

## MULTI-YEAR COTTON YIELD, QUALITY, AND PLANT GROWTH RESPONSE TO SOIL-APPLIED POTASSIUM

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### **Abstract**

The increased yield potential of new varieties, better management by growers, and eradication of the boll weevil have pushed cotton yields to 3+ bales/acre on a regular basis. Such high yields put a substantial demand on the cotton root system's ability to take-up sufficient potassium (K) and other nutrients. The objectives of these multi-year trials are: 1. Evaluation the application methods and rates of K on cotton yield, quality, and return on investment. 2. Determine the optimum K rates to sustain adequate K within the soil and have optimum yields. Trials were conducted at 8 locations across the Cotton Belt, from the Southwest to the East Coast. Trial sites were in identical location with an identical plot plan. Soil samples were collected to a minimum of a two feet depth from each plot. 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 K<sub>2</sub>O/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. Soil K levels generally increased with the higher K application rates; however, few consistencies existed across locations. Lint yield increases were not observed from the various application rates or application methods, even in sites with low soil test K levels. These trials will be repeated for a third year in 2017.

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