

**TIMING DEFOLIATION BASED ON HEAT UNITS
ACCUMULATED PAST CUTOUT: A THREE YEAR SUMMARY**

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Abstract

Accurate identification of crop maturity is essential for timely defoliation and harvest. Properly timed defoliation reduces the risk of poor yield, low fiber quality and harvest problems associated with adverse weather. Timing defoliation based on heat units accumulated past cutout (nodes above white flower "NAWF" = 5.0) may give producers a better method for initiating defoliation than current practices. Currently, the 850 heat units past cutout rule is suggested as the optimum for initiating defoliation applications. The objectives of this study were to determine the effects of defoliation on yield and fiber quality when defoliation was timed based on heat units accumulated past cutout. Tests were conducted in northeast Arkansas in 1995, 1998 and 1999. Weekly NAWF measurements were collected from each test field until cutout. Defoliation treatments were initiated at various heat unit accumulations (ca. 650, 750, 850, and 950) past cutout. Defoliation based on heat unit accumulation was also compared to defoliation timed at approximately 60% open bolls (producer standard). Although yields were not statistically different from defoliation at 850 heat units, delaying defoliation did tend to result in numerically higher yields in most tests. In 1995, yields were not significantly reduced when defoliation was applied as early as 750 heat units past cutout, or as late as 950 heat units past cutout. In 1998, 60% open bolls occurred at approximately 950 heat units past cutout. Although only 31% open bolls were found at 850 heat units past cutout, yields between the two treatments were not significantly different. Fiber analysis in 1998 showed no differences in micronaire, but a reduction in fiber length and strength when defoliation was initiated at 850 heat units compared to 950 heat units (ca 60% open bolls). In 1999, yields were significantly lower in one of three separate tests when defoliation was initiated at 850 heat units past cutout compared to defoliation timed at approximately 60% open bolls (ca. 950 heat units). In two additional tests, yields were not significantly different between plots defoliated at 850 heat units (ca. 25 % open bolls) and plots defoliated at 950 heat units (ca. 60% open bolls). Fiber analysis in 1999 showed no differences in micronaire, length or strength between plots defoliated at either 850 or 950 heat units past cutout. Results from these tests suggest that heat units accumulated past cutout is an effective means to time defoliation. These results further support 850 heat units past cutout as the optimum for initiating defoliation in north Arkansas.