

**A BELTWIDE EVALUATION OF POTASSIUM RATE AND APPLICATION METHOD ON COTTON
YIELD AND QUALITY****G. Morgan****Texas A&M University****College Station, TX****K. Lewis****Texas A&M University/ Texas Tech University****Lubbock, TX****R. Boman****Oklahoma State University****Altus, OK****D. Delaney****Auburn University****Auburn, AL****K. Edmisten****North Carolina State****Raleigh, NC****H. Frame****Virginia Tech****Suffolk, VA****D. Fromme****Louisiana State University****Alexandria, LA****B. Robertson****University of Arkansas****Newport, AR****R.L. Nichols****Cotton Incorporated****Cary, NC****Abstract**

Higher yield potential paired with a more condensed fruiting window puts significant demand on potassium uptake throughout the reproductive cycle. This compressed and substantial demand on the cotton root system to take-up sufficient potassium (K) and other nutrients can be problematic, even when soil test K levels indicate sufficient K levels. The objectives of the trials are: 1. Determine the soil potassium levels in the surface horizon and at depth in several cotton production regions experience K deficiency symptoms; 2. Evaluation the application methods and rates of K on cotton yield, quality, and return on investment. Trials were conducted at 8 locations across the Cotton Belt, from the Southwest to the East Coast. Soil samples were collected to a minimum of a two feet depth at each site. Potassium was applied via broadcast incorporated (0-0-60) or injected (0-0-15) at six inches depth at rates of 0, 40, 80, 120, and 160 lb K₂O/a. DP 1522 B2XF was planted at each location. Leaf samples were collected at FB+2 weeks and analyzed for K levels. Late-season plant ratings and disease incidence data were collected. Plots were harvested, ginned, and fiber sample analyses conducted at Cotton Incorporated. Despite the majority of the 2016 sites being at or near the current soil K threshold, few sites were responsive to K application rates or method. The locations with the highest moisture stress, (South Texas and Virginia) did show a significant response to the K application rate. In the High Plains location, a significant yield response was obtained at the highest K application rates. Other plant ratings and fiber quality have not been analyzed, but will be presented in future years.

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