Potassium recommendations for cotton in North Carolina based on soil and plant tissue analysis. (A04-crozier151519-Poster)

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Abstract:

Soil test and leaf analysis (vegetative-early bloom) are the basis for K management recommendations in North Carolina. Other areas have sufficiency ranges for leaves at late bloom and petioles throughout the bloom period. This paper reviews ongoing field verification data. Soils at the sites include Goldsboro fine loamy sand, Hiwassee clay loam, Pettigrew muck, Roper muck, Tomotley fine sandy loam, and several other sandy loam soils from 1999-2002. In a 1999 test on a Goldsboro soil, there was a dramatic increase in yield as soil K (Mehlich-3) increased from <20 to 94 mg dm-3. At this soil K level, leaf K was 1.5% 1 week after first bloom, and 0.5% 5 weeks after first bloom. Petiole K data were consistent with California guidelines: critical levels of 4.5% at early bloom, 2.8% at 3 weeks after first bloom, and 2% at 5 weeks after first bloom. In numerous on-farm trials, soil K levels were >120 dm-3 with no response to soil applied K. Slight yield reductions (approximately 50 kg lint/ha) occurred when foliar K was applied, which were statistically significant in 2 tests. Data do not indicate whether leaf K or petiole K would be better for management decisions.

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