

# Soil Management for Harvest Ruts

*By Bill Wiebold*

**Editors Note:** The author, Dr. Mark Hanna ([hmhanna@iastate.edu](mailto:hmhanna@iastate.edu)) is an Extension Agricultural Engineer in the Iowa State University Department of Agricultural and Biosystems Engineering.

Wet conditions have caused ruts to form in some fields as combines work to harvest crops. About three-fourths of combine mass and virtually all of loaded grain tank weight are carried on the combine's front axle. With good yields, grain tank extensions, and a 12-row head, front axle load can be 18 to 20 tons.

Compacted soil created beneath the rut may interfere with subsequent crop rooting. In addition, ruts deeper than about two inches can interfere with maintaining seed depth during planter operation next spring unless they are leveled.

Soil loosening by using tillage to relieve compaction requires soil to be dry enough so that soil shattering is effective. Because soil moisture has re-filled the top 12 to 24 inches of the soil profile, deep tillage with a chisel plow or subsoiler this fall or next spring will use fuel and time but is unlikely to loosen soil effectively between tillage shanks. The full soil moisture profile in upper layers will however aid freeze/thaw cycles to help loosen soil during winter depending on air temperatures and snow cover.

Ruts deeper than planting depth will need to be leveled before planter operation. A good strategy may be to wait until a week or two before planting next spring and use a light tillage pass such as with a field cultivator, light disk, harrow, or soil finisher. If only a portion of the field is rutted, consider tilling only

that area to avoid re-compacting subsoil in other parts of the field. Waiting until warmer weather next spring allows potential for some drying of the top two or three inches of soil and avoids further compaction of wet, plastic soil on the surface that would be done with a tillage pass this fall. If compaction effects are observed during the 2010 growing season and soil is dry after harvest, tillage next fall may be considered deep enough to break through the compacted layer.

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