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On-Farm Soybean Row Spacing Trials

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Abstract
Most past research has shown a yield benefit to planting soybeans in rows more narrow than 30-in. However, narrow rows occasionally can result in more soybean disease problems, such as white mold, which can result in higher yields with wider rows. Yield differences between wide and narrow rows often vary from year-to-year and fieldto-field.

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Introduction

Most past research has shown a yield benefit to planting soybeans in rows more narrow than 30-in. However, narrow rows occasionally can result in more soybean disease problems, such as white mold, which can result in higher yields with wider rows. Yield differences between wide and narrow rows often vary from year-to-year and field-to-field.

Materials and Methods

In 2014, six trials were conducted in Cass, Sioux, and Buena Vista counties looking at the effect of different row spacing on soybean yield (Table 1). All trials were conducted on-farm by farmer cooperators using the farmers' equipment. Strips were arranged in a randomized complete block design with at least three replications per treatment. Strip size varied from field to field depending on equipment size and the size of the field. All strips were machine harvested for grain yield.

Trials 1-5 compared soybeans planted in 15-in. rows with soybeans planted in 30-in. rows. In Trial 6, soybeans planted in 18-in. rows were compared with soybeans planted in 36-in. rows.

Results and Discussion

There was a yield advantage to the narrow rows in three of the six trials (Trials 2, 3, and 5). In Trials 2 and 3, the yield advantage was 7 bushels/acre, and in Trial 5 the advantage was 11 bushels/acre (Table 2). The 1 bushel/acre advantage to the 15-in. rows in Trial 1 also was nearly significant ($P = 0.08$). There was no significant difference in yield between the narrow rows and wide rows in Trials 4 and 6 at $P = 0.05$. These results confirm past research results that have shown soybeans often yield more in narrow rows, so switching from 30-in. or 36-in. rows to more narrow row spacings can increase soybean yields.

Table 1. Variety, planting date, planting population, previous crop, and tillage practices in on-farm soybean row spacing trials in 2014.

Exp. no.	Trial	County	Variety	Planting date	Planting population (seeds/A)	Previous crop	Tillage
140162	1	Sioux	Pioneer 91Y90	5/15/14	150,000	Corn	No-till
140610	2	Cass	Epplys ESB254NRR	6/6/14	160,000	Corn	Disked
140611	3	Cass	Epplys ESB281	5/31/14	170,000	Corn	No-till
140633	4	Cass	Asgrow 3031	5/18/14	145,000	Corn	No-till
140634	5	Cass	4-Star 2Y283	6/15/14	150,000	Sod	No-till
140203	6	Buena Vista	Asgrow 2433 RR	5/24/14	128,000	Corn	Fall rip, spring field cultivate

Table 2. Yields from on-farm soybean row spacing trials in 2014.

Exp. no.	Trial	Treatments	Yield (bu/acre)[x]	P-value[y]
140162	1	15-in rows	66 a	0.08
		30-in rows	65 a	
140610	2	15-in rows	62 a	0.01
		30-in rows	55 b	
140611	3	15-in rows	58 a	0.01
		30-in rows	51 b	
140633	4	15-in rows	60 a	0.59
		30-in rows	59 a	
140634	5	15-in rows	66 a	<0.01
		30-in rows	55 b	
140203	6	18-in rows	53 a	0.21
		36-inch rows	49 b	

[x]Values denoted with the same letter within a trial are not significantly different at the significance level 0.05.
[y]P-Value = the calculated probability that the difference in yields can be attributed to the treatments and not other factors. For example, if a trial has a P-Value of 0.10, then we are 90 percent confident the yield differences are in response to treatments. For P = 0.05, we would be 95 percent confident.