



BC Peace Region

2018 Field Crop Variety Performance





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Funding for this project has been provided by:

BC Peace River Grain Industry Development Council (BCPRGIDC)
BC Grain Producers Association (BCGPA)



Opinions expressed in this document are those of the BC Grain Producers Association and not necessarily those of our funding partners.

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Introduction and Acknowledgements

The weather in 2018 cooperated better than that in 2017 and our team was able to plant farms in both the North and South Peace. As you go through the book, please be aware that we had stronger weed pressures on the South Peace farm than the North Peace, which adversely affected the yields; most notably on the field peas.

Local agri-businesses and seed producers of the BC Peace Region should be recognized for their contributions by providing access to kernel protein analysis and providing certified seed to the program. We thank all of these individuals/organizations, along with various seed development and distribution companies for their direct financial support through “fee-for-service” contracted research, and “in-kind” support towards making field-testing and production of this book possible. Various other private organizations make financial contributions for field days, etc. throughout the year which further enhance the efforts of the research department.

Thanks are extended as well to the site cooperators who continue to generously give their support to the program via lease agreements to their land for research, the **Blanchette Family** and **Heath Tanner** for the North Peace site and **School District #59** for the South Peace site. A further word of thanks goes out to **Dennis Meier** of Dawson Creek who continuously and generously offers us space on his own farm for storage of much of our field equipment.

Cautionary Notes

This document reports all tested materials grown during the 2018 growing season from head-to-head performance trials placed at the BC Grain Producer Association research farms. Multiple-year testing for any one variety is our goal, but often new materials can only be tested for the current year, which may result in an unfair representation of new single-year materials against statistically stronger multiple-year materials. To try to resolve this issue, we now display the results in two graphs for each crop type, one with only the current year’s results and one with multiple-year results. In the multiple-year graphs, new one-year data is left out to be objective. Where **one-year results are shown**, whether in current one-year graphs or in charts, **readers must still interpret and use such one-year data with considerable caution**. As additional results are obtained for a particular variety, the simple effect of compiling data from variable weather patterns over time may change its position regarding either or both yield and maturity. The more station years (*defined as one test site at one location in one year*) that can be used to produce an average, the more stable and reliable a result will be - hence the association’s steadfast efforts to procure multi-year data. By providing readers with a separate “current year graph,” many of the risks with looking at one-year data is still there but the chances of misrepresenting new entries against older stronger data is greatly reduced.

This book is produced without bias and is reported to the best of our ability from our own site data collected locally (except where noted). Results contained herein should only be used as a guide and where labels or agreements are signed or supplied with your product, always follow label directions and agreements.

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BC Grain Producers Association Reference & Terminology

Station Years

The number of station years that the variety has been tested can be seen in the yield tables inside the square bracket []. A station year is one test site at one location in one year. For example, a canola trial conducted at two locations over three years would have six station years, or [6]. We advise using caution if the data is based on *less than three station years*, or less than two years at both locations. This is a concern for canola with high variety turnover.

Interpreting Yield Results

Crops in this book are managed using the same level of inputs as field-sized recommendations would suggest. Small-plot research plots offer better consistency and can be better controlled, whereas wet areas and variable soil fertility affect field-scale crop production. However, small plots are subject to *edge effect* which is caused by the spaces around the individual plots allowing extra sunlight to penetrate. This can boost yields on these exposed outer plants, as compared to the average plant in a field scale situation that would be shadowed by its neighbors. **The important concept here is that this edge effect can be assumed equal for all plots in a given trial therefore we can compare varieties in a trial and look at resulting yields as relative to one another.** Yields presented here are the result of *small plot production* only, using *fully randomized, fully replicated and good scientific methods*. The same “level” or amplitude of production is unlikely to be achieved on a large-scale (commercial) basis. Statistics, which are vital to good science, are best used on original yield data and not on averaged data. We elected to show *bushels per acre* for the current year data only. However, when more than one trial per site per year is used to develop the datasets as seen in this report, it is incorrect to display averaged statistical values. Treat *all* yield results as relative results. Current check varieties have been bolded.

Plant Breeders Rights and the adoption of UPOV91

The Plant Breeders’ Rights (PBR) gives plant breeders “copyright” protection of a variety for up to 18 years. Once a variety has been granted PBR, the breeder has control over the multiplication and sale of the seed. In addition, as of February 27, 2015, amendments have

been made to the act to include newly adapted UPOV-91 changes. UPOV-91 contains some new elements that provide even stronger protection for plant breeders than any of the previous conventions with PBR. Either way, a breeder can take legal action for damages if someone infringes on their rights. Basically, amending the PBR Act encourages increased investment in plant breeding within Canada. This in turn gives Canadian farmers more access to new and innovative plant varieties that otherwise may never have been introduced if not protected. Farmers may still save some seed for seeding the next year on their own farm, but the sale or giving of the crop as seed for planting purposes to others is not allowed.

Simply put, any seed sold in Canada now that is protected under UPOV-91 must come with proof of proper and legally acquired genetic origin. Most new transgenic herbicide-tolerant varieties have additional restrictions through ‘*technical use agreements*’, so be aware of these also, as it replaces PBR status and can have strong consequences if ignored. Varieties protected by PBR or UPOV-91 can be identified by their logos on a seed bag, seed tag or advertising material. This book tries to identify such lines within “*Variety Description*” tables with a flower (☼) or flower and superscript “91” (☼⁹¹) for the new UPOV-91 status. It is the responsibility of the grower to know which line is protected by breeder rights.

Certified Seed

The cost of *certified seed* is a small additional expense in relation to total crop production input costs, especially when changing to a different variety. Certified seed assures genetic purity, high germination rates and low percentage of foreign seed when compared to common seed. Certified seed can be purchased in bulk through authorized seed dealer networks. Visit the Canadian Seed Growers’ Association at www.seedlocator.net to find a certified seed grower close to you.

Seed Treatment

Choosing disease-resistant varieties and using certified seed is good practice, but treated seed goes a long way in the fight against plant diseases as well. The cost of a fungicide or a combined fungicide/insecticide seed treatment can be a small price to pay for the amount of protection and peace of mind they provide. The right seed treatment choice is important as some perform better than others for certain crop types. Treated seed must not contaminate grain delivered to an elevator or be used for feed.

- Cereal seed should be treated to control *true loose smut* and early season *seedling* diseases.
- Seed of rye, winter wheat and flax should be treated to control *seedling blight*. Winter wheat and rye also require protection against *smut*.
- Canola seed should be treated to control seed borne *blackleg*, *damping off* and early *flea beetle* attack.

Ergot

The fungal disease *Ergot* can attack all varieties of wheat, barley, rye, triticale and most common species of grass. Oat varieties are rarely attacked. Grain having 0.1% ergot is considered poisonous to livestock and should not be used as feed. The black rice-like "*seed mummies*" can be spotted prior to harvest in heads during a field inspection.

Seed Inoculation

Peas can make much of their nitrogen (N) requirement from the air through a partnership with soil bacteria called *Rhizobium*. Cool, dry or excessively wet soils provide a harsh environment for proper inoculation. Under these conditions, a low level of nodulation formation will be the result. Survival of residual rhizobia organisms in our cool Peace Region soils is not consistently reliable; making use of inoculant with seed a good form of insurance. The pea seed must be inoculated immediately before or during seeding with a proper strain of bacteria specific to peas. *Rhizobia* are living organisms so check the expiry date on the package and follow inoculant label directions carefully. Generally, it is a good idea prior to its use and even during use if possible, to try and reduce the inoculant's exposure to sunlight, open-air and warmth. Note that high residual soil nitrogen levels (over 60 kg N/ha) will reduce nodulation in the field regardless of inoculation.

Granular inoculant placed with the seed at planting was used on all pea-trials seen in this report.

Seeding Rates

While the following *range* of seeding rates has given consistent yields for each crop listed, local producer experience has shown that the top end of the range provides more consistent results. **Risk of impaired emergence under stressful conditions can be reduced by increasing the seeding rate.** In addition, higher seeding rates can reduce the amount of secondary tillering, **produce earlier more uniform maturity** and reduce the amount of green kernels at harvest.

Testing conducted by the Beaverlodge Research Station in the past throughout the Peace Region showed that by

increasing the seeding rate of wheat from 80 to 120 lbs/ac (90 to 134 kg/ha), reduced the time to maturity by two days. Our own BCGPA trials involving seeding rates in barley initially showed that when increasing seeding rates from 2.25 to 2.5 bushels per acre, it decreased maturity from 2 to even 4 days at physiological maturity, which is significant by harvest. However, over the full five years of the project, our own results became less significant.

Suggested Rates of Seeding

Wheat	90 - 120 lb/ac	100 - 135 kg/ha
CPS Wheat	130 - 180 lb/ac	145 - 200 kg/ha
Barley	75 - 100 lb/ac	85 - 110 kg/ha
Oat	70 - 90 lb/ac	85 - 100 kg/ha
Flax	26 - 40 lb/ac	30 - 35 kg/ha
Rye	65 - 85 lb/ac	73 - 95 kg/ha
Peas	150 - 300 lb/ac	165 - 330 kg/ha
Argentine Canola	5 - 8 lb/ac	6 - 9 kg/ha
Polish Canola	5.5 lb/ac	6 kg/ha

Due to large differences in seed sizes, seeding rates can vary considerably. Therefore, one should base the seeding rate on a *target number of viable seeds per square foot*. Using the 1000 kernel weight (TKW), adjusting for percent germination and allowing for seed mortality to be say 5%, calculate the number of pounds of seed required per acre. It is best to acquire the *actual* TKW.

Example (using wheat): Target **24** wheat plants per square foot, the variety has a 1000 K wt. of **35** grams. Then estimate a seedling survival rate, which is the germination percentage minus a small amount for seedling mortality. Field mortality is usually 5-20%, depending on harshness of spring seedbed conditions. A seed lot with 95% germination and an expected field mortality of 5% would have an expected emergence or survival rate of 90%. Using a *constant value* of **9.6...**

$$\frac{24 \text{ plants/sq.ft} \times 35 \text{ (g/1000 K)}}{90 (\%)} \times 9.6 = 90 \text{ lb/acre}$$

*Answer: You would plant **90 lbs.** of wheat seed/acre.*

Crop	Type	Seeds / sq.ft	Avr. 1000 K wt
Wheat	CWRS	24 - 25	35 - 44 g
	CPS / CWES	24 - 25	44 - 52 g
Barley	6 Row	24 - 25	35 - 43 g
	2 Row	24 - 25	44 - 53 g
Oat	Hulled	24 - 25	38 - 47 g
Rye		24	30 - 35 g
Peas		8	200 - 345 g

BC Grain Producers Association 2018 Growing Conditions

2018 gave us growing conditions that were more favorable than the previous year for planting the South Peace farm. We were able to plant both farms in a timely manner over a span of approximately two weeks, with

some pausing needed while seeding in the South Peace around short rain storms.

The weather was just short of average for rainfall at both farms, with the largest issues faced were weed pressures at the South Peace farm. The weed issues at the South Peace farm were extreme, with some plots in the pea trials losing over half the plot to weeds. growing season.

Interpreting Data

The yield for each variety is reported on a regional basis for the North and South Peace areas and as an average for the entire BC Peace, with the number of years each variety has been tested is listed for both of the areas. In the following example, the number of years is indicated in [], right after the yield. Station years are the total of times a variety has been tested in BCGPA trials.

Two Row Barley			Yield as % of AC Metcalfe								
Variety	Type	feed	South Peace			North Peace			B.C. Peace		
			2017	2012-2017	Stn.Yrs.	2017	2012-2017	Stn.Yrs.	2017	2012-2017	Stn.Yrs.
			Yield	Avg.		Yield	Avg.		Yield	Avg.	
XENA	2-row	feed	115	109	[6]	83	100	[6]	106	104	[12]

note: the above example is a dramatization

Number of **years** the variety was tested at **each station**

Number of **times** in total the variety was tested in the **B.C. Peace**.

Statistical Values

Entries into the regional trials are replicated a minimum of three times, with the preference being four at each location. This replication is used to reach an overall average per entry per trial, and allow for statistical analysis.

Coefficient of Variance (CV value)

The CV is given as a percentage and shows how statistically reliable a given data set is. Generally, any value less than or equal to 15% is considered to be acceptable. This tells us that if you were to repeat a trial under the same or similar conditions, you should get similar results. While you do not want to see yield data from a single trial with a high CV, when assessing insect or disease data, a higher CV can be acceptable, due to the higher variability traits of those types of trials.

Final Note

In order to obtain a full picture of the variety, the BCGPA research team recommends that readers of this book recognize that longer term averages should be used whenever possible, with preference given to those with data from at least six station years over the BC Peace. The BC Grain Producers research team would like to note that data for varieties with less than three station years should be compared with caution.

2018 North Peace Field Treatments

Legal Description: SW19 Tp84 R18 W6

Planting & Harvest

Crop	Seeding rate	Planted Date	Soil Temp (C°) @ plant	Seeding Depth	Harvest Date	Harvesting Method
	(viable seeds used) m ²					
Barley	270	17-May-18	18.5	1 - 1.5 inch	20-Sep-18	direct
Canola	200	19-May-18	14.3	0.5 - 1 inch	22-Sep-18	direct
CPS/GP&SWS Wheat	330	18-May-18	21.5	1 - 1.5 inch	21-Sep-18	direct
CWRS Wheat	330	18-May-18	21.5	1 - 1.5 inch	21-Sep-18	direct
Durum Wheat	300	18-May-18	21	1 - 1.5 inch	21-Sep-18	direct
Oat	300	18-May-18	18.6	1 - 1.5 inch	20-Sep-18	direct
Pea	88	14-May-18	12.7	0.75 - 1.5 inch	5-Sep-18	desiccate/direct
Triticale	310	18-May-18	21	1 - 1.5 inch	21-Sep-18	direct

Fertilizer Rates

Crop	Fertilizer Applied	Pro. kg/ha	Placement	lbs actual/ac Recom. vs. Applied	Soil-Test Results			
					N	P ₂ O ₅	K ₂ O	S
Barley	34 - 0 - 0 - 11	265	banded	*Recommended =	9	15	15	20
	5 - 26 - 30 - 0	56	banded	Actually applied =	85	25	15	26
	11 - 52 - 0 - 0	25	in-furrow					
Canola	34 - 0 - 0 - 11	265	banded	*Recommended =	132	20	25	20
	5 - 26 - 30 - 0	75	banded	Actually applied =	86	29	20	26
	11 - 52 - 0 - 0	25	in-furrow					
Oat	34 - 0 - 0 - 11	265	banded	*Recommended =	9	15	15	20
	5 - 26 - 30 - 0	56	banded	Actually applied =	85	25	15	26
	11 - 52 - 0 - 0	25	in-furrow					
Pea	34 - 0 - 0 - 11		banded	*Recommended =	128	20	25	25
	5 - 26 - 30 - 0		banded	Actually applied =	2	12		
	11 - 52 - 0 - 0	25	in-furrow					
Triticale	34 - 0 - 0 - 11	265	banded	*Recommended =	83	15	15	20
	5 - 26 - 30 - 0	56	banded	Actually applied =	85	25	15	26
	11 - 52 - 0 - 0	25	in-furrow					
Wheat	34 - 0 - 0 - 11	265	banded	*Recommended =	83	15	15	20
	5 - 26 - 30 - 0	56	banded	Actually applied =	85	25	15	26
	11 - 52 - 0 - 0	25	in-furrow					

*Recommended = recommendations given by ALS Laboratory Group, calculated from soil samples taken earlier in the spring prior to planting.

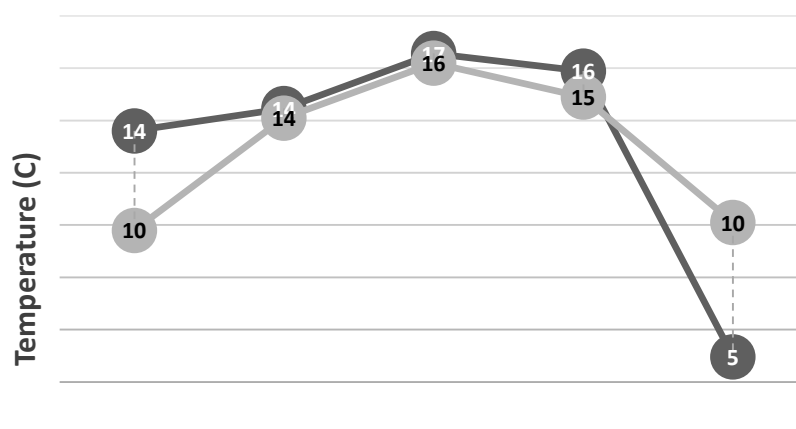
Pesticide

Crop	Date Applied	Product Used	Product Rate
Barley	20-Jun-18	Buctril-M	400 ml/ac
Canola	20-Jun-18	Muster Toss-N-Go	12 g/ac
		Lontrel 360	170 ml/ac
		Poast Ultra	190 ml/ac
		Merge	162 ml/ac
Oats	20-Jun-18	Buctril-M	400 ml/ac
Pea	14-Jun-18	Assure II	200 ml/ac
		Sure-Mix	0.5% v/v
Wheat	20-Jun-18	Buctril-M	400 ml/ac



North Peace Weather Information

Temperature



Notes on 2018 Weather Information Collection

2018 Weather Data on this page is calculated from May 1, 2018 – September 30, 2018. It is collected via an on farm weather station.

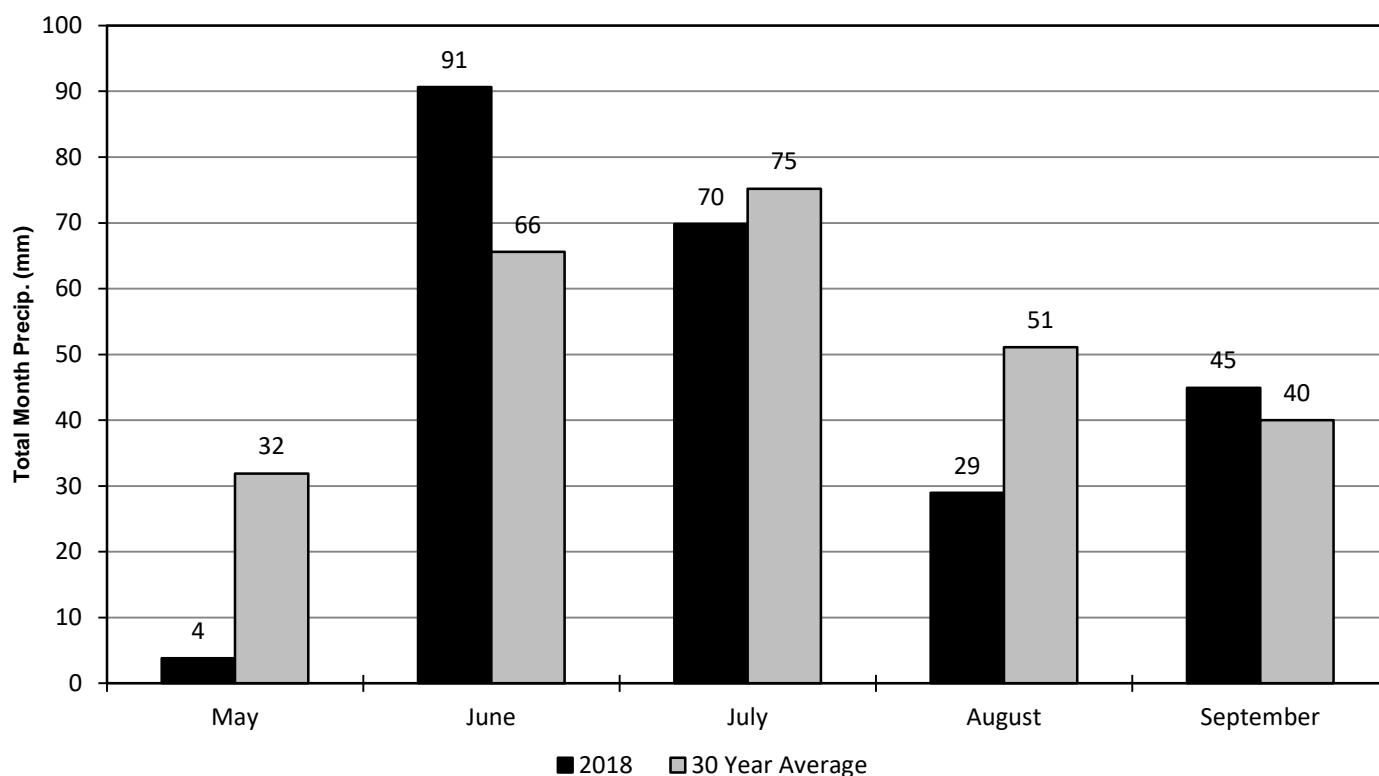
30-year averages shown are collected from Environment Canada information from 1981 – 2010.

	MAY	JUN	JUL	AUG	SEP
2018 Average	14	14	17	16	5
30 Year Average	10	14	16	15	10

GROWING DEGREE DAYS

Check out www.bcpeaceweather.com for a GDD calculator, using complete accurate information from the local weather station closest to your field!

Precipitation



2018 South Peace Field Treatments

Legal Description: SW20 Tp78 R14 W6

Planting & Harvest

Crop	Seeding rate viable seeds used	Planted Date	Soil Temp (C°) @ plant	Seeding Depth	Harvest Date	Harvesting Method
	m ²					
Barley	270	23-May-18	13.5	1 - 1.5 inch	26-Sep-18	direct
Canola	200	25-May-18	14.8	0.5 - 1 inch	18-Oct-18	direct
CPS/GP&SWS Wheat	330	23-May-18	13.5	1 - 1.5 inch	28-Sep-18	direct
CWRS Wheat	330	23-May-18	13.5	1 - 1.5 inch	28-Sep-18	direct
Durum Wheat	300	23-May-18	13.5	1 - 1.5 inch	28-Sep-18	direct
Oat	300	23-May-18	13.5	1 - 1.5 inch	26-Sep-18	direct
Pea	88	12-May-18	11.5	0.75 - 1.5 inch	24-Aug-18	direct
Triticale	310	23-May-18	13.5	1 - 1.5 inch	28-Sep-18	direct

Fertilizer Rates

Crop	Fertilizer Applied	Pro. kg/ha	Placement	lbs actual/ac Recom. vs. Applied	Soil-Test Results			
					N	P ₂ O ₅	K ₂ O	S
Barley	34 - 0 - 0 - 11	235	banded	*Recommended =	63	25	25	20
	5 - 26 - 30 - 0	106	banded	Actually applied =	79	36	28	23
	11 - 52 - 0 - 0	25	in-furrow					
Canola	34 - 0 - 0 - 11	235	banded	*Recommended =	118	20	25	20
	5 - 26 - 30 - 0	75	banded	Actually applied =	78	34	20	23
	11 - 52 - 0 - 0	35	in-furrow					
Oat	34 - 0 - 0 - 11	235	banded	*Recommended =	91	25	25	20
	5 - 26 - 30 - 0	80	banded	Actually applied =	77	30	214	23
	11 - 52 - 0 - 0	25	in-furrow					
Pea	34 - 0 - 0 - 11		banded	*Recommended =	0	0	0	0
	5 - 26 - 30 - 0		banded	Actually applied =	2	12	0	0
	11 - 52 - 0 - 0	25	in-furrow					
Triticale	34 - 0 - 0 - 11	235	banded	*Recommended =	46	20	25	20
	5 - 26 - 30 - 0	137	banded	Actually applied =	77	32	37	23
	11 - 52 - 0 - 0	0	in-furrow					
Wheat	34 - 0 - 0 - 11	235	banded	*Recommended =	46	20	25	20
	5 - 26 - 30 - 0	137	banded	Actually applied =	77	32	37	23
	11 - 52 - 0 - 0	0	in-furrow					

*Recommended =
recommendations
given by ALS
Laboratory Group,
calculated from
soil samples taken
earlier in the spring
prior to planting.

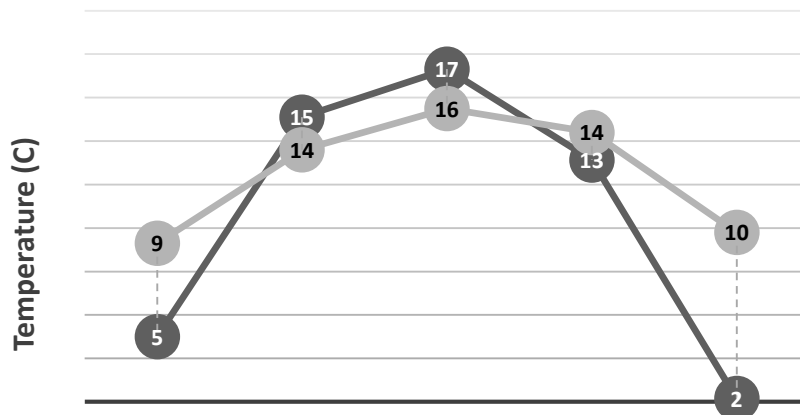
Pesticide

Crop	Date Applied	Product Used	Product Rate
Barley	22-Jun-18	Buctril-M	400 ml/ac
Canola	22-Jun-18	Muster Toss-N-Go	170 ml/ac
		Lontrel 360	190 ml/ac
		Poast Ultra	162ml/ac
		Merge	162 ml/ac
Oats	22-Jun-18	Buctril-M	400 ml/ac
Pea	01-Jun-18	Basagran	900 ml/ac
Wheat	22-Jun-18	Buctril-M	400 ml/ac



South Peace Weather Information

Temperature



Notes on 2018 Weather Information Collection

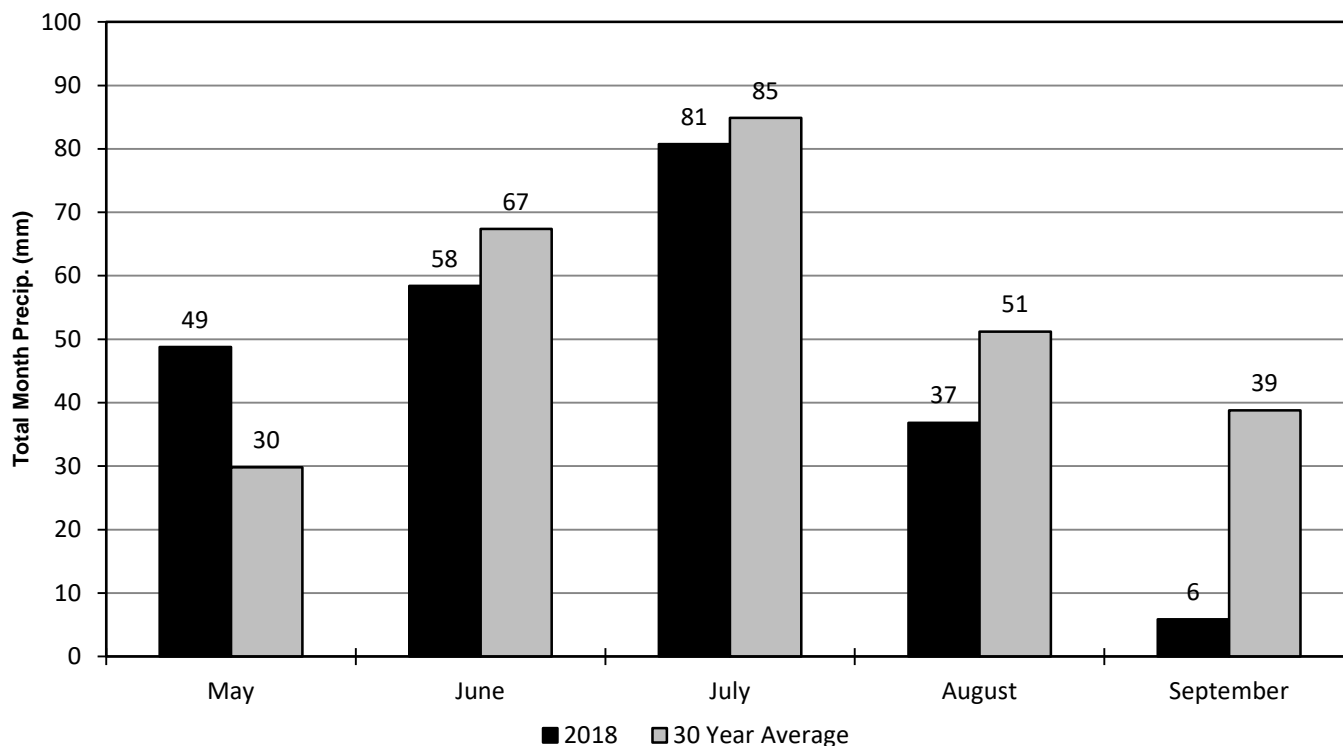
2018 Weather Data on this page is calculated from May 1, 2018 – September 30, 2018. It is collected via an on farm weather station.

30-year averages shown are collected from Environment Canada information from 1981 – 2010.

GROWING DEGREE DAYS

Check out www.bcpeaceweather.com for a GDD calculator, using complete accurate information from the local weather station closest to your field!

Precipitation



Summary of Trials

Producer Funded 'Regional' Trials Planted

'Regional' Trials	# of Varieties	Replicates	Locations	Total Plots
Barley *	17	3	NP & SP	102
Canola	18	4	NP & SP	144
Flax *	7	4	NP & SP	56
Oat *	11	4	NP & SP	88
Green Pea *	5	4	NP & SP	40
Yellow Pea *	11	4	NP & SP	88
Tritcale *	2	3	NP & SP	12
CWRS Wheat *	26	4	NP & SP	208
SP/SWS Wheat *	10	4	NP & SP	80
CPS Wheat *	9	4	NP & SP	72
Durum Wheat *	9	4	NP & SP	72
Winter Wheat **	10	4	NP	40
Total Plots			1002	

*Denotes trials in partnership with Alberta Ministry of Agriculture and Forestry

** Denotes trials in partnership with Agriculture and Agrifood Canada



Additional Trials Planted

The data from the two tables following is used for plant breeding and early registration support.

Co-operative Trials

Trial Name	# of Varieties	Replicates	Locations	Total Plots
B-2Y41 Barley Co-op	40	3	SP	120
Western 2-Row Western Barley Co-op	45	3	NP & SP	270
Western 6-Row Western Barley Co-op	25	3	NP & SP	150
Western Oat Co-op	36	3	NP	108
Short-Season Field Pea Co-op	24	3	NP	72
PYT05 & 06 - Field Pea	72	2	NP & SP	144
Parkland 'C' Wheat Co-op	30	3	NP & SP	180
Canola Performance Trials - Straight Cut	7	4	NP & SP	56
Canola Performance Trials - Standard	27	4	NP & SP	216
WCC/RCC Trial - NS 1/2/3	60	3	NP	180
Total Plots			1316	

Fee Trials

Crop	Total Plots
Camelina	40
Canola	546
Quinoa	167
Oats	222
Wheat	405
Soybean	72
Total Plots	1380

BARLEY

Six Row Barley		Yield as % of AC Metcalfe										
Variety	Type	South Peace				North Peace				BC Peace		
		2018 Yield		2013-2018		2018 Yield		2013-2018		2018	2013-2018	
		bu / acre	% of check	Avg. (%)	Stn. Yrs.	bu / acre	% of check	Avg. (%)	Stn. Yrs.	Avg. (%)	Avg. (%)	Stn. Yrs.
AC Metcalfe	2 row	80	100	100	[11]	119	100	100	[14]	100	100	[25]
SR14501 *	6 row	77	97	97	[1]	107	90	90	[1]	93	93	[2]
SR16511 *	6 row	99	123	123	[1]	115	97	97	[1]	110	110	[2]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 4.53% NP = 9.24%

Two Row Barley		Yield as % of AC Metcalfe										
Variety	Type	South Peace				North Peace				BC Peace		
		2018 Yield		2013-2018		2018 Yield		2013-2018		2018	2013-2018	
		bus / acre	% of check	Avg. (%)	Stn. Yrs.	bus / acre	% of check	Avg. (%)	Stn. Yrs.	Avg. (%)	Avg. (%)	Stn. Yrs.
AAC Connect ⌘91	2 row	74	92	98	[2]	95	80	89	[3]	86	93	[5]
AAC Synergy ⌘	2 row	90	113	107	[3]	117	98	102	[4]	106	105	[7]
AC Metcalfe	2 row	80	100	100	[7]	119	100	100	[9]	100	100	[16]
Altorado ⌘91	2 row	86	107	109	[3]	130	110	107	[4]	108	108	[7]
CDC Ascent ⌘91 ¶	2 row	94	117	117	[1]	98	83	80	[2]	100	92	[3]
CDC Austenson ⌘	2 row	85	106	109	[2]	124	105	107	[4]	105	107	[6]
CDC Copeland ⌘	2 row	76	95	95	[1]	111	94	94	[1]	95	95	[2]
CDC Copper *	2 row	126	158	158	[1]	130	110	110	[1]	134	134	[2]
CDC Goldstar Δ	2 row	84	105	105	[1]	116	98	103	[2]	101	104	[3]
Oreana ⌘91	2 row	79	99	116	[4]	131	111	113	[5]	105	114	[9]
Sirish Δ	2 row	111	139	139	[1]	134	113	111	[2]	126	120	[3]
TR15155 *	2 row	86	108	108	[1]	122	103	103	[1]	105	105	[2]
TR16629 *	2 row	115	144	144	[1]	135	114	114	[1]	129	129	[2]
Claymore ⌘91	2 row	89	111	112	[4]	133	112	106	[5]	112	109	[9]
Lowe Δ	2 row	86	107	105	[2]	135	114	108	[3]	111	107	[5]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 4.53% NP = 9.24%

Δ PBR pending

⌘ protected by Plant Breeders Rights

⌘⁹¹ protected by Plant Breeders Rights, UPOV91

* first year tested, very limited data

¶ hullless seed types

¥ semi-dwarf variety

‡ smooth-awned type

§ Awnless

Feed Barley							Variety Descriptions							
Variety	Type	BC Peace Averages					Alberta Agdex 100/32 info							
		2013-2018					Resistance to							
		Days to	Bushel	Kernel	Lodging	Loose	Smut	False	Smut	Root Rot	Scald	FHB		
		Maturity	Height	Weight									Protein %	
		+/- check	cm	lbs/bu	+/- check									
Eligible for General Purpose Grades Only														
AC Metcalfe	2 row	0.0	82	55	0	[15]	F	R	I	I	S	I		
Altorado 91	2 row	1.4	75	55	0	[3]	G	MR	MR	MR	S	I		
CDC Austenson 91	2 row	0.9	83	57	-1	[1]	G	S	R	I	S	I		
Claymore 91	2 row	2.3	79	54	-1	[5]	G	S	R	I	S	I		
Oreana 91	2 row	2.2	66	55	-1	[5]	VG	S	R	I	S	S		
SR14501 *	6 row	0.5	90	51	1	[1]	XX	XX	XX	XX	XX	XX		
SR16511 *	6 row	2.5	96	51	0	[1]	XX	XX	XX	XX	XX	XX		
Hulless														
CDC ASCENT 91 ¶	2 row	1.8	78	64	1	[1]	G	MR	MR	I	MS	MR		

Malt Barley							Variety Descriptions						
Variety	Type	BC Peace Averages					Alberta Agdex 100/32 info						
		2013-2018					Resistance to						
		Days to	Bushel	Kernel	Lodging	Loose	Smut	False	Smut	Root Rot	Scald	FHB	
		Maturity	Height	Weight									Protein %
		+/- check	cm	lbs/bu	+/- check								
AAC Connect ☼91	2 row	-0.6	78	52	0	[1]	G	S	R	MS	S	MR	
AAC Synergy ☼	2 row	0.8	80	54	0	[5]	F	S	I	I	S	MS	
AC Metcalfe	2 row	0.0	82	55	0	[15]	F	R	I	I	S	I	
CDC Copeland ☼	2 row	0.6	83	52	-1	[1]	F	MS	I	I	S	I	
CDC Copper *	2 row	2.0	72	53	3	[1]	XX	XX	XX	XX	XX	XX	
CDC Goldstar Δ	2 row	-0.4	83	54	0	[1]	G	I	R	XX	S	MS	
Lowe Δ	2 row	2.0	93	53	0	[1]	F	R	R	XX	MR	MR	
Sirish Δ	2 row	2.7	55	53	-1	[1]	G	S	R	XX	MR	MS	
TR15155 *	2 row	0.0	73	51	0	[1]	XX	XX	XX	XX	XX	XX	
TR16629 *	2 row	5.4	89	53	0	[1]	XX	XX	XX	XX	XX	XX	

Overall average protein for AC Metcalfe is 12.3%

Overall average maturity for AC Metcalfe is 93 days

Δ PBR pending

☼ protected by Plant Breeders Rights

☼⁹¹ protected by Plant Breeders Rights, UPOV91

* first year tested, very limited data

XX = Insufficient Data

VG= very good, G = good, F = Fair, P = Poor, VP = Very Poor

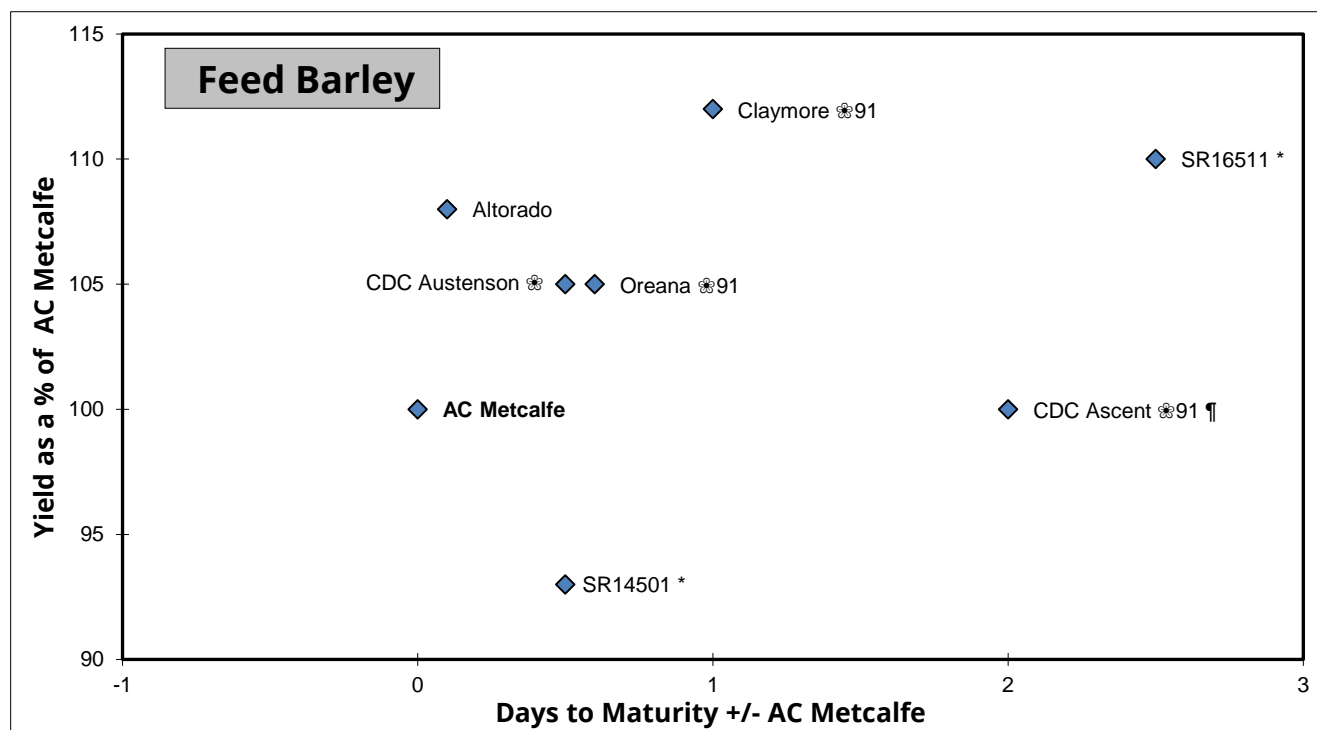
R = Resistant, MR = moderately resistant, I = Intermediate resistance, MS = Moderately Susceptible, S = Susceptible

¶ hulless seed types

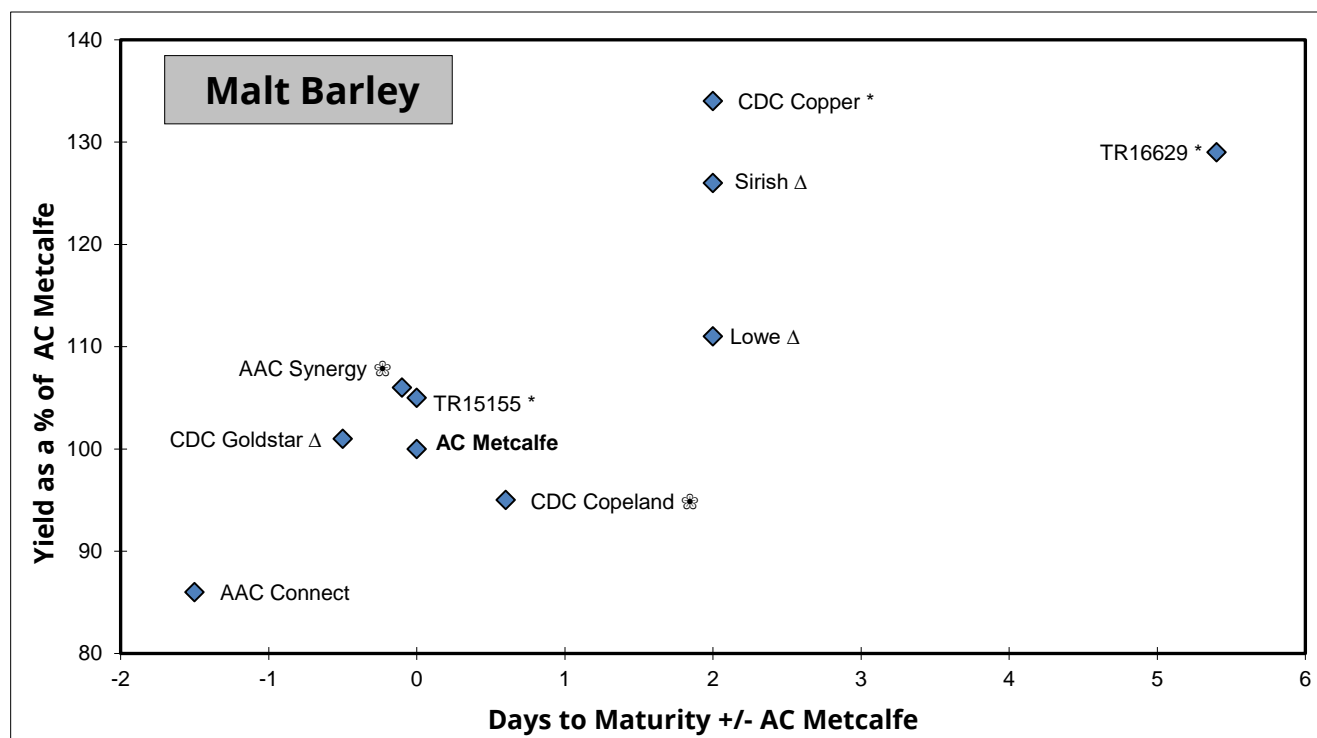
¥ semi-dwarf variety

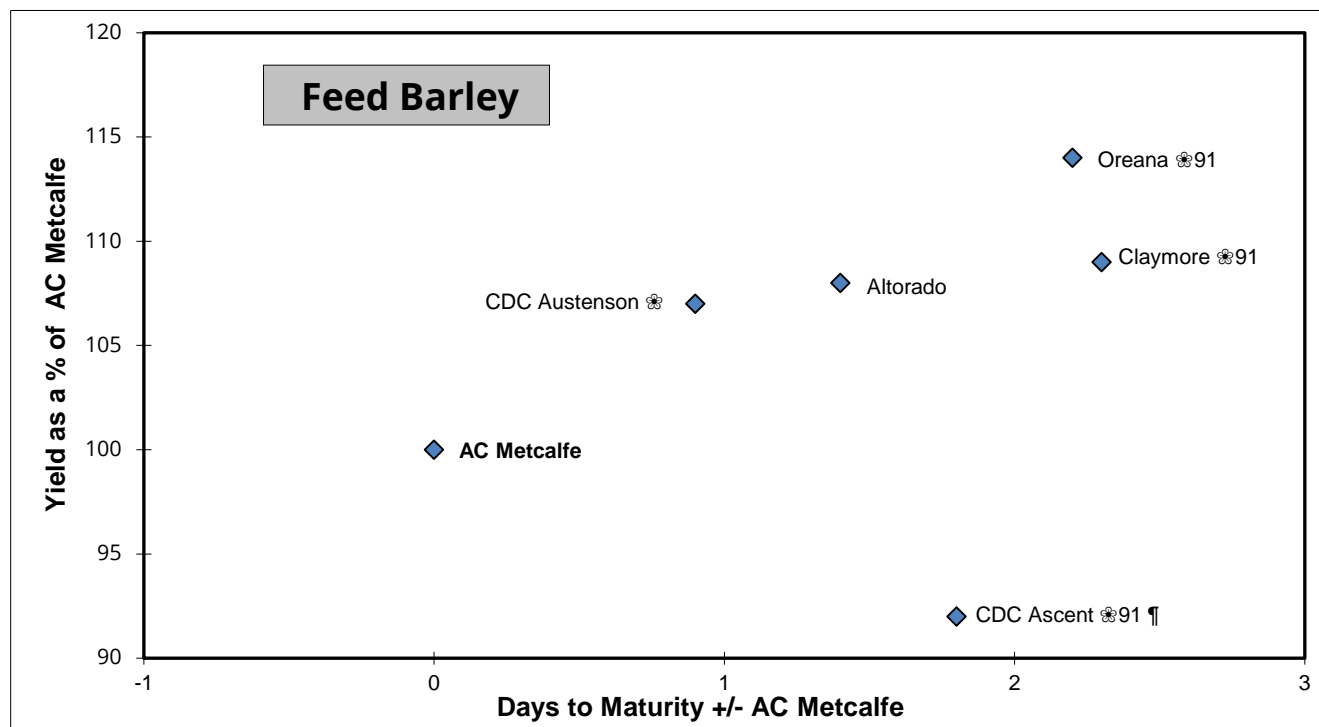
‡ smooth-awned type

§ Awnless

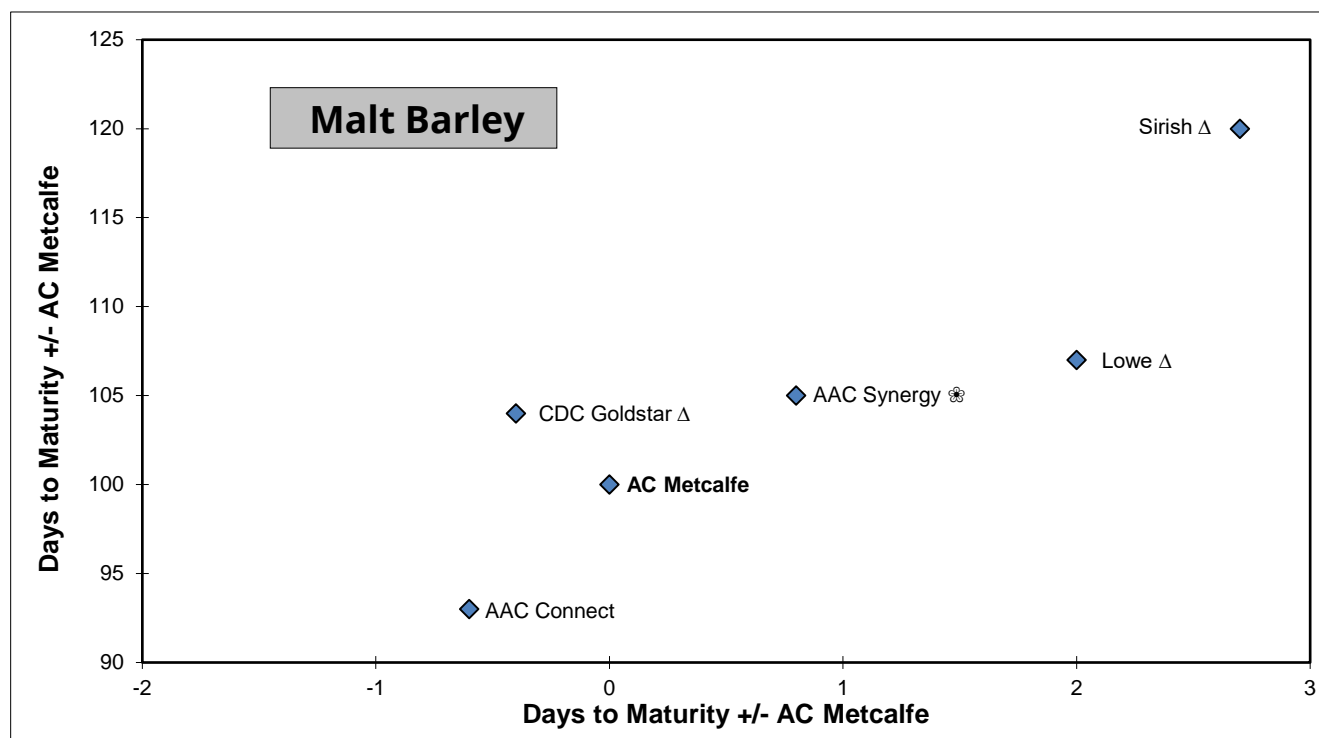


Average maturity for AC Metcalfe is 104 days for 2018





Overall average maturity for AC Metcalfe is 93 days



Δ PBR pending

* protected by Plant Breeders Rights

*⁹¹ protected by Plant Breeders Rights, UPOV91

* first year tested, very limited data

¶ hulless seed types

¥ semi-dwarf variety

‡ smooth-awned type

§ Awnless

CANOLA

Argentine Canola		Yield as % of 5440								
Variety	Type	South Peace			North Peace			BC Peace		
		2018	2013-2018		2018	2018-2018		2018	2013-2018	
		% of check	Avg. (%)	Stn. Yrs.	% of check	Avg. (%)	Stn. Yrs.	Avg. (%)	Avg. (%)	Stn. Yrs.
4187 RR *	Roundup Ready®	126	126	[1]	111	111	[1]	119	119	[2]
45CM39 *	Roundup Ready®	125	125	[1]	112	112	[1]	118	118	[2]
45CS30 *	-	116	116	[1]	101	101	[1]	108	108	[2]
45H33	Roundup Ready®	133	108	[3]	107	97	[4]	120	102	[7]
45M35	Roundup Ready®	125	125	[1]	115	115	[1]	120	120	[2]
45M37 *	-	134	134	[1]	108	108	[1]	121	121	[2]
45M38 *	Roundup Ready®	129	129	[1]	103	103	[1]	116	116	[2]
5440	Libertylink®	100	100	[7]	100	100	[8]	100	100	[15]
6074 RR	Roundup Ready®	139	139	[1]	119	111	[2]	129	120	[3]
6090 RR *	Roundup Ready®	141	141	[1]	105	105	[1]	123	123	[2]
CS2000 Δ	Roundup Ready®	148	110	[3]	120	100	[4]	134	104	[7]
CS2400 *	Roundup Ready®	90	90	[1]	88	88	[1]	89	89	[2]
CS2500CL *	Clearfield®	108	108	[1]	112	112	[1]	110	110	[2]
L230P *	Libertylink®	125	125	[1]	110	110	[1]	117	117	[2]
L233P *	Libertylink®	152	152	[1]	83	83	[1]	118	118	[2]
L241C *	Libertylink®	149	149	[1]	119	119	[1]	134	134	[2]
L252	Libertylink®	118	113	[3]	131	111	[4]	124	112	[7]
L255PC *	Libertylink®	132	132	[1]	84	84	[1]	108	108	[2]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 11.63% NP= 2.14%

Δ PBR pending

δ specialty oil variety

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△ Club-root resistance

☼⁹¹ protected by Plant Breeders Rights, UPOV91

⌘ Sclerotinia resistance

* first year tested, very limited data

⌘ direct-cut ability/shatter resistance

Roundup Ready® is a registered trademark of Monsanto Canada Inc.
 LibertyLink® is a registered trademark of Bayer CropScience
 Clearfield® is a registered trademark of BASF

Note: "System Varieties" (Clearfield®, Roundup Ready®, or LibertyLink®) are grown together with "conventional" Argentine varieties and conventional herbicides are used for weed control. (See page 5 for herbicides used).



Argentine Canola

Variety Descriptions

Variety	Type	Herbicide Tolerance	BC Peace Average Days to Swathing as +/- check		Blackleg Rating (Data from Various info.)
			2018	2013-2018	
4187 RR *	HYB	Roundup Ready®	3.3	3.3	R
45CM39 *	HYB	Roundup Ready®	0.7	0.7	R
45CS30 *	HYB	-	4.3	4.3	R
45H33	HYB	Roundup Ready®	-0.7	0.0	R
45M35	HYB	Roundup Ready®	8.0	4.0	R
45M37 *	HYB	-	0.7	0.7	R
45M38 *	HYB	Roundup Ready®	2.3	2.3	R
5440	HYB	Libertylink®	0.0	0.0	R
6074 RR	HYB	Roundup Ready®	4.7	3.4	R
6090 RR *	HYB	Roundup Ready®	0.0	0.0	R
CS2000 Δ	HYB	Roundup Ready®	4.0	1.2	R
CS2400 *	HYB	Roundup Ready®	2.3	2.3	R
CS2500CL *	HYB	Clearfield®	1.0	1.0	R
L230P *	HYB	Libertylink®	4.0	4.0	XX
L252	HYB	Libertylink®	5.7	1.2	R
L255PC *	HYB	Libertylink®	6.3	6.3	R
L233P *	HYB	Libertylink®	-0.7	-0.7	XX
L241C *	HYB	Libertylink®	-0.3	-0.3	XX

Average 'days to swathing' for 5440 is 107 days for 2018

Overall Average 'days to swathing' for 5440 is 107 days for 2013-2018

Δ PBR pending

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☼⁹¹ protected by Plant Breeders Rights, UPOV91

* first year tested, very limited data

δ specialty oil variety

△ Club-root resistance

8 Sclerotinia resistance

⌘ direct-cut ability/shatter resistance

VG = Very Good, **G** = Good, **F** = Fair, **P** = Poor, **VP** = Very Poor

XX = Insufficient Data

R = Resistant, **MR** = Moderately Resistant, **I** = Intermediate Resistance, **MS** = Moderately Susceptible, **S** = Susceptible

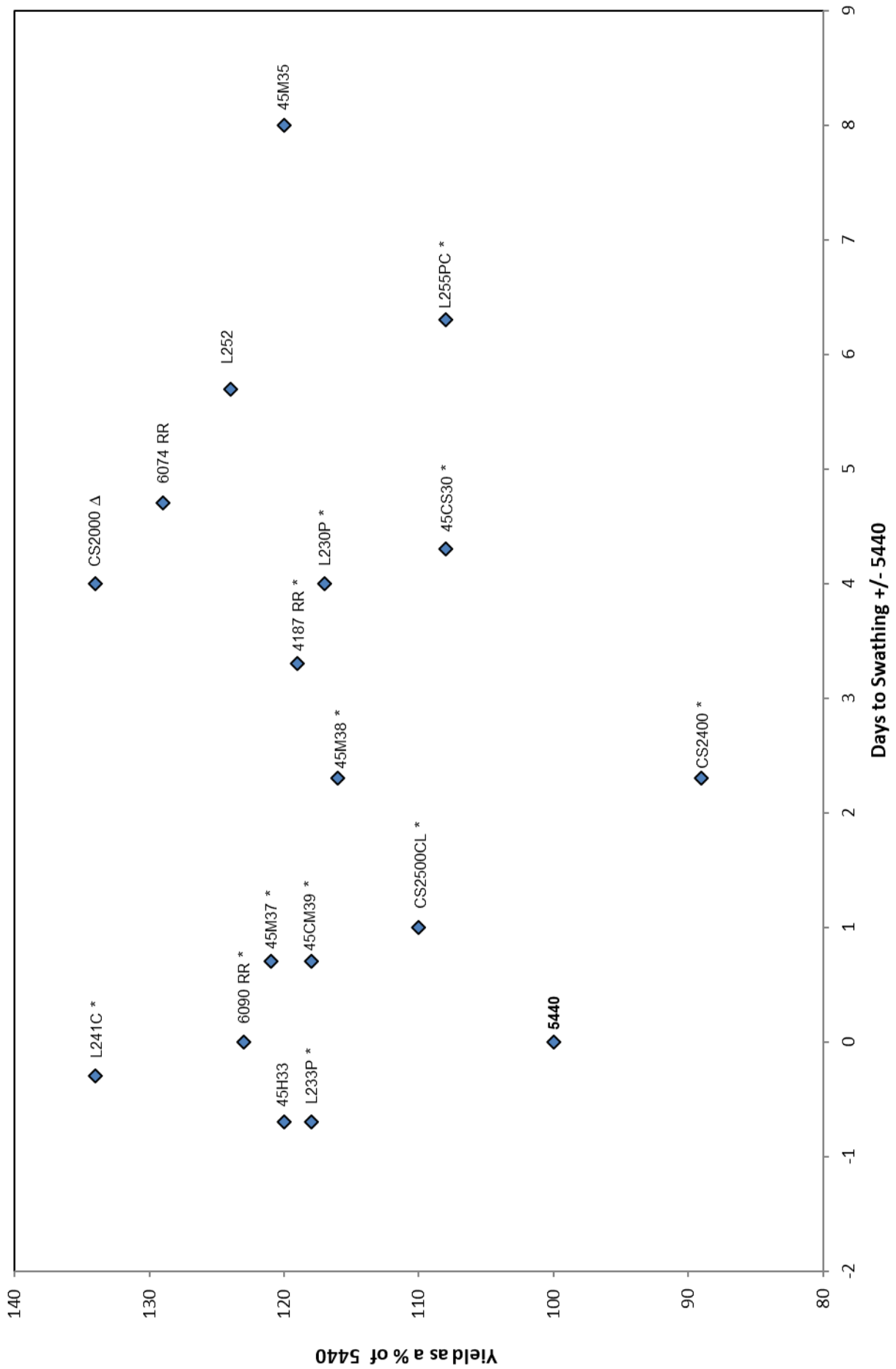
Roundup Ready® is a registered trademark of Monsanto Canada Inc.

LibertyLink® is a registered trademark of Bayer CropScience

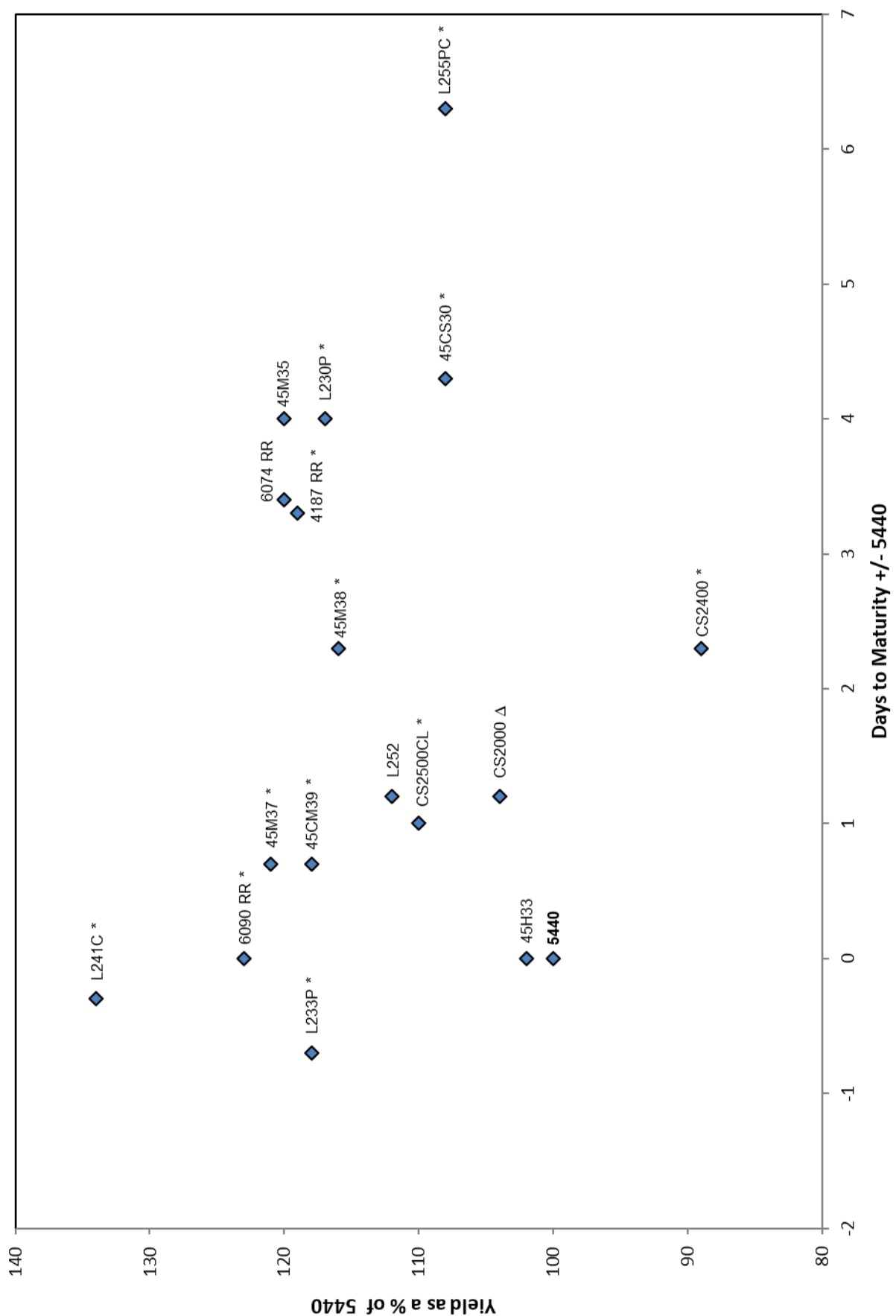
Clearfield® is a registered trademark of BASF



Argentine Canola Variety Performance 2018



Overall average days to swathing for 5440 is 107 days for 2018



Overall average days to maturity for 5440 is 107 days

OAT

Oat is usually a feed crop but some varieties are also suitable for higher value feed and food markets. The milling industry prefers higher protein varieties with plump kernels and lower hull content, while the horse industry prefers white hulled varieties. Hulless oat varieties have excellent feed and food value but need to be stored drier than normal varieties (<12% moisture) and do not flow as well in the bin due to their pubescence (hairs), which seem to "lock together". The exception to this "hairy-hulless" issue are newer hulless varieties like *Gehl*, (previously tested), which are "low pubescence hulless" oat varieties aimed at a replacement for rice actually, hence the marketing slogan "prairie rice" for *Gehl*. Unfortunately our tests have found hairless-hulless oat lines to be very sensitive to our cold wet spring soils which can lower emergence to economically damaging levels, and so until newer more robust lines come available hairless-hulless oat are no longer being tested in our region. Yield values for hulless oat varieties are expressed after hull removal, which reduces the seed weight by 20-25% compared to the normal varieties. (See earlier reports for more information on "hulless" types).

Oat		Yield as % of CDC Dancer										
Variety	Colour	South Peace				North Peace				BC Peace		
		2018 Yield		2013-2018		2018 Yield		2013-2018		2018	2013-2018	
		bu / acre	% of check	Avg. (%)	Stn. Yrs.	bu / acre	% of check	Avg. (%)	Stn. Yrs.	Avg. (%)	Avg. (%)	Stn. Yrs.
AC Morgan	White	146	123	123	[1]	175	125	110	[6]	124	112	[7]
AC Mustang	White	97	82	102	[4]	157	112	116	[8]	97	111	[12]
CDC Arborg Δ	White	157	132	132	[1]	191	136	123	[2]	134	126	[3]
CDC Dancer ☼	White	119	100	100	[5]	140	100	100	[11]	100	100	[16]
CDC Ruffian ☼	Yellow	145	122	112	[3]	164	117	114	[4]	120	113	[7]
CFA1502 *	-	161	135	135	[1]	164	117	117	[1]	126	126	[2]
CS Camden ☼91	White	119	100	105	[3]	168	120	110	[4]	110	108	[7]
Kara ☼91	White	134	113	113	[1]	169	121	110	[3]	117	111	[4]
ORe3541M ☼91	White	102	86	86	[1]	139	99	94	[2]	92	91	[3]
ORe3542M ☼91	White	136	115	115	[1]	150	107	98	[2]	111	104	[3]
OT3087 *	-	141	119	119	[1]	166	119	119	[1]	119	119	[2]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 21.18% NP = 9.69%

Δ PBR pending

☼ protected by Plant Breeders Rights

* first year tested, very limited data

☼⁹¹ protected by Plant Breeders Rights, UPOV9



Health Benefits Of Oat

Oat is mainly used for livestock feed especially horses and cows and only a small percentage of oat has been traditionally used for human consumption. However, oat is a great source of fibre which consists of more than half as soluble fibres. Oat is high in protein and mineral contents including, calcium, iron, magnesium, zinc, copper, manganese, thiamin, folacin, and vitamin E. Oat is higher in these components than any other whole grain, such as wheat, barley, corn or rice. Rich in Vitamin B1, oat can help maintain carbohydrate metabolism. Many scientific researchers have proven that eating oatmeal, oat bran and whole oat products improves both blood pressure and cholesterol levels and furthermore, it also reduces the risk of heart disease, cancer and diabetes. Oat is a significant contributor to the good health of not only livestock but also to good human health as well.

Oat			Variety Description			
Variety	Use	BC Peace Averages			Alberta Agdex 100/32 info	
		2013-2018			Tolerance to:	
		Maturity as days +/- check	Height cm	Bushel Weight lbs/bu	Lodging	Smuts
AC Morgan	Milling	3.1	112	44	VG	I
AC Mustang	Feed	2.4	115	43	G	I
CDC Arborg Δ	Milling	3.0	118	42	VG	R
CDC Dancer *	Milling	0.0	104	43	G	R
CDC Ruffian *	Milling	4.1	98	43	G	R
CFA1502 *	-	5.1	106	43	XX	XX
CS Camden *	Milling	-0.3	90	41	VG	I
Kara *	Milling	3.3	102	43	VG	MR
ORe3541M *	Milling	2.2	103	44	VG	R
ORe3542M *	Milling	2.7	104	43	VG	R
OT3087 *	-	1.1	113	42	G	R

Δ PBR pending

* protected by Plant Breeders Rights

* first year tested, very limited data

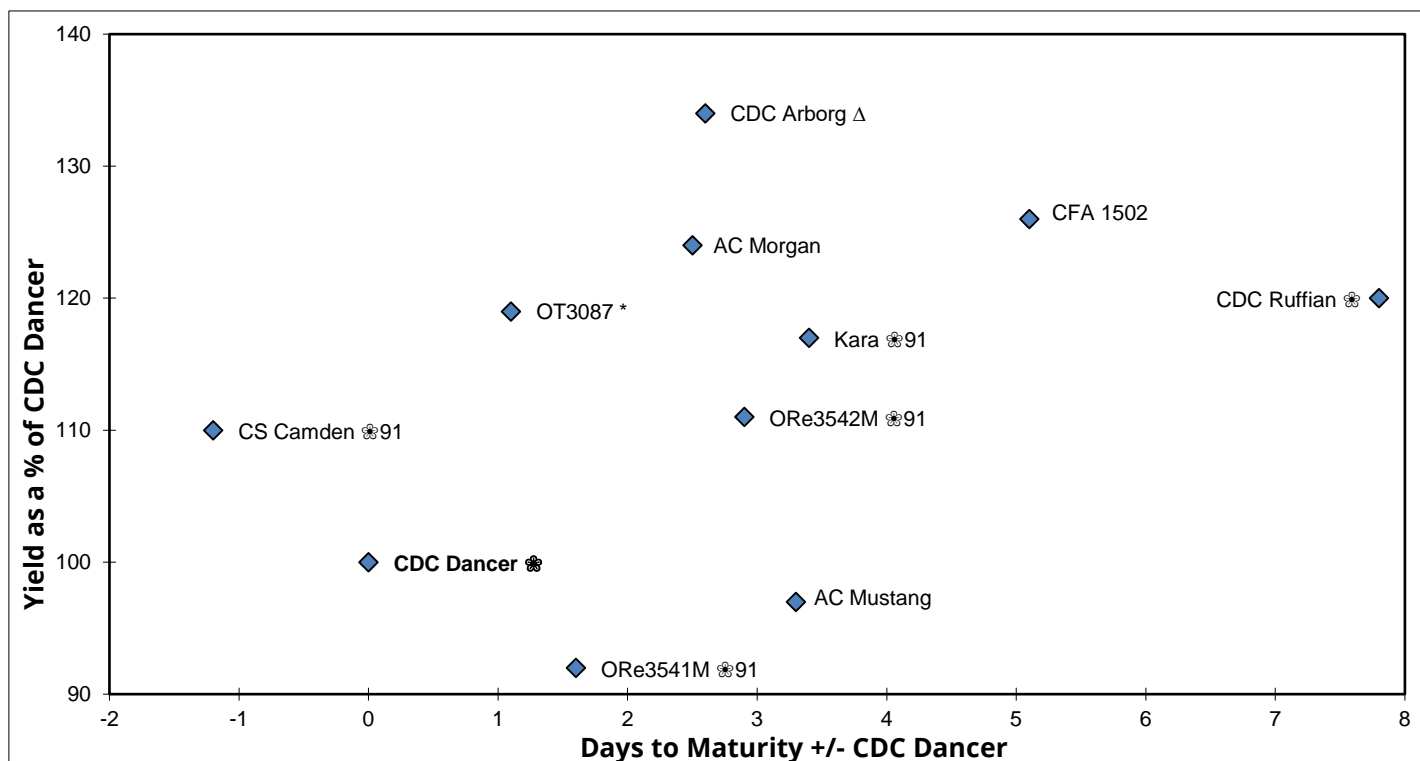
*⁹¹ protected by Plant Breeders Rights, UPOV91

XX= insufficient data

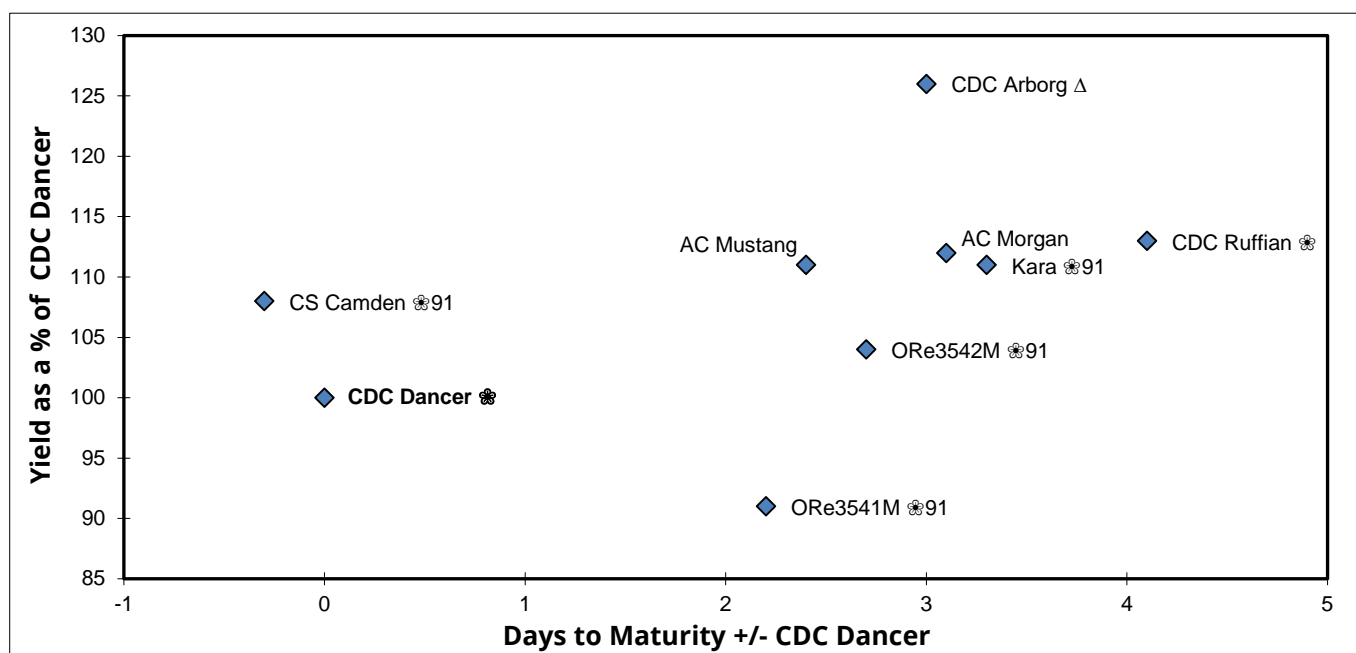
VG = Very Good, **G** = Good, **F** = Fair, **P** = Poor, **VP** = Very Poor

R = Resistant, **MR** = Moderately Resistant, **I** = Intermediate Resistance, **MS** = Moderately Susceptible, **S** = Susceptible

Oat 2018



Average maturity for CDC Dancer is 101 days for 2018



Overall average maturity for CDC Dancer is 94 days

Oat for Feed

Oats are often sown to provide fodder in the form of silage or greenfeed. Oats will yield more silage or greenfeed per unit area than any other cereal crop. If managed properly, it can provide 3-4.5 tons of dry matter per acre, or more, of high quality feed containing up to 10 percent protein¹. Many years of comparing yields of oats with barley have shown oats to be superior in the Black and Grey Wooded soil zones¹. Although the percent protein level in barley is higher than in oats, the total amount of protein produced on a given area is higher with oats than with barley¹. Oats have about 22-26 percent hull whereas barley averages about 12-14 per cent hull on a weight basis¹. When choosing a variety, the seed yield as well as the forage yield should be considered, thereby keeping one's options open to harvest as forage or grain¹. We do not currently evaluate oat varieties for forage yield in these tests.

Forage Oat

It is believed by some farmers that one variety might be better than another because it appears "leafier"; however, tests on a number of varieties have shown very little variation in leafiness². Having said that however, such work has not likely included the newer lines of forage oats that are entering the market place now. These new "forage only" lines, such as *CDC Baler* and *Murphy*, have usually been much larger plants in our tests than their traditional counterparts developed for seed quality, which should translate to more biomass to be available for forage production. Note however, that traditionally our oat tests do not lodge and so it is unclear as to whether larger plants are going to be a concern for early lodging in a large-scale forage production practice in our area. Lodging data here is from Alberta Agdex 100/32.

Other Comments

On heavier soils and in the more moist areas, lodging resistance should be considered, but again, traditionally lodging has not been a concern in our BC Peace oat trials, and as mentioned above, lodging data provided here is from Alberta Agdex 100/32. The variation in straw feed quality between oat varieties is insignificant and should not be used as a variety selection criterion³. The average feed values are: protein 4%, fibre 49%, calcium 0.27%, and phosphorus 0.08%³. Source^{1,2,3}: Alberta Agriculture, Food, and Rural Development website www.agric.gov.ab.ca

FIELD PEA

Field Pea (Green Seed)					Yield as % of CDC Limerick							
Variety	**Designated	South Peace				North Peace				BC Peace		
	Powdery	2018 Yield		2013 - 2018		2018 Yield		2013 - 2018		2018	2013 - 2018	
	Mildew	bu /	% of	Avg. Stn.	Yrs.	bu /	% of	Avg. Stn.	Yrs.	Avg.	Avg.	Stn.
	Resistant	acre	check	(%)		acre	check	(%)		(%)	(%)	Yrs.
AAC Comfort Δ	R	27	108	108	[1]	87	79	106	[5]	94	107	[6]
CDC Forest Δ	R	30	120	120	[1]	115	105	114	[5]	113	115	[6]
CDC Limerick	R	25	100	100	[7]	109	100	102	[15]	100	101	[22]
CDC Spruce Δ	R	23	93	93	[1]	112	102	102	[1]	98	98	[2]
LRP 1424	R	31	128	128	[1]	103	94	107	[5]	111	111	[6]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 25.4% NP = 7.1%

Δ PBR pending

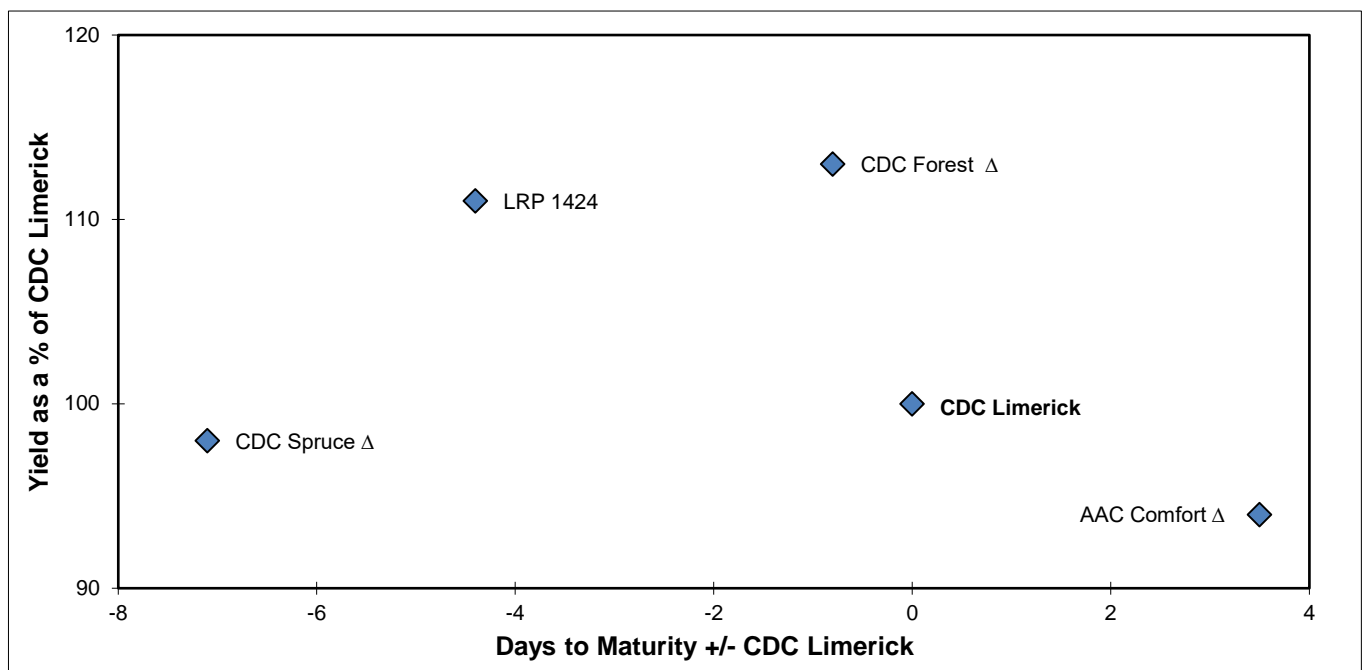
* first year tested, very limited data

⌘ protected by Plant Breeders Rights

⌘⁹¹ protected by Plant Breeders Rights, UPOV91

Powdery Mildew resistance: **R = Resistant **S** = Susceptible (data: Alberta Seed Guide)

Field Pea - Green Seed 2018



Average maturity for CDC Limerick is 103 days for 2018

Field Pea (Yellow Seed)					Yield as % of CDC Amarillo							
Variety	**Designated	South Peace				North Peace				BC Peace		
	Powdery	2018 Yield		2013-2018		2018 Yield		2013-2018		2018	2013-2018	
	Mildew	bus /	% of	Avg. Stn.	Yrs.	bus /	% of	Avg. Stn.	Yrs.	Avg.	Avg.	Stn.
	Resistant	acre	check	(%)		acre	check	(%)		(%)	(%)	Yrs.
AAC Barrhead *	R	31	91	96	[2]	129	102	101	[6]	96	100	[8]
AAC Carver *	R	31	90	103	[5]	139	109	109	[9]	99	107	[14]
AAC Chrome Δ	R	36	103	103	[1]	130	102	110	[5]	103	108	[6]
AAC Lacombe *	R	30	86	106	[4]	137	108	104	[8]	97	105	[12]
CDC Amarillo	R	35	100	100	[7]	127	100	100	[15]	100	100	[22]
CDC Athabasca *	R	38	109	109	[1]	119	94	89	[5]	101	92	[6]
CDC Canary Δ	R	29	83	83	[1]	135	106	91	[5]	95	90	[6]
CDC Inca Δ	R	30	86	99	[3]	125	98	99	[3]	92	99	[6]
CDC Lewochko *	R	30	87	87	[1]	119	93	93	[1]	90	90	[2]
CDC Meadow	R	32	92	97	[6]	122	96	87	[14]	94	90	[20]
CDC Spectrum *	R	27	77	77	[1]	120	94	89	[5]	86	87	[6]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 18.97% NP = 5.36%

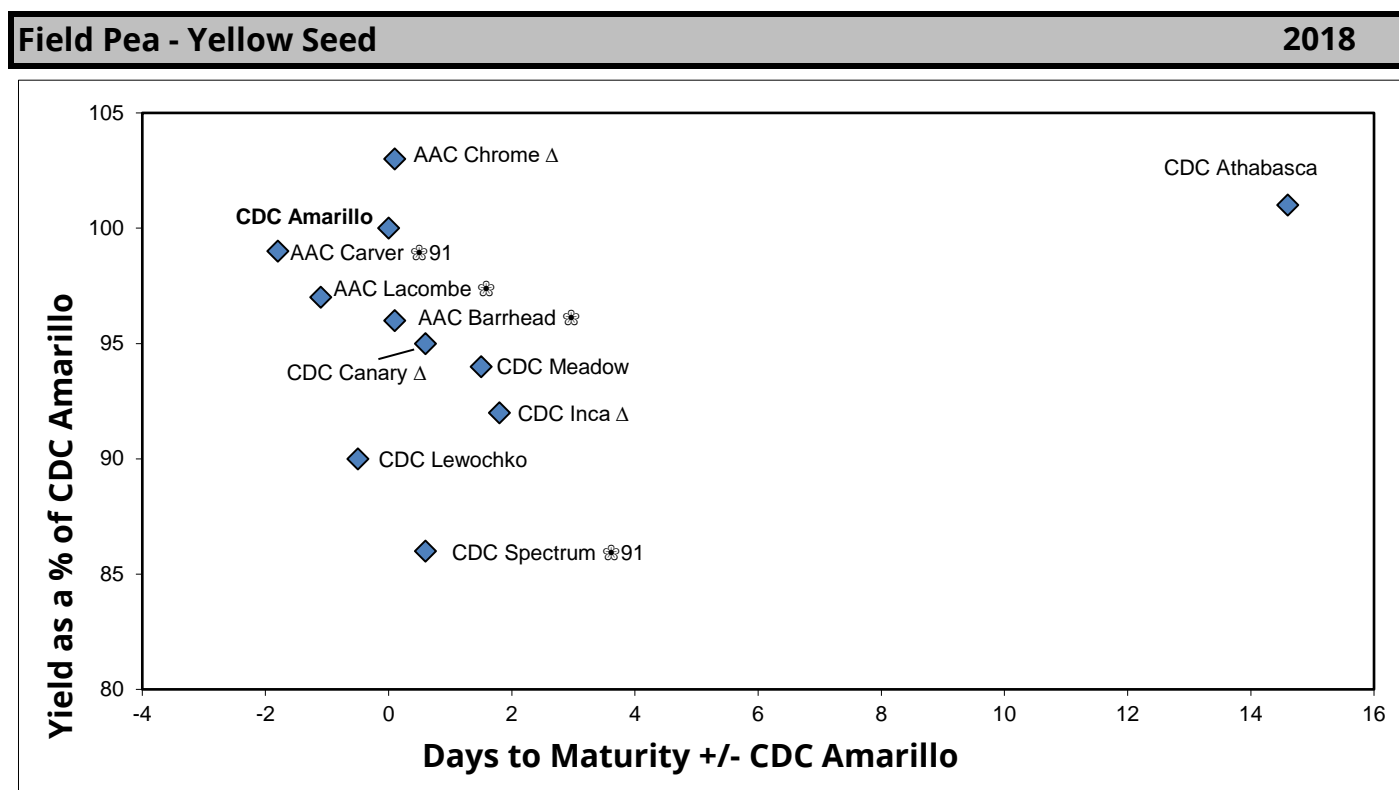
Δ PBR pending

* first year tested, very limited data

* protected by Plant Breeders Rights

*⁹¹ protected by Plant Breeders Rights, UPOV91

Powdery Mildew resistance: **R = Resistant **S** = Susceptible (data: Alberta Seed Guide)



Average maturity for CDC Amarillo is 99 days for 2018

Field Peas

Variety Descriptions

Variety	BC Peace Averages 2013-2018			
	Maturity	Vine	(Alberta data)	TKW
	as days +/- check	Length cm	Lodging 1-9**	
Yellow Seed				
AAC Barrhead ☼	-1.8	108	3	249
AAC Carver ☼91	-3.3	95	3	248
AAC Chrome Δ	3.8	105	4	238
AAC Lacombe ☼	0.5	94	2.3	260
CDC Amarillo	0.0	97	2.5	238
CDC Athabasca ☼91	-0.7	123	3	260
CDC Canary Δ	-3.8	121	3	233
CDC Inca Δ	1.1	88	1.3	237
CDC Lewochko ☼91 *	0.0	134	-	210
CDC Meadow	-3.3	95	3.6	225
CDC Spectrum ☼91	-2.7	116	3	225
Green Seed				
AAC Comfort Δ	22.3	100	4	284
CDC Forest Δ	-0.1	109	3	279
CDC Limerick	0.0	88	3.0	232
CDC Spruce Δ	-7.1	88	3	323
LRP 1424	1.9	105	-	264

Overall average maturity for CDC Limerick is 101 days

Overall average maturity for CDC Amarillo is 92 days

Δ PBR pending

☼ protected by Plant Breeders Rights

* first year tested, very limited data

☼⁹¹ protected by Plant Breeders Rights, UPOV91

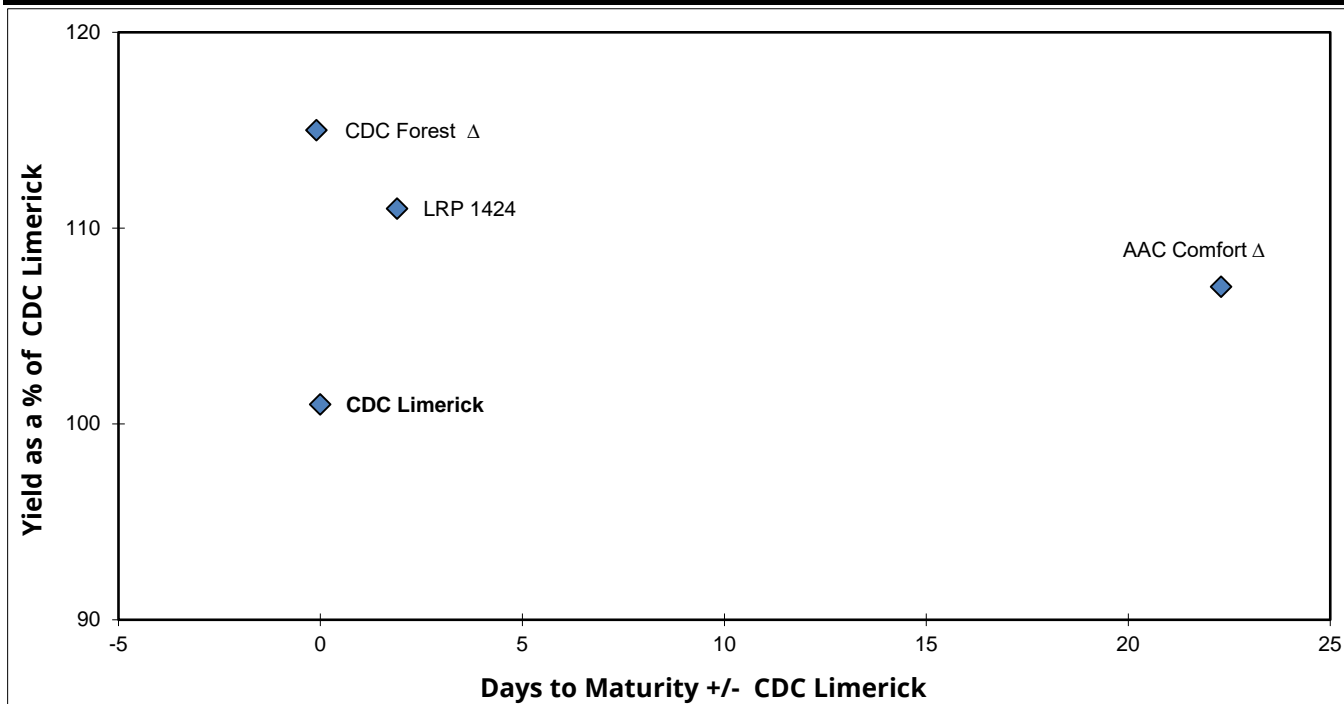
** 1 - 9 scale; 1 = none, 9 = 100% affected; source Alberta testing as lodging not frequent enough in BC tests

Lodging data is becoming important criteria when selecting peas for our area, as peas still standing at harvest stand a better chance of escaping ecretia contamination from large wildlife, especially if harvested as direct-cut. Note that due to variability of lodging, numbers averaged tend to be lower than can occur in a given year.

Some varieties may not be suitable for the human consumption market. Producers should contact their intended buyer/processor before seeding to ensure the marketability of specific varieties. Many green seeded varieties will bleach if exposed to periods of wetting and drying in the field near harvest. Uncleaned and damaged seed is considered to be low quality and is only suitable for the feed market. The amount of seed coat damage suffered during harvest varies with variety. Splitting may be reduced if peas are harvested tough (20% moisture) & dried slowly in an aeration bin.

Green Seed

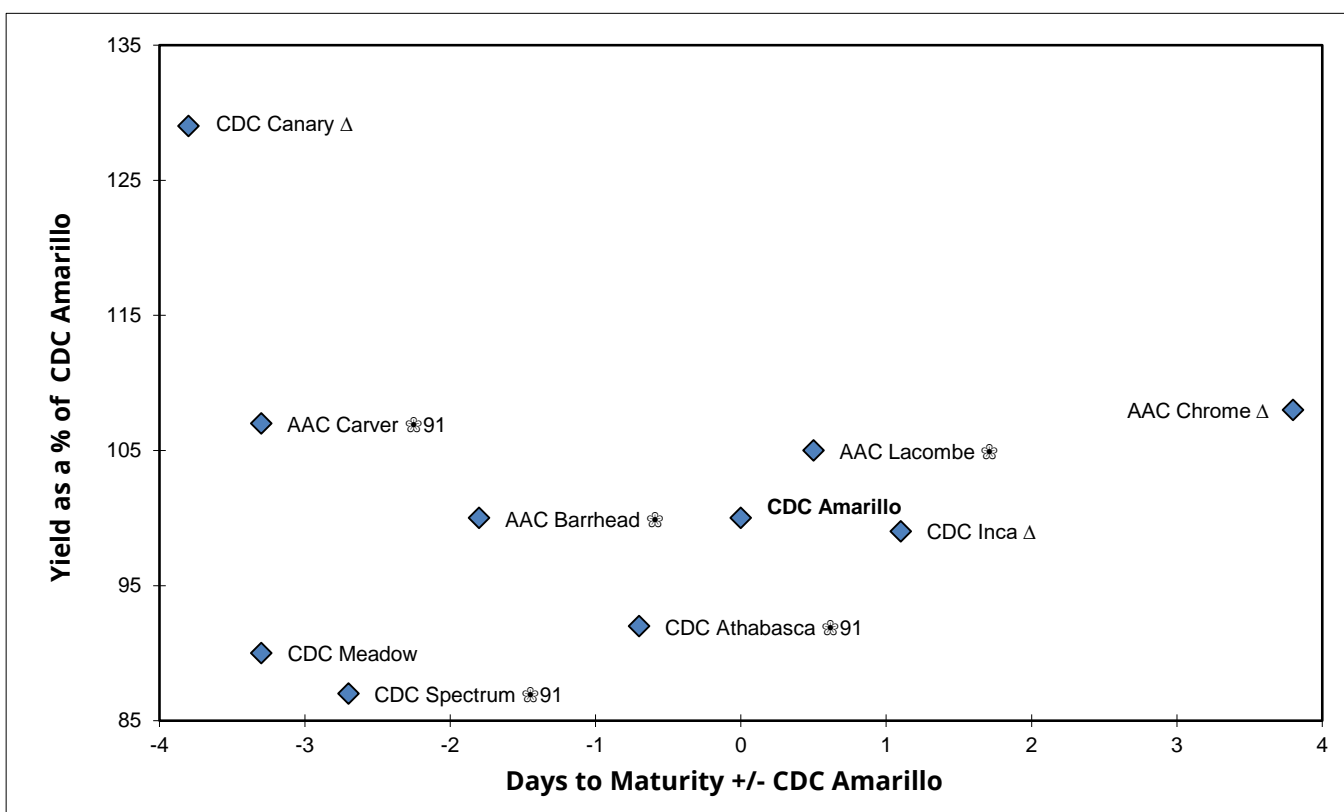
2013 - 2018



Overall average maturity for CDC Limerick is 101 days

Yellow Seed

2013 - 2018



Overall average maturity for CDC Amarillo is 92 days

Δ PBR pending

* first year tested, very limited data

* protected by Plant Breeders Rights

*⁹¹ protected by Plant Breeders Rights, UPOV91

SPRING TRITICALE

Triticale is a genetic cross (not a hybrid) developed by crossing wheat (*Triticum turgidum* or *Triticum aestivum*) with rye (*Secale cereal*). Most varieties of spring triticale currently available are approximately 10 days or more later maturing than CWRS wheat, and as such they should not be grown in the BC Peace River region for grain production. However, a few varieties are proving to be earlier than traditional spring triticale varieties, and perhaps as breeding continues earlier lines may come along that can be grown here for grain with a consistent and early enough maturity. Their high grain yields are "attention grabbers", and so it is worth watching their development, especially as triticale seems to hold a lot of potential for ethanol production in the Peace River region if breeding efforts could produce earlier maturing lines. Drought tolerance is the primary advantage that spring triticales have over other spring cereal crops. Spring triticales are also a valuable alternative or compliment to barley & oat as forage feed, but current triticale lines do tend to have low resistance to Ergot, likely due to late maturity. This may become less of a concern as earlier lines are bred. It is for these reasons, especially its potential use as a high volume ethanol feedstock, that data is included in this report.

Spring Triticale								Yield as % of Brevis			
Variety	South Peace				North Peace				BC Peace		
	2018 Yield		2013-2018		2018 Yield		2013-2018		2018	2013-2018	
	bu /	% of	Avg.	Stn.	bu /	% of	Avg.	Stn.	Avg.	Avg.	Stn.
	acre	check	(%)	Yrs.	acre	check	(%)	Yrs.	(%)	(%)	Yrs.
AAC Delight ☼91	77	114	114	[1]	85	103	93	[11]	109	95	[12]
Brevis	67	100	100	[3]	82	100	100	[13]	100	100	[16]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 8.26% NP = 2.84%

Δ PBR pending

* first year tested, very limited data

⌘ protected by Plant Breeders Rights

⌘⁹¹ protected by Plant Breeders Rights, UPOV91

§ Awnless

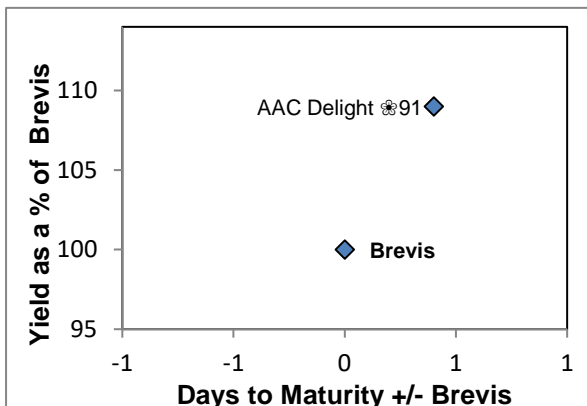
XX = insufficient data

VG = Very Good, G = Good, F = Fair, P = Poor, VP = Very Poor

R = Resistant, MR = Moderately Resistant, I = Intermediate Resistance, MS = Moderately Susceptible, S = Susceptible

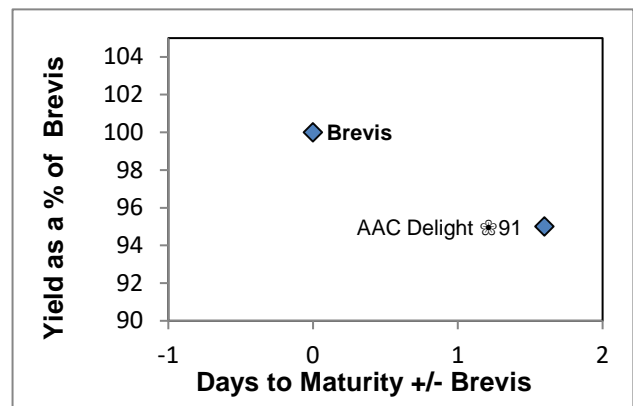
Spring Triticale					Variety Descriptions				
Variety	BC Peace Averages 2013-2018				Alberta Agdex 100/32				
	Maturity		Bushel	TKW	Resistance to:				
	as days +/- check	Height (cm)	Weight (lbs/bus)	(g/1000)	Lodging	Ergot	Common Bunt	Sprouting	FHB
AAC Delight ⌘91	1.6	107	55	52	G	MR	R	XX	I
Brevis	0.0	100	60	44	G	G	R	F	I

Regional Variety Performance 2013-2018



Overall average maturity for Brevis is 120 days

Regional Variety Performance 2018



Average maturity for Brevis is 122 days for 2018

CANADA PRAIRIE SPRING - CANADA WESTERN SPECIAL

PURPOSE AND SOFT WHITE SPRING

All current Canada Prairie Spring and General Purpose Spring varieties (CPS, SP and CWSWS are in this class) should be treated with a systemic fungicide seed treatment to control smut. Avoid deep seeding CPS or General Purpose wheats as seedling vigor is reduced. Note the long maturity periods required for the production of basically all currently available CWSWS wheat varieties. Seeding rates for all classes of wheat covered by the new class "General Purpose" should be increased 20 to 25% due to the larger kernel size. For testing purposes, CPS and CWSWS wheats are grown together in the same trial and compared against a CWRS.

CPS / CWSP / CWSWS Wheat						Yield as % of Carberry						
Variety	Type	South Pearce				North Peace				BC Peace		
		2018 Yield		2013-2018		2018 Yield		2013-2018		2018	2013-2018	
		bu / acre	% of check	Avg. (%)	Stn. Yrs.	bu / acre	% of check	Avg. (%)	Stn. Yrs.	Avg. (%)	Avg. (%)	Stn. Yrs.
AAC Awesome Δ	CWGP	87	129	129	[1]	86	134	148	[2]	131	142	[3]
AAC Brandon *	CWRS	68	98	98	[2]	67	113	113	[2]	106	106	[4]
AAC Entice *91	CPS-red	71	100	106	[2]	55	100	108	[3]	100	107	[5]
AAC Goodwin Δ *91	CWRS	80	112	112	[1]	61	113	112	[2]	113	112	[3]
AAC Paramount Δ	CWSWS	93	138	138	[1]	86	133	151	[2]	136	147	[3]
AAC Penhold *91	CPS-red	75	105	109	[3]	54	100	112	[2]	102	111	[8]
AC Andrew	CWSWS	85	125	138	[3]	93	145	139	[7]	135	139	[10]
AC Foremost *	CPS-red	48	68	98	[3]	54	99	115	[5]	83	108	[8]
Carberry *	CWRS	69	100	100	[7]	59	100	100	[14]	100	100	[21]
CDC Terrain Δ	CWRS	70	98	98	[1]	59	109	109	[1]	104	104	[2]
HY2003 VB	CNHR	71	100	100	[1]	63	115	115	[1]	108	108	[2]
KWS Alderon	CWGP	70	103	103	[1]	87	136	149	[2]	120	134	[3]
KWS Charing Δ	CWGP	78	115	115	[1]	83	129	145	[2]	122	135	[3]
KWS Sparrow	CWGP	72	106	106	[1]	86	134	148	[2]	120	134	[3]
Pasteur	CWGP	78	116	116	[1]	83	129	139	[2]	122	131	[3]
Sadash	CWSWS	91	134	134	[1]	89	139	139	[1]	136	136	[2]
SY Rowyn *91	CPS-white	68	95	95	[1]	51	93	93	[1]	94	94	[2]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 6.27%, 4.95% NP = 37.2%, 19.08%

Δ PBR pending

α Clearfield® Tolerant varieties

§ Awnless

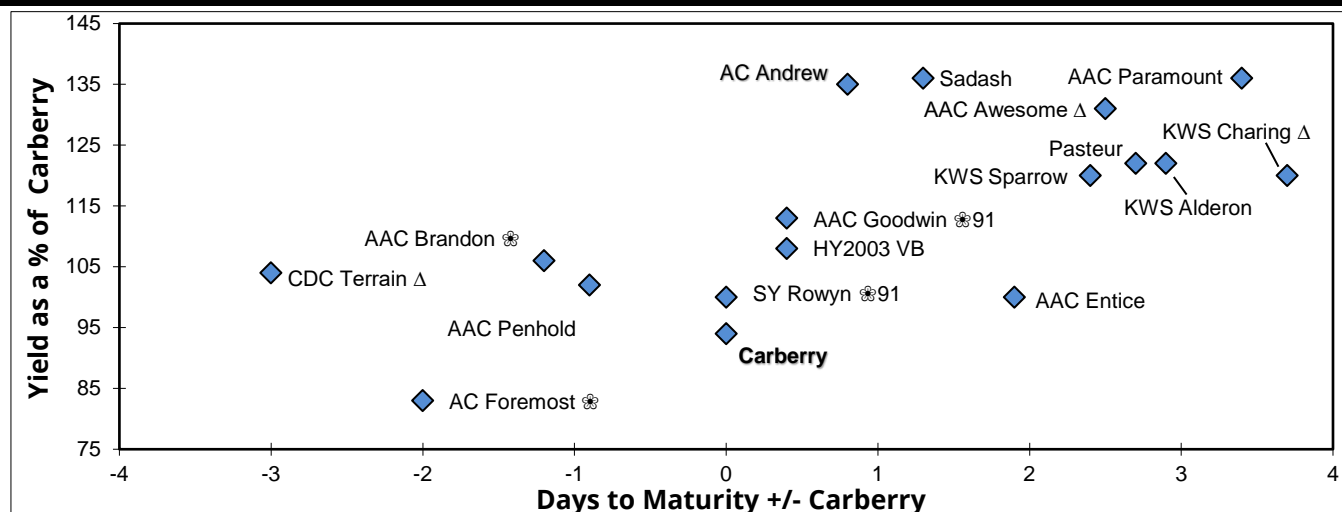
* protected by Plant Breeders Rights

* first year tested, very limited data

*91 protected by Plant Breeders Rights, UPOV91

¥ semi-dwarf variety

CPS / CWSWS Wheat Regional Variety Performance 2018



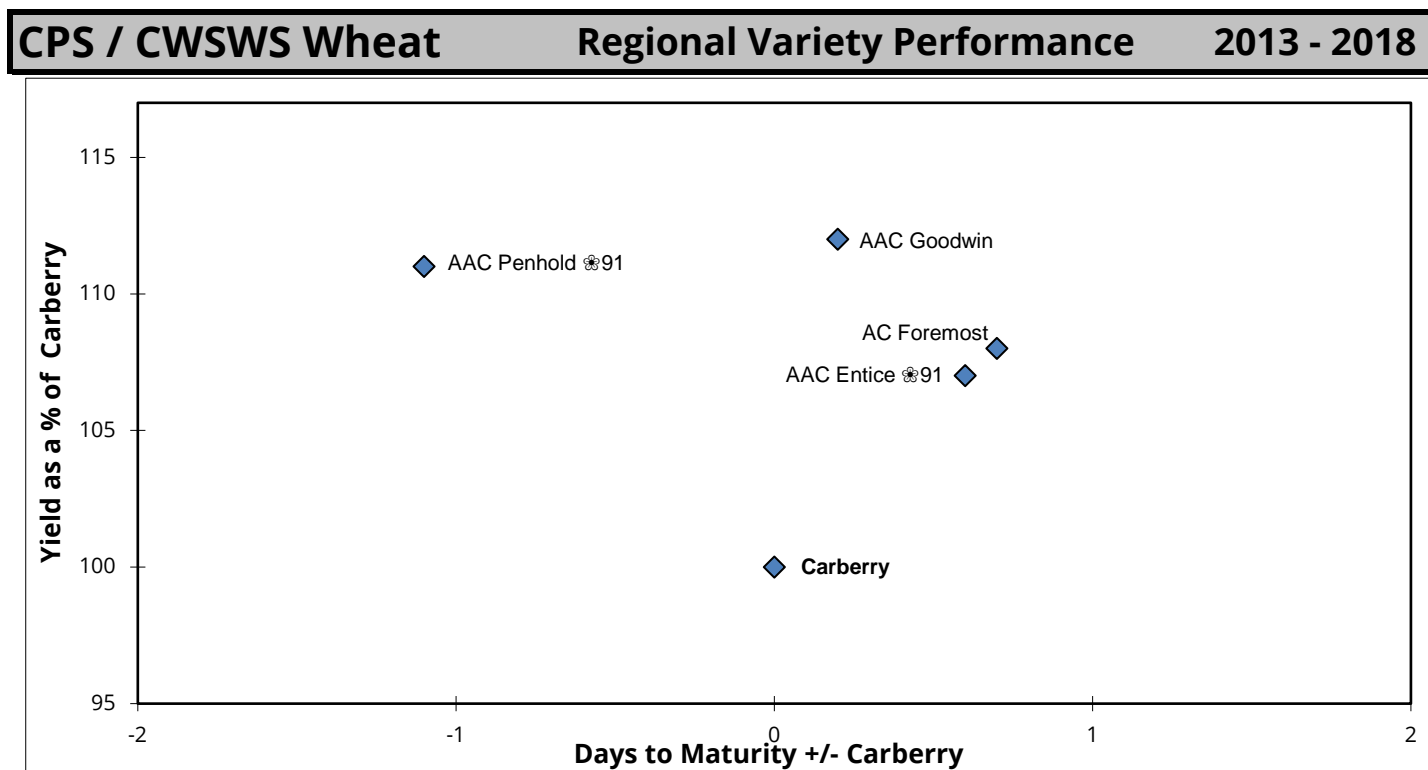
Average maturity for Carberry is 120 days for 2018

CPS / CWSWS Wheat						Variety Descriptions								
		BC Peace Averages				Alberta Agdex 100/32								
		2013-2018				Resistance to:								
Variety	Type	Maturity	Height	Bushel	Kernel	Lodging	Sprouting	Loose	Smut	Common	Bunt	Stripe Rust	Leaf Spot	FHB
		in days	Weight	Protein %										
		+/- check	cm	lbs/bu	+/- check									
AAC Brandon ☼	CWRS	0.5	87	61	0 [2]	VG	P	MR	S	MR	I	MR		
AAC Entice ☼91	CPS-red	0.6	83	61	-1.2 [5]	G	P	MS	S	R	MS	I		
AAC Goodwin Δ ☼91	CWRS	0.2	88	63	-0.8 [3]	VG	G	MS	MS	R	I	I		
AAC Penhold ☼91	CPS-red	-1.1	76	64	-1 [6]	VG	G	I	R	MR	I	MR		
AC Foremost ☼	CPS-red	0.7	79	63	-1.9 [6]	VG	F	I	R	S	MS	S		
Carberry ☼	CWRS	0	85	64	0 [9]	VG	F	MR	R	MR	MS	MR		
CDC Terrain Δ	CWRS	-3	93	58	-0.9 [2]	G	G	MR	MR	R	I	MS		
HY2003 VB	CNHR	0.4	84	61	-0.4 [2]	VG	XX	MR	R	MS	MS	I		
SY Rowyn ☼91	CPS-white	0	83	54	-0.9 [2]	G	F	I	S	MR	I	MR		

Overall average maturity for Carberry is 109 days

Overall average protein for Carberry is 12.2 %

Δ PBR pending *⁹¹ protected by Plant Breeders Rights, UPOV91 § Awnless
 * first year tested, very limited data * protected by Plant Breeders Rights ¥ semi-dwarf variety
 Ⓜ Clearfield® Tolerant varieties
VG = very good, **G** = good, **F** = fair, **P** = Poor, **VP** = very poor, **XX** = insufficient data
R = Resistant, **MR** = Moderately resistant, **I** = Intermediate resistance, **MS** = Moderately Susceptible, **S** = Susceptible



CANADA WESTERN RED SPRING WHEAT

As grain yields increase, protein content generally decreases. Some of the newer varieties have both higher protein and grain yield. To control true *loose smut* of wheat only a systemic fungicide will work as the pathogen is found inside the seed. To control the other types of smut (*covered*, *false loose* and *bunt*) a non-systemic fungicide seed treatment will work as the disease pathogen is on the outside of the seed.

CWRS Wheat					Yield as % of Carberry						
Variety	South Peace				North Peace				BC Peace		
	2018 Yield		2013-2018		2018 Yield		2013-2018		2018	2013-2018	
	bu / acre	% of Check	Avg. (%)	Station Years	bu / acre	% of Check	Avg. (%)	Station Years	Avg. (%)	Avg. (%)	Station Years
AAC Alida VB Δ	72	110	110	[1]	67	111	107	[2]	111	108	[3]
AAC Brandon ☼	70	108	109	[4]	66	110	111	[5]	109	110	[9]
AAC Cirrus ☼	64	98	98	[1]	57	94	98	[2]	96	98	[3]
AAC Jatharia VB ☼91	73	113	113	[1]	63	106	106	[1]	109	109	[2]
AAC Tisdale Δ	62	95	103	[2]	57	94	106	[3]	95	105	[5]
AAC Viewfield ☼91	58	89	106	[3]	65	107	118	[3]	98	112	[6]
AAC Warman VB ☼91 *	58	90	90	[1]	55	91	91	[1]	91	91	[2]
BW1041 *	65	100	100	[1]	65	108	108	[1]	104	104	[2]
BW1045 *	73	113	113	[1]	57	96	96	[1]	104	104	[2]
BW1049 *	78	120	120	[1]	62	104	104	[1]	112	112	[2]
BW5005	74	115	115	[1]	64	107	104	[2]	111	108	[3]
BW5007	66	101	101	[1]	56	94	98	[2]	97	99	[3]
BW5011 *	68	104	104	[1]	66	110	110	[1]	107	107	[2]
BW5013 *	73	112	112	[1]	63	104	104	[1]	108	108	[2]
Carberry ☼	65	100	100	[6]	60	100	100	[8]	100	100	[14]
CDC Adamant Δ	52	81	101	[2]	52	87	105	[3]	84	103	[5]
CDC Go	72	110	109	[4]	61	101	108	[6]	106	108	[10]
CDC Hughes Δ	64	99	107	[2]	54	89	100	[3]	94	103	[5]
CDC Landmark ☼91	65	100	100	[2]	59	98	105	[3]	99	103	[5]
Parata Δ	63	97	97	[1]	56	94	93	[2]	95	95	[3]
Parkland *	65	100	100	[1]	59	98	98	[1]	99	99	[2]
PT596 *	70	108	108	[1]	57	95	95	[1]	102	102	[2]
PT782 *	68	104	104	[1]	55	91	91	[1]	98	98	[2]
PT785 *	66	101	101	[1]	52	87	87	[1]	94	94	[2]
Stettler ☼	66	102	106	[3]	62	103	107	[5]	102	107	[8]
SY Sovite ☼91	58	90	98	[2]	58	96	103	[3]	93	101	[5]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 6.08% NP = 7.35%

Δ PBR pending

☼ Protected by Plant Breeders Rights

☼⁹¹ Protected by Plant Breeders Rights, UPOV91

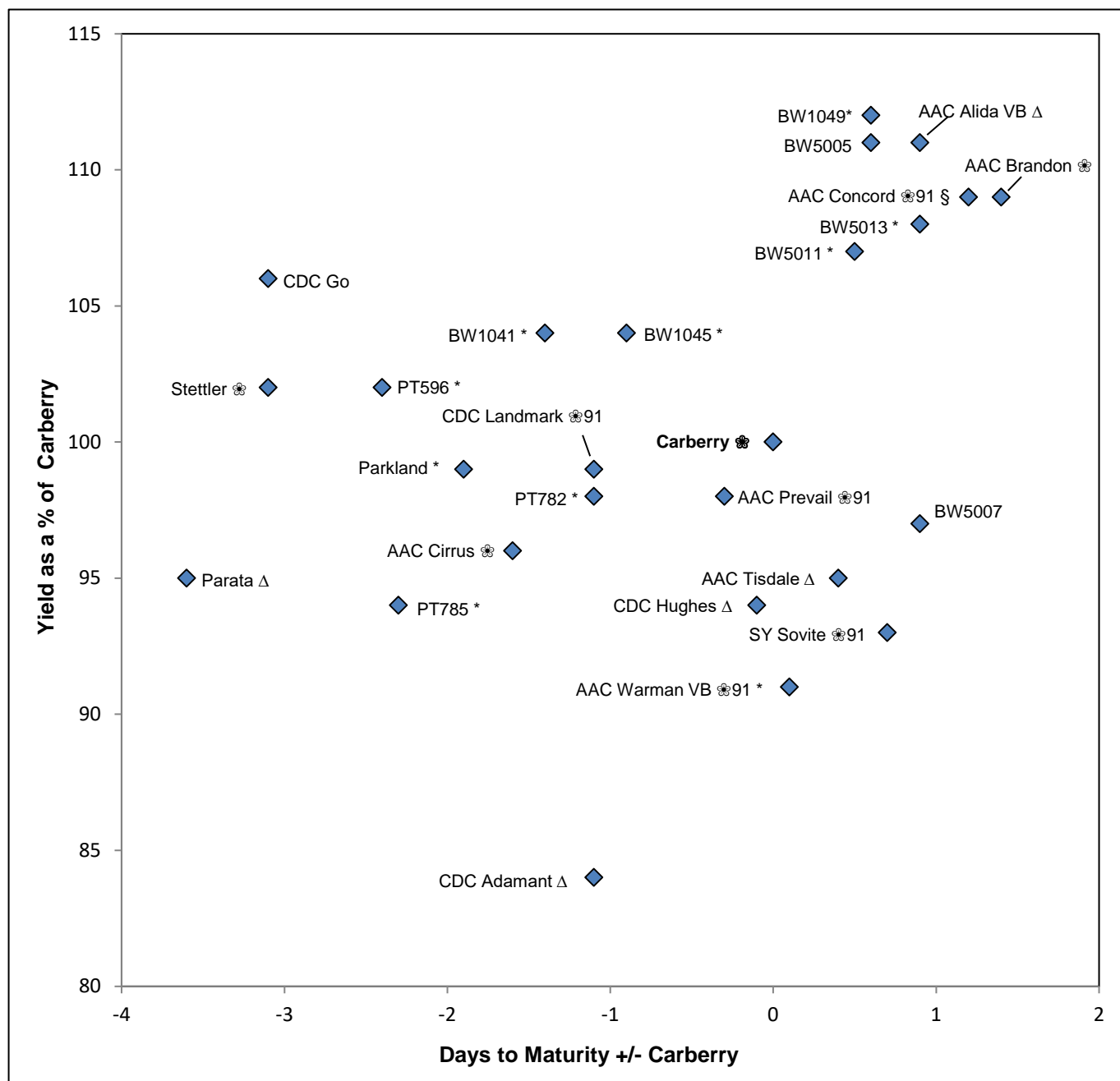
* First year tested, very limited data

*** (CWHWS) Canadian Western Hard White Spring

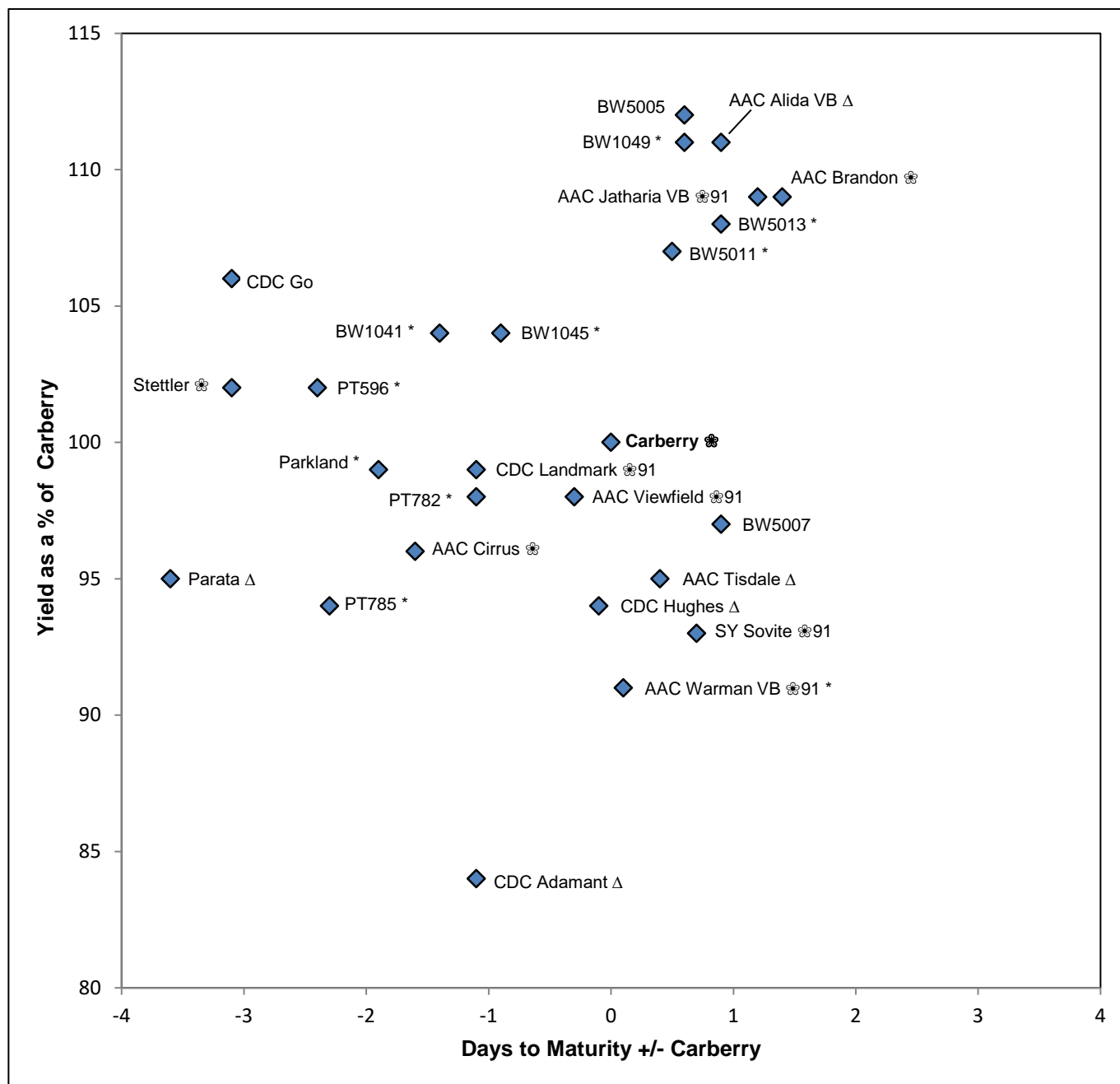
¥ Semi-dwarf variety

☼ Clearfield® Tolerant varieties

§ Awnless



Average maturity for Carberry is 120 days for 2018



Average maturity for Carberry is 120 days for 2018

Δ PBR pending

☼ protected by Plant Breeders Rights

☼⁹¹ protected by Plant Breeders Rights, UPOV91

* first year tested, very limited data

☼ Clearfield® Tolerant varieties

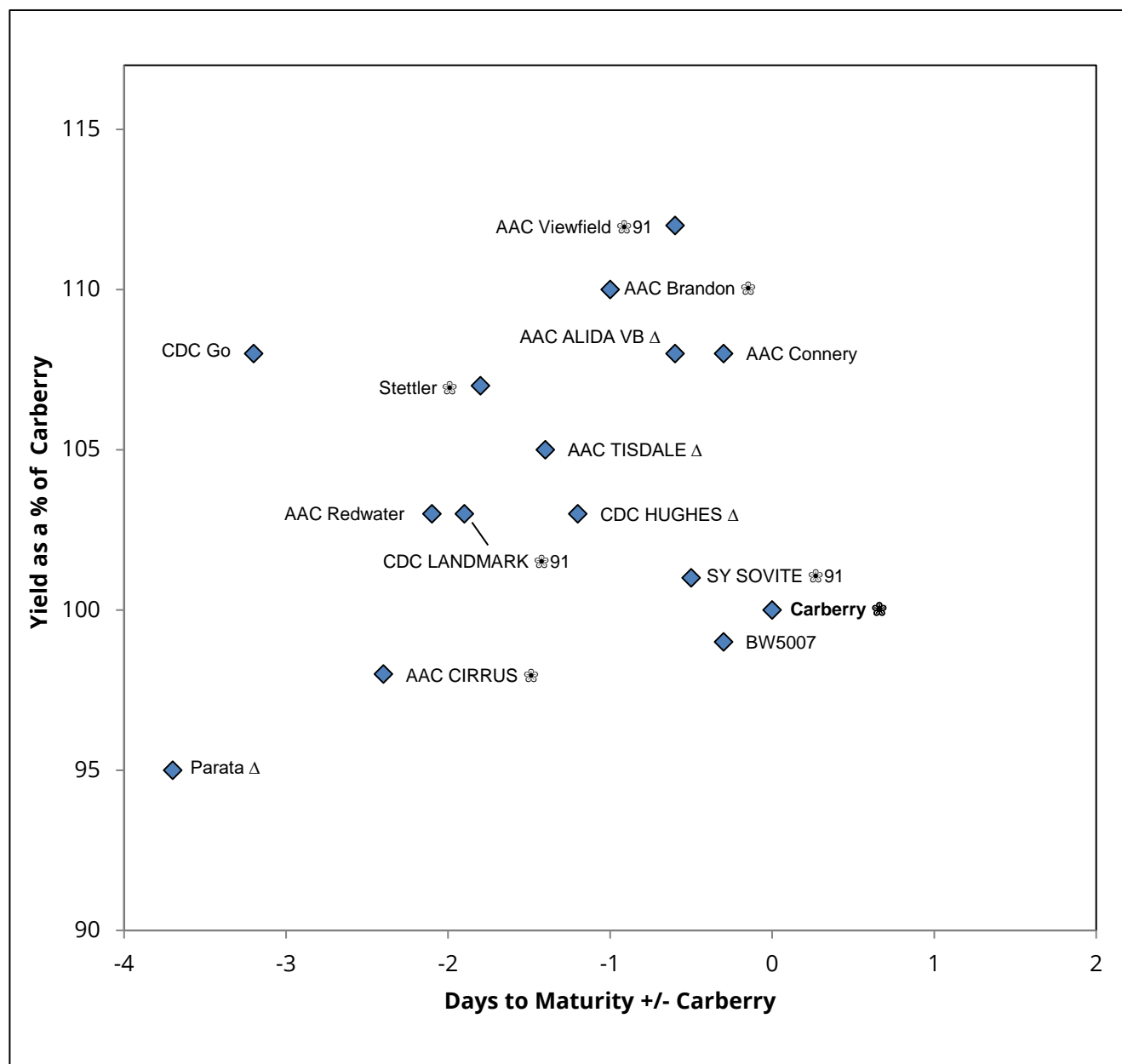
*** (CWHWS) Canadian Western Hard White Spring

¥ semi-dwarf variety

◇ Varietal Blend variety, Wheat Midge resistance

☼ Solid-Stemmed variety, Wheat Stem Sawfly resistance

§ Awnless



Overall average maturity for Carberry is 112 days

Δ PBR pending

⌘ protected by Plant Breeders Rights

⌘⁹¹ protected by Plant Breeders Rights, UPOV91

* first year tested, very limited data

*** (CWHWS) Canadian Western Hard White Spring

¥ semi-dwarf variety

◇ Varietal Blend variety, Wheat Midge resistance

⌘ Solid-Stemmed variety, Wheat Stem Sawfly resistance

§ Awnless

⌘ Clearfield® Tolerant varieties

DURUM WHEAT

Durum is a type of wheat which is used to make pasta products (macaroni, spaghetti, etc.) and Canada has become a world leader in quality durum. Durum plant breeding within Canada is moving toward even higher protein content and is developing a brand new category of high gluten strength durum for a specialty pasta market. However, durum requires a long growing season and high heat, two things the Peace River region is not known for having. For this reason durum production has been traditionally concentrated in the southern parts of the Canadian prairies.

Starting back in 2009, durum was successfully tested in our region and did well and continues to have good success growing in our B.C. Peace River region tests. Often surprises arise in our northern long-daylight region and so it was worth investigating. Most varieties of durum wheat currently available are suggested by literature to have approximately 10 days later maturity than CWRS wheat, but this is not proving to be the case locally. However, 2011 and again in 2015 (very wet & late years) durum proved to be significantly longer in maturity than CWRS as a group, with one or two early variety exceptions worth noting. But, until further testing is completed, durum should not be grown in large acreages and use caution if you choose to grow it within the B.C. Peace River region. The biggest obstacle currently is a lack of grain buyers, admittedly a vicious circle of acceptance and product availability. Its potential economic benefits to the region should grain buyers ever show interest to purchase from the region, is great enough to warrant further testing. *Disclosure of this data is not a recommendation to grow durum in the Peace River region.*

It appears however, that the B.C. Peace River region has one really big advantage in growing durum, as it would seem we can grow it free of fusarium, a major problem in most durum growing regions. Back in 2009 and 2010, years of severe drought and poor yield potentials, durum yields were respectable by comparison and even seemed to survive the drought better than other wheat classes. It appears certain very specific early durum varieties can do quite well in our region, and have produced high quality grain traits to match according to samples sent into the Canadian Grain Commission.

Durum Wheat		Yield as % of Strongfield										
Grain Type		South Peace				North Peace				BC Peace		
		2018 Yield		2013-2018		2018 Yield		2013-2018		2018	2013-2018	
		bu / acre	% of check	Avg. (%)	Stn. Yrs.	bu / acre	Avg. (%)	Avg. (%)	Stn. Yrs.	Avg. (%)	Avg. (%)	Stn. Yrs.
AAC Stronghold ☼91	CWAD	67	98	98	[1]	61	89	88	[2]	93	92	[3]
AAC Succeed VB Δ	CWAD	66	98	98	[1]	64	93	93	[1]	95	95	[2]
Brigade ☼	CWAD	68	100	99	[2]	68	98	104	[3]	99	102	[5]
CDC Alloy ☼91	CWAD	63	93	93	[1]	65	94	94	[3]	93	94	[4]
CDC Credence Δ	CWAD	63	93	93	[1]	70	101	101	[1]	97	97	[2]
CDC Dynamic ☼91	CWAD	67	98	98	[1]	65	93	94	[3]	96	95	[4]
DT878 Δ *	CWAD	62	91	91	[1]	66	95	95	[1]	93	93	[2]
Strongfield ☼	CWAD	68	100	100	[5]	69	100	100	[7]	100	100	[12]
Transcend ☼	CWAD	61	89	89	[1]	58	84	91	[2]	87	90	[3]

Coefficient of Variance (CV) values for 2018 were as follows: SP = 7.11% NP = 10.09%

Δ PBR pending

☼ protected by Plant Breeders Rights

☼⁹¹ protected by Plant Breeders Rights, UPOV91

* first year tested, very limited data

¥ semi-dwarf variety

☼ Solid-Stemmed variety, Wheat Stem Sawfly resistance

XX = insufficient data

Durum Wheat							Variety Descriptions							
Variety		Type	BC Peace Averages				Alberta Agdex 100/32							
			2013-2018				Resistance to:							
			Maturity in days	Height	Bushel Weight	Kernel Protein %	Lodging	Sprouting	Loose Smut	Common Bunt	Stripe Rust	Leaf Spot	FHB	
		+/- check	cm	lbs/bu	+/- check									
AAC Stronghold ☼91	CWAD	0.8	90	61	0	[3]	VG	G	R	I	MR	I	MS	
AAC Succeed VB Δ	CWAD	-0.6	96	58	0	[2]	F	F	R	R	I	MS	MS	
Brigade ☼	CWAD	1.7	106	62	-1	[5]	G	F	MS	R	MR	I	MS	
CDC Alloy ☼91	CWAD	0.5	97	62	0	[4]	F	F	I	R	R	MS	MS	
CDC Credence Δ	CWAD	1.2	99	57	0	[2]	F	F	MR	R	MR	I	MS	
CDC Dynamic ☼91	CWAD	1.2	95	62	0	[4]	F	F	I	R	MR	I	MS	
DT878 Δ *	CWAD	0.9	94	58	0	[2]	XX	XX	XX	XX	XX	XX	XX	
Strongfield ☼	CWAD	0.0	88	63	0	[12]	F	F	S	I	MR	MS	S	
Transcend ☼	CWAD	-0.8	102	61	0	[3]	F	F	S	R	R	I	MS	

Overall average maturity for Strongfield is 116 days

Overall average protein for Strongfield is 13.1 %

Δ PBR pending

¥ semi-dwarf variety

⌘ protected by Plant Breeders Rights

* first year tested, very limited data

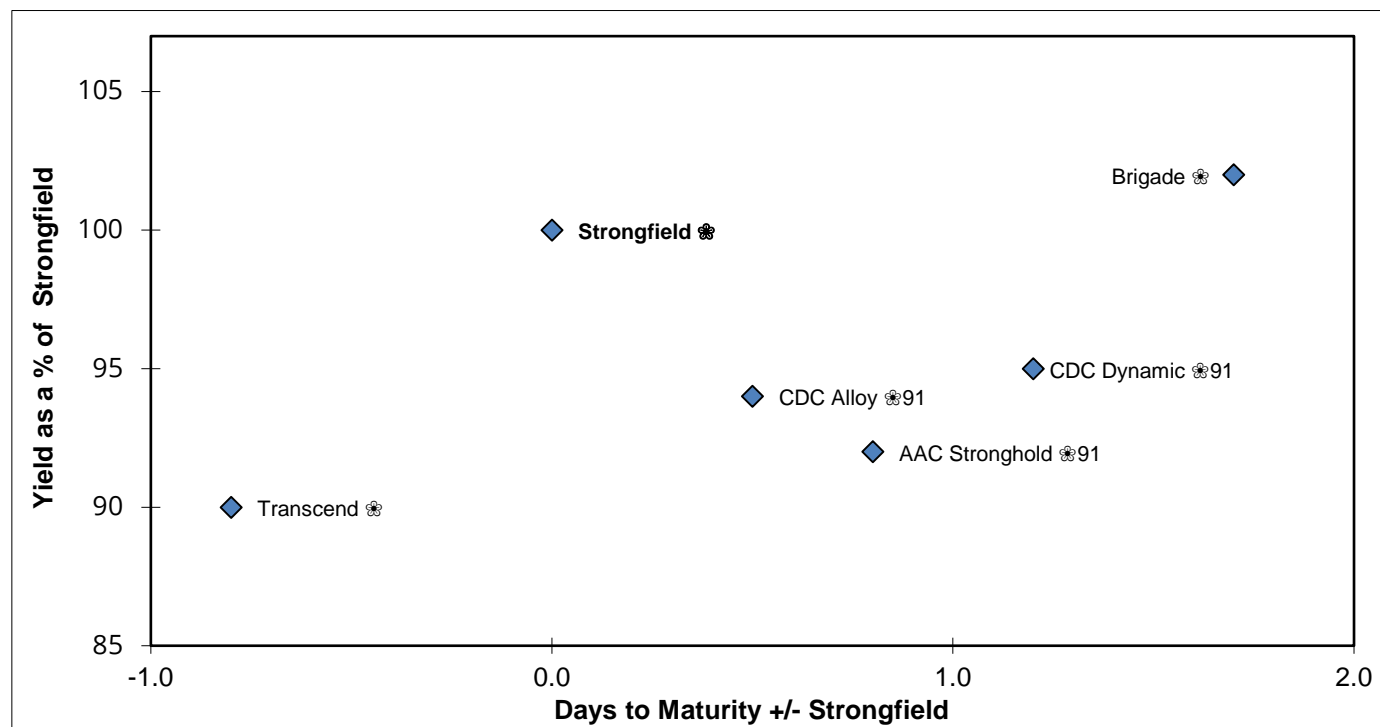
⌘⁹¹ protected by Plant Breeders Rights, UPOV91

⌘ Solid-Stemmed variety, Wheat Stem Sawfly resistance

VG = very good, **G** = good, **F** = fair, **P** = poor, **VP** = very poor **XX** = insufficient data

R = Resistant, **MR** = moderately resistant, **I** = Intermediate resistance, **MS** = Moderately Susceptible, **S** = Susceptible

Durum Wheat Regional Variety Performance 2013-2018



Overall average maturity for Strongfield is 116 days

CANADA WESTERN RED WINTER WHEAT (CWRW) AND WINTER CWGP

The results shown in the 2018 Variety Performance Book are from 2017 and earlier. The crop planted in the fall of 2017 did not make it through the winter and did not come back up in the spring of 2018. The BC Grain Producers started testing winter wheat at Fort St. John in the fall 2012, first harvest 2013. Winter wheat is supposed to offer higher yields than that of its spring CWRW counterparts and although this has not been witnessed thus far, it does offer one to break up the spring seeding period by getting some planting in the ground the previous fall. Fall planting should be no later than Sep 5th in the BC Peace River region, and after September 10th the risk of winter kill increases dramatically. Following a very early pulse crop allows timely fall planting. Applying all your fertilizer at planting in the fall does not seem to cause problems with preventing hardening off before winter due to slow nutrient release in our cool clay soils. At least 3 leaves before winter should be present and preferably some early tillering. The CWRW class is becoming highly valued by end-users if protein is high. CWRW survive winter in the Peace River region as either a complete success or a total loss and seldom in between, so CWRW should still be considered a risky crop.

CWRW & Winter CWGP Wheat										Yield as % of Radiant		
Variety	Type	South Peace				North Peace				BC Peace		
		2017 Yield		2012-2017		2017 Yield		2012-2017		2017	2012-2017	
		bu /	% of	Avg.	Stn.	bu /	% of	Avg.	Stn.	Avg.	Avg.	Stn.
		acre	check	(%)	Yrs.	acre	check	(%)	Yrs.	(%)	(%)	Yrs.
Accipiter ☼ ¥	CWGP					65	108	100	[5]	108	100	[5]
Broadview ☼	CWGP					55	89	87	[5]	89	87	[5]
CDC Buteo ¥	CWRW					53	88	94	[5]	88	94	[5]
CDC Chase	CWRW					62	102	94	[4]	102	94	[4]
CDC Falcon ¥	CWGP					57	94	94	[5]	94	94	[5]
Emerson ☼	CWRW					55	89	88	[5]	89	88	[5]
Flourish ☼	CWRW					58	94	84	[5]	94	84	[5]
Moats ☼	CWRW					66	107	101	[5]	107	101	[5]
Peregrine ☼	CWGP					64	106	102	[5]	106	102	[5]
Radiant ☼	CWRW					61	100	100	[5]	100	100	[5]

Coefficient of Variance (CV) values for 2017 were as follows: NP = 10.58%

Δ PBR pending

☼⁹¹ protected by Plant Breeders Rights, UPOV91

§ Awnless

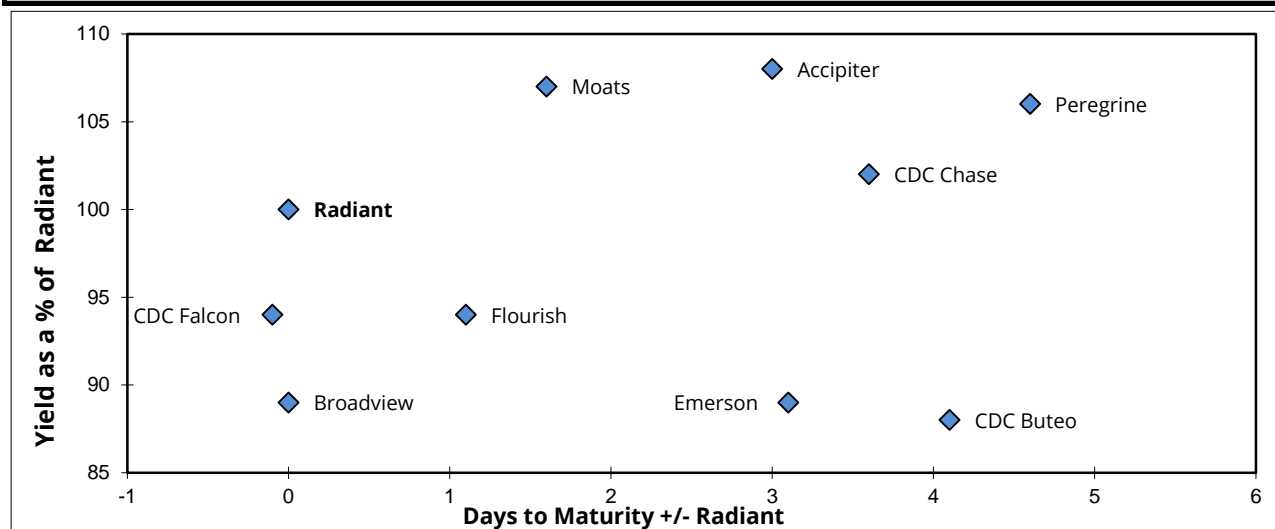
¥ semi-dwarf variety

☼ protected by Plant Breeders Rights

α Clearfield® Tolerant varieties

* first year tested, very limited data

CWRW & Winter CWGP Wheat Regional Variety Performance 2017



Average maturity for Radiant is 120 days for 2017 (Maturity period is from first day of continuous growth in the spring of harvest year.)

CWRW & Winter CWGP Wheat							Variety Descriptions					
BC Peace Averages							Alberta Agdex 100/32					
2012-2017							Resistance to:					
Variety	Type	Maturity	Height	Bushel	Kernel		Lodging	Bunt	Stripe Rust	Leaf Rust	Stem Rust	FHB
		in days		Weight								
		+/- check	cm	lbs/bu	+/- check							
Accipiter ☼ ¥	CWGP	3.3	79	66	0 [4]		VG	S	S	I	R	MS
Broadview ☼	CWGP	-1.1	75	65	0 [4]		G	S	S	R	R	S
CDC Buteo ¥	CWRW	2.4	87	67	1 [4]		F	S	S	I	I	MR
CDC Chase	CWRW	4.7	87	67	0 [3]		F	S	MR	R	R	MS
CDC Falcon ¥	CWGP	-0.8	73	66	0 [4]		VG	S	S	MR	MR	S
Emerson ☼	CWRW	4.3	84	65	1 [4]		G	S	MR	I	R	R
Flourish ☼	CWRW	0.1	77	65	1 [4]		VG	MR	I	I	I	S
Moats ☼	CWRW	3.4	88	66	1 [4]		F	MS	MR	R	R	S
Peregrine ☼	CWGP	3.3	93	66	-1 [4]		F	S	MR	R	I	I
Radiant ☼	CWRW	0.0	79	66	0 [4]		VG	S	S	S	S	S

Overall average maturity for Radiant is 120 days

Overall average protein for Radiant is 12.5 %

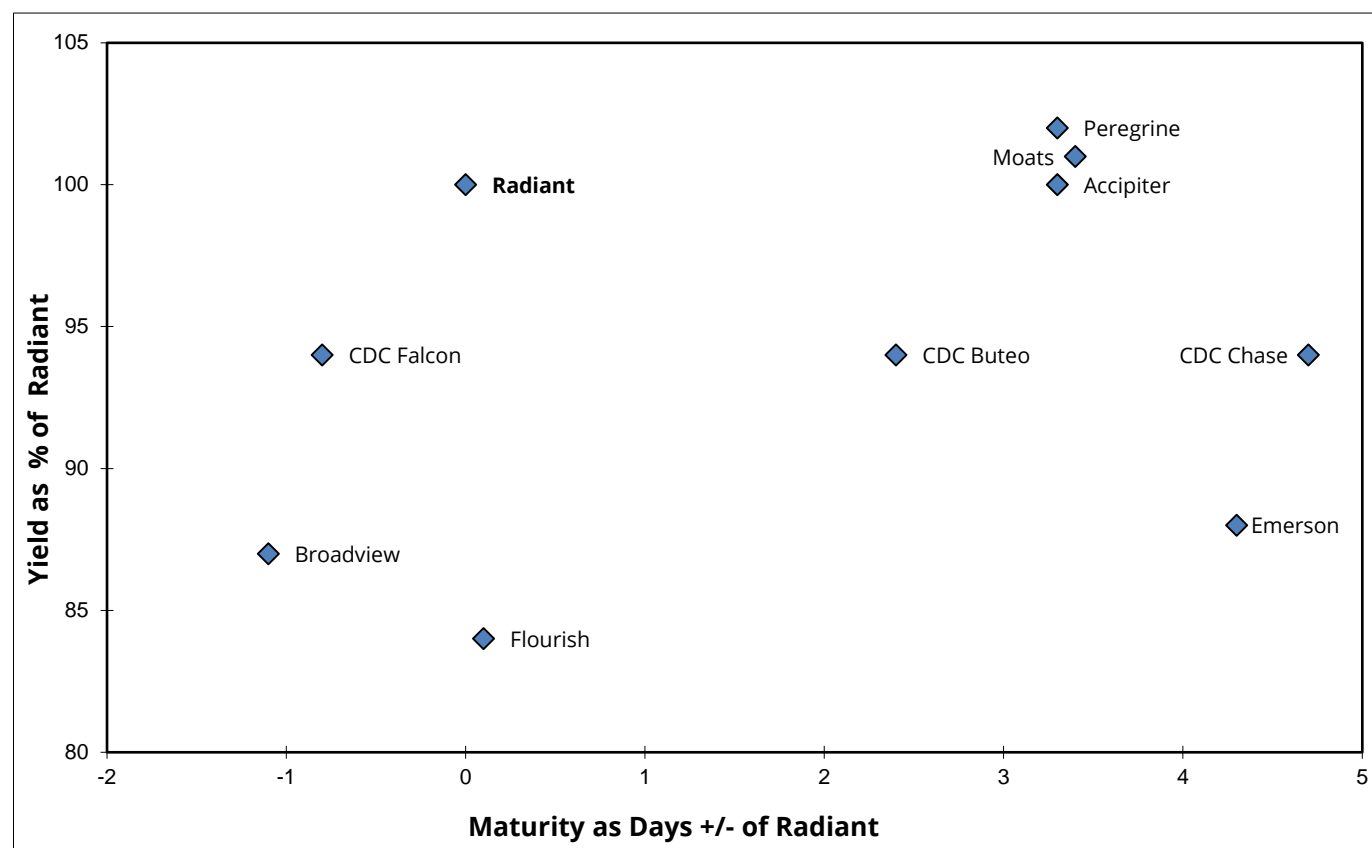
* first year tested, very limited data av: * protected by Plant Breeders Rights

¥ semi-dwarf variety

Δ PBR pending

*⁹¹ protected by Plant Breeders Rights, UPOV91

CWRW & Winter CWGP Wheat Regional Variety Performance 2012-2017



Overall average maturity for Radiant is 120 days