

Hyperspectral characteristics of field-grown corn and soybean from various platforms.

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Hyperspectral remote sensing of crop canopies offers opportunities in the remote detection of the current ecophysiological status of the crop which may translate into year-end yield. This paper will discuss some results from a continuing field experiment in precision agriculture involving measurements of hyperspectral reflectance over field crops made between 1998-2000 at the Greenbelt Farm near Ottawa, ON, Canada (45°N, 75°W). Hyperspectral reflectance (HR) spectra were collected during each season at georeferenced locations using a portable spectroradiometer (GER 1500) mounted from various ground-based platforms (boom, tethered balloon) such that the target area mimicked that seen by an airborne sensor. CASI images were acquired for the field in August, 1999 (soybean) and at various times throughout the summer of 2000 (corn). Relationships between ground-based HR spectral data and CASI HR image data will be explored with particular attention paid to the spatial characteristics of hyperspectral features. An exploration of the links between HR indices, ecophysiological status, crop growth indicators and resulting yield will be made.

Keywords : hyperspectral remote sensing, precision agriculture, CASI

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