



GUIDE TO BETTER PLANTING

The fundamentals 2 | Pre-plant inspection 4 | Precision Planting products 7

Evaluating emergence 8 | Walking your fields 10 | Helpful resources 12

Massey Ferguson planters 13 FIND US ONLINE AT MIDWAYFARMEQUIP.COM  



The fundamentals

Every second, your planter is putting down bushel upon bushel of potential yield. Yet, the journey from seed to harvest is a long one and there are many opportunities to get it right— if you catch them in time.

If our task is to plant a single seed of corn, most of us would get it right. We'd get the soil free of weeds and full of nourishment. We'd set the depth perfectly and make sure nothing impedes emergence, sunlight, water or nutrients. There'd be no compaction to limit growth or access to the things it needs to grow. If we only focused on one seed—we'd get it perfect.

And that is the challenge. Giving each individual seed the best growing environment possible—but on a massively larger scale. And to do it all in a fraction of a second.

So, let's have a look at the major elements that impact your planting success.

SINGULATION



A skipped seed reduces your achieved population over your target population. On a big enough scale, it really adds up. However, doubles may be worse. Not only does a double run the risk of not producing an ear on either plant, the plants still consume vital inputs—acting as a weed to surrounding plants.

Skips and doubles come from a few places. Often, it's the result of impeded or uneven air or vacuum flow. Bird's nests, pieces of seed bags, seed coating and dust all seem to make their way into your planter where they can reduce or cut off the flow of air. Even if pressure settings appear correct, impeded air or vacuum to the meter itself will increase the chance of singulation problems.

Another possible cause of singulation is issues with seed delivery. Not adding talc effectively may allow seed to “bridge” and resist flowing downward towards delivery. In some cases, using an improper seed plate will hamper pick-up and release inside the meter.

Excessive ricochet inside the seed tube can also contribute to incorrect placement.

Some of these issues have simple fixes. Make sure your talc is doing its job. Check the planter for debris that may obstruct airflow. Other issues have to do with the design of the planter. If you've addressed air, trash, plates and talc, you may want to see if another design can deliver better singulation in your conditions.

DEPTH



A seed needs to be deep enough so that it has access to moisture, yet close enough to the surface that it can get the warmth it needs for quick germination. Consistently keeping the right planting depth has dramatic benefits for the resulting yields.

While many things can affect getting seed to the perfect depth, the three main contributors are having the correct adjustment, adequate down pressure and the field condition in which you are planting.

Like every wear part, seed openers change with each season and the wear amount of each row can vary significantly. It's important to evaluate each row unit's opener every year and make needed correction for wear. If your row unit allows calibration, recalibrate the depth settings so each row is back to the same setting. If your planter does not allow calibration, it's important to keep track of what setting each unit is at and should be at to achieve the desired depth.

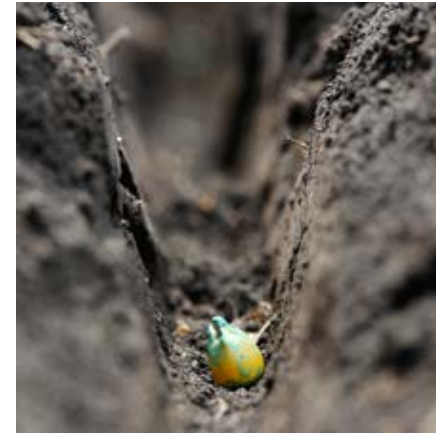
The 3 main contributors to getting seed to the perfect depth are having the correct adjustment, adequate down pressure, and the field condition in which you are planting.

Having the correct down pressure is another element that has upper and lower limits. Without enough down pressure, the row unit will begin to ride up on the soil and the depth will be reduced. With too much down pressure, the sidewalls of the trench will become compacted thereby reducing root growth and overall plant integrity.

Finally, one of the issues that affect planting depth the most: quality of field preparation. This can make a major difference in achieving the correct depth. The first issue is proper sizing and mixing of the surface layer. If a crop mat is thick, the risk exists that the gauge wheels will simply ride over the mat and limit the depth in which seed is placed in actual soil. Another issue is the surface of the seedbed floor. If the bottom of the seedbed is ridged or uneven, it can affect the planter's travel across the field and create situation where row units may be lifted above the desired depth.

Getting seeds at the right depth is the best method to ensure quick and uniform germination. Just a few extra days on growth and the advantage of having plants develop at the same time, will give a noticeable boost to yields.

TRENCH



Well made trenches contribute to seed/soil contact and allow strong root growth. At the same time, a well-closed trench also contributes to soil contact while not compacting the sidewalls or creating a situation where the trench will reopen.

The part that determines the quality of the seed trench is the design and setting of the opener. While offset designs exist, we've found that double disc openers have constantly good results are creating the desired V shaped trench. But even with the design, the setting of the opener makes much of the difference in results. To test the setting of a double disc opener, we recommend the business card test. To do this, take three business cards. Insert one in between the discs on the top edge and slide it down until it stops due to the two discs meeting. Insert another in between the discs on the bottom edge and slide it up until it stops. If the remaining gap between the two cards (representing the closed area where the discs meet) is the width of the shorter end of another business card, you should be set up to cut a perfect V-trench. If the opener is not at this adjustment, adjust it. If it has worn beyond the ability to make the adjustment then it is time to replace the discs.

When it comes to closing the trench, a variety of solutions exist to give you an effective result. In lighter, sandy soils- standard closing wheels will often work satisfactory. In heavier soils or in no till situations, one or both of the closing wheels can be replaced with a spike tooth wheel. These wheels can often do a good job loosening and lifting soil for a better closure.

Finally, the single largest element affecting trench closure is the condition of the soil. Soil that is too wet can smear and later crack-leaving the trench open and germinating seed exposed.

NUTRIENT PLACEMENT



The correct placement of nutrients is a large part of maximizing your fertility dollar, but getting the rate right is also critical. Ensuring that each row, each plant really, is getting exactly what it needs will ensure maximum profitability.

Since phosphorus should be incorporated into your nutrient program with dollars reallocated, banded instead of broadcast, and placed right where the plant needs it, A product such as FurrowJet from Precision Planting is the best way to place starter fertilizer. The tri-band placement of FurrowJet feeds the seedling roots and early crown roots to avoid hidden hunger and early yield loss. The tri-band also ensures that the plant is uptaking all of the P.

As part of a split applied nitrogen program, A product such as Conceal from Precision Planting is the answer for precise nitrogen application with the planter. Conceal places fertilizer for perfect uptake by the plant, even around curves or in rough terrain. Conceal also keeps the planter clean, while ensuring that the fertilizer is in the soil, where it is not lost.

RESIDUE



While excess residue can do everything from dragging on wheels to jamming in openers, the more common problems it will cause (aside from the earlier discussing on affecting depth) are obstructing planted seed and preventing warmth from reaching the seed.

As the planter makes its way across the field, loose trash can make its way into the trench along with your seed. Residue pinned in the trench can impede root growth while residue over the emerging seed can slow development.

Tillage that properly sizes residue and incorporates it with soil will help the material to break down into to a more manageable size for row cleaners to do their job.

The best method of managing residue is for it to break down in the field so it can add to soil health and become less of an obstruction to growing crop. Tillage practices that properly size residue and mix it adequately with soil will help the material to break down into to a more manageable and contributing material.

Even with tillage practices, the use and proper adjustment of row cleaners will help clear the row of remaining residue and leave a more open area above the seed for sunlight and heat penetration.

Pre-plant inspection

Giving your planter a thorough inspection before you hit the fields will insure that you are getting the best possible start to your planting season.

ROW CLEANERS

The tine or spike style of row cleaner is intended to be used in tillage conditions, whereas the razor wheel or shark tooth, as some call it, style of row cleaner is intended for those no-till conditions where you're cutting into residue on the surface and sweeping it away.

In order to check your row cleaners, you first want to spin them. Make sure that you don't have any loose bearings. You're also going to check the frame of the row cleaner, ensuring that your pivot bushings are tight. If any of those maintenance items need to be taken care of, you'll want to address them before planting season.

PARALLEL ARM BUSHINGS

The components to focus on are the upper and lower parallel arms and all of the parts attaching them to the row-unit.

To check for wear, move the row-unit vertically from the back, checking for vertical movement and move the row-unit horizontally, checking for horizontal movement. If you're not sure if these components have too much wear on them, replace the components of one row and compare.

SEED TUBES

As your planter goes through the field, the disk opener can contact the bottom of the seed tube. For good spacing in the field, you want to inspect your seed tubes and make sure there's no wear at the bottom.

If you do have wear on your seed tubes, ask your local dealer for replacement seed tubes. You also want to take a look at the seed tube guards. If your seed tube guard gets worn, you're going to see wearing of the seed tube and poor furrow creation. Remember, you want to get the seed all the way to the bottom of the furrow for good seed to soil contact for consistent emergence.

Get a tape measure and measure your guards. You want your guards to be at least $\frac{3}{4}$ of an inch wide at the start of a new season. If it's less than that it's time to replace that seed tube guard with a new one, which is $\frac{15}{16}$ inches wide. You should always replace the seed tube guards when you're putting a new set of opener disks on the planter.

SEED FIRMERS

It's important to check the condition and tension of your firmer. Check the shape to make sure it's riding in the bottom of the trench, and replace if it's worn into a V shape.

You can check the tension of the firmer using a fish scale. Take a string, drop it down and loop around the firmer, and pull up. If you don't reach the manufacturer's recommended tension, you are not firmly pressing the seed into the trench, and need to replace the firmer.

DISK OPENERS

Disk openers that are not maintained properly will cause erratic emergence and lost yield.

Diameter

Once disk openers wear $\frac{1}{2}$ " from their original diameter, they should be replaced. Continuing to utilize worn disk openers will wear out the seed tube guard.

Contact

For most row units, the disk openers should have 1-2 inches of contact so they clear out all of the soil they encounter, leaving a V-shaped furrow. Too little contact will cause depth inconsistencies and late emergence of some plants. Two business cards can be utilized to set correct contact points. Bring a business card in from the bottom side until it catches. Then bring one in from the top side until it contacts. If you can pull that business card all the way through, then you know you need to remove shims from the inside and bring the disk in tighter. In the event that you have too much contact, you can add shims.

Once you get your pinch point you can use something like a Sharpie marker to make your mark and rotate it around to be sure that you have the proper contact in 3 different points on the disk blade.

GAUGE WHEEL SHIMMING

Uniform emergence means that every single seed needs to be in the same moisture environment. One part of the planter that can affect this negatively is poor shimming of the gauge wheel.

To check this, you want to lift the gauge wheel up to the planting position and then pull away. Check for slop in the gauge wheel arm and see if they're worn out. If they are, you can replace them with new components, either aftermarket or go to your OEM to source those parts.

Once you have good parts or new parts installed, you want to shim this gauge wheel in so that there's a tight seal between the gauge wheel and the disk opener. It should still rotate freely, but there should be a scrubbing action between the two of them. This scrubbing action keeps the dry soil on the surface from caving into the trench resulting in delayed emergence.

DEPTH ADJUSTMENT LINKAGE

It's very important to check the following components of the depth adjustment linkage for wear:

- **Depth Adjustment Handle**
- **Depth Stop**
- **Gauge Wheel Arm**

If you look at a gauge wheel arm and it has a divot in it or missing material, and there's a lot of wear on the depth stop or a lot of slop back and forth, you have a problem. If you set your depth adjustment handle to 2 inches, it's possible that you could be planting at $2\frac{3}{4}$ inches and not even know it.

It's important to note that your planter may not have a depth adjustment linkage that looks exactly like the one shown here, but all planters work on the same or similar concept where we have a stop and metal on metal that's going to wear differently across the whole planter.

CLOSING WHEEL SPACING & ALIGNMENT

Once the seed is placed in the furrow, it is important to make sure that the furrow is closed back up with good seed to soil contact.

Alignment

To check for proper alignment you're going to begin by feeling for any excessive side-to-side motion, which indicates that it's time to check the bushings and mounting holes of the closing tail and possibly replace them. Once you have the closing tail tightly aligned, set the planter down on a pad of concrete and roll forward about 3 feet and make a mark. Look behind each row unit and make sure the wheels are centered over the mark; if they are not centered, adjust so that they are.

Distance

The distance between the closing wheels ensures that you're going to get the best closure of the trench possible. Too narrow will tend to pinch the top of the trench but leave an air gap around the seed, which will delay emergence. Too wide risks leaving an open furrow. $2\frac{1}{2}$ inches from bottom center to bottom center tends to center those forces down the edge of each sidewall and completely encapsulate that seed in the moisture beneath, at typical corn planting depths.

Pressure

You can determine whether or not you can maintain the right amount of pressure in order to actually close the trench by taking a bathroom scale and sliding it underneath each row unit. Next, put each closing tail on the same notch, and lower the planter.

Be sure that each spring is still in good condition and applying the same amount of tension. If you see that you're getting a significant difference from row-to-row, it may be time to change out the springs.

Once you get to the field, use something like a pocket knife or a hand hoe to go in and cut a cross-section of the trench. Pull it towards yourself and ensure that you've gotten rid of any air gaps around the seed without over closing the furrow.

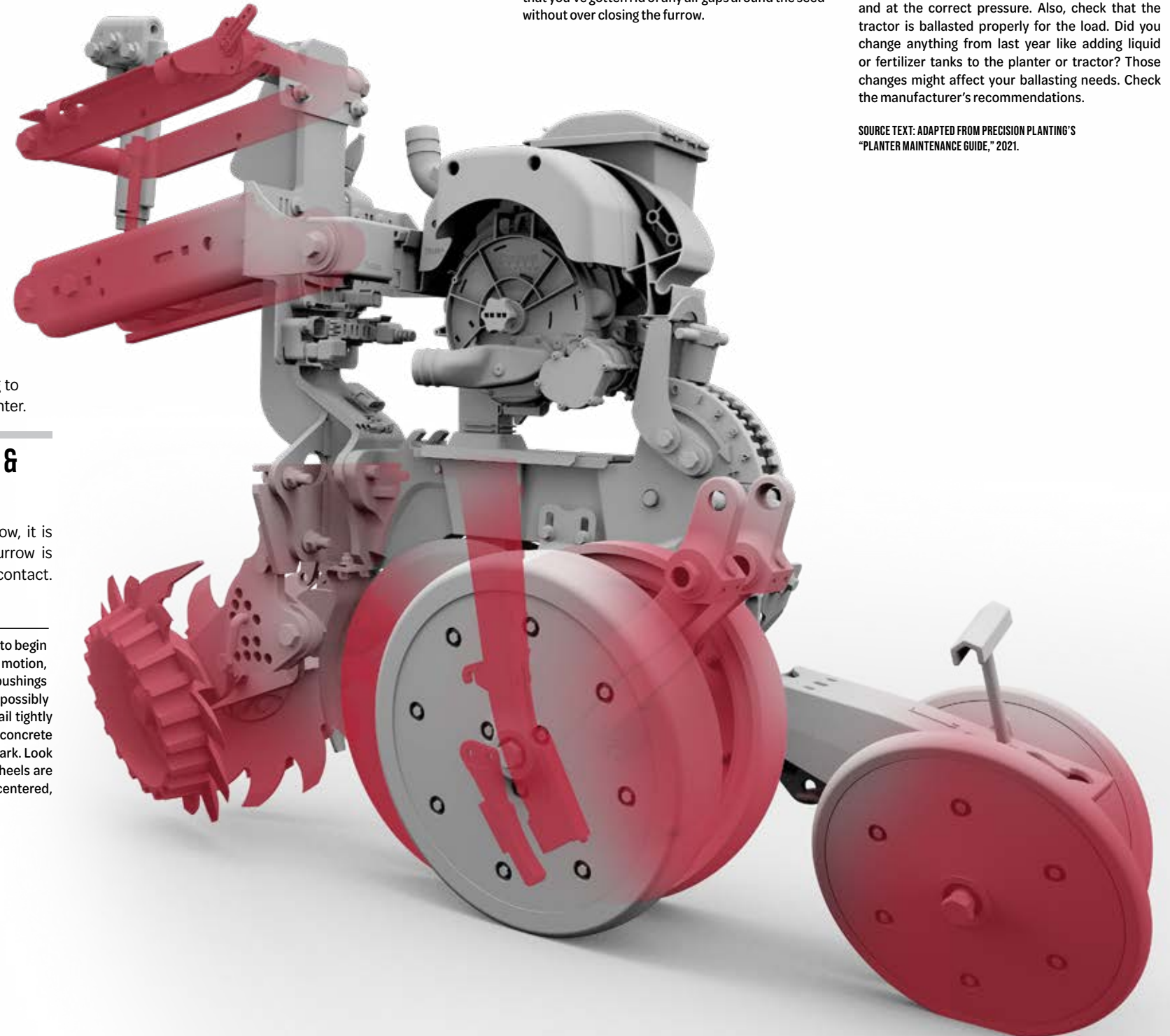
GENERAL ITEMS

Here are some general items on your planter that you're going to want to check before heading to the field.

Many items on your planter will need lubrication. This includes things like gauge wheel arms and the different pivots for folding the planter. You should check your operators manual to see all of the lubrication points that need to be addressed on your particular planter.

Another very important thing is checking that your tractor tires are inflated evenly across the tractor and at the correct pressure. Also, check that the tractor is ballasted properly for the load. Did you change anything from last year like adding liquid or fertilizer tanks to the planter or tractor? Those changes might affect your ballasting needs. Check the manufacturer's recommendations.

SOURCE TEXT: ADAPTED FROM PRECISION PLANTING'S "PLANTER MAINTENANCE GUIDE," 2021.



METER DRIVE SYSTEM

Vibration caused by mechanical components like chains and sprockets can take a properly performing meter and cause it to create skips, doubles, and spacing errors.

Chains & Sprockets

Keep properly lubricated. We recommend replacing chains annually. Also, check the teeth on sprockets as wear will create chatter and accelerate chain wear.

Tensioner & Idler Pulleys

Wear in an idler creates vibration in the chain, allowing it to walk back and forth, and should be replaced.

Hex Shaft Bearings

Remove the drive chain and rotate the hex shaft with a wrench. If it doesn't feel smooth, replace any bearings not spinning smoothly.

Hex Shaft Alignment

Improper alignment can cause a section of the rows of your planter to lope, meaning that the population will go high and low as the alignment of those drive dogs changes through-out the field. Check the alignment at any of the fold points of the planter.

BAR HEIGHT

It's important to make sure you set your planter bar height so your parallel arms run level with the bar. When your parallel arms run uphill to the bar, you limit the amount of travel that you have for the row-unit.

With most planter brands, 20 to 22 inches from your frame to the ground is recommended.

Stand behind the planter and make sure that your planter bar is level. It's possible that the center can be a different height than the wings which can cause some issues as well as you travel through the field. If you have a 3-point mounted planter with a pneumatic gauge wheel out front, you may need to lift or lower that and make sure it's the same on both sides.

LEVEL THE PLANTER

You want to check that the row unit toolbar of your planter is level.

If the front is lower than the back of the toolbar, your row cleaners will be too aggressive and you won't achieve the seeding depth that you're expecting. Also, your seed firmer and closing system will not have as much pressure on them and they will not be able to do their jobs well.

Once your in the field, double-check and level it out again. If your toolbar isn't running level, then you need to make an adjustment to the height of the hitch to get your planter toolbar leveled out.

For a 3-point mounted planter, adjust the lift arms to get the quick hitch leveled before hooking up the planter. If you have draft control on your tractor, turn it down or off before planting to make sure it's not trying to adjust that height and the levelness of the planter when you're going through the field.

EVALUATING DOWNFORCE

The goal of a good seed furrow is to have a clean and open environment with equal moisture, temperature, and consistent soil density in order to achieve the uniform germination and emergence.

Excessive

While carrying too much weight on the gauge wheels can create a clean and open seed furrow, it also creates compaction in the side walls of the furrow. This will create issues for your closing system's ability to put soil back together, negatively impacting the seed environment. Root development later on in the plant's life will also be affected, causing the plant to have less yield because the roots are restricted because of the excess weight carried on the gauge wheels. Gauge wheel tracks will be over-pronounced on the surface with excess downforce.

Too Little

Without enough weight on the gauge wheels, the furrow environment created is too loose and compromises the integrity of the side walls, allowing them to cave in and deposit dry soil and clods around the seed. This creates an inconsistent environment for germination and emergence, and you won't achieve uniform moisture and temperature.

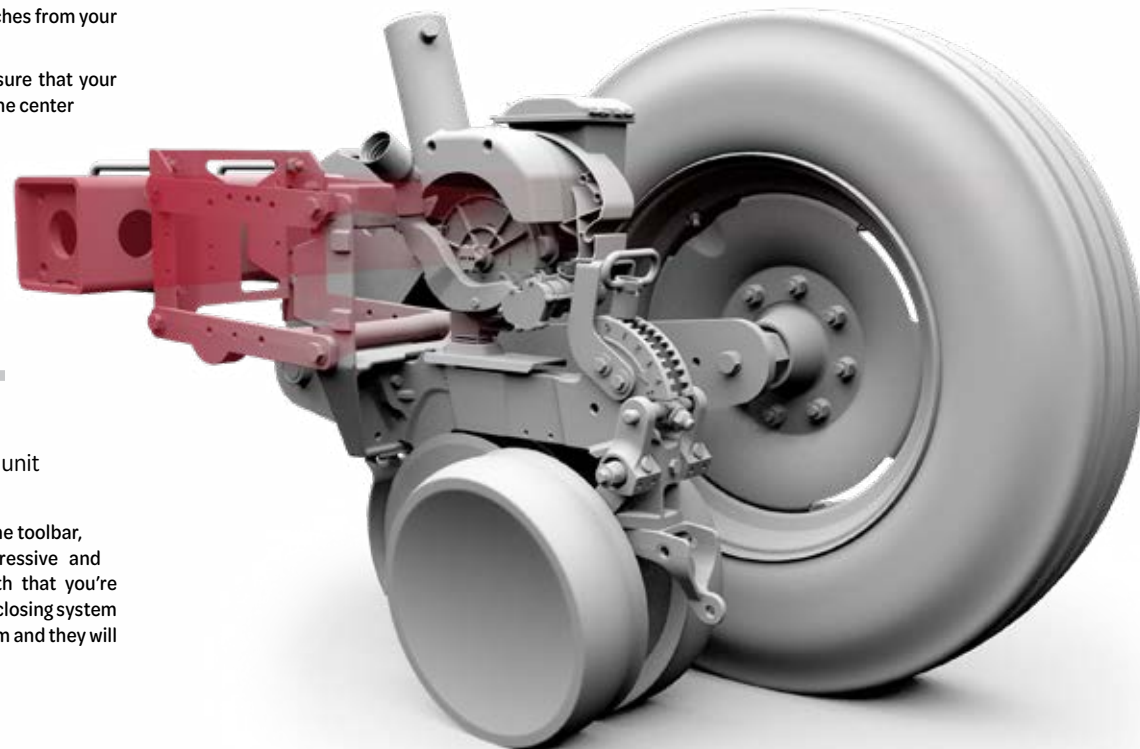
Your plants will have multiple days difference in emergence timing due to the variable heat and moisture that each seed has. Gauge wheel tracks will likely be hard to find on the surface.

Correct

When the correct amount of downforce is applied, gauge wheel tracks should be visible, but not firm. As you dig alongside the furrow, you should see movement of the soil, and if you lift, the soil should crumble and fall apart. This means you can have confidence in your closing system's ability to close the seed furrow and achieve good density around the seed. With the correct downforce setting, emergence will be consistent and so will root development later in the season.

The planting conditions you are in will determine your optimum downforce setting. If planting conditions get drier, it's going to be harder to hold the sidewall, so you will need a higher downforce setting. As you get into wetter conditions, you will need to choose a lower downforce setting as now compaction is a risk, and it will be easier to hold the sidewall in those wet conditions.

SOURCE TEXT: ADAPTED FROM PRECISION PLANTING'S "PLANTER MAINTENANCE GUIDE," 2021.



Achieve 99%+ accuracy with leading-edge technology from Precision Planting.

Manage every row unit individually in real time to provide greater accuracy. Massey Ferguson planters optionally feature the latest innovations from Precision Planting integrated right from the factory. This means you're achieving 99%+ accuracy all the time while minimizing root zone compaction.

The system intelligently places seed according to your desired population while compensating for turns and overlaps. vSet2/vDrive meters are unsurpassed in accuracy, simplicity and durability. The DeltaForce hydraulic downforce system intelligently applies individual row unit down force for optimum seed depth, without undo compaction.



Gen3 20|20 Monitor

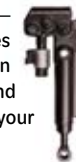
The 20|20 can be utilized as a monitor to simply set the planter but it also powers the most agronomically advanced systems on the market. The 20|20 does all this to give you the most accurate data to make crucial decisions and gives your equipment powerful automation to make decisions as it passes through the field, optimizing every pass.

The Gen3 20|20 monitor provides the most advanced agronomic mapping you've ever seen. Optimize planting decisions with a smart, intuitive interface that visualizes performance and field conditions in real-time, seed by seed.

Customize display configurations, add sensors, and discover things about your field you may have never known.

DeltaForce

Running a single downforce setting across an entire field causes yield loss because the setting is rarely correct. DeltaForce is an automated row by row downforce control system that measures and adjusts downforce every time there is variability in your field, so your crops will thrive for optimal yields.



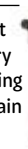
vSet2

Traditional seed meters need continual adjustment to plant accurately which leads to skips, doubles, and ultimately, lost yield. vSet seed meters singulate seeds accurately without any adjustments resulting in perfect seed placement throughout your field.



SpeedTube

Most planting seasons have weather challenges that make it difficult to plant all your fields in ideal conditions. SpeedTube is a seed delivery system that allows you to double your planting speed without sacrificing performance. You'll have a sense of accomplishment when the rain comes and your planter is already back in the shed.



Conceal

The most efficient time to place fertilizer is during the planter pass, but many planter nitrogen attachments are bulky, messy, and high-maintenance. Conceal is a planter fertility attachment that is cleanly tucked into the row unit and places nutrition in the soil 3 inches away from the seed.



FurrowForce

Setting your closing system correctly is tough. FurrowForce is a two-stage closing system that adapts to your planting conditions to remove air pockets and firm soil to keep moisture, giving you confidence that your crops will germinate the best that they can.



SmartFirmer

Digging a few seeds per field doesn't give you a complete picture of whether your depth setting is correct. SmartFirmer is a seed firmer-sensor that measures the amount of moisture available to the seed, organic matter, and temperature, so you can adjust your depth correctly and know you will have a consistent crop stand.



CleanSweep

Setting row cleaners correctly is time-consuming and frustrating. CleanSweep allows you to make row cleaner adjustments from the cab, eliminating the frustration of getting row cleaners set, saving you time while planting.



Evaluating emergence

Once you have an emerged stand, there are various ways to verify that your planter did the job you were expecting.

The process starts with comparing a sampled field population to the desired population. Next, the rows are checked for skips and doubles. Finally, the plants are reviewed for uniformity in emergence. The measurements are then calculated into a predicted yield and degree of yield affect from issues with emergence.



SKIPS & DOUBLES

Skips and doubles hurt yields by leaving precious field space underutilized or causing two plants to share vital resources. A skip indicates a space in a row where seed should have been planted but the plant failed to grow.

When a double occurs, two plants have to share water, sunlight and space meant for one plant. Although there can be many causes for skips and doubles, a common cause is a problem with the planter, meaning a seed failed to drop at the intended time. Often, skips and doubles are caused by a planter that interrupts and in efficiently moves seed from hopper to placement.

When skips and doubles occur due to planter design, it is likely the problem will persist, causing a preventable reduction in yield. A skip in one part of the field may also suggest a double planting in another location.

Typical causes of skips and doubles are inaccurate seed singulation by the meter and interruption of the seed drop caused by horizontal movement beneath the meter or ricochet inside the seed tube.

INCONSISTENT EMERGENCE



Plant emergence that occurs over a wide range of days hurts the entire crop cycle. A good rule of thumb suggests that corn plants one leaf collar behind their neighbors will contribute a reduced ear, while plants two leaf collars behind will not produce an ear at all.

When some plants grow faster than others, the taller plants shade the shorter plants, hurting plant development. Even if the plants that emerged at a later date than others do grow to fruition, they are more likely to have varying moisture content, shifting the harvesting schedule and costing the you time and money.

Timing of emergence is dependent on accuracy of the planter depth and the proper formation of the seed trench. Inaccurate and inconsistent plant depth can cause variation in the timing of plant emergence as an poorly formed or inconsistent seed trenches and compaction.

UNEVEN SPACING



Unevenly spaced plants cause imbalanced distribution of sun and water. Just as doubles cause plants to fight for the same sunlight, water and nutrients, unevenly spaced seed also causes irregular distribution of shared resources.

Uneven spacing is typically caused by delays in seed releasing from the meter or falling down the seed tube.



TRADITIONAL METHOD

- In your newly emerged field, choose a row that is not at the edge or a headland.
- With a tape measure, pull 17 ½ feet along a row and count the total number of plants within that 17 ½ feet, including doubles.
- Multiply the total number of plants counted by 1,000.
- Compare that number to your intended total population.

ADVANCED METHOD

Using the Precision Planting POGO stick allows you to gather information for tracking data such as emergence, singulation, distances between plants, and final stand counts. The data collected can be used to determine any financial impact, diagnose planter issues and other indicators of planter performance.





Walking your fields

This is an essential task for any agronomist and you can employ some of the same techniques in your own fields throughout the growing season.

Measurements and data can only tell us so much and a survey of the field in person can reveal valuable information. The value of direct observation can be both reactive and preemptive. Catching issues early increases the likelihood of providing a remedy in a timely manner. Additionally, early and regular observation can help you plan more effectively for the months and even years ahead.

EARLY SEASON (VE-V6)

From emergence (VE) to a mid-vegetative stage, the focus of observation begins with making population estimates and evaluating the quality of emergence. Look for early signs of disease and judge the overall health of the plant due to nutrients, compaction, residue in-row and whether or not the starter fertilizer did an adequate job. You should also take this time to survey the weed pressure in the field and effectiveness of weed control measures.

MID TO LATE VEGETATIVE STAGES (V8-V18)

As the season progresses in to later vegetative stages, look for specific and damaging pests such as the European Corn Borer. This is also a good time to evaluate weed pressure and formulate plans for dealing with weeds before they become a much bigger issue. As the plant is growing vigorously at this stage, it is also depleting nutrients so look for macro deficiency (nitrogen, potassium and phosphorus) and micro deficiency (zinc, manganese and iron).

EARLY REPRODUCTIVE STAGE (VT-R2)

Beginning with tasseling (VT), start looking for variables that may affect pollination and for remedies when they exist. This begins with looking for insects that are clipping silks- inhibiting pollination. Also, look for the effects of weather, be it too hot and dry or overly wet and what either could mean for future yield. This is also a good time to look for specific diseases and the effects they may have. Make sure you are looking for the diseases that are conducive for the particular

conditions. This is also a good time to look for specific diseases and determine if a fungicide application is necessary. If disease is present, there is adequate moisture, and the hybrid is susceptible, you will likely get a return on fungicide application. This may be disease that thrives within a particular growing environment you're experiencing or diseases that are associated with the hybrid you are growing.

MILK, DOUGH, DENT, AND PHYSIOLOGICAL MATURITY (R3-R6)

As the plant enters later maturity stages, start checking for yield; looking for numbers of rows and kernels per row. Count ears per 1/1000th of an acre or 17'5" in 30-inch rows. By multiplying rows x kernels per row by ear count and then dividing by 85, you can get a pretty good estimate of yield. This is a good time to measure the effect of runts, doubles and skips. You should also take this time to look at the plants' maturity and begin estimating harvest time. Corn is approximately 32% moisture at black layer. Time to harvest can then be estimated using the following rule of thumb:

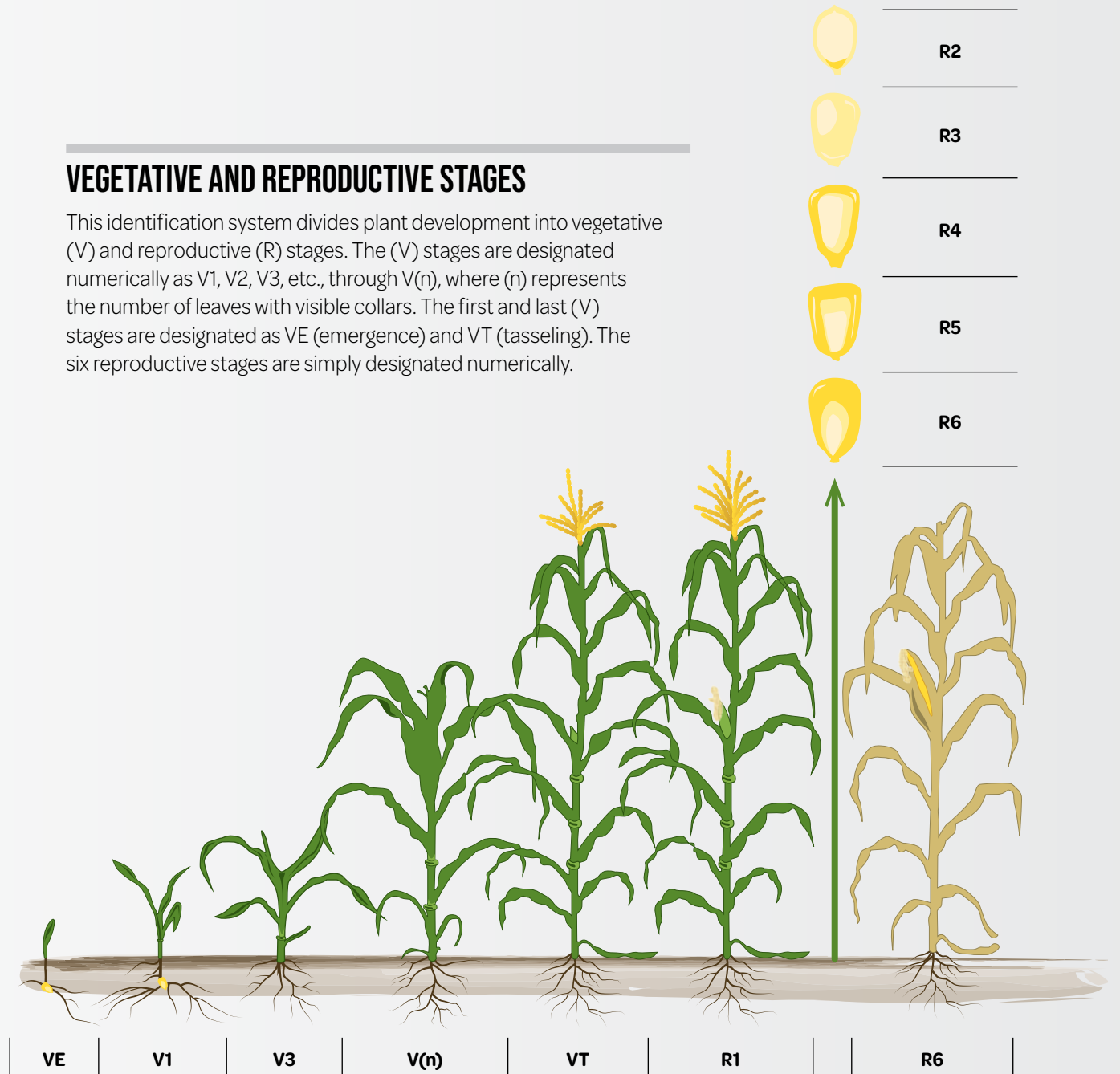
Time Period/Percentage of Moisture Loss Per Day

- **Mid to late September:** ¾ to 1%
- **Early to mid October:** ½ to ¾%
- **Late October to mid November:** ¼ to ½%
- **Mid November:** 0 to ¼%

Good observation not only pays off for the harvest you're looking at, it yields local knowledge and a deeper understanding of your fields, their potential and what could be holding them back. Take the time to get out in your fields regularly and keep good records of what you're seeing and doing. Invest your time in getting to know what's going on in the field and returns will pay back handsomely.

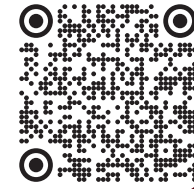
VEGETATIVE AND REPRODUCTIVE STAGES

This identification system divides plant development into vegetative (V) and reproductive (R) stages. The (V) stages are designated numerically as V1, V2, V3, etc., through V(n), where (n) represents the number of leaves with visible collars. The first and last (V) stages are designated as VE (emergence) and VT (tasseling). The six reproductive stages are simply designated numerically.



Vegetative Stages		Reproductive Stages	
Stage	Description	Stage	Description
VE	Emergence	R1	Silking - silks visible outside the husks
V1	One leaf with collar visible	R2	Blister - kernels are white and resemble a blister in shape
V3	Three leaves with collars visible	R3	Milk - kernels are yellow on the outside with a milky inner fluid
V(n)	(n) leaves with collars visible	R4	Dough - milky inner fluid thickens to a pasty consistency
VT	Last branch of tassel is completely visible	R5	Dent - nearly all kernels are denting
		R6	Physiological maturity - the black abscission layer has formed

GRAPHIC SOURCE: ADAPTED FROM UNIVERSITY OF ILLINOIS EXTENSION. TABLE SOURCE: "HOW A CORN PLANT DEVELOPS," SPECIAL REPORT NO. 48, IOWA STATE UNIVERSITY.



LEARN MORE
ABOUT MASSEY
FERGUSON
PLANTERS



Featuring integrated technology from

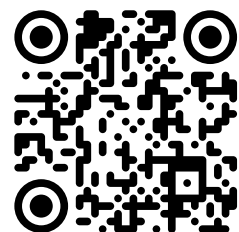


Helpful resources

Whether you need assistance with finding parts, advice on planter setup, want to learn more about the latest planting practices and the technology that's behind them, we're here to help. Below are some helpful resources to make your planting season a success.

Midway Farm Equipment
(midwayfarmequip.com)

(507) 427-3414

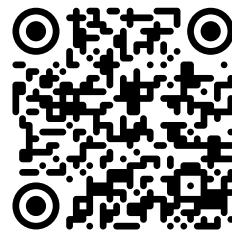


602 Co Hwy 1
Mountain Lake, MN 56159

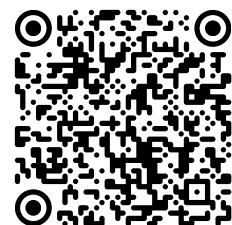
Monday - Friday: 8:00AM - 5:00PM
Saturday: 8:00AM - 12:00PM,
Sunday: Closed

Precision Planting
(precisionplanting.com)

Products

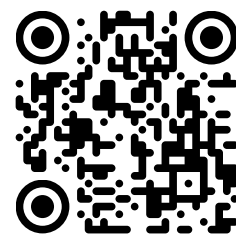


Articles, Research,
Farmer Stories & Guides



AGCO Parts
(parts.agcocorp.com)

Order parts online and have them
delivered to your home or the
dealership



Straightforward. Dependable. Accurate

In farming, timing is everything. Massey Ferguson planters are part of a long tradition of accurate planting with minimal downtime, wear or required maintenance. That means you can make the most of your time and get your best yields.

Larger capacity

- Featuring individual row unit hoppers or a central fill system of up to 90 bushels, with liquid fertilizer and insecticide options available as well.

Manage every row individually, in real time

- Row units can be factory-equipped with options from Precision Planting, including vSet2 meters, vDrive and DeltaForce.

Heads Up row unit

- Based on the proven design from White Planters, this row unit features enhanced accuracy and longevity while allowing for easy Precision Planting add-ons, such as SpeedTube.

Customizable

- Direct from the factory or with the best components from Precision Planting by your local Precision Planting dealer.

MASSEY FERGUSON MODELS

	ROW SPACING	METER
MFPR	6R30, 8R30	Positive Air
MFPW	12R30	Positive Air
MFVW	12R30	Vacuum Electric
MFVN	12R30/23R15, 24R20, 24R22	Vacuum Electric Ready
MFVS	12R30, 12R36, 12R38, 12R40, 16R30	Vacuum Electric Ready
MFVF	12R30, 16R30, 24R30	Vacuum Electric





602 Co Hwy 1
Mountain Lake, MN 56159



Located in beautiful of Mt. Lake, Minnesota, **we have been proudly serving area farmers and homeowners since 1932.** We pride ourselves on becoming a trusted partner with our customers whether they're buying a box blade or a combine.

Just under an hour west of Mankato and only 30 minutes from Jackson, you're only a short drive from finding the right piece of equipment for your operation.

FIND US ONLINE AT MIDWAYFARMEQUIP.COM  

