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Varieties of Pulse Crops for Alberta

This publication provides information on pulse variety performance within Alberta and northeastern British Columbia. Important agronomic characteristics and disease resistance information are provided for varieties of field pea, chickpea, lentil, dry bean and soybean.

The Alberta Regional Variety Testing program for pulse crops is co-ordinated by the Alberta Pulse Growers Commission (APGC) and Alberta Agriculture and Forestry (AAF). Funding for the program is provided by Agriculture Agri-Food Canada (Growing Forward II), AAF, APGC and entry fees (private companies) for the varieties being tested.

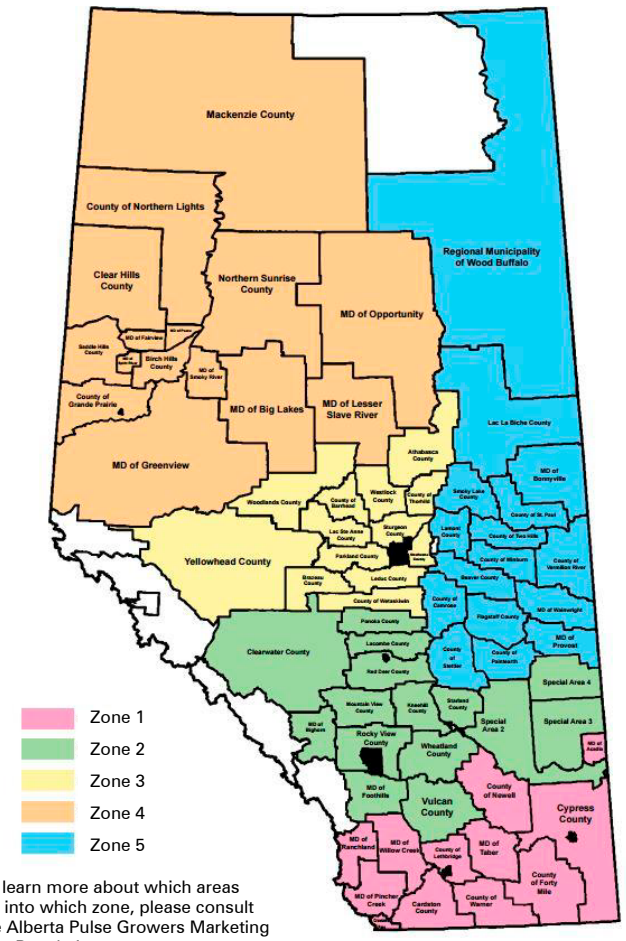
Data for this publication are contributed by numerous applied research associations, Prairie Grain Development Committee and AAF.

Varieties

Variety choice is one of the important decisions any crop producer makes, and the choice should never be based solely on genetic yield potential of a variety. Producers are encouraged to select varieties based on local growing conditions and planned end use.

As well, growers should consider other factors such as plant height, standability (lodging) at physiological maturity and disease/pest resistance when selecting which variety to grow. Using long-term, multi-site data will lead to the selection of the best, yield-stable varieties.

APG Zone Map



To learn more about which areas fall into which zone, please consult the Alberta Pulse Growers Marketing Plan Regulation.

The yield comparison tables in this factsheet have several features:

- Overall actual yield of the standard check (kg/ha) based on all data available to the testing program is provided along with the number of station years of testing.
- Actual yield of the standard check in each growing area for field pea is reported.
- Overage yield of each variety is expressed relative to the standard check.
- Significant statistical differences relative to the standard check are indicated.

Yields that are statistically higher (+) or lower (-) than the check are indicated. No symbol after the yield figure indicates that there is no statistical difference from the check.

Producers should pay particular attention to data on new varieties that have not been fully tested. If a large difference from the check is reported but is not significant, it could mean that yields have varied widely and/or there are not enough data to prove a statistical difference. With additional years of testing, the reported yield differences will become more accurate.

The following variety trials were grown in 2016:

- 19 green and yellow pea sites established across Alberta and 2 sites in northeastern British Colombia
- 4 chickpea trials at Bow Island, Brooks, Lethbridge and Medicine Hat
- 5 lentil trials at Bow Island, Brooks, Lethbridge, Medicine Hat and Oyen
- 3 wide row dry bean trials at Bow Island, Lethbridge and Vauxhall
- 1 narrow row dry bean in Lethbridge
- 4 soybean trials established at Bow Island, Brooks, Lethbridge and Medicine Hat

More information

For additional information, including varieties not listed in this factsheet, please call the Alberta Ag-Info Centre toll-free at 310-FARM (3276), or check the Alberta Agriculture and Forestry website at agriculture.alberta.ca/rvt

Variety tables

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FIELD PEA – YELLOW

Variety	Overall Yield	Overall Station Years of Testing	Area: 1 Yield (%)	1 Site Years	2 Yield (%)	2 Site Years	3 Yield (%)	3 Site Years	4 Yield (%)	4 Site Years	5 Yield (%)	5 Site Years	Agronomic Characteristics: Maturity Rating[1]	Vine Length (cm)	TSW[2] (g)	Standability[3] (1 - 9)	Disease Tolerance:[4] Mycosphaerella Blight	Fusarium Wilt	Seed Coat Breakage	Seed Coat Dimpling[5]	Green Seed Coat[6]
Varieties tested in the 2016 trials (Yield and agronomic data only directly comparable to CDC Amarillo)																					
CDC Amarillo (kg/ha)	5123		3688		4594		6715		5073		7798										
CDC Amarillo	100		100		100		100		100		100		M	85	226	2.6	F	G	F	F	G
AAC Barrhead (A) ♲	100	14	97	2	97	3	97	3	105+	5	101	1	E	80	235	3.3	F	F	G	G	XX
AAC Carver (A) ▲	104	14	103	2	92	3	105	3	107+	5	125	1	E	85	245	3.9	F	F	G	G	XX
CDC Inca ▲	104	28	101	5	98	7	112+	5	104	9	109	2	M	85	232	2.2	F	F	G	G	F
CDC Meadow	96-	63	95	10	100	20	89-	10	95-	19	93	4	M	81	203	3.9	F	F	G	G	G
LN4228 ▲	93-	45	90-	8	95	13	89	7	95	14	93	3	M	69	254	2.1	F	F	F	F	G
Previously tested varieties																					
AAC Lacombe ♲	105+	47	107+	8	101	16	112	6	107+	14	101	3	M	73	255	2.3	F	P	G	F	G
AAC Peace River	92-	49	89-	8	93-	16	93	6	97	16	73	3	VE	68	217	3.8	F	F	F	G	G
Abarth	98-	49	101	8	106	17	88-	7	94	14	89	3	M	77	249	3.6	F	F	F	G	G
Fully tested varieties: 2012 - 2014 (Yield and agronomic data only directly compared to CDC Meadow)																					
CDC Meadow (kg/ha)	4982		3943		4277		6160		5316		6689										
CDC Meadow	100		100		100		100		100		100		M	81	207	3.6	F	F	G	G	G
CDC Saffron	103	47	110	8	103	16	99	7	101	13	101	3	M	84	236	4.3	F	F	G	F	G
Hugo ♲	93-	47	104	7	87-	15	91	8	96	14	80-	3	M	73	210	5.2	F	F	G	F	F
Stella ♲ NR F	80-	45	75-	7	80-	15	84-	8	80-	12	78-	3	M	95	213	3.9	F	F	G	G	F
Fully tested varieties: 2003 - 2011 (Yield and agronomic data only directly comparable to Cutlass)																					
Cutlass (kg/ha) ♲	4485		3388		3503		5654		4816		3932										
Cutlass ♲ †	100		100		100		100		100		100		M	71	228	4.1	F	F	F	F	G
Agassiz ♲	103	43	99	5	103	10	102	8	104	19	XX	XX	M	77	237	2.9	F	F	G	VG	G
CDC Hornet	107+	43	99	6	111+	14	111+	8	102	13	128	2	M	89	215	3.7	F	F	F	F	G
CDC Prosper	97-	44	90	4	97	12	97	9	99	18	94	1	E	73	150	3.9	F	G	G	F	G
CDC Treasure	100	44	96	4	103	12	99	9	100	18	116	1	E	80	217	3.4	F	F	G	F	F
Thunderbird	97	37	88	5	99	10	99	9	98	13	XX	XX	M	76	229	2.1	F	F	G	VG	XX
Fully tested varieties: 2000 - 2005 (Yield and agronomic data only directly comparable to Carrera)																					
Carrera (kg/ha)	4126		2913		2779		5248		4681		4016										
Carrera ♲	100		100		100		100		100		100		E	54	257	4.7	P	F	F	G	XX
CDC Golden	105	36	99	5	109	12	99	7	105	11	XX	XX	M	70	223	3.5	F	F	G	G	G

Remarks: Stella is a silage type pea. All the yellow pea varieties listed in the table are Powdery Mildew resistant except Carrera that is suceptible. ▲= Applied for PBR protection. A = First year entries (2016). NR = Variety not registered with CFIA. F = Forage type. XX = Insufficient data to describe. ♲ = Protected by Plant Breeder's Rights (PBR).

[1]Maturity: E = early, M = medium, L = Late; [2]Thousand Seed Weight: g; [3]Standability: 1 = erect, 9 = flat; [4]Tolerance to: P = poor, F = fair, G = good, VG = very good; [5]Seed Coat Dimpling: VG = very good (0 - 5%), G = good (6 - 20%), F = fair (21 - 50%); [6]Green Seed Coat: G = good (0 - 10%), F = fair (11 - 25%).

FIELD PEA – GREEN

Variety	Overall Yield	Overall Station Years of Testing	Area: 1 Yield (%)	1 Site Years	2 Yield (%)	2 Site Years	3 Yield (%)	3 Site Years	4 Yield (%)	4 Site Years	5 Yield (%)	5 Site Years	Agronomic Characteristics: Maturity Rating[1]	Vine Length (cm)	TSW[2] (g)	Standability[3] (1 - 9)	Disease Tolerance:[4] Mycosphaerella Blight	Fusarium Wilt	Bleaching	Seed Coat Breakage	Seed Coat Dimpling[5]
Varieties tested in the 2016 trials (Yield and agronomic data only directly comparable to CDC Limerick)																					
CDC Limerick (kg/ha)	4657		3511		4310		6047		4417		7329										
CDC Limerick	100	76	100	12	100	24	100	12	100	23	100	5	L	77	211	3.3	F	F	G	VG	G
AAC Radius	92-	44	94	8	90-	11	88-	6	94-	16	87	3	M	76	217	3.6	F	F	G	G	G
AAC Royce	96-	27	100	5	90	5	92	4	99	11	92	2	M	66	249	3.6	F	F	G	F	F
CDC Greenwater	106+	42	106	8	109	11	105	6	106+	14	97	3	L	74	230	2.8	F	G	G	F	F
Fully tested varieties: 2013 - 2014 (Yield and agronomic data only directly comparable to CDC Patrick)																					
CDC Patrick (kg/ha)	4732		5083		4031		6242		4305		6049										
CDC Patrick	100	109	100	16	100	34	100	16	100	32	100	10	M	79	186	4.4	F	G	G	G	G
CDC Pluto	96-	52	101	8	96	17	85-	8	100	16	92	3	M	82	170	6	F	F	G	G	G
CDC Raezer	105	52	91	8	110	17	98	8	107	16	116	2	M	89	227	4.2	F	G	G	G	G
CDC Tetris	106	52	102	8	109+	17	93	8	110+	16	115+	3	L	91	215	4.4	F	G	G	G	G
Fully tested varieties: 2004 - 2012 (Yield and agronomic data only directly comparable to Cooper)																					
Cooper (kg/ha)	4763		4947		3672		5977		4835		4962										
Cooper ♢	100	121	100	18	100	38	100	18	100	36	100	11	L	76	270	3.6	F	F	G	F	G
CDC Sage	82-	31	79	3	81-	8	82-	7	84-	13	XX	XX	M	75	197	3.3	F	G	G	VG	G
CDC Striker	96-	39	92	3	109	10	104	5	89-	21	XX	XX	M	72	255	3	F	G	G	G	F
Mendel ♢	91-	38	75-	3	95	12	89-	6	91-	15	95	2	M	78	205	3.9	F	F	G	F	G

Remarks: CDC Tetris is an Espace type with blocky seed shape. All the green pea varieties listed in the table are Powdery Mildew resistant except CDC Striker that is suceptible. XX =Insufficient data to describe; † = Flagged for removal. ♢ = Protected by Plant Breeder's Rights (PBR).

[1]Maturity: E = Early, M = Medium, L = Late; [2]Thousand Seed Weight: g; [3]Standability: 1 = Erect, 9 = Flat; [4]Tolerance to: P = Poor, F = Fair, G = Good, VG = Very Good;
[5]Seed Coat Dimpling: VG = Very Good (0 - 5%), G = Good (6 - 20%), F = Fair (21 - 50%).

DRY BEAN – NARROW ROW

Variety	Type	Site Years 1997 - 2016	Overall Yield	Days to Bloom[1]	Days to Maturity	TSW[2] (g)	Plant Height (cm)	Lodging[3] (1 - 5)	Growth Habit[4]
AC Black Diamond (kg/ha)			3174						
AC Black Diamond	Black Shiny	20	100	57	103	253	36	2.3	II
AAC Black Diamond 2	Black Shiny	4	106	60	3	261	34	1.8	II
CDC Blackcomb	Black Matte	6	78	64	1	186	36	1.3	II
Island (kg/ha)			4155						
Island	Pinto	10	100	56	102	344	42	2.7	II
AAC Burdett	Pinto	5	96	58	-4	371	40	1.3	II
AAC Explorer (A)	Pinto	1	101	52	-4	345	39	2.8	II
CDC Marmot	Pinto	5	89	55	-6	419	34	2.2	II
CDC WM 2 ♲	Pinto	8	80	56	3	350	41	2.4	II
Medicine Hat	Pinto	8	99	62	4	342	44	2	II
Winchester	Pinto	5	80	58	7	302	45	2.1	II
AAC Tundra (kg/ha)			4559						
AAC Tundra	Great Northern	6	100	54	98	365	44	2.4	II
AAC Whitehorse	Great Northern	5	108	53	-1	388	43	2.4	II
AAC Whitestar	Great Northern	2	97	48	-5	365	46	2	II
AC Polaris	Great Northern	14	76	58	5	329	35	3.4	II
AC Resolute	Great Northern	17	68	51	-2	353	40	2.2	II
AC Redbond (kg/ha)			2658						
AC Redbond	Small Red	16	100	51	101	296	38	2.5	II
CDC Sol (kg/ha)			1887						
CDC Sol ♲	Yellow	6	100	59	111	385	33	1.6	I
Viva (kg/ha)			2380						
Viva	Pink	13	100	52	100	252	30	3.5	III

Remarks: A = First year entries; [1]Days to bloom from seeding; [2]Thousand Seed Weight; [3]Lodging: 1 = erect, 5 = flat. [4]Growth Habit: I = determinate bush, II = indeterminate bush, III = indeterminate prostrate. XX = Insufficient data to describe. ♲ = Protected by Plant Breeder's Rights (PBR).

DRY BEAN – WIDE ROW

Variety	Type	Site Years 1997 - 2016	Overall Yield	Days to Bloom[1]	Days to Maturity	TSW[2] (g)	Plant Height (cm)	Lodging[3] (1 - 5)	Growth Habit[4]
AC Black Diamond (kg/ha)			3017						
AC Black Diamond	Black Shiny	40	100	57	103	265	38	2.2	II
AAC Black Diamond 2	Black Shiny	7	102	58	2	258	38	2.3	II
CDC Blackcomb	Black Matte	11	79	62	0	178	35	1.8	II
Island (kg/ha)			3758						
Island	Pinto	20	100	56	100	369	41	3	II
AAC Burdett	Pinto	7	99	55	-5	352	44	2.2	II
AAC Explorer (A)	Pinto	2	93	XX	1	339	36	3.8	II
CDC WM-2 ⍥	Pinto	14	76	56	1	369	40	2.5	II
Medicine Hat	Pinto	12	93	61	4	354	42	2.4	II
Winchester	Pinto	13	85	56	4	337	40	2.5	II
AAC Tundra (kg/ha)			3570						
AAC Tundra	Great Northern	13	100	52	97	349	42	2.9	II
AAC Whitehorse	Great Northern	10	98	51	0	371	43	2.8	II
AAC Whitestar	Great Northern	4	93	54	0	353	47	2.9	II
AC Polaris	Great Northern	6	107	62	7	300	37	4.1	II
AC Resolute	Great Northern	10	97	51	3	342	41	3	II
AC Redbond (kg/ha)			3149						
AC Redbond	Small Red	29	100	52	100	319	40	2.4	II
CDC Sol (kg/ha)			2350						
CDC Sol ⍥	Yellow	14	100	55	104	409	33	1.5	I
AAC Y012 (A)	Yellow	2	114	XX	1	406	36	2.1	I
AAC Y015 (A)	Yellow	2	81	XX	1	386	34	1.9	I
Myasi	Yellow	9	89	63	6	350	34	2.1	I
Viva (kg/ha)			3137						
Viva	Pink	29	100	54	102	258	34	3.8	III

Remarks: A = First year entries; [1]Days to bloom from seeding; [2]Thousand Seed Weight; [3]Lodging: 1 = erect, 5 = flat. [4]Growth Habit: I = determinate bush, II = indeterminate bush, III = indeterminate vine. XX = Insufficient data to describe. ⍥ = Protected by Plant Breeder's Rights (PBR).

LENTIL

Market Class	Variety	Overall Yield	Overall Station Years of Testing	Agronomic Characteristics: TSW[2] (g)	Plant Height (cm)	Maturity Rating[3]	Cotyledon Colour[4]	Seed Coat Colour[5]	Disease Tolerance:[6] Ascochyta	Anthracnose
Varieties tested in the 2016 trials (Yield and agronomic data only directly comparable to CDC Maxim)										
	CDC Maxim (kg ha^{-1})	2952								
	CDC Maxim (CL)[1]	100	23	40	34	E	R	GR	G	G
Extra Small Red	CDC Rosie	104	13	30	35	EM	R	GR	G	G
	CDC Roxy	116	3	26	31	E/M	R	G	G	G
Small Red	CDC Dazil (CL)	93	19	35	35	E-M	R	GR	G	F
	CDC Scarlet	106	13	38	35	EM	R	GR	G	F
Large Red	CDC KR-1	104	17	52	38	M	R	GR	G	G
Small Green	CDC Imvincible (CL)	97	22	33	35	E	Y	G	G	G
Medium Green	CDC Impulse	101	3	39	34	E/M	R	G	G	G
Large Green	CDC Greenstar	80	3	56	34	M/L	Y	G	G	F
	CDC Impower (CL)	81	17	67	40	ML	Y	G	G	VP
	CDC Improve (CL)	83	17	72	38	M	Y	G	F	VP
Previously tested varieties (Yield and agronomic data only directly comparable to CDC Redberry)										
	CDC Redberry (kg ha^{-1})	2666								
	CDC Redberry[1]	100	24	43	37	E	R	GR	G	G
Extra Small Red	CDC Impala (CL)	98	17	31	36	E	R	GR	G	G
	CDC Imperial (CL)	86	19	30	36	E	R	GR/BR	G	G
	CDC Redbow	104	13	32	34	E	R	GR	G	G
	CDC Rosebud	99	13	30	34	E	R	T	G	G
	CDC Ruby	101	14	29	35	E	R	GR	G	G
Small Red	CDC Cherie	108	3	40	32	E-M	R	G	G	F
	CDC Impact (CL)	85	8	37	34	E	R	GR	G	P
	CDC Imax (CL)	103	16	35	49	E-M	R	GR	G	F
	CDC Redcliff	116	11	38	38	E-M	R	GR	G	F
	CDC Redcoat	98	13	42	34	E	R	GR	G	G
Small Green	CDC Viceroy	111	7	31	35	E	Y	G	G	G
Medium Green	CDC Imigreen (CL)	85	11	60	47	M	Y	G	G	VP
	CDC Impress (CL)	90	11	52	40	M	Y	G	G	P
Larrge Green	CDC Greenland	93	11	67	41	M-L	Y	G	G	VP
French Green	CDC Peridot (CL)	105	2	38	XX	E	Y	MRB	F	P

Remarks: Weight, diameter and thickness of lentil seeds were dependent upon environmental conditions and agronomic factors. All five trials: Bow Island, Brooks, Lethbridge, Medicine Hat and Oyen were grown in Area 1. CL= Clearfield variety; XX = Insufficient data to describe.

[1]Yields are reported relative to CDC Maxim (CL) or CDC Redberry. CDC Maxim and CDC Redberry belong to Small Red Market Class. [2]Thousand Seed Weight. [3]Maturity: E = Early, M = Medium, L = Late, VL = Very Late. [4]Cotyledon Color: R = Red, Y = Yellow, G = Green; [5]Seed Coat Color/Patterns: G = Green, GR = Grey, BR = Brown, FG = French Green, T = Tan, MRB = Marbled. [6]Disease tolerance: VP = Very Poor, P = Poor, F = Fair and G = Good.

C H I C K P E A

Variety	Type	Overall Station Years of Testing	Overall Yield[1]	Agronomic Characteristics: TSW[2] (g)	Maturity Rating[3]	Plant Height (cm)	Tolerance to Ascochyta[4]
Varieties tested in the 2016 trials (Yield and agronomic data only directly comparable to CDC Frontier)							
CDC Frontier (kg ha^{-1})			3948				
CDC Frontier[1]	Kabuli	32	100	362	L	44	F
CDC Consul (A)	Desi	7	92	298	M	40	F
CDC Corinne	Desi	17	107	250	M	45	F
CDC Cory	Desi	17	101	277	M	46	F
CDC Palmer (A)	Kabuli	7	95	424	M	38	F
CDC Alma	Kabuli	21	89	380	ML	39	VP
CDC Leader	Kabuli	17	97	400	ML	41	F
CDC Orion	Kabuli	21	94	452	ML	43	P
Previously tested varieties							
CDC Vanguard	Desi	16	92	230	ML	42	F
Amit	Kabuli	28	90	268	L	44	F
CDC Luna	Kabuli	19	88	377	ML	38	P

Remarks: All four trials: Bow Island, Brooks, Lethbridge and Medicine Hat were grown in Area 1. A = First year entries (2016).

[1]Yields are reported relative to CDC Frontier. [2]TSW: Thousand Seed Weight. [3]Maturity Ratings: E = Early, M = Medium, ML = Medium to Late, L = Late; [4]Tolerance to Ascochyta: VP = Very Poor, P = Poor, F = Fair.

SOYBEAN

Variety	Irrigation: Yield (%) Check[1]	Irrigation: Site Years Tested	Agronomic Characteristics: Days to Flowering	Pod Clearance[2] (cm)	Plant Height (cm)	Relative Days to Maturity[3]	TSW[4] (g)	Seeds per Pound
Varieties tested in the 2016 trials (Yield and agronomic data only directly comparable to McLeod)								
McLeod (kg ha^{-1})	3497							
McLeod	100	15	54	7	66	121	155	2926
22-60	102	8	51	4	57	1	145	3128
23-11	98	8	53	4	68	1	142	3194
23-60	106	8	49	4	72	-1	143	3172
Akras	114+	15	58	10	65	2	140	3240
CFS 16.3.02 (A)	95	4	51	4	74	-5	133	3410
CHU 2425 (A)	85-	4	51	5	79	-8	149	3044
Notus	108	8	50	4	56	-1	175	2592
Podaga (A)	97	4	51	7	81	4	159	2853
S0009	100	8	49	5	62	-8	148	3065
S001 (A)	105	4	53	5	77	-2	163	2783
S003 (A)	106	4	51	6	67	-8	174	2607
S006 (A)	118+	4	49	4	66	-8	133	3410
S007	106	8	50	4	63	0	146	3107
Previously tested varieties								
900Y61	90-	11	54	7	56	1	150	3024
NSC Moosomin	78-	11	53	6	49	-4	138	3287
NSC Reston	103	11	54	8	61	-2	128	3544
NSC Vito	89-	11	53	7	71	0	132	3436
P001T34	65-	11	53	5	46	-9	136	3335
Pekko	102	11	57	9	65	0	130	3489

Remarks: Straight combining is commonly used method of harvest. Swathing soybean can result in excessive field losses (up to 25%) due to shattering. Approximately four beans or one to two pods per square foot represent a yield loss of one bushel per acre. Varieties removed from the table: CFS 12.5.01, CFS 13.2.01, Hero, NSC Tilston, NSC Watson, P002T34, P006T78, Pro 2525, TH 32004, TH33003, TH 33005 and TH35002. All four trials: Bow Island, Brooks Lethbroidge and Medicine Hat were grown under irrigation. A - first year entries (2016).

[1]Yields are reported relative to MCLEOD, yields that are statistically higher (+) or lower (-) than the check are indicated. [2]Distance from the ground level to lowest pod tip. [3]Maturity is reported as +/- days relative to MCLEOD – averaged across the Brooks, Bow Island and Medicine Hat trials. [4]TSW: Thousand Seed Weight.