## THE RESPONSE OF COTTON GOSSYPIUM HIRSUTUM L. TO SLOW RELEASE FOLIAR FERTILIZER James M. Burke Derrick M. Oosterhuis Tyson B. Raper Department of Crop, Soil and Environmental Science/University of Arkansas Fayetteville, Arkansas

## Abstract

Effective nitrogen (N) management in cotton (*Gossypium hirsutum* L.) production is essential for proper growth and development. Supplying N to cotton by foliar fertilization is looked upon as a means of maintaining appropriate N nutrition at periods of high demand. This study was designed to evaluate the effects of the slow-release foliar N compound, NITAMIN<sup>®</sup>, on plant growth and nutrient status to explain yield enhancement in field-grown cotton. A complete randomized block design consisting of five treatments and six replications was conducted in 2012 in Marianna, Arkansas. Treatments consisted of a no foliar fertilizer applied control, a foliar application of urea at a rate equivalent to 6 lb N/acre, and foliar applications of Nitamin at rates equivalent to 3, 6 and 12 lbs N/acre. Foliar applications of Nitamin resulted in increased petiole N concentrations, significant increases in leaf area for the 6 and 12 lb N/acre rate equivalents and significant decreases in boll number for the 6 and 12 lb N/acre rate equivalents. However, there were no significant differences in overall yield between treatments. The higher percentages of petiole N in the Nitamin treatments indicated a slower translocation rate of N to the developing bolls. Additionally, the exceptionally hot and dry season may have affected the uptake and efficiency of foliar fertilizer applications. Growth chamber studies are currently underway to quantify the absorption and translocation of NITAMIN<sup>®</sup> and the effects of the environment.