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Evaluation of Narrow Row Soybeans

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Abstract
Producers continue to look at different management practices to increase corn and soybean yields. One area of interest is planting corn and soybeans in narrow rows. Traditionally, these crops have been planted in row widths of 30 to 38 in. Planters on the market today have the capability to plant corn and soybeans in 15- and 20-in. rows, as well as in twin rows that are spaced eight inches apart. This study was set up to evaluate the yield impact of planting soybeans in 15-in. rows versus the traditional 30-in. row spacing.

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Introduction

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Materials and Methods

The 30-in. row treatments were planted with an eight row John Deere 7000 planter. The 15-in. rows were seeded by double planting the plots with the 30-in. row planter. Seeding rates were 160,000 and 161,000 seeds/acre for the 30- and 15-in. row treatments, respectively.

The study had four replications in 2008 and 2010 and compared the two row widths in tilled seedbed conditions only. In 2009 and 2011, the study compared the 15- and 30-in. rows in both tilled and no-till conditions, with three replications. Kruger 201 RR/SCN (Roundup Ready/soybean cyst nematode resistant) soybeans were planted on May 14, 2008 and on May 19, 2009. Pioneer 92Y30 and Pioneer 92M32 soybeans were planted May 21, 2010 and May 16, 2011, respectively. Weed control consisted of a pre-emerge herbicide followed by one application of glyphosate. A single insecticide application was made in all years to manage soybean aphids.

Individual plot size was 20 ft wide × 64 ft long in 2008, 20 ft wide × 94 ft long in 2009 and 2011 and 20 ft wide × 44 ft long in 2010. Harvest was completed in late September to the first week of October in all years. Five rows (12.5 ft wide) were harvested from the 30-in. rows and 10 rows were harvested from the 15-in. row treatments. Soybean yields were adjusted to 13 percent moisture. Statistical analysis was used to analyze the yield data, with a significance level of $P \leq 0.05$.

Results and Discussion

Data from 2008 showed a significant 3.9 bushel/acre increase in yield by planting 15-in. row soybeans (Table 1). In 2009, narrow row soybeans yielded significantly more than 30-in. rows by 4.5 bushels/acre in tilled conditions and 3.0 bushels/acre in no-till (Table 1). No statistical differences in yield were noted between row spacing in 2010 or 2011 (Table 1). There were no yield differences between tillage and no-tillage treatments in 2009 or 2011.

Over four years, 15-in. row soybeans have demonstrated a 2.1 bushel/acre yield increase over 30-in. rows in tilled conditions. A smaller response of 1.7 bushels/acre was found in no-till conditions in 2009 and 2011.

Table 1. Row spacing influence on soybean yields (years 2008–2011).[1]

Tillage	Row spacing	2008	2009	2010	2011	Average
No-till	15 in.		67.6 b		64.5 a	66.1
	30 in.		64.6 a		64.2 a	64.4
Tilled	15 in.	67.4 b	69.3 b	54.3 a	65.8 a	64.2
	30 in.	63.6 a	64.8 a	53.9 a	66.0 a	62.1

[1]Treatment means with any letter in common are not significantly different from one another at $P \leq 0.05$.