

CONSORTIUM

MOST POPULAR WHEAT VARIETIES IN THE NORTH PEACE SOWN AT DIFFERENT RATES

This research will build on previous research done in 2019, 2020, 2021, and 2022 in the Peace region that evaluated the impact of seeding rate on crop yield, test weight and protein content on both AAC Brandon and AAC Connery. The study has demonstrated in the past that higher seeding rates (28 and 37 seeds foot-2), led to significantly higher yield and test weights on both varieties. However, the highest seeding rate (37 seeds foot-2) also had significantly lower protein content. Thus, we wish to evaluate two more commonly grown varieties grown in the Peace region (AAC Viewfield and AAC Redberry). AAC Redberry is not prevalent in the North Peace and Mackenzie regions, however it is early maturing (three days earlier than the AAC Brandon variety) and thus would likely be a good fit. AAC Wheatland VB was selected as it is a new midge tolerant variety with a similar maturity to AAC Brandon, and a slightly higher yield advantage of up to 4 bushels acre-1 (AFSC Yield Alberta 2021).

P-values of parameters used to determine the effect of wheat variety and seeding rate in Fort Vermilion, Falher, Fairview and North Star, Alberta

Parameter	2022-2023				2023		
	Height	Test weight	Yield	Protein	Stand counts	Emergence	Lodging
Effect							
variety	0.3902	0.9986	0.5039	0.5375	0.3338	0.5133	0.5725
seeding rate	0.9718	0.4425	0.5014	0.7543	0.3258	0.4119	0.6167
variety x seeding rate	0.5037	0.8955	0.4769	0.2521	0.988	0.8133	0.5323

Research allotted data from Fairview, Ballater, Fort Vermilion and North Star. Data from height, test weight, yield and protein were compiled for both years 2022 and 2023. Table above shows P values obtained from statistical analysis. As shown, there was no difference in yield, or any parameters related to yield. This means that variety did not affect yield nor the increase in seeding rate. Stand counts, emergence and lodging were analyzed only for the growing season of 2023. As such, there was no effect from the wheat variety type or the seeding rate in stand count, emergence, or lodging.

Various reasons could be attributed to this a) In Ballater, AAC Brandon wheat variety did not grow at all and hence no measurements were taken. This could have reduced significance in results b) germination in Fort Vermilion was late due to a draught in May/June may have affected emergence and subsequent stand counts. Moreover c) rains occurring in August at the same site caused a delayed maturity in half the trial area. As a results, wheat had to be desiccated. This likely changed yield because it may have allowed varieties with lower yield catch up with those that already had plenty of grain production. Further research may need to be conducted to observe if significance is apparent over a longer period of time.

CONSORTIUM

MOST POPULAR WHEAT VARIETIES IN THE NORTH PEACE SOWN AT DIFFERENT RATES

Table 2. Parameters observed for our different varieties of wheat grown in the North Peace in 2022 and in 2023

Variety	2022-2023					2023	
	Seed rate	Height	Test weight	Yield	Protein	Stand counts	Emergence
	Plants foot ⁻²	cm	Pounds Bushel ⁻¹	Bushels Acre ⁻¹	%	Plants foot ⁻²	
AAC Brandon	25	69.51	63.26	63.41	15.74	12.44	18.23
	30	70.25	62.14	61.44	15.52	13.37	21.94
	35	69.60	63.43	61.42	15.39	13.83	17.64
	40	68.12	62.75	61.96	15.38	14.48	21.43
AAC Redberry	25	69.60	62.76	56.33	15.79	11.13	19.31
	30	67.16	62.25	56.44	16.40	12.21	20.21
	35	69.39	62.80	55.10	16.11	12.32	17.53
	40	72.36	62.60	57.82	15.85	13.77	20.10
AAC Viewfield	25	65.95	63.26	64.59	15.26	12.11	17.26
	30	66.17	62.43	67.75	15.46	13.25	20.08
	35	63.07	62.58	60.36	15.58	13.01	18.51
	40	63.02	62.39	63.18	15.67	14.01	20.19
AAC Wheatland	25	67.57	62.90	61.13	15.25	12.19	17.58
	30	67.20	62.59	62.02	15.46	13.11	20.48
	35	68.70	62.67	62.64	15.61	14.12	16.93
	40	68.62	62.26	60.50	15.49	14.28	18.70
Standard error		6.10	3.70	18.70	2.00	4.30	4.70