

Soybean response to row spacing and plant canopy, Carrington, 2015.

(Greg Endres and Mike Ostlie)

The field study was conducted at the NDSU Carrington Research Extension Center to examine soybean response to paired rows compared to wider rows and plant canopy types. The study was established on a Heimdahl-Emrick loam soil with field pea as the previous crop. Experimental design was a randomized complete block with a factorial arrangement and four replications. Row spacing included: a) 7-inch pairs (centered on 28 inches), b) 14 inches, and c) 28 inches; and plant canopy types included: a) intermediate (Peterson Farms Seed 12R05) and b) bushy (PFS 15R05N). The varieties have the same maturity group rating; yield potential, plant height and several other agronomic traits are similar. Inoculated seed was planted on May 22. The trial was harvested with a plot combine on September 25.

Averaged across the two varieties, plant stand was similar among row spacings (Table). Canopy closure with 14-inch rows occurred 10 days earlier than paired rows and 27 days earlier than 28-inch rows. Pod height with paired and 14-inch rows was slightly over one inch higher than with 28-inch rows. Seed yield was similar among row spacings, but paired rows tended to have higher yield compared to 14- or 28-inch rows. The 14-inch rows contained 3 instead of the intended 4 rows/plot, which may have reduced yield potential. Averaged across rows, the intermediate canopy type tended to have quicker canopy closure versus the bushy type. Seed yield was greater (2.9 bu/A) with 15R05N compared to 12R05, likely due to genetics instead of influence of canopy type. Plant response, and seed yield and quality with the row by plant type interaction were not statistically significant.

Soybean response to main factors in row spacing by plant type trial, CREC, 2015.

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Main factor	Description	Plant							Pod height ^c (Sept. 22)	Seed			
		Emergence	Stand (June 8)	Flower	Canopy closure ^b	Physio-logical maturity (R8 stage)	Lodge (Sept. 22)	Height (Sept. 22)		Yield	Number /lb	Oil ^d	Protein ^d
		Jday ^a	plants/A	Jday ^a			(0-9)	cm		bu/A		%	
Row spacing	7-inch pairs	153	117,530	191	203b	259	2	71	8a	20.7	3088	16.0	35.0
	14 inches	152	118,530	191	193a	259	2	69	8a	18.7	3092	16.0	35.4
	28 inches	153	120,350	191	220c	259	2	68	5b	19.6	3025	16.0	35.3
Plant type	intermediate (12R05)	153	125500a	193a	204	259	1a	72a	8a	18.2b	3164a	16.0	34.7b
	bushy (15R05N)	153	112110b	188b	206	259	2b	66b	6b	21.1a	2973b	16.0	35.7a
Mean		153	118,810	191	205	259	2	69	7	19.6	3069	16.0	35.2
CV %		0.3	12.9	0.4	3.0	0.2	52.5	5.0	38.8	13.0	2.4	2.1	1.6
LSD (0.05): letters following numbers indicate statistically different for each factor within column.													
^a JDay: 153=June 2; 191=July 10; 205=July 24; 259=September 16.													
^b Canopy closure was not complete with several 28-inch row plots.													
^c Distance from base of pod to soil surface.													
^d Values at 13% moisture.													