

Alternating the Shank Location on a Paratill Every Other Year Provides Some Benefits

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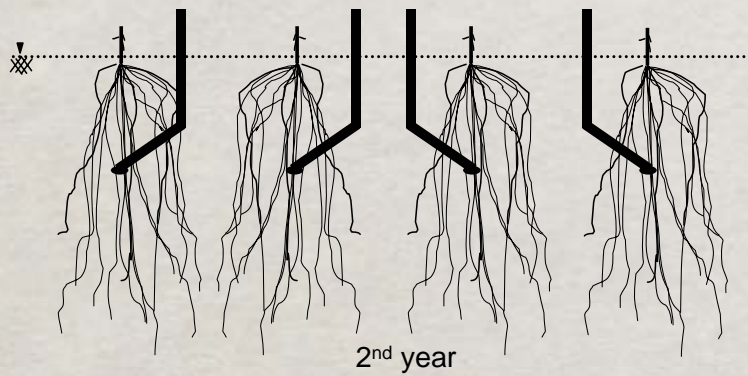
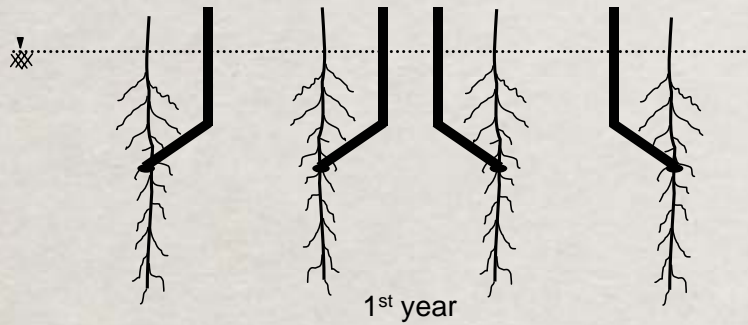


Background

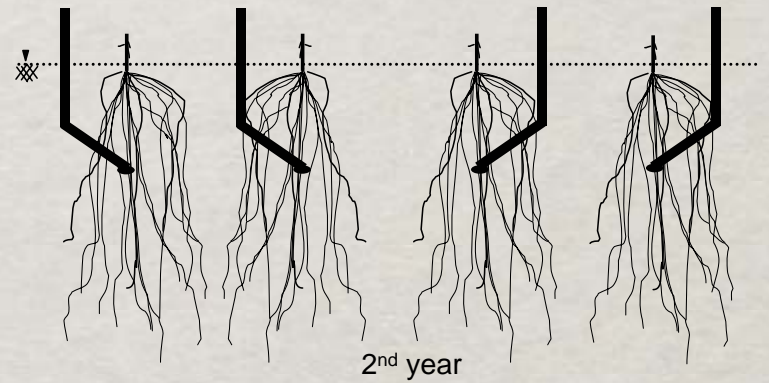
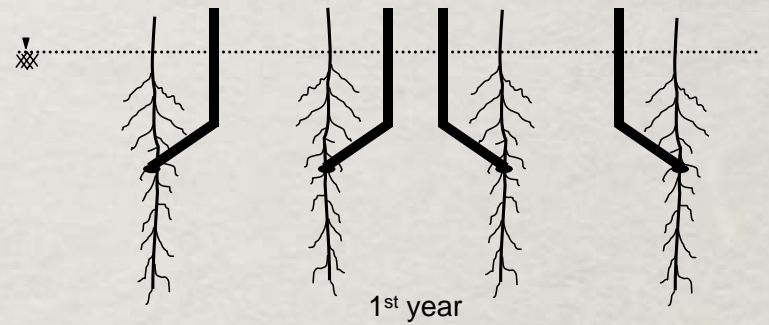
- Conservation agriculture systems often require non-inversion tillage.
- The Paratill™ is a popular choice among some producers.
- Typically, the shanks are left in the same position.



Same Location



Alternating Location

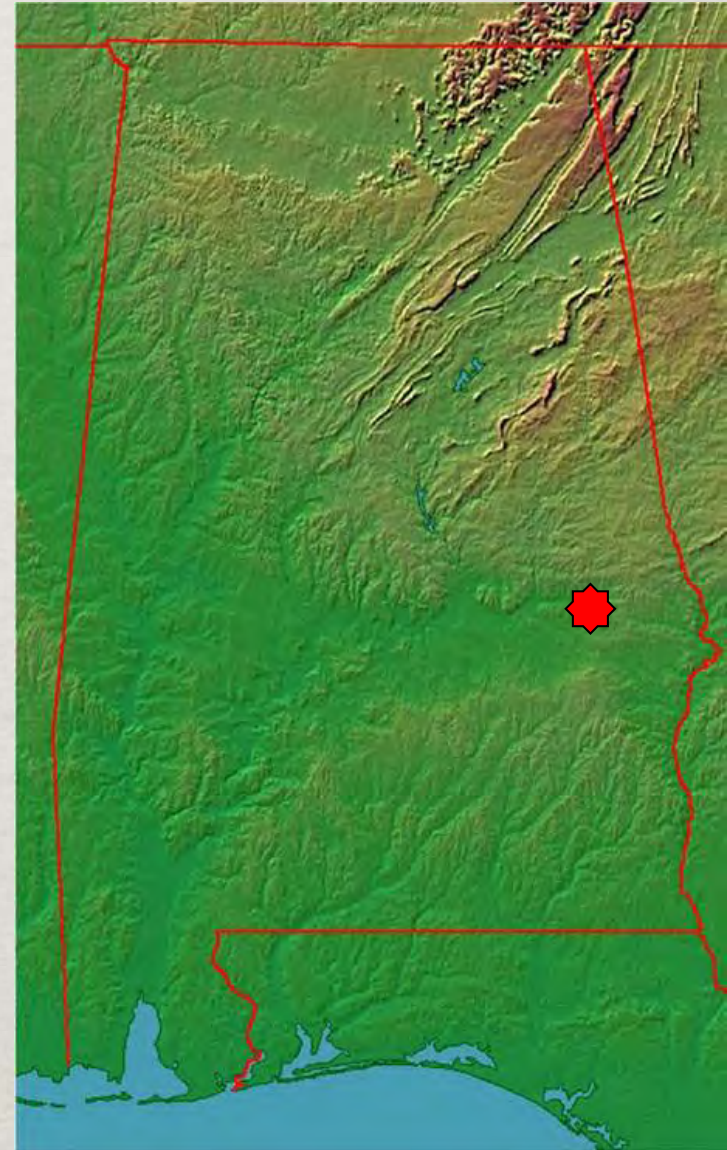


Objective

- Determine if alternating the shanks on a Paratilltm will enhance soil disruption and productivity.

Materials & Methods

- EV Smith Research Center, Shorter, AL.
- Compass loamy sand (coarse-loamy, siliceous, subactive, thermic plinthic Paleudults).
- Two tillage treatments – Same shank location and alternating every other year.
- Corn-cotton rotation with both crops present each year.



Materials & Methods

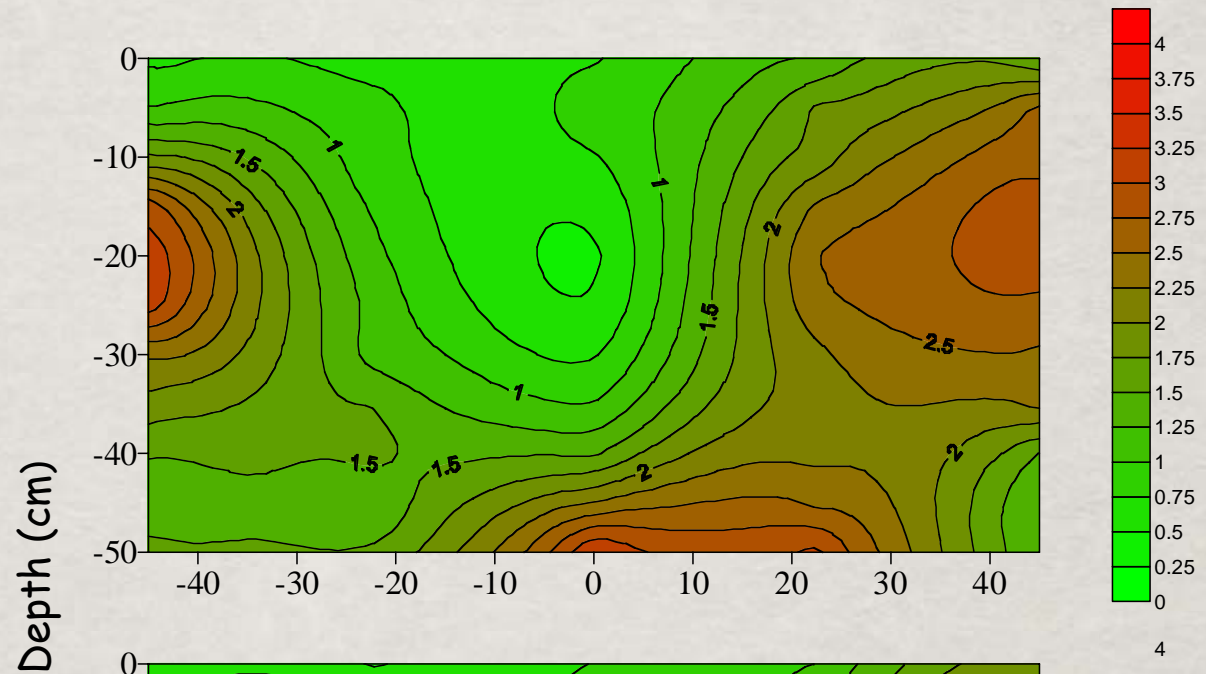
- Established Spring 2004 (no treatment differences).
- Fall CI data with MPCP (Raper et al., 1999)
- VWC during growing season



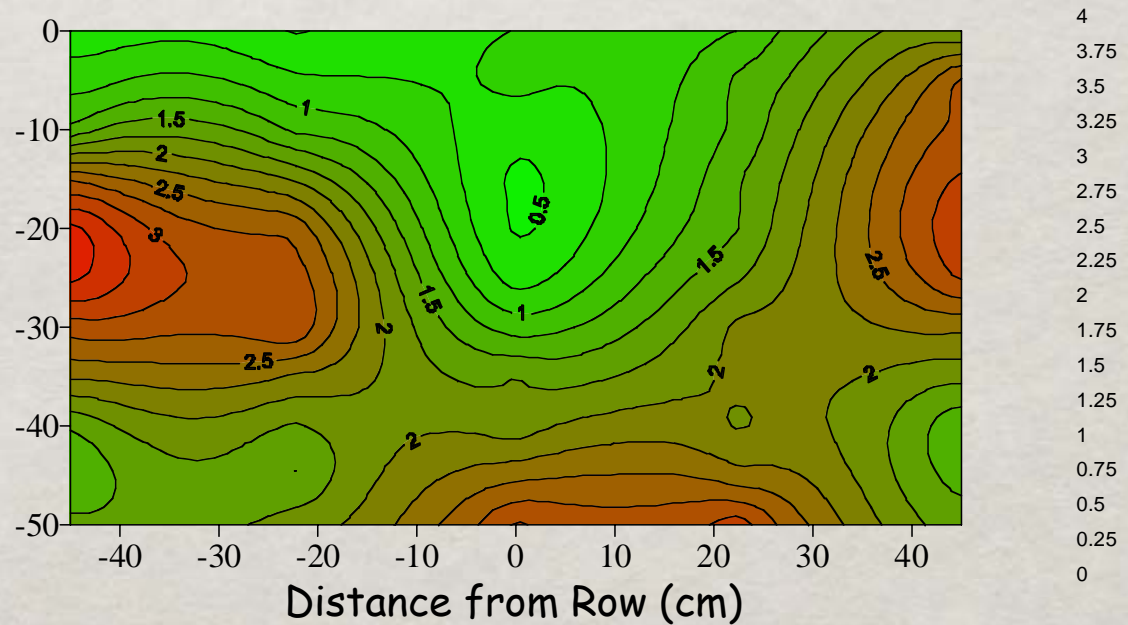
CI Cotton 2005

CI (MPa)

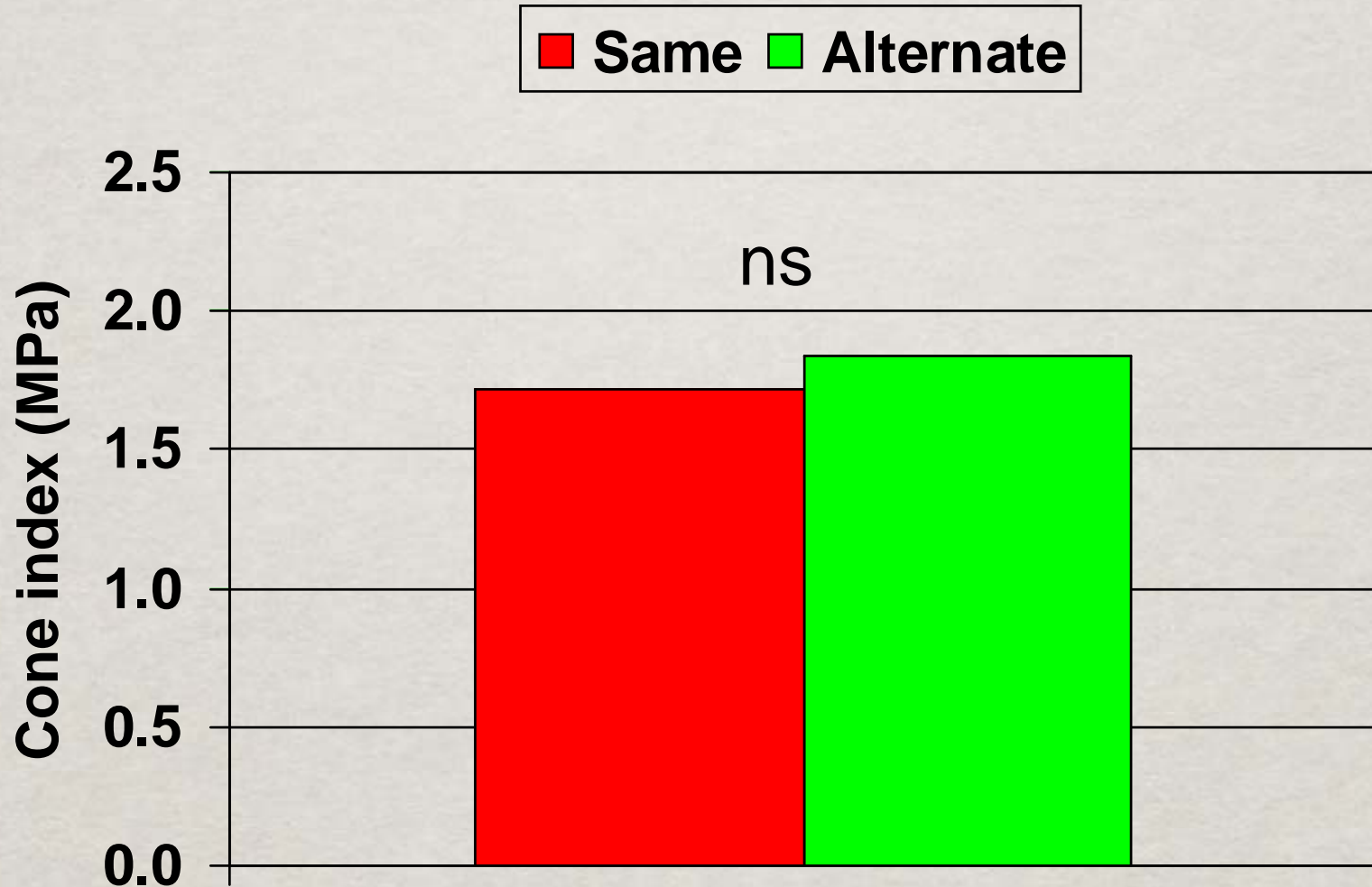
Same location



Alternating



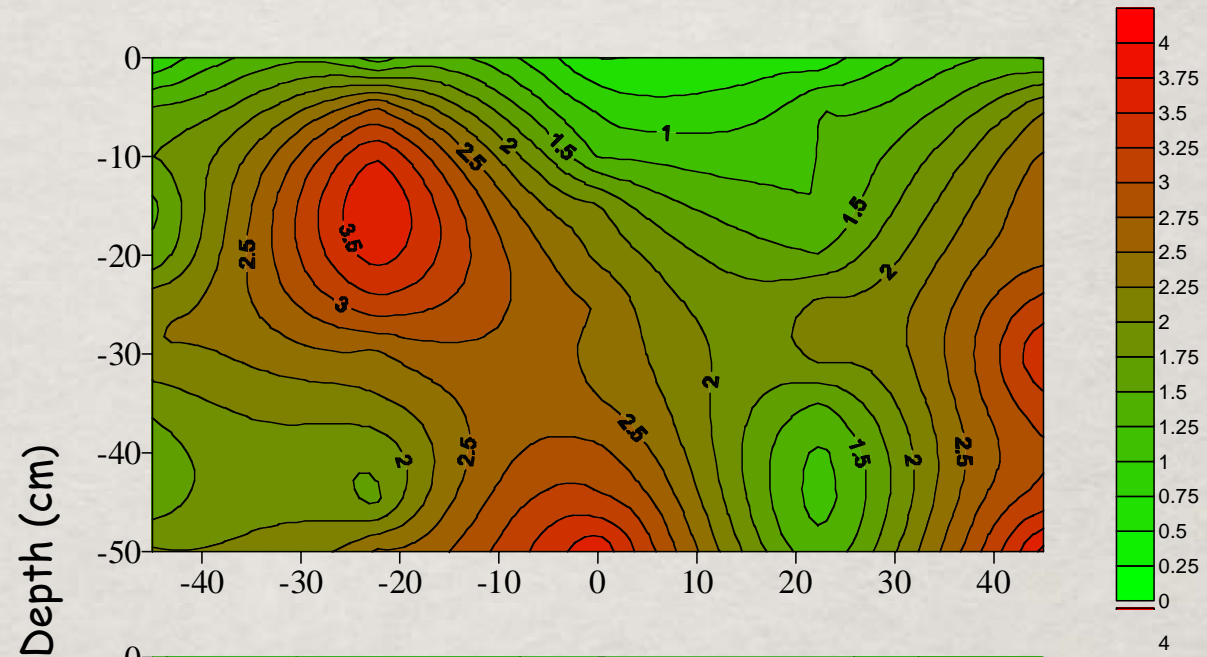
CI Cotton 2005



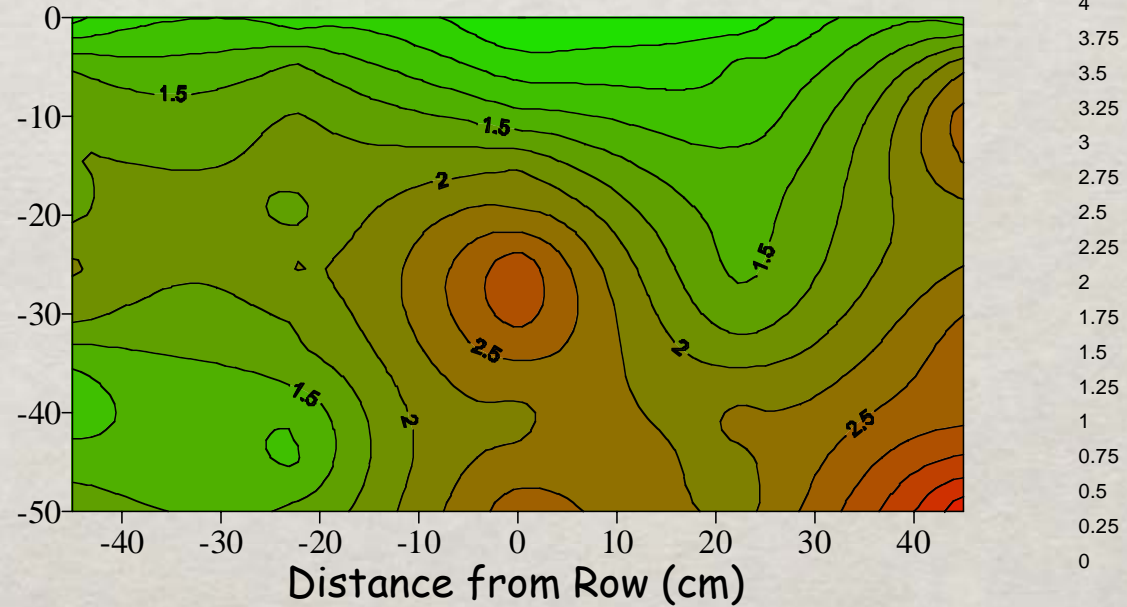
CI Cotton 2006

CI (MPa)

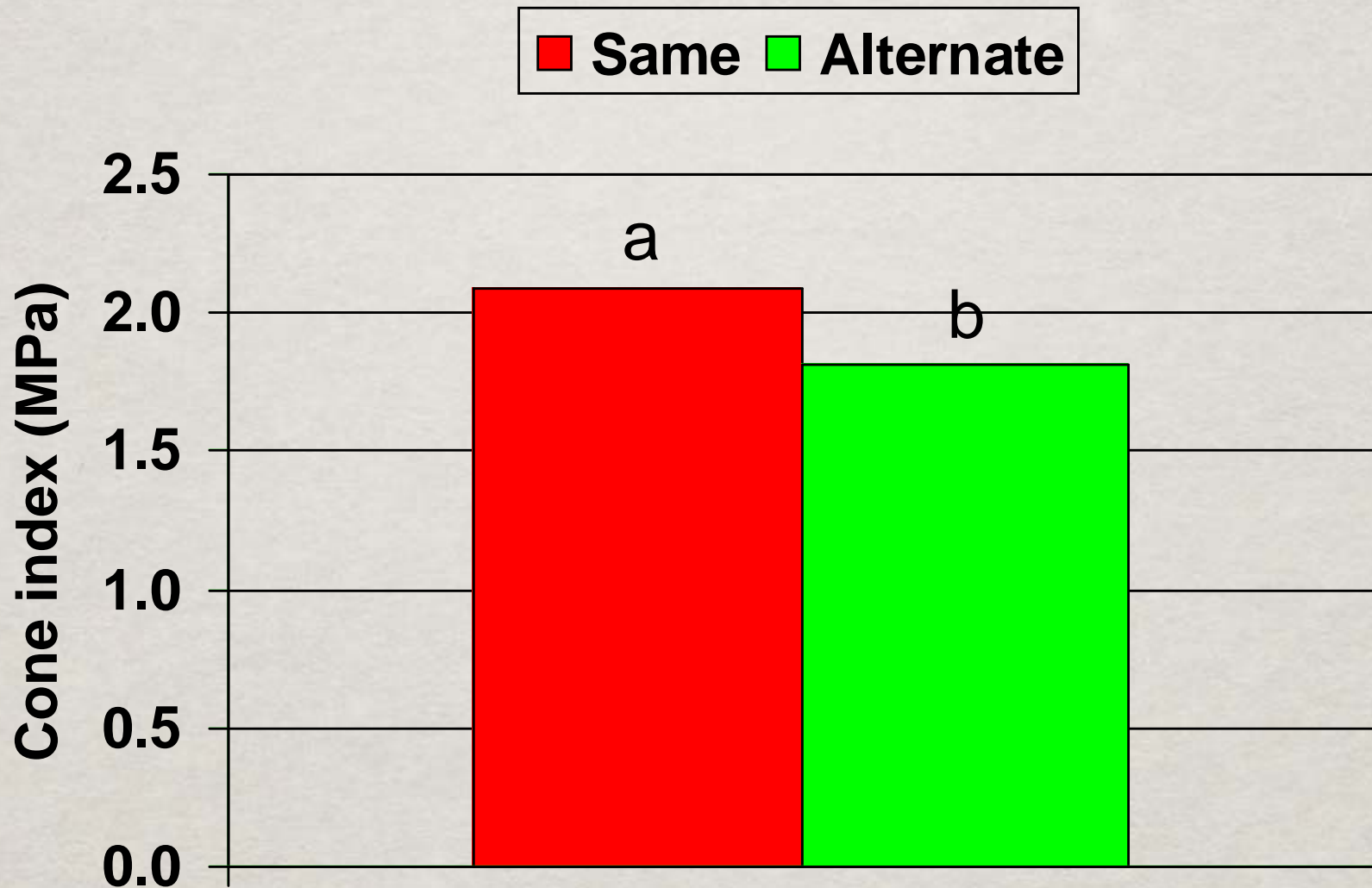
Same location



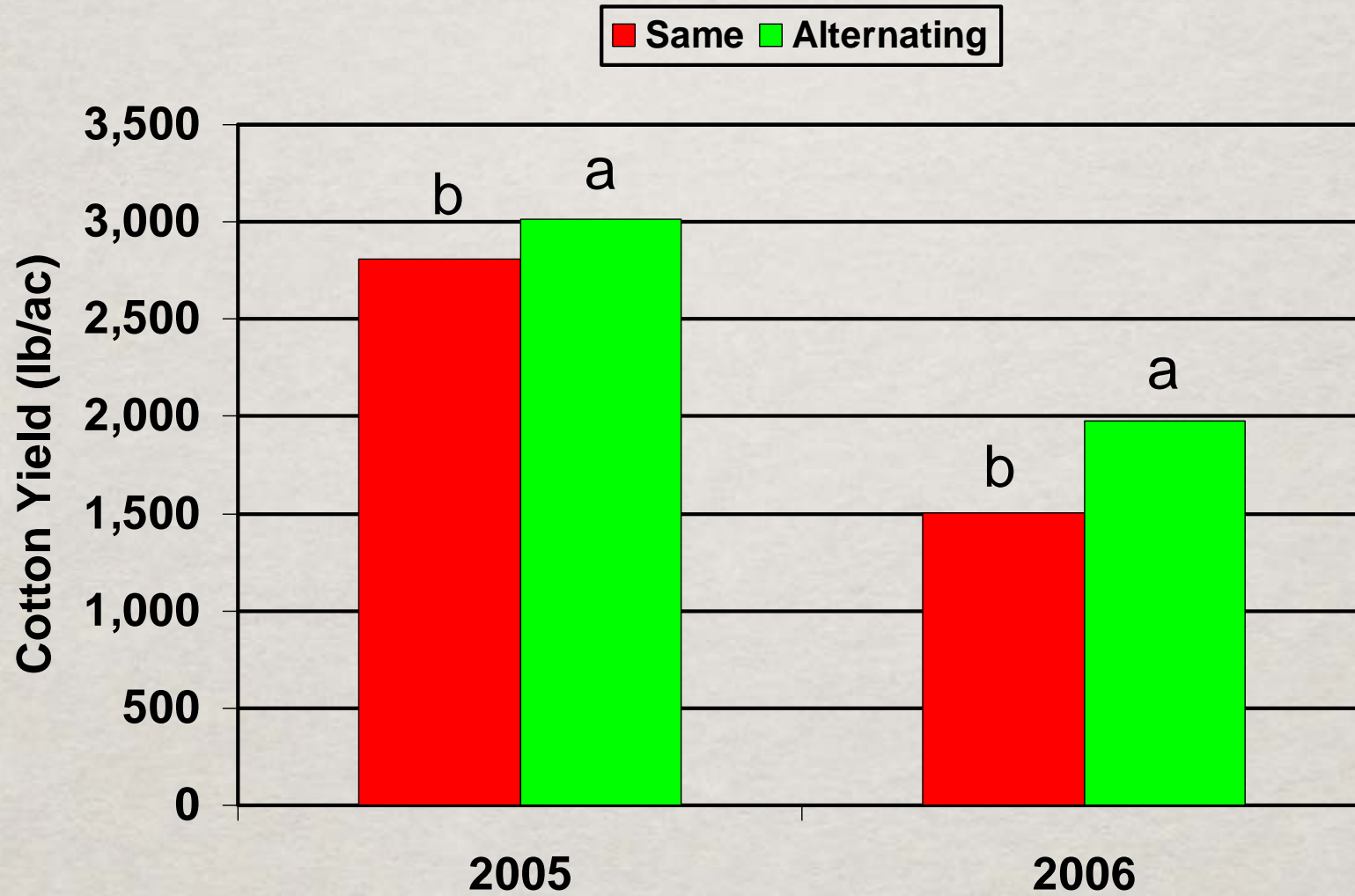
Alternating



CI Cotton 2006



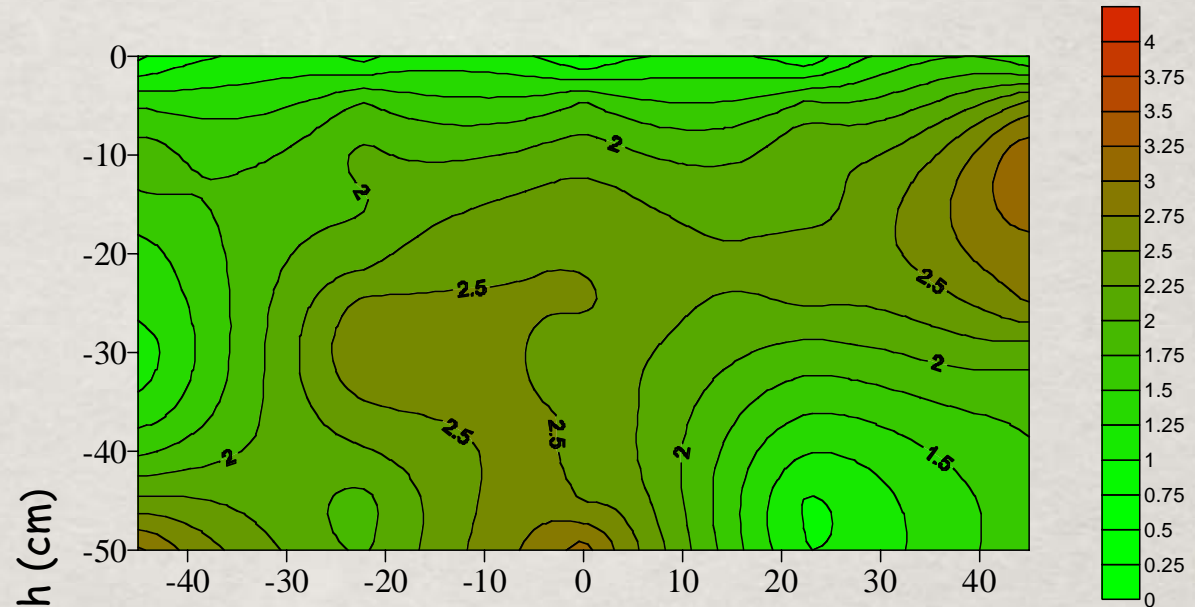
Cotton Yield



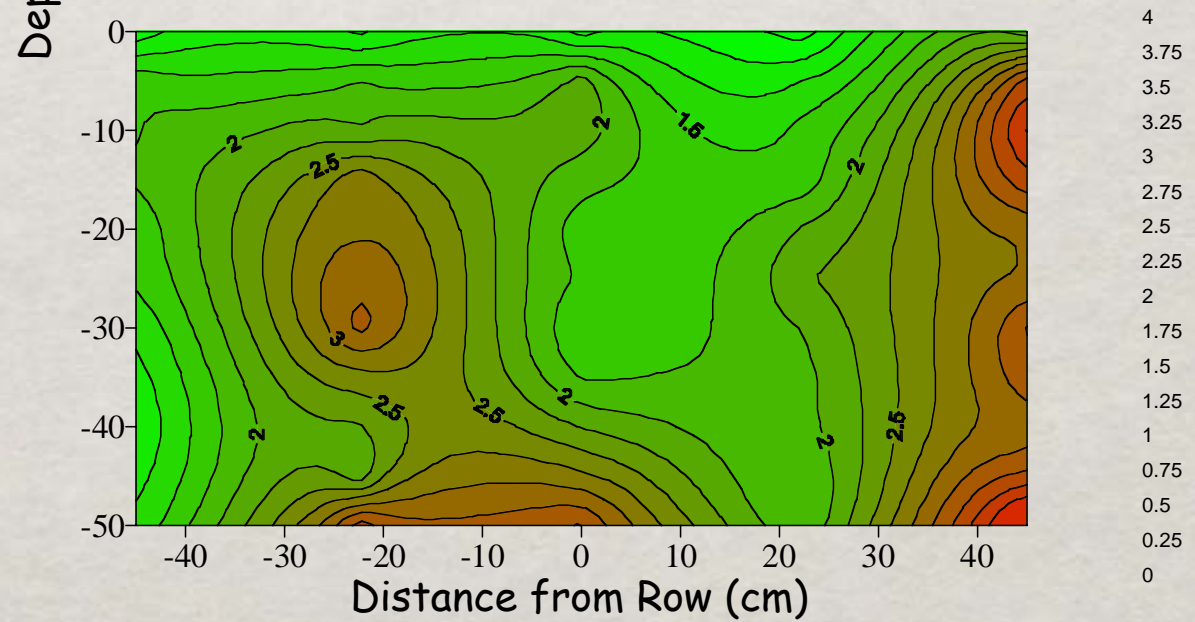
CI Corn 2006

CI (MPa)

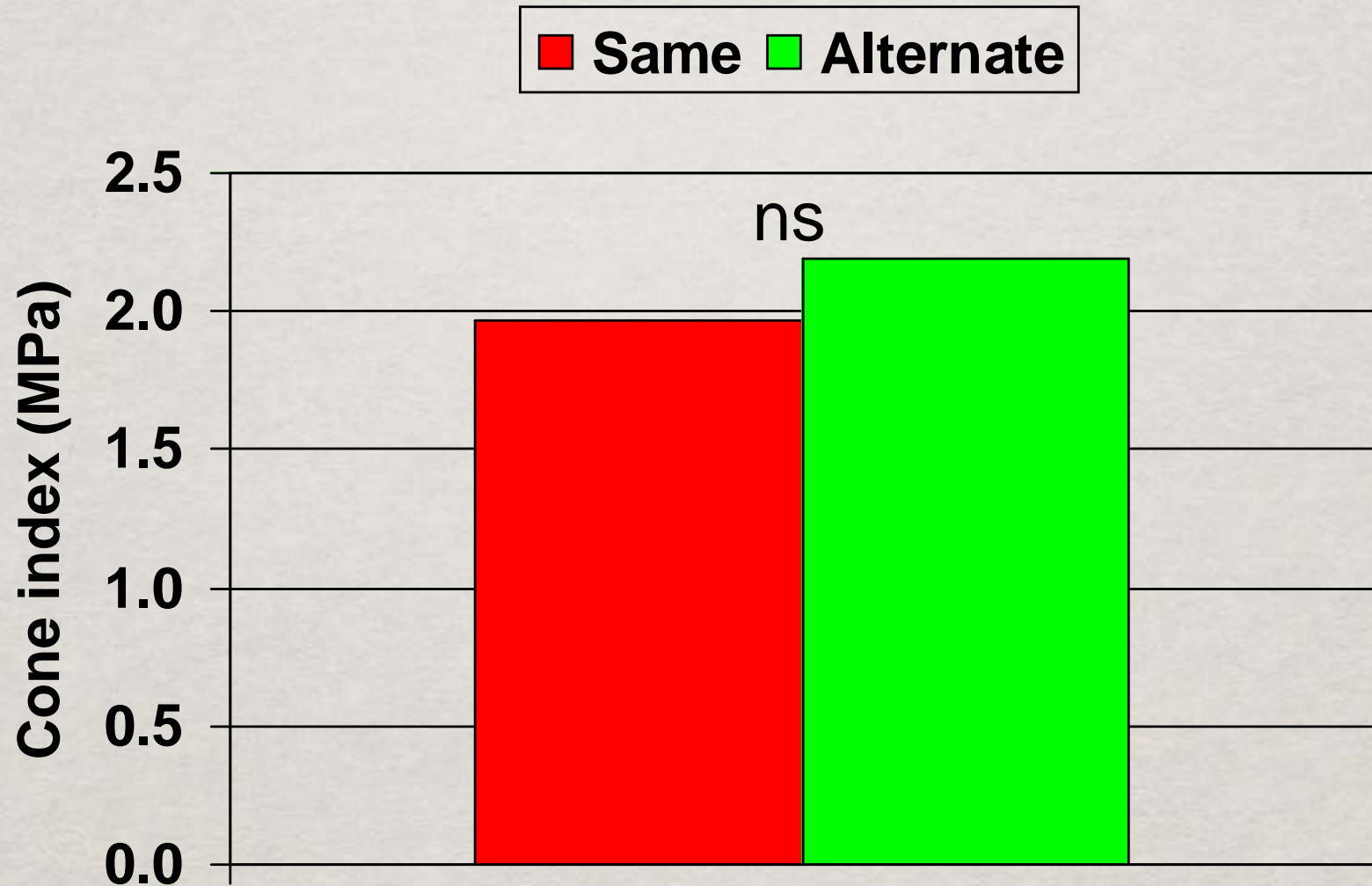
Same location



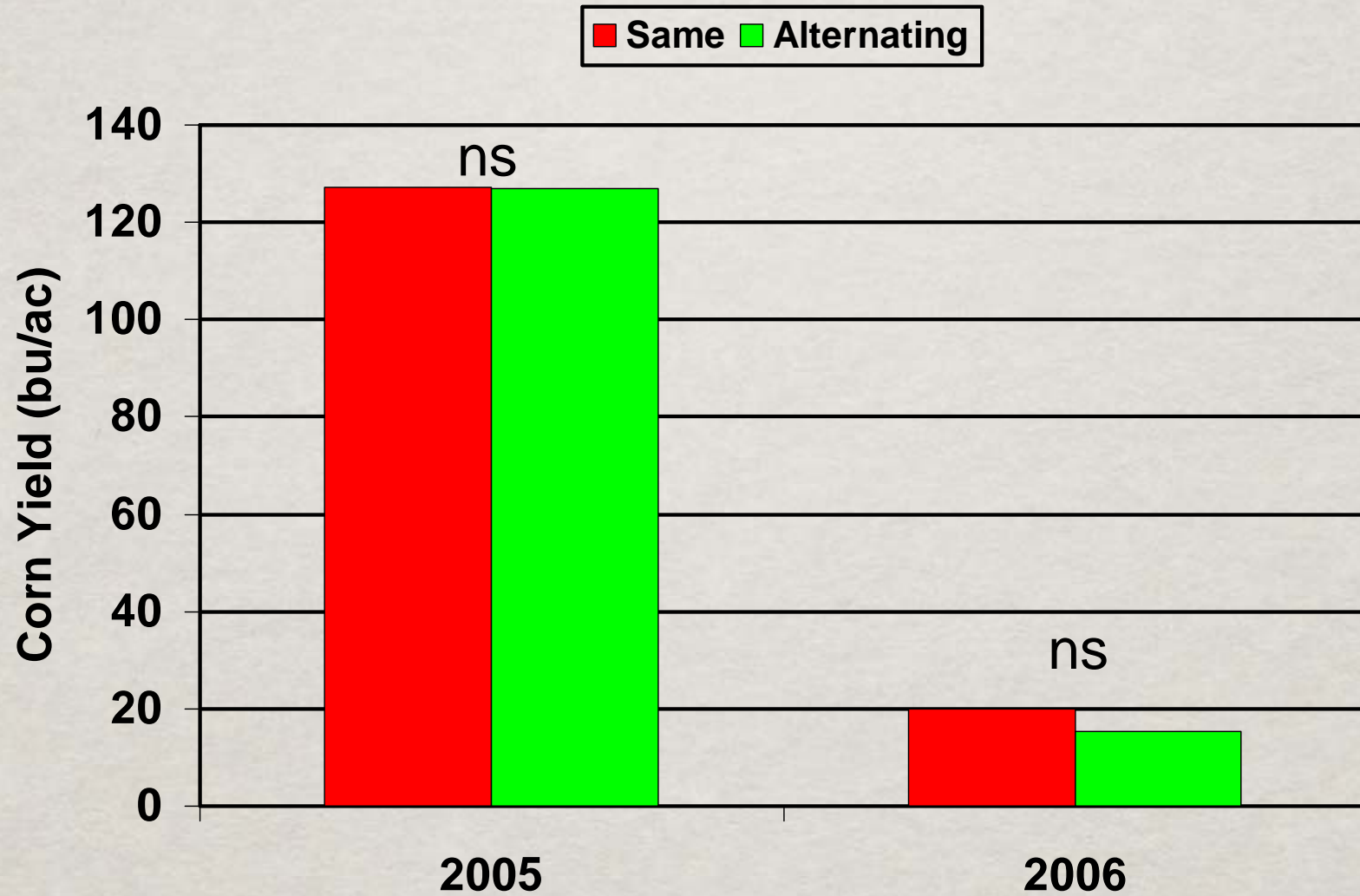
Alternating



CI Corn 2006

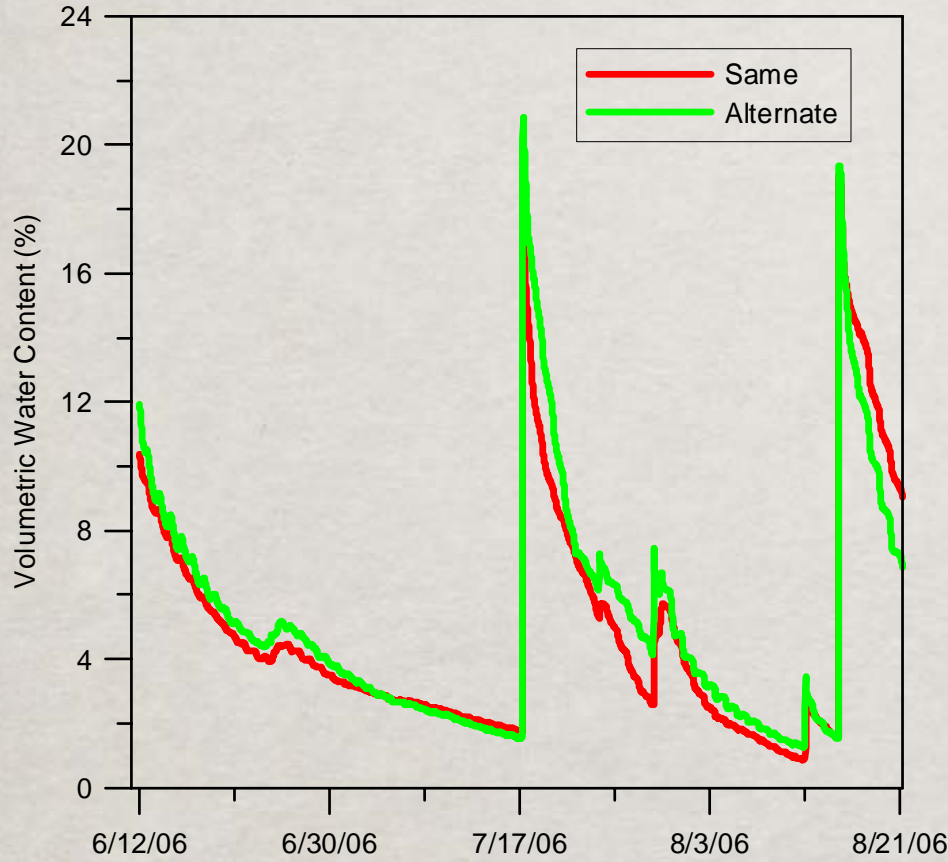


Corn Yield

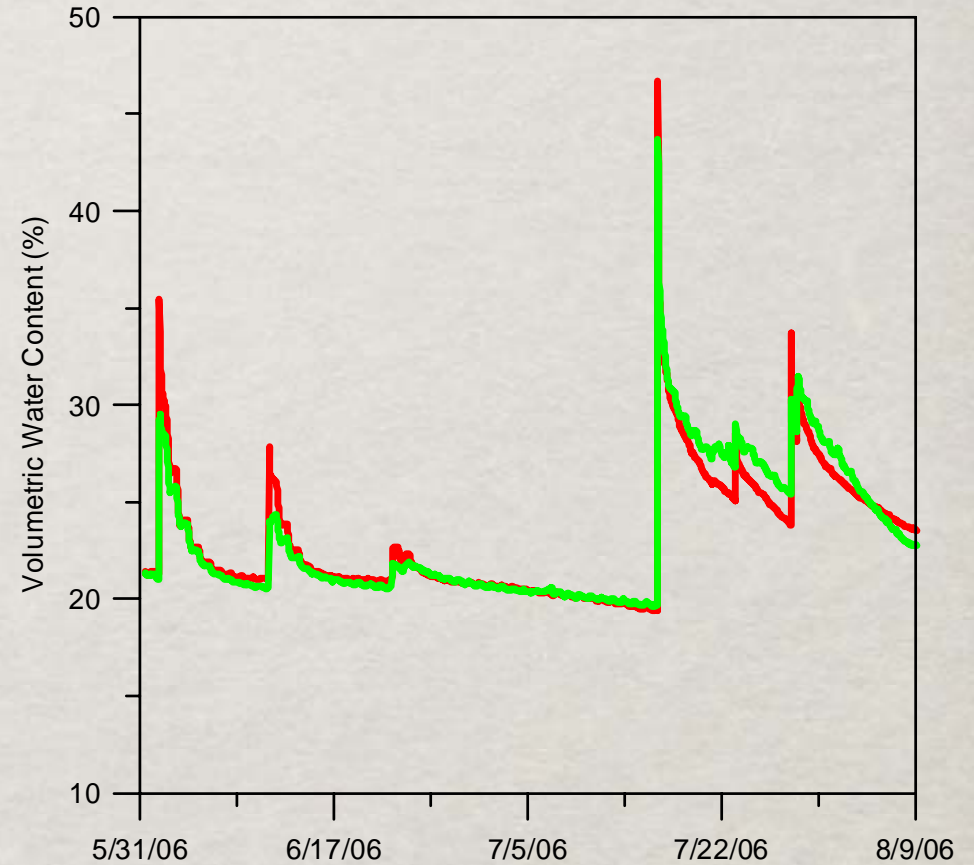


Soil Water Content '06

Cotton

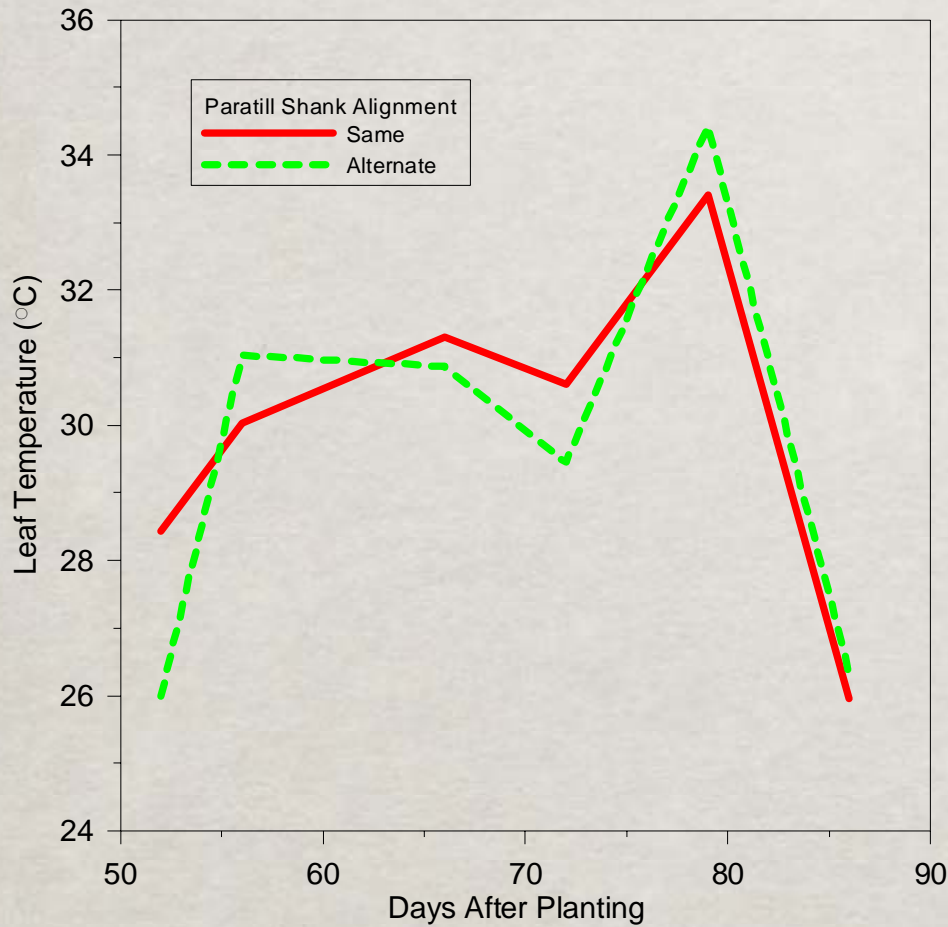


Corn

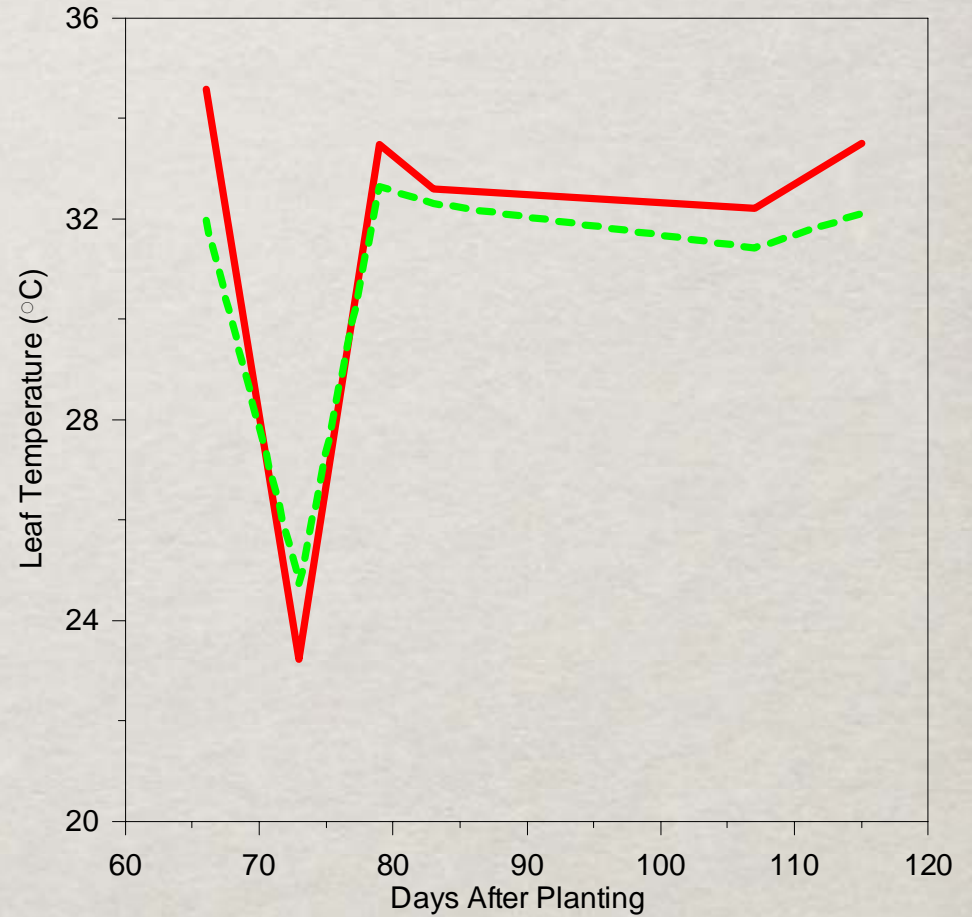


Cotton Leaf Temperature

2005



2006



Summary

- Alternating the shank position reduced CI in some cases.
- Soil water content was not affected.
- No differences in cotton leaf temperature.
- No differences in corn yield.
- Cotton yield increased.

Preliminary Conclusions

- Alternating the shank every other year on a Paratill™ provided “looser” soil conditions for cotton, increasing yields significantly.
- The “looser” soil conditions most likely enhanced cotton root growth.