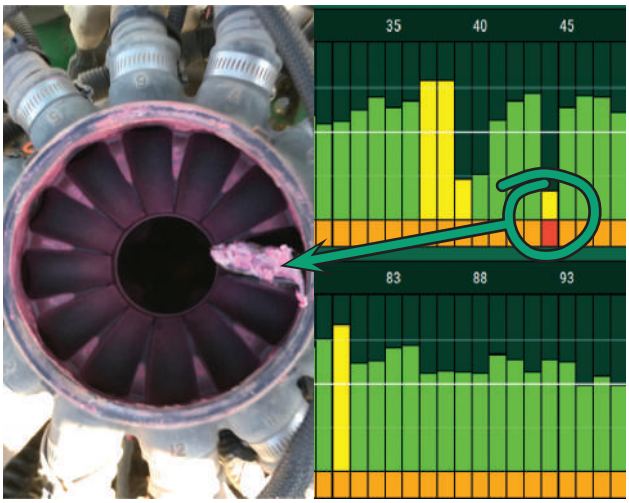
With SeederForce you're eliminating loss by having down force control.

Precision Planting®

See The Difference

By automatically controlling the down force on sections of the seeder, the seeds are going to have their best chance to be at depth. Good root development is imperative to the yield that any plant will achieve because of being able to grow in a stress free environment and maximize nutrient and water uptake. Compaction created by the gauge wheels of the seeder limit root growth. With SeederForce, the percentage of seeds at seeding depth is drastically improved and compaction is drastically reduced when compared to a single, manual setting.





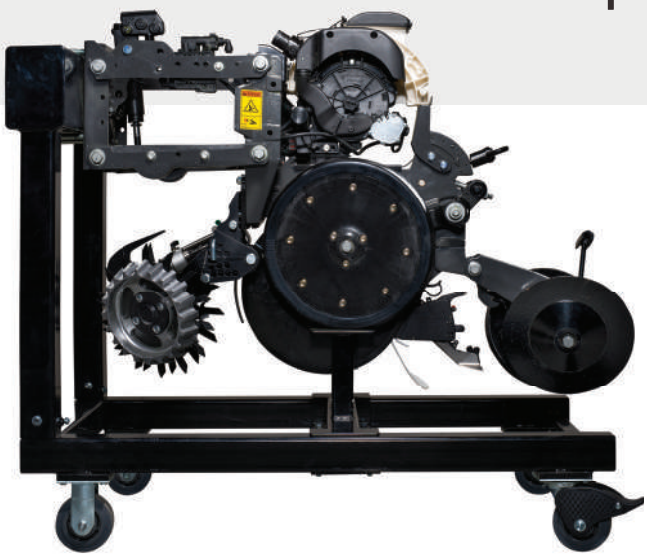
A dead mouse partially blocking a secondary. The mouse clearly had more than his share of seed treatment. With SeederForce you can catch these issues the moment they happen on the 20|20®.

Compatibility

ROW UNIT

JOHN DEERE® 60 Series/90 Series Air Seeders

ReadyRowUnit



Trading Planters Doesn't Always Make Sense

When many farmers trade planters, the goal is to get the latest technology as well as an updated row unit. Typically the tool bar of the planter is in great shape. What if you could get the updated row unit and technology you want, without the expense and hassle of trading planters?

Keep Your Planter, Upgrade Your Row Unit

Instead of trading for an updated planter at significant expense, why not simply put new row units on your current planter? The Precision Planting® Ready Row Unit allows you to do just that. Keep your tool bar, add new row units, and then add the technology that you want on top of this new foundation. The Precision Planting Ready Row Unit is fully customizable to your operation's needs with different gauge wheel options, closing wheel options, hopper configurations, and fertility attachments. Don't trade, upgrade.

Build the Planter You Want

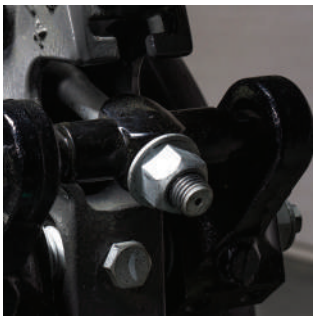
The most important pieces of the planter are the row unit and the technology. The Precision Planting Ready Row Unit comes ready to accept a wide range of Precision Planting products. No two farms are the same, no two planters are the same, and now you can build the planter you want for your farm. The planter you already own is capable of more than you can imagine, and your local Precision Planting Premier Dealer can consult with you on how to get the most out of that machine.

Precision Planting®

See The Difference

Depth matters. Consistent planting depth is critical to uniform emergence and stand establishment. Mechanical variation in the manufacturing process and wear on disk openers and the depth adjustment linkage can all lead to planting shallower than the depth setting. The Precision Planting Ready Row Unit features a depth calibration system which allows every row unit to be calibrated to the same depth before going to the field. The calibration system ensures that when every depth adjustment handle is set at the same depth, every row is planting at that depth, setting the stage for uniform emergence.

depth setting



depth calibration

This photo illustrates the emergence variation between two rows of the same planter set at the same depth setting but with true planting depths varied by 5/8" between rows.

Compatibility

PRECISION PLANTING READY ROW UNIT

Cast Iron
14" Parallel Arms
16" Disk Openers
11" of Row Unit Travel
Gauge Wheel Options (3" or 4.5")
Optional Gauge Wheel Scrapers
Closing Wheel Options (Rubber, Cast Iron, or none)
Universal Faceplate (many Row Cleaner and Fertilizer Coulter options)

PRECISION PLANTING COMPATIBILITY

BullsEye®
CleanSweep®
DeltaForce®
FurrowJet®
Keeton®
mSet® (future compatibility)
SmartFirmer™
SpeedTube®
vApplyHD®
vDrive®
vDrive® Insecticide
vSet® (mini hopper or 1.9 Bu hopper)
WaveVision®

The Precision Planting Ready Row unit is manufactured at the AGCO® Beloit, KS factory, a state of the art facility which is ISO 9001 certified for meeting strict quality standards.

CleanSweep®

Simply Managing Row Cleaners Could Give You 11.8 Bu/A*

When residue is not removed from the path of the row unit, expect yield loss. Pinning residue in-furrow can wick moisture away from the seed delaying emergence. In-furrow, incorporated, and surface residue increases disease pressure.

Manually Adjusting Floating Row Cleaners

Setting your row cleaners so that they adequately clear the path in front of the row unit while not trenching is a time consuming, often painful process. If you don't have the right setting at the beginning of the field, how many times are you willing to stop in the field to get them set correctly?

Simple Adjustments From the Cab

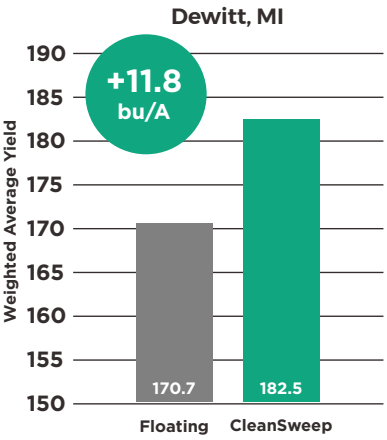
By adding CleanSweep to floating row cleaners, adjust your row cleaners in the cab as often as necessary to get the best results without sacrificing planting time. Need more pressure to get a cleaner path? Need less pressure to prevent trenching? Simply adjust the pressure from the cab and keep planting.

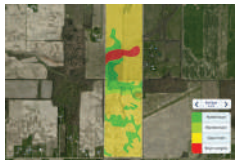
Precision Planting®

See The Difference

How much yield could you gain by using CleanSweep? Whether no-till or conventional, CleanSweep provides an advantage. In our 2016 Precision Planting plots, CleanSweep gave us an average 6.9 bu/A advantage over floating row cleaners.

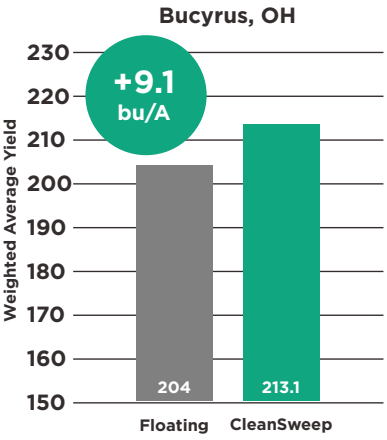
2016 Precision Planting Residue Studies

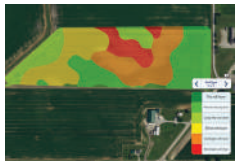




Planting Conditions: Very dry at the time of planting, with 1" to 2" clods.

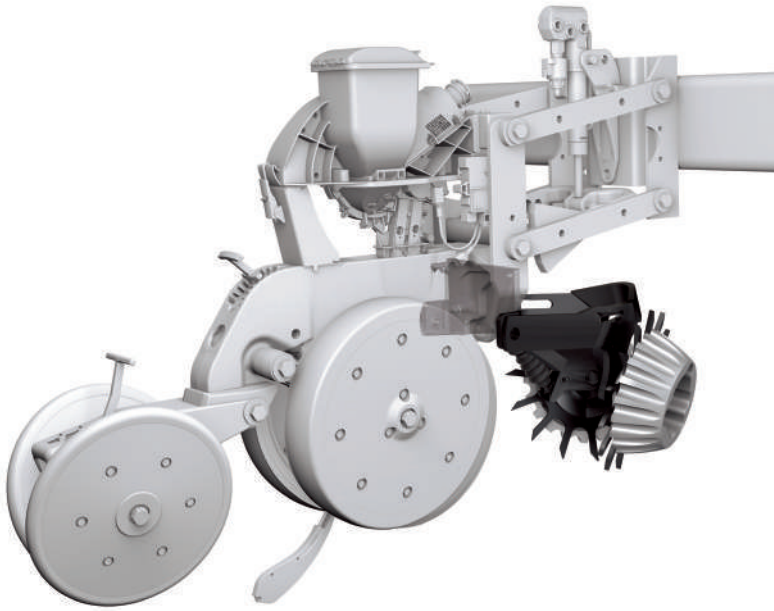
Growing Conditions: Around the time corn hit the V4 stage, rainfall was only .60" for 30 days, then above average rainfall was observed in the area from 7/23 through 8/31. Temperatures were 3-5 degrees above normal in August.





Planting Conditions: Planting conditions were decent, but a little on the damp side.

Growing Conditions: Weather was fairly dry for the duration of the growing season, with 3"-5" below normal rainfall for the area. No fungicide was used. Corn was side dressed with 175# of anhydrous.



Specifications

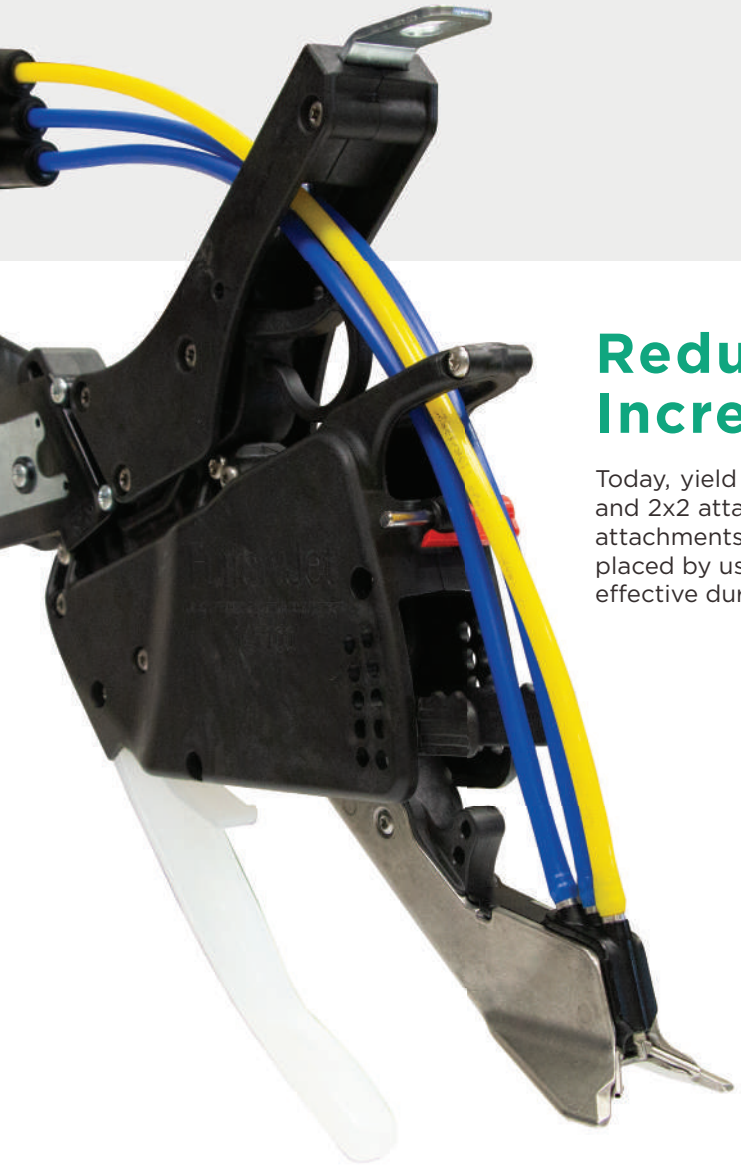
ROW CLEANERS

Available on specific MARTIN-TILL®, YETTER®, and SUNCO® floating row cleaners. Contact your Precision Planting dealer for additional compatibility information.

OPTIONAL

3.5" Treader Wheels

FurrowJet®



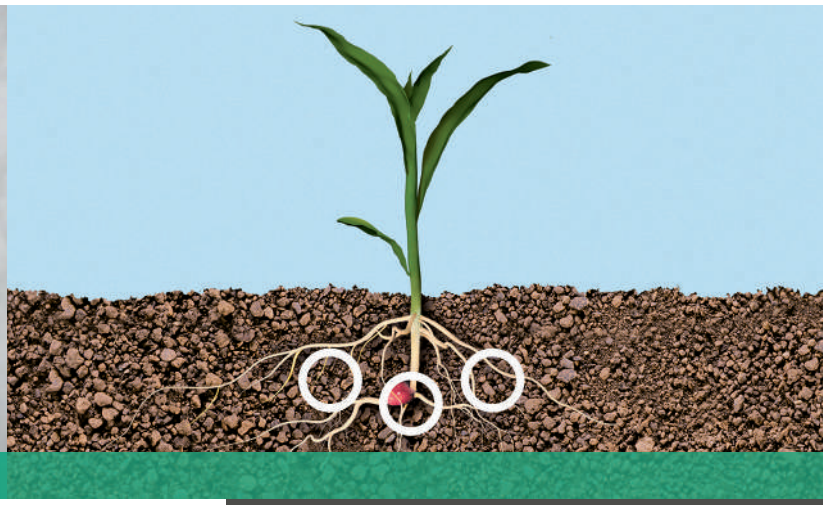
Reduce Risk
Increase Yield

Today, yield response from starter fertilizer is limited by the current in-furrow and 2x2 attachments. Due to fertilizer salt burn risk, rates for in-furrow pop-up attachments are very limited, capping the yield opportunity. Starter fertilizer placed by using 2x2 attachments is just too far away from the plant roots to be effective during early root development.

Optimum
Starter Placement

FurrowJet is a planter fertilizer attachment which enables you to place not only an in-furrow starter fertilizer, but also a dual-band of fertilizer 3/4" on each side of the seed. By being near-furrow, FurrowJet's placement gives the seedling and crown roots immediate and continuous access to the nutrients. FurrowJet rides in the furrow just above the seed, firming while placing starter. Wings on FurrowJet angle downward to cut into the sidewall and place fertilizer alongside the seed in a dual-band. Combined with accurate placement, FurrowJet is flexible, allowing increased rates and common starters to be applied safely, avoiding seed burn risk.

1 Device
3 Locations



Precision Planting®

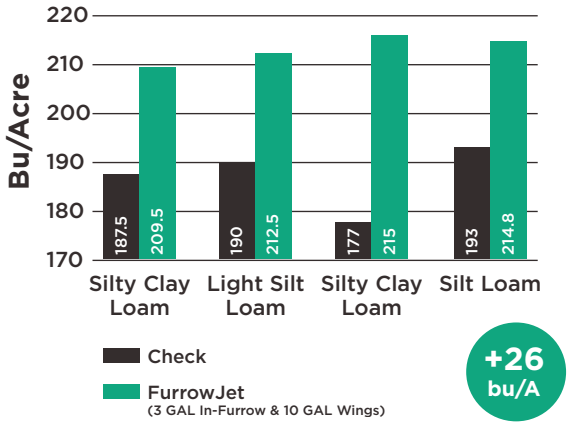
See The Difference

Farm Journal starter test plots were planted May 6 and 7 in 2016. Within 24 hours of planting, this field received excessive rainfall in a short amount of time, which played a role in the results.

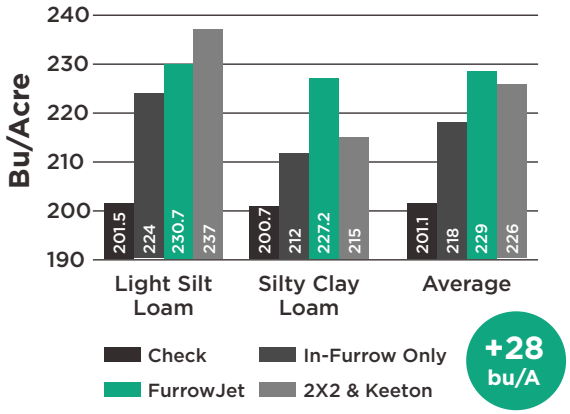
"The large yield responses show the effect of starter fertilizer placement and the horsepower it provides to mitigate early season stress," Ken Ferrie said. **"The fact we were able to weatherproof this plot by replicating it across the field makes the large yield increases more believable."**

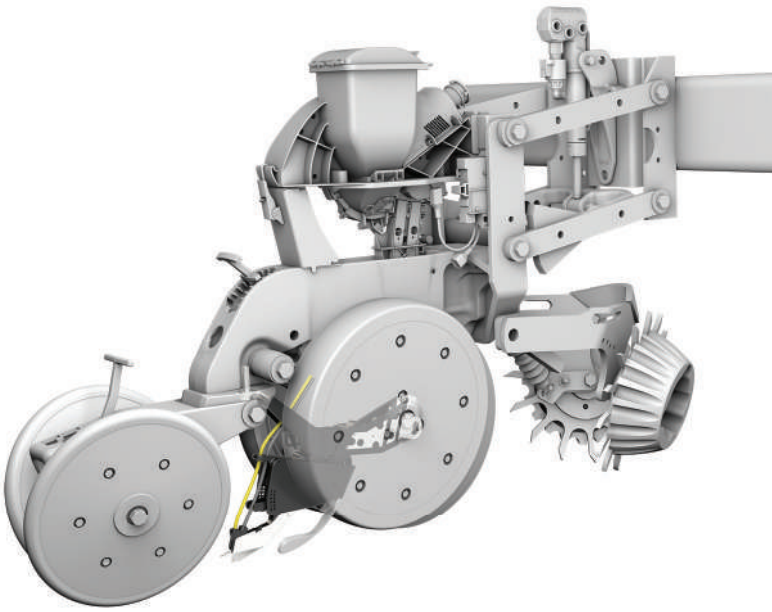
The first study was a comparison of the check to FurrowJet applying 3 gal in-furrow and 10 gal through the wings. The second study compared the check to in-furrow only, FurrowJet (tri-band) and a 2X2 with a Keeton seed firmer together. FurrowJet saw a 26 bu/A average advantage over check on plot A and a 28 bu/A average advantage over check on plot B.

PLOT A
Yield Response to Placements



PLOT B
Yield Response to Placements





Specifications

ROW UNIT

HARVEST INTERNATIONAL® LaserPro
JOHN DEERE® 7000/7100/7200/7300/17XX/ DB/17X5 (non ExactEmerge® seed tubes)
KINZE® 2000/3000/4900 (non EdgeVac® seed tubes)
PRECISION PLANTING® Ready Row Unit
WHITE® 9000

BRACKET AND FIRMER

A Quick Attach Keeton seed firmer bracket is required to install FurrowJet onto the row unit.

FurrowJet Quick Attach Mini-Firmer
- Acts as rudder to guide FurrowJet
- Comes in packs of 2

FERTILIZER USAGE GUIDELINES

FurrowJet is designed for optimal, safe placement of low & medium rate starter (N-P-K-etc. blends)

Growers are advised to refer to their fertilizer consultants in determining maximum safe rates for their fertilizer product applied and soil type.

20|20®

Data Drives Decisions

Each step of the crop cycle must have accurate data to provide insights into what decisions should be made. Whether you're stopping in the field to make a fix, evaluating your approach for the next pass, or choosing your purchases for next season, you need the right data for the job. When you make better decisions for your next pass, you make better decisions next season, and throughout the future of your operation.

High Definition Agronomic Technology

High definition data enables high impact decisions. The new 20|20 monitor provides the most advanced agronomic picture you've ever seen. Optimize planting, harvest, and application decisions with a smart, intuitive interface that visualizes performance and field conditions in real time; seed by seed, plant by plant, drop by drop. Customize display configurations, add sensors, and discover things about your field you may have never known.

From Knowledge to the Ultimate Control

20|20 can be utilized as a monitor to help you simply collect the most spatially accurate yield data available and to provide information for setting the planter to maximize ear count. That same 20|20 also powers the most agronomically advanced systems on the market that control population, down force, liquid, multi-hybrid planting and higher speed planting, all while sensing the furrow; monitor seeding variance and control down force on a seeder; control liquid application on a sidedress bar or a sprayer. The 20|20 does all this and more to allow you to not only have the accurate data to make those crucial decisions, but also gives your equipment the powerful automation to make decisions as they pass through the field optimizing every pass.

Precision Planting®

See The Difference

You can find all of these metrics and more on the 20|20.

Furrow Moisture
water weight a seed will gain in 3 days

Furrow Temperature
real time temperature of the soil in the furrow

Uniform Furrow
variation in the furrow - light, cloddiness, moisture changes

Clean Furrow
absence of crop residue

Organic Matter
estimated soil organic matter

Ground Contact
row unit planting/seeding at the depth it is set

Margin
excess weight on gauge wheels

Ride Quality
smoothness of row unit

Singulation
amount of properly singulated seeds

Liquid Rate
rate of liquid applied

Yield
spatially accurate crop yield

Applied Down Force
force applied to the row unit

Your data, customized. See the information you need to control your operation. Take control of the data you collect, and choose from a limitless number of customizable views. Instantly understand what's going on during every pass through the field. Choose the display size and the number of displays that fit your needs. Put metrics and a map on a single 10.1" display, or multiple maps along with metrics on a large 15.6" display. Or, choose a combination of two of either size display to be able to see and visualize all of the relevant data coming off of your machine.