



on-farm network
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Soybean Row Spacing Trial

Trial ID: 2023-SRS02 – R.M. of North Norfolk

Objective: Quantify the agronomic and economic impacts of different row spacings on soybean production.

Summary: At V1, plant stands were similar between 15" and 30" rows, however, at R7, 15" rows had 13,000 more plants/ac than 30" rows. At R1 and R3, canopy closure was 25% and 19% greater in 15" rows. There was a significant yield improvement of 3.2 bu/ac planting soybeans at 15" rows vs. 30" rows.

Trial Information †

Treatment	15" vs. 30"
Soil Texture	Fine Sandy Loam
Previous Crop	Wheat
Tillage	Conventional
Seeding Equipment	60 ft Planter
Seeding Date	May 23
Variety	S007-A2XS
Germination	96%
Seeding Rate	140 000 seeds/ac
Harvest Date	October 11

Precipitation (mm)

	May	June	July	Aug	Total
Rainfall	20.5	48.4	28	30.4	127
Normal	49.8	79.4	71	69.3	270
% Norm	41%	61%	39%	44%	47%

Plant Stand (plants/ac) †

	V1	R7
15"	137,000 A	136,000 A
30"	136,000 A	123,000 B

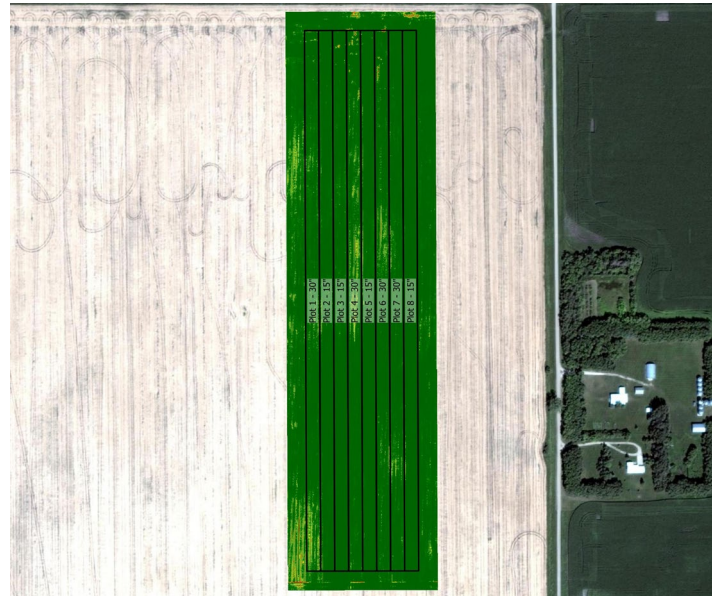
† Plant stands followed by different letters within a column are significantly different from one another

% Canopy Closure †

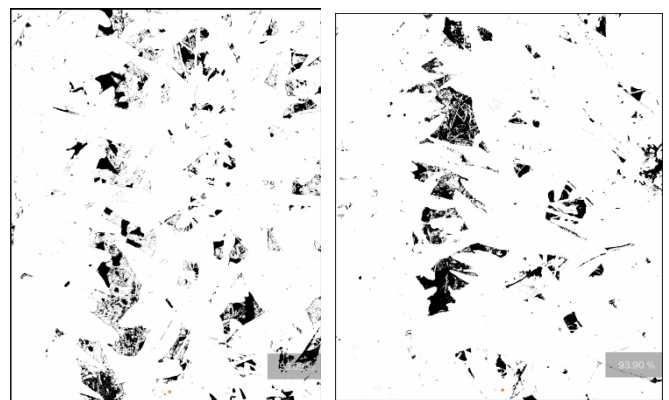
	R1	R3	R5
15"	94.5 A	98.7 A	92.9 A
30"	69.7 B	81.9 B	91.3 A

† Closure percentages in columns followed by different letters are significantly different from one another

NDVI Field Image July 19



Canopy Closure Images

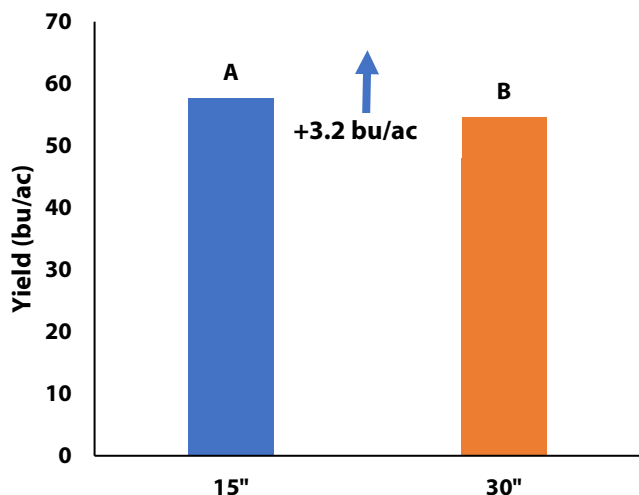


Canopeo app measurements of 15" row spacing canopy closure at R1 (left) and R5 (right).



Soybean Row Spacing Trial

Yield by Treatment



Overall Yield & Economics[†]

	Mean (bu/ac)	Change in Profit/ac [†]
15"	57.8	n/a
30"	54.6	n/a
Difference	3.2	
P-Value	0.0115	
CV	3.4	
Significance	Yes	Economic n/a

[†] Economics of how different row widths are achieved in the field are very farm and equipment specific. As a result, they are not estimated here.

Additional Observations

Soybean diseases were rated at R3 in 2023 to determine if row spacing had an effect on disease pressure.

Row Spacing	Incidence (% plants infected)				
	Septoria Brown Spot	Frog Eye	Stem Canker	White Mould	Bacterial Blight
15"	100	7.5	5	0	100
30"	100	5	30	0	100

On June 29, when soybeans were developing flower buds, it was observed that the field had lime-green coloured strips that appeared to line up with the different row spacing treatments. On July 6, average nodulation per plant in the field was 5.5 nodules/plant and nodulation was noted to be similar between 15" and 30" rows.

The field was revisited on July 12 (R2) to take paired tissue and soil tests from the 15" vs. the 30" strips to diagnose the issue. Soil nitrate was similar between treatments and the tissue test indicated that the 15" row strips were deficient in N while the 30" row strips were low in N. The number of nodules per plant was statistically the same between 15" and 30" rows.

As the season progressed, the colouration of wide and intermediate row strips equalized, and a patchy pattern emerged where spots of the field remained lime green while other patches were dark green. By late July, the crop had evened out in terms of colour and height.

	Row Spacing	
	15"	30"
	----- Nitrate-N (lb/ac) -----	
Soil Test (0-6")	5	7
Soil Test (6-24")	24	21
Soil Test (0-24")	29	28
Tissue Test	3.05% (Deficient)	3.52% (Low)
Avg Total % Nodules/Plant	17.9 A	13.2 A

