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Equipment maintenance: Planters

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Equipment maintenance: Planters

Abstract

A well-maintained planter gives seed its best chance. Planter maintenance is especially important for producers in no-till and reduced tillage systems. Most of the physical responsibility for manipulating soil, placing seed, and getting the seed off to a good start rests on the planter.

Keywords

Agronomy, Agricultural and Biosystems Engineering

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Bioresource and Agricultural Engineering

INTEGRATED CROP MANAGEMENT

Equipment maintenance: Planters

A well-maintained planter gives seed its best chance. Planter maintenance is especially important for producers in no-till and reduced tillage systems. 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 has to be placed on the soil-engaging components of the planter since the planter replaces some tillage equipment operations. 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.

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 seedbed depth may be required to ensure adequate moisture availability for successful germination.



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

[Enlarge](#) [1]

Check the planter's coulters

Planting in cornstalks or forage crops requires a coulters mounted ahead of the seed opener, on the planter unit. The coulters is an important part of the planting process, enabling the seed opener to open a more consistent slot and provide an acceptable seedbed. Dull coulters tend to ride on top of or push residue along instead of cutting it. Make sure the coulters are sufficiently sharp--with a good bevel remaining--to slice through your heaviest crop residue.

Mounting the coulter on the planter unit is preferred because it provides for a closer linkage to the depth of each individual seed opener. A second option is to mount a coulter on the planter frame.

Down pressure

Heavier frame planters use down-pressure springs to transfer weight to coulters and seed openers to cut residue and penetrate the soil. Down-pressure spring kits for older planters often are available from suppliers. Additional weight (if needed) may be added by filling fertilizer and pesticide boxes or by using cast iron weights. Use just enough down pressure from the springs on parallel links to make sure depth 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.

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

Marks can be difficult to see in heavy residue, even if additional weights are used for markers. Try foam markers or use the old rows in residue as a guide. Because of the importance of the seed-metering and soil-engaging components, the equipment operator also should maintain the planter in the field. Planter monitors can let you know whether the right amount of seed is 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](#) [2]

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 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.

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 prepping 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; watch for residue "hair-pinning" under the coulter or soil sticking to the soil-engaging components of the planter.

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[1] <http://www.ent.iastate.edu/imagegal/equipment/planter.html>

[2] <http://www.ae.iastate.edu/pm1492j.pdf>

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