5-1-2008

Don’t Use More Pressure than Needed on Wet Soils

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Abstract
Many Iowa planter operators are faced with wet soil conditions this spring. Operators will want to wait for suitable conditions to avoid “mudding in” a crop with significant investments in seed, fertilizer, machinery and time. Once in the field, attention should be paid to the amount of weight being transferred from the planter frame through parallel links to the individual row units. Use only enough down pressure on depth-gauge wheels to ensure that they stay in contact with the soil surface.

Keywords
Agricultural and Biosystems Engineering

Disciplines
Agricultural Science | Agriculture | Plant Pathology

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Don’t Use More Pressure than Needed on Wet Soils

May 1, 2008

By Mark Hanna, Department of Agricultural and Biosystems Engineering

Many Iowa planter operators are faced with wet soil conditions this spring. Operators will want to wait for suitable conditions to avoid “mudding in” a crop with significant investments in seed, fertilizer, machinery and time.

Once in the field, attention should be paid to the amount of weight being transferred from the planter frame through parallel links to the individual row units. Use only enough down pressure on depth-gauge wheels to ensure that they stay in contact with the soil surface. In wet soil conditions, excess load transferred to the depth-gauge wheels beyond the point where they firmly touch the soil simply adds more potential compaction to the seed zone. Compacted soil in the seed zone can be more difficult for seedling roots to penetrate, particularly if subsequent weather allows soil to become dry and hard.
Depth-gauge wheels adjacent to the seed opener

Also adjust spring pressure on closing wheels to a relatively light setting, using only enough down pressure on the soil to establish seed-to-soil contact. Too much spring pressure adds excessive down force, compacting soil and building excessive soil strength around the seed. Letting the closing wheels “float” on the soil surface without any spring pressure may be adequate to establish soil contact with the seed.

Check behind the planter by digging up a few seeds to evaluate conditions. Using a finger-type or spader wheel might be considered in place of a conventional closing wheel for one or both wheels if they are easily available for use. These types of closing wheels, used by some operators in wetter soil planting conditions, tend to leave soil looser over the seed.

A key point is to recognize existing soil conditions and be willing to make planter adjustments to improve the chances of good early plant growth. In wet soils, inserting the double-disc seed-opener into the ground and establishing seed-to-soil contact typically do not require as much down pressure on depth-gauge wheels and closing wheels, respectively, as is required in drier soils.

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Dr. H. Mark Hanna is an Extension Agricultural Engineer with Iowa State University. Hanna’s main focus is sustainable agricultural systems, including chemical application, energy consumption, tillage/planting and harvest. His research focus has been on developing ways for field equipment to enh...