EFFECT OF POTASSIUM APPLICATION TIMING ON COTTON FIBER QUALITY AND YIELD Dustin Kelley Texas Tech University Lubbock, TX Katie Lewis Texas A&M AgriLife Research Lubbock, TX

<u>Abstract</u>

The increased yield potential of modern cotton varieties has pushed yields to 3 to 4 bales per acre, and as a result greater demands are being placed on the cotton root systems to take up sufficient water and nutrients, with potassium (K) uptake being of particular concern. Approximately two-thirds of K uptake occurs during a 6-week period beginning at early flowering. Insufficient plant K during the reproductive stage may decrease yields and lint quality and consequently decrease grower profits. This study aimed to determine the effect of injected K fertilizer timing on cotton lint yield and quality parameters. Fluid potassium thiosulfate (0-0-25-17S) was injected using a side-dress applicator with four injection knives, one per row, mounted behind coulters. There were four treatments: a check with no added potassium, a pre-plant only application, a single application at pinhead square, and a split application of 40% pre-plant and 60% at pinhead square. Potassium was applied at a rate 120 lbs. K₂O/A for all treatments. The effects of K fertilizer application timing were evaluated with two Fibermax varieties, FM 2334 GLT and FM 2484 B2F. Lint yield was not significantly impacted by fertilizer application timing within either variety. Micronaire of FM 2334 GLT was different between the control and the treatments receiving K at pinhead square as was micronaire between 100% pre-plant and 100% pinhead applications. Fiber strength was also different between the control and treatments but only for FM 2484 B2F. Early in the season cotton was impacted by herbicide drift from 2-4D and the effects were evident yearlong which could have impacted results. Also, it is possible that the injection knives damaged cotton roots at the pinhead square application. Further studies using a greater application rate and an increased number of varieties would be beneficial to examine the possible impact of quality parameters from potassium application timing.