


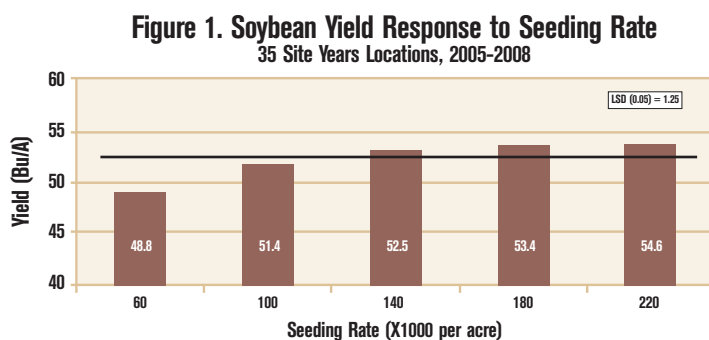
Soybeans have the agronomic ability to produce and maintain yield over a wide range of seeding rates and planting dates. However, improved plant genetics, seed treatment options, and increasing soybean seed costs have prompted producers to seek more specific management recommendations to maximize economic returns. Syngenta has conducted replicated field studies across the Midwest to evaluate soybean response to seeding rate, planting date and row spacing. These studies are designed to identify management strategies to maximize both soybean yield and growers' return on investment.

Fine-tuning Soybean Management

- Use CruiserMaxx® Beans insecticide/fungicide seed treatment to increase stand, vigor, speed to canopy and ultimately yield. 
- Plant early to maximize yield potential.
- Planting 140,000 seeds per acre increases potential to maximize economic return.

Soybean Yield Response to Seeding Rate

To identify the optimum seeding rate to maximize soybean yield, Syngenta evaluated five seeding rates ranging from 60,000 to 220,000 per acre in increments of 40,000 seeds. All soybean varieties in this study used CruiserMaxx Beans insecticide/fungicide seed treatment and were planted in 30-inch rows. The study results (see Figure 1 at left) demonstrate:



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- Increasing seeding rate can result in increased soybean yields.
- However, seeding rates greater than 140,000 seeds per acre did not significantly increase yield.

Economic Return from Soybean Seeding Rate

As costs have increased across all production inputs, soybean growers have become aware that the greatest yield is not necessarily most profitable. With Economic Return defined as yield (gross return) less seed cost, Figure 2 shows the economic analysis for the specified seeding rates at various soybean commodity prices and a seed cost of 27.1 cents per 1,000 seeds (average price of NK® Brand soybeans with the Roundup Ready® trait with CruiserMaxx Beans seed treatment) averaged over 35 site years locations.

- Regardless of commodity price, seeding rates up to 140,000 seeds per acre provided the greatest potential for maximum economic return.
- As commodity price increases beyond \$12 per bushel, potential increases to maximize economic return with higher seeding rates (>180,000).

Figure 2. Potential for Economic Return from Various Soybean Seeding Rates

Seeding Rates	Soybean Commodity Price			
	\$8/bu	\$10/bu	\$12/bu	\$14/bu
	Occurrence of Maximum Economic Return (%)			
100K or 140K	66	68	55	52
180K or 220K	34	32	45	48

Is Optimal Seeding Rate Influenced by Variety or Row Spacing?

Variety Yield Response to Seeding Rates

Studies conducted from 2005-07 investigated how soybean yield response to seeding rate is influenced by variety. Four varieties were selected in each of three maturity groups (early, mid and full) to include different plant growth habits (i.e. bush, medium bush, thin-line). Each maturity group was planted in their zone of adaptation. Our data from these studies demonstrated that variety and plant growth habit had no influence on seeding rate within a given maturity group (data not shown).

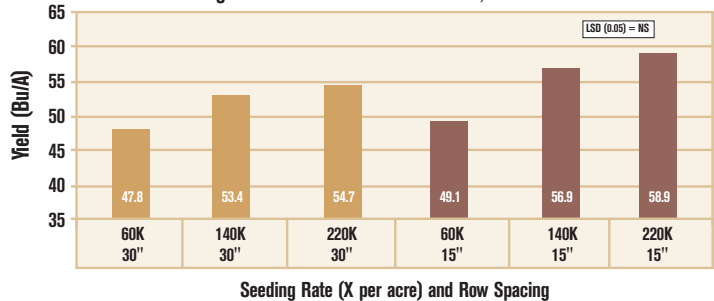
Soybean Yield Response to Row Spacing

Syngenta has evaluated soybean yield response to seeding rates of 60, 140 and 220 thousand seeds per acre in both 15- and 30-inch row spacing.



Soybean growers and researchers have recognized some benefits to planting soybeans in narrow versus wide rows, (i.e. improved weed control).

Figure 3. Soybean Yield Response to Seeding Rate and Row Spacing
Averaged Across 3 Site Years Locations; 2007-2008



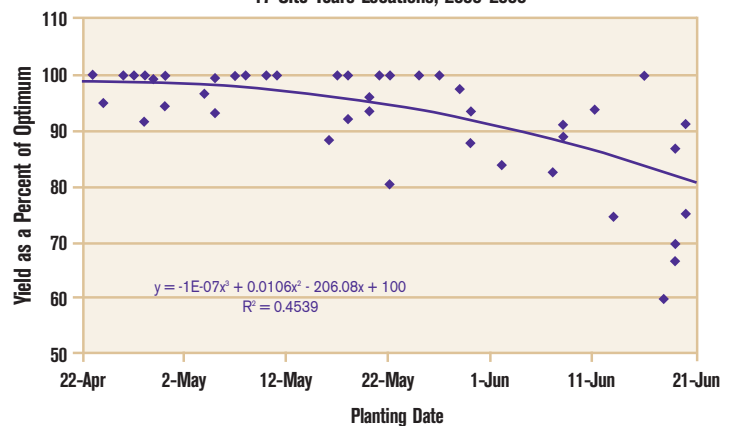
- Averaged over three seeding rates, soybeans planted in 15-inch rows out-yielded soybeans planted in 30-inch rows by 3.1 bushels (data not shown).
- Yield response to seeding rate was similar in both 15- and 30-inch row spacing (Figure 3).
- Minimal changes in seeding rates are necessary if changing from 30- to 15-inch row spacing.

Soybean Yield Response to Planting Date

Results for a multi-year Syngenta study to determine the optimum planting dates for soybeans are shown in Figure 4. At each location soybeans were planted during each of three planting windows: mid to late April, mid to late May and mid to late June. Study locations included both northern and central growing regions.

- Yield was maximized when soybeans were planted from mid-April through mid-May. CruiserMaxx seed treatment is highly recommended for early planting.
- Maximum yield can still be achieved with planting in the later half of May but performance tends to become less consistent.
- Yield decreased rapidly when planting was delayed until the end of May and early June.

Figure 4. Effect of Planting Date on Soybean Yield
17 Site Years Locations, 2000-2008



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