Changes in Spectral Reflectance-Based Wheat Grain Yield Prediction Models due to Spring Mineralization of Organic Nitrogen. (S04-keahey160246-Poster)

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Abstract:

Optical sensors have been used in winter wheat to make in-season grain yield potential estimates (YPE) for variable-rate, topdress N applications at a 1-sq m resolution. While this system has proven effective, the influence of preplant or early-spring applications of organic N sources on YPE have not been considered. The objective of this study was to evaluate the effect of preplant and early-spring applied broiler litter (BL) on sensor-based YPE and fertilizer recommendations. A study was established in eastern Virginia in 2001. All plots received 34 kg N/ha preplant as BL or commercial fertilizer (CF). In February, an additional 45 kg N/ha was applied as BL or CF. In late March, optical sensors were used to make YPE and determine N requirement for each treatment. Nitrogen was applied as CF using variable-rates at a 1-sq m resolution based on YPE or as single fixed rates equivalent to the average of the variable rates and 75% of the average. Deviations of YPE from actual yields were <340 kg/ha for all treatments receiving the sensor-based N rate indicating that preplant and early-spring applications of BL had little influence on mid-spring, sensor-based YPE and N recommendations.

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