

Stand uniformity: Planter tips that can impact seed placement and planting depth

Checking your planter over for some of these basic things can help your machine to plant more uniformly.

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In corn and soybean production, getting off to a good start is critical. I have long been a fan of [Bob Nielsen](#), Purdue University corn agronomist, for his approach to corn production. Nielsen often talks about yield potential as the season-long cumulative negative effect of “yield influencing factors.” He often notes that corn hybrids never have as high a yield potential as when they are in the bag. Selecting the right hybrid is crucial. He and other agronomists have shown that yield differences between high performing and low performing hybrids, even within the same company’s offerings, can be substantial. However, whichever hybrid you plant, the instant we move the seed from the bag into the planter, mechanical factors, weather conditions, insects, diseases, weeds, etc. begin to take their toll on potential yields. Some of these factors can impact yield more than others depending on the year.

The job of our planters is to optimize seed spacing and depth. We have long known that plant stand uniformity is important to yield potential, especially in corn. Plants that emerge as little as 48 hours later than those adjacent to them begin to be at a competitive disadvantage when it comes to securing water, nutrients and light. Plants with delayed emergence often produce stalks that are thinner in diameter, shorter and produce smaller ears, especially in high population environments. This can reduce yield potential.

In a perfect world, crops are planted into seedbeds with uniform moisture, temperature, soil texture, tillage, compaction and crop residue. However, field conditions at the time of planting are likely to be far from perfect and may vary from place to place in the field. Add in the challenge that spring weather often provides only a narrow window to plant crops and it is easy to understand why planting to achieve picket row crops can be a challenge.

New planters have some of the most advanced technology and “in-cab adjustability” of any equipment used in farming. Whether planters are new or old, make sure the planter you use is properly maintained and adjusted. This can go a long way towards optimizing yields. It is always good to get off the tractor and check the planter periodically to make sure it is planting seed the way you want.

Singulation is important. To improve performance, make sure the seed unit drive-system is properly maintained, whether it is electric, cable or chain driven. Inspect seed units (brushes, belts, plates, vacuum hoses, etc.) for wear. Move upstream and check clutches and drive units for damage or wear. Consider having the units checked or invest in testing equipment to check singulation on your own. Monitors and sensors should be working to catch in-field breakdowns immediately. Most newer population monitors can warn you if a unit is having a singulation or

seed tube issue. However, there are many wires on planters that can cause connection headaches due to corrosion or rodents.

There are many other planter issues that can lead to reduced stand uniformity. Here are a few things to consider when preparing your planter before going to the field.

- Keep the planter level. This is relatively easy to do and can improve down pressure and seed depth uniformity.
- Check tire air pressure, especially on older planters. This includes the small mechanical drive wheels on some older planter models.
- Check each unit for sway. Wear in bushings and bolts can lead to units setting seed at an angle. This may contribute to poor unit bounce recovery (at odd angles), which can change the depth of seeding and tends to smear the sidewalls of the seed channel in more moist conditions.
- To reduce trenching, check operation, alignment and wear of fluted coulters, fertilizer units and additionally the depth of row cleaners, etc.
- Disk opener wear can change the shape of the seed channel and the ability of the seed to stay in place at the bottom of the trench. Check with your manual or dealer on when it is critical to change disk openers. If you are using seed firmers, make sure they are aligned correctly. Check for spacing between disks. Too wide indicates a problem (see bullet point below).
- Disk opener shaft and mounts can bend if the planter rolls back when the units are not fully raised. Often when this occurs, soil will be stuck in the disk openers. If you clean these out to get the disks to turn, check for proper alignment, distance between disks and potential bearing damage.
- Check for seed depth variability at the same setting. On a perfectly new planter, setting the depth on each unit at the same setting should obtain uniform seed depth. Wear and tear can often make a difference here over time.
- Check closing wheel bearings. Also, look for signs of wear or misalignment.
- Check for broken down pressure springs. On newer planters, check the operation of air bags or down pressure cylinders.
- While this article focuses mainly on the seed units, don't overlook the operation of the starter fertilizer and soil insecticide systems if you are using them on your planter. Partial blockages in tubes, which is very common, leaks and system wear can drastically change application rates.

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Nielsen will be a featured presenter at the [2019 MSU Ag Innovation Day](#). He will be sharing his insights on the impact of stand uniformity on yield potential and ways we can manage these and other yield influencing factors on your farm to achieve improved corn yields.

[MSU Agriculture Innovation Day: Focus on Precision Technology That Pays](#) takes place from 8:30 a.m. to 5 p.m. July 26 at MSU Farms, 3750 N. College Rd., Lansing, MI 48910. The event features how implementing technology that aids in decision-making can improve yields, increase profit margins and reduce environmental impacts on today's farms. The event has been approved

for Restricted Use Pesticide credits (6 credits) and Certified Crop Advisor continuing education units in integrated pest management, crop management, soil and water management and sustainability. For detailed session descriptions, visit http://www.canr.msu.edu/msu_agriculture_innovation_day/ or contact Ron Bates at batesr@msu.edu.

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