

COTTON YIELD RESPONSE TO PRE-BLOOM AND BLOOM APPLICATIONS OF FOLIAR UREA

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regrowth at harvest were higher when sidedress soil applications of N were delayed by two weeks. Foliar urea applications during bloom did not increase regrowth present at harvest.

Abstract

Despite inconsistent results regarding cotton yield responses to foliar urea applications, producers commonly add urea to insecticide and/or plant growth regulator applications. If 10 lbs nitrogen (N)/acre were applied as urea with each insecticide application, as much as 80 lbs N/acre could be added to the recommended 70 lbs N/acre. While the cost of urea is minimal, especially since an application is needed regardless, it is not known if the additional N via foliar urea is excessive. Additionally, soil-applied sidedress N is frequently delayed by inclement weather, and producers question whether an aerial foliar urea application is justified versus delaying the soil application until favorable weather returns. Therefore, field trials were established in 1996 at the Pee Dee Research and Education Center, Florence, SC, and at the Edisto Research and Education Center, Blackville, SC, to determine if soil-applied, sidedress N application amounts could be reduced to compensate for planned foliar urea applications tank-mixed with insecticides and/or plant growth regulators during bloom. We also evaluated the effectiveness of foliar urea applied at normal soil-applied, sidedress N timing, while delaying the soil application by two weeks. Treatments were: 1) control [70 lbs N/acre total (20 lbs N/acre pre-plant, 50 lbs N/acre at first square)]; 2) less 10 lbs N/acre of soil-applied sidedress; 3) less 20 lbs N/acre of soil-applied sidedress; 4) less 30 lbs N/acre of soil-applied sidedress; 5) treatment 2, plus 10 lbs N/acre foliar-applied at early bloom; 6) treatment 3, plus 10 lbs N/acre foliar-applied each at early bloom and mid-bloom; 7) treatment 4, plus 10 lbs N/acre foliar-applied each at early bloom, mid-bloom, and late bloom; 8) treatment 1, except soil-applied sidedress N delayed by two weeks; and 9) treatment 8, except delayed soil-applied sidedress N less 10 lbs/acre, preceded by 10 lbs N/acre foliar-applied as urea at normal soil-applied sidedress timing. Total N from leaf blades and plant growth parameters were determined immediately prior to each application of soil- and foliar-applied N. Results from 1996 indicate that foliar applications of urea during the bloom period did not compensate in terms of yield for N omitted in the soil-applied sidedress at first square. Additionally, leaf blade total N reflected soil-applied N, but not foliar-applied urea. Delaying the soil-applied, sidedress N by two weeks did not compromise yield, but making a foliar application of urea at normal sidedress timing, followed by the remainder of the recommended N amount via a soil application two weeks later did slightly enhance yield. Terminal and basal