

# Impact of Selected Establishment Factors on Soybean Production, New Rockford

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The field experiment was conducted by the NDSU Carrington Research Extension Center to examine soybean response to selected establishment factors. Experimental design was a randomized complete block with split-plot arrangement with four replications. Whole plots were planting dates (early and normal), split plots were planting rates (130,000 and 175,000 seeds/A), and seed inoculation (untreated check and granular inoculant). Spring soil analysis in the conventional-till field: 64 lbs/A (0-24") nitrate-N, 17 ppm P, 203 ppm K, high soluble salt content (1.82 mmho/cm) in 0-24" soil depth, 2.8 percent organic matter and 7.5 pH. Dairyland Seed 'DSR0401' was planted on May 2 and May 17 in 14-inch rows. The trial was harvested with a plot combine on September 24.

Soybean plant stand was variable due to soil depth of seed and soluble salt content of soil. Stand tended to be higher with later planting date, higher planting rate and inoculated seed (Table). Early-planted soybean had a seed yield advantage of 7.4 bu/A (19%) compared to the later planting date. Seed yield tended to be higher with the higher planting rate and with inoculated seed. Seed was larger but had reduced protein content with the early planting date. All factor interactions were statistically non-significant.

**Table 1. Soybean response to main factors in establishment study, New Rockford, 2012.**

Main Factor	Description	Plant Stand <sup>1</sup> plt/A	Seed			
			Yield bu/A	Test Weight lb/bu	Number /lb	Protein %
Planting Date	2-May	90,945	<b>37.6</b>	56.4	<b>3375</b>	30.7
	17-May	107,075	30.3	56.5	3620	31.7
Planting Rate (PLS/A)	130,000	85,965	31.9	56.4	3495	31.2
	175,000	112,055	36.0	56.5	3495	31.2
Seed Inoculation	untreated check	93,080	32.1	56.5	3420	31.4
	inoculated	104,940	35.9	56.4	3575	31.0
Mean		99,010	34.0	56.5	3495	31.2
C.V. (%)		24.5	24.8	0.5	3.6	4.9

LSD (0.05): bold-typed number pairs within columns for each factor are statistically different.

<sup>1</sup>Stand counts taken on July 20 at R2-4 soybean growth stages.