Prevented Planting and Soil Health

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Abstract
The current wet conditions present a significant challenge to farmers in terms of delays in planting corn and soybean. The high percentage of acres under wet conditions can force farmers to entertain the idea of prevented planting by using cover crops or leaving the ground bare. There is a possibility that some of the acreage may be left fallow without any cover crops or annual crops growing due to a shortage of cover crop seed at this time. Leaving soils bare without any active root system can cause significant damage, not only in terms of potential soil erosion, which is a major concern that we are currently facing this season, but also in terms of changes in soil health and productivity in the following season due to problems such as fallow syndrome.

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Prevented Planting and Soil Health

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The current wet conditions present a significant challenge to farmers in terms of delays in planting corn and soybean. The high percentage of acres under wet conditions can force farmers to entertain the idea of prevented planting by using cover crops or leaving the ground bare. There is a possibility that some of the acreage may be left fallow without any cover crops or annual crops growing due to a shortage of cover crop seed at this time. Leaving soils bare without any active root system can cause significant damage, not only in terms of potential soil erosion, which is a major concern that we are currently facing this season, but also in terms of changes in soil health and productivity in the following season due to problems such as fallow syndrome.

During the period of leaving soil fallow, several chemical and biological changes may take place. When soil is left bare without any active root system or under saturated conditions for an extended period of time, these changes in soil biological properties can be carried into the next season. Some of these potential changes are induced by the absence of active root systems in such areas that is essential in building up the microbial community responsible for nutrient cycling in the root zone. Therefore, planting of any annual crop during prevented planting can have significant value in sustaining such microbial community known as arbuscular mycorrhizae (AM), which is essential for nutrient cycling such as P. It was documented through research that corn grown the following season in fallow soils will exhibit P deficiency.

In summary, cover crops are very beneficial in improving soil health, not only through improvement in soil physical structure and water infiltration, but most importantly soil biological community. The existence of active root system of any plant (i.e., cover crops, soybean, etc.) can remediate the potential damage caused by fallow or excessively wet conditions. Cover crops will also serve to retain some of the existing soil nutrients and reduce their loss through leaching and surface runoff.
Figure 1. Wet field in central Iowa, May 29, 2013.

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