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Field observations are key when planning spring work

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Abstract
A consideration of field conditions, including soil moisture, residue cover, and the condition of conservation structures can be critical to the success of your crop and should rank high when planning your spring fieldwork. This article outlines some tips for planning spring fieldwork before planting begins.

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A consideration of field conditions, including soil moisture, residue cover, and the condition of conservation structures can be critical to the success of your crop and should rank high when planning your spring fieldwork. This article outlines some tips for planning spring fieldwork before planting begins.

Assess soil condition

It is essential to check soil moisture of the top 6 inches before starting spring fieldwork. Soil moisture status can be evaluated by taking a handful of soil from the top 6 inches and determining whether the soil is at field capacity. Generally, if squeezing the soil leaves watermarks on the palm of your hand or if the soil forms a ribbon of 4 to 5 inches when pushed out between the thumb and index finger then it is too wet to start fieldwork. When the soil is at field capacity, pressure from field equipment causes compaction and results in a poor seedbed. This simple test can be used for medium-textured soils, which is the texture of most surface soils in Iowa.

The impact of operating equipment on wet soil can be substantial, altering soil structure and other physical properties such as bulk density, infiltration rate, and soil aeration. Changes in these physical properties can cause considerable reduction in surface water infiltration and movement through the soil profile, resulting in an increase in surface water runoff, soil erosion, and sediment transport to water bodies. An accurate assessment of field moisture conditions and, if necessary, waiting for the proper working field conditions can prevent the formation of large aggregates and nonuniform soil clods, which contribute to poor seedbeds and seed-to-soil contact leading to problems with seed germination. Before performing any tillage operations in a dry spring, you should inspect the top 6 inches for soil moisture status and plan to minimize tillage unless it is absolutely necessary. Minimizing tillage passes can save as much as a quarter of an inch of water per pass.

Residue

For most Iowa soils, crop residue (stalks, straw, chaff, and other plant material) translates directly into soil erosion control and should be part of every conservation plan. Soil management experts suggest that effective conservation tillage practices should leave at least 30 percent crop residue cover after planting. Field operations (such as knifing in nitrogen or manure) and residue turning and decomposition can make hitting the 30 percent crop residue target after planting, especially after soybean harvest, difficult when other tillage is performed.

Is secondary tillage needed?

If secondary tillage is needed to alleviate field roughness, consider the implications of soil compaction, soil moisture reduction, and loss of residue. Use tillage practices that accomplish tillage goals without causing field roughness.

Inspect condition of terraces, standpipes, and grassed waterways

Even after they are established, conservation structures (terraces, standpipes, and waterways) require ongoing management for optimal performance. Winter can be hard on conservation structures, causing changes that reduce their effectiveness. Also check the height of terrace ridges to see whether tillage has disturbed or lowered them. If sediment is a problem, make sure it has not buried a standpipe and clean out the terrace's channel. (If the terrace was designed to allow for some sediment buildup, the standpipe can be extended.)

A wide, shallow, sod-lined waterway can reduce the flow of water and provide a cushion of grass for the flow of water, preventing erosion and gullies. Waterways are subject to a constant cut-and-fill process, so planning, inspection, and maintenance should focus on the general shape of a waterway; a parabolic shape is preferred.

Planning is an essential part of crop success and requires that you make accurate and timely field observations. So put together a checklist, including the tips mentioned herein, before you head to the field this year.

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