



Welcome to Ground Work

Lessons from the 2012 Drought

11/21/12

The impacts of the Drought of 2012 varied widely from area to area. Sometimes, due to variable rainfall, differences could be seen from one end of the field to the other! Even if you were lucky and rainfall wasn't a limiting factor in your area, most field crops experienced stress due to high temperatures.

What lessons can be learned from this year's extreme weather events?
How can these lessons be valuable going forward?

- It is important to observe what worked and what didn't. However, **you can't discard everything that did not work well this year**. These weather extremes may not be repeated anytime soon, so consider the history of this year's failed practices or products before tossing them aside.
- **Plant-available moisture was a huge factor in determining yield results**. Rainfall, which is the single biggest determinant of plant available moisture, is beyond your control, as is soil type. Many growers reported seeing large yield swings within areas identified on soil maps as being of the same soil type. This may be due to unseen differences in the subsoil profile and its inherent water holding capacity.
- There are many other factors that are not beyond your control. **Soil life, health, tilth, and vitality play a huge role in plant available moisture**. You cannot change the inherent soil properties of a given soil

but you can certainly manage them in a way that increases organic matter and more importantly the active carbon fraction of the soil. Proper management of crop residues and the use of cover crops and microbial soil inoculants can dramatically increase the active carbon of your soil over time and therefore the water and nutrient holding capacity of your soils. Growers who have been actively managing the biology of their soils over a long period of time weathered this year's stress much better than those who have not.

- **Having good soil structure is key to gaining access to the subsoil moisture reserves** that are stored in your soil. Wise tillage, adequate soil calcium and active microbes are necessary to maintain good soil structure and tilth. A surface layer of soil with good tilth helps break the capillary movement of water and preserve your subsoil moisture.
- **Optimum fertility helps make the best use of the soil moisture** that is available to your plants. Soils with high levels of nutrients generally handle drought stress better than soils lacking the proper nutrients. Many nutrients move into the plant carried by the water from the soil solution. As soils dry out, the uptake of nutrients slows down greatly. Maintaining higher base levels of fertility keeps more nutrients in solution.
- **Starter fertilizers got crops off to a better start** for many growers. Starters allowed plants to develop a more extensive root system and gain a head start before conditions became more stressful.
- **Foliar applications of fertilizer can compensate for the reduced availability of nutrients due to dry soils.** Many growers observed that foliar applications helped their crops weather the stress better. In many cases these crops were better able to take advantage of the late season rains when they came.

In summary, the fertility and management practices that we have advocated for years proved to be very beneficial this year in overcoming the very stressful conditions. Talk to your AgriEnergy representative about what practices you can implement on your farm to weatherproof your yield results.