

Field Notes:

November 27, 2017

Yields are different for a reason.

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We often underestimate our abilities to explain what we see as crops respond to field conditions from one year to the next. I can't decide whether this stems from a real inability to see how the various sets of conditions affect the crop or whether we just choose to avoid admitting that we see the reasons and choose not to deal with them.

There are situations that are so apparent that we can't very well avoid recognizing their importance and/or the fact that they have caused yields to be lower than we might have expected. The main ones that fall into this category stem from weather most of the time. The two main issues are of course too little or too much rainfall.

Then we must consider soil fertility to include soil pH and the levels of several fertilizer elements as well as the balance among these elements as it can affect the development and fruiting characteristics of our crop plants. Some crops are more directly impacted by these issues than others. For example, cotton is very vulnerable to soil pH and can often demonstrate huge yield differences related to that factor as well as to the calcium that is supplied by the lime.

A further issue for cotton is the ratio of soil phosphate (P₂O₅) to soil potash (K₂O) since cotton prefers a ratio of around 1:3 to 1:4 of those products. The primary factor here is that when soil phosphates get too high the activity of beneficial mycorrhizae are suppressed, in turn reducing uptake of other important nutrients as well as the most important nutrient of all—water. This ratio is also important for soybeans, but is more forgiving for corn.

Variety selection is another major factor in yield. In fact, I well recall a former Extension Agronomist who readily stated that variety selection was the single most important issue determining soybean yield. I must say that he should have continued by saying this may be true when all the other issues like soil fertility and drainage are addressed. We will at least accept the fact that any farmer will know this. Still, I have witnessed growers who expect the best entrant on the variety trials to produce high yields regardless of their soil pH or soil fertility.

We have great information about the varieties being offered for sale in all the major crops. These trials reflect their susceptibility to environmental stress, diseases, insects, climate, and soil variability. Regardless of the results almost every seed company can present data showing their varieties to be the best when this is plainly not the case. Many producers will be swayed by relatively small differences in price or something so ridiculous as which company gave them a hat or fed them a steak dinner. Please guys, you're smarter than that I know.

And finally, differences in tillage can make great differences in yield. Tillage interacts with the mycorrhizal issue, as well as soil aggregation and the way the soil reacts to internal drainage and the supply of oxygen to plant roots. This influences the availability of fertilizer elements and indirectly the growth and fruiting characteristics of the crop. A lot of people are wondering why some fields of cotton made 1200 to 1500 pounds this year while others made 600 to 700. In my opinion the tillage/planting date/soil saturation complex was a big part of that story, and all of it is related to tillage in one way or another. Tillage should be minimum at most and done in fall or not at all. As is often said, if you can plow you can plant.

Thanks for your time.