

**COTTON YIELDS AND QUALITY TRAITS  
ASSOCIATED WITH LATE-SEASON  
INSECT SIMULATED DEFOLIATION  
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significantly lower in plots that were defoliated at NAWF5 + 450 HU compared to the non-defoliated plots. Mean yields across three tests in plots defoliated (66%) at NAWF5 + 450 HU, NAWF5 + 550 HU, and NAWF5 + 650 HU were 16.2%, 10.0%, and 8.2%, respectively, below that in the non-defoliated plots. Fiber quality data for these tests are still being analyzed.

**Abstract**

Field tests were conducted at the Macon Ridge location of the Northeast Research Station near Winnsboro, Louisiana, during 1996-98 to evaluate the effects of late-season insect-simulated defoliation on seedcotton yields and lint fiber properties. Plots consisted of two rows (40-inch centers) x 10 ft. Treatments were arranged in a RCB design and replicated 4 times. Node above white flower (NAWF) and daily heat unit (HU) accumulations were used to characterize the late-season reproductive stages of plant development. Plant heights were used to partition plants into 3 similar vertical zones (bottom, middle, and top) at the NAWF5 + 350 HU growth stage. Defoliation levels of 33%, 66%, and 99% corresponded to complete leaf removal in the bottom zone, bottom + middle zones, and bottom + middle + top zones, respectively. These treatments and a control (0% defoliation) were evaluated on two cultivars (cv. DP 51, DP 5415) in 1996 and again on two cultivars in 1997 (cv. NuCOTN 33<sup>B</sup>, Stoneville LA 887). Another test in 1997 examined the effect of 66% defoliation (bottom + middle zones) applied at plant development stages of NAWF5 + 350 HU, NAWF5 + 450 HU, NAWF5 + 550 HU, and NAWF5 + 650 HU on Stoneville LA 887 on yield and lint quality. In similar tests during 1998, all treatments except for NAWF5 + 350 HU were repeated in tests planted to Stoneville LA 887 and Sure-Grow 821. At the end of the season, seedcotton yields were determined by hand-harvesting plots within each test. Fiber quality properties were also recorded. Data were analyzed with ANOVA, and means were separated according to DMRT.

In 1996 and 1997, as the defoliation levels increased from 33 to 99% at the NAWF5 + 350 HU stage of development, yields consistently declined. Significant yield losses were observed at defoliation levels >33%. Defoliation of 66% and 99% resulted in mean seedcotton yield losses across all tests of 23.8% and 51.1%, respectively, below that in the non-defoliated plots. Micronaire was significantly lower in plots receiving 99% defoliation for three of four varieties and for the mean across varieties. Fiber strength was not affected by defoliation level. In the second series of tests during 1997, there were no significant differences in seedcotton yield for 66% defoliation applied at plant growth stages from NAWF5 + 350 HU through NAWF5 + 650 HU. However, in the 1998 Sure-Grow 821 test, yields were