

IOWA STATE UNIVERSITY

Extension and Outreach

Integrated Crop Management

Planter Maintenance Tips for 2019

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Planter maintenance is important for all farmers, particularly those in reduced and no-till systems. A well-maintained planter gives seed its best chance, and with field operations happening in a shortened timeframe this spring, planer maintenance will be as important as ever. Most of the physical responsibility for manipulating soil, placing seed, and getting the seed off to a good start rests on the planter.

Importance of planters in reduced-tillage and no-till

Many producers have found through trial and error that a great deal of emphasis must be placed on the soil-engaging components of the planter since the planter replaces some tillage equipment operations used in the past. Rather than planting in a prepared seedbed, the planter can be used to create a furrow with the right depth, place the seed uniformly in the furrow, and establish adequate seed-to-soil contact. Some "first-time" no-till planter operators are disappointed to see seed placement at 1/2- or 3/4-inch depths, rather than the 1 1/2 to 2-inch depths, according to the settings on the planter. The problem is that if there is not enough weight on the seed openers, or the seed openers have not been maintained to keep a narrow profile with sharp edges, the row unit may be "resting up" on the openers without the depth wheels touching the soil surface.



Planting into crop residue and undisturbed soil requires attention to planter adjustment and maintenance.

Seed depth

Set planting depth according to soil moisture conditions. Penetration of the seed-openers is a particular problem in dry soil, when you may be trying to plant the seed slightly deeper. When the soil surface is dry (or when planting in soils with a coarse texture where soil moisture is limited at the soil surface), deeper planting may be required to ensure adequate moisture availability for successful germination.

Check the planter's double-disc seed openers

The seed opener is responsible for opening a consistent furrow and achieving consistent seed placement. Worn beveled edges on seed opener discs tend to let soil and residue into the furrow and be more difficult to insert at desired planting depth. Make sure the discs meet sufficiently at the soil entry point and have a good bevel remaining to slice through soil and crop residue. If planting into cornstalks or heavy residue, row cleaners can be used to push residue aside ahead of the seed opener. Operate row cleaners so they move mainly residue with little soil movement, turning about three-fourths of the time rather than fully engaged into the soil.

Planter maintenance tips:

- Check your manual and talk to your equipment dealer about the best strategies for planting in no-till or heavy residue.
- Talk to experienced producers in your area about preparing your planter for soil type.
- Be flexible and adjust planters as necessary to deal with changes in soil moisture and residue levels.
- Be aware of soil moisture conditions; water for residue "hair-pinning" under the seed opener or soil sticking to the soil-engaging components of the planter.

Down pressure

Pneumatic diaphragms or down-pressure springs transfer weight from the toolbar planter frame to seed openers to penetrate the soil. Transfer just enough down pressure from the frame on parallel links to make sure depth gauge wheels are firmly resting on the soil surface. Too little pressure results in shallow seed placement, whereas too much pressure needlessly compacts soil near the seed furrow. Be especially aware of "smearing" of the seed-furrow sidewall, which indicates that the soil is too wet to plant. Too much down-pressure or planting in wet soils will result in compacting the seedbed, making emergence and root development difficult. If using an automated down force system, monitor your system and use just enough down force to keep row-unit depth wheels in contact with the soil surface, but no more than is necessary.

How do you know the planter is set up right?

In addition to monitoring seed population, check the seed furrow periodically for proper seed depth and ensure some soil is in good contact with the seed.

Other issues

Because of the importance of the seed-metering and soil-engaging components, the equipment operator should periodically check planter performance in the field. Planter monitors can let you know whether the correct number of seed are dropping into the furrow. Get off the tractor periodically, especially as conditions change, and check seed depth, spacing, count, and seed-to-soil contact.

For more information, see [Iowa State University Extension publication PM 1492j](#).

Planter calibration checklist:

1. Check for appropriate seed depth and soil penetration. As soil conditions change with different locations, soil types, or the weather, it is important that operators check seed placement behind the planter for depth, spacing, and seed-to-soil contact.
2. Knowing the optimum population is critical in achieving potential yield and your money's worth out of any seed variety. A planter's population monitor in the cab is one way to monitor population, but get on the ground and do spot checks for uniform population and seed depth.
3. Inspect the seed opener and adjust as necessary. Although you may have correctly set the depth adjustment, depth wheels may not be firmly in contact with the soil surface and the planter unit may be riding up on the seed opener. Additional down-pressure or weight may be necessary in firm soil conditions for the seed opener to penetrate to desired planting depth.
4. Look at cover disc and pack wheel tension. Seed-to-soil contact is usually controlled by coverage and compaction of press wheels and covering discs. Planters have an adjustable down-pressure spring to vary the amount of surface pressure and coverage for supplying adequate soil contact. Spring pressure may need to be increased in drier surface soil for adequate soil contact and to help bring moisture up to the seed. Pressure should be decreased after surface soil moisture has been recharged by rainfall to avoid compacting soil around the seed.

Conclusions

Without a good start in the best seedbed possible, crops do not reach their full potential. Soils managed with reduced tillage and no-till management plans and soils with heavy residue cover are often more difficult to penetrate with planter seed openers.

Inexperienced operators or those with new or unfamiliar equipment need to check their operation of planters often to ensure that seed is placed properly. For the best return on investment in your operation, take the time this season to properly prepare, maintain, and adjust your planter for residue cover, soil type, and soil moisture conditions.

Category: Crop Production Equipment and Machinery

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Crops:

Corn Soybean

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