

Effects of row spacing and plant population on corn grain yield, moisture, and bushel weight, SE Exp. Farm, Beresford, SD, 2001.

Main effects and Interaction	Row space	Thinned population (plants/acre)	Grain			
			Yield	Harvest moisture	Bushel weight	
	<i>inches apart</i>	<i>ppa</i>	<i>bu/acre</i>	<i>%</i>	<i>lbs.</i>	
Main effects:						
Row Space (RS)	20"-row		149	16.2	57.8	
	30"-row		150	16.0	58.0	
	36"-row		143	16.1	57.6	
	<i>*LSD (10% level)</i>			**NS	NS	NS
Population (P)		20,000	146	16.3	57.6	
		25,000	151	16.2	57.9	
		30,000	145	15.8	57.9	
	<i>*LSD (10% level)</i>			**NS	NS	NS
Interaction:						
RS X P	20"-row space	20,000	150	16.6	57.6	
		25,000	151	16.3	57.8	
		30,000	148	15.7	58.1	
	30"-row space	20,000	151	16.1	58.0	
		25,000	156	16.1	58.0	
		30,000	143	15.6	58.0	
	36"-row space	20,000	139	16.1	57.4	
		25,000	146	16.0	58.0	
		30,000	146	16.1	57.5	
	<i>*LSD (10% level)</i>			11.6	0.54	0.64
	CV			6.49	2.76	0.92

*LSD—least significant difference, means must differ by this value to be significantly different.

**NS – indicates differences between means are non-significant.

Discussion: Neither row space or population, alone, significantly impacted the yield, moisture, or bushel weight of corn. There was however, a significant interaction for these variables for yield when rows were 30" apart. In 30"-rows, the yield for 30,000 was lower than for 25,000 ppa. Similarly, at 20,000 ppa, grain yield was higher in the narrower rows (20" and 30") than in the wider row (36"). The row space by population interaction was also significant for harvest moisture in 20" rows; where moisture values were low at 30,000 ppa and high at 20,000 or 25,000 ppa. The high of 58.1 (20" row space at 30,000 ppa) and low of 57.4 (36" row space at 20,000 ppa) for bushel weight were the only averages that differed significantly.

Summary: Neither row space or population, alone, impacted corn production. In contrast, their interaction did affect yield, grain moisture, and bushel weight. The interactions, however, varied by the row space and population used at planting. Discussion by Robert G. Hall, Extension Agronomist-Crops, Plant Science Dept., South Dakota State University.

Source:

Berg, R., D. DuBois, R. Stevens, and G. Williamson. 2001. *Corn row spacing and population study*. SE South Dakota Experiment Farm Progress Report 41:50-55.