

**HIGHLIGHTS OF RESEARCH ON FOLIAR
FERTILIZATION OF COTTON IN ARKANSAS**
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Abstract

Foliar fertilization refers to the application of foliar sprays of one or more mineral nutrients to plants to supplement traditional soil applications. The practice has only caught on in cotton (*Gossypium hirsutum* L.) production in the last two decades, although there is still some skepticism about the benefits and correct implementation of this practice. Also, information is lacking about the management details of nitrogen (N) and potassium (K) fertilization practices for maximum production profitability when water is limiting under irrigated or rainfed systems in the Arkansas Delta. Previous studies have shown that soil fertilization cannot always meet cotton's high demand for N and K nutrition; therefore, supplementation with foliar fertilizers to rectify minor deficiencies has become a widespread practice. Soil fertility levels and plant petiole nutrient status should be closely monitored, particularly with the onset of the fruiting stage. Foliar-applied N moves rapidly into the leaf (30% within 1 hour) and can be detected in adjacent bolls within 6 hours. Foliar nutrient applications should be made either early morning or late evening for maximum absorption and efficiency. Generally, cotton yields have not responded as well to foliar-applied N fertilizers under periods of water deficit stress as compared to well-watered conditions. However, cotton yields have tended to respond similarly to foliar-applied K fertilizers under dryland or irrigated conditions. Our research has highlighted the factors that effect absorption of foliar-applied K and N, the most beneficial ways to apply foliar nutrients, and the benefits toward improved lint yield and fiber quality from foliar fertilization.