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How to Lower Soybean Seed Costs

The seeding rate for soybeans is determined by the desired harvest plant population to achieve high yield and the expected loss of plants (or seeds) between planting and harvest. Recent comparisons indicate that stand loss from V3 to R8 ranged from 10 to 15 percent. Additional stand losses due to germination and seedling diseases prior to stage V3 probably range from 5 to 15 percent**.** Therefore, the planting rate should be from 15 to 30 percent above the desired harvest plant population.

Table 1 shows the results of a three-year study at five locations in Iowa. Narrow rows (7.5 inches at one location, 10 inches at four locations) were compared with wide rows (30 inches). A soybean drill was used to plant the narrow rows and a planter was used for the wide rows. The target plant stand was the same for both row spacings; however, manufacturers' recommended machine settings for each stand resulted in different harvest stands, with the wide rows having fewer plants at harvest than narrow rows at each target stand. The highest target stands resulted in the largest gap between target stand and harvest stand for each row spacing.

Table 1. Effect of row spacing and plant stand on soybean yield at five locations in Iowa, 1994-1996.

	Narrow rows (7.5 and 10 inches)		Wide rows (30 inches)	
Plant stand target	Harvest stand	Grain yield (bu/acre)	Harvest stand	Grain yield (bu/acre)
80K*	94K	47.9	73K	46.3
120K	133K	50.2	110K	49.3
160K	157K	50.9	135K	49.8
200K	186K	51.6	165K	50.6
240K	221K	51.4	189K	49.8

*K = times 1,000.

Grain yield did not differ significantly for harvest stands above 100,000 plants per acre in either row spacing. The narrow-row harvest stand of 133,000 plants per acre produced 50.2 bu/acre compared with 51.6 bu/acre with a stand of 186,000 plants. In wide rows, the harvest stand of 110,000 plants per acre produced 49.3 bu/acre and the stand of 165,000 plants per acre produced 50.6 bu/acre. A harvest population of less than 100,000 plants per acre produced a significantly lower yield than stands of 110,000 plants or more. These studies indicate that the producer should plant enough soybean seed to have a harvest stand of at least 100,000 plants per acre**.** The cost of additional seed, however, must be taken into consideration before planting excessively high plant stands.

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