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THE GROWING POTASSIUM PROBLEM

What's the problem? In the last few years, more reports have surfaced about potassium deficiency. A recent survey by the Potash & Phosphate Institute (PPI) indicated that, nationwide, about 43% of soils require additional potassium. A higher percentage of lower-testing soils occurs in the Midwest, eastern, and southern U.S. In the Great Plains and western U.S., soils tend to have naturally higher levels.

Are your soils at risk? Even though there are regional trends to potassium deficient soils, your situation is unique. Take samples of your soils and send them to a reputable laboratory. This season, plan on taking a few plant samples in suspect areas to see how much potassium the crop is getting, and be on the lookout for visual signs of deficiencies. These are the only ways to tell whether or not you have a problem. Remember that potassium deficiencies may exist in some areas of fields and not in others. Taking a few samples within fields can help you discover areas that most need attention.

How do soils become potassium deficient? The most common cause is potassium applications that fall well below what is removed from the field at crop harvest. Soybeans can remove substantial amounts of potassium, more than corn in many areas. But forage crops, like corn silage and alfalfa, by far remove the most. The reason is that much of the potassium in the plant is found in vegetative parts, like stems and leaves. When these are removed from the field, substantial amounts of potassium are also removed. Failing to account for these losses and under-fertilizing with potassium can lead to problems.

What problems does potassium deficiency cause? Soils that are very low in potassium reduce yields and quality. A real problem for many is the effect low potassium has on nitrogen efficiency. If only nitrogen is applied on potassium deficient soils, overall yields can be reduced far below where the same amount of nitrogen is applied on soils with adequate potassium. This reduces the amount of grain or forage produced per pound of nitrogen. In addition, inadequate potassium can also substantially change the application rate of nitrogen that is economically optimum. So, unless potassium deficiencies are rectified, nitrogen management becomes very uncertain.

What if the fertilizer budget is limited? First, take at least one representative soil sample per field. This costs much less than a dollar per acre on most fields. Second, target fields with very low or low potassium levels. These are expected to be most responsive to potassium inputs. On targeted fields, be sure to apply at least a portion of the recommended potassium. Remember, crop response to nitrogen alone on very potassium-deficient soils is severely limited. In these areas, you'll need both nitrogen and potassium to get the most out of your fertilizer investments.

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