

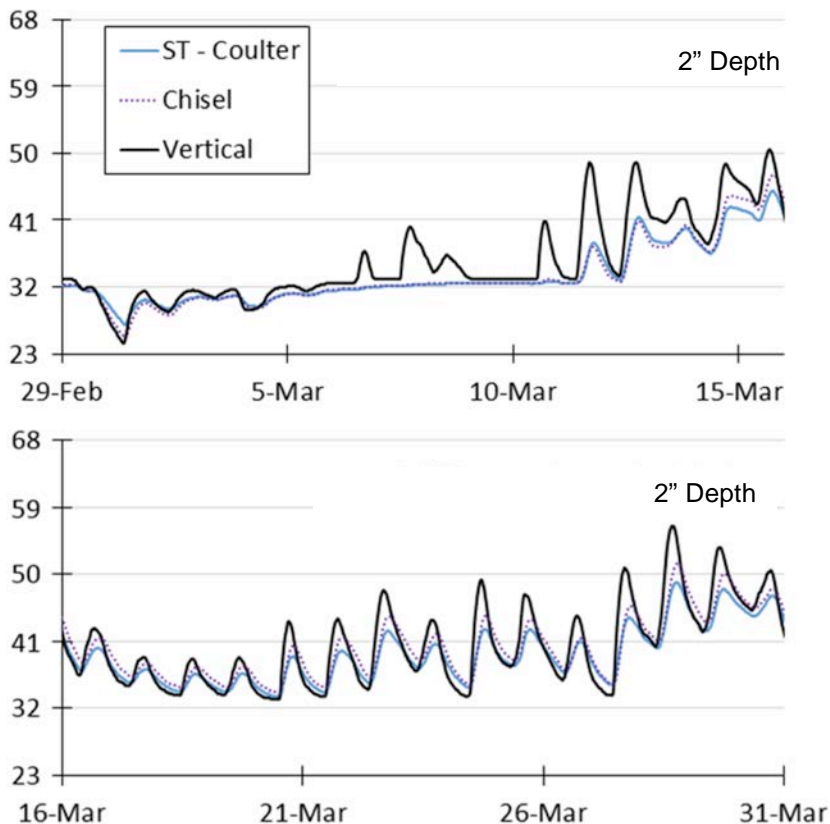
There are many advantages of reducing soil tillage for building soil health. However, reducing tillage creates concerns of yield reductions due to cool and wet soils in the poorly-drained landscape that dominates much of the Red River Valley.

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: Fargo silty clay.

### Soil Temperature (2015-2016)



## CONSERVATION TILLAGE ON CLAY SOILS

### SHARE 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



## Soil Moisture (2015-2016)

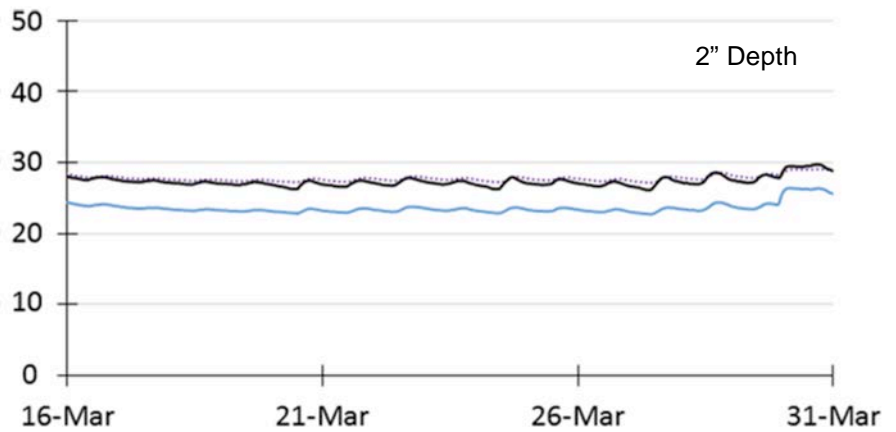
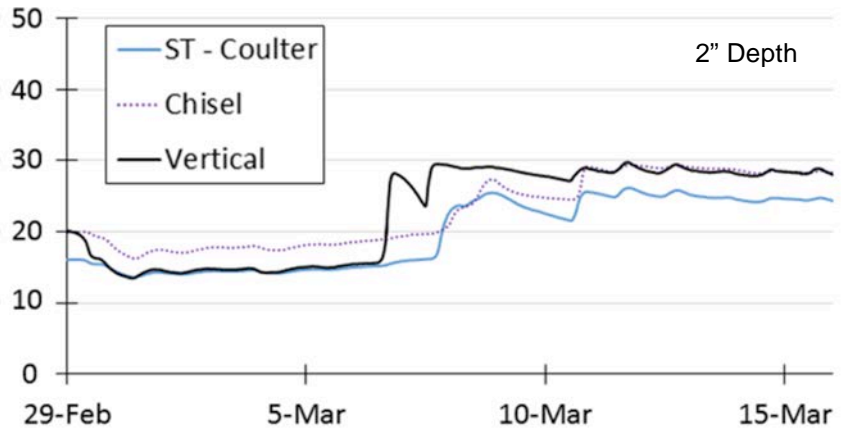
### Summary:

In springs with low amounts of rainfall, the vertical tillage tended to warm faster during the day but had similar nighttime temperatures as the chisel and strip till treatments.

The soil moisture was driven largely by the amount of ice that thawed in the spring. Moisture differences among the tillage practices were consistent over time following the spring thaw.



Soil penetration resistance (a measure of how compact or “strong” the soil is) in the top 4 to 6 inches was lowest in the strip till and chisel plow practices. However, vertical tillage tended to prevent soil compaction at depths below 12 inches.



## Soil Penetration (2015-2016)

