



# Soybean Yield Response to Variable Seeding Rates and Fungicide Application

## Trial Objective

- 2019 was a challenging season that forced many growers to plant soybeans substantially later than planned.
- Some growers wonder if there is value in applying fungicides to soybeans when weather conditions are not conducive to disease development.
- These trials were developed to investigate the value of a fungicide application in late soybean plantings.

## Research Site Details

Location	Soil Type	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield (bu/acre)	Seeding Rate (seeds/acre)
Roanoke, IL	Silt loam	Corn	Conventional	6/3/19	10/14/19	75	60K, 80K, 100K, 120K, 140K, 160K
Carlock, IL	Silt loam	Corn	Conventional	6/4/19	10/15/19	75	60K, 80K, 100K, 120K, 140K, 160K
Covell, IL	Silt loam	Corn	Conventional	5/20/19	10/4/19	75	60K, 80K, 100K, 120K, 140K, 160K

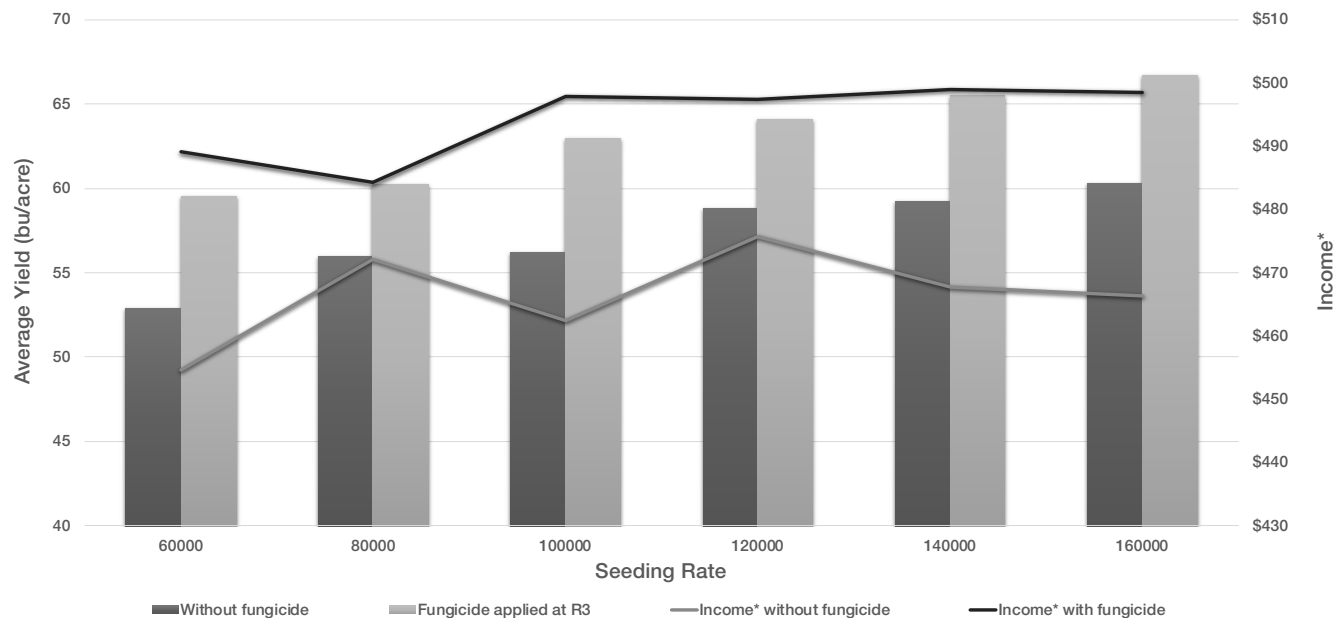
- The trials were conducted in Illinois at Bayer Crop Science FOCUS sites in Woodford and McLean Counties.
- Seven soybean varieties ranging from 3.4 to 3.9 relative maturity (RM) were planted at 3 locations.
- Soybean seeding rates ranged from 60,000 to 160,000 seeds/acre in 30-inch rows.
- Delaro® 325 SC fungicide was applied at the R3 soybean growth stage despite the lack of visual disease symptoms.
- The trial was replicated 4 times at the Roanoke and Covell, IL locations and not replicated at the Carlock, IL site.
- The 2019 growing season was very cool and wet through early June, leading to delayed planting for many growers. Hot and dry conditions prevailed in July and August.

## Understanding the Results

- Without the fungicide application, soybean yields increased with increasing seeding rate with maximum return on investment (ROI) at 120,000 seeds/acre (Figure 1).
- When fungicide was applied at R3, maximum ROI was attained at the 140,000 seeds/acre seeding rate but there was very little difference in ROI from 100,000 to 160,000 seeds/acre (Figure 1).
- The Delaro® 325 SC fungicide application resulted in higher yields with increasing seeding rates, which could potentially optimize the ROI at higher populations in a more valuable commodity environment.



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**Figure 1. Soybean yield response to fungicide and seeding rate.**

7 soybean varieties from 2.4-3.3 RM, results from 3 locations: Covell, Carlock, and Roanoke, IL planted May 20- June 4;

\*Assumes seed cost of \$80/unit, and grain value of \$9.25/acre

## Key Learnings

- Although there was no identifiable disease pressure, there was a substantial yield response to fungicide application at all soybean seeding rates. This illustrates the benefits of fungicides outside of disease suppression.
- High management systems including a fungicide application may be tailored to individual farms. If maximum ROI is the goal, it may be attained with less inputs in the form of lower seeding rates since the ROI was relatively constant from the 100,000 to 160,000 seeds/acre seeding rates. Likewise, if maximum yield is the goal, it may be attained while maintaining profitability.

## Legal Statements

The information discussed in this report is from a multiple site, 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.

ALWAYS READ AND FOLLOW PESTICIDE LABEL DIRECTIONS. Performance may vary, from location to location and from year to year, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible and should consider the impacts of these conditions on the grower's fields.

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