Funding for this project has been provided by Agriculture and Agri-Food Canada through the Canadian Agricultural Adaptation Program (CAAP). In British Columbia, this program is delivered by the Investment Agriculture Foundation of BC.

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 Katepwa

Variety	Dawson Creek 2013 Yield bu / acre		Dawson Creek 2013 Yield % of Check	Dawson Creek 2008 - 2013 Avg. (%)	Dawson Creek 2008 - 2013 Station Years	Fort St. John 2013 Yield bu / acre		Fort St. John 2013 Yield % of Check	Fort St. John 2008 - 2013 Avg. (%)	Fort St. John 2008 - 2013 Station Years	B.C. Peace 2013 Avg. (%)	B.C. Peace 2008-2013 Avg. (%)	B.C. Peace 2008-2013 Station Years
5604HR CL	110	a-f	102	97	[5]	95	efg	96	100	[5]	99	99	[10]
5605HR CL *	117	a	109	109	[1]	109	abc	110	110	[1]	109	109	[2]
AAC Bailey	105	fg	98	105	[3]	89	g	91	107	[3]	94	106	[6]
AAC Brandon	112	a-f	105	105	[2]	105	a-e	107	120	[2]	106	112	[4]
AAC Elie	109	a-g	101	107	[2]	106	a-d	108	122	[2]	105	114	[4]
AAC Iceberg * **	114	a-e	107	107	[1]	108	abc	109	109	[1]	108	108	[2]
AAC Redwater	107	c-g	100	98	[2]	94	efg	96	105	[2]	98	102	[4]
AC Barrie	106	d-g	99	94	[6]	101	b-f	102	103	[6]	100	99	[12]
BW947 * Δ	106	d-g	99	99	[1]	99	c-g	100	100	[1]	100	100	[2]
Carberry	105	fg	98	109	[5]	93	fg	94	112	[5]	96	110	[10]
Cardale	113	a-f	105	104	[2]	105	a-e	106	108	[2]	106	106	[4]
CDC Abound	112	a-f	105	111	[6]	102	a-f	104	114	[6]	104	113	[12]
CDC Alsask	112	a-f	104	105	[6]	107	abc	109	107	[6]	107	106	[12]
CDC Go	116	ab	108	105	[6]	104	a-f	105	109	[6]	107	107	[12]
CDC Osler	105	efg	98	101	[6]	95	efg	96	104	[6]	97	103	[12]
CDC Plentiful	108	b-g	101	103	[2]	103	a-f	105	109	[2]	103	106	[4]
CDC Stanley	115	abc	108	103	[5]	111	ab	113	108	[5]	110	105	[10]
CDC Thrive	111	a-f	104	97	[5]	102	a-f	103	111	[5]	103	104	[10]
CDC Utmost	110	a-f	103	103	[5]	107	abc	109	110	[5]	106	107	[10]
CDC VR Morris	109	a-g	101	98	[2]	103	a-f	104	105	[2]	103	102	[4]
CDC Whitewood * ** Δ	107	c-g	100	100	[1]	94	efg	95	95	[1]	98	98	[2]
Infinity	113	a-f	105	106	[6]	113	a	114	112	[6]	110	109	[12]
Katepwa	107	c-g	100	100	[6]	99	c-g	100	100	[6]	100	100	[12]
Muchmore ***	105	fg	98	104	[5]	102	a-f	104	116	[5]	101	110	[10]
PT584 * Δ	100	g	94	94	[1]	96	d-g	97	97	[1]	95	95	[2]
PT765 * Δ	101	g	94	94	[1]	94	efg	95	95	[1]	95	95	[2]
Shaw	115	a-d	107	103	[5]	105	a-e	107	111	[5]	107	107	[10]
Superb	116	ab	108	113	[6]	110	abc	112	122	[6]	110	118	[12]
SY433	106	c-g	99	103	[3]	99	c-g	101	106	[3]	100	104	[6]
Unity	117	a	109	107	[6]	108	abc	109	111	[6]	109	109	[12]
Whitehawk **	108	b-g	101	94	[2]	96	d-g	97	103	[2]	99	98	[4]
LSD (P=.05) =	4.96					6.46							
CV value (%) =	3.2					4.49							

* first year tested, very limited data available

Katepwa check variety

Means followed by the same letter do not significantly differ (P=.05, LSD)

** CWHWS Canadian Western Hard White Spring Wheat

*** semi-dwarf type

Δ denotes materials not registered

CDC Abound, 5605HR CL and **5604HR CL** are Clearfield® tolerant varieties

CDC Utmost, **Shaw**, and **Unity** are Wheat Midge Resistant varieties

AAC Bailey is a (solid-stemmed) Wheat Stem Sawfly resistant variety

CWRS Wheat — Variety Descriptions

	Variety	B.C. Peace Averages 2008 - 2013: Days to Maturity +/- check	Height cm	Bushel Weight lbs/bu	Kernel Protein % +/- check		Alberta Agdex 100/32 Resistance to: Lodging	Sprouting	Loose Smut	Common Bunt	Stripe Rust	Leaf Spot	FHB	Distributor
■	5604HR CL	-7.1	83	65	0	[10]	G	G	P	F	XX	P	F	Crop Production Services
■	*5605HR CL* *	0.8	105	65	1	[2]								Crop Production Services
■	AAC Bailey	-2.8	95	64	0	[6]	G	G	P	F	XX	F	F	Canterra Seeds
■	AAC Brandon	-0.5	77	65	0	[4]	G	P	G	VP	G	F	G	SeCan
■	AAC Elie	-0.4	78	65	1	[4]	G	F	F	F	G	F	F	Alliance Seed Corporation
■	*AAC Iceberg* * **	0.9	92	65	0	[2]	G	P	P	F	G	P	F	Alliance Seed Corporation
■	AAC Redwater	-3.5	86	65	1	[4]	G	VG	P	F	G	P	F	SeCan
■	AC Barrie	-1.6	81	64	1	[12]	G	G	G	F	VP	P	F	SeCan
	BW947 * Δ	1.2	103	65	0	[2]								U of A
■	Carberry	-0.5	77	65	0	[10]	VG	F	G	VG	G	P	G	SeCan
■	Cardale	-2.4	81	63	0	[4]	G	G	F	VP	G	P	G	Seed Depot
■	CDC Abound	-0.6	75	65	0	[12]	G	F	F	F	P	P	VP	Crop Production Services
■	CDC Alsask	-2.3	83	63	0	[12]	F	G	G	G	F	VP	P	Crop Production Services
	CDC Go	-2.6	74	64	0	[12]	G	VP	P	F	G	VP	P	Public Variety
	CDC Osler	-3.3	79	63	0	[12]	G	F	G	G	F	F	VP	Public Variety
■	CDC Plentiful	-0.8	86	64	1	[4]	VG	P	VG	F	G	F	G	FP Genetics
■	CDC Stanley	-2.3	83	63	0	[10]	G	G	G	VP	F	F	P	Crop Production Services
■	CDC Thrive	-3.4	85	64	0	[10]	G	P	G	F	F	F	P	SeCan
■	CDC Utmost	-1.0	84	64	0	[10]	G	G	P	VP	F	F	P	FP Genetics
■	CDC VR Morris	-1.3	86	65	1	[4]	G	P	F	F	XX	F	G	Crop Production Services
■	*CDC Whitewood* * ** Δ	-0.1	92	65	0	[2]								U of S
■	Infinity	-0.4	80	63	0	[12]	G	G	G	G	P	P	VP	Canterra Seeds
	Katepwa	0.0	85	63	0	[12]	F	F	G	G	P	P	F	SeCan
■	Muchmore***	-0.3	74	65	0	[10]	VG	G	G	VG	G	P	P	FP Genetics
	PT584 * Δ	-1.7	98	65	1	[2]								U of S
	PT765 * Δ	-1.6	103	66	1	[2]								U of A
■	Shaw	-2.3	88	65	0	[10]	G	G	VP	G	F	P	P	SeCan
■	Superb	-0.3	78	65	0	[12]	G	F	F	G	VP	VP	P	SeCan
■	SY433	-1.9	100	65	0	[6]	G	G	F	VP	XX	F	G	Syngenta
■	Unity	-1.6	81	65	0	[12]	G	G	P	VG	P	P	P	SeCan
■	Whitehawk **	-1.7	86	64	0	[4]	G	G	F	P	P	P	F	SeCan

* first year tested, very limited data available

** CWHWS = Canadian Western Hard White Spring Wheat

Δ denotes materials not registered

CDC Abound, **5605HR CL** and **5604HR CL** are Clearfield® tolerant varieties

CDC Utmost, **Shaw**, and **Unity** are Wheat Midge Resistant varieties

AAC Bailey is a (solid-stemmed) Wheat Stem Sawfly resistant variety

VG = very good, G = good, F = fair, P = Poor, VP = very poor

*** semi-dwarf type

XX = insufficient data

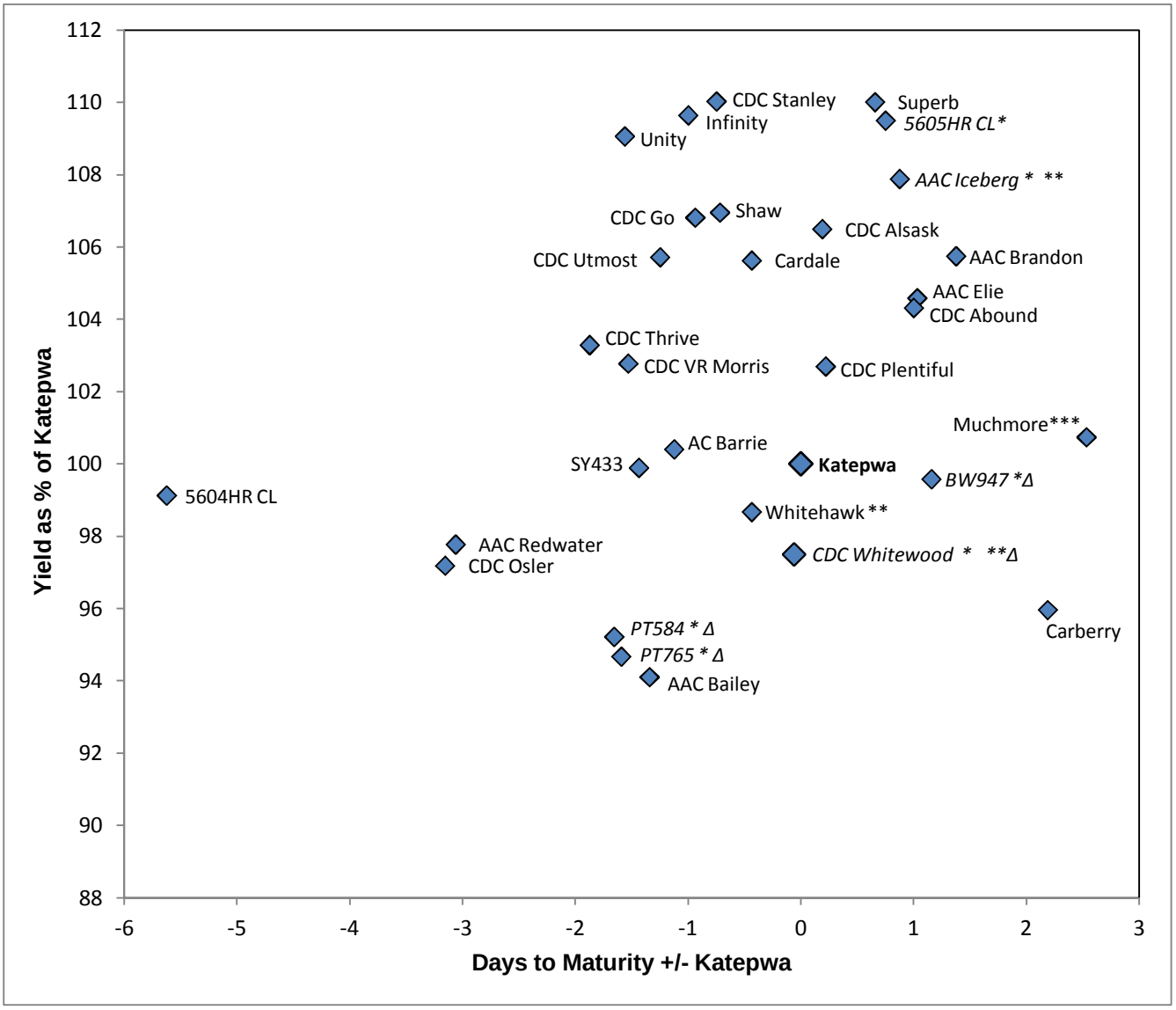
Average protein for **Katepwa** is **13.3 %**

Overall average maturity for **Katepwa** is **106 days**

FHB = Fusarium Head Blight

■ Protected by Plant Breeders' Rights

Katepwa check variety



Average maturity for **Katepwa** is **110 days** for **2013**

Δ denotes materials not registered

* first year tested, very limited data available

** CWHWS Canadian Western Hard White Spring Wheat

*** semi-dwarf type

CDC Abound, 5605HR CL and **5604HR CL** are Clearfield® tolerant varieties

CDC Utmost, **Shaw**, and **Unity are** Wheat Midge Resistant varieties

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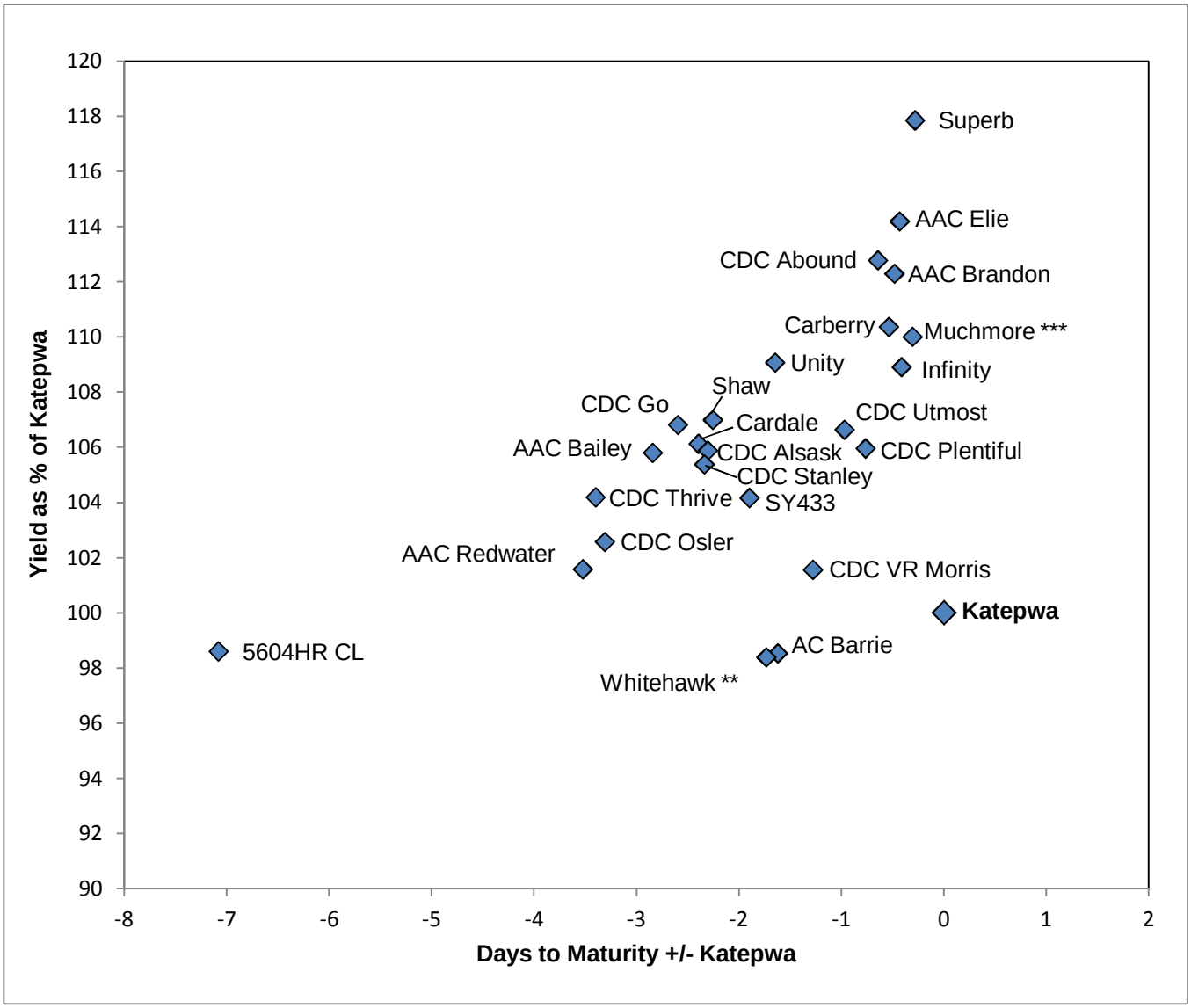
CWRS Wheat — Regional Variety Performance — 2008-2013



Overall average maturity for **Katepwa** is **106** days

*** semi-dwarf type

** CWHWS Canadian Western Hard White Spring Wheat

CDC Utmost, **Shaw**, and **Unity** are Wheat Midge Resistant varieties

AAC Bailey is a (solid-stemmed) Wheat Stem Sawfly resistant variety

CDC Aboundand **5604HR CL** are Clearfield® tolerant varieties

CANADA PRAIRIE SPRING WHEAT

CANADA WESTERN SOFT WHITE SPRING WHEAT

All current Canada General Purpose Spring varieties (CPS and CWSWS are in this class) should be treated with a systemic fungicide seed treatment to control smut. Avoid deep seeding General Purpose wheats. Note the long maturity periods required for the production of 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.

CPS / CWSWS Wheat — Yield as % of 5700PR

Variety	Type	Dawson Creek 2013 Yield bu / acre		Dawson Creek 2013 Yield % of check	Dawson Creek 2008 - 2013 Avg. (%)	Dawson Creek 2008 - 2013 Stn. Yrs.	Fort St. John 2013 Yield bu / acre		Fort St. John 2013 Yield % of check	Fort St. John 2008 - 2013 Avg. (%)	Fort St. John 2008 - 2013 Stn. Yrs.	B.C. Peace 2013 Avg. (%)	B.C. Peace 2008-2013 Avg. (%)	B.C. Peace 2008-2013 Stn. Yrs.
5700PR	CPS-red	116	de	100	100	[5]	119	c-g	100	100	[6]	100	100	[11]
5702PR	CPS-red	123	a-e	106	99	[5]	118	c-g	99	103	[6]	102	101	[11]
AAC Chiffon *	CWSWS	134	a	116	116	[1]	136	a	114	114	[1]	115	115	[2]
AAC Proclaim *	CWSWS	119	b-e	103	103	[1]	121	b-e	101	101	[1]	102	102	[2]
AAC Ryley	CPS-red	117	b-e	101	101	[1]	118	c-g	99	101	[2]	100	101	[3]
AC Andrew	CWSWS	131	abc	113	107	[5]	128	b	107	111	[6]	110	109	[11]
AC Barrie	CWRS	101	f	87	82	[2]	102	h	85	86	[2]	86	84	[4]
CDC NRG003	CWGP	122	a-e	105	98	[3]	120	b-f	101	97	[4]	103	97	[7]
Conquer	CPS-red	118	b-e	102	95	[3]	122	bcd	102	92	[4]	102	94	[7]
Enchant	CPS-red	113	def	97	97	[1]	113	efg	94	93	[2]	96	95	[3]
GP087 * Δ	CWGP	111	def	96	96	[1]	112	efg	94	94	[1]	95	95	[2]
GP097 *Δ	CWGP	125	a-d	108	108	[1]	111	g	93	93	[1]	101	101	[2]
HY1319 *Δ	CWGP	115	de	100	100	[1]	113	d-g	95	95	[1]	97	97	[2]
HY1610 *Δ	CWGP	120	a-e	104	104	[1]	123	bc	103	103	[1]	104	104	[2]
HY995 *Δ	CWGP	116	cde	100	100	[1]	114	c-g	96	96	[1]	98	98	[2]
Minnedosa	CPS-white	114	de	99	94	[3]	115	c-g	96	94	[4]	98	94	[7]
NRG010	CPS-white	124	a-e	107	101	[4]	120	b-e	101	100	[5]	104	100	[9]
Pasteur	CWGP	132	ab	114	114	[1]	137	a	115	111	[2]	114	113	[3]
Superb	CWRS	109	ef	94	98	[5]	111	fg	93	99	[6]	94	98	[11]
LSD (P=.05) =		9.13					5.29							
CV value (%) =		5.42					3.15							

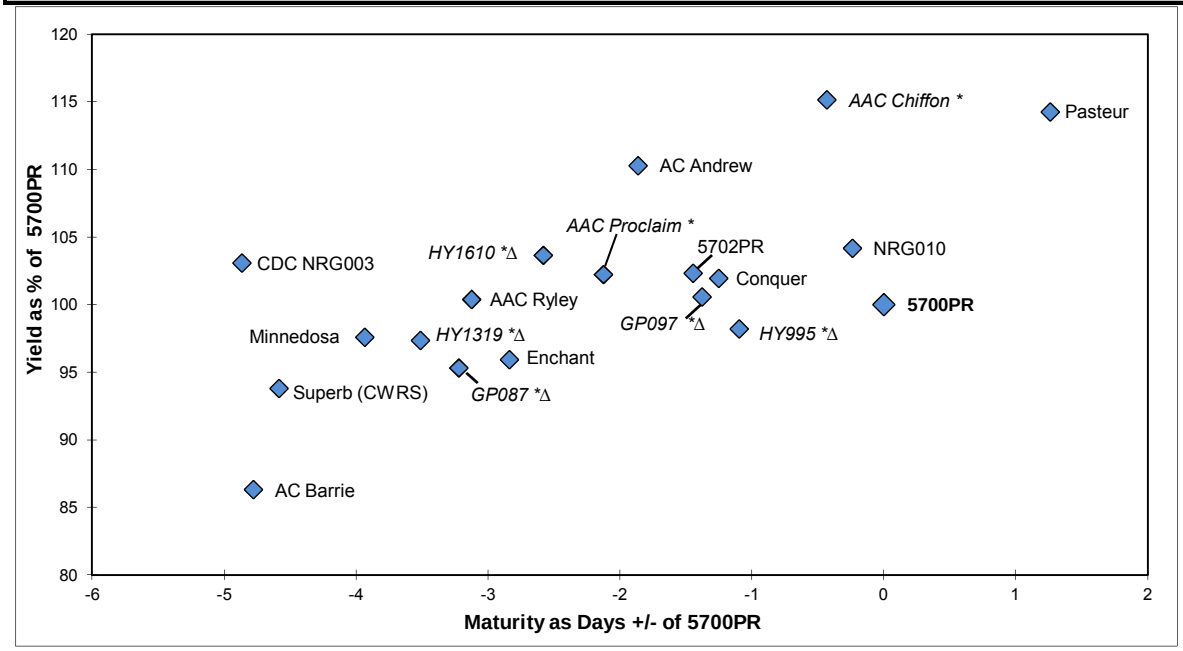
* first year tested, very limited data avaliable

5700PR - check variety

Enchant and **Conquer** are Wheat Midge tolerant Varietal Blend

Δ denotes materials not registered

CPS / CWSWS Wheat — Regional Variety Performance 2013



Δ denotes materials not registered

Average maturity for **5700PR** is **116** days for **2013**

CPS / CWSWS Wheat — Variety Descriptions

Variety	Type	B.C. Peace Averages 2008-2013: Maturity in days +/- check	Height cm	Bushel Weight lbs/bu	Kernel Protein % +/- check		Alberta Agdex 100/32 Resistance to: Lodging	Sprouting	Loose Smut	Common Bunt	Stripe Rust	Leaf Spot	FHB	Distributor
■ **5700PR**	CPS-red	0.0	71	64	0	[11]	VG	F	P	VG	P	P	P	Crop Production Services
■ 5702PR	CPS-red	-0.2	76	63	0	[11]	G	P	P	F	P	F	P	Crop Production Services
■ *AAC Chiffon* *	CWSWS	-0.4	115	63	-1	[2]								AAFC Lacombe
■ *AAC Proclaim* *	CWSWS	-2.1	106	64	0	[2]								FP Genetics
■ AAC Ryley	CPS-red	-1.2	86	64	1	[3]	G	G	F	VG	VP	P	P	SeCan
AC Andrew	CWSWS	0.9	75	64	-1	[11]	VG	P	VP	P	F	P	VP	SeCan
■ AC Barrie	CWRS	-3.8	84	64	2	[4]	G	G	G	F	VP	P	F	SeCan
■ CDC NRG003	CWGP	-3.2	84	63	0	[7]	G	F	P	VG	XX	P	VP	Canterra Seeds
■ Conquer	CPS-red	0.4	91	64	2	[7]	G	P	P	VG	G	F	P	Canterra Seeds
■ Enchant	CPS-red	-0.7	95	65	1	[3]	F	G	P	VG	XX	P	VP	FP Genetics
■ *GP087* *Δ	CWGP	-3.2	95	65	1	[2]								Syngenta Canada Inc.
■ *GP097* *Δ	CWGP	-1.4	91	64	0	[2]								AAFC Lacombe
■ *HY1319* *Δ	CWGP	-3.5	80	65	1	[2]								AAFC Lacombe
■ *HY1610* *Δ	CWGP	-2.6	98	65	1	[2]								AAFC Winnipeg
■ *HY995* *Δ	CWGP	-1.1	91	64	1	[2]								Syngenta Canada Inc.
■ Minnedosa	CPS-white	-3.6	87	64	1	[7]	G	G	F	G	G	P	P	SeCan
■ NRG010	CPS-white	1.1	84	63	0	[9]	G	P	P	VG	VG	F	P	Canterra Seeds
Pasteur	CWGP	2.3	85	65	0	[3]	VG	G	P	VP	G	F	F	SeCan
■ Superb	CWRS	-2.7	78	65	1	[11]	G	F	F	G	VP	VP	P	SeCan

* first year tested, very limited data available

5700PR - check variety

■ Protected by Plant Breeders' Rights

Overall average maturity for **5700PR** is **106** days.

Overall average protein for **5700PR** is **11.7 %**

VG = very good, G = good, F = fair, P = Poor, VP = very poor

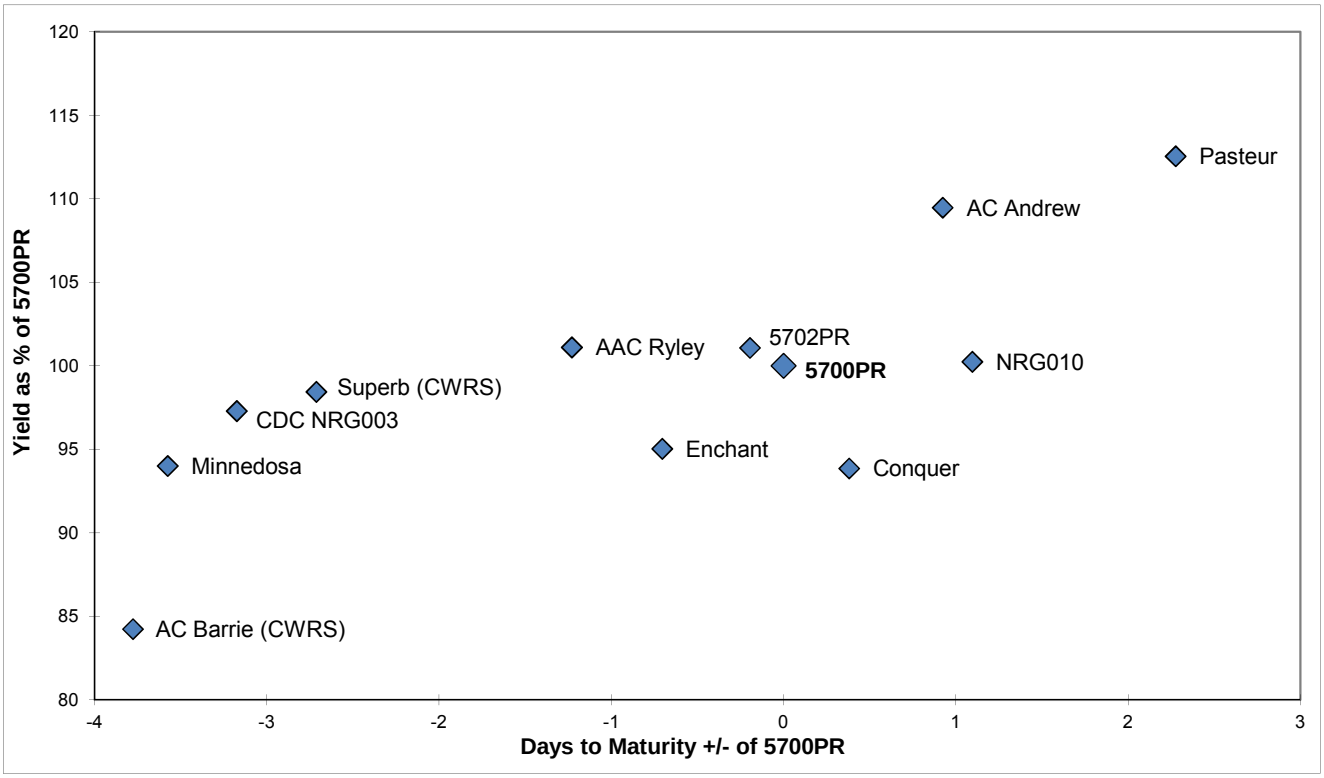
XX = insufficient data

"blanked *Tolerance* data" = no data available yet (too new)

Δ denotes materials not registered

Numbers in square brackets [ ] is number of station years collected for protein

CPS / CWSWS Wheat — Regional Variety Performance — 2008-2013



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 also 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. In the past, durum production has been concentrated in the southern parts of the Canadian prairies.

However, a few producers in northwestern Alberta have had success growing the crop and for this reason it has been tested here in the B.C. Peace. Often surprises arise in our northern long-daylight region and so it was worth investigating durum in a limited fashion. Most varieties of durum wheat currently available are suggested by literature to have approximately 10 days later maturity than CWRS wheat. This is not always the case locally but held true in 2011 (a very wet & late year). Durum should thus not be grown in large acreage within the B.C. Peace River region for grain production until more is understood about its agronomics and interest develops among the grain buyers to purchase the end product from the region - admittedly a vicious circle of acceptance and trial and error. Therefore, *caution* should be taken when attempting to grow durum in the B.C. Peace region, and *disclosure of this data is currently not a recommendation to grow durum in the Peace.*

It appears, however, that the B.C. Peace River region has one really big advantage in growing durum, as traditionally we do not have to be concerned about fusarium, a major problem in most durum growing regions. 2013 proved to produce some evidence of fusarium in some wheat due to an exceptionally consistent year for moisture. Whether this is a fluke or the new norm is not known, but would be a concern for the growing of durum wheat anywhere. For interest sake then, data collected within the B.C. Peace region has been disclosed as it appears that durum could hold some economic promise to our region in years to come - assuming a buyer/market develops. The test years 2009 and 2010 unfortunately were years of severe drought and poor yield potentials, but compared to other wheat yields over the same period of time at the same testing locations, durum was respectable in yield by comparison and even seemed to survive the drought better than other wheat types. 2013 and 2011 were very wet & late maturing years but did not change the crop's promising outlook as a new viable crop-type for our region, noting however that if a normal killing frost would have occurred it would have been bad news in both 2013 or 2011 for anything later than a CWRS wheat even if just a few days later.

Durum Wheat — Yield as % of Strongfield

Variety	Type	Dawson Creek 2013 Yield bu / acre		Dawson Creek 2013 Yield % of check	Dawson Creek 2009 - 2013 Avg. (%)	Dawson Creek 2009 - 2013 Stn. Yrs.	Fort St. John 2013 Yield bu / acre		Fort St. John 2013 Yield % of check	Fort St. John 2009 - 2013 Avg. (%)	Fort St. John 2009 - 2013 Stn. Yrs.	B.C. Peace 2013 Avg. (%)	B.C. Peace 2009 - 2013 Avg. (%)	B.C. Peace 2009 - 2013 Stn. Yrs.
AAC Marchwell *	CWAD	118	a	94	94	[1]	108	bc	105	105	[1]	100	100	[2]
AAC Raymore	CWAD	108	b	86	104	[2]	94	d	92	95	[2]	89	100	[4]
Brigade	CWAD	122	a	98	108	[5]	113	ab	110	104	[5]	104	106	[10]
CDC Desire	CWAD	125	a	100	111	[2]	107	bc	104	107	[2]	102	109	[4]
CDC Fortitude *	CWAD	127	a	101	101	[1]	111	ab	109	109	[1]	105	105	[2]
CDC Vivid	CWAD	120	a	96	101	[2]	95	d	93	98	[2]	95	99	[4]
DT832 *Δ	CWAD	123	a	98	98	[1]	115	a	112	112	[1]	105	105	[2]
Enterprise	CWAD	127	a	101	107	[5]	107	bc	105	103	[5]	103	105	[10]
Strongfield	CWAD	125	a	100	100	[5]	102	c	100	100	[5]	100	100	[10]
LSD (P=.05) =		5.45					5.26							
CV value (%) =		3.07					3.40							

Strongfield - check variety

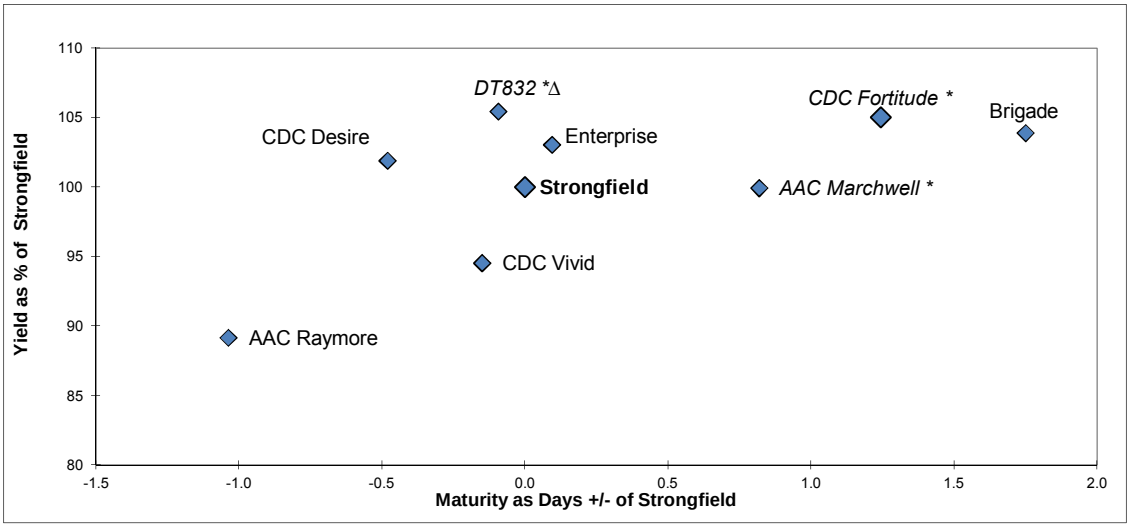
Δ denotes materials not registered

* first year tested, very limited data avaliable

AAC Marchwell is a wheat midge tolerant variety

AAC Raymore and **CDC Fortitude** are stem sawfly (solid stem) resistance varieties

Durum Wheat — Regional Variety Performance 2013



Average maturity for **Strongfield** is **115 days** for **2013**

Durum Wheat — Variety Descriptions

Variety	Type	B.C. Peace Averages 2009 - 2013: Maturity in days +/- check	Height cm	Bushel Weight lbs/bu	Kernel Protein % +/- check		Alberta Agdex 100/32 Resistance to: Lodging	Sprouting	Loose Smut	Common Bunt	Stripe Rust	Leaf Spot	FHB	Distributor
■ *AAC Marchwell* *	CWAD	0.8	98	65	0	[2]								SeCan
■ AAC Raymore	CWAD	0.2	87	63	1	[4]	F	F	P	G	G	F	VP	SeCan
■ Brigade	CWAD	1.7	87	64	-1	[10]	G	F	P	VG	G	F	P	Crop Production Services
■ CDC Desire	CWAD	0.8	86	64	0	[4]	F	G	P	VG	G	F	VP	Syngenta
CDC Fortitude *	CWAD	1.2	98	65	0	[2]								Crop Production Services
■ CDC Vivid	CWAD	1.3	86	63	0	[4]	G	F	F	VG	XX	F	VP	Crop Production Services
DT832 *Δ	CWAD	-0.1	98	65	-1	[2]								U of S
■ Enterprise	CWAD	-0.7	82	64	-1	[10]	G	F	P	G	VG	F	P	Canterra Seeds
■ **Strongfield**	CWAD	0.0	78	64	0	[10]	F	F	VP	F	G	P	VP	SeCan

VG = very good, G = good, F = fair, P = poor, VP = very poor
XX = insufficient data
* first year tested, very limited data available
Δ denotes materials not registered
Numbers in square brackets [ ] is number of station years collected for protein

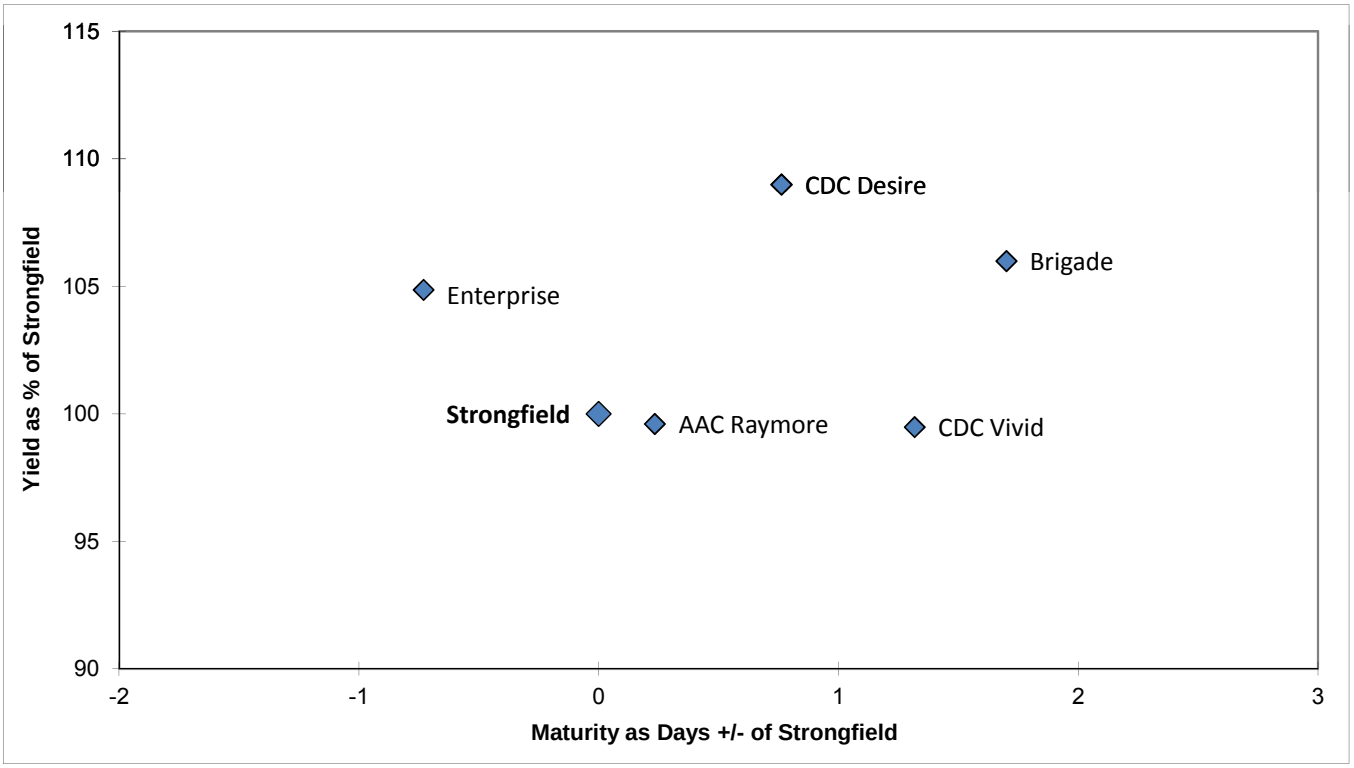
Strongfield - check variety

■ Protected by Plant Breeders' Rights

AAC Marchwell is a wheat midge tolerant variety
AAC Raymore, **CDC Fortitude** are stem sawfly (solid stem) resistance varieties

Overall average maturity for **Strongfield** is **109** days
Overall average protein for **Strongfield** is **14.5** %

Durum Wheat — Regional Variety Performance — 2009-2013



Barley

Six Row Barley

Yield as % of AC Metcalfe

Variety	Type	Dawson Creek 2013 Yield bu / acre		Dawson Creek 2013 Yield % of check	Dawson Creek 2008-2013 Avg. (%)	Dawson Creek 2008-2013 Stn. Yrs.	Fort St. John 2013 Yield bu / acre		Fort St. John 2013 Yield % of check	Fort St. John 2008-2013 Avg. (%)	Fort St. John 2008-2013 Stn. Yrs.	B.C. Peace 2013 Avg. (%)	B.C. Peace 2008-2013 Avg. (%)	B.C. Peace 2008-2013 Stn. Yrs.
AC Lacombe	Feed	137	abc	107	105	[6]	148	bc	105	105	[6]	106	105	[12]
AC Metcalfe	Malt	128	cd	100	100	[6]	141	c	100	100	[6]	100	100	[12]
Amisk *	Feed	142	abc	110	110	[1]	160	a	114	114	[1]	112	112	[2]
Breton ***	Feed	136	abc	106	109	[2]	151	b	108	108	[2]	107	108	[4]
CDC Anderson	Malt	134	bc	105	102	[3]	145	bc	103	105	[3]	104	104	[6]
CDC Mayfair	Malt	129	cd	101	102	[6]	147	bc	105	98	[6]	103	100	[12]
Celebration	Malt	119	d	93	102	[4]	141	c	100	100	[4]	97	101	[8]
Muskwa ***	Feed	147	ab	115	114	[3]	148	bc	105	109	[3]	110	112	[6]
Sundre***	Feed	150	ab	116	104	[6]	165	a	117	113	[6]	117	108	[12]
Vivar **	Feed	152	a	118	109	[6]	159	a	113	109	[6]	116	109	[12]
LSD (P=.05) =		11.06					6.76							
CV value (%) =		5.55					3.10							

Two Row Barley

Yield as % of AC Metcalfe

Variety	Type	Dawson Creek 2013 Yield bu / acre		Dawson Creek 2013 Yield % of check	Dawson Creek 2008-2013 Avg. (%)	Dawson Creek 2008-2013 Stn. Yrs.	Fort St. John 2013 Yield bu / acre		Fort St. John 2013 Yield % of check	Fort St. John 2008-2013 Avg. (%)	Fort St. John 2008-2013 Stn. Yrs.	B.C. Peace 2013 Avg. (%)	B.C. Peace 2008-2013 Avg. (%)	B.C. Peace 2008-2013 Stn. Yrs.
AAC Synergy	Malt	145	b-e	95	98	[2]	153	b-e	93	98	[2]	94	98	[4]
ABI Voyager *	Malt	137	b-f	90	90	[1]	147	de	89	89	[1]	90	90	[2]
AC Metcalfe	Malt	153	ab	100	100	[6]	164	abc	100	100	[6]	100	100	[12]
Bentley	Malt	147	a-d	96	103	[6]	161	a-d	98	100	[6]	97	102	[12]
Brahma	Feed	150	abc	98	111	[5]	163	abc	99	105	[5]	99	108	[10]
Canmore *	Feed	142	b-f	93	93	[1]	166	ab	101	101	[1]	97	97	[2]
CDC Clear ¶	Malt	111	g	91	92	[3]	112	f	85	96	[3]	88	94	[6]
CDC Kindersley	Malt	141	b-f	92	102	[4]	148	de	90	98	[4]	91	100	[8]
CDC Maverick ***	Feed	130	ef	85	93	[3]	147	de	90	95	[3]	87	94	[6]
CDC Meredith	Malt	136	c-f	89	106	[6]	156	b-e	95	106	[6]	92	106	[12]
CDC PolarStar	Malt	128	f	84	93	[3]	149	de	90	93	[3]	87	93	[6]
Cerveza	Malt	142	b-f	93	107	[5]	153	b-e	93	103	[5]	93	105	[10]
Champion	Feed	145	b-e	95	129	[6]	153	b-e	93	105	[6]	94	117	[12]
Major	Malt	137	c-f	89	98	[5]	151	cde	92	100	[5]	91	99	[10]
Merit 57	malt	160	a	104	113	[5]	173	a	105	108	[5]	105	111	[10]
Newdale	Malt	133	def	87	106	[6]	147	de	89	101	[6]	88	104	[12]
TR10214 *Δ	Malt	141	b-f	92	92	[1]	154	b-e	93	93	[1]	93	93	[2]
TR11698 *Δ	Feed	147	a-d	96	96	[1]	172	a	105	105	[1]	100	100	[2]
XENA	feed	134	def	87	107	[6]	145	e	88	99	[6]	88	103	[12]
LSD (P=.05) =		9.39					8.76							
CV value (%) =		4.75					4.04							

AC Metcalfe - check variety for 2 row
AC Metcalfe - check variety for 6 row

Means followed by the same letter do not significantly differ (P=.05, LSD)

* first year tested, very limited data available

** semi-dwarf type

*** smooth-awned type

¶ denotes hulless seed types (bu/ac adjusted for hulless)

Δ denotes materials not registered

Feed Barley

Variety Descriptions

Variety	Type	B.C. Peace Averages 2008-2013: Days to Maturity +/- check	Height cm	Bushel Weight lbs/bu	Kernel Protein % +/- check		Alberta Agdex 100/32 info: Resistance to: Lodging	Loose Smut	False Smut	Root Rot	Scald	FHB	Distributor
				Eligible for General Purpose Grades Only									
■ AC Lacombe	6 row	-0.7	75	50	-1	[11]	G	P	G	P	P	VP	SeCan
■ Breton ***	6 row	-1.2	91	51	-1	[4]	F	P	G	F	F	VP	Canterra Seeds
■ Brahma	2 row	1.8	78	56	0	[10]	G	P	VG	G	VP	F	Crop Production Services
■ *Canmore**	2 row	0.9	94	55	0	[2]							Canterra Seeds
■ Champion	2 row	2.6	73	55	-1	[12]	G	VP	VG	XX	VP	F	Crop Production Services
■ Muskwa ***	6 row	0.4	88	54	-1	[4]	G	P	VG	P	G	VP	SeedNet
■ Sundre ***	6 row	5.7	80	53	-1	[11]	G	P	VG	P	VG	VP	Mastin Seeds
*TR11698*Δ	2 row	0.8	96	54	-1	[2]							AAFC Lacombe
■ XENA	2 row	0.8	73	54	0	[12]	G	P	P	G	VP	G	Crop Production Services
				Semi-dwarf varieties									
■ *Amisk * , **	6 row	0.7	88	48	0	[2]							SeCan
■ Vivar **	6 row	-0.6	70	51	-1	[11]	VG	F	VG	G	F	VP	SeCan
				Forage varieties									
■ CDC Maverick ***	2 row	3.2	111	57	1	[6]	F	VP	VG	F	P	F	SeCan

Malt Barley

Variety Descriptions

Variety	Type	B.C. Peace Averages 2008-2013: Days to Maturity +/- check	Height cm	Bushel Weight lbs/bu	Kernel Protein % +/- check		Alberta Agdex 100/32 info: Resistance to: Lodging	Loose Smut	False Smut	Root Rot	Scald	FHB	Distributor
■ AAC Synergy	2 row	0.9	81	54	0	[4]	F	VP	F	F	VP	P	Syngenta
■ *ABI Voyager *	2 row	1.9	93	54	0	[2]							Busch Agricultural Resources Inc.
■ **AC Metcalfe**	2 row	0.0	73	55	0	[23]	F	VG	F	F	VP	F	SeCan
■ Bentley	2 row	0.0	75	53	0	[12]	G	P	G	G	VP	P	Canterra Seeds
■ CDC Anderson	6 row	-1.6	94	53	0	[4]	G	G	VG	F	P	F	SeCan
■ CDC Kindersley	2 row	-3.5	83	55	0	[8]	G	VP	VG	F	VP	F	SeCan
■ CDC Mayfair	6 row	-5.6	71	51	0	[10]	G	VP	G	F	VP	P	Canterra Seeds
■ CDC Meredith	2 row	3.2	73	54	-1	[12]	F	VG	G	G	VP	F	SeCan
■ CDC PolarStar	2 row	-2.8	97	55	1	[6]	G	VP	VG	P	VP	G	Canterra Seeds
■ Celebration	6 row	-5.9	86	53	1	[6]	VG	VG	VG	P	VP	P	Canterra Seeds
■ Cerveza	2 row	0.6	78	54	0	[10]	F	VG	VG	F	VP	F	Mastin Seeds
■ Major	2 row	-0.7	76	53	0	[10]	G	VG	G	F	P	F	Crop Production Services
■ Merit 57	2 row	3.2	75	54	-1	[10]	F	P	VP	F	P	G	Canterra Seeds
■ Newdale	2 row	-0.3	72	54	0	[12]	F	VP	G	G	P	F	FP Genetics
*TR10214 *Δ	2 row	2.0	98	53	1	[2]							U of S
				Hulless varieties									
■ CDC Clear ¶	2 row	0.9	100	64	0	[6]	G	VG	VG	F	VP	G	U of S

* first year tested, very limited data available

¶ denotes hulless seed types

■ Protected by Plant Breeders' Rights

Δ denotes materials not registered

AC Metcalfe - check variety

VG= very good, G = good, F = fair, P = poor, VP = very poor

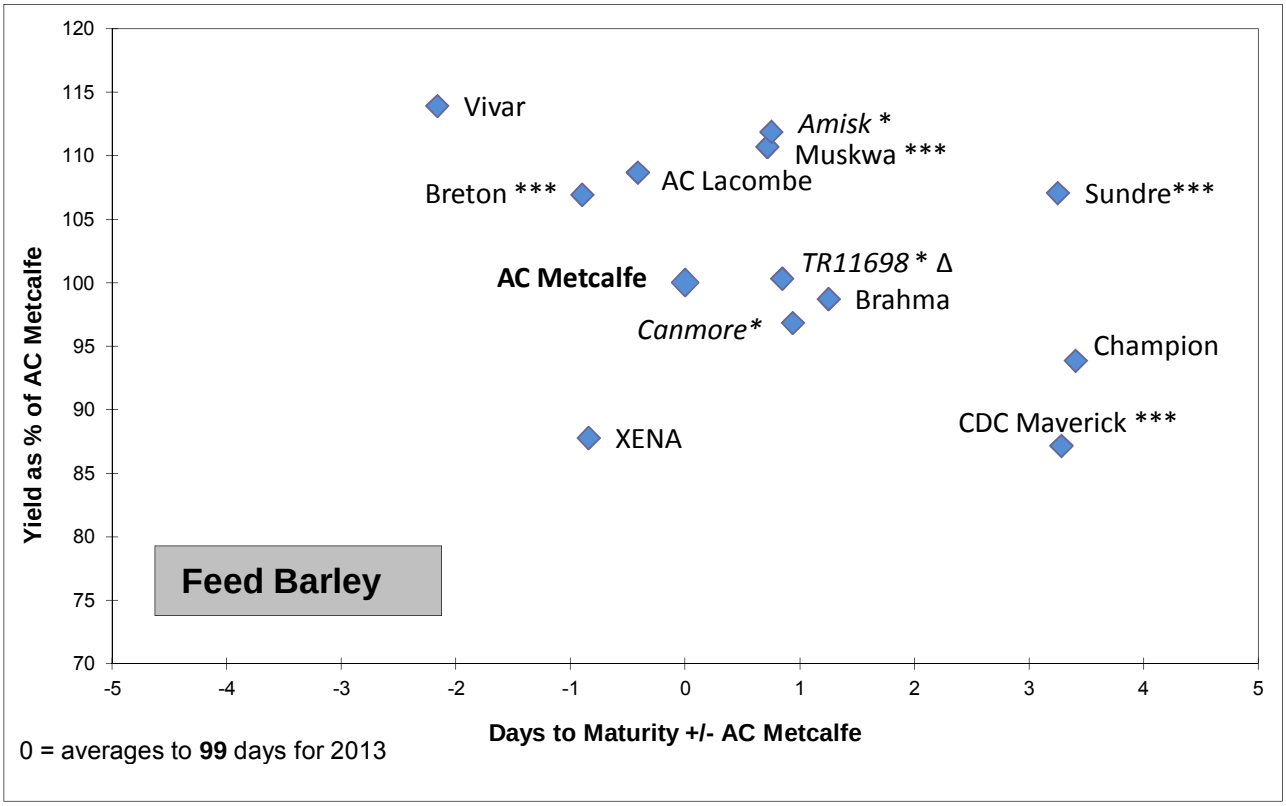
XX = insufficient data

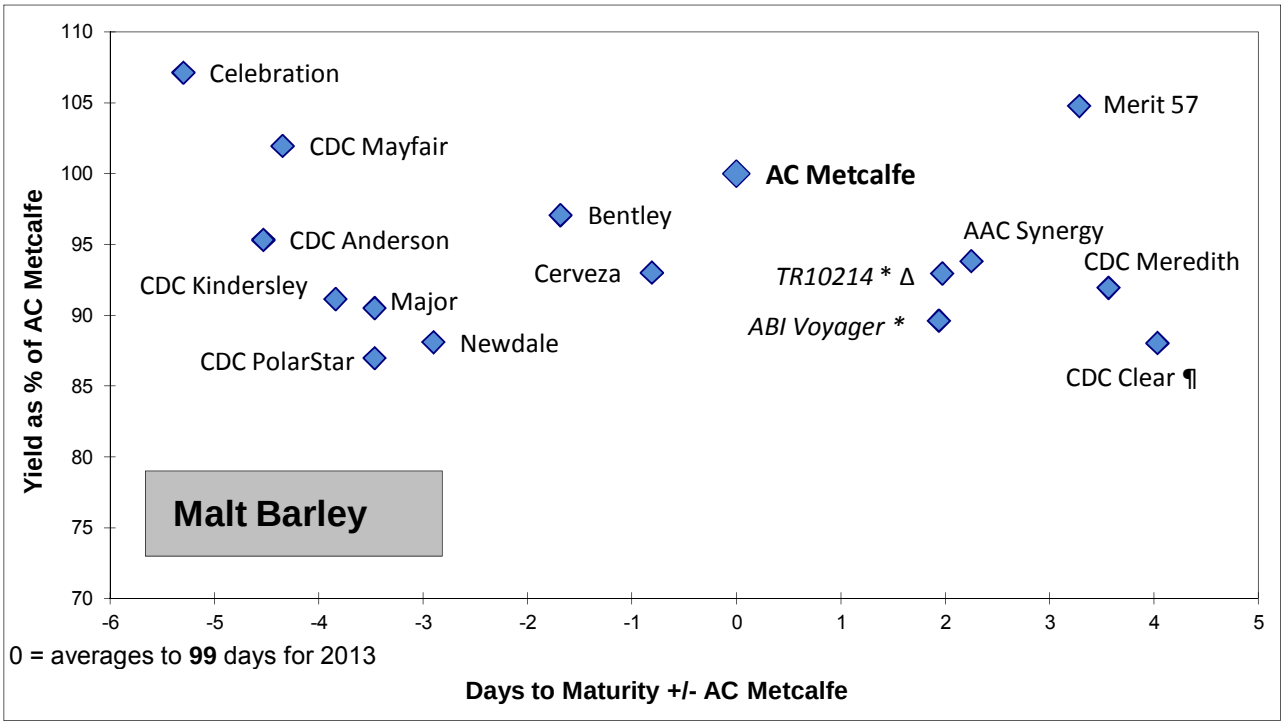
Overall average maturity for **AC Metcalfe** is **93** days

Overall average protein for **AC Metcalfe** is **13.8%**

Numbers in square brackets [ ] is number of station years collected for protein

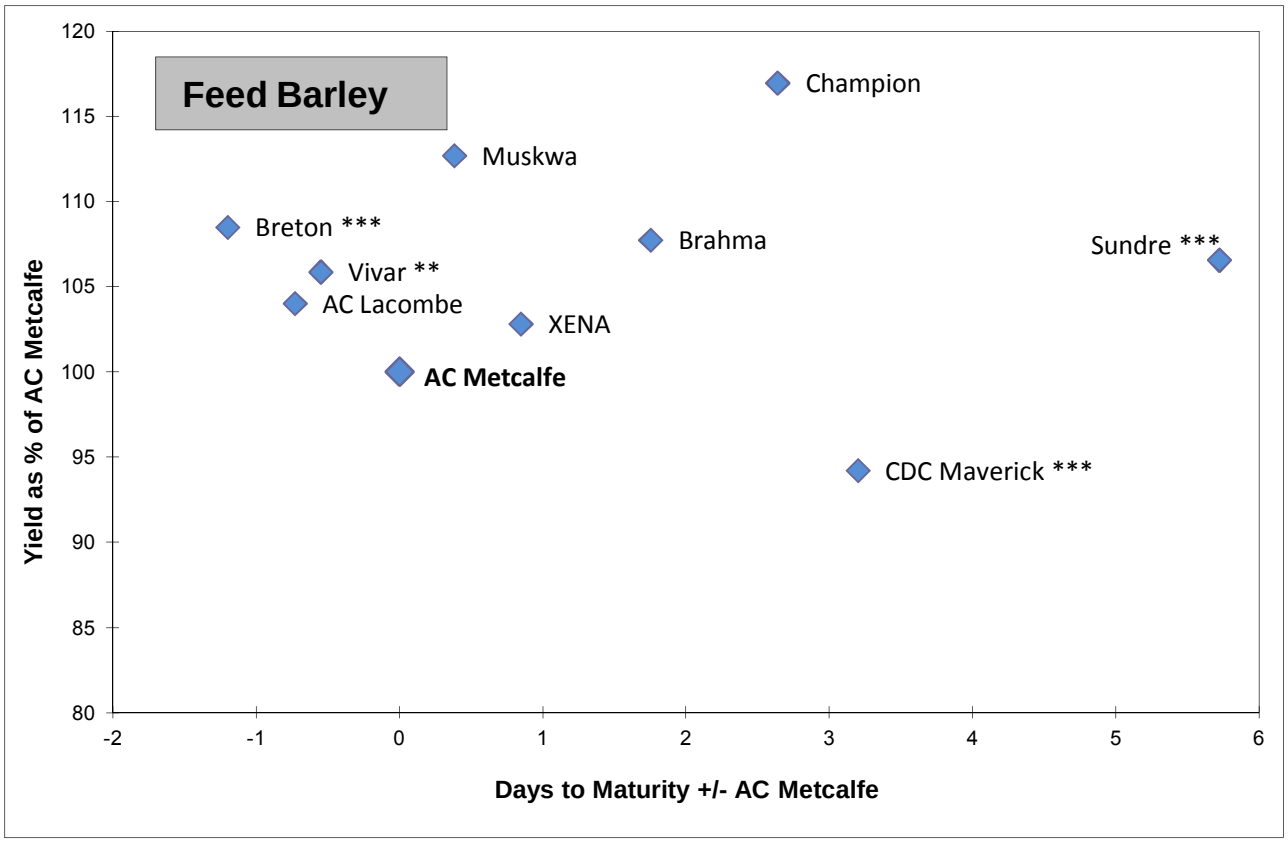
** semi-dwarf type *** smooth-awned type



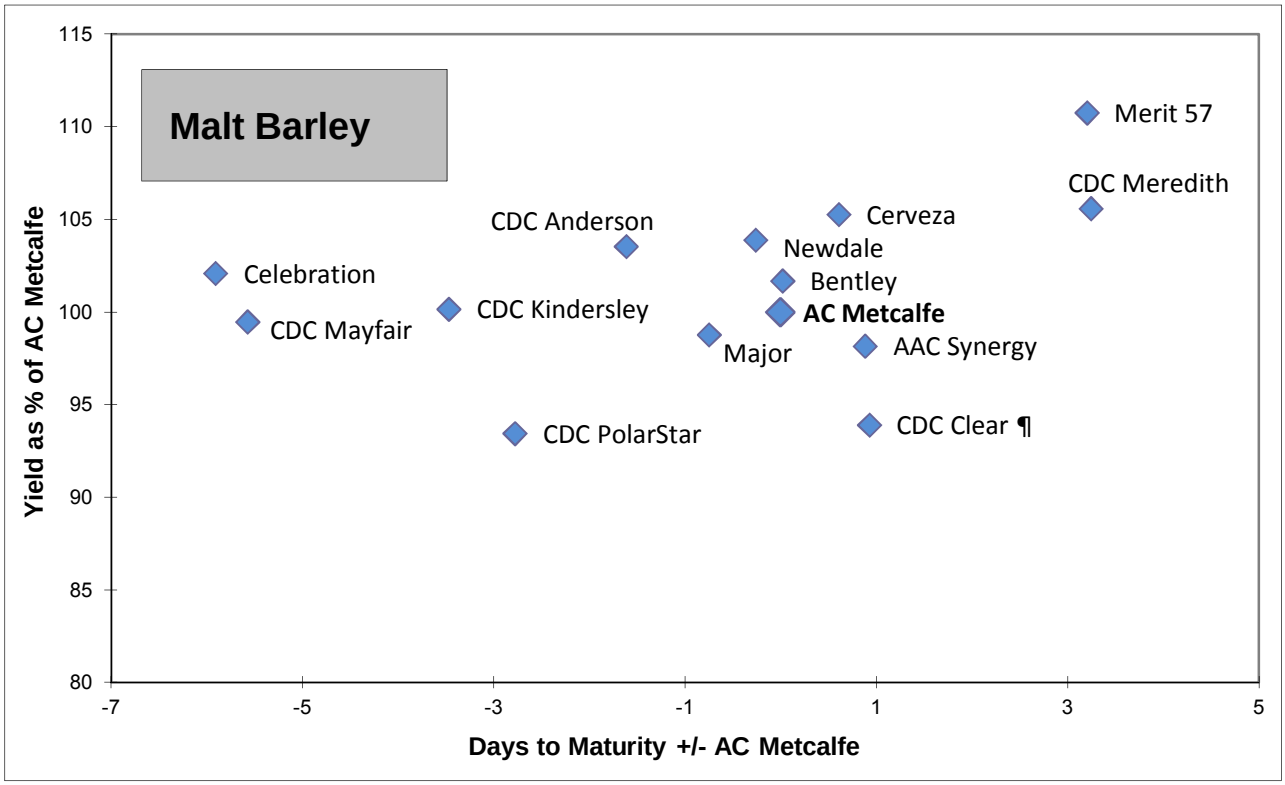


* first year tested materials

Δ denotes materials not registered
¶ denotes hulless seed types
** semi-dwarf type *** smooth-awned type



Overall average maturity for **AC Metcalfe** is **93** days (both graphs)



** semi-dwarf type
*** smooth-awned type

Δ denotes materials not registered
¶ denotes hulless seed types

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 is the variety *Gehl* - included for the first time in the 2011 season - which is a "*low pubescence* hulless" oat aimed at a replacement for rice actually, hence its marketing slogan "Prairie Rice". A potential contracted market in the Peace River area is a real possibility if agronomics work out for *Gehl* but in both 2012 and 2013 wet soils expressed poor vigor of the germinating seed due to our cool clay soils and so 2012-2013 data was removed from the full dataset. This will set back any development of this market until more vigorous "hairless hulless" lines come along that can handle our soils and spring conditions as wet and cool soils during emergence are more the norm in the Peace River region. Yield values for all hulless oat varieties are expressed after hull removal, which reduces the seed weight by 20-25% compared to the normal hulled oat varieties. Keep this ratio in mind while comparing hulless to hulled when such data is present.

Oat — Yield as % of CDC Dancer

Variety	Colour	Dawson Creek 2013 Yield bu / acre	Dawson Creek 2013 Yield % of check	Dawson Creek 2008-2013 Avg. (%)	Dawson Creek 2008-2013 Stn. Yrs.	Fort St. John 2013 Yield bu / acre	Fort St. John 2013 Yield % of check	Fort St. John 2008-2013 Avg. (%)	Fort St. John 2008-2013 Stn. Yrs.	B.C. Peace 2013 Avg. (%)	B.C. Peace 2008-2013 Avg. (%)	B.C. Peace 2008-2013 Stn. Yrs.
AAC Justice *	Yellow	236 ab	94	94	[1]	266 abc	117	117	[1]	106	106	[2]
AC Mustang	White	241 ab	96	109	[6]	274 ab	121	114	[6]	109	112	[12]
CDC Big Brown	Brown	226 bc	90	97	[4]	250 bc	110	106	[4]	100	101	[8]
CDC Dancer	White	250 a	100	100	[6]	227 d	100	100	[6]	100	100	[12]
CDC Haymaker *	Yellow	216 c	86	86	[1]	254 bc	112	112	[1]	99	99	[2]
CDC Nasser	Yellow	229 bc	92	94	[3]	263 abc	116	106	[3]	104	100	[6]
CDC Ruffian	White	246 a	98	88	[2]	257 bc	113	97	[2]	106	93	[4]
CDC Seabiscuit	Yellow	224 bc	90	92	[3]	251 bc	111	106	[3]	100	99	[6]
Lu	Yellow	227 bc	91	94	[6]	252 bc	111	103	[6]	101	99	[12]
Souris	Yellow	226 bc	90	91	[2]	239 cd	105	104	[2]	98	97	[4]
Stride	White	227 bc	91	92	[3]	254 bc	112	102	[3]	101	97	[6]
Triactor	White	249 a	100	111	[6]	284 a	125	113	[6]	113	112	[12]
LSD (P=.05) =		10.88				17.26						
CV value (%) =		3.43				4.91						

Means followed by the same letter do not significantly differ (P=.05, LSD)

* first year tested, very limited data available

CDC Dancer - check variety

Δ denotes materials not registered

* **Gehl** is a "low pubescence hulless" oat intended for the whole grain oat market (see comment above chart)

Health Benefits Of Oat

Oats are 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 are a great source of fibre which consists of more than half as soluble fibres. Oat is high in protein and mineral contents included calcium, iron, magnesium, zinc, copper, manganese, thiamin, folacin, and vitamin E. They are higher in these components than any other whole grain, such as wheat, barley, corn or rice. Rich in Vitamin B1 they 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. Thus, oat is a significant contributor to the good health of not only livestock but also to good human health as well.

Oat — Variety Descriptions

Variety	Type	BC Peace Averages 2008 - 2013: Maturity as days +/- check	Height cm	Bushel Weight lbs/bu	Alberta Agdex 100/32 info Tolerance to: Lodging	Smuts	Distributor
■ *AAC Justice* *	Milling	1.9	118	45			FP Genetics
AC Mustang	Feed/forage	4.5	96	43	G	F	Mastin Seeds
■ CDC Big Brown	Milling	3.9	94	43	G	VG	SeCan
■ **CDC Dancer**	Milling	0.0	90	42	G	VG	FP Genetics
■ *CDC Haymaker* *	Forage	2.3	126	42			SeCan
CDC Nasser	Feed	7.9	92	39	G	G	T & L Seeds
■ CDC Ruffian	Milling	6.9	91	42	G	VG	FP Genetics
■ CDC Seabiscuit	Milling	6.7	100	42	G	G	Canterra Seeds
Lu	Feed	-2.3	87	41	G	VG	SeCan
■ Souris	Milling	2.6	89	42	VG	VG	Seed Depot
■ Stride	Milling	3.2	104	44	G	VG	AAFC-Lacombe
■ Triactor	Milling/Feed	3.2	86	40	G	VG	Canterra Seeds Seeds

CDC Dancer - check variety

■ Protected by Plant Breeders' Rights

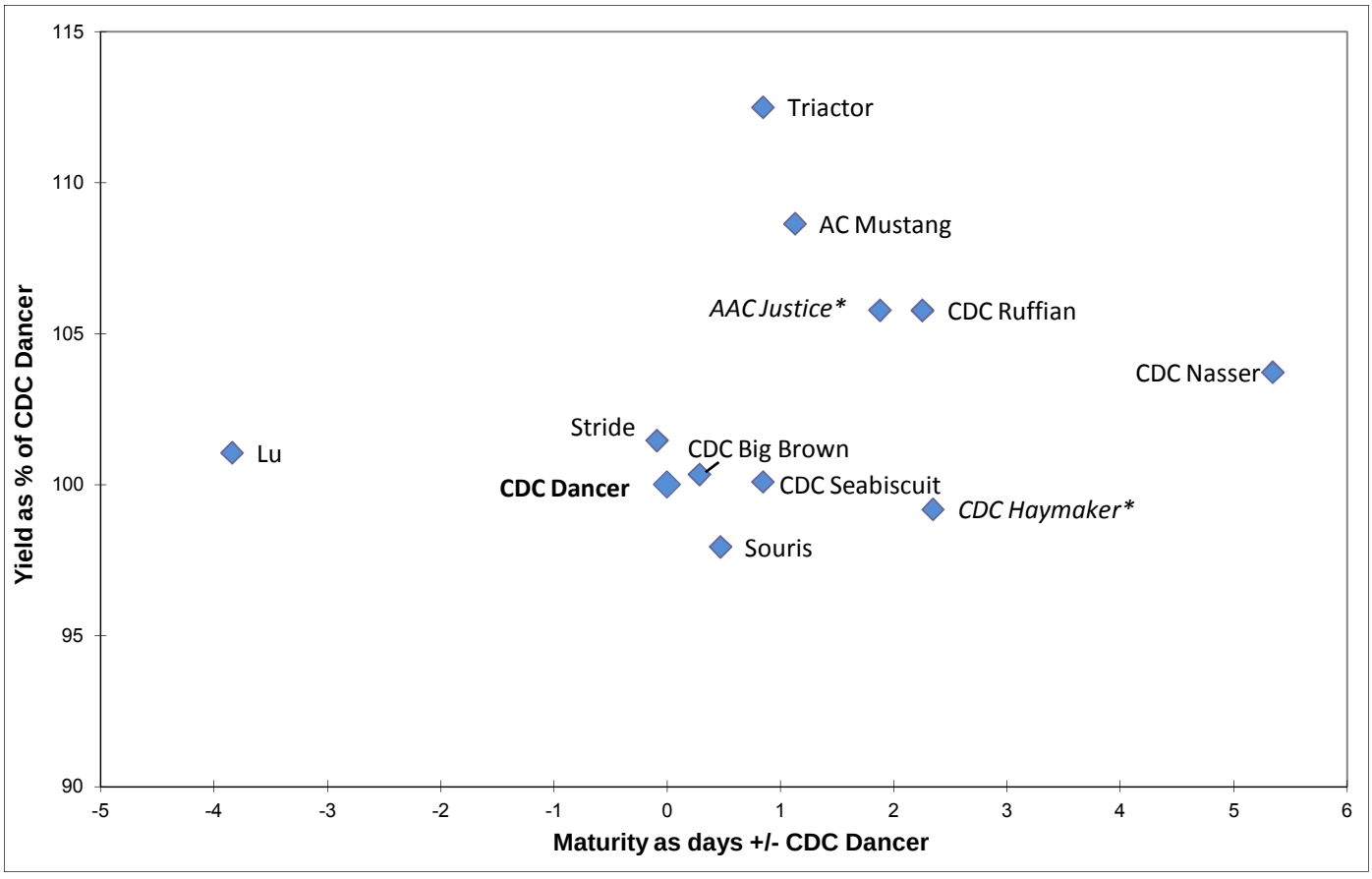
VG = very good, G = good, F = fair, P = poor, VP = very poor

XX = insufficient data

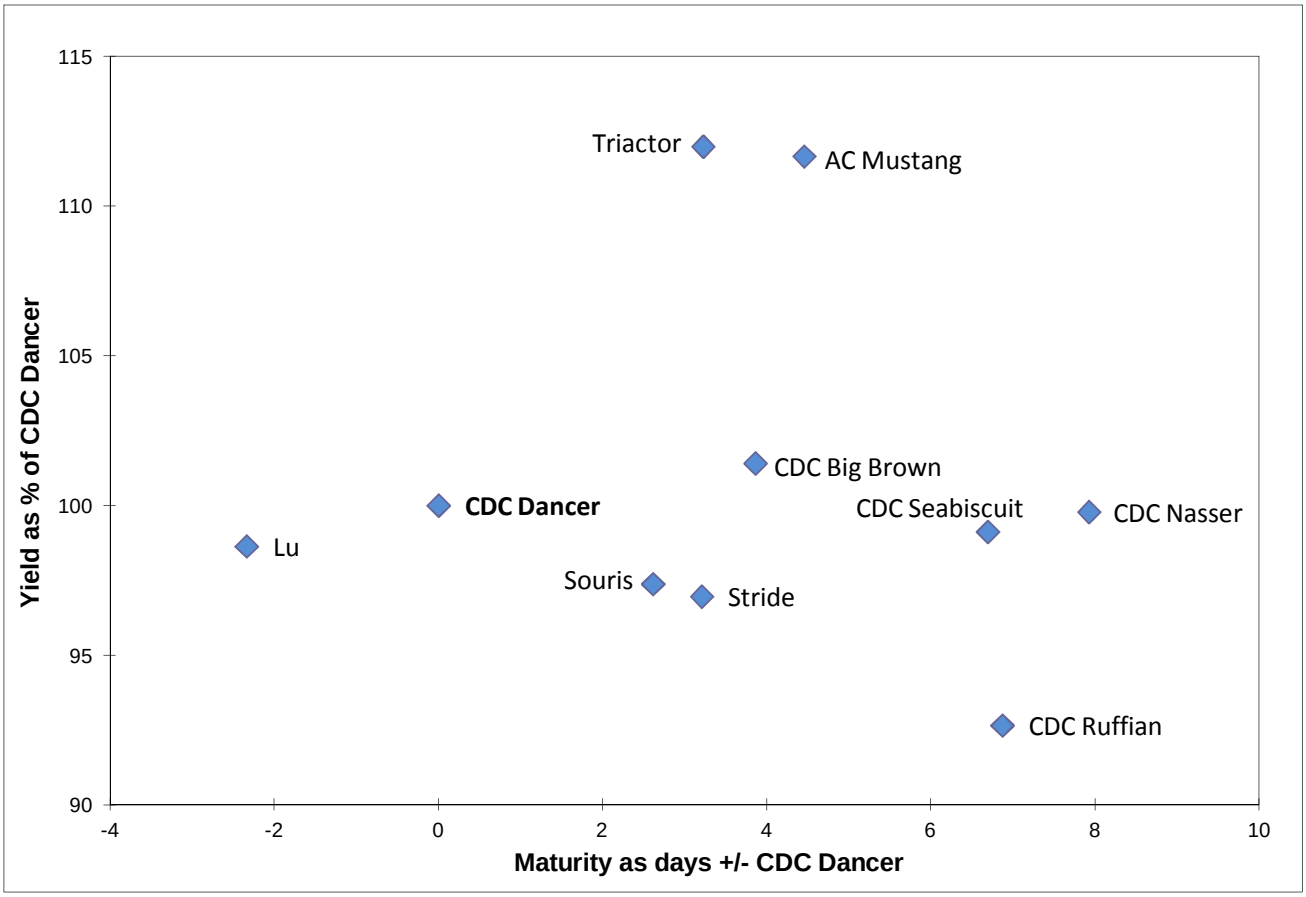
* first year tested, very limited data available

Δ denotes materials not registered

Oat — Regional Variety Performance — 2013



Average maturity for **CDC Dancer** is **102** days in **2013**



Overall average maturity for **CDC Dancer** is **94** days

Oat for Feed

Oat is often sown to provide fodder in the form of silage or greenfeed. Oat 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 protein[1]. Many years of comparing yields of oat with barley have shown oat to be superior in the Black and Grey Wooded soil zones[1]. Although the percent protein level in barley is higher than in oat, the total amount of protein produced on a given area is higher with oat than with barley[1]. Oat has about 22-26 percent hull whereas barley averages about 12-14 per cent hull on a weight basis[1]. 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 grain[1]. 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 leafiness[2]. Having said that however, such work has not likely included the newer lines of forage oat 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. This should translate to more biomass being made 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[3].

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[3]. The variation in straw feed quality between oat varieties is insignificant and should not be used as a variety selection criterion[3]. The average feed values are: protein 4%, fibre 49%, calcium 0.27%, and phosphorus 0.08%[4].

Source[1,2,4]: Alberta Agriculture, Food, and Rural Development website www.agric.gov.ab.ca
Source[3]: Alberta Agdex 100/32

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 B.C. 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 AC Ultima

Variety	Dawson Creek 2013 Yield bu / acre		Dawson Creek 2013 Yield % of check	Dawson Creek 2008-2013 Avg. (%)	Dawson Creek 2008-2013 Stn. Yrs.	Fort St. John 2013 Yield bu / acre		Fort St. John 2013 Yield % of check	Fort St. John 2008-2013 Avg. (%)	Fort St. John 2008-2013 Stn. Yrs.	B.C. Peace 2013 Avg. (%)	B.C. Peace 2008-2013 Avg. (%)	B.C. Peace 2008-2013 Stn. Yrs.
AC Ultima	154	c	100	100	[6]	164	c	100	100	[6]	100	100	[12]
Brevis	172	a	112	110	[3]	181	a	110	108	[3]	111	109	[6]
Bumper	159	b	103	105	[5]	173	b	106	104	[5]	104	105	[10]
Sunray	152	c	98	102	[4]	161	c	98	106	[4]	98	104	[8]
Taza	153	c	99	103	[4]	162	c	99	100	[4]	99	102	[8]
LSD (P=.05) =	4.83					6.40							
CV value (%) =	1.99					2.47							

Means followed by the same letter do not significantly differ (P=.05, LSD)

* first year tested, very limited data available

Δ denotes materials not registered

AC Ultima - check variety

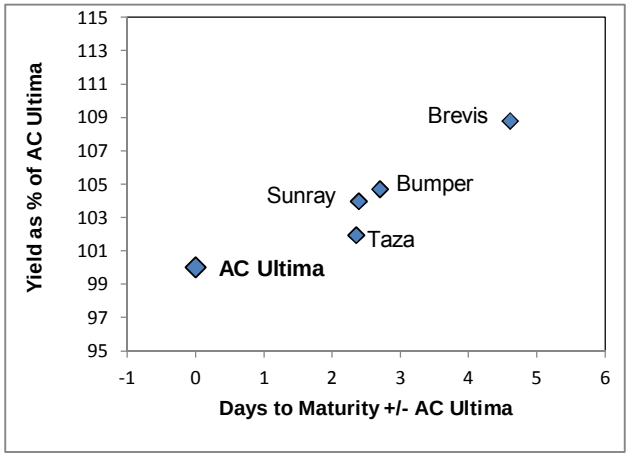
■ Protected by Plant Breeders' Rights

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

Spring Triticale — Variety Descriptions

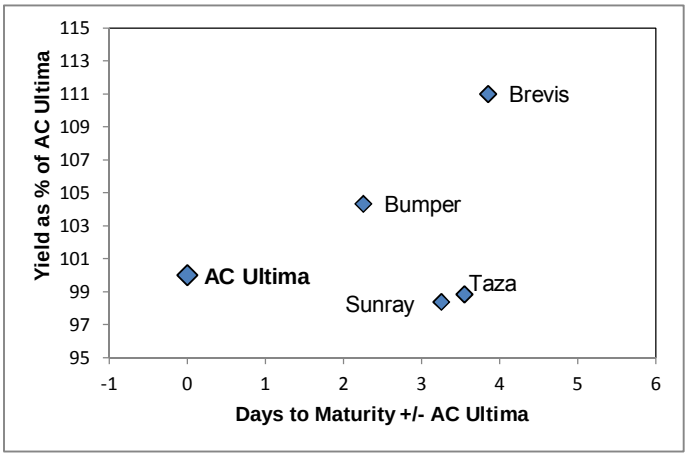
Variety	BC Peace Averages 2008-2013 Maturity as days +/- check	Height (cm)	Bushel Weight (lbs/bus)	TKW (g / 1000)	Alberta Agdex 100/32 Resistance to: Lodging	Shatter	Sprouting	Stripe Rust	Common Bunt	FHB	Ergot	Distributor
AC Ultima	0.0	92	58	44	G	G	F	G	VG	F	P	FP Genetics
Brevis	4.6	99	61	45	G	G	F	G	VG	P	P	Wagon Wheel Seed Corp.
■ Bumper	2.7	88	60	45	VG	G	F	G	VG	P	XX	SeCan
Sunray	2.4	95	58	44	VG	G	F	G	VG	P	G	SeedNet
■ Taza	2.4	104	58	46	G	G	F	G	VG	VP	F	Solick Seeds

Regional Variety Performance 2008-2013



Overall average maturity for **AC Ultima** is **107** days

Regional Variety Performance 2013



Average maturity for AC Ultima is **120** days for **2013**