

71st Annual Report
National Cooperative Dry Bean
Nursery

2020

Compiled by
Carlos A. Urrea, Coordinator
Univ. of Nebraska, Panhandle Res. & Ext. Center

**Cooperative Investigation among California, Colorado,
Maryland, Michigan, Nebraska, North Dakota, Washington, and
Wyoming -State Experiment Stations and Agricultural Research
Centers- as part of the Regional W-3150 Multi-State Project**

and

McGill University, Canada

and

Agriculture Research Service – USDA

Call for 2021 Cooperative Dry Bean Nursery

Seed Submissions

It is time to request seed submission for 2021 Cooperative Dry Bean Nurseries. I would like to receive **the list of seed submission** no later than **April 8, 2021** and **the seed** must be here no later than **April 15, 2021**. All entries will be planted in replicated test plots across several locations in the United State and Canada. Data will be taken for seed yield, 100-seed weight, and several agronomic and marketing characteristics. They will also be included in several disease nurseries including bean rust and Michigan will conduct canning tests.

The seed requirements for each of the three groups are as follows:

1. Small-seeded (Black, Navy, Others): **~15 lbs/line**.
2. Medium-seeded (Great Northern, Pink, Pinto, Small Red, Others): **~25 lbs/line**.
3. Large-seeded (Cranberry, Kidney, Others): **~35 lbs/line**.

Or 20,000 seeds

As in the past, all lines must be:

- X Western grown (West of the Rocky Mountain)
- X Pathogen free
- X If susceptible to BCMV, an ELISA test will be required.
- X Acceptable commercial quality (no broken, decayed, or off-color seed)
- X **Seed should be untreated.**

Fees: This fee structure was decided by the W-1150 members at The Annual meeting in Mayaguez, Puerto Rico in 2003 as follows:

- Public institutions: \$150/line submitted.
- Private institutions: \$300/line submitted.

NURSERY OPERATIONS

Public institutions that request a nursery will be charged US \$150 to defray seed handling expenses including treating, bagging, boxing, and shipping costs. Please let me know if your institution is going to submit the seeds and participate in the field trial for 2021 CDBN. Should you have any questions or concerns about the submission or participant fees please contact me or if you know anyone else who might like to submit seed or plant the nursery please let me know.

Contact and Shipping Information:

Dr. Carlos Urrea
University of Nebraska
Panhandle Research & Extension Center
4502 Avenue I
Scottsbluff, NE 69631
Office (308) 632-0556
email: currea2@unl.edu

Table 1. List of Contributors and Cooperators - 2020

Name	Location	Seed Submitted	Planting Seed	Locations No.
Mike Moore	Powell, WY		yes	1
Paul Gepts, Antonia Palkovic	Davis, CA		yes	2
Phil Miklas	Othello, WA	yes	yes	3
Maria Munoz Amatriain, Barry Ogg	Ft. Collins, CO		yes	4
Juan M. Osorno, Albert J. Vander Wal, John Posch	Hatton, ND; Park Rapids, MN	yes	yes	5
Carlos Urrea, Eduardo Valentin Cruzado	Scottsbluff, NE	yes	yes	6
Jim Kelly, Evan Wright, Francisco Gomez	Frankenmuth and Entrican, MI	yes	yes	7
Valerio Hoyos-Villegas	Quebec, Canada		yes	8
Talo Pastor- Corrales	Beltsville, MD		yes (rust test)	9
Jim Heitholt	Lingle, WY			
Martin Hochhalter	Mapleton, ND	yes		

Table 2. Contact information for 2020 Cooperative Dry Bean Nursery

Loc	First Name	Last Name	Affiliation	E-Mail	Phone
CA	Paul	Gepts	University of CA – Davis	plgepts@ucdavis.edu	530-752-774
	Antonia	Palkovic		antoniapalkovic@gmail.com	
CO	Maria	Munoz Amatriain	Colorado State University	Maria.Munoz_Amatriain@colostate.edu	970-491-3691
	Barry	Ogg		Barry.Ogg@Colostate.edu	
ID	John	Dean	Idaho Seed Bean Co.	isbco@filertel.com	208-734-5221
MD	Talo	Pastor-Corrales	USDA-ARS	talo.pastor-corrales@ars.usda.gov	301-504-6600
MI	Jim	Kelly	Michigan State University	kellyj@msu.edu	517-355-0271
	Francisco	Gomez		gomezfr1@msu.edu	517-353-0120
	Evan	Wright		wright294@msu.edu	517-355-2287
ND	Juan	Osorno	North Dakota State University	juan.osorno@ndsu.edu	701-231-8145
	Martin	Hochhalter	Meridian Seeds	mhochhalter@meridianseeds.co	701-532-3975
NE	Eduardo	Valentin Cruzado	University of Nebraska	evalentincruzado2@unl.edu	308-632-1480
	Carlos	Urrea		currea2@unl.edu	308-632-0556
NY	Phillip	Griffiths	Cornell University	pdg8@cornell.edu	315-787-2222
ON	Peter	Pauls	University of Guelph	ppauls@uoguelph.ca	519-824-4120 ext 52460
	Tom	Smith		thsmith@uoguelph.ca	519-824-4120 ext 8339
QC	Valerio	Hoyos-Villegas	McGill University	valerio.hoyos-villegas@mcgill.ca	514-398-7856
PR	Tim	Porch	USDA-ARS	timothy.porch@usda.gov	787-238-8024
	James	Beaver	University of Puerto Rico	j_beaver@hotmail.com	787-832-4040 ext. 2566
WA	Phil	Miklas	USDA-ARS	phil.miklas@ars.usda.gov	509-786-9258
WY	Mike	Moore	University of Wyoming	mdmoore@uwyo.edu	307-754-9815
	Jim	Heitholt	University of Wyoming	Jim.Heitholt@uwyo.edu	307-776-3104

Table 3. List of 2020 Cooperative Dry Bean Nursery Entries.

ENT.	COOPERATOR	CODE	MARKET CLASS
1	Meridian	AAC Knight Rider	BLK
2	Osorno	NDF120287, ND TWILIGHT	BLK
3	Treasure Valley	ND9902621-2, ECLIPSE	BLK
4	Urrea	NE14-18-4	BLK
5	Meridian	AC PORTAGE	Navy
6	Miklas	GN16-7-3	GN
7	Osorno	ND121630, ND PEGASUS	GN
8	Urrea	NE1-17-36	GN
9	Urrea	NE1-17-19	GN
10	Miklas	PK16-1	Pink
11	Miklas	SR16-2	RED
12	Urrea	NE2-17-37	PTO
13	Urrea	NE4-17-6	PTO
14	Urrea	NE4-17-10	PTO
15	Miklas	PT16-9	PTO
16	Miklas	PT11-13-1	PTO
17	Miklas	PT11-13-31	PTO
18	Osorno	ND121448, ND FALCON	PTO
19	Osorno	Santa Fe/PS08-108, ND PALOMINO	PTO
20	ADM Seedwest	PNE-6-94-75/Kodiak, LAPAZ	PTO
21	Treasure Valley	NW410//VICTOR/AURORA, OHELLO	PTO
22	Osorno	ND122386, ND WHITETAIL	WK
23	Meridian	AAC Scotty	CRAN
24	Treasure Valley	CELRK	LRK

The 2020 CDBN

The 2020 CDBN comprised 20 test entries and four checks.

Agronomic nurseries

There were approximately 1600 seeds supplied to each location sufficient to plant four 4-row replications, 20 to 25 feet long, for each entry. Seed treatment was provided by Syngenta Seed Co. and consisted of Cruiser, Maxim XL + Apron XL (MSDS are included with bean shipment unless nursery operator requested otherwise).

Disease Nurseries

There were 400 seeds (untreated) supplied to Beltsville, MD, and Fort Collins, CO, for rust screening.

DATA RECORDING AND SCALES

The following were commonly recorded data by the CDBN collaborators. For ease and uniformity of reporting we shall describe and abbreviate each trait:

1. **Early Vigor (EV):** Scored on a 1 to 9 scale, where 1= excellent and 9= very poor, within the first 3 weeks after emergence.
2. **Days to Flower (DF):** Actual number of days from planting to when approximately 50% plants in a plot have at least one opened flower.
3. **Days to Maturity (DM):** Actual number of days from planting to when approximately 50% of plants in a plot have at least one dry pod.
4. **Plant Height (PH):** Record in cm from the base of the plant (soil surface) to the top node bearing at least one dry pod with seed.
5. **Growth Habit (GH):** Record during flowering and verified when crop is senescent as type I=determinate erect or upright, II= indeterminate erect, and III= indeterminate prostrate.
6. **Lodging (LG):** Scored at harvest on a 1 to 9 scale, where 1= 100% plants standing erect, and 9= 100% plants lay flat on the ground.
7. **Pod Clearance (PC):** Recorded at harvest as percent of pods on plants not touching the ground or in contact with the soil surface.
8. **Biomass Yield (BY):** Total plant dry weight recorded at 12% moisture and rounded up to the nearest whole number (lb/a).
9. **Seed Yield (SY):** Recorded in lb/a at 12 % moisture and rounded up to the nearest whole number.
10. **Harvest Index (HI):** The ratio of SY/BY expressed in % BY at 12% moisture.
11. **Weight of 100 seeds (SW):** Weight of 100 randomly taken undamaged seed in grams at 12 % moisture.
12. **Appearance Desirability (SD):** An aggregate value for seed size, shape, color and brilliance for the respective market class recorded by various scales (see footnotes).

For other traits and scoring methods, a footnote is provided with associated details.

Table 4. 2020 CDBN Summary: Yield, 100-Seed Weight, Phenotypical, and Canning Data across locations.

Entry	Market Class	Name	Yield lbs/acre	100-Seed Weight g	Days to Flowering days	Days to Maturity days	Canning (1-5)*
1	BLK	AAC Knight Rider	2673	20.1	48.3	97.9	3.2
2	BLK	ND Twilight	2538	22.1	47.5	88.6	3.0
3	BLK	Eclipse	2526	22.3	47.9	94.5	3.5
4	BLK	NE14-18-4	2321	24.8	46.1	89.2	2.2
5	Navy	AC Portage	2046	20.9	43.3	87.6	3.3
6	GN	GN16-7-3	2950	38.3	45.3	89.6	3.7
7	GN	ND Pegasus	2857	39.9	46.8	91.2	2.8
8	GN	NE1-17-36	2746	42.8	44.8	89.9	3.0
9	GN	NE1-17-19	2641	40.4	43.8	93.5	2.8
10	Pink	PK16-1	2774	35.3	43.8	87.8	3.8
11	RED	SR16-2	2451	33.6	45.0	87.5	2.7
12	PTO	NE2-17-37	3191	37.9	44.6	92.1	3.6
13	PTO	NE4-17-6	3099	41.7	42.9	89.8	2.9
14	PTO	NE4-17-10	3042	40.6	43.5	87.9	3.3
15	PTO	PT16-9	2765	40.3	47.5	93.8	3.0
16	PTO	PT11-13-1	2671	41.4	46.8	91.0	2.1
17	PTO	PT11-13-31	2648	43.4	47.0	91.3	2.6
18	PTO	ND Falcon	2612	36.1	48.8	92.1	3.0
19	PTO	ND Palomino	2558	40.3	43.8	90.6	3.9
20	PTO	La Paz	2360	38.9	48.5	91.2	2.8
21	PTO	Othello	2267	37.8	42.0	83.6	3.5
22	WK	ND Whitetail	1723	47.8	47.0	98.5	2.5
23	CRAN	AAC Scotty	2009	50.9	42.7	94.0	4.3
24	LRK	Cal Early	1897	50.6	40.6	85.1	3.5
GRAND MEAN			2754	37.4	45.3	90.6	

* Canning data from Michigan: these are visual ratings based on overall appearance averaged across a group of ~ 15 evaluators. The scale is 1 to 5, where 1 = undesirable, and 5 = desirable.

Table 5. 2020 CDBN. Summary for seed yield (lbs/acre) for individual locations.

Entry	Market Class	Name	CA	MI	NE	WA	WY	Quebec	Average
			lbs/acre						
3	BLK	Eclipse	2117	3034	2959	3014	2009	2905	2673
1	BLK	AAC Knight Rider	2378	2494	3160	2655	1728	2812	2538
2	BLK	ND Twilight	1855	2529	2934	3323	1986	2529	2526
4	BLK	NE14-18-4	1735	2648	3209	2342	1632	2362	2321
5	Navy	AC Portage	1490	2818	2892	1998	1352	1724	2046
7	GN	ND Pegasus	1890	4071	3308	2821	2555	3053	2950
6	GN	GN16-7-3	2163	3391	3235	3306	1985	3061	2857
8	GN	NE1-17-36	2026	3622	3766	3310	1714	2041	2746
9	GN	NE1-17-19	2392	2429	3004	3342	2344	2336	2641
10	Pink	PK16-1	2059	3033	2651	3479	2703	2722	2774
11	RED	SR16-2	1406	3239	2907	2607	2029	2517	2451
17	PTO	PT11-13-31	2327	3739	3398	3659	2777	3246	3191
20	PTO	La Paz	1923	3962	3371	3838	2039	3460	3099
16	PTO	PT11-13-1	2229	3732	3426	3577	2052	3234	3042
15	PTO	PT16-9	1761	3917	3006	3200	1933	2772	2765
13	PTO	NE4-17-6	1926	3511	3325	2371	2234	2659	2671
18	PTO	ND Falcon	1839	2899	2415	3197	2053	3485	2648
19	PTO	ND Palomino	1796	2988	3241	2140	1958	3548	2612
21	PTO	Othello	1820	1757	3340	2629	2402	3399	2558
12	PTO	NE2-17-37	1920	2898	2901	2392	1416	2630	2360
14	PTO	NE4-17-10	1799	2521	3109	1721	1449	3004	2267
22	WK	ND Whitetail	1462	2581	1784	1613	1280	1620	1723
23	CRAN	AAC Scotty	1302	3214	2287	1326	1646	2280	2009
24	LRK	Cal Early	1661	2929	2268	1761	1777	988	1897
GRAND MEAN				3082	2996	3053	1960	2683	2754
LSD (0.05)				306	442	685	866	1645	
CV %				6.7	7.3	14.0	31.0	29.7	

Table 6. 2020 CDBN. Summary for 100-Seed Weight (grams) for individual locations.

Entry	Market Class	Name	MI	NE	WA	WY	Quebec	Average
4	BLK	NE14-18-4	25.1	22.9	28.1	23.0	25.0	24.8
3	BLK	Eclipse	21.5	20.0	24.2	21.0	24.7	22.3
2	BLK	ND Twilight	20.8	19.2	24.9	20.0	25.5	22.1
1	BLK	AAC Knight Rider	20.3	18.2	23.7	19.0	19.5	20.1
5	Navy	AC Portage	20.2	19.3	23.3	21.0	20.8	20.9
8	GN	NE1-17-36	43.8	37.0	49.0	38.0	46.0	42.8
9	GN	NE1-17-19	41.6	39.2	44.1	37.0	39.8	40.4
7	GN	ND Pegasus	41.9	34.8	45.9	36.0	40.8	39.9
6	GN	GN16-7-3	42.2	33.4	44.0	34.0	37.9	38.3
10	Pink	PK16-1	38.5	30.5	39.9	30.0	37.4	35.3
11	RED	SR16-2	36.8	30.5	36.4	28.0	36.3	33.6
17	PTO	PT11-13-31	45.7	36.4	51.5	41.0	42.2	43.4
13	PTO	NE4-17-6	44.5	39.0	48.2	39.0	38.0	41.7
16	PTO	PT11-13-1	44.8	35.5	48.4	38.0	40.4	41.4
14	PTO	NE4-17-10	43.5	38.5	46.6	37.0	37.7	40.6
15	PTO	PT16-9	42.5	33.7	48.8	35.0	41.5	40.3
19	PTO	ND Palomino	39.8	38.6	47.2	38.0	37.7	40.3
20	PTO	La Paz	40.0	34.5	46.3	37.0	36.8	38.9
12	PTO	NE2-17-37	39.8	35.0	43.6	32.0	39.3	37.9
21	PTO	Othello	42.9	37.0	40.7	32.0	36.3	37.8
18	PTO	ND Falcon	38.0	33.4	42.1	35.0	32.0	36.1
22	WK	ND Whitetail	57.0	47.6	44.6	42.0	47.7	47.8
23	CRAN	AAC Scotty	64.0	52.3	48.5	44.0	45.9	50.9
24	LRK	Cal Early	63.1	54.3	46.8	44.0	44.8	50.6
GRAND MEAN			39.9	34.2	43.5	33.0	36.4	37.4
LSD (0.05)			1.8	2.3	2.4	3.0	12.5	
CV %			3.3	3.4	4.0	7.0	16.6	

Table 7. 2020 CDBN for Days to flowering (days) and Days to Harvest Maturity (days) for individual locations.

Entry	Market Class	Name	Days to Flowering					Days to Maturity					
			MI	NE	WY	Quebec	Average	MI	NE	WA	WY	Quebec	Average
1	BLK	AAC Knight Rider	46.0	47.3	53.0	47.0	48.3	97.0	91.0	104.0	84.0	113.5	97.9
2	BLK	ND Twilight	45.0	45.7	52.0	47.5	47.5	96.0	83.3	98.7	73.0	92.0	88.6
3	BLK	Eclipse	45.0	46.7	52.0	48.0	47.9	97.0	89.0	99.0	77.0	110.5	94.5
4	BLK	NE14-18-4	43.0	44.0	52.0	45.5	46.1	97.0	84.7	97.9	75.0	91.5	89.2
5	Navy	AC Portage	43.0	40.0	50.0	40.0	43.3	97.0	83.0	97.1	74.0	87.0	87.6
6	GN	GN16-7-3	42.0	43.3	52.0	44.0	45.3	97.0	85.3	96.0	76.0	93.5	89.6
7	GN	ND Pegasus	43.0	44.7	52.0	47.5	46.8	96.0	91.3	95.0	79.0	94.5	91.2
8	GN	NE1-17-36	42.0	42.0	51.0	44.0	44.8	97.0	87.7	93.0	75.0	97.0	89.9
9	GN	NE1-17-19	43.0	40.3	52.0	40.0	43.8	101.0	91.0	95.8	77.0	102.5	93.5
10	Pink	PK16-1	42.0	40.0	51.0	42.0	43.8	96.0	79.7	91.6	73.0	99.0	87.8
11	RED	SR16-2	42.0	43.0	51.0	44.0	45.0	96.0	82.3	92.4	76.0	91.0	87.5
12	PTO	NE2-17-37	43.0	38.3	49.0	48.0	44.6	99.0	82.7	100.0	74.0	105.0	92.1
13	PTO	NE4-17-6	42.0	38.0	49.0	42.5	42.9	98.0	81.7	91.4	74.0	104.0	89.8
14	PTO	NE4-17-10	42.0	38.0	50.0	44.0	43.5	97.0	82.7	95.3	74.0	90.5	87.9
15	PTO	PT16-9	44.0	44.3	53.0	48.5	47.5	96.0	89.7	94.4	79.0	110.0	93.8
16	PTO	PT11-13-1	43.0	45.0	53.0	46.0	46.8	96.0	85.0	93.1	77.0	104.0	91.0
17	PTO	PT11-13-31	43.0	44.7	53.0	47.5	47.0	96.0	89.3	93.1	78.0	100.0	91.3
18	PTO	ND Falcon	45.0	47.0	54.0	49.0	48.8	96.0	91.7	95.9	81.0	96.0	92.1
19	PTO	ND Palomino	41.0	39.0	50.0	45.0	43.8	98.0	87.7	92.8	75.0	99.5	90.6
20	PTO	La Paz	43.0	46.3	54.0	50.5	48.5	97.0	87.0	94.7	78.0	99.5	91.2
21	PTO	Othello	39.0	37.0	48.0	44.0	42.0	94.0	78.3	84.6	70.0	91.0	83.6
22	WK	ND Whitetail	44.0	45.0	52.0	47.0	47.0	105.0	89.0	92.3	85.0	121.0	98.5
23	CRAN	AAC Scotty	39.0	36.7	49.0	46.0	42.7	103.0	87.3	89.5	75.0	115.0	94.0
24	LRK	Cal Early	37.0	35.0	48.0	42.5	40.6	96.0	80.7	84.6	74.0	90.0	85.1
		GRAND MEAN	42.5	42.1	51.0	45.4	45.3	97.4	85.9	94.0	76.0	99.9	90.6
		LSD (0.05)	1.5	1.4	2.0	8.1		2.0	3.8	2.2	2.0	21.8	
		CV %	2.2	1.7	2.0	8.7		1.5	2.2	2.0	2.0	10.5	

Table 8. 2020 CDBN. Miscellaneous Traits Data.

Entry	Market Class	Name	WA	MI	Quebec	MI	Quebec	MI	Quebec	MI	Quebec	MI
			Emergence	Lodging		Plant Height		Des. Score‡		CBB§		Canning
			(1-9)	(1-5)	(1-10)	(cm)	(10-100)†	(1-7)	(1-10)	(1-5)	(1-10)	(1-5)*
1	BLK	AAC Knight Rider	3.1	2.0	4.5	49.8	55.0	5.3	4.0	2.0	1.0	3.2
2	BLK	ND Twilight	2.6	1.8	5.5	41.3	52.5	5.0	3.0	2.0	2.5	3.0
3	BLK	Eclipse	2.8	1.3	2.0	45.3	50.0	5.5	6.0	3.5	1.0	3.5
4	BLK	NE14-18-4	2.4	2.5	3.0	39.0	42.5	4.5	2.0	1.5	2.5	2.2
5	Navy	AC Portage	4.6	1.5	3.0	48.5	40.0	5.0	4.0	1.0	3.0	3.3
6	GN	GN16-7-3	2.6	2.3	1.5	46.3	55.0	4.7	7.5	2.5	1.5	3.7
7	GN	ND Pegasus	1.9	1.3	4.0	50.0	50.0	4.3	6.0	1.5	1.5	2.8
8	GN	NE1-17-36	2.2	2.3	3.0	40.0	55.0	3.7	5.5	2.0	2.5	3.0
9	GN	NE1-17-19	1.4	4.3	2.0	33.7	50.0	2.0	4.0	2.0	2.5	2.8
10	Pink	PK16-1	1.7	3.3	5.0	33.3	45.0	2.0	2.5	1.5	2.5	3.8
11	RED	SR16-2	1.8	2.3	3.5	47.7	50.0	4.3	5.0	3.0	3.0	2.7
12	PTO	NE2-17-37	1.9	3.3	5.0	37.0	57.5	2.7	5.0	1.0	2.5	3.6
13	PTO	NE4-17-6	1.5	3.3	3.0	32.0	60.0	2.3	6.5	1.5	3.5	2.9
14	PTO	NE4-17-10	2.5	3.0	6.5	33.0	45.0	2.7	4.5	1.5	1.0	3.3
15	PTO	PT16-9	1.7	2.3	3.0	53.3	57.5	5.0	7.0	3.0	2.0	3.0
16	PTO	PT11-13-1	2.7	2.3	3.5	46.7	57.5	4.3	7.0	2.5	1.0	2.1
17	PTO	PT11-13-31	3.8	1.7	1.5	47.0	62.5	5.0	8.5	2.5	1.0	2.6
18	PTO	ND Falcon	1.3	1.7	2.5	52.7	60.0	4.7	6.5	2.0	1.5	3.0
19	PTO	ND Palomino	1.7	3.3	6.0	35.7	45.0	2.7	3.5	2.0	1.5	3.9
20	PTO	La Paz	1.7	3.0	5.5	38.3	50.0	4.0	3.0	2.0	2.5	2.8
21	PTO	Othello	2.1	5.0	10.0	26.0	27.5	2.0	1.0	4.5	3.0	3.5
22	WK	ND Whitetail	2.1	3.0	2.5	45.0	62.5	4.0	8.5	2.0	1.0	2.5
23	CRAN	AAC Scotty	2.7	2.5	3.5	51.8	60.0	4.0	7.0	3.5	1.0	4.3
24	LRK	Cal Early	1.9	1.3	1.0	49.8	45.0	5.5	5.0	5.0	3.5	3.5
		GRAND MEAN	2.5	2.5	3.8	42.6	51.5	4.0	5.1	2.3	2.0	
		LSD (0.05)	1.3	0.8	4.0	7.8	16.0	1.0	3.8	1.2	2.9	
		CV %	33.0	22.0	5.2	13.8	3.4	22.0	4.6	27.4	4.4	

† Plant Height: 100 would be relative to a tall plat of 75 cm height.

‡ Desire Score: 1 = worst, 7 or 10 = best.

§ Common bacterail blight: 1 = resistant, 5 or 10 = susceptible.

* Canning data from Michigan: these are visual ratings based on overall appearance averaged across a group of ~ 15 evaluators. The scale is 1 to 5, where 1 = undesirable, and 5 = desirable.

2020 CDBN Notes

2020 Dry Bean Performance Evaluation at Powell, WY

Mike Moore and Kyle Webber, Wyoming Seed Certification Service; Jim Heitholt and Camby Reynolds, Powell Research and Extension Center

In 2017, Wyoming ranked tenth nationally in dry bean (*Phaseolus vulgaris* L.) production, and fifth in the production of pinto beans. In the same year, Wyoming growers produced 933,000 hundred-weight of pinto beans on 39,000 harvested acres, averaging 23.9 hundred-weight per acre. The University of Wyoming Seed Certification Service coordinates the dry bean variety performance evaluation at the Powell location in a continuous and on-going program. In cooperation with the National Cooperative Dry Bean Nursery, and with funding from the Wyoming Bean Commission, a wide range of germplasm is evaluated each year, assisting producers in selecting varieties best suited for Wyoming soils and climate.

Materials and Methods

The experiment was located at the University of Wyoming Research and Extension Center in Powell, Wyoming. The soil, a Garland clay loam, (fine, mixed, mesic: Typic Haplarid), was prepared by roller harrow and leveled in the spring. Chemical weed control consisted of a preplant incorporated chemical treatment of 2 pints of Sonalan and 1 pint of Outlook applied on April 29, and 32 ounces of Roundup on May 26. The plots received 45 units of N, 135 units of P, 40 units of K, and 40 units of sulfate per acre on April 29. The plots were planted on May 21 in three-row plots that were 5.5 feet wide by 20 feet long. IH 185 planter units with cone attachments were used, set on 22-inch row spacing. The experimental design was a randomized block with 4 replications. Cultivation occurred during the growing season when appropriate. Furrow irrigation was applied on June 10, June 24, July 8, July 22, and August 5, and August 17. Visual estimates for days to 50 percent bloom (50 percent of plants at second bloom) and days to maturity (50 percent of the plants with one buckskin pod) were made. Subplots of one row by 10 feet were pulled by hand, and those plants were threshed with an Almaco stationary plot thresher. The seed was hand-picked to remove dirt clods and seed mixtures. Samples were then weighed for clean seed yield per plot and seeds per pound.

Results and Discussion

Stand establishment was good, with excellent soil and weather conditions. The growing season had no days over 100 degrees but was consistently in the mid to upper 90's, with warm nights, potentially impacting pod length and fill. Flowering, maturity, seed size, and yield data are presented in Table 1 on page 2.

Acknowledgements

This nursery was possible only with significant assistance of the Powell R & E Center staff Brad May and Keith Schaefer.

CDBN trial planted at Hatton, ND

The trial at Hatton, ND were flooded.

CDBN trial planted at Fort Collins, CO

We noticed a lot of seed mixture when harvesting the CDBN plots, so results are not reliable.
