



## RESULTS

### Internodes

The average internode length was reduced 11.7% (treatment averaged 1.55 inches and control 1.75 inches). A paired samples t-test was conducted to determine the effect of UpTerra treatments on internode length. The results indicate a significant difference (alpha 0.1) between average internode length of UpTerra treatment (M=1.55; SD=0.29) and internode length without treatment (M=1.75; SD=0.25);  $t(12) = 1.782, p = 0.012$ . The average difference was -0.2048 and the LSD was 0.123. This was in response to the TerraCell intentions of "Reduce internode length (Early squaring: 0.75 to 1.2 inches per node, Large square to first bloom: 1.2 to 1.7 inches per node, Early bloom: 1.7 to 2.0 inches per node)"

### Root Length

The root length increased 12.3% (treatment averaged 10.8 inches and control 9.6 inches). A paired samples t-test was conducted to determine the effect of UpTerra treatments on root length. The results indicate a significant difference (alpha 0.1) between root length of UpTerra treatment (M=10.8; SD=1.66) root length and average without treatment (M=9.6; SD=1.16);  $t(12) = 1.782, p = 0.055$ . The average difference was 1.085 and the LSD was 0.991. I looked at the field comparisons and the root length differences were not significant on the Mutt field where watering with the TerraScribe Plus was only this season but both the bottom ground and hill ground on the Holsted were significantly improved. The Holsted had UpTerra water for two seasons and the improvements may be additive.

### Resilience

Plant height was not significant except when comparing the data from the hill area in the Holsted fields. In fact, the hill area saw significant improvements in many of the traits that were not significantly improved in the bottom area. We may see greater improvements when you have increased stresses (such as on the hill ground) than you do when the field is not stressed (like the bottom ground). Stress improvements are difficult to measure because growers do their best to eliminate stresses on the fields.

## COTTON TRIAL

Mid-Season cotton measurements were collected on the Repp farm at two locations, Mutt and Holsted. The Holsted Control field is contiguously to the north. The Mutt field was planted on May 13th with PHY 411 W3FE at 2 different rates, 42,000 and 44,000 seeds. The collected data are all from the 44k portion of the field. The Holsted fields were both planted with PHY 400 W3FE: Holsted Treatment on May 16 at 42,000 seeds and Holsted Control on May 15 at 39,000 seed. The Holsted fields both have hill ground and bottom ground and data were collected separately in each section.

At each field data collection zones were created with 100 ft buffers from field edges and other zones. All data was collected within these zones. Within each zone, 5 data collection points were established across the field to account for field variability. At each point, 5 measurements were collected for each data field and averaged to account for plant variability. A paired T-Test and Least Significant Difference analysis were performed on this data.

Metric-specific goals were created for the TerraCell component of the study. Below are the target metrics that were specified and accounted for during the mid-season measurements:

- Internodes
  - Early squaring: 0.75 to 1.2 inches per node,
  - Large square to first bloom: 1.2 to 1.7 inches per node
  - Early bloom: 1.7 to 2.0 inches per node)"
- Increase Boll Retention

## HIGHLIGHTS:

- The boll number per plant significantly increased when compared to the control fields (31.3% increase)
- The total length of the top five internodes and the average internode lengths were both significantly shortened compared to the control fields (11.7% reduction)
- The root length significantly increased when compared to the control fields. (12.3% increase)
- TerraPlex showed improvements in more stressful areas of the treatment field when compared to more stressful areas of the control field.