

TIMING OF STRESS MITIGATION IN CORN

TRIAL OVERVIEW

- Stress affects plants in different ways at different times, depending on what growth stage the plants are in when stress is experienced.

RESEARCH OBJECTIVE

- This trial was designed to determine the impact of stress on ear development at different growth stages.

| Location | Soil | Previous Crop | Tillage Type | Planting Date | Harvest Date | Potential Yield/Acre | Planting Rate/Acre |
|--------------|-----------|---------------|--------------|---------------|--------------|----------------------|--------------------|
| Monmouth, IL | Silt Loam | Soybean | Conventional | 05/09/2016 | | | 48,000 seeds/acre |

SITE NOTES:

- Corn was planted at 48,000 seeds/acre on May 9, 2016, using conventional planting methods.
- Every other plant was thinned out at growth stages V3, V5, V7, V9, V11, and R2.
- Each thinned plot was compared to an un-thinned check (UT).
- Measurements Taken:
 - Combined weight of 5 ears
 - Average kernel count (number of rows X kernels/row)

UNDERSTANDING THE RESULTS

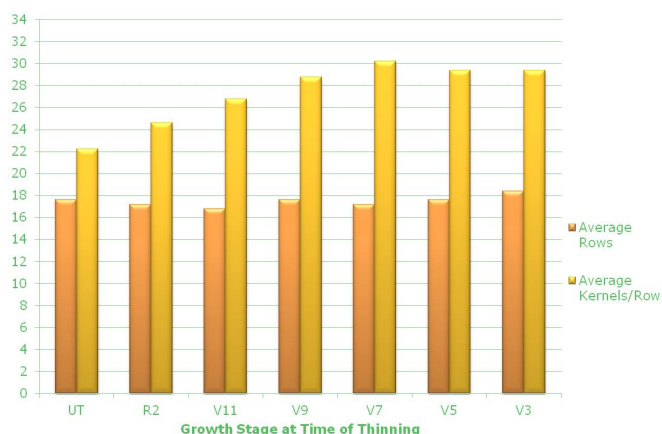


Figure 1. Average number of rows and kernels/row in stands thinned at various growth stages.

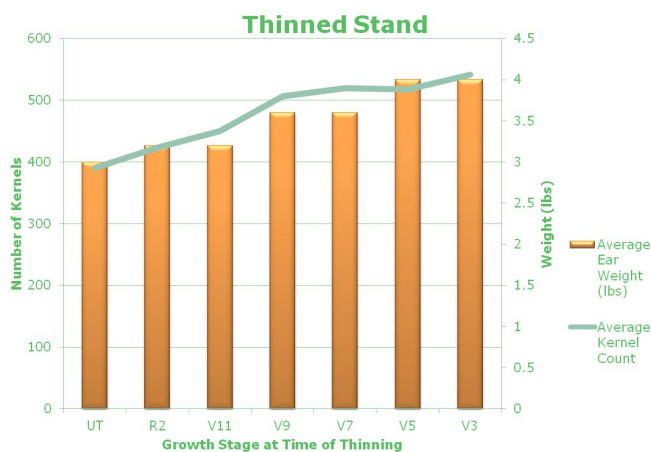


Figure 2. Average weight of 5 ears and average kernel count in stands thinned at various growth stages.

WHAT DOES THIS MEAN FOR YOUR FARM?

- The effects that stress can have on yield potential will vary depending on the growth stage(s) of the plants when they are stressed.
- Mitigation of stress at the V3 growth stage resulted in maximizing both number of kernel rows and kernels per row.
- Mitigation of stress at the V5 up to V9 growth stages resulted in fewer kernel rows, but slightly increased kernels per row. However, the longer rows were generally not enough to make up for the loss in total ear weight.
- Waiting until after the V9 growth stage to mitigate stress resulted in both reduced number of rows and the number of kernels per row.



Figure 3. Thinning at V3 growth stage.



Figure 4. Thinning at V7 growth stage.



Figure 5. Thinning at V11 growth stage.



Figure 6. Un-thinned.

- Although individual kernel size was not measured, it did seem to be an important factor. Total kernel count was fairly even across the first four timings, but ear weight dropped over 12% in the V7 and V9 growth stages compared to V3 and V5 growth stages.
- Ear size became much more variable in the V11 growth stage and later timings.
- Environmental conditions would likely have a significant impact on these results. For example, in drought conditions, the effects of stress from high populations may be much more pronounced.

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