Characterizing the spatial variability of water stress in corn. (A08-meijer065537-Poster)

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Abstract:

Spatial variability of crop yield is often related to the amount of water stress experienced during the growing season. Crop Water Stress Index (CWSI) is a method for measuring water stress. The objective of this study was to determine if measurements of CWSI could be used to map spatial patterns of water stress within a field. Field studies were conducted at 2 sites in 2001 and 2002. Treatments included multiple levels of irrigation to ensure different levels of water stress. CWSI values were measured on a 3.7 x 15.2 m grid in 2001 and a 10 x 10 m grid in 2002. Volumetric soil water content was measured at nine locations in the field. Measurements were taken on at least three dates throughout the growing season. Maps of CWSI were created for each sampling date. Variography was used to examine the spatial properties of water stress across these field sites. Preliminary analysis of the 2001 data shows that maps were able to accurately predict the level of water stress across the field. From 50 to 81% of the variability in water stress was attributed to spatial structure. These results, along with the 2002 data will be discussed.

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