Spatial Variation in Corn Grain Quality as expressed by Gelatinization Properties. (A08-roggenbuck103328-Poster)

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Abstract:

Precision agriculture has the potential to improve corn grain quality through improved management of the variables affecting grain quality. In 2001, hand harvested grain samples were gathered from a commercial field in Southern Minnesota, which contained three commercial hybrids, to better understand the relationship between landscape and grain quality for ethanol production. The amount of ethanol produced is related to the grain starch content and starch quality. These characteristics were assessed through the generation of pasting curves with a Rapid Visco Analyzer (RVA). The RVA identified the existence of within field variation in gelatinization viscosity of the three hybrids as the hybrids had CVs of 0.10, 0.13, and 0.16 respectively. The RVA also showed that the three hybrids had significantly different gelatinization viscosities; suggesting that there may be significant differences in starch available for enzymatic activity. Further analysis was conducted to examine the potential spatial relationship between gelatinization properties and soil properties.

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