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CONSIDERATIONS FOR MAINTENANCE APPLICATIONS OF PHOSPHORUS AND POTASSIUM

Maintenance applications are a commonly used strategy. The goal of a maintenance application is to keep soil test levels from decreasing appreciably. In order to calculate maintenance rates the total amount of P and K removed since the last application or fertility evaluation is needed. For a list of removal rates of various crops, visit this site: <http://www.ipni.net/northcentral/nutrientremoval>.

Maintenance applications are used when target soil test levels have been reached or they are used when a field has no recent soil test information. In the latter case, they are used to keep a field in a holding pattern until proper fertility assessments can be made. Because they are such an important part of nutrient management, knowing what they can and cannot do is helpful for making informed decisions. The following are some considerations for maintenance applications of P and K

- **Look backward to improve accuracy.** Often, maintenance applications are made according to the yield expected by succeeding crops – looking forward. The problem with this is that future yields are unknown. If yields come in below expectations, you'll have applied too much. If they come in higher, you'll have applied too little. To improve accuracy, look back at the yields of crops grown since the last applications of P and K. These yields are known. Adding up past crop removals and applying those amounts is the best way to keep from over- or under-applying.
- **Determine your target soil test levels.** Since maintenance applications are meant to keep soil test levels about the same, make sure you have recent soil tests to assess where you are. Low testing areas will be kept low and higher testing areas will be kept high. Do you want to draw down levels? If so, apply less than removal. If you want to build them up, apply more.
- **Know your profit risks.** Maintenance applications may or may not be the most profitable ones in the short term. If soil test levels are higher, there is only a small probability of crop response to nutrient applications. At these levels, there will be little chance of short-term revenue gains. However, at lower soil test levels, there are very high chances of very profitable yield gains with maintenance applications. In fact, at very low soil test levels, profitable fertilizer rates exceed maintenance rates and under-applications can leave substantial profits unrealized.
- **Know your risks of managing soil test variability.** Maintenance applications made at higher soil test levels that are intended to try and catch any lingering responses possible from lower testing areas that may have been missed in an overall fertility assessment of a given area.

Keeping these aspects of maintenance applications in mind can help farmers and advisers make improved decisions about rate selections this fall.

– TSM –

For more information, contact Dr. T. Scott Murrell, Northcentral Director, IPNI, 2422 Edison Dr., West Lafayette, IN 47906. Phone: (765) 463-1012. E-mail: smurrell@ipni.net.

Abbreviations: P = phosphorus; K = potassium.