ADVANCED AGRONOMIC WHEAT TRIAL

Gateway Research Organization (GRO) has been actively involved in Regional Variety Trials (RVTs) since 1988, playing a crucial role in evaluating and comparing the performance of different crop varieties under regional conditions. These trials have provided valuable insights into the adaptability, yield potential, and agronomic performance of numerous wheat varieties.

However, not all locally grown wheat varieties are included in the RVT program, sparking interest among regional producers who seek direct comparisons between newer varieties in the RVT program and the most widely cultivated, established varieties in the area. Addressing this gap would give producers a clearer understanding of how emerging varieties compare to their current options, helping them make more informed decisions based on their agronomic and economic goals.

At the start of the 2024 season, GRO's crop committee met with GRO staff to review the RVT wheat trial treatment list. Following their review, the committee recommended including a trial for locally grown varieties. They selected 20 varieties for the trial, but some seed dealers declined to allow their entries. Ultimately, the trial was established with 17 entries, consisting of 9 CWRS, 4 CPSR, 1 CNHR, and 3 CWSWS varieties.

Agronomics:

Seeding Date: May 10, 2024
Seeding Depth: 1.25 inch
Seeding Rate: 330 plants/m^2 - CWRS, CPSR, CNHR, CWSWS
Seed Treatment: Teraxxa F4 @ 300 mL/100 kg of seed
Fertilizer:
- Fall applied by producer: 46-0-0 (coated with Neon Air) @ 163.04 lbs/ac = 75 lbs/ac actual N
- Spring applied:
  - side banded: 18.3-2.1-28.5-4.3 @ 350.7 lbs/ac = 64.1 lbs.ac actual N; 7.2 lbs/ac actual P; 100.0 lbs/ac actual K; 15.0 lbs/ac actual S
  - seed placed: 11-52-0 @ 53.5 lbs/ac = 5.9 lbs/ac actual N; 27.8 lbs/ac actual P

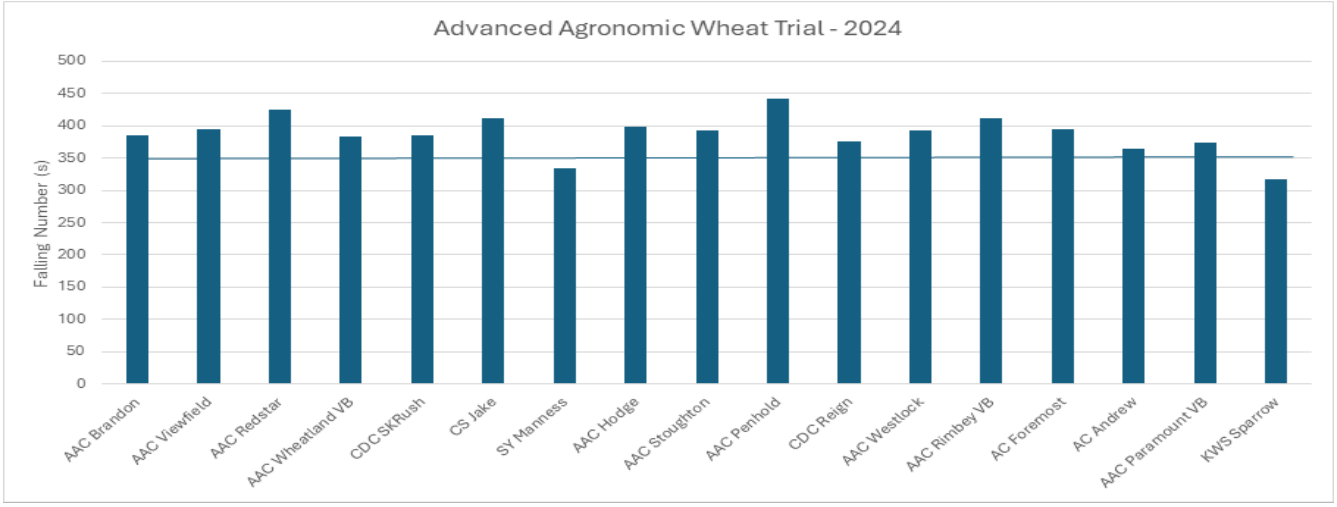
Pesticide:
- MCPA Ester 600 + Pardner @ 320 mL/ac on June 10
- Prestige A+B @ 710 mL/ac + 600 mL/ac on June 24
- Bison 400L @ 200 mL/ac on June 24
- Miravis Ace @ 404 mL/ac on July 12

Rainfall: recorded from May 1 - September 15: 221.2 mm
Harvest Date: September 10, 2024

Following harvest, grain samples were collected and analyzed using a Near-Infrared (NIR) Spectroscopy machine to assess key quality parameters. This preliminary analysis was conducted on-site to provide immediate insights into the grain's composition. Additionally, a composite sample was prepared for each treatment by combining representative subsamples. These composite samples (one per treatment) were then sent to a Cereal Breeding Lab (CBL) for a Falling Number (FN) test. The FN test is a critical assessment used to evaluate enzymatic activity and potential sprout damage, ensuring a comprehensive quality evaluation of the harvested grain.

Advanced Agronomic Wheat Trial - 2024																				
Trt #	Trt Name	Wheat Class	Height (cm)		Lodging (1-9)		Yeild at 13% Moisture				Test Weigh				TKW (g/1000 seeds)		Protein (%)		Gluten (%)	
							kg/ha		bu/ac		lb/bu		kg/HL							
1	AAC Brandon	CWRS	77	d-g	1	na	5227	f-i	**78**	fgh	69	a-d	85	a-d	39.86	def	14.5	abc	36.1	a
2	AAC Viewfield	CWRS	81	bcd	1	na	5580	def	**83**	de	70	a	86	abc	37.48	fgh	14.6	abc	36.4	a
3	AAC Redstar	CWRS	79	b-f	1	na	5091	hij	**76**	ghi	68	cd	84	bcd	37.52	fgh	14.2	abc	34.4	abc
4	AAC Wheatland VB	CWRS	77	c-g	1	na	5282	e-i	**79**	efg	70	ab	86	abc	40.31	c-f	13.6	a-d	34.0	abc
5	CDC SKRush	CWRS	83	abc	1	na	5199	ghi	**77**	ghi	69	a-d	84.5	a-d	35.4	gh	13.6	a-d	33.9	abc
6	CS Jake	CWRS	78	c-g	1	na	4926	ij	**73**	hi	69	a-d	84.5	a-d	35.26	gh	14.4	abc	34.7	ab
7	SY Manness	CWRS	87	a	1	na	4835	j	**72**	i	69	a-d	85.5	a-d	34.24	h	14.6	abc	35.2	ab
8	AAC Hodge	CWRS	81	bcd	1	na	5541	d-g	**82**	def	70	abc	86	abc	37.41	fgh	13.2	a-d	33.0	abc
9	AAC Stoughton	CWRS	79	c-f	1	na	5546	d-g	**82**	def	70	a	86.5	ab	42.71	a-e	14.9	ab	35.3	ab
10	AAC Penhold	CPSR	74	fg	1	na	5914	c	**88**	c	68	bcd	84.5	a-d	42.25	b-e	13.7	a-d	32.1	a-d
11	CDC Reign	CPSR	78	c-g	1	na	5428	d-h	**81**	d-g	69		85.5	a-d	39.17	ef	13.6	a-d	34.3	abc
12	AAC Westlock	CPSR	73	g	1	na	5928	c	**88**	c	68	bcd	84.5	a-d	46.51	a	13.3	a-d	31.7	a-d
13	AAC Rimbey VB	CPSR	80	b-e	1	na	5896	c	**88**	c	68	d	83.5	cd	46.39	a	12.4	bcd	30.5	bcd
14	AC Foremost	CNHR	86	a	1	na	4927	ij	**73**	hi	68	d	83	d	44.27	ab	13.6	a-d	33.7	abc
15	AC Andrew	CWSWS	74	efg	1	na	5709	cd	**85**	cd	69	a-d	84.5	a-d	43.68	abc	12.4	bcd	29.4	cd
16	AAC Paramount VB	CWSWS	81	bcd	1	na	7312	a	**108**	a	69	a-d	84.5	a-d	46.54	a	11.4	d	25.6	e
17	KWS Sparrow	CWSWS	76	d-g	1	na	6860	b	**102**	b	66	e	81	e	42.51		12.0	cd	28.0	de
LSD P=.05			3.43		.		233.17		3.38		1.09		1.53		2.4554		1.44		2.994	
Standard Deviation			2.07		0		141.07		2.04		0.66		0.73		1.4855		0.688		1.811	
CV			2.63		0		2.54		2.47		0.96		0.86		3.63		5.08		5.46	

Means followed by same letter or symbol do not significantly differ (P=.05, Student-Newman-Keuls).



Results and Discussion: The Least Significant Difference (LSD) at P=0.05 for yield was 233.17 kg/ha, indicating that many yield differences between varieties were statistically significant. This variation is largely due to the inclusion of different wheat classes in a single trial. However, within each wheat class, the differences were not statistically significant. The coefficient of variation (CV) for yield was 2.54%, demonstrating a relatively low level of experimental error, which strengthens the reliability of these findings.

The falling number of test results for the 17 wheat varieties in this trial indicate notable differences in sprouting resistance and grain quality. Most varieties displayed falling numbers between 370 and 410, indicating moderate stability in grain quality. Overall, the results suggest that varieties with falling numbers above 400, are likely better suited for high-quality flour production. Conversely, varieties with lower falling numbers may require careful management to mitigate sprouting risks. These findings provide valuable insights for growers selecting wheat varieties based on regional climate conditions and end-use quality requirements.

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