Remote Sensing of Available Phosphorus in Corn. (S08-white113512-Poster)

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Abstract:

A clear understanding of the within-field spatial variability in soil phosphorus (P) is needed to efficiently apply fertilizer P. Obtaining spatial nutrient information, however, can be prohibitively expensive. Small-scale cyclic patterns (<1 m) in soil P concentrations result from banding P fertilizer into the soil. Larger scale cyclic patterns (15-18 m) result from broadcast fertilization with commercial bulk spreaders. A history of manure application can further increase the variability of soil P in a field. Characterizing the often complex and unpredictable spatial patterns of soil P requires intensive soil sampling, which is impractical in production fields. A better method to evaluate the soil P status of a field is needed. In-season remote sensing of the crop canopy may provide a solution to the problem of characterizing within-field soil P status. Five sets of tissue samples were collected from three cornfields over a two-year period. Tissues were collected at various growth stages (V8, V10, and V12). Regardless of the growth stage, imagery successfully identified areas of the field with below optimum leaf tissue P.

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