



2014 Variety Recommendation – Broadview

Meridian Seeds requests support that Broadview hard red winter wheat be considered for variety recommendation in the state of Montana. More specifically, we request that Broadview be recommended for crop reporting districts 5 & 6.

Broadview was developed by Agriculture and Agri-Food Canada (AAFC) in Lethbridge, Alberta. Certified seed is expected to be available to US growers in the fall of 2014. Meridian Seeds is currently in the process of filing for PVP.

Broadview was derived from the cross KS92WGRC15/CDC Kestrel//CDC Falcon made at the AAFC, Lethbridge Research Center. It is a hollow stemmed hard red winter variety that has shown good adaptation across the northern plains, particularly in the north-central area of Montana in districts 5 and 6. Broadview is also expected to show good adaptation to rust prone areas in years where that is a concern given its improved rust resistance package.

Broadview has been tested in the Montana State Trials between 2010-2013 (28 station years). Over the 4 yr period, it exhibited intermediate maturity. Its best performance has been in dryland trials in Conrad, Havre, and Sidney where it exhibited excellent yield potential compared to checks – statistically similar to Yellowstone in both districts over a 4 yr period (Table 1) with similar protein levels (Table 2).

Broadview has acceptable milling and baking characteristics (Table 3), similar to that of CDC Falcon.

The disease resistance of Broadview has been well documented in Canadian disease nurseries, proving itself to have an excellent rust package. Based on 3 yrs of inoculated disease testing in the official Canadian registration trials, Broadview received official ratings of 'R' to Leaf rust and 'R' to Stem rust (Table 4), however it has shown susceptibility to common bunt (Table 3) and fusarium head blight (Table 5). Broadview is susceptible to stripe rust in Montana tests (Table 2)



Table 1. Yield of Broadview vs. a set of recommended varieties, 2010-2013^{1/}

Variety	Districts			All Locations
	5- Conrad & Havre	6- Sidney & Williston	1-4 Non-rec ^{2/}	
location-years	7	6	15	28
Broadview	83.2*	60.5*	60.1	65.9
CDC Falcon	79.5	58.6*	66.1	67.9
Decade	79.5	58.4*	61.2	65.1
Jagalene	81.9*	49.9	75.0	71.4
Jerry	72.4	62.0*	58.6	62.8
Ledger	75.4	45.4	65.6	63.7
Norris	76.4	55.0	65.6	66.0
Yellowstone	84.9**	62.3**	84.9**	80.0**
LSD (0.05)	4.6	7.0	8.7	5.5

1/ = includes 2010-2013 Intrastate Tests

2/ = includes Bozeman, Kalispell, Huntley, and Moccasin tests

Table 2. Agronomic characteristics of Broadview vs. a set of recommended varieties, 2010-2013^{1/}

Variety	Test weight lb/bu	Winter survival %	Heading date		Plant height in	Lodging %	Protein %	Sawfly cutting %	Stripe rust %	Coleoptile length in
			Julian	Calendar						
location-years	28	5	30		31	6	28	4	5	3
Broadview	58.8	48*	168.8	18-Jun	33.2	6	12.2	9	74	2.7
CDC Falcon	59.3	50*	167.9	17-Jun	32.0	1	12.1	5	64	2.9
Decade	58.5	50*	167.1	16-Jun	33.4	2	12.8**	7	83	3.1
Jagalene	61.4**	29	166.5	16-Jun	33.1	4	12.1	11	46*	3.2
Jerry	58.4	56**	169.5	19-Jun	38.3	6	12.4	14	75	3.2
Ledger	60.0	26	168.2	17-Jun	32.6	5	11.9	8	71	3.3
Norris	59.8	35	165.9	15-Jun	36.4	1	12.5	15	79	3.7
Yellowstone	59.4	37	169.8	19-Jun	35.1	10	12.2	8	37**	2.7
LSD (0.05)	1.0	10	0.6		0.7	ns	0.3	6	14	0.2

1/ = includes 2010-2013 Intrastate Tests



Table 3. Mill and bake characteristics of Broadview vs. a set of recommended varieties, 2010-2012

Variety	PPO ^{1/}	Kernel hardness	Flour yield %	Flour protein %	Flour Ash %	Mixograph mix time min	Mixograph absorption %	Baking mix time min	Baking absorption %	Loaf volume cc
location-years	12	12	12	12	12	12	12	12	12	12
Broadview	0.346	72.7	62.9	10.4	0.41	3.1	59.2	3.9	68.0	987
CDC Falcon	0.324	75.9	61.9	10.1	0.42	6.2	59.0	9.0	69.2	993
Decade	0.281	79.8	64.9	10.5	0.40	7.6	62.2**	14.0	72.8**	1005
Jagalene	0.295	81.1	67.0	10.1	0.40*	5.1	59.2	7.9	69.7	995
Ledger	0.299	77.0	68.8*	10.1	0.39**	5.7	59.5	9.8	69.4	990
Yellowstone	0.202	80.4	65.8	10.3	0.41	8.9	61.6*	13.2	72.3*	1013
LSD (0.05)	0.042	3.7	0.8	ns	0.01	0.8	1.1	1.5	1.1	ns

** = indicates highest value within a column

* = indicates varieties with values equal to highest variety within a column based on Fisher's protected LSD (p=0.05)

^{1/} low is best for noodles



Table 4: Disease reactions of W425 (Broadview) compared to the check cultivars in the AAFC B2 Test (2005) and Western Winter Wheat Cooperative Registration Trial (2006, 2007)

Entry	Stem Rust (% & Rx)			Leaf Rust (% & Rx)		
	2005 (B2)	2006	2007	2005 (B2)	2006	2007
CDC Osprey	60 S	70 S	60 S	senesced	30 MS	80 S
AC Tempest	--	70 S	60 S	--	50 S	80 S
AC Bellatrix	80 VS	70 S	60 S	senesced	10 S	10 MS
CDC Harrier	--	30 MR-MS	5 R-MR	--	15 MS-S	70 MS-S
CDC Falcon	1 R	30 MR	5 R-MR	5 MR	5 MR	15 MR-MS
Radiant	--	60 MS-S	20 S	--	10 S	35 MS-S
CDC Buteo	--	30 MS-S	--	--	10 MR	--
CDC Ptarmigan	80 VS	--	--	senesced	--	--
W425	1 R	5 MR	1 R	3 R-MR	1 R	1 R
Supplementary Checks:						
McClintock	1 R			7 MR-I		

Entry	Common Bunt (% & Rx)			Leaf Spots (1-9)		
	2005 (B2)	2006	2007	2005 (B2)	2006	2007
CDC Osprey	84 VS	64 VS	66 VS	3.5	3.3	4.2
AC Tempest	--	64 VS	39 VS	--	3.8	3.7
AC Bellatrix	8 R	8 R	14 MR	4.5	3.0	3.2
CDC Harrier	--	77 VS	70 VS	--	4.1	4.9
CDC Falcon	76 VS	50 VS	58 VS	3.5	5.3	5.4
Radiant	--	60 VS	35 S	--	4.7	4.1
CDC Buteo	--	80 VS	--	--	4.8	--
CDC Ptarmigan	71 VS	--	--	3.5	--	--
W425	85 VS	61 VS	48 VS	2.0	4.0	3.1
Locations:				1	2	3
Supplementary Checks:						
IDO337-R1	2 VR	2 VR	2 VR			

Entry	Stripe Rust (1-9)			Powdery Mildew (1-9)		
	2005 (B2)	2006	2007	2005 (B2)	2006	2007
CDC Osprey	--	3.3	--	5.0	5.0	4.7
AC Tempest	--	2.6	--	--	5.0	5.0
AC Bellatrix	--	7.1	--	4.0	4.5	4.0
CDC Harrier	--	3.8	--	--	3.5	3.7
CDC Falcon	--	2.3	--	3.0	4.5	3.3
Radiant	--	2.1	--	--	4.0	5.0
CDC Buteo	--	3.2	--	--	4.0	--
CDC Ptarmigan	--	--	--	3.0	--	--
W425	--	5.2	--	3.0	3.0	3.0
Locations:				1	1	1



Table 5: Supplementary data for Fusarium Head Blight (FHB) reaction of W425 (Broadview) compared to the check cultivars in the Western Winter Wheat Cooperative Registration trial (2006,2007)

Entry	Fusarium Head Blight (VRI & Rx)			
	2006		2007	
	VRI (%)	Rx	VRI (%)	Rx
CDC Osprey	12.0	MR	23.8	I
AC Tempest	13.1	I	26.0	I
AC Bellatrix	15.8	I	13.1	MR
CDC Harrier	23.0	MS	47.3	S
CDC Falcon	26.3	MS	41.7	MS
Radiant	24.4	MS	39.1	MS
CDC Buteo	7.5	MR	--	--
W425	11.3	MR	35.4	MS
Supplementary Checks:				
Caledonia	51.2	S	43.8	S