



The Response of Three Deltapine[®] Cotton Varieties to Population and Planting Configuration

2014 Learning Center Demo Report
Monsanto Learning Center at Scott, MS





- This trial was established to compare:
 - 1) Planting configurations
 - Hill drop – placing 2, 3 or more seeds in a “hill” less than 1.5 inches across. This technique used to be popular when seed quality was lower and seed treatments were not used.
 - Drilled – Primarily used today. Seed is evenly spaced down a furrow.
 - 2) Planting Populations
 - Four populations – 14,000; 28,000; 41,000; 55,000 seeds/acre



- Issues with hill drop planting
 - If 3 seeds are planted and 3 seedlings emerge, one plant may be considered a weed.
 - Why waste 33% of the seed when it is not necessary?
 - Hill drop was initially used to protect cotton to allow for earlier planting or planting under less than ideal conditions.
 - Late planting is not as big of an issue anymore due to better late-season insect control and management for earliness.

Background - Population



- Cotton planting populations have decreased in the past 25 years, in some areas up to 50%.
 - Decreases in planting population are due to better quality seed and biotech traits.
- What influences cotton population decisions:
 - Growth potential/Growth management style
 - Soil type
 - Yield potential
 - Planting date – late planting may require higher populations and aggressive management

Background



- Questions

- 1) Do planting configurations influence yield potential of cotton?

- 2) How does population affect the yield potential and management required for varieties?

Materials & Methods



- A demonstration trial was conducted to show the impact of planting configurations and planting population of three cotton varieties.
- Three Deltapine[®] cotton varieties were chosen for the demonstration: DP 1137 B2RF, DP 1311 B2RF, and DP 1321 B2RF.
- Three planting configurations:
 - 2 seeds hill drop
 - 3 seeds hill drop
 - Drilled
- Four planting populations:
 - 14,000 seeds/acre = 1 seed/ft
 - 28,000 seeds/acre = 2 seed/ft
 - 41,000 seeds/acre = 3 seed/ft
 - 55,000 seeds/acre = 4 seed/ft
- Cotton was planted on May 2, 2014, and standard agronomic practices for the area were implemented with irrigation provided as needed.
- PGR applied as needed.

Data

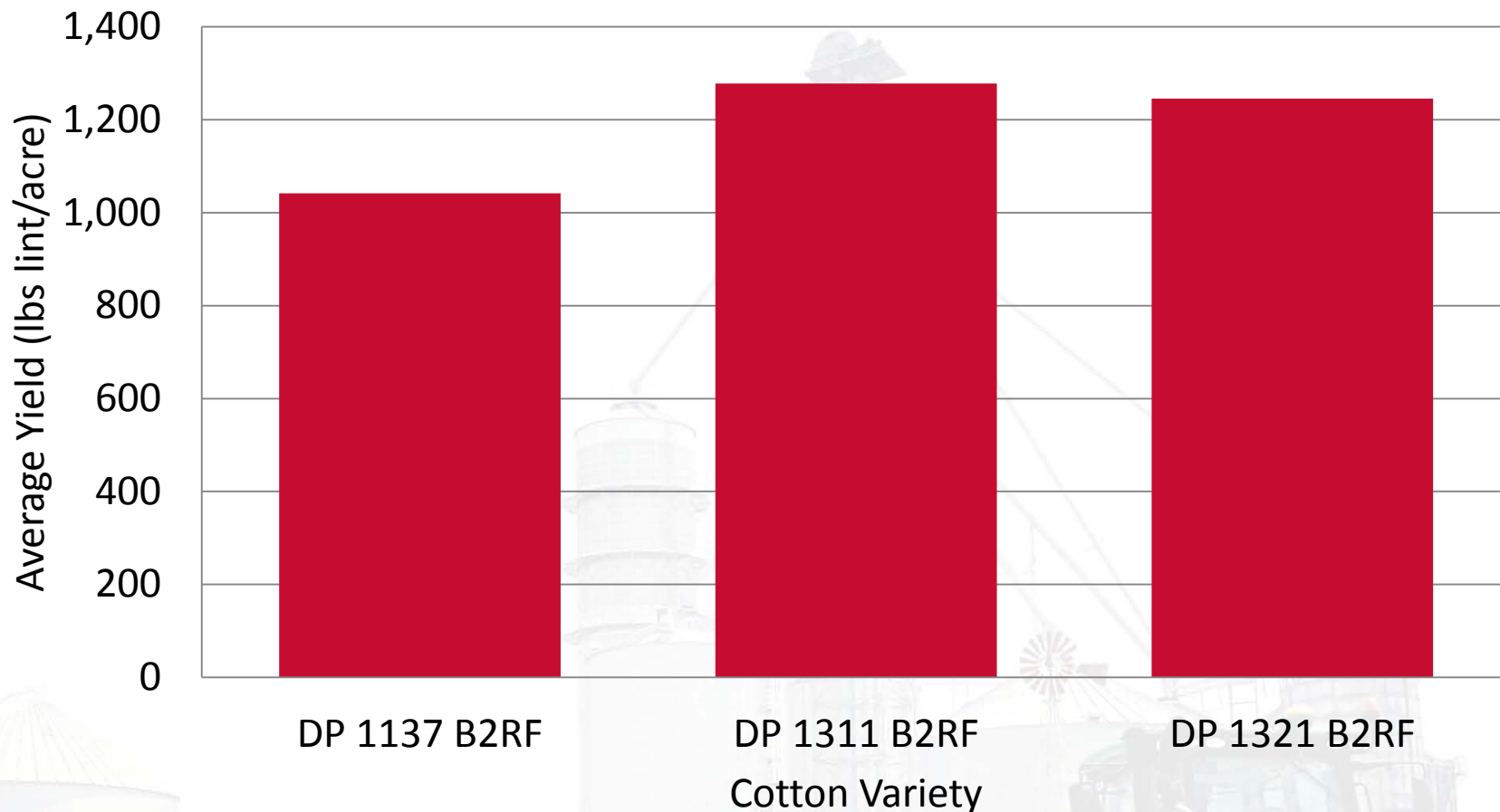


Figure 1. Comparison of the average cotton variety yield when averaged across planting configuration and population.

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Data

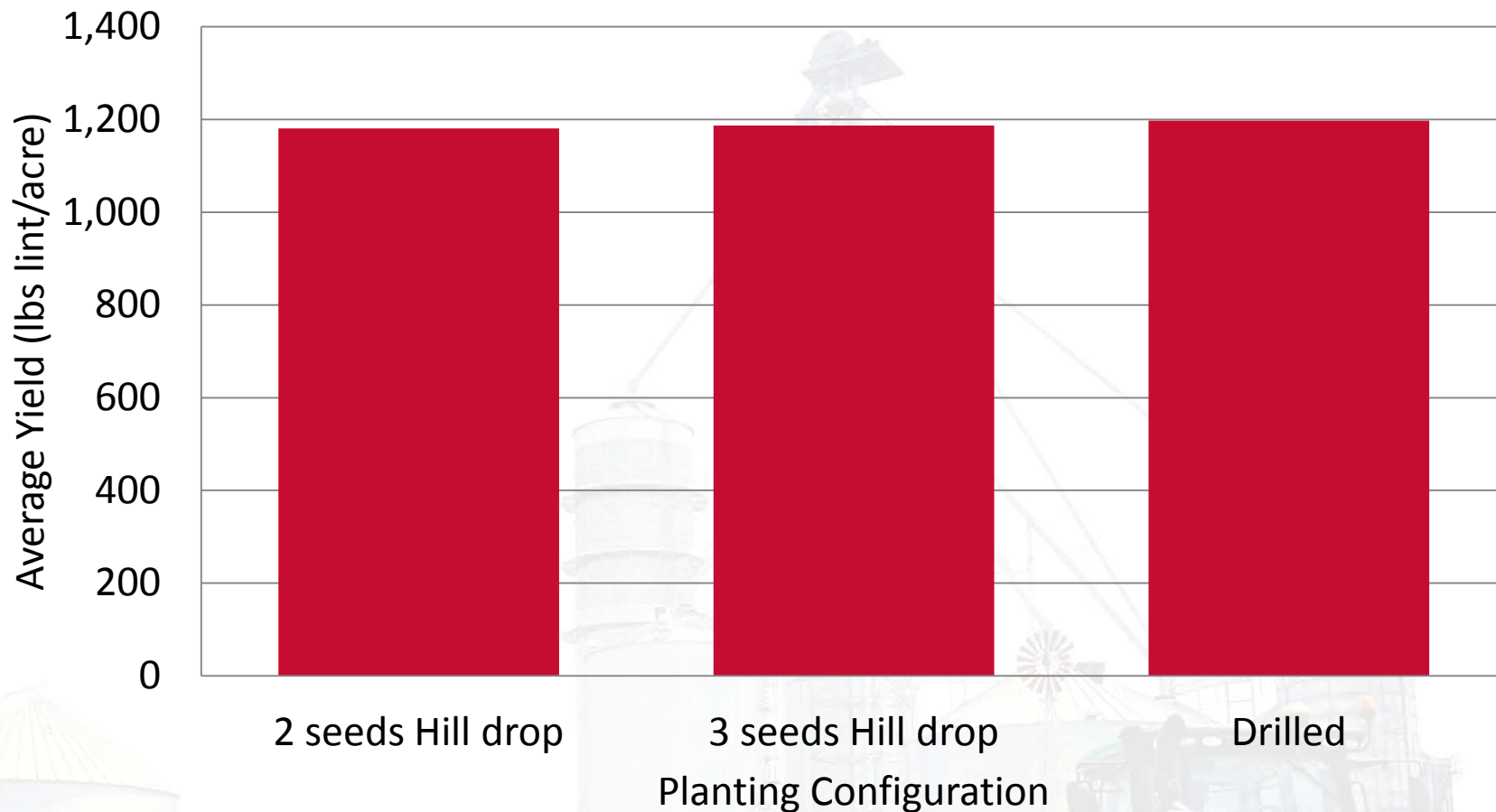


Figure 2. Comparison of planting configurations when averaged across cotton variety and planting population.

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Data



Figure 3. Hill drop planting configuration where 3 cotton seedlings are emerging.

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Figure 4. Cotton seedlings emerged in drop hill planting configuration.

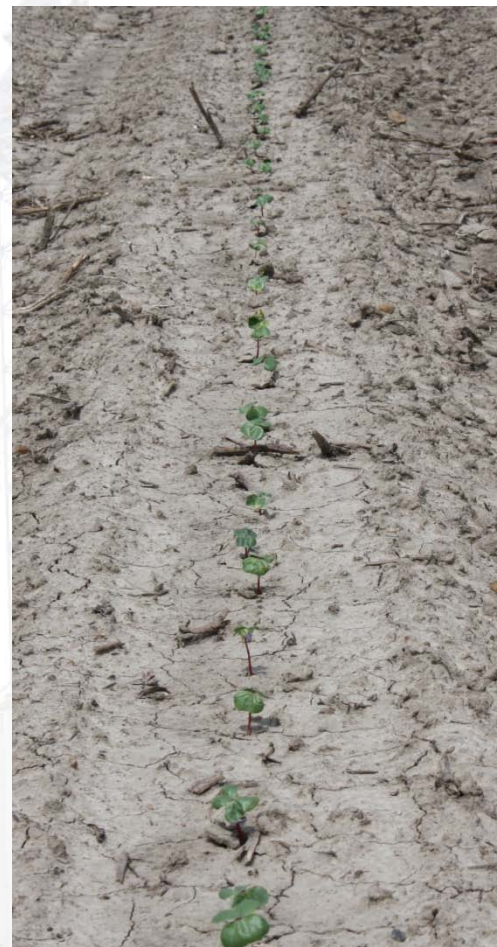


Figure 5. Cotton seedlings emerged in drilled planting configuration.

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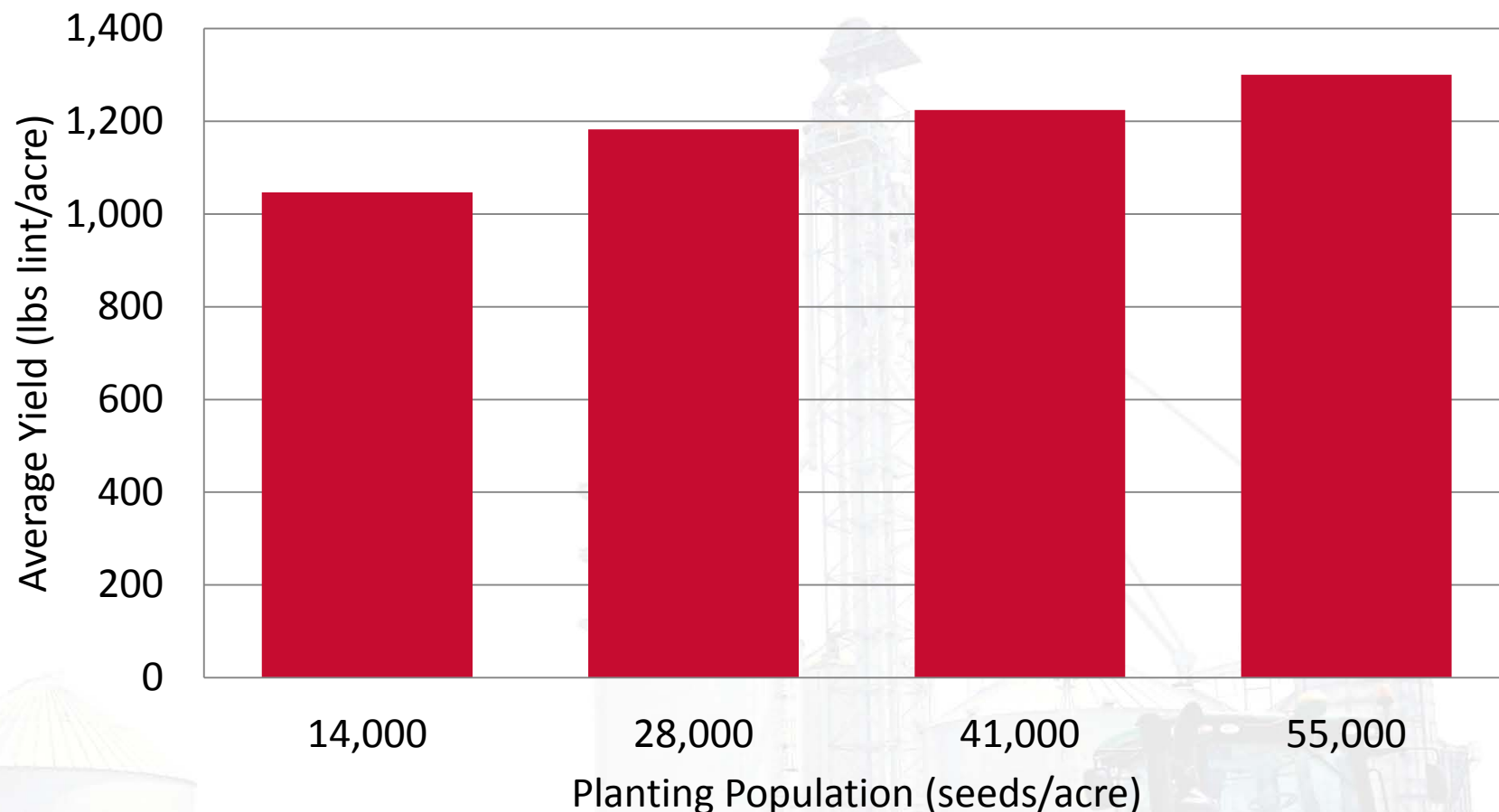


Figure 6. Comparison of planting population when averaged across cotton variety and planting configuration.

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Data

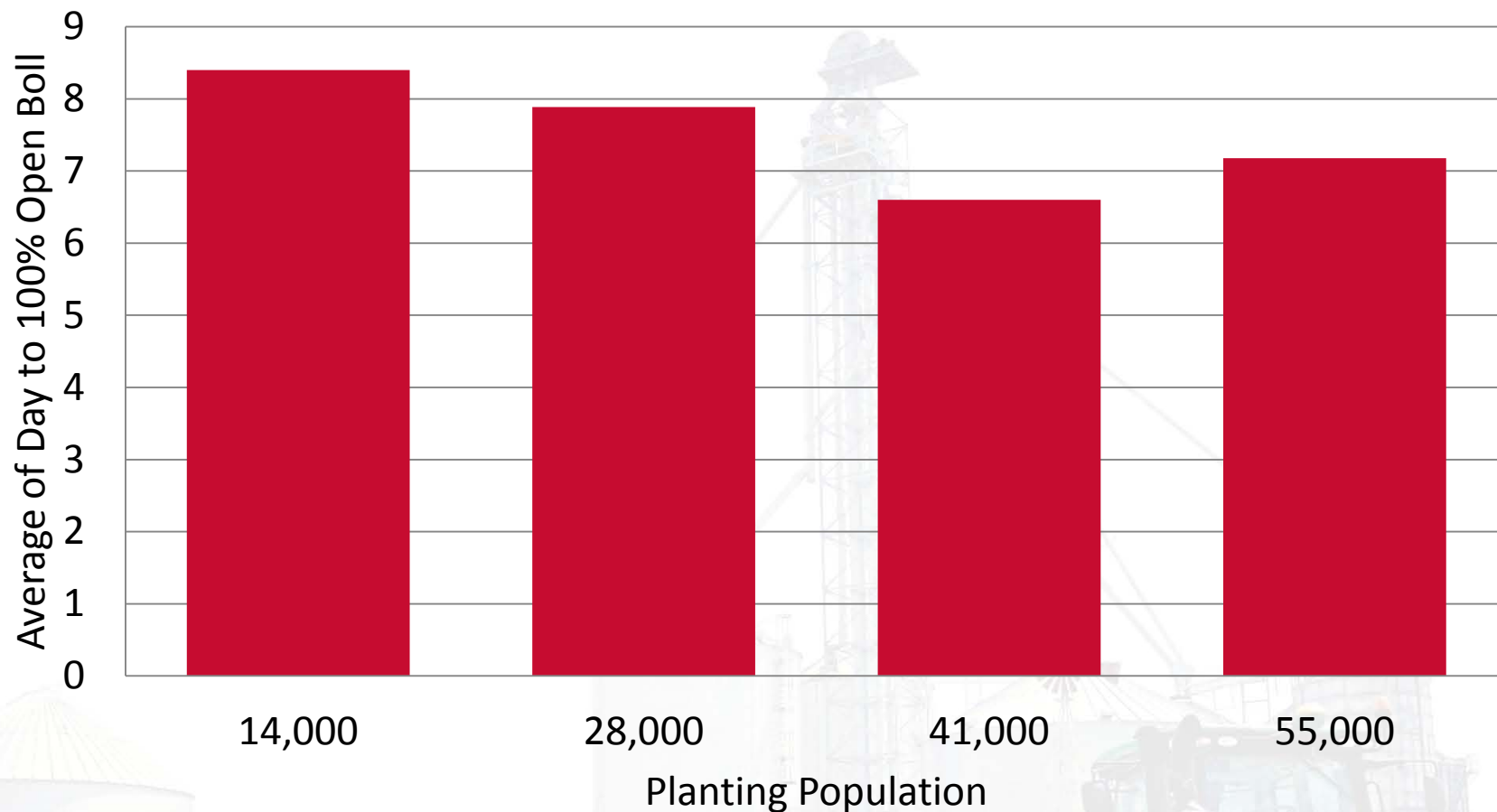


Figure 7. Average number of days to 100% open boll by planting population when averaged across cotton varieties and planting configuration.

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Summary



- Yield results were in the 2+ bale/acre range.
 - All three cotton varieties produced average yields within 235 lbs lint/acre of each other (Figure 1).
- Hill drop vs. Drilled
 - All three configurations had similar yield.
 - Average yields were within 17 lbs lint/acre for all three planting configurations (Figure 2).
 - Other agronomics may be affected by the different configurations (i.e. emergence, management)
- Planting Populations
 - Higher planting populations produced numerically higher average yields (Figure 6).
 - 28,000 and 42,000 seeds/acre produced similar yield.
 - Preliminary data from 2014 shows a maturity delay of 2 to 3 days associated with lower populations (Figure 7).

Summary



- When deciding planting populations consider:
 - Growth habit of a variety
 - For more information refer to Learning Center Summary – [The Response of Old and New Cotton Varieties to Plant Growth Regulators](#)
 - Denser planting may require aggressive growth management, especially with less determinate varieties.
 - Lower population may delay maturity 2 to 3 days.
 - Planting cotton at very low populations may increase the production risks.
 - Environmental conditions in 2014 at this site proved higher planting populations to produce higher yields.

Economic Analysis



Yield difference by population

14,000 seeds/acre = 1046 lbs lint/acre

55,000 seeds/acre = 1300 lbs lint/acre

difference of \approx 250 lbs lint/acre (\$150 to \$175/acre)

Seed cost + Seed treatment \approx \$500/bag

14,000 seeds/acre = \$25/acre

55,000 seeds/acre = \$111/acre

difference of \$86

Net \$64 to \$89 more planting 55,000 seeds/acre

These are estimated profit and production costs.

Legal Statements



The information discussed in this report is from a single site, non-replicated demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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THANK YOU

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