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## How Soon Should I Start Field Operations?

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# How Soon Should I Start Field Operations?

## **Abstract**

It is not too early to start thinking about spring and field operations, even though the cold and snowy weather appears not to fade away. It is a good time now to direct our thinking by focusing on next spring and the promise of enjoying being outside and shake up the winter hold on us. Having said that, the decision to conduct any field operation whether tillage, applying anhydrous, etc, needs to be pursued carefully giving the potential for very wet conditions with amount of snow we have this winter.

## **Keywords**

Agronomy, Agricultural and Biosystems Engineering

## **Disciplines**

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

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## How Soon Should I Start Field Operations?

ICM News

*March 12, 2008*

**By Mahdi Al Kaisi, Department of Agronomy, and Mark Hanna, Department of Agricultural and BioSystems Engineering**

It is not too early to start thinking about spring and field operations, even though the cold and snowy weather appears not to fade away. It is a good time now to direct our thinking by focusing on next spring and the promise of enjoying being outside and shake up the winter hold on us. Having said that, the decision to conduct any field operation whether tillage, applying anhydrous, etc, needs to be pursued carefully giving the potential for very wet conditions with amount of snow we have this winter.

Wet early spring can be very challenging, when the soil profile is fully charged and the soil very susceptible to great damage and significant compaction if the fields are entered early when the soil is at field capacity or saturated condition. When soil conditions are near field capacity, soil aggregates are "lubricated" by water and readily reposition

themselves through the air spaces, especially when heavy equipment is used.

In addition, equipment operators need to remember that soil compaction can occur during the application of manure or anhydrous as well when soil moisture exceeds field capacity (maximum amount of moisture retained by the soil). Under wet conditions, the use of heavy equipment can significantly change soil structure and cause soil compaction. Operating in wet conditions and especially doing extra tillage will increase fuel use per acre as well.

Soil compaction near the surface, within the top 3 to 6 inches of the soil, is generally associated with the amount of surface pressure. Compaction below that is primarily associated with axle weight. For example, if soil a foot below the surface is at field capacity and the tractor's axle load is 7 to 8 tons or greater, compaction can occur at this depth, despite lower surface pressures. This is true especially, when tillage or any other field operations are done in wet conditions or early wet spring.

It's tempting to jump start the process and hit the field, but soil below the surface couple of inches in most cases is still holding significant amounts of moisture from winter snow. Living plant roots are not present to remove infiltrated water and soil moisture is at or near field capacity, making it too wet for suitable working soil conditions.

The potential damages to soil, such as creating clods unsuitable for later planting, exceed the perceived benefits of early spring operations. During wet conditions soil compaction can be very costly in terms of good stand development, soil compaction induced nutrient deficiency such as potassium, root development and ultimately yield reduction.

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