

**EVALUATION OF REMOTE SENSING FOR PLANT GROWTH
REGULATOR AND DEFOLIANT APPLICATIONS**

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Abstract

Field studies were conducted at Stoneville, MS to evaluate remote imaging as a decision making tool for site-specific application of a plant growth regulator and a defoliant in cotton. Treatments included: (1) untreated control, (2) conventional constant rate of growth regulator and defoliant, (3) variable rate application of the growth regulator as prescribed according to ground-truth data plus a conventional constant rate of the defoliant, (4) conventional constant application rate of the growth regulator plus variable rate application of the defoliant as prescribed according to ground-truth data, (5) variable rate application of both the growth regulator and the defoliant as prescribed according to ground-truth data, and (6) conventional constant rate of the defoliant (no growth regulator). Each treatment was replicated three times in a randomized complete block design. Remote imagery provided a viable alternative to extensive ground-based data collection for precision application of plant growth regulator and defoliant. Highly vegetative areas could be easily distinguished from smaller, less vegetative crop areas with remote imagery, allowing prescription maps to be developed for variable rate and/or site-specific applications. Soil electrical conductivity (EC) from a Veris Soil Mapping System compared well with remote imagery data. Soil variability was a major factor controlling the physiological development of the crop throughout the season. Precision applications of plant growth regulator and defoliant reduced the amount of material applied to the field and resulted in slight increases in percent open bolls, percent defoliation and yield.