

REGIONAL VARIETY TRIALS

Alberta's Regional Variety Trials play a critical role in assisting farmers with making well-informed decisions, enhancing crop productivity, and contributing to the advancement of agricultural research and breeding initiatives across the region.

"In this report, we are providing data from the GRO site (Westlock). However, it is important to note that single-site, single-year data may not provide a comprehensive assessment of variety performance. For a more reliable evaluation based on multi-site and multi-year data, please consult the January 2025 edition of the Alberta Seed Guide. Furthermore, it may take several years before some entries become available in the market."

Agronomic Information for the Regional Variety Trials:

Seeding Dates:

Wheat, Triticale, and Flax: May 10, 2024

Oats: May 15, 2024

Barley: May 21, 2024

Seeding - done with Fabro zero-till drill:

Depths:Wheat: 1.25 inch

Barley, Oats, Triticale, Flax: 1 inch

Seeding Rates:

Barley: 270 plants/m²

Oats: 300 plants/m²

Triticale: 310 plants/m²

Wheat: 330 plants/m²

Flax: 800 plants/m²

Seed Treatment:

Teraxxa F4 @ 300 ml/100 kg of seed, except for flax (untreated)

Fertilizer:

Fall 2023 applied by producer: 46-0-0 (coated with Neon Air) @ 163.04 lb/ac (75 lbs/ac actual N)

Spring Applied - side banded:

Wheat/Triticale: 18.3-2.1-28.5-4.3 @ 350.7 lb/ac

64.1 lb/ac actual N; 7.2 lb/ac actual P; 100.0 lb/ac actual K; 15.0 lb/ac actual S

Barley/Oats/Flax: 15.6-3.3-27.4-6.9 @ 218.8 lb/ac

34.1 lb/ac actual N; 7.2 lb/ac actual P; 60.0 lb/ac actual K; 15.0 lb/ac actual S

Seed Placed (for all cereals):

11-52-0 @ 53.5 lb/ac - 5.9 lb/ac actual N; 27.8 lb/ac actual P

Seed Placed - Flax:

11-52-0 @ 26.7 lb/ac - 2.9 lb/ac actual N; 13.9 lb/ac actual P

Herbicide:

Cereals:

MCPA Ester 600 + Pardner @ 320 ml/ac + 400 ml/ac June 10

Prestige A+B @ 710 ml/ac + 600 ml/ac June 24

Bison 400 L (except oats) @ 200 ml/ac June 24

Flax:

MCPA Ester 600 + Pardner @ 320 ml/ac + 400 ml/ac June 10

Rainfall - recorded from May 1 - Sept 15: 221.2 mm

Dessication: Flax: Reglone @ 1.5L/ac on September 25

Harvest:

Barley: September 16

Wheat/Triticale: September 18

Oats: September 20

Flax: October 4

REGIONAL VARIETY TRIALS - BARLEY

Barley is an exceptionally versatile cereal crop grown globally for a wide range of purposes, including livestock feed, malting, and human consumption. **The 2024 Barley Regional Variety Trial included 20 entries, with the majority being two-row barley (more uniform kernels) varieties.** This trial evaluated both feed and malt barley types, offering valuable data on their performance and suitability for diverse applications.

Feed barley is primarily cultivated to provide high-energy, easily digestible nutrition for livestock. Breeding efforts for these varieties focus on enhancing yield, biomass, and nutritional quality, ensuring their effectiveness as a key component of animal feed. In contrast, malt barley is specifically grown to meet the stringent requirements of the brewing and distilling industries, where it is processed into malt for producing beer, whiskey, and other beverages.

The results reveal substantial variations in performance, with statistical analysis (ANOVA p-value < 0.0001) confirming significant differences among the varieties tested. The coefficients of variation (CV%) for yield, height, bushel weight, and kernel weight were notably low, indicating a high degree of consistency across the trial.



Barley - 2024										
	Variety Name	2 or 6 Row	Yield (% of AAC Synergy)		Height (cm)		Test Weight (LB/BU)		TKW (g/1000 seeds)	
1	AAC SYNERGY (CHECK)	2	100%	cde	79	def	56	abcd	47	fg
2	SY STANZA	2	107%	a	70.3	i	54	ef	49.7	bcdef
3	RGT ASTEROID	2	107%	a	70	i	54.3	def	51.2	bcd
4	AAC LARIAT	2	103%	b	81.3	cd	55.3	bcde	52.4	ab
5	FERGUSON	2	103%	bc	80.7	cde	55.5	bcde	47.9	efg
6	AB MAXIMIIZER	2	103%	bc	80.3	cde	56	abc	48.	efg
7	CDC CHURCHILL	2	103%	bc	77.3	efg	55.7	bcd	46.1	gh
8	AB FOOTHILLS	2	100%	cd	83.3	bc	55.7	bcd	46.8	fg
9	CARLETON	2	99%	de	75.7	fgh	57.3	a	49	def
10	AAC STOCKON	2	99%	def	84	bc	56	abcd	52.5	ab
11	RICHER	6	98%	defg	97.7	a	53	fg	46.6	fgh
12	AB STANDSWELL	6	97%	efg	74.3	gh	52	g	43.3	h
13	CDC COPELAND	2	95%	g	86.7	b	55.7	bcd	48.9	defg
14	AS MANON	2	91%	h	83.3	bc	55.7	bcd	51.6	bcd
15	AS LAFLEUR	2	91%	h	82.7	cd	57.3	a	50.5	bcde
16	CDC AUSTENSON (BENCHMARK CHECK)	2	89%	hi	79.3	def	57	ab	51.8	abc
17	AB DRAM	2	88%	ij	81.3	cd	55.7	bcd	49.2	cdef
18	AC METCALFE	2	85%	j	79.3	def	56.5	abc	46.9	fg
19	VARIETY X	2	Data for unregistered varieties cannot be published							
20	VARIETY Y	6								
Average			4787 g/plot	80 cm	55.5 lbs/bu	49 g/1000				
ANOVA p-value			<0.0001	<0.0001	<0.0001	<0.0001				
CV%			6.75%	7.83%	2.66%	6.51%				

Values followed by the same letter are NOT statistically different (i.e., a = ab, or abc = bc).

REGIONAL VARIETY TRIALS - WHEAT

Canada's wheat classification system is a framework designed to categorize varieties based on their quality, functionality, and end-use suitability. It ensures consistency and reliability in wheat production, processing, and export. Managed by the Canadian Grain Commission (CGC), the system helps producers, marketers, and buyers understand the quality of Canadian wheat.

In 2024, GRO conducted two wheat trials. The first trial focused on CWRs wheat varieties, comprising 19 entries, while the second trial included all other wheat classes (CPSR, CWSP, and CWSWS) and featured 13 entries.

CWRs Wheat - 2024											
	Variety Name	Yield (% of AAC Brandon)		Height		Lodging		Lbs/BU		TKW (g/1000 seeds)	
1	AAC BRANDON (CHECK)	100%	fgh	87.3	cde	2.3	cd	67.0	abc	40.0	cdef
2	BAKER	115%	a	82.7	ghi	2.7	bc	67.7	ab	38.9	efgh
3	AAC CRAVEN	108%	b	82.0	hi	2.0	cde	67.0	abc	36.8	h
4	BREADWINNER	108%	bc	86.3	cdef	3.7	a	67.3	abc	43.3	ab
5	AAC STOUGHTON	107%	bc	88.3	c	1.3	ef	67.7	ab	41.9	abcd
6	PALISADE	107%	bc	87.3	cde	2.0	cde	67.7	ab	41.0	bcde
7	CDC ENVY	107%	bc	87.7	cd	3.3	ab	66.0	c	39.7	cdefg
8	AAC VIEWFIELD (BENCHMARK CHECK)	106%	bcd	80.7	i	2.3	cd	67.7	ab	36.8	h
9	AAC SPIKE	106%	bcd	82.3	ghi	1.3	ef	67.3	abc	37.1	gh
10	AAC WALSH	106%	bcd	85.3	cdef	1.0	f	66.0	c	43.9	a
11	AAC WESTKING	105%	bcde	84.0	fgh	1.0	f	66.7	bc	42.1	abc
12	AAC HOCKLEY	103%	cdef	80.7	i	1.0	f	67.7	ab	38.8	efgh
13	AAC WALKER	102%	defg	85.0	defgh	2.0	cde	67.0	abc	37.1	fgh
14	FLAME	101%	efg	85.3	cdefg	2.0	cde	68.3	a	39.3	cdefgh
15	AAC DARBY VB	101%	efg	91.7	b	1.3	ef	67.0	abc	39.9	cdefg
16	GARDE	100%	efgh	76.0	j	1.3	ef	66.7	bc	37.5	fgh
17	AAC OAKMAN	99%	fgh	84.3	efgh	1.0	f	67.3	abc	39.1	defgh
18	DONALDA	97%	gh	83.7	fghi	1.7	def	67.7	ab	40.4	bcde
19	ZEALAND	96%	h	104.0	a	2.0	cde	67.0	abc	39.8	cdefg
Average		4446 g/plot		86 cm		1.9 (1-9)		67.2 lbs/bu		39.6 g/1000 seeds	
ANOVA p-value		<0.0001		<0.0001		<0.0001		0.0205		<0.0001	
CV%		2.70%		2.20%		22.30%		1.30%		4.40%	

Values followed by the same letter are NOT statistically different (i.e., a = ab, or abc = bc).

CPSR/CWSP/SWS Wheat - 2024									
	Variety Name	Yield (% of AAC Brandon)		Height		Lbs/BU		TKW (g/1000 seeds)	
1	AAC BRANDON (CHECK)	100%	g	84.3	c	68.3	a	42.8	cdef
2	AAC GALORE	136%	a	92.0	a	67.7	ab	44.6	abcd
3	AC SADASH	131%	b	91.7	a	67.7	ab	43.1	bcdef
4	ALOTTA	126%	c	81.3	e	65.7	d	47.5	a
5	UA FOREFRONT	118%	d	80.7	e	67.3	ab	44.4	abcde
6	AAC AWESOME	118%	d	88.0	b	67.3	ab	46.2	ab
7	FIERCE	116%	d	82.0	de	68.3	a	38.1	g
8	AC ANDREW	115%	de	84.0	cd	66.0	cd	41.5	def
9	RECOIL	111%	ef	77.0	f	67.0	bc	40.1	fg
10	AAC CAMROSE	111%	ef	76.3	f	67.3	ab	41.3	ef
11	AAC GOODWIN	108%	f	86.0	bc	68.3	a	42.7	def
12	AAC PENHOLD	103%	g	76.0	f	67.3	ab	44.3	abcde
13	VARIETY X	Data for unregistered variety cannot be published							
Average		4690 g/plot		84 cm		67 lbs/bu		43.3 g/1000	
ANOVA p-value		<0.0001		<0.0001		0.0084		0.0004	
CV%		2.00%		1.50%		1.10%		4.50%	

Values followed by the same letter are NOT statistically different (i.e. a=ab or abc=bc)

The results reveal substantial variations in performance, with statistical analysis (ANOVA p-value < 0.0001) confirming significant differences among the varieties tested. The coefficients of variation (CV%) for yield, height, bushel weight, and kernel weight were notably low, indicating a high degree of consistency across the trial.

REGIONAL VARIETY TRIALS - OATS

Oats play a crucial role in Canadian agriculture, with Canada being one of the world's largest producers and exporters, particularly from the Prairie provinces of Alberta, Saskatchewan, and Manitoba. Well-suited to the country's cool climate, oats thrive where other grains may struggle, making them a reliable crop for farmers. They contribute significantly to the economy, serving both as a staple in human consumption—found in oatmeal, granola, and health foods—and as livestock feed. Oats are also valued for their nutritional benefits, being rich in fiber and essential minerals. Additionally, they support sustainable farming through crop rotation, helping maintain soil health and prevent disease cycles.

In 2024, the RVT Oat trial featured 13 entries, showcasing ongoing research and development in oat cultivation.

OATS - 2024									
	Variety Name	Yield (% of CS CAMDEN)		Height		Lbs/BU		TKW (g/1000 seeds)	
1	CS CAMDEN (CHECK)	100%	efg	83.7	cd	44	abc	44.2	cde
2	AAC WESLEY	107%	a	75.3	e	45	ab	42.4	e
3	CDC WESTGATE	105%	ab	114.3	a	44	bc	44.2	cde
4	AAC ANTHONY	104%	abc	87.3	b	42	cd	49.6	a
5	CDC BYER	103%	bcd	81.7	d	44	abc	43.6	e
6	KYRON	103%	bcd	83.3	cd	46	ab	42.8	e
7	CDC ANSON	102%	cde	72.7	f	45	ab	44.7	bcde
8	AAC NEVILLE	101%	def	77.3	e	45	ab	43.1	e
9	CDC ARBORG	99%	gf	88.0	b	45	ab	43.9	de
10	AAC FEDAK	99%	gf	85.7	bc	46	a	47.6	ab
11	AC MORGAN	98%	gf	87.3	b	47	a	46.7	abcd
12	OREBOOST	91%	h	86.3	b	40	d	49.5	a
13	VARIETY X	Data for unregistered variety cannot be published							
Average		4598 g/plot		85.3 cm		44.5 lbs/bu		45.3 g/1000 seeds	
ANOVA p-value		<0.0001		<0.0001		0.0006		0.0002	
CV%		1.60%		1.80%		3.50%		3.90%	

Values followed by the same letter are NOT statistically different (ie. a=ab or abc=bc).

The results reveal substantial variations in performance, with statistical analysis (ANOVA p-value < 0.0001) confirming significant differences among the varieties tested. The coefficients of variation (CV%) for yield, height, bushel weight, and kernel weight were notably low, indicating a high degree of consistency across the trial.

REGIONAL VARIETY TRIALS - TRITICALE AND FLAX

Triticale, a hybrid of wheat and rye, is adaptable with high yield potential. As of 2003, Alberta accounted for approximately 80% of the Prairie's triticale production, utilizing it primarily for feed, forage, and grazing purposes. Recent advancements in breeding programs within Alberta has led to the development of improved triticale varieties. These new cultivars offer earlier maturity, shorter stature to prevent lodging, and enhanced drought resistance, making them increasingly popular among farmers.

In 2024, the RVT Triticale trial included three entries.

Triticale - 2024									
	Variety Name	Yield (% of BREVIS)		Height		Lbs/BU		TKW g/1000 seeds	
1	BREVIS (CHECK)	100%	a	93	c	64	a	44.4	a
2	AB SUNBEAM	102%	a	97.7	b	64.3	a	47.2	a
3	PRONGHORN	93%	b	102.7	a	60.7	b	43.5	a
Average		4542 g/plot		97.8 cm		63 lbs/bu		45 g/1000 seeds	
ANOVA p-value		0.0109		0.0027		0.0019		0.6072	
CV%		1.60%		1.10%		0.60%		7.50%	

Values followed by the same letter are NOT statistically different (ie. a=ab or abc=bc).

The results reveal substantial variations in performance, with statistical analysis (ANOVA p-value < 0.0001) confirming significant differences among the varieties tested. The coefficients of variation (CV%) for yield, height, bushel weight, and kernel weight were notably low, indicating a high degree of consistency across the trial.

Flax production in Canada plays a significant role in the country's agricultural sector, with Canada being one of the world's top producers and exporters of flaxseed. The majority of flax is grown in the Prairie provinces, with Saskatchewan leading production, followed by Manitoba and Alberta. The crop thrives in the region's well-drained soils and cool growing conditions, making it well-suited for the Canadian climate. Typically planted in May and harvested from mid-September to late October, flax is relatively drought-resistant, which is beneficial for the often-unpredictable weather in the Prairies. **GRO acted as the volunteer site for the RVT Flax trial, which featured three varieties.**

Flax - 2024					
	Variety Name	Yield (% of CDC GLAS)		Height	
1	CDC GLAS (CHECK)	100%	a	56.3	c
2	CDC ESME	103%	a	52.2	b
3	CDC KERNEN	93%	b	53.3	a
Average		2231 g/plot		54 cm	
ANOVA p-value		0.0657		0.1262	
CV%		2.70%		2.60%	

Values followed by the same letter are NOT statistically different (i.e., a = ab, or abc = bc).

GRO continues to work towards ensuring local producers have the best information on the viability of flax as a growth in this area. The success of this voluntary trial increases the likelihood that going forward, this area will have a full trial to help local producers decide whether or not flax should be considered a part of their farm rotation, alone or in combination with other species in a polyculture crop.

REGIONAL VARIETY TRIALS

Remember:

Single site years of data are often an unreliable indicator of variety performance.

For publication in the Alberta Seed Guide, at least six site years over two growing seasons are required prior to reporting yield data. Please reference the January 2025 - Alberta Seed Guide for multi-site year data.

Values followed by different letters (i.e., a,b,c) are statistically different.

Values followed by the same letter are NOT statistically different (i.e., a = ab, or abc = bc).

ANOVA p-value indicates statistical significance. If the p-value is less than 0.05, then there are significant differences in the described trait.

i.e., ANOVA p-value of <0.0001 for yield means that at least one variety has a statistically different yield.

i.e., ANOVA p-value of > 0.05 means there are no statistical differences in the trait between any of the varieties.

Acknowledgment:

GRO would like to extend its sincere appreciation to the financial supporters who have made this program possible. We would like to acknowledge the generous contributions from RDAR (Results Driven Agriculture Research), Alberta Grains, Western Grains Research Foundation (WGRF), Alberta Seed Processors, Alberta Oat, and the Alberta and British Columbia Seed Growers Associations. Their invaluable support, along with the partnership of all industry stakeholders, has played a crucial role in the successful operation and continuation of this program.

