Strip-tillage in the Northern US Corn Belt: Abiotic and Biotic Effects on Corn Growth and Yield. (S06-eash162218-Oral)

Authors:

- N.S.Eash* - *University of Minnesota*
- T.J.Sauer - *USDA-ARS, Ames, IA*
- B.D.Potter - *University of Minnesota*

Abstract:

Full width, deep tillage following corn or soybean harvest is common in the fall in southwest Minnesota. Reasons for fall tillage include warmer soil temperatures in the spring, easier planting, perceived decreases in disease and insect pressure, and timeliness. Water and wind erosion losses are frequent and substantial where tillage minimizes crop residue cover. No-till is not viewed as an option due to cold soil temperatures during planting. Alternative management strategies are needed that provide residue cover but also promote warmer temperatures in the seed zone. Strip tillage may be a management strategy that provides bare soil in the intrarow while maintaining interrow residue cover. In plots with contrasting tillage treatments we measured seed zone temperatures at the 5-cm depth in the intrarow and interrow positions. Soil heat flux, photosynthetically active radiation, and wind speed were also recorded. Results from this study indicate that strip tillage may be a viable option for producers because intrarow soil temperature values were similar under very contrasting tillage practices while maintaining adequate residue cover for erosion control.

Corresponding Author Information:

Neal Eash
University of Minnesota
1501 State Street
Marshall, MN 56258

phone: 507-537-7380
fax: 419-821-6146
e-mail: eash@southwest.msus.edu

Presentation Information:

Presentation Date: Tuesday, November 12, 2002
Presentation Time: 8:15 am

Keywords:

strip tillage, heat flux, soil temperature, corn yield