

Dry bean response to row spacing and planting rates, Carrington, 2015.
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The field study was conducted at the NDSU Carrington Research Extension Center with support from Northarvest Dry Bean Growers Association to examine the response of navy and black bean to row spacing and planting rates. For each market type, experimental design was a randomized complete block with split-plot arrangement (whole plot = 2 row spacings and sub plot = 3 planting rates) with four replications. The dryland experiment was conducted on a conventionally-tilled Heimdal-Emrick loam soil. ‘Avalanche’ navy and ‘Eclipse’ black bean were planted on May 28 in 14- and 28-inch rows with planting rates of 100,000, 125,000 and 150,000 pure live seed (pls)/acre. After maturity, plants were hand-pulled and placed in windrows on September 9, and seed was harvested with a plot combine on September 11.

Plant height was uniformly short across the trial and lodging did not occur. Averaged across market types and planting rates, seed yield was statistically similar with 14- and 28-inch rows at 1707 and 1676 lb/acre, respectively (LSD 0.05). Averaged across market types and rows, seed yield was also similar among planting rates with range of 1687 to 1696 lb/acre.

Averaged across planting rates, navy and black bean plant canopy closure when visually estimated on August 4 was greater with 14- versus 28-inch rows (Tables 1 and 2). Targeted stands with planting rates of 100,000, 125,000 and 150,000 pls/acre were 90,000, 110,000 and 130,000 plants/acre. Averaged across row spacings, early season plant stand for navy bean ranged from 62 to 68% less than targeted stands (Table 1). Plant stands for black bean were 86, 76 and 59% less than the respective targeted stands (Table 2). Seed yield with each market type was similar among planting rates (Tables 1 and 2). Due to not achieving targeted stands, row spacing and plant population data interactions will not be reviewed.

Treatment	Plant ¹					Seed		
	Emerge	Flower	Stand (June 23)	Canopy closure (August 4)	Physiological maturity	Yield	Test weight	Count
	Jday		plt/A	%	Jday	lb/A	lb/bu	no./lb
Row spacing (inches):								
14	160	199	77,900	66	241	1690	63.1	2740
28	160	200	64,620	40	242	1475	63.2	2720
LSD (0.05)	NS	1	9,140	2	NS	NS	NS	NS
Planting rate (pls/acre):								
100,000	160	199	61,360	52	242	1580	63.3	2620
125,000	160	200	71,860	53	242	1636	63.1	2790
150,000	160	200	80,570	52	241	1532	63.1	2770
LSD (0.05)	NS	NS	11,190	NS	NS	NS	NS	NS
mean	160	200	75,255	52	241	1691	62.1	2720
CV (%)	0.1	0.2	12.5	3.4	0.5	18.6	0.6	4.3

¹Jday: 160=June 9; 200=July 19; 241=August 29.

Table 2. Black bean market class response to row spacing and planting rates, Carrington, 2015.

Treatment	Plant ¹					Seed		
	Emerge	Flower	Stand (June 23)	Canopy closure (August 4)	Physiological maturity	Yield	Test weight	Count
	Jday		plt/A	%	Jday	lb/A	lb/bu	no./lb
Row spacing (inches):								
14	160	201	76,090	67	240	1724	60.8	2800
28	160	200	82,410	38	241	1876	61.4	2620
LSD (0.05)	NS	1	NS	2	NS	NS	0.3	110
Planting rate (pls/acre):								
100,000	160	200	77,370	51	240	1800	61.0	2720
125,000	160	201	84,130	52	241	1757	61.1	2740
150,000	160	201	76,240	54	241	1843	61.1	2660
LSD (0.05)	NS	NS	NS	NS	NS	NS	NS	NS
mean	160	200	75,255	52	241	1691	62.1	2720
CV (%)	0.1	0.2	12.5	3.4	0.5	18.6	0.6	4.3
¹ Jday: 160=June 9; 200=July 19; 241=August 29.								