Regionalizing Corn Yield Responses to Nitrogen Fertilization within Fields. (S04-zhang161733-Poster)

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Abstract:

Remote sensing of canopy reflectance has been used to monitor nitrogen (N) deficiencies in corn and has been recognized as an effective tool for predicting yield substantially before harvest. The ability to map spatial patterns in crop responses to fertilization is an important step in developing recommendations for precision farming. However, the variable rate application technology will not be adopted unless more information is available for effectively regionalizing crop responses to fertilization across a reasonable range of conditions. We conducted experiments at field scale across many sites where N fertilizer was applied at different rates in strips that cross several soil map units. The objective was to develop methodologies for regionalizing corn yield responses to N fertilization. Corn yield, canopy reflectance, soil map units, soil electrical conductivity, and topographic data were collected. Wilk's criterion was used to compare the within-group variation with the entirepopulation variation of yield responses. Multivariate factor analysis was employed to study covariance relationships among variables influencing corn yield response to N fertilization.

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