

Table 1. Nitrogen fertilizer rate effects on dry bean response variables at Indian Head in 2020. Means within a column followed by the same letter do not significantly differ (Tukey-Kramer, $P \leq 0.05$).

Nitrogen Rate	Emergence	Height	Maturity	Yield	Seed Weight
	-- plants/m ² --	----- cm -----	----- days -----	---- kg/ha ----	g/1000 seeds
25 kg N/ha ^z	22.6 a	32.0 a	98.5 c	408.0 c	160.9 d
45 kg N/ha	23.0 a	31.0 a	99.0 c	513.0 bc	170.2 c
75 kg N/ha	24.0 a	32.6 a	99.8 bc	711.6 a	180.2 b
105 kg N/ha	21.7 a	31.5 a	101.8 ab	637.6 ab	186.7 ab
135 kg N/ha	24.8 a	34.1 a	102.5 a	672.6 ab	187.8 ab
165 kg N/ha	23.6 a	33.2 a	103.3 a	576.3 abc	191.1 a
S.E.M.	2.18	0.89	0.69	43.05	1.73
----- Pr > F (p-values) -----					
Overall F-test	0.945	0.181	<0.001	<0.001	<0.001
N Rate – linear	0.671	0.064	<0.001	0.003	<0.001
N Rate – quadratic	0.998	0.700	0.839	<0.001	<0.001

^z Residual NO₃-N plus the N provided by 11-52 was 25 kg N/ha at Indian Head in 2020

Table 2. Nitrogen fertilizer rate effects on dry bean response variables at Indian Head in 2021. Means within a column followed by the same letter do not significantly differ (Tukey-Kramer, $P \leq 0.05$).

Treatment	Emergence	Height	Maturity	Yield	Seed Weight
	-- plants/m ² --	----- cm -----	----- days -----	---- kg/ha ----	g/1000 seeds
30 kg N/ha ^z	45.5 a	23.8 c	113.8 abc	396.3 e	182.5 c
45 kg N/ha	46.8 a	26.2 bc	112.0 d	717.2 d	178.4 c
75 kg N/ha	44.9 a	29.2 ab	112.3 cd	1119.4 c	187.8 bc
105 kg N/ha	43.5 a	30.3 a	112.8 bcd	1525.6 b	198.2 ab
135 kg N/ha	42.1 a	30.4 a	114.3 ab	1683.3 ab	206.2 a
155 kg N/ha	41.4 a	31.3 a	115.0 a	1784.8 a	210.0 a
S.E.M.	2.16	0.79	0.46	57.14	2.48
----- Pr > F (p-values) -----					
Overall F-test	0.578	<0.001	<0.001	<0.001	<0.001
N Rate – linear	0.078	<0.001	<0.001	<0.001	<0.001
N Rate - quadratic	0.819	0.013	<0.001	<0.001	0.392

^z Residual NO₃-N plus the N provided by 11-52 was 30 kg N/ha at Indian Head in 2021

Table 3. Nitrogen fertilizer rate effects on dry bean response variables at Melfort in 2020. Means within a column followed by the same letter do not significantly differ (Tukey-Kramer, $P \leq 0.05$).

Nitrogen Rate	Emergence	Height	Maturity	Yield	Seed Weight
	-- plants/m ² --	----- cm -----	----- days -----	---- kg/ha ----	g/1000 seeds
50 kg N/ha ^z	31.6 a	22.4 b	108.5 a	347.4 b	179.3 c
75 kg N/ha	30.8 a	24.5 ab	108.5 a	513.3 ab	179.3 c
105 kg N/ha	24.6 a	26.8 ab	108.5 a	651.0 ab	181.4 bc
135 kg N/ha	28.3 a	29.7 a	108.5 a	872.6 a	186.1 ab
165 kg N/ha	24.6 a	29.6 a	108.5 a	945.7 a	190.6 a
S.E.M.	4.21	1.40	0.62	117.01	2.29
	----- Pr > F (p-values) -----				
Overall F-test	0.634	0.012	1.000	0.007	<0.001
N Rate – linear	0.229	<0.001	1.000	<0.001	<0.001
N Rate – quadratic	0.757	0.398	1.000	0.685	0.074

^z Residual NO₃-N plus the N provided by 11-52 was 50 kg N/ha at Melfort in 2020

Table 4. Nitrogen fertilizer rate effects on dry bean response variables at Melfort in 2021. Means within a column followed by the same letter do not significantly differ (Tukey-Kramer, $P \leq 0.05$).

Nitrogen Rate	Emergence	Height	Maturity	Yield	Seed Weight
	-- plants/m ² --	----- cm -----	----- days -----	---- kg/ha ----	g/1000 seeds
50 kg N/ha ^z	31.0 a	30.3 a	100.0 c	888.7 b	176.9 d
55 kg N/ha	35.9 a	30.9 a	100.0 c	923.7 b	181.5 d
75 kg N/ha	36.5 a	31.2 a	104.3 b	1036.4ab	192.3 c
105 kg N/ha	36.3 a	31.4 a	105.0 b	1075.7 ab	197.6 bc
135 kg N/ha	31.0 a	28.7 a	106.8 a	1167.6 a	205.9 ab
155 kg N/ha	33.0 a	32.4 a	106.8 a	1201.6 a	212.1 a
S.E.M.	2.35	0.95	0.38	77.2	2.49
	----- Pr > F (p-values) -----				
Overall F-test	0.405	0.136	<0.001	0.001	<0.001
N Rate – linear	0.552	0.787	<0.001	<0.001	<0.001
N Rate – quadratic	0.234	0.572	<0.001	0.401	0.136

^z Residual NO₃-N plus the N provided by 11-52 was 50 kg N/ha at Melfort in 2021

Table 5. Nitrogen fertilizer rate effects on dry bean response variables at Redvers in 2020. Means within a column followed by the same letter do not significantly differ (Tukey-Kramer, $P \leq 0.05$).

Nitrogen Rate	Emergence	Height	Maturity	Yield	Seed Weight
	-- plants/m ² --	----- cm -----	----- days -----	---- kg/ha ----	g/1000 seeds
50 kg N/ha ^z	54.2 ab	29.5 a	82.3 a	1046.6 a	156.8 c
75 kg N/ha	43.3 ab	30.4 a	82.3 a	1170.4 a	166.2 b
105 kg N/ha	43.3 ab	30.7 a	82.8 a	1277.5 a	173.9 b
135 kg N/ha	40.9 b	33.9 a	82.8 a	1507.1 a	182.2 a
165 kg N/ha	63.5 a	31.8 a	83.0 a	1615.4 a	182.1 a
S.E.M.	4.66	2.13	0.29	159.4	1.90
----- Pr > F (p-values) -----					
Overall F-test	0.029	0.602	0.102	0.099	<0.001
N Rate – linear	0.273	0.231	0.012	0.009	<0.001
N Rate – quadratic	0.004	0.620	0.900	0.945	0.008

^z Residual NO₃-N plus the N provided by 11-52 was 50 kg N/ha at Redvers in 2020

Table 6. Nitrogen fertilizer rate effects on dry bean response variables at Redvers in 2021. Means within a column followed by the same letter do not significantly differ (Tukey-Kramer, $P \leq 0.05$).

Nitrogen Rate	Emergence	Height	Maturity	Yield	Seed Weight
	-- plants/m ² --	----- cm -----	----- days -----	---- kg/ha ----	g/1000 seeds
45 kg N/ha ^z	44.8 a	31.8 bc	103.8 a	604.8 b	197.0 ab
52 kg N/ha	39.9 a	30.1 c	104.8 a	561.4 b	199.0 ab
89 kg N/ha	46.8 a	32.3 abc	98.0 b	710.2 b	187.0 b
127 kg N/ha	51.7 a	33.8 ab	97.8 b	1200.1 a	193.0 ab
165 kg N/ha	49.2 a	35.4 a	96.5 b	1480.5 a	198.0 ab
190 kg N/ha	46.8 a	35.3 a	97.3 b	1538.7 a	201.0 b
S.E.M.	3.44	0.88	0.80	88.7	2.86
----- Pr > F (p-values) -----					
Overall F-test	0.138	<0.001	<0.001	<0.001	0.034
N Rate – linear	0.067	<0.001	<0.001	<0.001	0.290
N Rate – quadratic	0.092	0.730	<0.001	0.847	0.005

^z Residual NO₃-N plus the N provided by 11-52 was 45 kg N/ha at Redvers in 2021

Table 7. Nitrogen fertilizer rate effects on dry bean response variables at Yorkton in 2020. Means within a column followed by the same letter do not significantly differ (Tukey-Kramer, $P \leq 0.05$).

Nitrogen Rate	Emergence	Height	Maturity	Yield	Seed Weight
	-- plants/m ² --	----- cm -----	----- days -----	---- kg/ha ----	g/1000 seeds
25 kg N/ha ^z	42.5 a	25.7 b	99.0 a	400.0 c	188.4 bc
45 kg N/ha	39.8 a	26.2 b	97.8 a	330.5 c	179.1 c
75 kg N/ha	44.3 a	29.5 ab	98.0 a	548.4 b	186.0 c
105 kg N/ha	40.5 a	32.8 a	99.3 a	647.6 b	206.8 ab
135 kg N/ha	36.3 a	29.5 ab	97.0 a	660.5 b	212.4 a
165 kg N/ha	38.8 a	29.7 ab	98.5 a	810.2 a	218.8 a
S.E.M.	6.39	1.42	1.41	28.6	5.10
----- Pr > F (p-values) -----					
Overall F-test	0.513	0.017	0.510	<0.001	<0.001
N Rate – linear	0.205	0.009	0.677	<0.001	<0.001
N Rate – quadratic	0.770	0.020	0.710	0.958	0.253

^z Residual NO₃-N plus the N provided by 11-52 was 25 kg N/ha at Yorkton in 2020

Table 8. Nitrogen fertilizer rate effects on dry bean response variables at Yorkton in 2021. Means within a column followed by the same letter do not significantly differ (Tukey-Kramer, $P \leq 0.05$).

Nitrogen Rate	Emergence	Height	Maturity	Yield	Seed Weight
	-- plants/m ² --	----- cm -----	----- days -----	---- kg/ha ----	g/1000 seeds
65 kg N/ha ^z	40.0 a	27.3 a	108.8 a	679.1 a	197.7 a
75 kg N/ha	37.8 a	27.3 a	110.5 a	676.1 a	206.1 a
105 kg N/ha	42.5 a	29.7 a	111.8 a	896.7 a	212.5 a
135 kg N/ha	38.4 a	27.4 a	111.8 a	713.5 a	208.3 a
155 kg N/ha	39.8 a	28.0 a	111.5 a	726.9 a	211.5 a
S.E.M.	3.86	1.19	0.92	100.2	6.10
----- Pr > F (p-values) -----					
Overall F-test	0.827	0.543	0.047	0.390	0.291
N Rate – linear	0.962	0.705	0.014	0.665	0.108
N Rate – quadratic	0.688	0.295	0.062	0.157	0.266

^z Residual NO₃-N plus the N provided by 11-52 was 65 kg N/ha at Yorkton in 2021