

**GETTING THE MOST RELIABLE
INFORMATION FROM SOIL TESTING**

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Abstract

Soil testing results provide a more objective basis upon which to base the “need” for lime or fertilizer materials and “how much” of these materials to apply. In no-till cotton production systems, lime may not react as quickly and soil testing again within 12 months of application may not yet show changes. Nutrient stratification occurs in long term no-till cotton systems with depth sampled and also for potassium with position sampled within the row.

Introduction

Soil test results are an “index” that must be calibrated against observed yields to obtain the most economical interpretation. It is important to recognize some key points unique to soil sampling no-till systems in order to get the most reliable results.

Discussion

Lime applied to the surface in long term no-till cotton plots (fig.1) did not change soil pH to target value (6.1-6.5) within 12 months. Eventually, soil pH was changed in both the 0-3 inch and 3-6 inch sampling zone.

Nutrient stratification occurred with depth sampled for both phosphorus and potassium (fig. 2,3). For potassium, stratification occurred by position sampled within the row (fig. 4,5).

Summary

Soil test to determine which nutrients are needed and how much to apply. Soil sample by the standardized procedures of the laboratory from which you are obtaining an interpretation of those results.

References

Howard, Donald. 1999 personal communication. University of TN, Jackson , TN.

Lessman, Gary. 1999. Personal communication. University of TN, Knoxville, TN

Tyler, Don. 1999. Personal communication. University of TN, Jackson, TN.

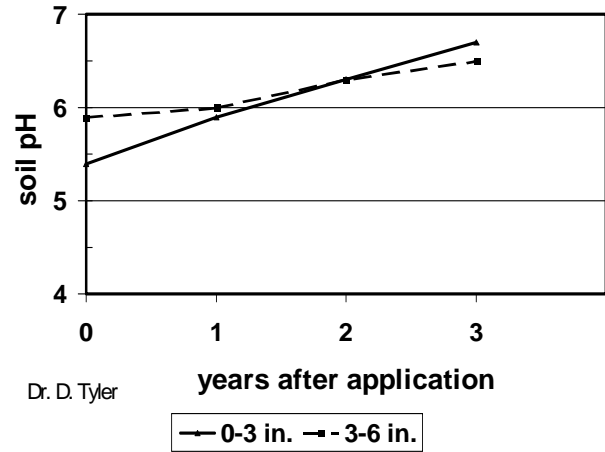


Figure 1. Effect of Surface Applied Limestone in a No-Till Cotton Field.

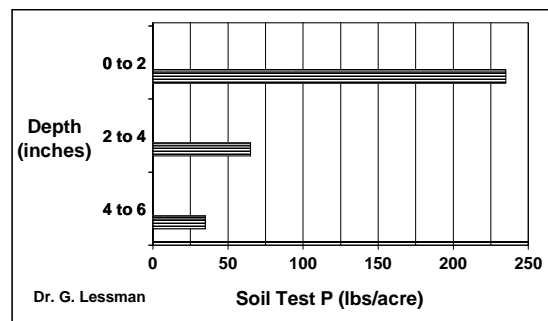


Figure 2. Soil Test P by Depth After 14 Years of Continuous No-Till Cotton and Addition of 90 lbs P₂O₅ Annually.

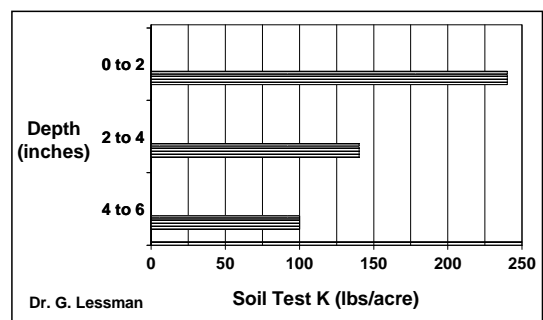


Figure 3. Soil Test K by Depth After 14 Years of Continuous No-Till Cotton and Addition of 90 lbs K₂O Annually.

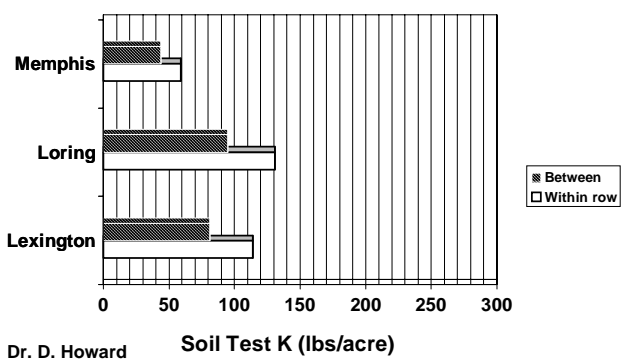


Figure 4. Soil Test K by Position in the Row in Long Term No-Till Cotton (no K added).

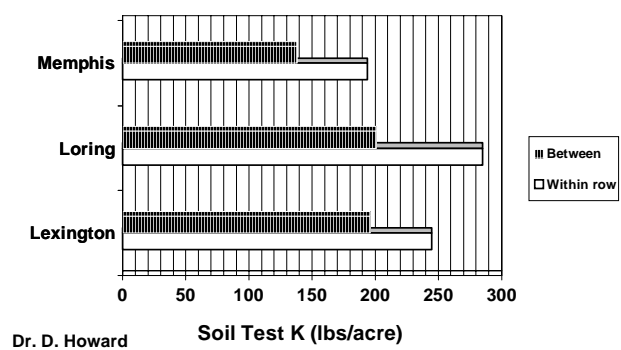


Figure 5. Soil Test K by Position in the Row in Long Term No-Till Cotton (120 K₂O/A).