

DEFOLIATION TIMING BASED ON HEAT UNITS BEYOND CUTOUT

W.C. Robertson, Brian Weatherford, and Ray Benson

Cooperative Extension Service

University of Arkansas

Little Rock, AR

Abstract

Timing of harvest aids continues to be a difficult decision for producers. Producers and crop advisors often are tempted to wait as long as possible on young immature boll in the top of the plant before making the decision to defoliate. These bolls are often insect damaged, small, and account for little additional gain but the perception of additional lint is difficult to overcome. Validation of the heat unit (HU) concept of timing defoliation beyond the last effective boll population as defined by COTMAN would allow producers to make this decision with greater confidence and allow for an earlier harvest. The objective of this study was to evaluate the heat unit based concept for defoliation timing to traditional methods. This is the second year of a two-year study with sites in Northeast, Central, and Southeast Arkansas. Treatments consisted of replicated strips running the length of the field. Standard defoliation treatments were used at all locations and consisted of Dropp (0.1 lb pr/A) + Def (0.5 pt/A) + Ethephon (5.3 oz pr/A) followed by Ethephon (1 qt/A) + Def (0.67 pt/A). Defoliation timings included 750, 850, 950, and 1050 HU beyond cutout. Plots were harvested with producer's picker as each treatment was harvest ready as weather allowed. Lint fraction, fiber quality, and loan values determined from large samples processed through a 20 saw gin with lint passed through one lint cleaner. Traditional timings for defoliation include NACB 4 or less and open bolls at 60% to 65%. The crop status at the different timings in these studies indicates this to occur near 950 HU. However, in practice grower standards tend to approximate 1050 HU. Average delays in defoliation from timing of 850 HU to a standard of 1050 HU is 12 days. This time delay is often enhanced in comparing harvest dates. Yield penalties are associated with defoliation prior to 850 HU. Yields generally plateau between 850 and 1050 HU. Harvest losses due to rainfall events are primarily responsible for the similar yields. Impact of earlier defoliation on reducing micronaire and quality deterioration as a result of weathering with delayed harvest dates in a wet environment results in greater value (pounds lint X loan price) generated per acre. In Summary, yield tends to increase numerically as defoliation is delayed. Loan values were greatest at the 850 HU timing. Defoliation prior to 850 HU will result in lower yields and loan values. Defoliation at 850HU will not result in lower returns per acre in environments where rainfall can result in harvest losses and fiber quality deterioration commonly experienced in the Mid-South.