



Effect of Soybean Seeding Rate and Row Width on Yield in Late Plantings

Trial Objective

- Agronomists and universities typically recommend increased seeding rates when planting soybeans later than normal.¹
- Increased populations in later plantings allow more efficient use of available sunlight since later-planted soybeans have less time to grow vegetatively prior to reproduction.²
- Narrow-row soybean plantings decrease the time required for the crop to reach canopy closure and can result in lower weed pressure.³

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
Newark, IL	Silty clay loam	Corn	Conventional	6/8/19	10/25/19	65	60K, 80K, 100K, 120K, 140K, 160K

Research Site Details

- This trial was conducted at Bayer Crop Science FOCUS sites in Woodford and Kendall Counties, Illinois.
- Six soybean varieties (ranging from 2.4-2.9 relative maturity) were planted in June.
- Seeding rates ranged from 60,000 to 160,000 seeds/acre.
- Two planting configurations were tested, 20-inch and 30-inch rows.
- Four replications of this trial were planted at each location.
- The 2019 growing season was very cool and wet through early June, leading to delayed planting for many growers. Hot and dry conditions were prevalent in July and August, and excessive rainfall returned in September and October.

Understanding the Results

- Although the highest yield in this study was achieved at a seeding rate of 160,000 seeds/acre in 30-inch rows, the most profitable configuration was a seeding rate of 100,000 seeds/acre in 20-inch rows.
- 160,000 seeds/acre were required to receive the highest return on investment (ROI) in 30-inch rows, whereas the highest ROI was achieved at 100,000 seeds/acre in 20-inch rows.



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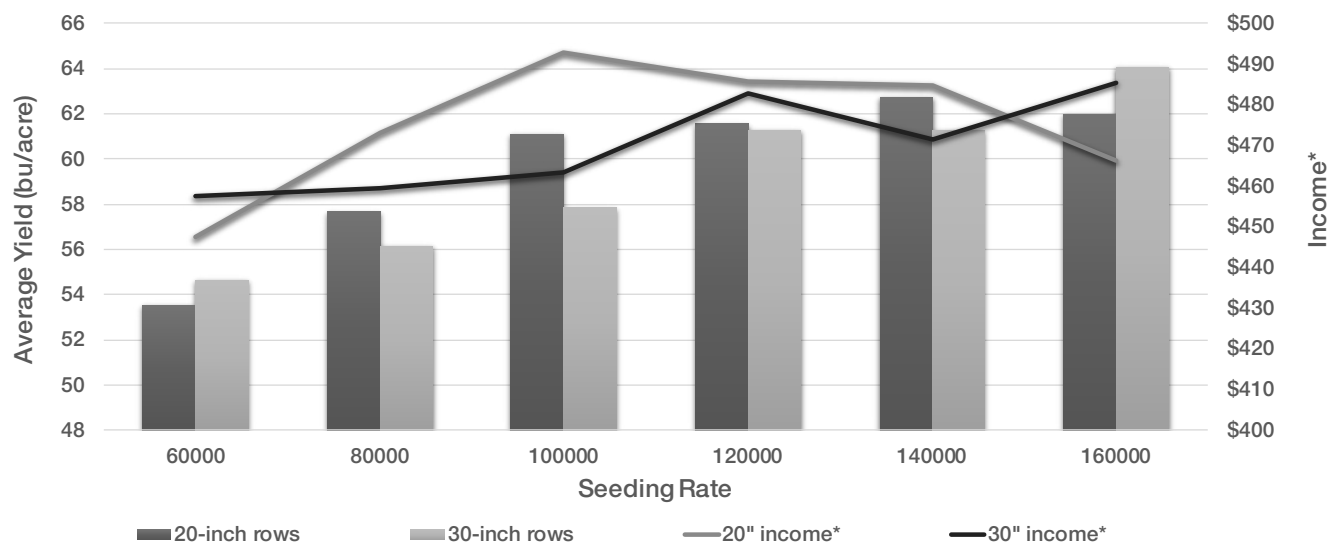


Figure 1. Soybean yield and profitability by seeding rate and row spacing in June-planted soybeans in 2019. *Income based on soybean seed cost of \$80/unit and crop value of \$9/bu.

Key Learnings

- These results support those of previous studies.^{1,2} When planting soybeans in June in 30-inch row spacing in this study, both ROI and overall yield were highest at a seeding rate of 160,000 seeds/acre. Since this was the highest seeding rate in the study, it is possible that increasing the seeding rate even higher would continue to improve yield.
- However, when planting soybeans in June in 20-inch rows in this study, maximum profitability was obtained by planting at a seeding rate of 100,000 seeds/acre, but the highest yields were obtained at a seeding rate of 140,000 seeds/acre.

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.

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.

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