INFLUENCE OF DIFFERING HEAT UNIT CALCULATIONS ON FIBER QUANTITY AND QUALITY

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Abstract

Defoliation guidelines using the COTMAN™ expert system were developed in short-season cottons grown in Arkansas. These guidelines may not be suitable in all parts of the Cotton Belt. Heat units (HU) are calculated by using the average daily temperature (T) and subtracting a base T of 60°F. COTMAN™ recommends defoliation at 850 HU beyond physiological maturity, which occurs at five nodes above white flower (NAWF=5). This benchmark used in areas other than Arkansas may lead to premature defoliation which can reduce yields. A study was conducted in 2007 at the Texas Agricultural Experiment Station in Burleson County, Texas, to adjust the current HU formula so that guidelines can be used universally across the Cotton Belt. The adjusted formula is compared to the most commonly used sixty percent open boll (POB) and the COTMAN™ system. Lint yield was determined and sub-samples were pulled for HVI analysis. Analysis shows that triggering points for the POB (60%) method (Snipes & Baskin, 1994) and NACB (4) method (Kerby, 1992) occur simultaneously. The method with the greatest lint yield was no upper T with a base of 66°F and 1050 HU. This method yielded 58.45 more pounds than the commonly used 60% open boll.