

2018 Nebraska Dry Bean Variety Trials

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The PHREC Dry Bean Breeding program conducted replicated field trials in 2018 at two locations, the Scottsbluff Ag Lab and the Mitchell Ag lab, to evaluate which dry bean entries (varieties/experimental lines) are best suited for western Nebraska. These trials have been ongoing for 38 years as a service to the dry bean industry of Nebraska. Information about dry bean variety performance can be accessed on the web at <http://cropwatch.unl.edu/varietytest-Drybeans/2017>

Locations and Germplasm

Three replicated trials [one great northern (26 entries), one pinto (36 entries), and one light/dark red kidney (LRK/DRK, 35 entries)] were planted at both the Mitchell and Scottsbluff Ag Labs on June 5 and 11, respectively. Two additional trials [one black (15 entries) and one miscellaneous (13 entries)] were planted at the Scottsbluff Ag Lab on June 11. The Cooperative Dry Bean Nursery (2018 CDBN), 21 entries) was planted at the Scottsbluff Ag Lab on June 13.

Soil at the Scottsbluff site (41°53.6' N, 103°40.7' W, 1200 m elevation) is a Tripp very fine sandy loam (coarse-silty, mixed, superactive, mesic Aridic Haplustolls). Soil at the Mitchell site (41°56.6' N, 103°41.9' W, 1240 m elevation) is a silt loam (Typic Ustorthents).

Agronomic Management

The field at the Scottsbluff Ag Lab was plowed and sprayed/roller harrowed with Eptam @ 2.5 pts/acre and Sonalan @ 2 pts/acre on May 25. The field at the Mitchell Ag Lab was plowed on May 31 and sprayed/roller harrowed with Eptam @ 2.5 pts/acre and Sonalan @ 2 pts/acre on June 2.

The field at the Scottsbluff Ag Lab had 39# residual N and 10# N manure credit. About 80# of 46-0-0/acre were applied. The field at the Mitchell Ag Lab had 69# residual N and 99# N manure credit.

Both experimental fields received hail and wind damage on May 22, May 23, and July 24 and were sprayed with Megafol @ 8 oz/acre and Badge @ 1.5 pts/acre on June 26. Both experimental fields were sprayed with Priaxor @ 4 oz/acre on July 19.

Sprinkler irrigation system was used at the Mitchell Ag Lab, while furrow irrigation was used at the Scottsbluff Ag Lab. The Mitchell Ag Lab was irrigated 14 times (9.4 inches) and the Scottsbluff Ag Lab was irrigated 8 times (16 inches).

The entries were assigned to experimental units using a randomized complete block design with four replications at each location. Each plot consisted of four 22-foot rows spaced 22 inches apart. The target plant population was 80,000 plants/acre for all market classes except the LRK/DRK which had a target population of 100,000 plants/acre. The trials were planted with a

Hege cone planter. Only 20 feet of the middle two rows of each plot were harvested at the end of the growing season with a plot combine (Wintersteiger Classic). Variety/line trials at the Mitchell Ag lab were undercut and combined on September 18 and 19, respectively. Those at the Scottsbluff Ag lab were undercut and combined on September 20 and 21-22, respectively.

Response Variables

Data collected were: yield (lbs/acre adjusted to 14% Moisture), DTF (days to flowering, actual number of days from planting to when 50% of the plants had at least one flower opened), DTM (days to maturity, actual days from planting to when 80% of the plants were ready to be harvested), 100-seed counts (weight of 100 seeds in grams, adjusted to 14% Moisture), and Test Weight (lbs/bushel). Data are presented in Tables 1 to 10.

Statistical Analysis

Data were analyzed using PROC MIXED (SAS, 2004). Each location was analyzed separately. Homogeneity of variances was evaluated using Bartlett's χ^2 test (Steel and Torrie, 1980). When appropriate, the data were pooled across locations. Means were separated using a F-protected LSD. All tests were considered significant at $P \leq 0.05$.

From the bottom of each table: GRAND MEAN is the mean of the experiment. The Coefficient of Variation expressed in percentage (CV %) is a measurement of how variable the experiment was. Large CVs mean that a large amount of variation cannot be attributed to differences among entries. The LSD is the Least Significance Difference. If the difference between two entries exceeds the LSD value for any particular response variable, it means that with 95 percent probability (0.05 level), the higher value cultivar had a significantly greater value. If the difference between two entries is less than the LSD value, then the entries are considered similar.

We were able to pool data from both locations for the great northern trial (Table 1) because there was no interaction between entries and location. For the pintos and light/dark red kidney varieties/lines, data is presented by location because there was a significant interaction between entries and locations.

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Ent	ID	Yield	DTF	DTM	100-seed Weight	Moisture	Test Weight	Company
no		lbs/acre	days	days	grams	%	lbs/bu	
19	NE1-17-36	3430	44	95	37.0	11.3	61.1	UNL
17	NE1-17-27	3397	43	93	37.4	11.4	62.5	UNL
22	NE1-17-45	3279	44	94	37.5	11.6	62.9	UNL
14	NE1-17-17	3278	43	97	34.8	11.5	60.0	UNL
8	PV 13172	3230	43	96	34.4	11.2	60.6	ProVita
18	NE1-17-29	3156	43	92	34.7	10.9	60.7	UNL
26	Panhandle Pride	3112	43	92	34.0	11.4	62.9	TVS
24	NE1-17-10	3101	44	93	34.2	10.9	60.5	UNL
6	Draco	3095	45	98	32.4	11.1	61.4	ProVita
2	Orion	3033	43	96	32.5	11.2	61.3	ProVita
13	NE1-17-9	3023	44	92	34.8	10.7	55.1	UNL
7	PV 13151	2995	42	90	41.4	11.4	60.9	ProVita
20	NE1-17-42	2991	44	97	38.3	11.1	61.5	UNL
25	Coyne	2987	42	92	36.7	11.4	61.3	UNL
23	NE3-17-51	2945	42	92	37.9	10.9	60.5	UNL
5	Hydra	2924	43	95	42.2	11.4	62.4	ProVita
15	NE1-17-19	2906	43	94	39.2	11.4	60.9	UNL
1	Powderhorn	2901	43	88	30.7	10.7	59.4	TVS
12	PV 14172	2854	45	96	31.5	11.1	61.9	ProVita
9	PV 14164	2809	43	93	36.3	11.5	62.1	ProVita
21	NE1-17-43	2781	43	99	39.7	11.6	62.0	UNL
3	Taurus	2774	48	112	34.4	12.2	62.3	ProVita
16	NE1-17-21	2669	44	99	34.9	11.9	61.3	UNL
10	PV 14165	2650	46	102	37.7	12.0	60.6	ProVita
4	Aries	2574	44	93	31.8	11.2	62.6	ProVita
11	PV 14168	2444	44	100	35.6	11.8	62.5	ProVita
	GRAND MEAN	2974	44	95	35.8	11.3	61.2	
	LSD 0.05	272	1	5	1.5	0.4	2.2	
	CV %	12.4	3.6	7.1	3.8	4.8	5.2	

Table 2. 2018 Great Northern Variety Trial - Scottsbluff Ag Lab.

Ent	ID	Yield	DTF	DTM	100-seed Weight	Moisture	Test Weight	Company
no		lbs/acre	days	days	grams	%	lbs/bu	
19	NE1-17-36	3320	43	94	36.2	10.9	60.8	UNL
14	NE1-17-17	3319	43	97	34.3	11.7	59.6	UNL
17	NE1-17-27	3295	43	94	38.2	11.2	61.9	UNL
8	PV 13172	3289	43	96	34.1	10.8	59.6	ProVita
22	NE1-17-45	3270	43	94	37.4	11.5	62.9	UNL
18	NE1-17-29	3203	43	92	35.0	10.8	60.6	UNL
24	NE1-17-10	3173	43	93	34.8	10.7	60.3	UNL
6	Draco	3116	45	99	31.7	11.0	61.1	ProVita
20	NE1-17-42	3088	43	98	38.9	11.0	61.2	UNL
26	Panhandle Pride	3072	43	93	34.3	11.4	62.5	TVS
25	Coyne	3050	42	93	36.9	11.4	60.9	UNL
23	NE3-17-51	3037	42	92	37.2	10.5	60.5	UNL
2	Orion	2962	44	96	32.9	11.2	61.2	ProVita
7	PV 13151	2929	43	91	41.6	11.4	61.1	ProVita
5	Hydra	2908	44	97	43.2	11.3	62.0	ProVita
15	NE1-17-19	2838	42	95	39.9	11.5	60.3	UNL
13	NE1-17-9	2792	43	91	33.6	10.5	60.1	UNL
16	NE1-17-21	2773	43	100	35.4	11.5	61.0	UNL
12	PV 14172	2737	44	94	32.9	11.1	62.1	ProVita
9	PV 14164	2702	43	94	35.6	11.4	61.7	ProVita
10	PV 14165	2683	48	102	38.8	11.6	60.4	ProVita
1	Powderhorn	2676	43	87	29.3	10.6	58.9	TVS
4	Aries	2650	42	92	31.7	10.8	62.2	ProVita
21	NE1-17-43	2519	43	100	40.6	11.3	61.4	UNL
3	Taurus	2418	49	122	33.9	11.9	62.1	ProVita
11	PV 14168	2139	44	101	34.9	11.7	62.4	ProVita
	GRAND MEAN	2921	43	96	35.9	11.2	61.1	
	LSD 0.05	551	1	13	2.1	0.9	1.0	
	CV %	9.5	1.5	7.0	2.9	3.8	0.8	

Table 3. 2018 Great Northern Variety Trial - Mitchell Ag Lab.

Ent	ID	Yield	DTF	DTM	100-seed Weight	Mositure	Test Weight	Growth Habit*	Company
no		lbs/acre	days	days	grams	%	lbs/bu		
19	NE1-17-36	3539	44	97	37.8	11.8	61.5	2b/3	UNL
17	NE1-17-27	3498	44	93	36.6	11.7	63.0	2b/3	UNL
22	NE1-17-45	3289	46	95	37.6	11.6	62.8	2b/3	UNL
13	NE1-17-9	3254	44	93	36.0	10.9	50.1	2b/3	UNL
14	NE1-17-17	3238	43	97	35.3	11.3	60.5	2b/3	UNL
8	PV 13172	3171	44	97	34.7	11.6	61.5	2b/3	ProVita
26	Panhandle Pride	3153	44	92	33.8	11.4	63.4	2b	TVS
3	Taurus	3131	48	101	34.9	12.5	62.6	2b/3	ProVita
1	Powderhorn	3125	43	88	32.0	10.8	59.8	2b	TVS
18	NE1-17-29	3108	43	92	34.5	10.9	60.8	2b	UNL
2	Orion	3104	43	95	32.1	11.2	61.5	3a	ProVita
6	Draco	3074	46	98	33.0	11.2	61.6	2b/3	ProVita
7	PV 13151	3060	41	88	41.3	11.5	60.6	2b/3	ProVita
21	NE1-17-43	3042	43	98	38.8	11.9	62.5	2b/3	UNL
24	NE1-17-10	3030	45	94	33.6	11.2	60.7	2b	UNL
15	NE1-17-19	2975	43	94	38.5	11.3	61.5	2b/3	UNL
12	PV 14172	2972	47	98	30.1	11.1	61.7	2b/3	ProVita
5	Hydra	2939	43	94	41.1	11.5	62.8	2b/3	ProVita
25	Coyne	2923	42	92	36.5	11.3	61.7	2b/3	UNL
9	PV 14164	2915	44	92	37.0	11.6	62.4	2b	ProVita
20	NE1-17-42	2894	45	97	37.7	11.2	61.9	3a	UNL
23	NE3-17-51	2853	42	91	38.6	11.4	60.4	2b/3	UNL
11	PV 14168	2749	44	99	36.3	12.0	62.7	2b/3	ProVita
10	PV 14165	2617	45	102	36.6	12.4	60.7	2b/3	ProVita
16	NE1-17-21	2564	45	99	34.3	12.3	61.5	2b/3	UNL
4	Aries	2498	45	94	32.0	11.5	62.9	2b	ProVita
	GRAND MEAN	3028	44	95	35.8	11.5	61.3		
	LSD 0.05	487	3	2	1.8	0.7	6.2		
	CV %	8.1	3.2	1.2	2.5	2.9	5.1		

*Growth habit: 2b= indeterminate bush; 3= indeterminate prostrate.

Table 4. Pinto Variety Trial tested at the Scottsbluff Ag Lab during 2018.

Ent	ID	Yield	DTF	DTM	100-seed Weight	Moisture	Test Weight	Company
no		lbs/acre	days	days	grams	%	lbs/bu	
11	Vibrant (11258)	3740	43	93	33.1	10.4	61.1	ProVita
34	NE2-17-45	3686	43	95	42.2	11.2	61.9	UNL
23	NE2-17-16	3663	43	99	40.0	11.5	59.7	UNL
6	La Paz	3641	49	98	31.4	11.5	62.4	ProVita
33	NE2-17-44	3638	41	96	37.4	10.9	58.6	UNL
31	NE2-17-41	3538	44	95	38.6	11.2	58.4	UNL
14	PV 17-287	3456	49	96	39.0	11.1	60.2	ProVita
8	Monterrey	3446	48	96	33.3	11.6	62.5	ProVita
24	NE2-17-18	3416	45	100	42.9	11.9	61.8	UNL
7	Sinaloa	3404	45	92	30.4	11.0	62.6	ProVita
28	NE2-17-38	3398	40	92	37.1	10.8	61.0	UNL
9	Santa Cruz	3393	45	94	29.7	11.3	62.6	ProVita
21	DR Wood	3381	50	102	34.9	12.2	60.9	CSU
36	NE4-17-6	3348	42	92	39.9	11.1	59.3	UNL
17	PV 17-295	3331	45	93	28.0	11.3	63.7	ProVita
15	PV17-292	3256	44	93	31.7	11.1	64.7	ProVita
16	PV 17-294	3245	43	94	30.0	11.3	63.7	ProVita
29	NE2-17-39	3224	44	96	37.6	11.0	60.4	UNL
13	Cowboy (11278)	3206	44	92	31.1	11.4	62.1	ProVita
22	Croissant	3188	46	95	34.6	10.9	60.2	CSU
26	NE2-17-25	3177	44	100	36.7	11.4	60.8	UNL
12	Radiant (12324-1)	3174	42	91	32.0	10.5	60.5	ProVita
30	NE2-17-40	3151	46	99	38.4	11.4	61.9	UNL
35	NE4-17-10	3129	40	89	38.6	10.6	58.7	UNL
18	Centennial	3090	45	99	35.5	11.8	61.5	CSU
25	NE2-17-20	3070	43	95	35.1	11.1	61.3	UNL
10	Torreon	3056	44	92	30.4	11.0	63.4	ProVita
5	Palomino	3043	45	96	33.3	10.8	60.1	TVS
1	EL DIABLO	2856	44	92	35.8	10.1	57.7	GENTEC
19	Montrose	2703	44	88	31.9	10.9	61.2	CSU
32	NE2-17-42	2687	45	99	43.8	11.5	57.5	UNL
4	Staybright	2597	48	97	31.5	11.7	62.7	TVS
2	GTS 904	2486	46	95	36.5	10.9	59.2	GENTEC
20	Long's Peak	2483	47	93	33.2	10.9	60.4	CSU
27	NE2-17-37	2403	44	94	35.5	8.7	59.6	UNL
3	GTS 907	2130	43	93	33.9	10.9	60.4	GENTEC
	GRAND MEAN	3162	44	95	35.1	11.1	61.0	
	LSD 0.05	613	3	3	2.5	1.3	0.7	
	CV%	9.8	2.9	1.7	3.5	5.9	0.6	

Table 5. Pinto Variety Trial tested at the Mitchell Ag Lab during 2018.

Ent	ID	Yield	DTF	DTM	100-seed	Moisture	Test	Growth	Company
no		lbs/acre	days	days	Weight	%	Weight	Habit*	
					grams		lbs/bu		
17	PV 17-295	3605	41	92	31.2	11.2	63.5	2b	ProVita
14	PV 17-287	3601	45	94	39.7	11.0	61.0	2b	ProVita
13	Cowboy (11278)	3594	42	90	33.5	11.2	61.6	2b	ProVita
23	NE2-17-16	3570	42	97	40.1	11.3	58.4	3b	UNL
8	Monterrey	3565	43	92	32.0	11.0	63.0	2b	ProVita
9	Santa Cruz	3551	44	94	32.0	11.1	62.6	2b/3	ProVita
33	NE2-17-44	3522	39	94	40.5	10.6	58.9	3b	UNL
32	NE2-17-42	3504	39	96	49.4	10.6	57.9	3b	UNL
7	Sinaloa	3493	43	91	31.8	11.6	63.1	2b	ProVita
16	PV 17-294	3454	43	91	31.3	11.2	64.0	2b	ProVita
11	Vibrant (11258)	3421	41	90	35.3	10.4	61.6	2b	ProVita
27	NE2-17-37	3353	43	95	36.2	11.2	59.4	2b/3	UNL
10	Torreon	3351	43	91	34.2	11.0	62.4	2b/3	ProVita
28	NE2-17-38	3331	39	92	39.7	10.8	60.1	2b/3	UNL
12	Radiant (12324-1)	3322	40	90	35.5	11.0	61.4	2b	ProVita
25	NE2-17-20	3308	42	95	35.7	10.5	61.1	3b	UNL
5	Palomino	3299	42	94	35.2	10.6	59.5	2b/3	TVS
26	NE2-17-25	3287	44	99	37.8	11.4	60.2	3b	UNL
6	La Paz	3283	45	94	32.1	11.2	62.9	2b/3	ProVita
36	NE4-17-6	3253	41	92	39.6	11.2	59.1	2b	UNL
15	PV17-292	3218	42	92	32.7	11.4	65.2	2b	ProVita
24	NE2-17-18	3165	42	97	42.1	11.3	61.5	2b/3	UNL
1	EL DIABLO	3163	42	91	36.1	10.6	58.1	2b/3	GENTEC
35	NE4-17-10	3114	40	91	40.1	11.0	57.8	2b	UNL
30	NE2-17-40	3113	43	95	39.2	11.2	61.3	3b	UNL
34	NE2-17-45	3091	41	93	40.5	10.6	62.7	2b/3	UNL
31	NE2-17-41	3053	40	95	40.1	10.7	57.8	3b	UNL
2	GTS 904	3036	44	93	37.2	10.6	59.6	2b/3	GENTEC
18	Centennial	3019	45	96	37.3	10.8	61.4	2b	CSU
19	Montrose	2962	41	89	34.3	10.6	61.2	3b	CSU
29	NE2-17-39	2836	40	90	38.8	10.8	60.0	3b	UNL
22	Croissant	2769	43	95	35.9	10.9	60.4	2b/3	CSU
20	Long's Peak	2646	44	95	35.6	11.4	59.6	2b	CSU
3	GTS 907	2644	43	96	35.5	10.8	60.6	2b	GENTEC
21	DR Wood	2558	46	100	36.7	11.8	60.2	2b	CSU
4	Staybright	2121	43	98	34.6	11.7	62.8	2b/3	TVS
	GRAND MEAN	3199	42	94	36.7	11.0	60.9		
	LSD 0.05	452	3	3	1.8	0.8	0.7		
	CV%	7.1	3.4	1.4	2.5	3.8	0.6		

*Growth habit: 2b= indeterminate bush; 3= indeterminate prostrate.

Table 6. 2018 Light/Dark Red Kidney Variety Trial - Scottsbluff Ag Lab.

Ent	ID	Yield	DTF	DTM	100-seed Weight	Moisture	Test Weight	Market Class	Company
no		lbs/acre	days	days	grams	%	lbs/bu		
32	PV 151011	2635	42	91	41.8	9.7	57.0	DRK	ProVita
23	Chaparral (07323)	2635	44	92	42.2	9.8	56.8	DRK	ProVita
33	Montcalm	2365	42	93	54.2	9.4	54.9	DRK	ProVita
16	L 1032326	2309	47	98	55.5	10.0	52.4	LRK	ADM
8	PV 15897	2281	50	99	51.6	10.0	53.8	LRK	ProVita
9	PV 15898	2264	49	98	48.8	10.0	53.8	LRK	ProVita
12	PV 15916	2230	37	85	52.3	10.0	56.3	LRK	ProVita
17	L 4063262	2226	46	97	54.5	10.2	54.9	LRK	ADM
25	PV 09431	2189	44	95	47.1	10.1	56.6	DRK	ProVita
20	NE10-14-12	2137	37	93	53.0	10.1	56.8	LRK	UNL
30	PV 15979	2115	43	93	45.7	9.9	54.5	DRK	ProVita
11	PV 15907	2075	48	93	50.8	9.3	52.5	LRK	ProVita
3	Ronnie's Red	2064	45	98	58.7	9.8	54.2	LRK	ProVita
14	Pink Panther	2032	37	88	52.4	9.8	54.7	LRK	ProVita
19	NE10-14-7	2019	40	93	54.3	9.7	54.3	LRK	UNL
34	Red Hawk	1999	40	90	45.8	9.9	54.9	DRK	ProVita
28	PV 11479	1994	47	93	46.3	9.6	53.1	DRK	ProVita
1	Big Red	1964	36	87	51.1	10.0	56.6	LRK	ProVita
6	PV 09384	1951	47	98	56.2	10.0	55.0	LRK	ProVita
21	NE10-14-29	1950	38	90	58.6	9.8	56.7	LRK	UNL
26	PV 09433	1904	43	90	48.5	9.7	56.5	DRK	ProVita
10	PV 15904	1898	49	100	53.1	10.3	55.1	LRK	ProVita
29	PV 15978	1889	46	99	46.4	9.9	54.5	DRK	ProVita
31	PV 15981	1866	48	93	53.4	9.7	51.5	DRK	ProVita
13	PV 15926	1835	48	97	56.7	9.8	54.2	LRK	ProVita
7	PV 15892	1762	49	95	49.7	9.7	55.7	LRK	ProVita
22	Rosie	1754	43	95	44.9	9.9	56.2	LRK	NDSU
35	Talon	1649	45	92	44.8	9.7	56.7	DRK	NDSU
4	PV 06269	1647	46	95	44.6	9.6	53.1	LRK	ProVita
15	CELERK	1586	36	83	55.2	9.6	55.3	LRK	ProVita
5	PV 09363	1520	37	82	52.3	10.1	54.8	LRK	ProVita
24	Epic (09430)	1503	43	91	51.0	9.6	56.3	DRK	ProVita
2	Red Zone	1457	48	96	48.3	9.5	53.5	LRK	ProVita
27	Rampart (09434)	1249	46	93	31.8	7.2	42.4	DRK	ProVita
	GRAND MEAN	1969	44	93	50.1	9.7	54.6		
	LSD 0.05	473	3	3	6.1	1.2	6.9		
	CV %	12.1	3.0	1.6	6.1	6.4	6.4		

Table 7. 2018 Light/Dark Red Kidney Variety Trial - Mitchell Ag Lab.

Ent	ID	Yield	DTF	DTM	100-seed Weight	Moisture	Test Weight	Growth Habit*	Market Class	Company
no		lbs/acre	days	days	grams	%	lbs/bu			
25	PV 09431	2519	44	101	46.5	12.2	56.8	1	DRK	ProVita
32	PV 151011	2474	42	96	68.8	10.8	59.6	1	DRK	ProVita
23	Chaparral (07323)	2396	45	98	41.0	10.6	56.8	1	DRK	ProVita
20	NE10-14-12	2330	38	94	54.9	10.5	57.7	1	LRK	UNL
12	PV 15916	2314	38	83	52.3	10.3	58.1	1	LRK	ProVita
14	Pink Panther	2265	38	89	55.0	9.3	55.7	1	LRK	ProVita
11	PV 15907	2120	45	100	55.4	11.3	53.7	1	LRK	ProVita
1	Big Red	2110	38	89	53.3	10.5	57.9	1	LRK	ProVita
30	PV 15979	2104	43	98	44.7	10.8	55.1	1	DRK	ProVita
5	PV 09363	2078	38	83	58.5	9.7	55.8	1	LRK	ProVita
22	Rosie	2027	43	98	47.4	11.0	58.0	1	LRK	NDSU
3	Ronnie's Red	2020	43	97	55.4	11.2	55.4	1	LRK	ProVita
33	Montcalm	1937	43	98	51.9	9.8	56.4	1	DRK	ProVita
2	Red Zone	1934	42	100	51.4	11.6	53.7	1	LRK	ProVita
35	Talon	1914	43	95	43.8	10.5	57.5	1	DRK	NDSU
29	PV 15978	1886	44	100	44.7	11.1	54.6	1	DRK	ProVita
19	NE10-14-7	1885	39	98	57.9	10.9	56.6	1	LRK	UNL
21	NE10-14-29	1861	38	93	59.8	10.2	57.2	1	LRK	UNL
13	PV 15926	1742	46	98	52.7	10.8	54.5	1	LRK	ProVita
8	PV 15897	1697	44	100	48.1	10.7	54.1	1	LRK	ProVita
9	PV 15898	1638	46	98	46.8	10.5	54.0	1	LRK	ProVita
10	PV 15904	1621	46	101	50.6	11.6	53.7	1	LRK	ProVita
4	PV 06269	1614	45	99	42.7	11.0	54.5	1	LRK	ProVita
27	Rampart (09434)	1593	45	97	43.0	10.8	57.0	1	DRK	ProVita
6	PV 09384	1576	44	99	54.3	11.1	55.9	1	LRK	ProVita
15	CELERK	1539	38	86	53.2	9.0	56.8	1	LRK	ProVita
34	Red Hawk	1529	41	95	44.3	11.0	55.8	1	DRK	ProVita
24	Epic (09430)	1494	42	97	50.8	11.1	57.3	1	DRK	ProVita
31	PV 15981	1393	43	98	51.4	9.9	51.8	1	DRK	ProVita
28	PV 11479	1278	43	96	42.4	11.2	54.8	1	DRK	ProVita
7	PV 15892	1155	46	97	46.6	10.7	55.8	1	LRK	ProVita
26	PV 09433	1129	42	95	44.6	10.4	56.5	1	DRK	ProVita
	GRAND MEAN	1849	42	96	50.4	10.7	55.9			
	LSD 0.05	450	3	3	12.8	1.0	1.0			
	CV %	12.3	3.9	1.6	12.8	4.9	0.9			

* Growth habit: 1= Determinate bush type.

Table 8. 2018 Small Black Variety Trial - Scottsbluff Ag Lab.

Ent	ID	Yield	DTF	DTM	100-seed	Moisture	Test	Company
no		lbs/acre	days	days	Weight	%	Weight	
					grams		lbs/bu	
6	Black Tails (13489)	3356	49	98	20.1	10.0	62.5	ProVita
4	Eclipse	3325	47	94	19.3	10.2	62.5	ProVita
1	GTS 1103	3301	50	106	19.5	10.9	63.1	GENTEC
8	PV 13505	3093	49	99	18.5	10.1	61.9	ProVita
10	B 8006282	3073	47	95	19.2	10.1	62.3	ADM
9	PV 14506	3068	48	102	20.1	10.6	62.7	ProVita
3	Black Cat	2944	49	99	19.2	10.4	62.1	ProVita
5	Black Bear (12576)	2844	48	100	18.9	10.9	62.5	ProVita
11	NE14-17-1	2834	48	103	22.1	10.6	60.9	UNL
2	Loretto	2766	49	100	20.1	10.0	62.4	ProVita
14	NE14-17-7	2714	52	103	26.1	10.7	60.8	UNL
13	NE14-17-6	2710	44	94	23.8	10.5	60.1	UNL
12	NE14-17-2	2580	49	97	21.5	10.2	60.9	UNL
15	Zenith	2557	48	98	19.0	10.4	61.4	MSU
7	PV 13503	2106	50	91	18.1	10.1	62.4	ProVita
	GRAND MEAN	2885	48	98	20.4	10.4	61.9	
	LSD 0.05	417	2	2	1.0	0.7	0.6	
	CV %	7.2	1.6	1.2	2.3	3.3	0.5	

Table 9. 2018 Miscellaneous Variety Trial - Scottsbluff Ag Lab.

Ent	ID	Yield	DTF	DTM	100-seed Weight	Moisture	Test Weight	Market Class	Company
no		lbs/acre	days	days	grams	%	lbs/bu		
1	HMS Medalist	3161	48	103	17.5	11.0	62.6	Navy	ProVita
3	Blizzard (08072)	2355	51	104	17.6	11.9	63.4	Navy	ProVita
2	Merlin	2110	48	101	17.5	10.9	63.0	Navy	ProVita
10	NE13-17-11	3502	45	101	25.9	11.3	61.6	Reds	UNL
11	Rio Rojo	3443	44	91	28.4	10.9	63.6	Reds	NDSU
9	NE13-17-6	3213	45	97	33.0	11.6	61.5	Reds	UNL
4	Viper	3150	49	98	23.5	11.1	62.6	Reds	ProVita
6	Caldera (11511)	3128	51	102	35.2	12.1	61.0	Reds	ProVita
5	Ruby	3018	49	97	26.6	11.2	61.9	Reds	ProVita
8	NE13-17-4	2886	42	299	36.6	11.1	61.6	Reds	UNL
7	NE13-17-2	2389	43	86	37.7	10.8	61.2	Reds	UNL
12	Y 2032333	2680	46	103	38.2	11.2	64.0	Yellows	ADM
13	Y 2033307	2012	44	99	41.6	10.7	63.9	Yellows	ADM
	GRAND MEAN	2850	46	114	29.2	11.2	62.4		
	LSD 0.05	379	2	165	1.6	0.8	0.6		
	CV %	6.6	2.0	71.6	2.7	3.7	0.5		

Table 10. 2018 Cooperative Dry Bean Nursery (CDBN) - Scottsbluff Ag Lab.

Ent	ID	Market Class	Yield	DTF	DTM	100-seed Weight	Moisture	Test Weight	CBB
no			lbs/acre	days	days	grams	%	lbs/bu	(1-9)*
10	ACUG 15-B4	black	4758	52	104	21.5	11.4	63.4	2.8
11	Eclipse	black	3856	48	97	20.0	9.1	63.5	7.0
13	AAC Argosy	navy	4410	44	99	22.0	11.0	63.6	4.3
12	AAC Shock (14-1)	navy	3943	42	93	22.1	10.8	62.9	4.8
2	La Paz	Pinto	4282	52	97	31.9	12.1	62.9	7.0
5	PT11-13B	Pinto	4151	45	97	33.5	8.5	61.3	7.5
4	PT16-18	Pinto	3845	50	104	34.5	12.1	62.8	5.3
3	Othello	Pinto	3391	41	83	34.2	11.8	63.5	8.0
8	ND-Palomino	SLD	4052	44	98	35.6	11.1	58.9	7.3
6	NE2-17-18	SLD	3910	45	98	44.9	10.6	61.1	6.8
7	NE2-17-39	SLD	3522	42	98	37.1	9.9	60.0	6.5
1	ACUG 16-NDP1	NDP	2421	49	96	34.8	8.6	59.0	6.8
9	NE1-17-10	GN	3653	43	94	33.2	11.8	61.5	6.8
19	OAC Rosito	SR	3707	48	97	20.2	11.7	64.7	6.8
20	SR10-2-1	SR	3075	49	94	35.3	9.9	62.2	6.8
21	PK7-4	Pink	3663	43	89	31.9	10.7	62.2	7.0
18	Lrk 6	Lrk	3423	46	98	47.2	11.6	56.2	5.0
16	Inferno	Lrk	3326	44	103	60.8	11.7	57.4	6.3
15	Dynasty	DRK	3203	45	99	60.1	8.5	57.1	5.8
17	CELrk	Lrk	2133	36	85	55.4	9.4	57.2	8.0
14	Yeti	WK	2918	47	98	54.7	10.9	59.9	6.3
	GRAND MEAN		3602	45	96	36.7	10.6	61.0	6.3
	LSD 0.05		480	0	2	2.3	3.8	1.4	0.9
	CV %		6.7	0.2	1.2	3.2	17.8	1.2	1.1

* Natural common bacterial blight incidence: 1, 2, 3= Resistant; 4, 5, 6= Intermediate; 7, 8, 9= Susceptible.