

Soybean Row Spacing Trial

Trial ID: 2021-SRS01 – R.M. of Morris

Objective: Quantify the agronomic and economic impacts of different row spacings, and accompanying seeding rates, on soybean production

Summary: At R1, canopy closure in the 7.5" spacing was significantly greater than in the 15" spacing. At R3 and R5, canopy closure was statistically the same between the two spacings. The 15" row spacing yielded significantly more than the 7.5" spacing; however, yield potential was limited by drought stress, and grasshopper pressure was a problem throughout the latter portion of the season at this trial.

Trial Information

Treatment	7.5" @ 130K seeds/ac vs. 15" @ 180K seeds/ac
Soil Texture	Clay
Previous Crop	Wheat
Tillage	Conventional
Seeding Equipment	60 ft Disc Drill
Seeding Date	May 7
Variety	DKB003-29
Harvest Date	September 25

Precipitation (mm)

	May	Jun	Jul	Aug	Total
Rainfall	60.1	55.8	31.8	90.1	237.8
Normal	53.6	86.4	71.9	65.4	277.3
% Normal	112%	65%	44%	138%	86%

Plant Stand (plants/ac)

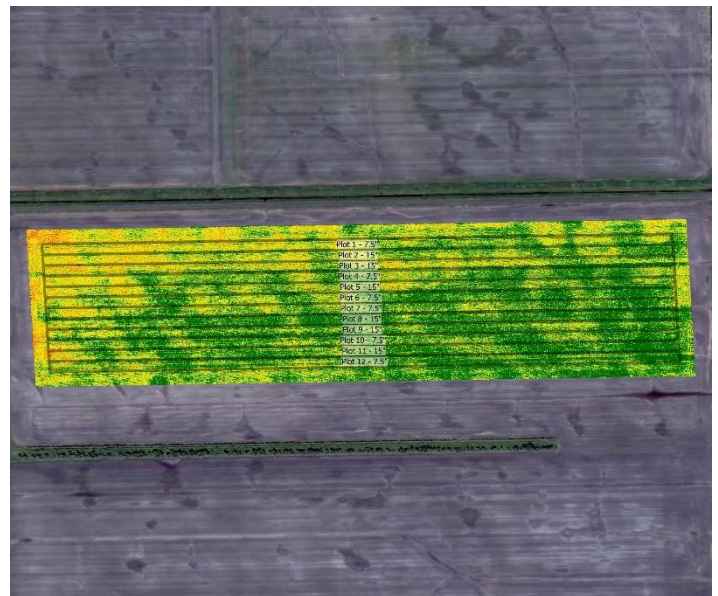
	V1	R7
7.5" @ 130K	88,000	82,000
15" @ 180K	82,000	74,000

% Canopy Closure†

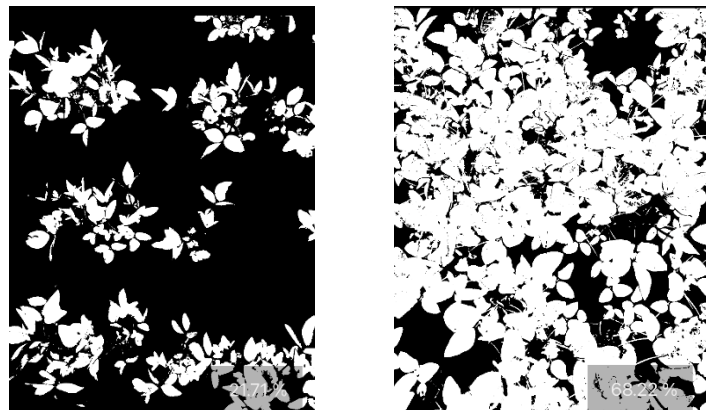
	R1	R3	R5
7.5" @ 130K	21% A	53% A	67% A
15" @ 180K	17% B	52% A	66% A

† Closure percentages in columns followed by different letters are significantly different from one another; Measurements taken using the Canopeo iPhone app

NDVI Field Image August 16



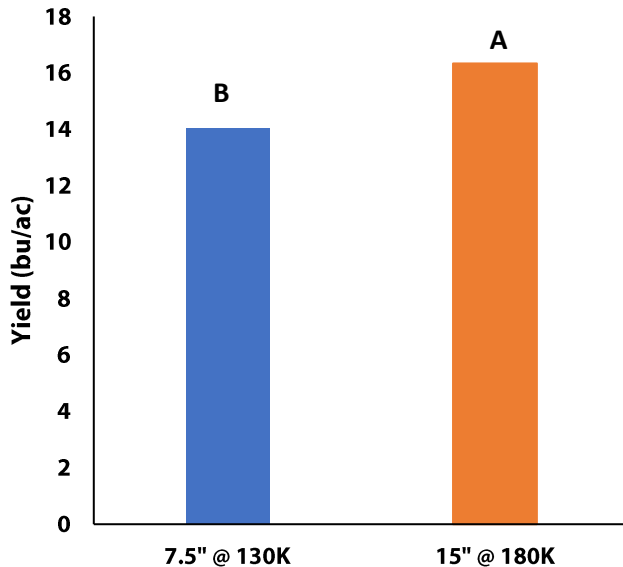
Canopy Closure Images



Canopeo app measurements of 7.5" row spacing canopy closure at R1 (left) and R5 (right).



Yield by Treatment



Typically, if there is a significant yield difference, we would expect to see an increase with narrower spacing. However, at this trial the opposite took place. There are likely some confounding factors, with drought stress and grasshopper pressure throughout the season at this trial. While it seems logical that the 15" spacing could have yielded more than the 7.5" spacing as a result of the increase in seeding rate, there wasn't an associated increase in plant stand according to our measurements.

Investigating this question in a year with more favourable production conditions would be valuable.

Overall Yield & Economics

	Mean (bu/ac)	Cost [†]	Change in Profit/ac ^{††}	
			Long-Term Average (\$11-12/bu)	Current Conditions (\$13-15/bu)
7.5" @ 130K	14.0	\$61/ac	\$2 to \$4/ac	\$7 to \$11/ac
15" @ 180K	16.3	\$84/ac		
Yield Difference	2.3			
P-Value	0.0166			
CV	9.7%			
Significance	Yes	Economic	Yes	Yes

[†] Does not account for any equipment/operating cost differences between spacings; seed cost based on MB Agriculture Cost of Production Guidelines

^{††} Change in profit/ac is the difference between the change in income/ac from a significant difference in yield, and the change in cost/ac with the increase in seeding rate. Profit/ac is presented as a range across long-term average soybean prices and those more similar to current market conditions.