

Burrus Buzz

Delivering more than just seed!

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I fertilized, but didn't get it planted. How much P & K do I need for 2016?

by Matt Montgomery

Growers in the Northwest part of the Burrus footprint may find the title of this article a little odd. Fields fertilized but not planted? How could that be possible? If you were in the Quad Cities area, that scenario might seem a stretch. However, it requires no stretch of the imagination for growers in Missouri. Rainfall (totals measured in feet) resulted in more than 350,000 acres of unplanted corn and millions of acres of unplanted beans (projection made in mid-June 2015). Those fallow acres sat there, fertilized with P & K yet un-planted, and growers are asking "now what?"

Answering this question is (as often tends to be the case in Agriculture) a little more complicated than one might think. There is not one answer. The answer is influenced by two key points. First, did we, or did we not, lose much P & K over the past season? Second, how do our soil test levels for P & K influence that answer?

Let's start with the subject of potential loss. Phosphorus and potash (P & K) can exit the soil by one of three pathways. As tends to be the case for many nutrients, those three exit options are leaching, erosion, and removal within harvested material:

1.) Leaching (nutrient movement as water drains through the soil) makes up the smallest amount of total P & K loss. Both nutrients tend to get bound up between clay particles. P also tends to react rapidly with other ions in the soil (such as Aluminum and Iron) forming a low solubility coating. K ions have a positive charge, thus allowing K to be held by the soil. Only a small fraction of the soil's total phosphorus and potassium actually sits in solution (in soil water, available to the plant). This explains why leaching tends to not be the major source of P & K loss.

2.) Erosion represents a more significant pathway for P & K loss in the field. Because phosphorus and potassium are "bound up" by the soil, anything that moves a lot of soil can move P & K. This is one reason that experts recommend buffer strips and other conservation practices to reduce phosphorus movement into lakes, rivers, and streams.

3.) Loss via harvested material is the most significant point of exit for phosphorus and potash. The numbers make the case. Each hundred bushels of picked corn removes approximately 43 pounds of P₂O₅ (phosphorus) and 28 pounds of K₂O (potash). Each hundred bushels of cut beans holds approximately 85 pounds of P₂O₅ and 130 pounds of K₂O. Leaching and erosion are dwarfed by these numbers (in most cases).

So, we fertilized with P & K, hoping to raise a good crop and replace what we would remove in grain. Yet, we did not plant or harvest a crop from those fields. This means that the majority of applied P & K is still in the field. This is very different from Nitrogen (N applied yet unused is a loss). Most of the applied yet unused P & K waits for a crop to be planted.

Does this mean we do not need P & K in 2016? Not quite. Soil tests should be considered at this point. If the most recent soil test described a need for P & K, and they noted a need to build the soil up to more ideal levels, then that need remains. P & K has not been lost, but soil test levels need to be in a healthy spot. Fields testing lower will require an investment in some P & K.

The situation is different if soil tests show ideal levels. If phosphorus and potassium levels are where they need to be, we may only need some starter in fallow '15 fields (at the most).

