

**CRITICAL NAWF VALUES FOR IDENTIFYING
THE LAST EFFECTIVE BOLL POPULATION**
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Abstract

The COTMAN system of crop monitoring is based upon the fruiting dynamics of the plant. Within the system, the flowering date of the last effective boll population initiates the accumulation of heat units used for end-of-season management decisions. Early work (using a standard Delta-type cultivar on a silt loam soil in the north Delta) indicated that the number of flowers to produce a pound of seedcotton was relatively constant for NAWF=10 to NAWF=6, then increased dramatically at NAWF<5. A critical value of NAWF=5 has been confirmed in California and in other good growing conditions. The objective of this study was to evaluate contrasting cultivars, nitrogen rates, and mepiquat chloride on critical value of NAWF. The effects of three cultivars (Tamcot HQ95, Deltapine 20, and HyPerformer HS46) at Keiser (sharkey clay) and three pre-plant nitrogen levels within long-term nitrogen studies at Keiser and Marianna (silt loam) on critical NAWF value were evaluated in 1994 and 1995. Also, the effects of mepiquat chloride were evaluated at Marianna in 1995. Within each test, tags (with date and NAWF recorded) were placed on first-position flowers at anthesis. At the end of the season, number of flowers per pound of seedcotton and fiber quality (except the mepiquat chloride test) were determined for each NAWF category. Based on flowers required and fiber quality, NAWF= 5 generally appeared to best characterize the critical NAWF value in the cultivar and nitrogen tests. However, NAWF=4 became relatively more important with the zero preplant nitrogen and the HQ95 cultivar. The importance of NAWF=4 was also enhanced by application of mepiquat chloride. In most cases, NAWF=5 defines the last effective boll population, but flowers at NAWF=4 becomes more important in stressed conditions and perhaps with mepiquat chloride. If a field is approaching physiological cutout normally, there is little time between NAWF 5 and 4. Using NAWF=4 as the critical value may increase the probability of mainly monitoring late-maturing, low productive plants and the likelihood of producing second growth.