Remote Sensing and Nitrogen Optimization for Site-Specific Management of Soft Red Winter Wheat. (S04carter105908-Poster)

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Abstract:

In-season N optimization and site-specific N management in southeastern soft red winter wheat has the potential to optimize grain yield, economic return, and nitrogen use efficiency, consequently being of great value to producers and the environment. The objectives of this study were to improve in-season Zadoks growth stage 30 (GS 30) N optimization strategies for whole-field and site-specific management through the use of remote sensing. Split-split plot designs were established at four sites in 2001. Three seeding-rate by plantingdate combinations were used to determine if GS 30 biomass would impact remotely sensed measures of optimum N rate. Five GS 25 N rates and five GS 30 N rates were applied to test 25 N treatments at a total of 12 seeding-rate by planting-date by location combinations. Whole plant tissue samples, analyzed for % N, biomass, and aerial near infrared photographs were taken at GS 30. After harvest, optimal grain yield and GS 30 N rates were determined for each main plot within seeding-rate by date splits. Optimal N rates were correlated with spectral measures to establish a remote sensing technique for soft red winter wheat in-season N optimization.

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