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## Spring Tillage Pitfalls

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# Spring Tillage Pitfalls

## **Abstract**

Generally, springtime is not an ideal time for conducting tillage because of potential negative soil and agronomic outcomes associated with tillage in wet conditions. These soil and agronomic problems are linked together in affecting yield. Here are some of the reasons to avoid spring tillage.

## **Keywords**

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## Spring Tillage Pitfalls

By Mahdi Al-Kaisi, Professor, Department of Agronomy



Generally, springtime is not an ideal time for conducting tillage because of potential negative soil and agronomic outcomes associated with tillage in wet conditions. These soil and agronomic problems are linked together in affecting yield. Here are some of the reasons to avoid spring tillage:

1. Increase in soil compaction and damage to soil structure as a result of tilling in wet conditions. This will reduce soil porosity and air and water movement in the soil profile.
2. Tilling wet soil will not be very effective in fracturing soil, if that is the objective of tilling in mind, because tilling in wet conditions will compact soil and create large soil clods.
3. Such conditions will create a soil environment with poor seed bed conditions and will reduce the seed-to-soil contact, if that is the purpose of tilling the soil.
4. These poor soil conditions can lead to poor development of root systems, such as [rootless corn](#), during early growth stages.
5. Later in the season, the root system growth will be restricted due to [soil compacted layers](#), leading to a deformed root system concentrated at a shallow depth.
6. This will reduce the use of sub-soil moisture, which will be a deterrent to yield, especially during drought conditions in the growing season.
7. Another problem associated with wet spring tillage is the potential of Potassium (K) soil [compaction-induced deficiency](#).
8. Finally, all this will translate to [yield reduction](#), which can be in the range of 10-20 percent, depending on the severity of soil damage and soil compaction.
9. In addition to the agronomic and soil problems above, there will be

environmental and soil health damages:

- a. Generally, fresh-tilled soils are susceptible to soil erosion, especially in the spring when significant surface runoff can occur with snow melt on a deep frozen soil, and the possibility of high intensity rain in the spring.
- b. Tilling soils in general is damaging to soil health, which includes destroying soil structure, as I mentioned above, reducing water penetration and sub-soil recharge, and loss of soil organic matter and nutrients along with sediments to waterways.

My recommendation is to be very careful with tillage this spring for the above reasons and to minimize the use of tillage. Also, watch for soil moisture and be careful not to enter the field if the drainage tiles are still running, which means the soil is above field capacity. [That is the worst condition for soil compaction](#). This is true for all springtime operations, whether you are tilling the soil or applying fertilizers. You need to inspect the field and make sure that soil moisture is at or below field capacity by the simple test of taking a handful of soil and squeezing it in your palm; if you notice a trace of moisture on your palm, it is too wet to enter the field.

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