# Corn Leaf Chlorophyll Status from Hyperspectral Images. (A03-daughtry125034-Poster)

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## Abstract:

Leaf chlorophyll concentration is an indicator of plant N status. Subtle differences in canopy reflectance due to changes in leaf chlorophyll concentration are often overwhelmed by the large changes in reflectance associated with soil brightness and leaf area index (LAI). Our objective was to develop a strategy for assessing leaf chlorophyll status of corn plants using radiative transfer models and aerial hyperspectral imagery. Pairs of the spectral vegetation indices plotted together produced isolines of leaf chlorophyll concentrations over a wide range of soil reflectance and LAI values. Response surfaces for estimating leaf chlorophyll were developed using the slopes of the isolines and Euclidean distances from the bare soil values. Adjustments for local conditions (soil reflectance) improved estimates of leaf chlorophyll concentrations. A test of the strategy using aerial hyperspectral imagery and ground sampling showed consistent patterns of leaf chlorophyll concentrations even when LAI varied significantly. This approach holds promise as a N management decision aid because leaf chlorophyll concentrations were determined independently of soil brightness and LAI.

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