YIELD RESPONSE OF DRYLAND COTTON TO SOIL-APPLIED POTASSIUM IN THE UPPER GULF COAST AND CENTRAL BLACKLANDS OF TEXAS D.L. Coker M.L. McFarland G.D. Morgan D.A. Mott Z.P. Eder Texas A&M AgriLife Extension Service College Station, TX

<u>Abstract</u>

The frequency and severity of potassium (K) deficiency symptoms in the Central Blacklands and Upper Gulf Coast regions of Texas have increased in recent years. While very dry conditions have contributed to this response, the clay-dominated soils in these areas have traditionally provided adequate K for optimum production. Studies were initiated at two field sites, Williamson county in the Central Blacklands and Wharton county in the Upper Gulf Coast where mid-season K deficiencies had been observed to investigate cotton yield response to soil-applied K fertilizer. In mid April, cotton cv. Phytogen 499 was planted into a Lake Charles clay loam at the Wharton site and cv. DP 0935 into a Burleson clay at the Williamson site. Based on soil test results,60 and 35 pounds K_2O per acre were recommended for the Williamson and Wharton sites, respectively. Treatments were 0, 25, 50, 75 and 100 pounds of K_2O per acre applied both as liquid 2-6-12 and as granular 0-0-62 before planting at the Williamson site. Monthly rainfall during the season was below normal at both study sites. Lint yield responded to rates of applied K equal to and greater than that recommended at both sites. Liquid K applied in a subsurface band had a greater, positive effect on lint yield compared to granular K surface band applied and incorporated. Applied K improved length, strength and uniformity at the Williamson site. These studies will be repeated to better assess the influence of seasonal differences in rainfall, crop rotation and soil properties on the results.