

Varieties of Cereal and Flax for Alberta

THIS ANNUAL PUBLICATION provides information on cereal and oilseed variety performance in Alberta. Important agronomic characteristics and disease resistance information is provided for varieties of wheat, barley, oat, rye, triticale, and flax. The Alberta Regional Variety Testing program for cereals and flax is coordinated by the Alberta Regional Variety Advisory Committee (ARVAC) and the Alberta Wheat and Barley Commissions (AWC and AB). Funding for the program 2021 program was provided by:

- Alberta Wheat Commission
- Alberta Barley Commission
- Alberta Oat Growers Association
- Alberta Seed Growers
- Alberta Seed Processors
- Results Driven Agriculture Research
- Entry fees for the varieties being tested

Data for the 2021 growing season for this publication come from various sources, including:

- Agriculture and Agri-Food Canada
- Nutrien Ag Solutions
- University of Alberta
- Alberta Innovates Technology Futures
- SARDA Ag Research
- Battle River Research Group (BRRG)
- Chinook Applied Research Association (CARA)
- Gateway Research Organization (GRO)
- Lakeland Applied Research Association (LARA)
- McKenzie Applied Research Association (MARA)
- Olds College
- Prairie Grain Development Committee
- Canola Council of Canada
- Lakeland College

The 2021 growing season was challenging with drought and heat stress. Many research sites didn't produce quality data which met our statistical requirements. The per cent of useable data from the 2021 CWRS trials was 40 per cent, CPSR and CWSP trials were 40 per cent, CWAD was 38 per cent, barley was 46 per cent, oats were 50 per cent, flax was 38 per cent, and triticale was 45 per cent. Overall, only 44 per cent of the 2021 Regional Variety Trial data was useable for inclusion in the January 2022 table publication.

The following individuals are the 2021 Regional Variety Trial and crop specific coordinators:

- Regional Variety Trial Coordinator: S. Strydhorst
- Spring wheat: H. Randhawa and R. Cuthbert
- Barley: J. Anderson
- Oat: K. Nilsen
- Spring Triticale: M. Aljarrah
- Winter Wheat: R. Graf
- Fall Rye: R. Ragupathy
- Flax: B. Tar'an

Sincere thanks are extended to all individuals and organizations who contribute to this publication.

Varieties Reported in the Tables

A variety must be registered to appear in the tables. Publication normally occurs after two years of testing; however, entries are accepted with the understanding testing will occur for at least three years. When there are limited data for a new variety, yield information may only appear in the Overall Yield column. An "XX" is reported in any column when there is insufficient data (less than six site-years of testing, over two growing seasons, within a yield category). Single year data will not be reported as it's often an unreliable indicator of performance.

Varieties without pedigreed seed production in Alberta within the past two years, following five years of full registration to facilitate adoption, and/or the variety has dropped below one per cent of the commercial acreage of the crop kind (or market class) in the province (based on AFSC crop insurance data) will be flagged for removal from the tables. After the variety has been flagged for removal for one year, it may be removed from the tables unless an objection is received for consideration at the annual meeting. Notwithstanding the above criteria, a variety can be retained in a table if a compelling case is made. In cases where both the breeding institution and seed distributor wish to have a variety deleted from the table, removal can occur without a notification flag. Please note that under normal circumstances, removal from a table does not indicate variety cancellation has occurred.

Yield Results and Reporting

Variety choice should never be based solely on yield performance, as it's only one factor that affects net return. The genetic yield potential of a variety is often masked by numerous factors, some of which can be controlled through variety choice and others through astute agronomic management. Producers are encouraged to consider other characteristics such as maturity, plant height, lodging and disease/pest resistance

when deciding which varieties to grow. Long term satisfaction with a variety is often related to non-yield characteristics.

Producers have asked for additional checks in the regional variety trials that reflect more commonly grown varieties. Starting in 2018, two “benchmark” checks were included in the trials and reflect the two most popular varieties for the crop or within a market class during the previous year, based on crop insurance data. There are instances when the benchmark check and the check variety are the same entry. The benchmark checks will change as the popularity of varieties changes.

Exercise caution when making yield comparisons among varieties. A variety’s yield should only be directly compared to the standard reference check. Actual head-to-head testing between other varieties may not have occurred. Small plot agronomic trials are expensive to grow and new varieties are registered every year. It’s simply impractical to grow all varieties at the same time. Following several years of data collection, the yield performance for a particular variety stabilizes relative to the check and further testing is no longer required. It’s for these reasons the check varieties are grown every year (e.g. AAC Brandon for CWRS wheat, CDC Copeland for barley) and changes to these checks are infrequent. The “Overall Station Years of Testing” column provides an indication of the unbalanced nature of the dataset.

In the January 2022 publication, readers will notice the spring wheat check has changed from Carberry to AAC Brandon, the barley check has changed from AC Metcalfe to CDC Copeland, and the oat check has changed from CDC Dancer to CS Camden. These changes required long and careful planning. At least three years of trials in which the old and new check varieties are grown are required so there is sufficient overlapping data. Readers will notice that there are fewer station years of testing for the new check varieties. Data for the currently tested varieties reflect data generated based on the varieties which have generally been grown during the past three years. Data for the previously tested varieties were adjusted relative to the yield difference between the old and new check from the historical database. Since the new check varieties are higher yielding than the previous checks, readers will notice an overall decrease in the yield performance of all entries compared with historical publications.

At least six site-years of yield data collected over two years are required prior to reporting the figures in this publication. For new varieties, Overall Yield is often the first indication of yield potential relative to the check. As additional data become available, yield performance is also expressed on the basis of environmental productivity (Yield Test Categories of Low and High). Where there are less than six site-years of data for a yield column, an indication will be made that there is insufficient data to describe, symbolized by reporting an “XX”. Yield rankings among varieties can change substantially due to growing conditions. To reflect these differences, results from a test site that produced high yield in a particular year are placed into

the database for ‘high’ yielding environments. The same site may contribute to the ‘low’ yield category in a drought year, when yields are low. Consistent performance over all Yield Test Categories indicates a variety has environmental responses similar to the check and may have good yield stability over a wide range of environments. Scientific studies conducted on variety performance in western Canada have shown that Yield Test Category analysis provides a more reliable indication of yield performance than results organized by geographic region.

The yield comparison tables have several features:

- Overall actual yield of the check (bushels/acre) based on all data available to the testing program is provided along with the number of station years of testing.
- The range in yield for each Yield Test Category is defined.
- Actual yield of the check in each Yield Test Category is reported.
- For varieties with sufficient data, the Overall Yield and performance in each Yield Test Category is expressed relative to the check.

To make effective use of the yield comparison tables, producers should set a realistic yield target for the season and determine if it fits within the Low or High Yield Test Categories. This approach facilitates matching of variety choice to expected productivity levels and is similar to that used when making decisions on other levels of inputs. Please note the actual yield levels indicated are from small plot trials, which may be 15 to 20 per cent higher than yields expected under commercial field production.

Maturity Ratings

Based on feedback from producers, the six-category scale for maturity (Very Early, Early, Medium, Late, Very Late, Extremely Late) has been replaced with average differences in days, relative to the check. Be aware these are averages from several years over the vast agricultural production area of Alberta and that growth environment has a tremendous influence on maturity dates. Hot, dry conditions will compress the reported maturity differences just as cool, wet conditions will expand them. For example, a variety of CWRS wheat may mature in 98 days in Lethbridge, but take 103 days in Edmonton. Likewise, a variety that is on average two days later maturing across the province may be only one day later in southern Alberta but could be three or more days later in a northern location.

Falling Number and Resistance to Pre-harvest Sprouting




Falling number is a measurement of the extent to which endosperm starch in the seed has been metabolized to simple sugars during the germination process. There are many inter-related genetic, environmental and management factors that influence seed germination prior to harvest. In general, conditions in which the crop is harvested soon after maturity prior to inclement weather will result in the retention of high

falling number. Thus, the use of earlier maturing varieties with Good or Very Good pre-harvest sprouting resistance in short-season areas is usually an effective management decision for maintaining high quality. A rating for pre-harvest sprouting resistance is provided for most of the reported wheat varieties based on controlled environment conditions. These ratings reflect genetic differences. Varieties with Good or Very Good pre-sprouting resistance will normally retain their falling number for longer periods of time under cool, wet harvest conditions. However, even these varieties will initiate germination when mature and exposed to prolonged conditions favourable to sprouting, resulting in falling number reductions. Note that falling number can be reduced without visible signs of sprouting.

Seed Size and Plant Populations

Seed size within a crop kind will vary from variety to variety, and production environments. Therefore, seeding volumes must be calculated based on the seed size of the seed lot you will be planting to achieve desired plant populations. Some of the tables provide an average 1,000 kernel weight (TKW) which can be used as a guide for variety differences. The best approach is to determine the 1,000 kernel weight of the seed to be planted, germination rate, emergence mortality, and in the case of fall seeded crops, an estimate of winterkill. For more information and user-friendly seeding rate calculators that take into account these and other considerations, please see <http://www.agric.gov.ab.ca/app19/loadSeedRateCalc>.

Plant Breeders' Rights

Plant Breeders' Rights (PBR) are a form of intellectual property rights by which plant breeders can protect new varieties in the same way an inventor protects a new invention with a patent. In 2015, Canada amended the PBR Act to bring it into conformity with UPOV91. Varieties protected under the previous legislation (UPOV78) are indicated with the  logo, whereas those protected under the new UPOV91 legislation that are shown with the new  logo. Varieties pending PBR protection are indicated with the  symbol. For more information on Plant Breeders' Rights, please see www.pbrfacts.ca or the Canadian Food Inspection Agency website at www.inspection.gc.ca.

Variety Use Agreement

A number of new varieties are participating in a Variety Use Agreement (VUA). When producers purchase a VUA variety and then divert some of that grain at harvest for seed use, they will be invoiced a Variety Use Fee for use of the seed. Varieties in which a VUA applies are indicated with the **VUA** logo. For more information please see <http://seeds-canada.ca/variety-use-agreement/>.

Variety Cancellation versus Reclassification

Variety cancellation (often referred to as deregistration) and variety reclassification are two distinct processes that have been subject to some confusion in recent years. Variety cancellation is a process in which the Canadian representative and breeder make a request to the Canadian Food Inspection Agency (CFIA) to cancel the registration of a given variety. Under the protocol, a three-year notification of cancellation period applies to all

crop kinds except hybrid canola and rapeseed, which require a one-year notification period. This timeline provides the Canadian representative and breeder sufficient time to ensure that seed stocks of the variety have been cleared from the marketplace and that producers have been notified, well in advance, to clear seed from their operations. This facilitates planning and helps to minimize financial risk. Notifications are posted on Aug. 1 and the notification period is from that date forward. Following variety cancellation, varieties are removed from the appropriate Canadian Grain Commission Variety Designation List and are only eligible for the lowest grade available. For more information please visit the Canadian Food Inspection Agency website at www.inspection.gc.ca and the Canadian Grain Commission website at www.grainscanada.gc.ca.

In recent years, several wheat varieties have been reclassified, meaning they have been moved from one quality class to another. This process was undertaken by the Canadian Grain Commission in consultation with industry to ensure the varieties designated to a class met the current quality definitions and reflected the expectations of end-use customers of Canadian wheat. Several years of advance notice is provided when this type of change takes place. It's important to note reclassification is not variety cancellation. Reclassified varieties may still be grown and receive grades under the class for which they are designated but must not be misrepresented by declaring their former class. Variety Designation Lists can be found at the Canadian Grain Commission website at www.grainscanada.gc.ca/en/grain-quality/variety-lists/.

Diseases, Seed Treatment and Seed Testing

- Disease ratings are compiled from various data sources in Alberta and other prairie provinces.
- Loose smut resistance ratings for wheat will not be reported after 2020 as it's no longer a registration requirement for wheat and routine testing has been discontinued.
- Treat rye and flax seed to control seedling blight, cereal seed for smuts and fusarium, canola seed to control flea beetle, seedling blight and the seed borne phase of virulent blackleg.
- Wheat with Moderately Susceptible (MS) or Susceptible (S) ratings for common bunt should be treated with a systemic fungicidal seed treatment as low levels of infection will restrict marketability.
- Refer to labels for maximum storage periods of treated seed.
- Treated seed must not be fed to livestock, poultry or wildlife, and cannot be sold for feed.
- Fusarium head blight (FHB), caused by *Fusarium graminearum* and other species, is an increasing problem in Alberta. The relative ranking of crops from most susceptible to least susceptible is durum wheat, spring and winter wheat, triticale, barley and oat. Corn is a host of *F. graminearum* and can serve as a source of infection when residue is left on the ground. FHB infection is highly influenced by the environment and heading date. A resistant (R) tolerance rating for FHB does not equate to immunity. Under severe epidemics, all varieties will sustain damage. All seed should be tested for the presence of FHB and treated with an appropriate seed treatment. Producers are advised to choose varieties with the best FHB tolerance whenever possible and

always use best management practices to slow the spread of this disease.

- *Fusarium graminearum* (Fg) is no longer a designated pest in Alberta. Removal of *Fusarium graminearum* from the Pest and Nuisance Control regulation brings Alberta in line with best practices from other provinces and allows farmers access to the most current seed varieties (which may have improved Fg resistance) and cereal research. As such, we are using best management practices in the Alberta RVTs to responsibly address this disease. <https://www.alberta.ca/alberta-fusarium-graminearum-management-plan.aspx>
- Laboratories participating in the FHB testing program:
- 20/20 Seed Labs Ltd., Nisku, Alta. (877) 420-2099
- SGS Canada Inc., Sherwood Park, Alta. (800) 952-5407
- SGS Canada Inc., Grande Prairie, Alta. (877) 532-8889
- Precision Seed Testing, Beaverlodge, Alta. (780) 354-2259
- Seed Check Technologies Inc., Leduc, Alta. (780) 980-8324

Agronomic Practices Used in Small Plot Trials

Small plot trials are conducted using the following best agronomic practices:

- N, P, K and S fertilizer rates are based on soil test results for 1.25x the area average yield goal of the past 4 years, as reported in the AFSC Yield Alberta publication.
- All wheat, barley, oat and triticale seed are treated with Cruiser Maxx Vibrance Quattro. Flax seed is not treated.
- Seeding rates are adjusted for TKW and germination to reach the following target plant populations listed in Table 1.

Table 1.0 Target Plant Populations Used to Determine Seeding Rates

Crop	Wheat						Winter Wheat
	CWRS	CPSR	CNHR	CWSP	Durum	CWSWS	
Target Plant Population (plants/sq ft)	31	31	31	31	28	31	33

Crop	Barley		Oat	Triticale	Flax	
	2 row	6 row			Brown	Yellow
Target Plant Population (plants/sq ft)	25	25	28	29	75	84

- Foliar fungicides aren't applied to the trials, which allows for expression of genetic differences between cultivars for their disease resistance. Under disease pressure, the application of a foliar fungicide may significantly increase yields on some cultivars.

Abbreviations and Rating Scales

- TKW = Thousand kernel weight.
- XX = Insufficient data to describe.
- NT = Not tested for disease, until a full rating is generated assume that the variety is very susceptible to the disease.

- Resistance Ratings: VP = Very Poor, P = Poor, F = Fair, G = Good, VG = Very Good, EX = Excellent.
- Disease Tolerance Ratings: R = Resistant, MR = Moderately Resistant, I = Intermediate, MS = Moderately Susceptible, S = Susceptible.
- Kernel Type (winter wheat): HR = Hard Red, SR = Soft Red, HW = Hard White, SW = Soft White.
- Awns (wheat): Y = Yes (bearded), N = No (awnless).
- Awn Type (barley): R = Rough, S = Smooth, SS = Semi-smooth.
- Seed Size (flax): S = Small, M = Medium, L = Large.
- Protected under UPOV78 Plant Breeders' Rights legislation.
- Protected under UPOV91 Plant Breeders' Rights legislation.
- pending PBR protection.
- Variety Use Agreement applied (<http://seeds-canada.ca/variety-use-agreement/>)

Fact sheet information and tables prepared, reviewed and approved by Alberta Regional Variety Advisory Committee (ARVAC)

Data preparation and factsheet coordination by Sheri Strydhorst, Alberta Regional Variety Trial Coordinator/Agronomy Research Specialist, Alberta Wheat and Barley Commissions

Alberta and British Columbia Pedigreed Seed Growers Directory of Varieties Produced in 2021

The data in this listing includes all pedigreed seed crops that have successfully received, or are in the process of receiving, seed crop certification from the Canadian Seed Growers' Association (CSGA) in 2021. Fields that were declined pedigreed status are not included in this listing. Data is provided for information purposes only. CSGA is not liable for omitted or incorrect seed listings, and you agree to use the data at your own risk. You agree to fully indemnify CSGA from all losses, damages, liability, judgements, costs and expenses, which you or a user of the CSGA data sustain by disseminating or relying on such data. When purchasing seed, CSGA strongly recommends asking for official seed certification tags as your proof of CSGA certification. A copy of the mechanical purity and germination analysis test certificate should also be made available to you. Pedigreed class code is listed after the grower's phone number. S=Select; F=Foundation; R=Registered; C=Certified; BI=Breeding Institution; Dist=Canadian Distributor(s). NOTE: Varieties with a star (*) after the pedigreed class code are carryover seed listings. These varieties have been supplied by Alberta Seed Grower members as stock being held at their establishment and we recommend that all buyers verify pedigreed class and quality at time of contact.

CANADA WESTERN RED SPRING WHEAT

Variety	Overall Station Years of Testing	Yield Category (% AAC Brandon)			Maturity Rating (Days +/- AAC Brandon)	Agronomic Characteristics:						Disease Tolerance:			
		Overall Yield	Low < 77 (bu/ac)	High ≥ 77 (bu/ac)		Protein (%)	Test Weight (lb/bu)	TKW (g)	Height (cm)	Awns (Y/N)	Resistance to:		Bunt	Stripe Rust	Fusarium Head Blight
											Lodging	Sprouting			
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to AAC Brandon)															
AAC Brandon (bu/ac)		75	60	96											
AAC Brandon - check ☼	74	100	100	100	104	14.0	63	40	84	Y	G	P	S	MR	MR
AAC Broadacres VB ☼	31	104	103	106	0	-0.7	63	42	87	Y	VG	F	R	MR	I
AAC Hodge VB ☼*	18	104	103	107	-1	-0.3	63	39	91	Y	G	F	R	R	MR
AAC LeRoy VB ☼	30	100	100	99	0	-0.1	63	39	88	Y	F	G	I	MR	MR
AAC Redstar	18	96	92	103	-3	0.1	63	40	90	Y	F	G	MR	MR	MR
AAC Russell VB ☼	31	103	101	104	-1	-0.2	63	40	87	Y	G	F	MR	R	MR
AAC Viewfield ☼	30	103	99	106	0	-0.3	63	38	81	Y	VG	G	MR	R	I
Carberry	45	93	93	93	0	0.0	63	39	84	Y	VG	F	R	MR	MR
CDC Pilar CLPlus ☼*	31	98	98	98	-1	-0.4	62	39	78	Y	VG	G	MR	MS	I
CDC Silas ☼*	18	103	102	105	0	-0.2	62	40	88	Y	F	XX	MS	I	I
CDC SK Rush ☼*	18	101	97	109	0	-0.2	63	37	94	Y	G	P	I	MR	MR
CDC Succession CLPlus VB	31	101	101	101	0	-0.3	62	42	86	Y	VG	G	S	I	MS
Daybreak ☼ VUA	25	100	103	98	-1	-0.2	62	41	89	Y	F	F	S	MR	I
Ellerslie ☼	31	98	94	103	-1	-0.3	62	37	90	N	VG	G	S	R	I
Rednet ☼	31	97	93	100	1	0.1	64	40	98	Y	F	F	S	R	MR
Sheba ☼	31	95	90	100	0	-0.5	63	37	94	N	G	XX	MR	R	I
SY Brawn VB ☼	31	99	95	102	-1	-0.1	62	37	94	Y	F	F	MR	I	I
SY Cast ☼	31	98	97	99	-1	0.4	62	40	83	Y	VG	G	R	R	I
SY Crossite ☼	31	100	100	99	0	-0.3	62	41	90	Y	F	G	MS	R	MR
SY Gabbro ☼	42	99	98	100	-1	-0.1	62	42	90	Y	VG	F	I	I	MR
SY Manness ☼*	18	100	97	105	0	-0.4	61	35	81	Y	VG	XX	S	I	I
SY Torach ☼	31	99	97	101	-1	0.3	63	34	81	Y	VG	F	MS	MS	MR
Previously tested varieties															
AAC Brandon - check ☼		75	100	100	104	14.0	63	40	84	Y	G	P	S	MR	MR
AAC Alida VB + ☼	37	94	97	93	0	-0.2	63	41	91	Y	G	VG	I	MR	MR
AAC Cameron VB + ☼	37	103	103	103	-1	-0.6	62	44	102	Y	F	F	R	S	I
AAC Connery ☼	24	97	93	106	-1	0.2	62	40	88	N	VG	G	I	R	MR
AAC Elie	15	103	105	100	0	-0.5	64	39	84	Y	G	F	I	MR	I
AAC Magnet ☼	36	93	94	93	-2	0.0	63	40	90	Y	VG	F	S	I	MR
AAC Redberry ☼	37	94	94	94	-3	-0.3	63	41	90	Y	F	G	I	R	I
AAC Starbuck VB ☼	36	103	104	102	0	-0.2	63	39	87	Y	F	F	S	MR	MR
AAC Tisdale ☼	37	94	94	94	-1	0.6	63	42	93	Y	F	F	MR	S	MR
AAC Warman VB + ☼	36	94	93	94	-1	-0.4	63	38	99	Y	P	F	S	MS	MR
AAC Wheatland VB ☼	36	104	104	104	0	-0.5	63	40	86	Y	VG	G	MR	I	I
CDC Abound ☼	88	95	100	105	-1	-0.1	63	40	87	Y	G	F	I	MS	S
CDC Adamant VB ☼	37	98	98	97	-1	-0.2	63	39	88	Y	P	F	S	MS	I
CDC Go	60	95	93	96	-1	0.0	62	44	92	Y	F	P	I	MS	MS
CDC Hughes VB ☼	37	96	96	96	-1	-0.2	63	44	87	Y	G	G	MS	I	I
CDC Landmark VB ☼	50	99	98	100	-1	-0.2	63	43	88	Y	G	G	MS	MR	I
CDC Ortona ☼	36	99	98	100	-1	-0.8	63	35	93	N	G	G	S	R	I
CDC Plentiful + ☼	41	92	XX	XX	-2	-0.2	64	35	94	N	G	P	I	MR	MR
CDC Stanley ☼	76	98	100	101	-1	-0.1	63	34	97	N	G	G	S	I	MS
CDC Titanium VB + ☼	41	93	XX	XX	-2	0.5	65	41	95	Y	P	P	I	R	MR
Coleman +	43	87	XX	XX	-3	-0.1	64	37	101	Y	P	P	S	MR	MR
Glenn + ☼	61	90	XX	XX	-1	-0.4	65	36	94	Y	F	F	I	MR	I
Go Early + ☼	24	93	92	97	-4	0.4	61	40	100	Y	P	P	MR	I	I
Jake ☼	36	94	93	96	-2	0.6	63	37	93	Y	F	XX	MR	R	MS
Parata ☼	37	87	86	88	-4	0.2	63	39	94	Y	F	F	S	MR	I
Shaw VB + ☼	43	100	100	101	-1	-0.5	63	37	104	N	F	G	MR	I	MS
Stettler ☼	90	97	98	97	0	0.1	63	38	92	Y	F	G	MR	MR	MS
SY Chert VB + ☼	37	96	96	96	0	-0.5	63	40	92	Y	G	F	R	R	I
SY Obsidian + ☼	37	93	94	93	-1	-0.4	63	41	88	Y	VG	F	MS	MR	MS
SY Sovite + ☼	37	91	93	88	0	0.0	62	43	92	Y	F	F	MS	R	MR
Thorsby ☼	43	92	XX	XX	-2	-0.5	64	38	87	N	G	F	S	R	I
Tracker ☼	36	94	93	95	-2	0.0	63	35	90	N	F	G	S	R	I

Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. * Effective Aug. 1, 2021 the Canadian Grain Commission designated AAC Redwater and Muchmore to the CNHR wheat class. For more information see the Canadian Grain Commission website www.grainscanada.gc.ca. Fusarium Head Blight (FHB) infection is highly influenced by the environment and heading date. Under high levels of FHB all varieties will sustain damage. Moderately Resistant (MR) and Resistant (R) ratings for FHB do not equate to immunity. Varieties rated Intermediate (I) to Susceptible (S) for bunt should be treated with a systemic seed treatment to reduce the potential for infection. CDC Adamant VB has a solid stem that confers resistance to the wheat stem sawfly. CDC Landmark VB and CDC Hughes VB have a semi-solid stem. CDC Abound, CDC Pilar CLPlus, and CDC Succession CLPlus VB are tolerant to the CLEARFIELD® herbicides Adrenalin SC and Altitude FX. VB - designates a varietal blend to preserve the Sm1 orange wheat blossom midge tolerance gene. New CWRS registrations: SY Donald VB (BW5055); insufficient data to describe: AAC Hockley (BW5044) and SY Donald VB. ☼ = Protected by PBR (UPOV 78), ☼ = Protected by PBR (UPOV 91), ☼* = pending PBR protection, and VUA = Variety Use Agreement applied (<http://seeds-canada.ca/variety-use-agreement/>). XX - Insufficient data to describe. † Flagged for possible removal in 2023.

CANADA PRAIRIE SPRING RED WHEAT

Variety	Overall Station Years of Testing	Yield Category (% AAC Brandon)		Relative Maturity (Days +/- AAC Brandon)	Agronomic Characteristics:							Disease Tolerance:			
		Overall Yield	Low < 77 (bu/ac)		High ≥ 77 (bu/ac)	Test Protein (%)	Weight (lb/bu)	TKW (g)	Height (cm)	Awns (Y/N)	Resistance to:		Bunt	Stripe Rust	Fusarium Head Blight
											Lodg- ing	Sprout- ing			
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to AAC Brandon)															
AAC Brandon (bu/ac) ☼		80	59	96											
AAC Brandon	142	100	100	100	104	14.0	63	40	84	Y	G	P	S	MR	MR
AAC Penhold ☺	41	102	100	103	-2	-0.7	63	44	76	Y	VG	VG	R	I	MR
Accelerate ☺ VUA	29	108	103	110	-1	-0.8	63	37	80	Y	G	F	S	R	I
CDC Reign ☺*	17	106	101	108	1	-0.9	62	37	83	Y	G	G	S	I	I
SY Rorke ☺	29	105	101	107	0	-1.2	61	37	85	Y	F	F	MS	S	I
Previously tested varieties															
AAC Brandon ☼		100	100	100	104	14.0	63	40	84	Y	G	P	S	MR	MR
5700PR ☼	117	102	XX	XX	-1	-1.3	62	42	85	Y	VG	F	R	S	MS
AAC Crossfield ☺	37	105	105	105	-1	-1.4	62	42	85	Y	G	P	I	R	I
AAC Entice + ☺	38	101	101	100	-1	-1.2	62	41	86	Y	G	P	S	R	I
AAC Foray VB + ☺	41	112	XX	XX	0	-1.6	63	51	90	Y	G	G	I	MR	I
AAC Goodwin ☺	38	108	107	109	-1	-0.6	63	41	87	Y	VG	G	MS	R	I
CDC Terrain + ☺	48	105	106	105	0	-1.6	61	44	88	Y	G	G	MR	R	MS
SY Rowyn + ☺	36	98	101	96	-1	-1.0	62	36	80	Y	G	F	S	MR	MR

Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. Fusarium Head Blight (FHB) infection is highly influenced by the environment and heading date. Under high levels of FHB all varieties will sustain damage. Moderately Resistant (MR) and Resistant (R) ratings for FHB do not equate to immunity. Varieties rated Intermediate (I) to Susceptible (S) for bunt should be treated with a systemic seed treatment to reduce the potential for infection. VB - designates a varietal blend to preserve the Sm1 orange wheat blossom midge tolerance gene. New CPSR registrations and insufficient data to describe: HY2074, Forefront (HY2082), HY2090, AAC Rimbey (HY2095). ☼ = Protected by PBR (UPOV 78), ☺ = Protected by PBR (UPOV 91), ☺* = pending PBR protection, and **VUA** = Variety Use Agreement applied (<http://seeds-canada.ca/variety-use-agreement/>). XX - Insufficient data to describe. * Flagged for possible removal in 2023.

CANADA WESTERN SPECIAL PURPOSE WHEAT

Variety	Overall Station Years of Testing	Yield Category (% AAC Brandon)		Relative Maturity (Days +/- AAC Brandon)	Agronomic Characteristics:							Disease Tolerance:			
		Overall Yield	Low < 77 (bu/ac)		High ≥ 77 (bu/ac)	Test Protein (%)	Weight (lb/bu)	TKW (g)	Height (cm)	Awns (Y/N)	Resistance to:		Bunt	Stripe Rust	Fusarium Head Blight
											Lodg- ing	Sprout- ing			
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to AAC Brandon)															
AAC Brandon (bu/ac)		83	50	93											
AAC Brandon ☼	41	100	100	100	104	14.0	63	40	84	Y	G	P	S	MR	MR
Pasteur	41	120	115	122	3	-2.0	61	41	85	N	VG	G	S	MR	I
WPB Whistler ☺	27	120	113	122	3	-2.6	59	41	78	N	VG	XX	I	R	MS
Previously tested varieties															
AAC Brandon ☼		100	100	100	104	14.0	63	40	84	Y	G	P	S	MR	MR
AAC Awesome VB ☺	37	128	124	129	0	-2.5	62	44	92	Y	G	P	I	R	I
Alderon	37	128	116	131	4	-2.8	58	41	81	N	VG	F	MS	MR	MS
Sparrow VB	37	128	122	130	4	-2.6	60	41	85	N	VG	G	I	MR	MR

Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. Fusarium Head Blight (FHB) infection is highly influenced by the environment and heading date. Under high levels of FHB all varieties will sustain damage. Moderately Resistant (MR) and Resistant (R) ratings for FHB do not equate to immunity. Varieties rated Intermediate (I) to Susceptible (S) for bunt should be treated with a systemic seed treatment to reduce the potential for infection. VB - designates a varietal blend to preserve the Sm1 orange wheat blossom midge tolerance gene. ☼ = Protected by PBR (UPOV 78), ☺ = Protected by PBR (UPOV 91), XX - Insufficient data to describe.

CANADA WESTERN AMBER DURUM WHEAT

Variety	Overall Station Years of Testing	Yield Category (% Strongfield)			Agronomic Characteristics:							Disease Tolerance:		
		Overall Yield	Low < 77 (bu/ac)	High ≥ 77 (bu/ac)	Maturity Rating (Days +/- Strongfield)	Protein (%)	Test Weight (lb/bu)	TKW (g)	Height (cm)	Resistance to:		Bunt	Stripe Rust	Fusarium Head Blight
										Lodg- ing	Sprouting			
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to Strongfield)														
Strongfield (bu/ac)		69	55	102										
Strongfield ☼	140	100	100	100	107	14.5	62	44	86	P	F	MR	MR	S
AAC GoldNet ☼	11	105	102	XX	1	0.1	63	43	90	G	G	R	R	S
AAC Stronghold ☼	20	101	99	105	2	-0.2	63	44	84	VG	G	I	MR	MS
AAC Weyburn VB ☼*	8	108	XX	XX	2	-0.7	62	43	88	F	G	R	R	MS
CDC Covert ☼*	8	108	XX	XX	1	-0.6	62	41	87	F	G	R	R	S
CDC Defy ☼	11	103	104	XX	0	-0.6	63	42	90	G	F	R	I	MS
CDC Flare ☼	11	104	99	XX	-1	-0.3	62	44	86	VG	F	R	MR	MS
Transcend ☼	49	100	101	98	2	0.6	62	42	93	F	G	R	R	MS
Previously tested varieties														
Strongfield ☼		100	100	100	107	14.5	62	44	86	P	F	MR	MR	S
AAC Congress ☼	18	102	101	102	1	-0.5	63	44	86	P	P	R	R	MS
AAC Grainland ☼	11	97	97	XX	1	-0.5	62	43	86	F	G	R	R	MS
AAC Spitfire ☼	21	98	98	XX	0	-0.6	61	46	83	G	F	R	R	S
AAC Succeed VB ☼	11	103	105	XX	0	0	63	45	88	F	F	R	I	MS
AC Navigator	25	95	97	93	2	-0.6	63	45	77	F	G	R	R	S
Brigade ☼	75	102	102	100	3	-0.8	63	46	93	F	F	R	MR	MS
CDC Alloy ☼	17	98	97	99	1	-0.1	63	43	87	F	F	R	R	MS
CDC Carbide VB † ☼	21	101	103	XX	0	-0.2	62	45	86	P	P	R	R	MS
CDC Credence ☼	11	102	104	XX	1	-0.5	63	42	92	F	F	R	MR	MS
CDC Dynamic ☼	14	94	94	94	0	0.4	62	43	88	F	G	R	MR	MS
CDC Fortitude ☼	26	103	103	103	1	-0.8	63	45	83	F	F	R	R	MS

Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. Generally, durum wheat is best adapted to southern Alberta. Outside of this area, durum tends to be late maturing and often subject to quality loss. Durum varieties are generally more susceptible to Fusarium Head Blight than CWRS wheat varieties. AAC Grainland, AAC Stronghold, CDC Fortitude and AAC Weyburn VB have a solid stem that confers resistance to the wheat stem sawfly. VB - designates a varietal blend to preserve the Sm1 orange wheat blossom midge tolerance gene. CDC Flare is tolerant to the Clearfield herbicides Adrenalin SC and Altitude FX. New registrations and insufficient data to describe: AAC Donlow (DT890), AAC Schrader (DT2009), CDC Vanita (DT1012). ☼ = Protected by PBR (UPOV 78), ☼ = Protected by PBR (UPOV 91), and ☼* = pending PBR protection. XX - Insufficient data to describe. † Flagged for possible removal in 2023.

CANADA WESTERN SOFT WHITE SPRING WHEAT

Variety	Overall Station Years of Testing	Yield Category (% AAC Brandon):			Agronomic Characteristics:							Disease Tolerance:			
		Overall Yield	Low < 77 (bu/ac)	High ≥ 77 (bu/ac)	Maturity Rating (Days +/- AAC Brandon)	Protein (%)	Test Weight (lb/bu)	TKW (g)	Height (cm)	Awns (Y/N)	Resistance to:		Bunt	Stripe Rust	Fusarium Head Blight
											Lodg- ing	Sprout- ing			
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to AAC Brandon)															
AAC Brandon (bu/ac)		83	52	93											
AAC Brandon ☼	44	100	100	100	104	14.0	63	40	84	Y	G	P	S	MR	
AC Andrew	44	121	115	123	1	-3.1	61	40	85	Y	VG	P	S	I	
Previously tested varieties															
AAC Brandon ☼		100	100	100	104	14.0	63	40	84	Y	G	P	S	MR	
AAC Chiffon VB ☼	39	125	XX	XX	0	-3.5	62	46	97	Y	G	P	S	MR	
AAC Indus VB † ☼	34	130	120	134	2	-3.3	61	42	93	Y	VG	P	MS	R	
AAC Paramount VB ☼	39	125	116	127	0	-3.0	61	41	89	Y	VG	P	S	R	
Sadash VB ☼	39	125	118	127	0	-3.2	63	40	88	Y	VG	P	S	R	

Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. Varieties rated Intermediate (I) to Susceptible (S) for bunt should be treated with a systemic seed treatment to reduce the potential for infection. VB - designates a varietal blend to preserve the Sm1 orange wheat blossom midge tolerance gene. Plant Breeders Rights: ☼ = Protected by PBR (UPOV 78), ☼ = Protected by PBR (UPOV 91). XX - Insufficient data to describe. † Flagged for possible removal in 2023.

CANADA WESTERN HARD WHITE SPRING WHEAT

Variety	Overall Station Years of Testing	Yield Category (% AAC Brandon)			Agronomic Characteristics:								Disease Tolerance:		
		Overall Yield	Low < 77 (bu/ac)	High ≥ 77 (bu/ac)	Maturity Rating (Days +/- AAC Brandon)	Protein (%)	Test Weight (lb/bu)	TKW (g)	Height (cm)	Awns (Y/N)	Resistance to:		Bunt	Stripe Rust	Fusarium Head Blight
											Lodging	Sprouting			
Previously tested varieties (Yield and agronomic data only directly comparable to AC Brandon)															
AAC Brandon (bu/ac)		75	60	96											
AAC Brandon - check ☼		75	100	100	104	14.0	63	40	84	Y	G	P	S	MR	MR
AAC Cirrus ☼	37	93	91	96	0	-0.2	62	42	91	Y	G	VG	I	MR	MR
AAC Iceberg ☼	37	90	XX	XX	-1	-0.6	63	46	102	Y	G	F	R	S	I
Snowbird † ☼	94	87	XX	XX	-1	0.2	61	39	88	N	VG	G	I	R	MR
Whitehawk †☼	42	93	XX	XX	0	-0.5	63	41	84	Y	F	F	I	MR	I

Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. Fusarium Head Blight (FHB) infection is highly influenced by the environment and heading date. Under high levels of FHB all varieties will sustain damage. Moderately Resistant (MR) and Resistant (R) ratings for FHB do not equate to immunity. Varieties rated Intermediate (I) to Susceptible (S) for bunt should be treated with a systemic seed treatment to reduce the potential for infection. VB - designates a varietal blend to preserve the Sm1 orange wheat blossom midge tolerance gene. New CWHWSW registrations and insufficient data to describe: AAC Tomkins (HY402) and AAC Whitehead VB (HW506). ☼ = Protected by PBR (UPOV 78), ☼ = Protected by PBR (UPOV 91). XX - Insufficient data to describe. † Flagged for possible removal in 2023.

CANADA NORTHERN HARD RED WHEAT

Variety	Overall Station Years of Testing	Yield Category (% AAC Brandon):			Agronomic Characteristics:								Disease Tolerance:		
		Overall Yield	Low < 77 (bu/ac)	High ≥ 77 (bu/ac)	Maturity Rating (Days +/- AAC Brandon)	Protein (%)	Test Weight (lb/bu)	TKW (g)	Height (cm)	Awns (Y/N)	Resistance to:		Bunt	Stripe Rust	Fusarium Head Blight
											Lodging	Sprouting			
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to AC Brandon)															
AAC Brandon (bu/ac)		78	59	97											
AAC Brandon ☼	99	100	100	100	104	13.9	63	40	84	Y	G	P	S	MR	MR
Previously tested varieties															
AAC Redwater* † ☼	41	89	XX	XX	-3	0.0	64	35	87	Y	G	VG	I	MR	I
AC Foremost	37	103	100	105	-1	-1.6	62	42	75	Y	VG	F	R	S	S
Muchmore* † ☼	24	96	94	XX	0	-0.9	63	37	75	Y	VG	G	R	MR	MS

Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. *On Aug. 1, 2021 the CWRS varieties, AAC Redwater and Muchmore were reclassified to the CNHR class. For more information see the Canadian Grain Commission website www.grainscanada.gc.ca. Fusarium Head Blight (FHB) infection is highly influenced by the environment and heading date. Under high levels of FHB all varieties will sustain damage. Moderately Resistant (MR) and Resistant (R) ratings for FHB do not equate to immunity. Varieties rated Intermediate (I) to Susceptible (S) for bunt should be treated with a systemic seed treatment to reduce the potential for infection. ☼ = Protected by PBR (UPOV 78), ☼ = Protected by PBR (UPOV 91). XX - Insufficient data to describe. † Flagged for possible removal in 2023.

MALTING BARLEY

Variety	2 or 6 row	Awn Type	Overall Station Years of Testing	Yield Category (% CDC Copeland)			Agronomic Characteristics:						Disease Tolerance:					
				Overall Yield	Low < 113 (bu/ac)	High ≥ 113 (bu/ac)	Maturity Rating (Days +/- CDC Copeland)	Test Weight (lb/bu)	TKW (g)	Height (cm)	Resistance to Lodging	Loose Smut	Other Smuts	Scald	Net Blotch:			
															Spot form	Net form	Spot Blotch	FHB
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to CDC Copeland)																		
CDC Copeland (bu/ac)				108	86	138												
CDC Copeland	2	R	147	100	100	100	98	51	50	84	F	MS	I	S	I	I	S	I
AAC Synergy ☉	2	R	30	106	109	104	0	51	51	80	F	S	I	S	R	MR	R	I
AB BrewNet ☉	2	R	38	108	110	107	2	50	50	86	G	MS	MR	I	I	MS	I	MR
AC Metcalfe	2	R	147	99	100	96	-1	51	47	79	F	R	I	S	I	S	I	I
CDC Churchill ☉	2	R	32	110	113	109	0	52	49	74	G	MS	MR	S	MR	MR	I	MS
CDC Copper ☉	2	R	32	108	115	106	-1	51	49	72	G	I	MR	MR	MR	MR	I	MS
Torbellino	2	R	15	106	110	102	1	50	51	70	G	S	R	I	MS	MS	MS	S
Previously tested varieties comparable to CDC Copeland																		
CDC Copeland	2	R	147	100	100	100	98	51	50	84	F	MS	I	S	I	I	S	I
AAC Connect ☉	2	R	48	101	102	100	-1	51	50	80	G	S	R	S	MR	I	MR	MR
CDC Bow ☉	2	R	38	101	102	100	0	51	48	77	VG	S	I	MS	MR	S	I	MS
CDC Clear (hullless) † ☉	2	R	31	92	90	94	1	62	47	85	G	R	R	S	R	MS	I	MR
CDC Fraser ☉	2	R	37	106	107	105	0	51	49	76	G	R	MR	MS	MR	MR	R	I
CDC Goldstar ☉	2	R	34	108	109	107	-1	53	49	86	G	I	R	S	MR	I	I	MS
CDC Kindersley † ☉	2	R	36	100	98	102	-2	53	43	78	G	S	R	S	MR	MS	I	I
CDC PlatinumStar † ☉	2	R	38	103	105	100	0	53	49	82	F	S	R	S	MR	I	S	MR
Cerveza † ☉	2	R	39	106	105	106	0	51	46	74	F	R	R	S	MR	MS	R	I
Lowe † ☉	2	R	39	108	115	104	2	51	50	87	F	R	R	MR	MR	I	I	MR
Legacy †	6	SS	55	99	97	101	-2	49	39	82	G	I	MR	S	MR	S	MR	MS

Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. In 2021 the check cultivar was changed to CDC Copeland. All previously tested varieties were adjusted relative to CDC Copeland based on the relative difference between AC Metcalfe and CDC Copeland since 1999. Varieties rated Intermediate (I) to Susceptible (S) for smuts should be treated with a systemic seed treatment to reduce the potential for infection. The Canadian Malting Barley Technical Centre (CMBTC) evaluates and recommends malting barley varieties for industry acceptance. Please refer to the 2021-2022 CMBTC Recommended Malt Barley Variety List for more information. CDC Clear is a hullless malting variety. Hullless varieties leave the hull in the field and thus grain yields comparable to hulled varieties are nine to 12 per cent lower. Handling of hullless varieties should be minimized to avoid seed damage. ☉ = Protected by PBR (UPOV 78) and ☉ = Protected by PBR (UPOV 91). XX - Insufficient data to describe. † Flagged for possible removal in 2023.

FEED AND FOOD BARLEY

Variety	2 or 6 row	Awn Type	Overall Station Years of Testing	Overall Yield	Yield Category (% CDC Copeland)			Agronomic Characteristics:					Disease Tolerance:					
					Low < 113 (bu/ac)	High ≥ 113 (bu/ac)	Maturity Rating (Days +/- CDC Copeland)	Test Weight (lb/bu)	TKW (g)	Height (cm)	Resistance to Lodging	Loose Smut	Other Smuts	Scald	Net Blotch:			
															Spot form	Net form	Spot Blotch	FHB
GENERAL PURPOSE																		
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to CDC Copeland)																		
CDC Copeland (bu/ac)				108	84	136												
CDC Copeland	2	R	147	100	100	100	98	51	50	84	F	MS	I	S	I	I	S	I
AB Advantage ☺	6	S	32	108	104	110	1	50	50	95	G	MR	I	I	I	MS	I	S
AB Cattlelac ☺	6	SS	29	103	100	104	-1	50	45	89	G	I	R	I	MR	MS	MR	S
AB Hague ☺*	2	R	15	110	110	109	1	52	47	83	G	MR	R	I	I	I	I	MR
AB Tofield ☺	6	S	24	108	106	109	1	50	45	82	G	XX	MR	I	I	MS	I	S
AB Wrangler ☺	2	R	24	106	108	104	0	52	50	79	F	MS	MR	MS	I	I	MR	MR
CDC Austenson	2	R	52	108	107	109	2	53	51	79	G	S	R	S	R	MS	MR	I
CDC Renegade ☺*	2	S	15	108	116	101	0	50	52	89	F	I	MR	S	MR	I	MS	MR
Esma ☺* VUA	2	R	15	116	119	114	1	51	51	68	VG	NT	NT	NT	NT	NT	NT	NT
KWS Coralie ☺* VUA	2	R	15	115	120	111	2	48	51	68	G	NT	NT	NT	NT	NT	NT	NT
KWS Kellie ☺* VUA	2	R	15	120	126	114	2	50	52	66	VG	NT	NT	NT	NT	NT	NT	NT
Previously tested varieties comparable to CDC Copeland																		
CDC Copeland	2	R		100	100	100	98	51	50	84	F	MS	I	S	I	I	S	I
Altorado ☺	2	R	60	110	109	110	0	52	49	77	G	MR	MR	S	I	S	S	I
Brahma ☺	2	R	67	109	108	110	0	53	47	74	G	MS	R	S	I	I	S	I
Canmore ☺	2	R	33	103	101	105	0	52	49	73	G	R	R	MR	MR	MS	I	I
CDC Coalition ☺	2	R	42	105	104	106	1	53	47	74	G	R	MR	S	MR	S	I	I
CDC Cowboy ☺	2	R	61	92	93	92	1	52	55	103	F	MS	MR	MS	MR	I	I	MR
CDC Maverick ☺	2	S	31	92	88	96	1	54	55	98	F	S	R	MS	MR	I	I	MR
CDC Trey †	2	R	88	101	100	102	-1	52	50	80	G	MS	R	MS	R	I	I	I
Claymore ☺	2	R	72	111	108	112	1	52	47	80	G	S	R	S	I	S	MS	MR
Conlon ☺	2	S	53	91	89	93	-4	52	52	80	G	I	I	S	MR	I	S	MR
Gadsby ☺	2	R	34	109	110	108	0	53	51	83	F	R	R	R	MR	MS	S	I
Oreana ☺	2	R	72	108	105	109	2	53	51	67	VG	S	R	S	MR	S	I	S
Sirish ☺	2	R	48	111	111	111	1	52	49	70	VG	S	R	MR	MS	MS	MS	MS
AC Ranger †	6	S	48	104	XX	XX	1	49	43	74	F	MS	I	MS	MR	I	MR	S
Amisk ☺	6	SS	32	103	101	105	0	49	46	69	VG	S	MS	I	MR	I	MR	S
Sundre †☺	6	S	51	109	106	113	1	51	43	86	G	MS	R	R	I	S	I	S
















Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. In 2021 the check cultivar was changed to CDC Copeland. All previously tested varieties were adjusted relative to CDC Copeland based on the relative difference between AC Metcalfe and CDC Copeland since 1999. Varieties rated Intermediate (I) to Susceptible (S) for smuts should be treated with a systemic seed treatment to reduce the potential for infection. New registrations and insufficient data to describe: AB Prime, RGT Planet, TR17255, TR19175, TR19758. ☺ = Protected by PBR (UPOV 78), ☺ = Protected by PBR (UPOV 91) and ☺* = pending PBR protection, **VUA** = Variety Use Agreement applied (<http://seeds-canada.ca/variety-use-agreement/>). XX - Insufficient data to describe. NT - Not tested for disease, until a full rating is generated assume that the variety is very susceptible to the disease. † Flagged for possible removal in 2023.



SPRING TRITICALE

Variety	Overall Station Years of Testing	Yield Category (% Brevis)			Agronomic Characteristics:									
		Overall Yield	Low < 101 (bu/ac)	High ≥ 101 (bu/ac)	Maturity Rating (Days +/- Brevis)	Test Weight (lb/bu)	TKW (g)	Height (cm)	Resistance to:			Stripe Rust	Bunt	Fusarium Head Blight
									Lodging	Sprouting				
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to Brevis)														
Brevis (bu/ac)		109	77	140										
Brevis	88	100	100	100	107	59	46	93	G	F	MR	R	I	
AB Stampeder ^(b)	24	94	94	95	-2	56	48	91	G	F	R	R	MS	
Previously tested varieties														
Brevis		100	100	100	107	59	46	93	G	F	MR	R	I	
AAC Delight	31	97	95	98	1	58	53	97	G	P	R	R	I	
AC Ultima [†]	33	93	95	89	-1	57	45	96	G	F	MR	R	I	
Bunker ^(a)	49	71	XX	XX	0	57	48	107	F	F	MR	R	I	
Pronghorn	120	80	XX	XX	0	55	43	98	G	F	MR	R	MR	
Sunray	33	89	92	85	-1	57	45	94	VG	F	MR	R	MS	
Taza ^(a)	33	88	90	84	1	57	47	100	G	F	MR	R	S	
Tyndal ^(a)	23	91	84	96	1	57	42	102	G	P	MR	R	MS	

Remarks: Brevis yields about 25 per cent more than CWRS wheat in areas of adaptation. AB Stampeder, AAC Delight, Bunker, Taza, and Tyndal have heads with reduced-awns which may be beneficial when harvested as forage or silage. All varieties are susceptible to ergot. Current testing does not suitably differentiate genetically controlled resistance to ergot infection (varietal differences) from other factors such as weather, crop development stage, inoculum load and management. ^(a) = Protected by PBR (UPOV 78), ^(b) = Protected by PBR (UPOV 91). XX - Insufficient data to describe. [†] Flagged for possible removal in 2023.

OAT

Variety	Overall Station Years of Testing	Overall Yield	Yield Category (% CS Camden)		Agronomic Characteristics:					
			Low < 115 (bu/ac)	High ≥ 115 (bu/ac)	Maturity Rating (Days +/- CS Camden)	Test Weight (lb/bu)	TKW (g)	Height (cm)	Resistance to Lodging	Tolerance to Smuts
MILLING										
Varieties tested in the 2021 trials (Yield and agronomic data only directly comparable to CS Camden)										
CS Camden (bu/ac)		126	91	150						
CS Camden 	54	100	100	100	100	40	41	99	VG	I
AAC Douglas 	21	101	99	102	0	40	41	100	G	R
AC Morgan 	20	103	96	106	1	41	43	104	VG	I
CDC Arborg 	25	105	XX	105	0	41	41	108	VG	R
CDC Dancer 	50	91	92	91	-2	41	38	107	G	R
CDC Endure 	27	106	XX	106	0	41	42	105	VG	R
Previously tested varieties (compared with CS Camden)										
CS Camden 	54	100	100	100	100	40	41	99	VG	I
Akina + 	24	98	97	101	1	39	39	92	VG	R
Alka + 	27	106	XX	105	XX	42	41	98	XX	XX
CDC Ruffian 	48	100	103	98	2	41	41	97	G	R
Derby + 	13	90	90	XX	2	46	47	102	G	MS
Kara + 	26	98	93	101	1	41	41	95	VG	MR
ORe3542M 	28	94	95	94	0	41	43	97	VG	R
FEED										
Previously tested varieties										
CS Camden 		100	100	100	100	40	41	99	VG	I
AC Mustang	51	103	105	102	1	43	41	120	G	I
CDC Nasser	24	108	112	101	2	37	38	103	G	MR
FORAGE										
Previously tested varieties										
CS Camden 		100	100	100	100	40	41	99	VG	I
CDC Baler	19	90	92	88	2	39	43	110	XX	S
CDC Haymaker	22	95	98	88	2	39	46	111	F	MR

Remarks: For explanations on data summarization methods, abbreviations and other pertinent information, please see the comments at the beginning of this publication. In 2021 the check cultivar was changed to CS Camden. All previously tested varieties were adjusted relative to CS Camden based on the relative difference between CDC Dancer and CS Camden since 2014. Varieties rated Intermediate (I) to Susceptible (S) for the smuts should be treated with a systemic seed treatment to reduce the potential for infection. New registration and insufficient data to describe: Kalio, ORe Level 50 and ORe Level 48.  = Protected by PBR (UPOV 78) and  = Protected by PBR (UPOV 91). XX - Insufficient data to describe. + Flagged for possible removal in 2023.

WINTER WHEAT

CANADA WESTERN RED WINTER WHEAT

Variety	Overall Station Years of Testing	Overall Yield (bu/ac)	Yield Category (% Radiant)		Agronomic Characteristics:							Disease Tolerance:				
			Low < 80 (bu/ac)	High > 80 (bu/ac)	Winter Survival	Maturity (d)	Protein %	Test Weight (lb/bu)	TKW (g)	Height (cm)	Resistance to Lodging	Stripe Rust	Leaf Rust	Stem Rust	Bunt	Fusarium Head Blight
Yield and agronomic data only directly comparable to Radiant																
Radiant (bu/ac)		78	64	94												
Radiant ☼		100	100	100	VG	219	12.0	63	35	91	VG	S	S	S	S	S
AAC Elevate ☼	118	106	106	106	G	-1	-0.1	62	38	85	VG	S	I	MR	MR	I
AAC Gateway ☼	101	99	97	102	F	-2	+1.0	63	33	79	VG	MR	I	MR	S	I
AAC Goldrush ☼	55	101	99	103	VG	-2	+0.5	63	35	87	G	I	R	MR	S	I
AAC Network ☼*	44	105	103	107	G	+1	+0.7	63	32	81	G	R	MR	R	MR	I
AAC Vortex ☼*	36	107	109	103	VG	-1	+0.6	63	36	86	VG	R	R	R	S	MR
AAC Wildfire ☼	69	113	115	110	VG	+2	+0.2	63	38	88	G	MR	I	S	MR	MR
CDC Buteo †	170	97	96	97	VG	-1	+0.3	64	34	92	F	S	I	I	S	MR
Emerson ☼	91	98	98	98	G	0	+0.8	64	30	89	G	MR	I	R	S	R
Moats ☼	118	104	102	107	G	-1	+0.7	64	33	93	F	MR	MR	R	MS	S

CANADA WESTERN EXPERIMENTAL

Yield, significant differences and agronomic data only directly comparable to Radiant

AAC Icefield	72	103	99	106	F	0	-0.5	63	33	82	VG	MR	MR	R	S	I
--------------	----	-----	----	-----	---	---	------	----	----	----	----	----	----	---	---	---

CANADA WESTERN SPECIAL PURPOSE

Yield, significant differences and agronomic data only directly comparable to Radiant

Pintail	69	108	106	111	VG	0	-1.3	61	29	90	F	MR	MS	MS	S	S
---------	----	-----	-----	-----	----	---	------	----	----	----	---	----	----	----	---	---

REMARKS: Winter wheat can be grown successfully in all areas of Alberta if seeded into standing stubble within the optimal seeding date period (generally before September 15) and if there is adequate snowfall. Varieties with poor (P) winter survival are generally not suitable outside of southern Alberta. The long term average maturity for Radiant is 219 days after Jan. 1 (Aug. 7) and is considered to be late maturing. Fusarium head blight infection may be reduced if varieties with Intermediate (I) resistance or better are used and when recommended seeding dates are followed. Radiant and AAC Elevate have tolerance to the wheat curl mite, the vector for Wheat Streak Mosaic Virus. To preserve the effectiveness of the wheat curl mite tolerance gene, agronomic practices that eliminate the "green bridge" of plant material that serves as a reservoir for mites should be followed whenever possible. Fields in southern Alberta should be inspected in the fall for infestation by Russian wheat aphid, as it may reduce winter survival. AAC Wildfire expresses tolerance to some biotypes of Russian wheat aphid. Radiant and AAC Wildfire express bronze chaff at maturity. AAC Icefield, a hard white winter wheat, is eligible for experimental grades to facilitate market research under an Identity Preserved system. AAC Icefield expresses high milling yield of very white flour and good gluten strength at lower protein concentrations that may be of interest in some niche markets. For more information contact FP Genetics. Pintail has an awnless head which may improve palatability when harvested for forage or silage. New winter wheat registrations: W583 = AAC Vortex. ☼ = Protected by PBR (UPOV 78), ☼* = Protected by PBR (UPOV 91), ☼* = pending PBR protection. † Flagged for possible removal in 2023.

FALL RYE

Variety	Hybrid or OP Variety	Overall Station Years of Testing	Overall Yield	Yield Category (% Hazlet)		Agronomic Characteristics:						
				Low < 95 (bu/ac)	High ≥ 95 (bu/ac)	Winter Survival	Test Weight (lb/bu)	TKW (g)	Falling Number (sec)	Height (cm)	Resistance to Lodging	
Hazlet (bu/ac)				95	67	124						
Hazlet	OP	69	100	100	100	EX	59	39	162	106	G	
Brassetto	Hybrid	20	123	XX	122	EX	59	35	261	96	VG	
Guttino	Hybrid	20	120	XX	121	EX	59	35	294	94	VG	
KWS Bono	Hybrid	39	136	140	133	EX	59	34	249	94	VG	
KWS Daniello	Hybrid	18	125	122	126	VG	59	35	265	94	VG	
KWS Gatano ☼*	Hybrid	21	130	139	124	VG	59	33	246	91	G	
KWS Serafino ☼*	Hybrid	22	133	132	135	EX	59	33	277	97	G	
KWS Trebiano ☼*	Hybrid	22	130	129	131	EX	59	36	245	98	VG	
Prima	OP	60	86	81	91	EX	58	33	204	118	F	

REMARKS: Fall rye is generally more cold tolerant than winter wheat and winter triticale. The long term average heading and maturity dates for Hazlet are June 1 and Aug. 6, respectively. All fall rye varieties are similar for heading and maturity and are considered early. Sprouting is a major factor in marketing rye for milling and is generally measured using the Hagberg falling number test and is measured in seconds. Typically, a falling number of 180 seconds or greater is preferred by the rye milling market. Falling number is heavily influenced by moisture around harvest time so producers should ensure that rye is harvested in a timely manner, similar to wheat crops. There is considerable variation in fall rye varieties for falling number that should be considered if milling markets are targeted. All fall rye is susceptible to ergot, however KWS Daniello, KWS Gatano, KWS Serafino and KWS Tebiano have reduced susceptibility. AFSC crop insurance deadlines for seeding fall rye is September 20, north of the Bow River and September 30, south of the Bow River. Hazlet has lower viscosity which improves feed performance in monogastric livestock. ☼* = pending PBR protection.