Use of a Crop Canopy Reflectance Sensor To Assess Corn Leaf Chlorophyll Content. (S04-shanahan135324-Poster)

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Abstract:

The goal of this work was to evaluate the ability of passive and active multi-spectral reflectance sensors for estimating leaf chlorophyll content and serve as a trigger for N applications based on in-season readings. Reflectance for the passive sensor system is determined by measuring percent-reflected light from the canopy relative to incoming in four spectral bands (blue, green, red, and NIR). The active sensor system measures canopy reflectance by irradiating the canopy in two spectral bands (green and NIR) with modulated light emitting diodes (LED) and then demodulating the reflected light collected by the detector optics in the sensor. Variation in canopy vigor was generated in small plots in 2001 and 2002 using different N fertilizer rates, corn hybrids, and plant densities. Canopy reflectance readings were collected with both sensors along with simultaneous chlorophyll meter readings (Minolta SPAD-502) throughout the season. Sensor output was converted into green normalized difference vegetation index (GNDVI) values. Sensor-generated GNDVI values along with chlorophyll meter reading will be presented to compare and evaluate the performance of the crop canopy sensors.

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Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 9:00-11:00 am

Poster Board Number: 1434

Keywords:
remote sensing, nitrogen management, crop stress, vegetation index