Integrated Assessment of the Utility of Soil, Crop and Remote Sensing Data for Precision Management of Maize. (A08-magri170214-Oral)

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Abstract:

There are several potential sources of information that could be used to support precision management of crops and soils. This study presents an integral analysis of soil test data, remote sensing imagery and yield monitor harvest information in order to assess the relationships between and the potential contributions of these data sources to precision management of maize. Data were collected from five fields in Central New York over a period of three years (1999 to 2001). Geostatistical techniques were used to analyze the spatial structure of soil fertility parameters. Remote sensing imagery was processed using Principal Component Analysis (for bare soil images) and the NDIV index (for vegetative cover images). Harvest information from yield monitors was smoothed by taking averages of spatially delimited areas while integrating it with the other sources of data in a geographic information system. Correlations between variables and multiple regression models for yield prediction were studied. The effects of field management history and weather variations on the variables, as well as the potential of these data sources to support precision crop management are discussed.

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