Discrimination of Cropland Weed Anomalies Using Spatial Techniques. (A08-carter192225-Oral)

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Abstract:
Weeds in corn (Zea mays L.) and soybeans (Glycine max) continue to be a factor in production fields of Midwestern USA farmers. Using remote sensing capabilities including satellites and aircraft platforms, the opportunity exists to view large areas of cropland quickly and repeatedly. Previously, cost has been a main deterrent to the application of technology followed by the lack of integrated systems of GPS, GIS and remote sensing equipment and software. Cost/system operational barriers have been overcome and reduced to manageable levels. A research plan was developed to identify weed concentration areas in crop fields during the period of 6 weeks after planting utilizing the application of spatial technologies. Field spectrometer data and aircraft multispectral data were collected following planting. Corn plot multispectral near infrared reflectance data were compared with weed populations resulting in R2 value of 0.87 four weeks after planting. Soybean plot multispectral green, red, and near infrared band data on 6 July resulted in R2 values of 0.71, 0.74, and 0.64 five weeks after planting.

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