2013 DEMONSTRATION REPORT
Monsanto Learning Center at Monmouth, IL

Soybean Populations by Stress Mitigation

Study Guidelines

A trial was conducted at the Monsanto Learning Center at Monmouth, IL to investigate how different treatments for minimizing stress on soybean affected yield potential at different plant populations. The trial also examined the most profitable plant populations for the given trial location. The trial was planted with Genuity® Roundup Ready 2 Yield® soybean products on June 7, 2013. The soil was prepared under conventional tillage with a chisel plow in the fall followed by a soil finisher to establish the seed bed in the spring. Pre-emergent herbicide was applied June 7, 2013 and the trial was harvested October 11, 2013. Plant populations included: 75K, 100K, 130K, 170K, and 200K seeds per acre planted in 30-inch rows.

Each population had treatments applied at different growth stages (R1-R5):

- Untreated control (UTC)
- Foliar fungicide at R3 (FF)
- Foliar insecticide at R3 (FI)
- Foliar fungicide + insecticide at R3 (FF + FI)
- Foliar fungicide + insecticide at R3 and R5 (FF + FI 2X)
- Sugar at R1

The application schedule included:

- R1 applications applied July 23, 2013
- R3 applications applied August 1, 2013
- R5 applications applied August 19, 2013

Results

When population levels were averaged across stress mitigation treatment, there was an upward trend in yield with increasing plant populations (Figure 1).

Of the five stress mitigation treatments, foliar fungicide plus foliar insecticide applied at R3 and R5 showed the highest yield (Figure 2). The 2013 results do not agree with long term data as there has not typically been a yield response with foliar fungicide and insecticide applications at R3 and R5 at this location. This may have been due to heavy Japanese beetle (*Popillia japonica*) pressure in 2013. Although the 200K population provided the highest average yield and highest gross income, it was not the most profitable (considering gross income and seed cost). The 130K population provided the most profitable scenario in this trial as shown in Figure 4 with an $8.47 advantage over the 200K population.

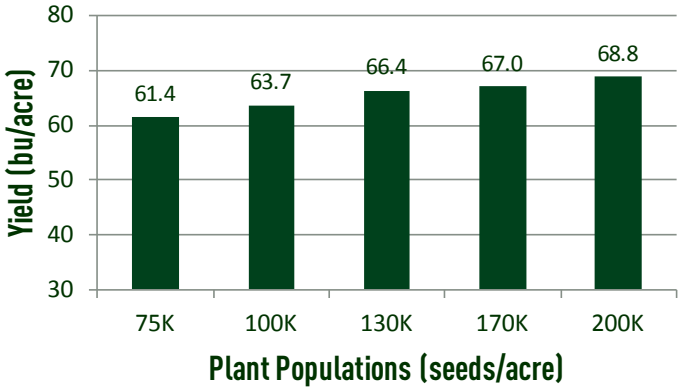

Figure 1. Yield Affected by Plant Population

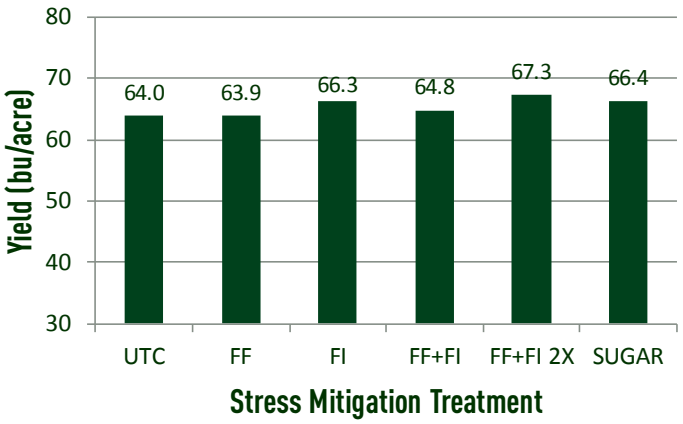

Figure 2. Yield Affected by Stress Mitigation Treatment

Key Messages

Overall, this trial provided the following findings:

- A greater response to stress mitigation was demonstrated at higher plant populations (Figure 3).
  - Higher plant populations create more stress on the plant, therefore reducing outside stress can result in increased yield.
- While increased yields were observed at higher planting populations, those increases did not result in optimum profitability.
- Good agronomic practices such as proper planting date and population can help reduce environmental stresses.

It was noted that some of the treatments may not have caused a response due to the late planting date and drought. The Monsanto Learning Center at Monmouth will continue to investigate the yield effects of stress mitigation in soybean in the future.

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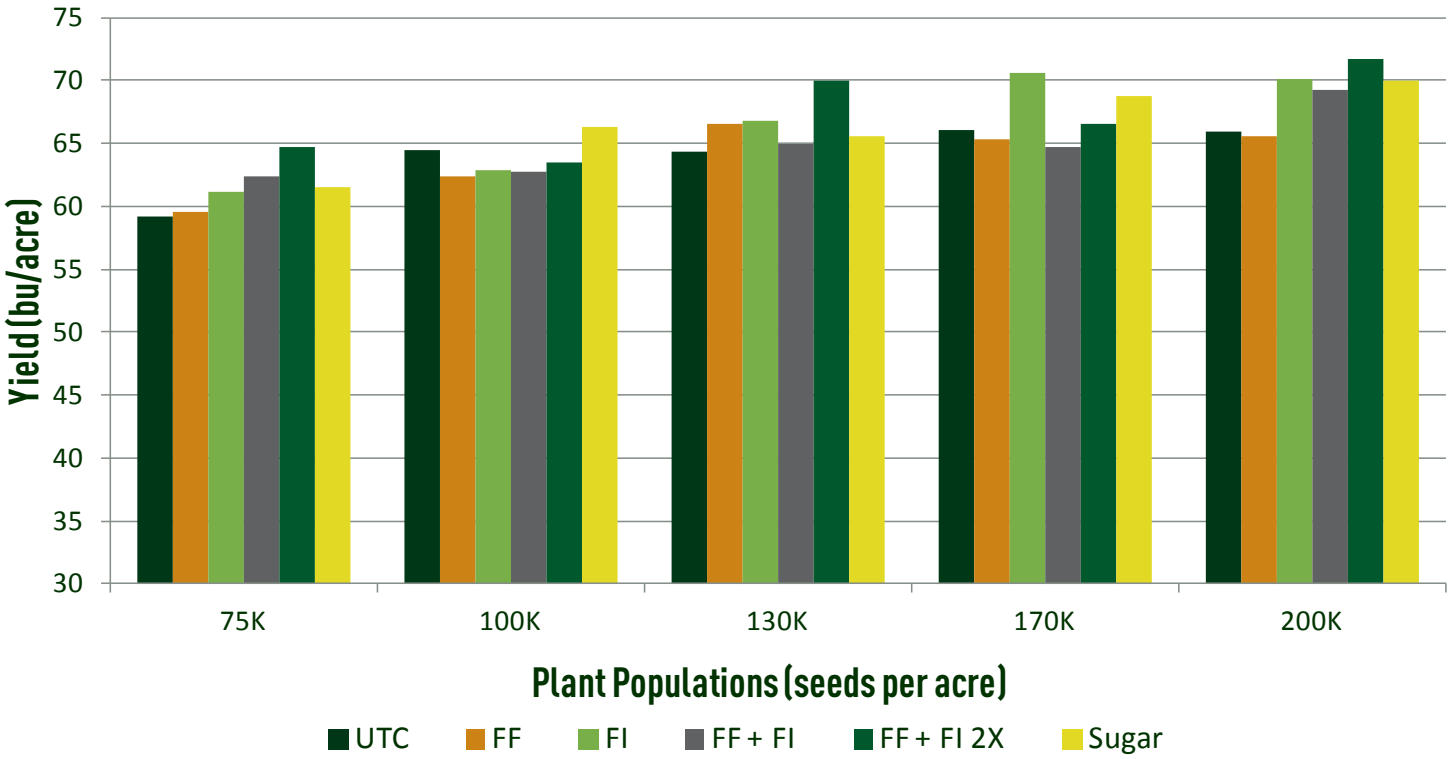

Figure 3. Yield Affected by Population and Stress Mitigation Treatment

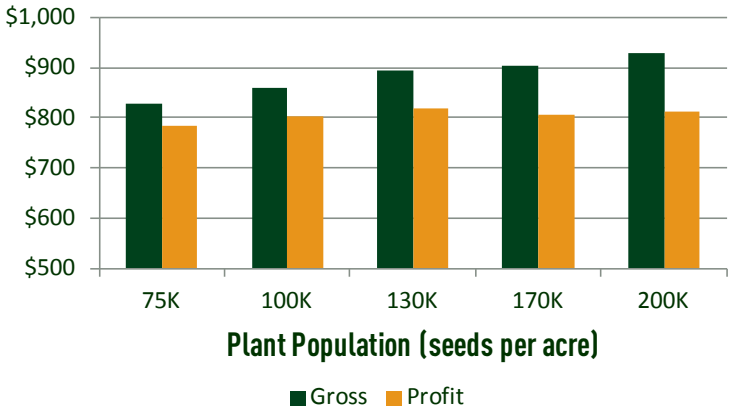

Figure 4. Profitability Affected by Plant Population

Legals

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.

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