



Soybean Seeding Rate Trial

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Objective

Determine the effects of soybean seeding rate and final population on soybean yield to potentially improve farmers' profitability.

Materials and Methods

Site-Year 1 | Crop Year–2022

Soil type	Taintor, Mahaska, Kalona
Previous crop	Corn
Cultivar	P29T37E (upright) and P26T57E (bushy)
Planting date	May 9, 2022
Row spacing	30 in.
Seeding rate	20,000 to 200,000 seeds/acre by 30,000 increments
Tillage	Chisel plow–November 23, 2021; field cultivator–April 28, 2022
Fertilizer	31-150-138 prior to previous corn–November 6, 2020
Nitrogen	No nitrogen
Harvest date	October 4, 2022
Experimental design	Randomized complete block design
Replications	4
Treatments	Cultivar and seeding rate

Site-Year 2 | Crop Year–2022

Soil type	Kenyon, Readlyn
Previous crop	Corn
Cultivar	P23A15X (upright) and P25A04X (bushy)
Planting date	May 21, 2022
Row spacing	30 in.
Seeding rate	20,000 to 200,000 seeds/acre by 30,000 increments
Tillage	Chisel plow–November 9, 2021; field cultivator–May 20, 2022
Fertilizer	150 lbs. K ₂ O/ac., 57 lbs. P ₂ O ₅ /ac. and 25.5 lbs. S/ac.–November 22, 2021
Nitrogen	No nitrogen
Harvest date	October 10, 2022
Experimental design	Randomized complete block design
Replications	4
Treatments	Cultivar and seeding rate

Site-Year 3 | Crop Year–2022

Soil type	Kenyon, Readlyn
Previous crop	Primghar, Galva
Cultivar	P23A15X (upright) and P25A04X (bushy)
Planting date	May 12, 2022
Row spacing	30 in.
Seeding rate	20,000 to 200,000 seeds/acre by 30,000 increments
Tillage	Chisel plow–November 23, 2021; disc–April 15, 2022, field cultivator–May 12, 2022
Fertilizer	19-48-55 VRT applied November 17, 2021; 1.5 ton lime VRT applied November 23, 2021
Nitrogen	No nitrogen
Harvest date	September 29, 2022
Experimental design	Randomized complete block design
Replications	4
Treatments	Cultivar and seeding rate

Results

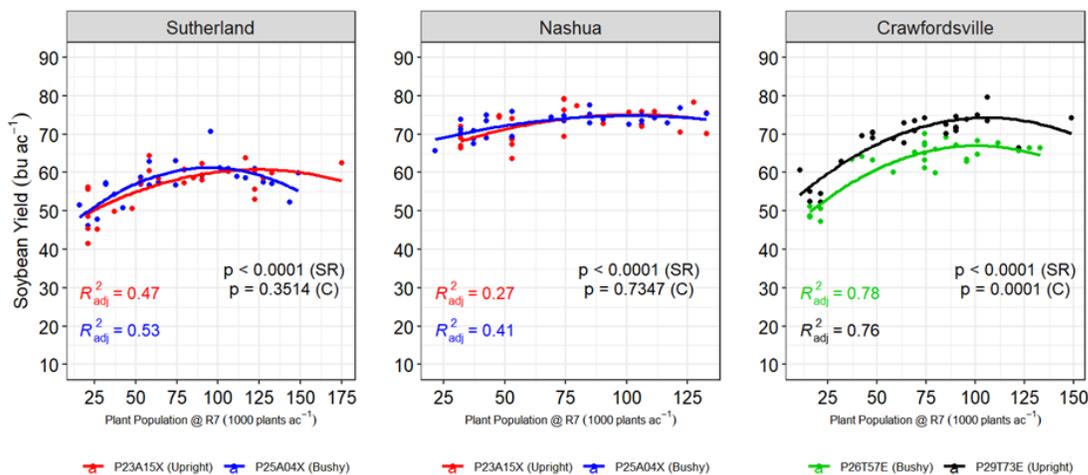


Figure 1. Soybean grain yield (13%) for an upright and bushy variety across a range of plant populations near Sutherland, Nashua, and Crawfordville, Iowa in 2022.

Key Takeaways

- There were no differences between cultivars in Nashua and Sutherland. In Crawfordville, the cultivars were statistically different ($P = 0.0001$), however, the beginning maturity (R7) plant population had a similar yield response for both cultivars.
- Maximum yields were achieved with final plant populations of 75,000 to 125,000 plants/acre.

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