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The Fertility Storm With a Rainbow Ending

by Stephanie Porter, Burrus Sales Agronomist

With the onset of a super moon and farmers with auto steer, you can bet some interesting questions start to filter into agronomists. A recent question came from brothers in Iowa about fertility. They recently acquired ground they knew had not had a soil test for some time, and were worried about the pH not being where it should be, which can lead to some serious agronomic issues. Unfortunately, this scenario is becoming common as I make field calls. Some, like the Iowa brothers, are trying to get fertility where it should be for adequate corn and soybean production. Others are struggling with where to cut input costs due to low commodity prices to balance farm budgets. Cutting corners with fertility is going down the wrong path.



Sure enough, after their recent soil test, the Iowa brothers knew they needed to apply lime, P, and K. However, this led to a question: “Is it a wives’ tale that you should not apply lime and P (MAP or DAP) at the same time?” This was a great question, but what is the correct answer?

Many want agronomy to be black and white, but the fact of the matter is that agronomy is often times gray. I don’t remember learning about this wives’ tale in my fertility courses or answering a question about this on my CCA exam. As I Googled and pondered, I knew there had to be mixed answers to this question, so I decided to do a Facebook poll of some agronomists, crop consultants, and others in the ag retail realm. Sure as the sun rises and sets, they were divided when it came to an answer. Some central Illinois crop consultants do not recommend applying P fertilizer and lime together. They wait for time, tillage, and/or rain when possible, but do not have an issue with lime and K fertilizer applied together.

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However, some southern Illinois crop consultants cried, “Wives’ tail!” and “Quit listening to superstitions!” According to Lloyd Murdock, Extension Soil Management, University of Kentucky, “No matter how phosphorus (P) is applied or when it is applied, it will be tied up with something. A soil pH of 6.5 is the very best one can do to reduce this fixation of P. If fertilizer P is applied below a pH of 6.5, especially below 6.0, more of it will be tied up with aluminium and iron in the soil. So not applying lime would be bad also. If the pH is above 7 then more of the P will be tied up by calcium in the form of insoluble calcium phosphates (rock phosphate). So you cannot win either way.”

The gray message is that you need to keep your soil pH above 6.5. In the best case scenario, you may only get 30% of the P that you apply for the crop, and with or without lime there can be small differences in P fixation occurring.

The black and white answer is no matter what your agronomist or crop consultant may recommend in regards to fertility application, don’t let there be lost bushels or “gray clouds” looming over your field by not keeping pH in check (6.0 – 6.5) or maintaining fertility over time with the correct rates based on soil tests and crop removal. Besides soil test value and cropping system, limestone rates are based on soil type, depth of tillage, and limestone quality. Soil test values are a must so you do not under or over apply nutrients, which is also not good for the bottom line. Low commodity prices are short-term in comparison to the long-term investment of fertility, which can only help you capitalize on high commodity prices, which just might be the pot of gold at the end of the rainbow after the storm.

*Questions or comments for our agronomic research team?
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