

## Soil Compaction

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Last year's wet planting season may have set the stage for some compaction problems this growing season. If you think you have compacted areas in your fields, there are ways of correcting this problem even in no-till systems. To determine if there is a compaction problem, researchers use a device called a 'penetrometer.' For our purposes, a soil probe or a metal rod can work just as well. You'll want to push the rod into the soil in a fence row or other area where no compaction exists. Then push it into the ground where you suspect compaction. You should be able to 'feel' where the compaction layer is when the rod becomes more difficult to push through. To alleviate compaction, we recommend that you till one to two inches below the compaction layer. In a no-till system, this can be accomplished using a subsoiler.

In general, the greater the ratio of equipment weight to the tire surface area in contact with the ground, the greater the potential for compaction. Two types of compaction can occur. The first is surface compaction which is caused by tire pressure. This type can be reduced by reducing the air pressure in your tires (see your owners manual for appropriate levels). Radial tires tend to compact less than bias-ply tires because they flex more, which results in a greater area of tire-soil contact.

The second type of compaction is subsurface compaction, which is caused by axle load. The more axles you have per unit of weight, the more the weight is spread out and the less compaction you'll have. There is only so much you can do to reduce the weight of equipment, but changing your drive patterns through the fields, alternating where headland areas are if possible, avoiding unnecessary traffic through fields, and of course, avoiding working wet soils can help reduce compaction problems in the future. For more information on soil compaction and tillage systems, contact our office for Bulletin #MWP45, Conservation Tillage Systems and Management. The 270 page book sells for \$15. (608-742-9688)