



Effect of Soybean Seeding Rate and Row Width on Agronomic Characteristics and Yield for June Plantings

Trial Objective

- Agronomists and University specialists typically recommend increasing soybean seeding rates when planting later than normal.¹
- In late-planted soybean crops, higher seeding rates can increase the efficiency of available sunlight since later plantings have less time to grow vegetatively prior to the beginning of pod production.²
- Narrow rows help speed crop canopy development and can reduce weed pressure.³

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	6/1/20	10/15/20	70	60K, 80K, 100K, 120K, 140K, 160K
Newark, IL	Silty clay loam	Corn	Conventional	6/8/19	10/25/19	65	60K, 80K, 100K, 120K, 140K, 160K
Roanoke, IL	Silt loam	Corn	Conventional	6/3/19	10/14/19	70	60K, 80K, 100K, 120K, 140K, 160K

- This trial was conducted at Bayer Crop Science FOCUS sites at Roanoke, Illinois (2019 and 2020) and Newark, Illinois (2019).
- Ten maturity group (MG) 2.2 to 2.9 soybean products were planted in June.
- Seeding rates included 60,000, 80,000, 100,000, 120,000, 140,000 and 160,000 seeds/acre.
- Four replications were planted at each location.
- The 2019 growing season was very cool and wet through early June, delaying planting for many growers. Hot and dry conditions were prevalent in July and August, and excessive rainfall returned in September and October.
- In 2020, there was sufficient moisture in the early portion of the growing season and drought conditions throughout August and into early September.
- All soybean products planted in this trial were treated with the same seed treatment.

Understanding the Results

- Although the highest average yield was achieved at a seeding rate of 160,000 seeds/acre in 30-inch rows, the most profitable configuration in this study was a seeding rate of 100,000 seeds/acre in 20-inch rows.
- The highest return on investment (ROI) occurred at a seeding rate of 160,000 seeds/acre for 30-inch rows and 100,000 seeds/acre for 20-inch rows.
- Overall, lodging scores were low; however, standability decreased as seeding rates increased.
- Overall, disease prevalence was low; however, incidence increased slightly as seeding rates increased.



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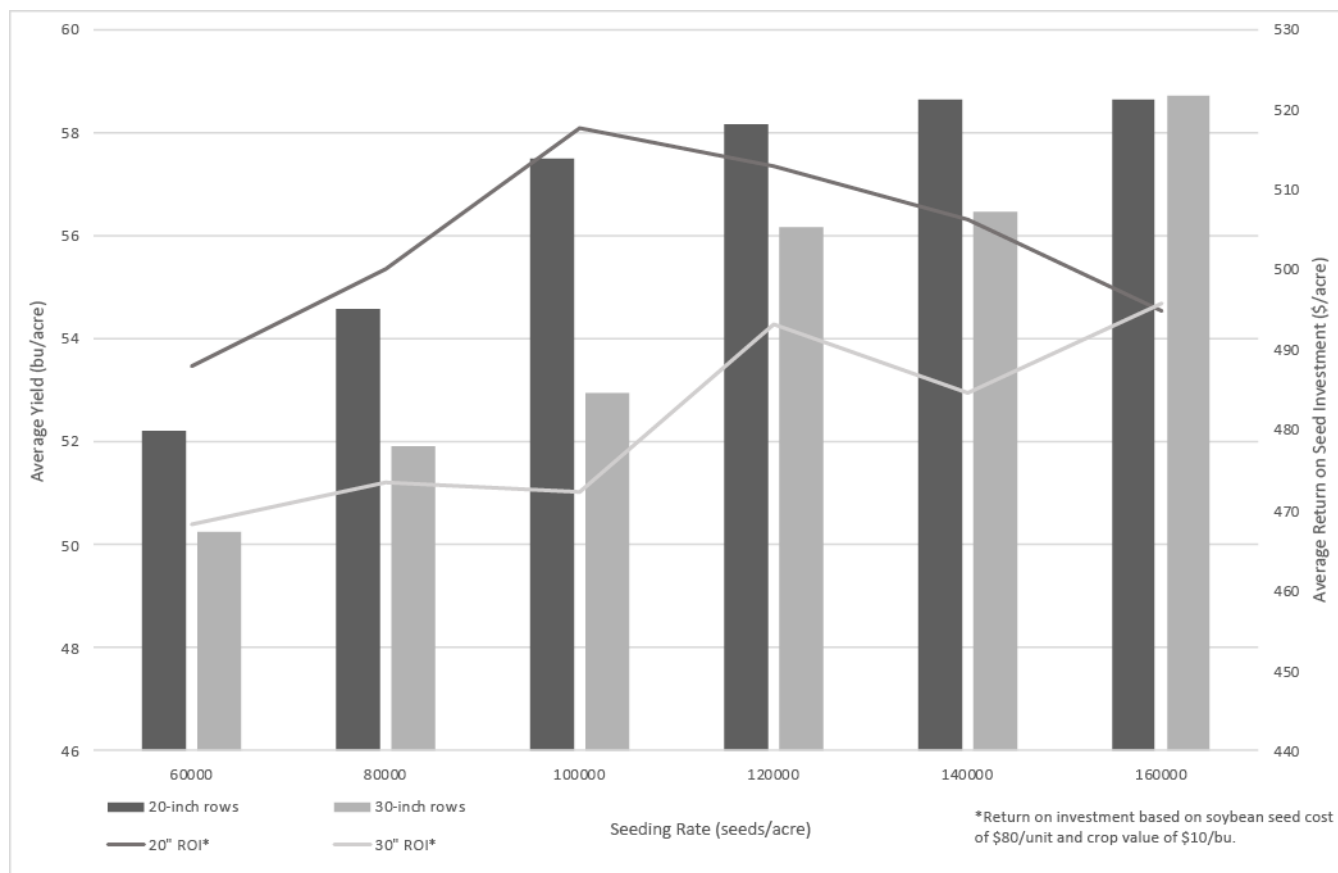


Figure 1. Average soybean yield and profitability of ten soybean products (MG 2.2 to 2.9) by seeding rate and row spacing across locations and years.

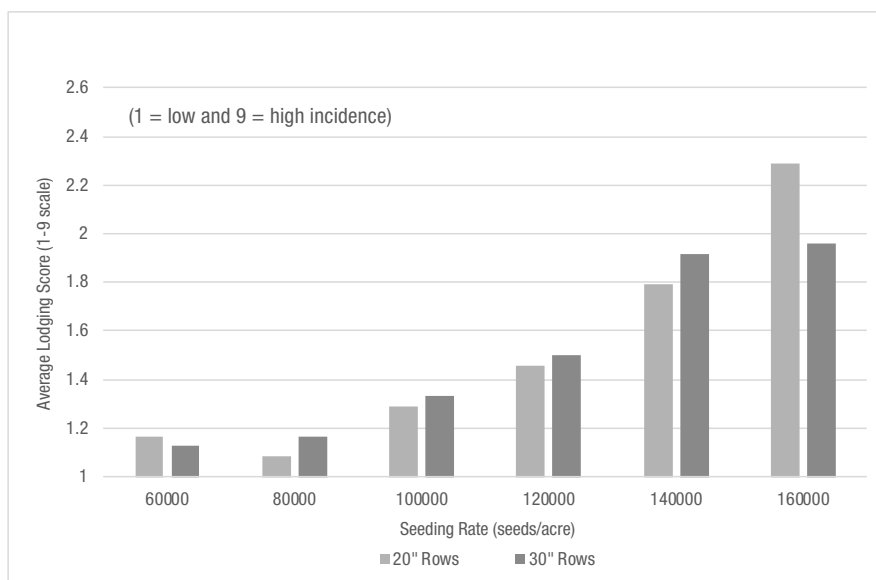


Figure 2. Lodging incidence relative to row width and seeding rate for six soybean products (MG 2.2 to 2.8) at Roanoke, IL (2020).

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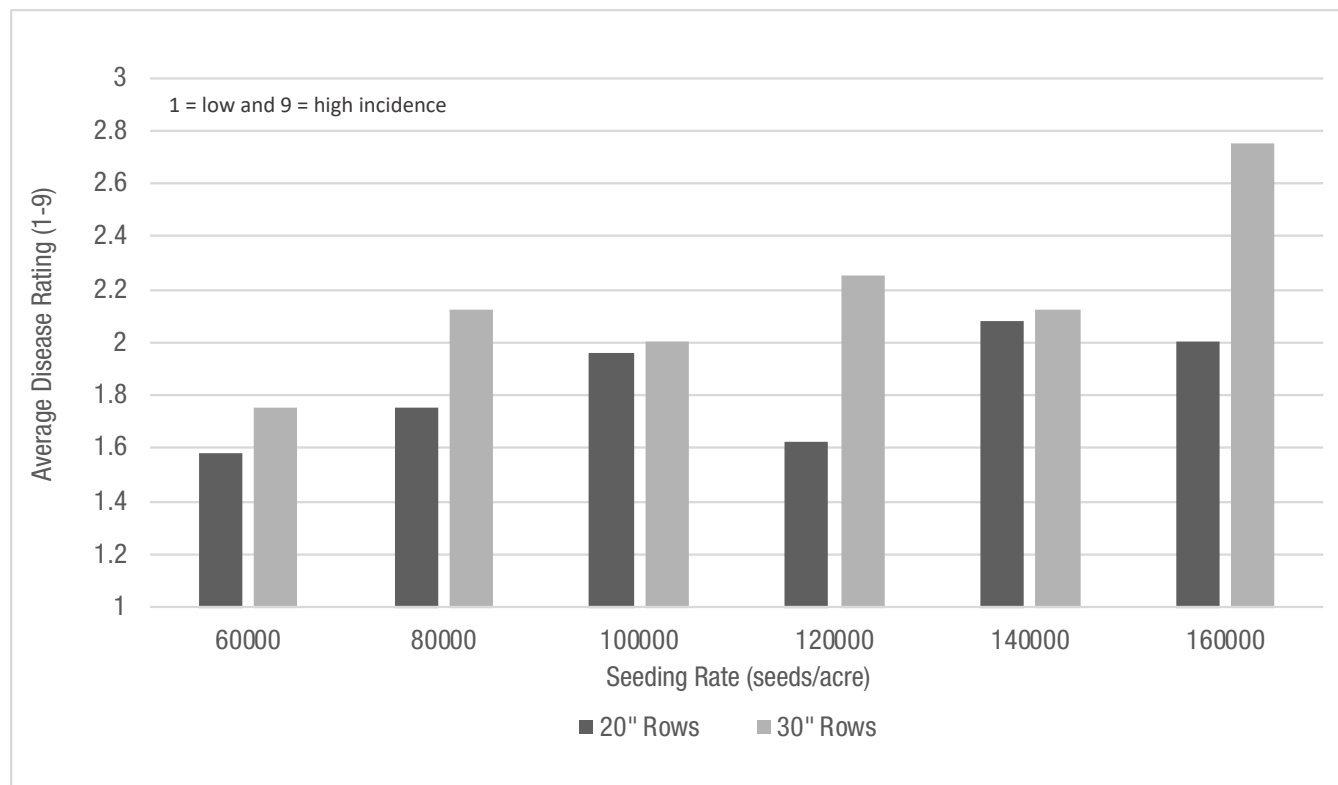


Figure 3. Average incidence of disease development (visual) by row width and seeding rate for six soybean products (MG 2.2 to 2.8) at Roanoke, IL (2020).

Key Learnings

- The results support prior studies:
 - When planting soybean seed in June in 30-inch rows, the average return on investment and yield was highest at 160,000 seeds/acre. Since this was the highest seeding rate in the study, it is possible that higher seeding rates may increase yield.
 - When planting soybean seed in June in 20-inch rows, maximum profitability was obtained by planting at a seeding rate of 100,000 seeds/acre, but yield was maximized at 140,000 seeds/acre.
 - Lodging and disease prevalence are generally less when planting late but become more problematic with increased seeding rates.

Sources:

- ¹ De Bruin, J.L. and Pedersen, P. 2008. Soybean seed yield response to planting date and seeding rate in the upper Midwest. *Agronomy Journal*. Volume 100, Issue 3.
- ² Ball, R.A., Purcell, L.C., and Vories, E.D. 2000. Optimizing soybean plant population for a short-season production system in the southern USA. *Crop Science*. Volume 40, Number 3.
- ³ Harder, D.B., Sprague, C.L., and Renner, K.A. 2007. Effect of soybean row width and population on weeds, crop yield, and economic return. *Weed Technology*. Volume 21, Issue 3.



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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.

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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