Tillage equipment maintenance

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Recommended Citation
Hanna, H. Mark; Al-Kaisi, Mahdi; and Tidman, Michael J., "Tillage equipment maintenance" (2002). Integrated Crop Management News. 1744.
http://lib.dr.iastate.edu/cropnews/1744

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Abstract
Many crop operations experience a lull in mid-winter. This lull is a great time to take a look at tillage equipment maintenance for the 2002 growing season and catch up on "little fixes" that were put off from last year. Proper setup and maintenance of tillage equipment can eliminate extra tillage trips through the field and increase equipment efficiency, which preserves crop residue and limits soil erosion.

Keywords
Agricultural and Biosystems Engineering, Agronomy

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

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Tillage equipment maintenance

Many crop operations experience a lull in mid-winter. This lull is a great time to take a look at tillage equipment maintenance for the 2002 growing season and catch up on "little fixes" that were put off from last year. Proper setup and maintenance of tillage equipment can eliminate extra tillage trips through the field and increase equipment efficiency, which preserves crop residue and limits soil erosion.

Plan your work then work your plan

This spring, instead of just heading to the field, make more informed tillage decisions. Establish a goal of at least 30 percent residue cover for sloping fields at planting time. Be diligent about the quality of your equipment. It will pay off in the long run in terms of efficient use of time, reduced soil erosion, operator safety, and possibly, better yields from more uniform tillage operations. Below are some inspection tips for your tillage equipment (in addition to checking the operator's manual).

Soil engaging points

Has the tillage equipment been operated in till-derived soils (soils with more than 20 percent sand) or loess-derived soils (soils with less than 20 percent sand)? Are there lots of rocks on the soil surface? Some soils such as fine sandy loams, sandy loams, and loamy fine sands require more frequent checks on the condition of soil engaging points because abrasive soil erodes the steel surface. Make a note to make daily checks if your soil is hard on tillage equipment.

Check for worn or broken tillage components, e.g., sweeps, chisel points, and disc blades. Damaged or worn cutting edges can increase tractor draft and result in an uneven soil surface. Wintertime is a good time to check for sales on replacement parts. It's a slow time for the manufacturers, too, so there may be special offers. And if a part has to be ordered, waiting now is better than waiting while the job needs to be done.

Check the down-pressure springs

Are they adjusted evenly? Are there any broken springs? Down-pressure springs behind tractor wheels may need to be set for more penetration.

Check the condition of the equipment's frame; look for sprung or broken welds and repair them. Also, see if the frame is bent because even a slight twist can result in a big difference
in tillage uniformity from one end of the implement to the other.

Many hitches have a fore-to-aft (front-to-back) leveling mechanism, often on the tongue. Has it been checked with the equipment in the ground and the proper setting noted?

**Wheels and tires**

Are the wheels and tires the same size and properly inflated? (It's a good idea to check again when you head to the field). Check the wheel bearings. Are the moving parts well greased?

Look at the tractor, too. Is the hydraulic system operating properly? Is the hydraulic oil in good condition? Are the hoses all in good shape (not cracked or checked)? Make sure that the weighting, ballasting, and condition of tractor are set up for an efficient drawbar pull. Your tractor's manual or the local equipment dealer can quickly confirm the best setup for each piece of tillage equipment.

Make a note for later--test the equipment after hooking up this spring. Travel through the field and observe the function of components that engage the soil, e.g., sweeps, chisel points, and disc blades. Are they working as intended? Are they leaving an even distribution of crop residue? Are they penetrating at an even depth? Do the down-pressure springs need adjustment for even penetration?

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**Considerations for spring tillage**

**What will tillage accomplish?** The most common reasons for tillage are to break up soil compaction, to provide for the next crop in the rotation sequence (e.g., limited tillage in heavy corn residue or leveling a field for seeding a cover crop), to control emerged weeds, and to redistribute crop residue. **What is risked by turning over or disturbing residue?** Crop rotation, topography, soil type, and weather conditions are all critical. Leaving less than 30 percent crop residue remaining on the soil surface after planting makes most Iowa soils vulnerable to erosion. If the target is a residue cover of at least 30 percent on the soils surface after planting, what effect will tillage have on that goal?

This article originally appeared on pages 10-11 of the IC-488 (1) -- January 21, 2002 issue.

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