

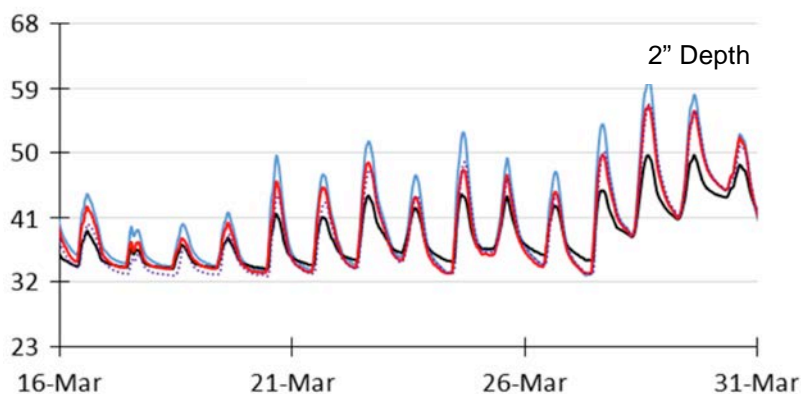
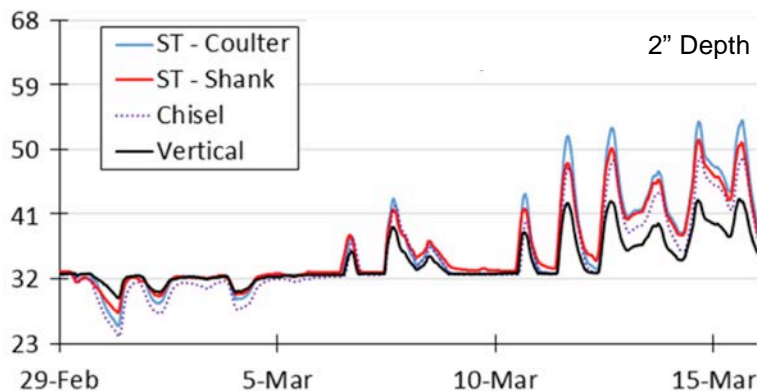
There are many advantages of reducing soil tillage for building soil health. However, reducing tillage creates concerns of yield reductions due to cool and wet soils in the poorly-drained landscape that dominates much of the Red River Valley.

The objectives of this study are to:

1. monitor soil warming and water contents under chisel plow, vertical tillage, strip till with shank, and strip till with coulters on various soil series with subsurface drainage or natural drainage
2. evaluate soil health and crop emergence and yields
3. transfer information to producers with field days and videos

Site Description/Management: corn-soybean rotation, 30" row spacing, tillage practices using full-sized equipment in plots of 40 feet wide by 1800 feet long in a replicated design. Soil series: Wyndmere and Delamere fine sandy loams.

Soil Temperature (2015-2016)



CONSERVATION TILLAGE ON LOAM SOILS

Langseth Farm

Aaron Daigh

Assistant Professor of Soil Physics
aaron.daigh@ndsu.edu

Jodi DeJong-Hughes

Extension Educator, Crops
dejon003@umn.edu
Twitter: @dejon003

Abbey Wick

Extension Soil Health Specialist
abbey.wick@ndsu.edu
ndsu.edu/soilhealth
Twitter: @NDSUsoilhealth



Summary:

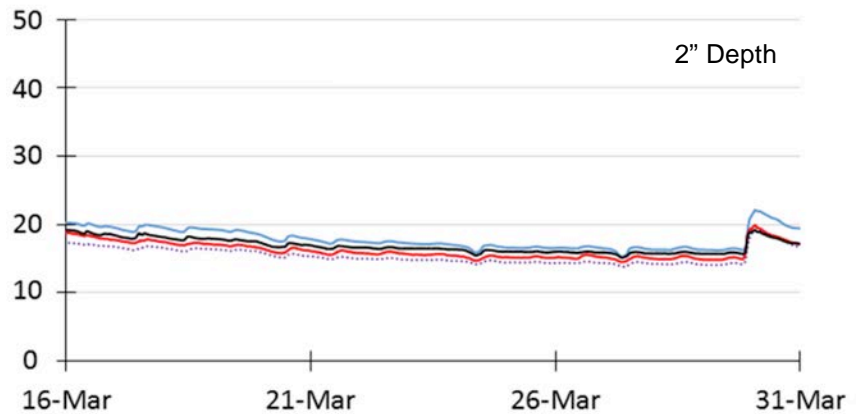
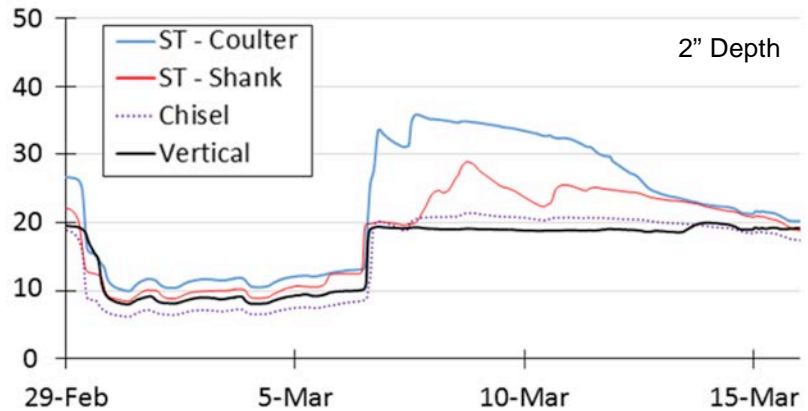
In springs with low rainfall, chisel and strip till treatments warmed and cooled faster than the vertical tillage treatment.

The soil moisture was driven largely by the amount of ice that thawed in the spring. Moisture differences among the tillage practices were initially different shortly after thaw but then become similar one week after soil ice melt.



Soil penetration resistance (a measure of how compact or “strong” the soil is) in the top 2 inches was lowest in the strip till and chisel plow practices. However, vertical tillage tended to prevent soil compaction at depths below 8 inches.

Soil Moisture (2015-2016)



Soil Penetration (2015-2016)

