

IMPACT OF COTTON DEFOLIATION ON COTTON YIELD, QUALITY, AND PROFITABILITY**Gaylon D. Morgan****Zachary Eder****Dale Mott****John R. C. Robinson****Texas A&M AgriLife Extension Service****College Station, TX****Abstract**

Harvest-aid applications are a standard pre-harvest management practice in South Texas to optimize harvest efficiency. Harvest-aids are also generally believed to improve cotton lint quality while maximizing harvestable yield. However, research conducted in the Southeastern and Delta regions in the mid-1990's indicated no consistent yield or quality difference from numerous defoliation treatments and the untreated control (Supak and Snipes, 2001). Since the mid-1990's, cotton yields have increased and defoliation treatment prices have decreased. The objective of this project was to evaluate the impact of cotton harvest-aids on cotton lint yield, quality, and net return for the various defoliation treatments in South Texas trials. Multiple defoliation trials were initiated in 2010, 2011, and 2012 in the Upper Gulf Coast and Southern Blacklands of Texas. Each trial had a minimum of 16 treatments, including an untreated, with four replicates. The defoliation treatments were chosen to give a wide range of defoliation levels and included single and sequential applications of both defoliates and desiccants. Plots were harvested with a spindle picker and yields were determined following ginning. HVI analysis was conducted on subsamples from each plot by the Fiber and Biopolymer Institute in Lubbock, TX. In four of the six site-years, no significant difference ($P < 0.05$) in fiber yield was observed. Contrary to expectations, the significant differences were observed in the two site-years with the lowest yield cotton. Neither gin turnout and leaf grade was influenced by the level of defoliation or desiccation in these trials. These results agree with previous research reported by Supak and Snipes (2001). Although not quantified, harvest efficiency was definitely impacted by the level of defoliation. Additionally, this research did not evaluate the potential for significant leaf material in the module and its potential fire hazard. These results and previous findings from the Delta and Southeastern U.S. (Supak and Snipes, 2001) prove a 95-100% defoliation is not necessary to maximize yield or fiber quality. The recommendations based on this research are for producers to identify the most cost effective harvest-aid treatment(s) that provide 80-85% defoliation or higher. Spending excessive money to obtain 95-100% defoliation is not warranted in spindle picked cotton at today's cotton lint price.

References

Supak, J.R. and C.E. Snipes. 2001. Cotton Harvest Management: Use and Influence of Harvest Aids. Number Five: The Cotton Foundation Reference Book Series. The Cotton Foundation, Memphis, TN.