Spatial response of corn hybrids to variable N management. (C03-katsvairo162727-Oral)

Authors:

- T.W.Katsvairo - *Cornell Univ.*
- W.J.Cox - *Cornell.Univ.*
- H.M.van Es - *Cornell Univ.*
- M.Glos - *Cornell Univ.*

Abstract:

The challenge for variable N rate management is to identify specific areas that respond to specific N levels. We evaluated two corn (Zea mays L.) hybrids at two N rates (110-130 vs. 165-185 kg ha-1 at three sites and manure vs. manure + 55 kg ha-1 at two sites) to determine the feasibility of variable N rate management and hybrid selection. Spatial yield variability in response to N existed at only two of 13 site-year comparisons. Although late-spring soil NO3-N concentrations were less than 25 mg kg-1 on 25% of the manured fields in the wet year, spatial yield difference variability in response to N did not exist. At a non-manured site, spatial yield difference variability in response to N existed with temporal yield stability across dry years (r = 0.96). Surprisingly, corn responded to the higher N rate on 25% of this field where yields were least, but not where yields were greatest. Spatial yield difference variability between hybrids existed at only four of 15 site-year comparisons, despite hybrid interactions with sites. Adoption of variable hybrid selection will be difficult if hybrids that show interactions with sites do not show spatial yield difference variability within sites.

Corresponding Author Information:

William Cox
Cornell Univ.
Dep.of Crop and Soil Sci.,Cornell.Univ.
Ithaca, NY 14853

phone: 607-255-1758
fax: 607-255-2644
e-mail: twk4@cornell.edu

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