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North Dakota Dry Bean

Variety Trial Results for 2018 and Selection Guide

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North Dakota Bean Production

Dry edible beans have been a significant crop in eastern and east-central North Dakota during the past decades.

Acreage for the past 16 years is shown in Table 1, with production by classes in Table 2. Dry edible bean production for 2018 is estimated at 1,800 pounds per acre.

Table 1. North Dakota Dry Edible Bean Harvested Acreage, 2003 to 2018.

Year	Acreage
2003	520,000
2004	475,000
2005	565,000
2006	640,000
2007	665,000
2008	640,000
2009	580,000
2010	770,000
2011	380,000
2012	685,000
2013	430,000
2014	615,000
2015	635,000
2016	585,000
2017	685,000
2018	615,000

Source: North Dakota Agricultural Statistics Service – USDA.

Table 2. North Dakota Dry Edible Bean Production by Commercial Class, 2003 to 2017.

Year	Pinto (Cwt)	Navy (Cwt)
2003	5,864,000	1,164,000
2004	3,561,000	650,000
2005	6,530,000	1,330,000
2006	4,988,000	1,585,000
2007	7,606,000	1,636,000
2008	6,660,000	2,087,000
2009	6,106,000	1,263,000
2010	7,543,000	1,958,000
2011	2,709,000	1,125,000
2012	7,610,000	2,215,000
2013	4,765,000	1,299,000
2014	5,677,000	1,622,000
2015	4,932,000	1,694,000
2016	5,745,000	1,321,000
2017	8,409,000	1,648,000

Source: North Dakota Agricultural Statistics Service – USDA.

2018 Growing Season Weather Summary for North Dakota

Table 3. April-September 2018 Average Temperature and Precipitation Rankings for Selected North Dakota Locations.

Location	Average Temperature (Ranking)	Total Precipitation (Ranking)
Bowman	57.9 F (25th Coolest Period Since 1915)	12.8 inches (41st Wettest Period Since 1915)
Bismarck	61.4 F (40th Warmest Period Since 1875)	12.9 inches (63rd Driest Period Since 1875)
Cavalier	58.4 F (43rd Coolest Period Since 1934)	9.5 inches (14th Driest Period Since 1927)
Fargo	61.3 F (41st Warmest Period Since 1881)	14.2 inches (50th Driest Period Since 1881)
Minot Exp. Station	58.1 F (55th Coolest Period Since 1905)	9.6 inches (23rd Driest Period Since 1905)
Williston Exp. Station	59.6 F (59th Warmest Period Since 1894)	10.1 inches (57th Driest Period Since 1894)
North Dakota Average¹	58.9 F (50th Coolest Period Since 1895)	13.0 inches (54th Driest Period Since 1895)

Source: Adnan Akyüz, NDSU, North Dakota state climatologist.

¹Statewide values are calculated based on all available locations in North Dakota rather than the mathematical average of the list above.

2018 Dry Bean Performance Trials

Information about dry bean variety performance can be accessed on the web at www.ag.ndsu.edu/varietytrials/, the site with all variety trial data from all NDSU Experiment Station locations for all crops. The agronomic data presented in this publication are from replicated research plots using experimental designs that enable the use of statistical analysis.

The LSD (least significant difference) numbers beneath the columns in tables are derived from the statistical analyses and only apply to the numbers in the column in which they appear. If the difference between two varieties exceeds the LSD value, it means that with 90 to 95 percent probability (0.10 and 0.05 level, respectively), the higher-yielding variety has a significant yield advantage. If the difference between two varieties is less than the LSD value, then the variety yields are considered similar.

The abbreviation NS is used to indicate no significant difference for that trait among any of the varieties. The CV is a measure of variability in the trial. The CV stands for coefficient of variation and is expressed as a percentage. Large CVs mean a large amount of variation that could not be attributed to differences in the varieties.

In the tables, the “mean” indicates the average of the observations in the column. Only compare values within the table and look for trends for the desired trait among different experimental sites and years. In the tables, the dry bean varieties are arranged in alphabetical order within market class. Footnotes provide more detailed information about data in the table under which they appear. Characteristics to evaluate for selecting a dry bean variety include marketing class, yield potential in your area, test weight, reaction to problematic diseases and maturity date.

When selecting a high-yielding and good-quality variety, use data that summarize several years and locations. Choose a high-quality variety that, on average, performs the best at multiple locations near your farm during several years.

Information contained in this publication is based on research conducted by North Dakota Agricultural Experiment Station scientists. We express our thanks to dry bean growers who assisted with the on-farm variety testing.

Trials are supported in part by fees collected from entrants of private varieties. We thank producers who had dry bean variety trials on their land: Paul Johanning (Park Rapids, Minn.), Mark Dombeck (Perham, Minn.), Jim Karley (Johnstown, N.D.), Brian Shanilec (Forest River, N.D.), Tim Skjoiton (Hatton, N.D.) and Mark/Jim Sletten (Hatton, N.D.).

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Presentation of data for the varieties tested does not imply approval or endorsement by the authors or agencies conducting the tests. NDSU approves the reproduction of any table in this publication only if no portion is deleted, appropriate footnotes are given, the order of the data is not rearranged and NDSU is credited for the data.

Table 4. 2018 Pinto Bean Variety Trial - Hatton - Authors, J. Osorno, J. VanderWal and J. Posch.

Variety	Days to Flower (DAP) ¹	Days to Maturity (DAP) ¹	Plant Height (inch)	100 Seed Weight (gram)	Seed Yield (lb/a)
Cowboy	44	93	23	38.5	2,160
El Diablo Fu	44	90	24	40.7	2,440
GTS-904	43	97	25	41.0	2,400
GTS-907	44	91	23	36.0	2,190
La Paz	46	93	23	32.8	1,930
Lariat	44	96	25	33.9	1,780
Monterrey	47	95	23	34.4	2,260
ND Palomino	42	97	24	35.1	1,830
Othello	41	87	20	32.7	1,680
Radiant	43	87	26	33.3	2,210
Santa Cruz	45	93	26	35.9	2,340
Sinaloa	45	92	25	36.7	2,520
Stampede	44	93	25	36.2	2,230
StayBright	43	92	24	33.9	2,010
Torreón	44	90	25	38.3	2,100
Vibrant	42	95	24	33.6	2,410
Windbreaker	43	90	22	37.7	2,400
Mean	44	92	24	35.9	2,170
CV %	4.3	3.9	10.6	5.9	22.3
LSD 0.05	2.7	5.1	3.5	3.0	647
LSD 0.10	2.3	4.3	2.9	2.5	650

Planted: May 29. Harvested: Sept. 18. Previous crop: sugarbeets.

¹Days after planting.**Table 5. 2018 Miscellaneous Dry Bean Variety Trial - Hatton - Authors, J. Osorno, J. VanderWal and J. Posch.**

Variety	Market Class	Days to Maturity (DAP) ¹	Plant Height (inch)	100 Seed Weight (gram)	Seed Yield (lb/a)
AAC Scotty	Cranberry	110	22	52.0	2,780
Aries	Great Northern	87	26	30.0	2,840
Draco	Great Northern	96	25	29.4	2,340
Matterhorn	Great Northern	94	24	30.8	2,470
Powderhorn	Great Northern	85	25	33.4	2,580
Taurus	Great Northern	94	25	33.4	2,610
Floyd	Pink	87	20	31.9	2,450
Rosetta	Pink	93	26	28.1	2,200
Sedona	Pink	97	26	29.5	1,930
Caldera	Small Red	104	26	32.0	2,290
Merlot	Small Red	94	27	29.6	2,110
OAC Rosito	Small Red	87	25	19.2	2,680
Ruby	Small Red	93	26	26.6	2,600
Viper	Small Red	95	24	23.6	2,420
Mean		94	25	30.7	2,450
CV %		3.9	11.1	7.6	11.3
LSD 0.05		5.0	3.9	3.5	403
LSD 0.10		4.2	3.2	2.9	337

Planted: May 29. Harvested: Sept. 18. Previous crop: sugarbeets.

¹Days after planting.

Table 6. 2018 Navy Bean Variety Trial - Hatton - Authors, J. Osorno, J. VanderWal and J. Posch.

Variety	Days to Flower	Days to Maturity	Plant Height	100 Seed Weight	Seed Yield
	(DAP) ¹	(DAP) ¹	(inch)	(gram)	(lb/a)
AAC Argosy	42	107	24	22.1	2,760
AAC Shock	40	98	25	22.6	2,730
Avalanche	43	100	24	20.6	2,810
Blizzard	44	100	23	20.2	2,750
Ensign	42	89	23	20.0	2,410
HMS Medalist	43	97	23	18.4	2,900
Mist	43	107	21	20.2	2,760
Nautica	46	102	20	18.5	2,900
T9905	41	93	23	21.2	2,960
Mean	43	99	23	20.4	2,776
CV %	4.0	6.9	10.9	5.2	12.2
LSD 0.05	2.5	9.8	3.6	1.5	469
LSD 0.10	2.1	8.2	3.0	1.3	392

Planted: May 29. Harvested: Sept. 18. Previous crop: sugarbeets.

¹Days after planting.

Table 7. 2018 Black Bean Variety Trial - Hatton - Authors, J. Osorno, J. VanderWal and J. Posch.

Variety	Days to Flower	Days to Maturity	Plant Height	100 Seed Weight	Seed Yield
	(DAP) ¹	(DAP) ¹	(inch)	(gram)	(lb/a)
Black Bear	42	99	24	18.0	2,360
Black Cat	43	96	28	17.9	2,320
Black Tails	43	99	25	19.6	2,470
Eclipse	42	90	23	20.0	2,480
GTS-1103	44	98	24	20.3	2,370
Knight Rider	43	99	23	17.8	2,690
Loreto	43	100	22	20.0	2,360
Zorro	42	96	22	19.3	2,070
Mean	43	97	24	19.1	2,390
CV %	4.0	3.9	11.5	4.2	11.0
LSD 0.05	2.4	5.2	4.0	1.2	392
LSD 0.10	2.0	4.4	3.4	1.0	328

Planted: May 29. Harvested: Sept. 18. Previous crop: sugarbeets.

¹Days after planting.

Table 8. 2018 Pinto Bean Variety Trial - Forest River - Authors, J. Osorno, J. VanderWal and J. Posch.

Variety	Days to Maturity	Plant Height	100 Seed Weight	Seed Yield
	(DAP) ¹	(inch)	(gram)	(lb/a)
Cowboy	84	24	37.9	2,690
El Diablo Fu	82	21	35.7	2,240
GTS-904	88	23	34.3	2,030
GTS-907	88	23	33.9	2,260
La Paz	86	23	32.2	2,440
Lariat	88	25	32.8	2,240
ND Palomino	88	25	35.4	2,320
Monterrey	85	22	31.5	2,150
Radiant	85	25	33.9	2,550
Santa Cruz	85	25	32.8	2,370
Sinaloa	86	25	35.8	2,690
Stampede	87	24	34.7	2,450
StayBright	85	23	32.5	2,030
Torreón	84	24	37.2	2,610
Vibrant	86	21	31.8	2,090
Windbreaker	86	20	37.8	2,160
Mean	86	23	34.4	2,333
CV %	2.3	4.5	5.3	17.9
LSD 0.05	2.9	3.7	2.6	594
LSD 0.10	2.4	3.1	2.1	500

Planted: May 29. Harvested: Sept. 6. Previous crop: small grain.

¹Days after planting.**Table 9. 2018 Miscellaneous Dry Bean Variety Trial - Forest River - Authors, J. Osorno, J. VanderWal and J. Posch.**

Variety	Market Class	Days to Maturity	Plant Height	100 Seed Weight	Seed Yield
		(DAP) ¹	(inch)	(gram)	(lb/a)
AAC Scotty	Cranberry	98	19	45.9	1,850
Aries	Great Northern	89	22	35.2	2,300
Draco	Great Northern	96	22	29.6	2,700
Matterhorn	Great Northern	94	22	31.9	2,450
Powderhorn	Great Northern	86	23	36.1	2,660
Floyd	Pink	86	23	31.8	2,300
Rosetta	Pink	91	23	28.5	2,120
Sedona	Pink	92	25	28.7	1,790
Caldera	Small Red	94	25	29.4	2,470
Merlot	Small Red	92	24	31.6	2,100
Ruby	Small Red	91	22	22.8	2,730
Viper	Small Red	93	21	23.2	2,880
Mean		92	23	31.2	2,363
CV %		2.8	9.8	6.7	12.4
LSD 0.05		3.5	3.2	3.1	445
LSD 0.10		3.0	2.7	2.6	370

Planted: May 29. Harvested: Sept. 6. Previous crop: small grain.

¹Days after planting.

Table 10. 2018 Navy Bean Variety Trial - Forest River - Authors, J. Osorno, J. VanderWal and J. Posch.

Variety	Days to Maturity	Plant Height	100 Seed Weight	Seed Yield
	(DAP) ¹	(inch)	(gram)	(lb/a)
AAC Argosy	99	22	21.4	2,520
AAC Shock	95	18	21.9	1,810
Avalanche	93	21	18.8	2,350
Blizzard	100	19	18.8	2,520
Ensign	86	19	20.4	1,710
HMS Medalist	99	21	17.8	2,430
Mist	99	19	19.2	2,370
Nautica	96	18	16.7	1,900
T9905	91	20	18.9	2,560
Mean	95	20	19.3	2,241
CV %	3.6	13.9	5.3	19.8
LSD 0.05	4.9	3.8	1.5	615
LSD 0.10	4.1	3.2	1.2	510

Planted: May 29. Harvested: Sept. 6. Previous crop: small grain.

¹Days after planting.

Table 11. 2018 Black Bean Variety Trial - Forest River - Authors, J. Osorno, J. VanderWal and J. Posch.

Variety	Days to Maturity	Plant Height	100 Seed Weight	Seed Yield
	(DAP) ¹	(inch)	(gram)	(lb/a)
Black Bear	100	20	18.1	2,610
Black Cat	99	22	18.0	2,470
Black Tails	98	19	18.7	2,770
Eclipse	97	17	18.2	2,430
GTS-1103	100	20	19.0	2,970
Knight Rider	100	18	17.5	2,820
Loreto	100	20	19.0	2,480
Zorro	99	19	19.0	2,430
Mean	99	19	18.4	2,623
CV %	3.0	11.8	5.1	16.4
LSD 0.05	4.1	3.3	1.4	607
LSD 0.10	3.4	2.8	1.1	510

Planted: May 29. Harvested: Sept. 6. Previous crop: small grain.

¹Days after planting.

Table 12. 2018 Miscellaneous Dry Bean Variety Trial - Park Rapids, Minn. - Authors, J. Osorno, J. VanderWal and J. Posch.

Variety	Market Class	Days to Maturity (DAP) ¹	Plant Height (inch)	100 Seed Weight (gram)	Seed Yield (lb/a)
Eclipse	Black	97	25	19.4	2,178
GTS-1103	Black	105	21	21.3	1,883
Knight Rider	Black	107	20	20.0	1,458
Loreto	Black	103	23	24.4	1,417
AAC Argosy	Navy	107	27	23.2	2,168
AAC Shock	Navy	103	23	23.3	2,411
HMS Medalist	Navy	97	23	16.2	1,705
Mist	Navy	107	25	20.8	2,871
Nautica	Navy	100	23	16.8	1,577
T9905	Navy	100	23	19.2	1,811
El Diablo Fu	Pinto	95	20	41.0	969
GTS-904	Pinto	105	24	42.5	2,070
GTS-907	Pinto	96	22	39.4	1,039
La Paz	Pinto	100	22	37.5	1,748
Lariat	Pinto	103	23	40.9	1,400
Monterrey	Pinto	99	21	37.2	1,430
ND Palomino	Pinto	108	20	35.9	1,310
Sinaloa	Pinto	103	22	37.1	1,797
Stampede	Pinto	103	19	37.6	1,307
Windbreaker	Pinto	98	19	42.3	1,681
Mean		102	22	29.8	1,712
CV %		1.9	8.3	10.4	23.9
LSD 0.05		2.7	2.6	4.3	584
LSD 0.10		2.2	2.2	3.6	488

Planted: May 25. Harvested: Sept. 16. Previous crop: corn.

¹Days after planting.

Table 13. 2018 Kidney Bean Variety Trial - Perham, Minn. - Authors, J. Osorno, J. VanderWal and J. Posch.

Variety	Market Class	Plant Height (inch)	100 Seed Weight (gram)	Seed Yield (lb/a)
AAC Scotty	Cranberry	22	57.6	1,993
Vero	Cranberry	19	59.1	1,683
Chapparal	Dark Red Kidney	23	46.8	1,822
Dynasty	Dark Red Kidney	29	60.8	2,274
Epic	Dark Red Kidney	28	56.5	1,528
Montcalm	Dark Red Kidney	25	50.1	1,799
Rampart	Dark Red Kidney	24	46.5	1,469
Red Cedar	Dark Red Kidney	24	50.2	1,922
Redhawk	Dark Red Kidney	26	49.9	1,799
Talon	Dark Red Kidney	23	49.9	1,702
Big Red	Light Red Kidney	19	51.6	1,049
Foxfire	Light Red Kidney	21	48.5	1,302
OAC Inferno	Light Red Kidney	26	53.6	1,913
Pink Panther	Light Red Kidney	21	57.6	1,715
Ronnie's Red	Light Red Kidney	31	58.4	1,993
Rosie	Light Red Kidney	27	54.7	2,194
Beluga	White Kidney	27	51.6	1,535
Mean		24	53.1	1,747
CV %		8.9	6.1	19.1
LSD 0.05		3.1	4.5	474
LSD 0.10		2.6	3.8	397

Planted: May 31. Harvested: Oct. 17. Previous crop: corn.

¹Days after planting.**Table 14. 2018 Miscellaneous Dry Bean Variety Trial - Perham, Minn. - Authors, J. Osorno, J. VanderWal and J. Posch.**

Variety	Market Class	Days to Flower (DAP) ¹	Plant Height (inch)	100 Seed Weight (gram)	Seed Yield (lb/a)
Eclipse	Black	44	27	18.9	2,414
GTS-1103	Black	46	26	19.5	2,811
Knight Rider	Black	45	25	19.1	2,230
Loreto	Black	44	24	20.0	2,411
AAC Argosy	Navy	41	28	21.8	2,635
AAC Shock	Navy	39	25	23.0	2,613
HMS Medalist	Navy	43	24	16.8	2,188
Mist	Navy	44	26	20.8	2,763
Nautica	Navy	44	30	17.8	2,938
T9905	Navy	44	26	20.4	2,493
El Diablo Fu	Pinto	42	25	39.1	2,157
GTS-904	Pinto	43	27	38.4	2,133
GTS-907	Pinto	42	22	35.8	1,898
La Paz	Pinto	44	25	33.1	2,100
Lariat	Pinto	43	26	34.9	1,628
Monterrey	Pinto	44	28	34.1	2,355
ND Palomino	Pinto	41	26	37.9	2,460
Sinaloa	Pinto	43	29	34.7	2,389
Stampede	Pinto	41	24	33.0	1,440
Windbreaker	Pinto	40	23	36.6	1,922
Mean		43	26	27.8	2,299
CV %		1.7	9.6	4.5	14.4
LSD 0.05		1.0	3.5	1.8	464
LSD 0.10		0.8	2.9	1.5	388

Planted: May 31. Harvested: Oct. 17. Previous crop: corn.

¹Days after planting.

Table 15. 2018 Dry Bean Variety Trial - Dryland - Carrington - Authors, M. Ostlie, B. Schatz and G. Endres.

Variety	Market Class	Growth Maturity	Direct Growth Habit ¹	Harvest ²	Grain Protein	Test Weight	100 Seed Weight	Seed Yield	
								2018	3-yr. Avg.
		(DAP) ³	(1-9)	(%)	(%)	(lb/bu)	(gram)	------(lb/a)-----	
Eclipse	Black	87	7.0	92	22.8	60.3	12.4	1,397	2,207
Loreto	Black	88	7.8	94	21.1	62.7	12.9	1,548	2,012
Zorro	Black	88	7.5	94	23.7	61.9	12.5	1,465	2,045
Powderhorn	Great Northern	85	7.3	93	21.1	58.3	23.1	1,789	--
Ensign	Navy	84	7.3	91	20.2	62.0	13.3	1,539	--
HMS Medalist	Navy	88	7.3	93	20.5	61.9	12.6	1,286	2,314
T9905	Navy	88	7.8	95	22.6	62.2	13.1	1,534	2,428
Rosetta	Pink	87	7.5	94	20.7	59.9	21.2	1,477	2,150
La Paz	Pinto	86	7.3	92	22.4	59.1	25.0	1,825	2,320
Lariat	Pinto	86	7.3	94	21.2	57.7	25.8	1,248	2,455
Monterrey	Pinto	86	7.3	92	20.1	60.4	22.9	2,001	2,518
ND Palomino	Pinto	88	5.5	86	22.8	57.1	26.7	1,789	2,532
Stampede	Pinto	83	6.8	91	20.4	57.5	24.1	1,786	2,592
Windbreaker	Pinto	82	6.0	85	20.2	58.0	26.5	2,091	2,699
Merlot	Small Red	87	7.3	93	20.3	59.2	24.5	1,317	2,073
Mean		86	7.1	92	21.3	59.9	19.8	1,606	2,334
CV %		1.9	13.3	2.8	10.1	1.3	5.2	14.0	--
LSD 0.05		2.3	1.3	3.7	3.1	1.1	1.5	321	--
LSD 0.10		1.9	1.1	3.1	2.6	0.9	1.2	267	--

Planted: May 25. Harvested: Aug. 29. Previous crop: spring wheat.

¹Growth Habit: Scored on scale of 1 to 9; 1 = longer vine, low-stature plant, pods lower to ground; 9 = very upright plant stature, pods held well off ground.²Direct Harvest: A relative score to estimate the percent of beans that would be harvested successfully in a direct/straight harvest system.³Days after planting.**Table 16. 2018 Dry Bean Variety Trial - Irrigated - Carrington - Authors, M. Ostlie, B. Schatz and G. Endres.**

Variety	Market Class	Growth Maturity	Direct Growth Habit ¹	Harvest ²	Test Weight	100 Seed Weight	Seed Yield	
							2018	3-yr. Avg.
		(DAP) ³	(1-9)	(%)	(lb/bu)	(gram)	------(lb/a)-----	
Eclipse	Black	92	6.0	88	63.0	16.8	2,770	2,918
Loreto	Black	95	2.8	79	64.9	19.0	3,101	2,987
Zorro	Black	91	7.5	90	63.9	18.3	2,968	2,610
Powderhorn	Great Northern	86	6.0	80	57.6	33.5	3,072	--
Ensign	Navy	96	1.8	71	64.4	21.0	3,613	--
HMS Medalist	Navy	96	2.8	80	64.1	18.1	3,315	3,351
T9905	Navy	97	3.0	85	64.4	20.1	3,281	3,375
Rosetta	Pink	88	3.8	79	61.7	31.9	3,477	3,396
La Paz	Pinto	88	3.8	81	61.7	33.1	3,912	3,576
Lariat	Pinto	90	0.8	74	59.7	35.0	3,384	3,173
Monterrey	Pinto	89	5.5	83	61.5	33.3	3,614	3,476
ND Palomino	Pinto	90	2.8	78	58.4	37.0	3,269	2,965
Stampede	Pinto	86	2.3	88	59.4	34.9	3,656	6,105
Windbreaker	Pinto	85	0.3	56	59.4	33.8	3,517	3,112
Merlot	Small Red	92	1.8	68	60.8	34.1	3,140	3,018
Mean		91	3.4	79	61.6	28.0	3,339	3,389
CV %		2.1	22.3	5.2	0.9	5.7	9.3	--
LSD 0.05		2.7	1.1	5.8	0.8	19.0	442	--
LSD 0.10		2.2	0.9	4.8	0.6	23.0	369	--

Planted: May 25. Harvested: Sept. 7. Previous crop: field pea.

¹Growth Habit: Scored on scale of 1 to 9; 1 = longer vine, low-stature plant, pods lower to ground; 9 = very upright plant stature, pods held well off ground.²Direct Harvest: A relative score to estimate the percent of beans that would be harvested successfully in a direct/straight harvest system.³Days after planting.

Table 17. 2018 Pinto Bean Variety Trial - Irrigated - Williston - Authors, J. Jacobs and T. Tjelde.

Variety	Days to Maturity (DAP) ²	Canopy Height (inch)	Plant Lodge ¹ (0-9)	Seeds/ Pound (seeds)	Test Weight (lb/bu)	100 Seed Weight (gram)	Seed Yield		
							2018	2-yr. Avg.	3-yr. Avg.
La Paz	112	16	0.8	1,144	60.3	39.7	2,522	3,362	3,697
Lariat	115	17	0.3	1,146	58.9	39.6	2,408	3,111	3,389
Monterrey	112	16	0	1,170	60.4	38.8	2,682	3,786	4,073
ND Palomino	117	14	0.3	1,194	57.2	38.2	1,956	2,215	3,038
Stampede	112	14	0.5	1,257	59.3	36.4	2,012	2,774	2,882
Windbreaker	111	13	0.5	1,125	56.4	40.4	1,881	2,478	2,885
Mean	113	15	0.4	1,172	58.8	38.9	2,244	2,954	3,327
C.V. %	--	--	--	--	1.7	6.1	20.8	--	--
LSD 0.05	--	--	--	--	1.5	3.6	704	--	--
LSD 0.10	--	--	--	--	1.2	2.9	579	--	--

Planted: May 14. Harvested: Oct. 8. Previous crop: soybean.

¹0 = no lodging, 9 = lying flat on ground.²Days after planting.**Table 18. 2018 Navy Bean Variety Trial - Irrigated - Williston - Authors, J. Jacobs and T. Tjelde.**

Variety	Market Class	Days to Maturity (DAP) ³	Canopy Height (inch)	Plant Lodge ¹ (0-9)	Seeds/ Pound (seeds)	Test Weight (lb/bu)	100 Seed Weight (gram)	Seed Yield	
								2018	2-yr. Avg. ²
Ensign	Navy	112	9	0.5	2,294	61.2	19.9	858	2,340
HMS Medalist	Navy	116	10	0	2,434	62.3	18.7	1,258	2,759
T9905	Navy	114	11	0.3	2,399	62.2	18.9	1,334	2,983
Mean		114	10	0.3	2,377	61.9	19.2	1,150	2,694
C.V. %		--	--	--	--	0.8	6.3	11.1	--
LSD 0.05		--	--	--	--	0.9	NS	30	--
LSD 0.10		--	--	--	--	0.7	NS	175	--

Planted: May 14. Harvested: Oct. 8. Previous crop: soybean.

¹0 = no lodging, 9 = lying flat on ground. ²2-year average based on yields from 2016 and 2018.³Days after planting.**Table 19. 2018 Miscellaneous Dry Bean Variety Trial - Irrigated - Williston - Authors, J. Jacobs and T. Tjelde.**

Variety	Market Class	Days to Maturity (DAP) ³	Canopy Height (inch)	Plant Lodge ¹ (0-9)	Seeds/ Pound (seeds)	Test Weight (lb/bu)	100 Seed Weight (gram)	Seed Yield	
								2018	2-yr. Avg. ²
Eclipse	Black	114	11	0.3	2,108	61.5	21.6	1,796	3,232
Loreto	Black	114	13	0.3	2,289	63.0	19.9	1,713	2,837
Zorro	Black	107	12	0.5	2,352	62.1	19.4	1,311	2,695
Powderhorn	Great Northern	106	11	0.5	1,294	56.9	35.1	1,593	--
Rosetta	Pink	116	13	0.3	1,339	61.2	33.9	1,429	2,332
Mean		113	12	0.4	2,022	61.5	23.7	1,569	2,774
C.V. %		--	--	--	--	1.11	3.1	16.1	--
LSD 0.05		--	--	--	--	1.04	1.3	388	--
LSD 0.10		--	--	--	--	0.85	1.0	318	--

Planted: May 14. Harvested: Oct. 8. Previous crop: soybean.

¹0 = no lodging, 9 = lying flat on ground. ²2-year average based on yields from 2016 and 2018.³Days after planting.

Table 20. 2018 Dry Bean Variety Trial - Irrigated - Oakes (Carrington REC) - Authors, K. Cooper, H. Eslinger and S. Nelson.

Variety	Market Class	Maturity (DAP) ¹	Seeds/Pound (seeds)	100 Seed Weight (gram)	Test Weight (lb/bu)	Seed Yield	
						2018	3-yr. Avg.
La Paz	Pinto	87	1,344	33.8	60.8	3,144	3,600
Lariat	Pinto	90	1,189	38.2	60.7	3,085	3,342
Monterrey	Pinto	87	1,376	33.0	60.6	2,903	3,328
ND Palomino	Pinto	92	1,225	37.1	58.9	2,742	3,138
Stampede	Pinto	85	1,376	33.0	59.0	2,036	2,939
Windbreaker	Pinto	83	1,240	36.6	58.5	2,446	3,420
Mean		87	1,291	35.3	59.8	2,726	3,295
CV %		2.1	2.7	2.6	1.0	7.7	--
LSD 0.05		2.3	43	1.1	0.7	258	--
LSD 0.10		2.8	52	1.4	0.9	314	--
Ensign	Navy	93	2,449	18.5	63.7	2,350	2,877
HMS Medalist	Navy	93	2,894	15.7	63.9	2,072	2,778
T9905	Navy	93	2,388	19.0	64.2	2,560	3,082
Mean		93	2,577	17.7	63.9	2,327	2,912
CV %		0.4	2.0	2.0	0.4	7.1	--
LSD 0.05		0.5	72	0.5	0.4	228	--
LSD 0.10		0.6	91	0.6	0.5	287	--
Eclipse	Black	91	2,494	18.2	63.0	2,892	3,426
Loreto	Black	92	2,391	19.0	63.7	2,901	3,219
Zorro	Black	89	2,222	20.5	63.1	3,856	3,842
Powderhorn	Great Northern	80	1,495	30.4	56.8	2,203	--
Rosetta	Pink	90	1,458	31.1	60.2	2,722	3,489
Merlot	Small Red	92	1,248	36.4	60.3	3,324	3,573
Mean		89	1,885	25.9	61.2	2,983	3,510
CV %		1.4	3.5	3.3	0.9	12.8	--
LSD 0.05		1.5	81	1.1	0.7	475	--
LSD 0.10		1.9	98	1.3	0.8	577	--

Planted: May 30. Harvested: Sept. 5 and 12. Previous crop: soybean.

¹Days after planting.

Table 21. 2018 Dry Bean Variety Trial - Langdon - Authors, B. Hanson, T. Hakanson and L. Henry.

Variety	Market Class	100 Seed Weight (gram)	Seed Yield				
			2015	2017	2018	2-yr. Avg.	3-yr. Avg.
Eclipse	Black	18.2	1,932	3,858	2,679	3,269	2,823
Loreto	Black	17.8	1,607	2,391	2,722	2,557	2,240
Zorro	Black	18.5	1,933	2,738	3,046	2,892	2,572
Powderhorn	Great Northern	34.0	--	3,327	3,227	3,277	--
Ensign	Navy	19.8	2,087	2,061	2,563	2,312	2,237
HMS Medalist	Navy	17.3	1,724	3,118	2,567	2,843	2,470
T9905	Navy	19.8	2,168	3,948	2,781	3,364	2,966
Rosetta	Pink	27.7	--	3,490	2,875	3,183	--
La Paz	Pinto	33.1	2,151	3,730	2,741	3,235	2,874
Lariat	Pinto	34.5	2,133	3,874	2,861	3,367	2,956
Monterrey	Pinto	33.3	--	3,902	3,068	3,485	--
ND Palomino	Pinto	36.2	--	3,138	2,864	3,001	--
Stampede	Pinto	32.7	1,877	3,144	3,202	3,173	2,741
Windbreaker	Pinto	37.6	1,930	3,458	2,552	3,005	2,647
Merlot	Small Red	33.3	1,544	2,353	2,284	2,318	2,060
Mean		27.6	1,874	3,251	2,802	3,019	2,599
CV %		2.8	10.4	8.2	8.2	--	--
LSD 0.05		1.3	320	445	385	--	--
LSD 0.10		1.1	266	370	319	--	--

Planted: May 16. Harvested: Aug. 30.

The 2016 trial was abandoned due to excessive moisture.

Table 22. 2018 Dry Bean Variety Trial - Hettinger - Author, J. Rickertsen.

Variety	Type	Plant	Plant	Test	Seed Yield		
		Height	Lodge ²	Weight	2018	2-yr. Avg.	3-yr. Avg.
		(inch)	(0-9)	(lb/bu)	------(lb/a)-----		
Eclipse	Black	17	2	53.0	1,162	1,307	1,347
Loreto	Black	18	3	57.8	1,006	1,152	1,196
Zorro	Black	18	2	53.6	1,071	1,231	1,265
Powderhorn	Great Northern	20	2	51.1	1,303	1,602	--
Ensign	Navy	17	3	56.3	1,130	--	--
HMS Medalist	Navy	18	2	56.2	937	1,202	1,228
T9905	Navy	18	3	56.7	1,243	1,448	1,444
Rosetta	Pink	18	3	51.9	1,060	1,329	1,306
La Paz	Pinto	18	5	56.8	1,691	1,599	1,505
Lariat	Pinto	17	7	52.9	1,375	1,258	1,256
Monterrey	Pinto	21	4	56.5	1,653	1,575	1,534
ND Palomino	Pinto	18	5	55.0	1,536	1,409	1,306
Stampede	Pinto	19	5	54.0	1,609	1,512	1,469
Windbreaker	Pinto	16	5	53.0	1,534	1,322	1,238
Merlot	Small Red	19	4	50.4	1,011	1,230	1,230
Mean		18	4	54.4	1,288	1,369	1,333
C.V. %		7.4	19.8	3.8	13.0	--	--
LSD 0.05		1.9	2.0	2.9	240	--	--
LSD 0.10		1.6	1.7	2.4	200	--	--

Planted: May 23. Harvested: Sept. 18. Previous crop: spring wheat.

¹Days after planting.²0 = no lodging, 9 = lying flat on ground.**Table 23. 2018 Dry Bean Variety Trial - Minot - Authors, E. Eriksmoen, J. Effertz and A. Kraklau.**

Variety	Market	Maturity	Plant	100 Seed	Seed Yield		
	Class		Height	Weight	2018	2-yr. Avg.	3-yr. Avg.
		(DAP) ¹	(inch)	(grams)	------(lb/a)-----		
Eclipse	Black	84	11	14.7	713	1,611	1,994
Loreto	Black	85	10	14.3	685	1,336	1,492
Zorro	Black	87	9	14.5	1,172	1,460	1,759
Powderhorn	Great Northern	84	12	24.8	1,331	1,441	--
Ensign	Navy	87	12	14.2	1,376	1,411	1,821
HMS Medalist	Navy	89	12	16.4	898	1,154	--
T9905	Navy	85	11	14.2	964	1,543	1,890
Rosetta	Pink	84	10	18.6	899	1,882	1,950
La Paz	Pinto	84	13	26.6	1,498	1,538	1,877
Lariat	Pinto	89	14	26.9	1,723	1,960	2,315
Monterrey	Pinto	84	12	25.4	1,155	1,630	2,082
ND Palomino	Pinto	87	14	26.9	1,679	1,886	2,097
Stampede	Pinto	87	11	27.5	976	1,251	1,745
Windbreaker	Pinto	85	13	30.0	1,064	1,311	1,848
Merlot	Small Red	87	14	22.9	887	1,173	1,658
Mean		86	12	21.0	1,135	1,506	1,887
C.V. %		0.7	11.1	2.8	14.6	--	--
LSD 0.05		1.0	2.0	1.0	278	--	--
LSD 0.10		1.0	2.0	1.0	231	--	--

Planted: May 21. Harvested: Aug. 24. Previous crop: spring wheat.

¹Days after planting.

Table 24. Pinto Bean Variety Descriptions.

Class and Cultivar	Origin	RM¹	Plant Type²
<u>PINTO</u>			
Cowboy	Provita	ML	UV
El Diablo Fu	GenTec	ME	USV
GTS-904	GenTec	ML	UV
GTS-907	GenTec	M	UV
La Paz	Provita	L	USV
Lariat	NDSU	L	USV
Monterrey	Provita	ME	USV
ND Palomino ³	NDSU	ML	USV
Othello	USDA-Prosser	E	V
Radiant ³	Provita	ML	USV
Santa Cruz	Provita	M	USV
Sinaloa	Provita	ML	USV
Stampede	NDSU	M	USV
StayBright ³	Colorado State Univ.	ML/L	UV
Torreon	Provita	M	USV
Vibrant ³	Provita	E	USV
Windbreaker	Seminis	M	UV

¹RM = Relative Maturity; E = Early; ME = Medium Early; M = Medium; ML = Medium Late; L = Late.

²V = Vine; UV = Upright Vine; USV = Upright Short Vine; B = Bush.

³Slow darkening cultivars.

Table 25. Navy Bean Variety Descriptions.

Class and Cultivar	Origin	RM¹	Plant Type²
<u>NAVY</u>			
AAC Argosy	Ag. Can./ Univ. Guelph	ML	USV
AAC Shock	Ag. Can./ Univ. Guelph	ME	USV
Avalanche	NDSU	ME	USV
Blizzard	Provita	M	USV
Ensign	ADM-Seedwest	M	USV
HMS Medalist	AmeriSeed	M	UV
Mist	Ag. Can.	M	USV
Nautica	Ag. Can.	ML	USV
T9905	Hyland	M	USV
Vista	Ag. Can.	ML	USV

¹RM = Relative Maturity; E = Early; ME = Medium Early; M = Medium; ML = Medium Late; L = Late.

²V = Vine; UV = Upright Vine; USV = Upright Short Vine; B = Bush.

Table 26. Small Red, Black and Pink Bean Variety Descriptions.

Class and Cultivar	Origin	RM ¹	Plant Type ²
<u>SMALL RED</u>			
Caldera	Provita	ML	USV
Merlot	MSU	ME	USV
OAC Rosito	U. of Guelph	E	USV
Ruby	Provita	M	USV
Viper	Provita	M	USV
<u>BLACK</u>			
Black Bear	Provita	M	USV
Black Cat	Provita	ME	USV
Black Tails	Provita	M	USV
Eclipse	NDSU	M	USV
GTS-1103	GenTec	M	USV
Knight Rider	Meridian Seeds	ML	USV
Loreto	Provita	M	USV
Zenith	MSU	M	USV
Zorro	MSU	L	USV
<u>PINK</u>			
Floyd	Rogers	ML	V
Rosetta	MSU/ARS	M	USV
Sedona	MSU/ARS	M	USV

¹RM = Relative Maturity; E = Early; ME = Medium Early; M = Medium; ML = Medium Late; L = Late.

²V = Vine; UV = Upright Vine; USV = Upright Short Vine; B = Bush.

Table 27. Light Red, Dark Red and White Kidney, Great Northern and Cranberry Bean Variety Descriptions.

Class and Cultivar	Origin	RM ¹	Plant Type ²
<u>LIGHT RED KIDNEY</u>			
Big Red	Provita	ML	B
California Early (CELRK)	U. Calif.	E	B
Foxfire	Rogers	ME	B
OAC Inferno	U. of Guelph	ML	B
Pink Panther	Seminis	M	B
Ronnie's Red	Provita	ML	B
Rosie	NDSU	L	B
<u>DARK RED KIDNEY</u>			
Chaparral	Provita	ML	B
Dynasty	U. of Guelph	ML	B
Epic	Provita	ML	B
Montcalm	MSU	ML	B
Rampart	Provita	M	B
Red Cedar	MSU	ML	UV
Redhawk	MSU	M	B
Talon	NDSU	M	B
<u>WHITE KIDNEY</u>			
Beluga	MSU	M	B
Yeti	U. of Guelph	L	B
<u>GREAT NORTHERN</u>			
Aries	Provita	ME	USV
Draco	Provita	M	USV
Matterhorn	MSU	ME	USV
Powderhorn	MSU	M	USV
Taurus	Kelly Bean Co.	L	USV
<u>CRANBERRY</u>			
AAC Scotty	Ag. Can./Meridian	ML	B
Vero	ADM-Seedwest	M	B

¹RM = Relative Maturity; E = Early; ME = Medium Early; M = Medium; ML = Medium Late; L = Late.

²V = Vine; UV = Upright Vine; USV = Upright Short Vine; B = Bush.

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