DESICCATION AND REGROWTH EFFECTS ON FINAL LINT QUALITY OF COMMERCIALLY HARVESTED, MODULED, AND GINNED COTTON J.D. Siebert and A.M. Stewart Louisiana State University Baton Rouge, LA T.D. Sims USDA-AMS Rayville, LA

<u>Abstract</u>

Adverse weather conditions following defoliation can prevent timely harvest and contribute to foliar regrowth. The difficult to remove juvenile leaves are often desiccated, rather than removed, with additional harvest-aid applications and are often present at harvest. Field studies conducted during the 2001 and 2003 growing seasons at Dean Lee Research Station, Alexandria, LA; evaluated the effect of harvesting cotton with desiccated plant material or regrowth present on lint quality and net value. Aim (carfentrazone), DEF (tribufos), Dropp (thidiazuron), Finish (ethephon + cyclanalide), Gramoxone Max (paraquat), Harvade (dimethipin), and Prep (ethephon) were used alone or in combination; in single or sequential applications to create the three desired treatment levels of: clean defoliation, approximately 20 percent vegetative regrowth present at harvest, or approximately 20 percent desiccated leaves present at harvest. The experimental design was a randomized complete block with three replications and a plot size of approximately six acres. Varieties used in the test were DP 451 BR and ST 4892 BR.

Seedcotton from each plot was harvested with a commercial spindle picker and packed into ca. 10 bale modules for transport to a local gin. Cotton Growers Gin in Lecompte, LA was used in 2001 and both the Rapides Grant Gin in Boyce, LA, and Lagniappe Gin in Hamburg, LA were used in 2003. All three gins are equipped with two-stage incline type precleaners and one stage of lint cleaning after the gin stand. Cotton variety, ginning process, and gin location were constant within replications in both years. After ginning, the individual bales of lint were classed at the USDA-AMS classing office in Rayville, LA using high volume instrumentation (HVI) to determine color (Rd and +b), staple length, micronaire, fiber strength, leaf grade, and loan discount.

Data were subjected to analysis of variance and interactions tested for significance. There was no significant year interaction so data were averaged across the 2001 and 2003 tests. Color grade, when divided into its respective components, was not significantly different in reflectance (Rd), but the desiccated treatment was significantly higher in "yellowness" (+b) when compared with the clean defoliation. Staple length, micronaire, and fiber strength were not significantly affected by the presence of vegetative regrowth or desiccated plant material at harvest. This was expected because these components of fiber quality are strongly correlated with variety and maturity. Leaf grade, while not significantly different, did reflect a numerical increase in both the regrowth and desiccated treatments when compared to the clean defoliation.

When the loan discount was calculated on color and leaf grade alone, there was a significant reduction of 1.71 and 1.93 cents for the regrowth and desiccation treatments, respectively, when compared with the clean defoliation. Although color was negatively impacted by the desiccated treatment the overall discount in net loan value was not significantly different from the clean defoliation. This is attributed to other physical properties that overall loan value takes into account such as micronaire, strength, and uniformity which are highly influenced by variety and planting date. This study has documented a critical point at which the presence of desiccated leaves can reduce color grade; however, future research is needed to determine the point at which overall loan value becomes reduced.