

2012 VARIETAL RECOMMENDATION

WB-Quake

WestBred, a unit of Monsanto, requests that ‘WB-Quake’ hard red winter wheat be considered for “Variety Recommendation in the State of Montana”.

We move that WB-Quake be recommended as a red winter wheat for all districts of Montana.

WB-Quake is a hard red winter wheat selected from the progeny of the cross Rampart/Kestrel. PVP has been applied for and is pending.

For a 2 year period, 13 station years of data, WB-Quake has performed better than the check variety Genou. It has also yielded competitively with other checks (Tables 1 and 2). The average test weight is equal to Genou (Table 1). Protein % of WB-Quake is less than that of Rampart and equal to Genou (Table 1). The average plant height of WB-Quake is 35.2 inches, which is less than that of the check varieties listed except CDC Falcon (Table 5). Winter Survival data indicate that WB-Quake is most similar to that of Yellowstone and is slightly more hardy than Genou (Table 4). Solid Stem Ratings show WB-Quake to have good solid stemness in both 2010 and 2011 (Tables 6 and 7). WB-Quake also exhibits good lodging resistance (Table 5). Disease resistance data indicate WB-Quake has good resistance to the local races of Stripe Rust (Table 3). Milling and baking data from MSU 2010 trials indicate that WB-Quake exhibits acceptable milling and baking characteristics. (Table 8).

Submitted by: Craig Cook, WestBred, a unit of Monsanto

Table 1. 2010-2011 Intrastate Winter Wheat Test (Exp. 3501): Combined Locations Yield, Test Weight and Protein									
Cultivar/Line	Grain Yield (bushels/acre)			Test Weight (lb/bu)			Protein (%)		
	2010	2011	2010-11	2010	2011	2010-11	2010	2011	2010-11
location-years	6	7	13	6	7	13	6	7	13
WB-Quake (BZ9W05-2043)	83.4	72.6	77.6	60.3	60.8	60.6	11.8	11.2	11.5
Genou	79.5	52.7	65.1	60.7	60.4	60.5	11.9	11.9	11.9
Rampart	72.8	63.3	67.7	60.3	61.5	61.0	12.8	12.4	12.6
CDC Falcon	87.1	62.0	73.6	60.4	60.0	60.2	11.2	11.4	11.3
Yellowstone	94.2	81.0	87.1	59.8	60.0	59.9	11.6	11.1	11.3
Average	84.3	66.8	74.4	60.7	60.2	60.5	11.9	11.5	11.6
LSD (0.05)	8.1	14.9	8.9	1.0	1.7	1.1	0.6	0.6	0.4
C.V.	8.5	21.3	15.5	1.4	2.7	2.3	4.7	4.8	4.8

Averages, LSD and CV calculated on a 49 entry trial

Table 2. 2011 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Yield (bu/a)										Stripe Rust	no BZ, KS
Cultivar/Line	no harv.								7 Loc Avg.	BZ, KS Avg.	5 Loc Avg.
	Bozeman LAT	Havre poor stands	Sidney LAT	Williston LAT	Kalispell LAT	Moccasin LAT	Huntley LAT	Conrad LAT			
lattice efficiency	100%		124%	132%	106%	102%	117%	134%			
WB-Quake	83.1		52.7	57.0	98.3	49.9	80.1	87.1	72.6	90.7	65.4
Genou	47.9		43.5	53.4	26.1	39.9	74.0	84.1	52.7	37.0	59.0
Rampart	74.7		47.4	65.7	67.5	37.5	73.7	76.3	63.3	71.1	60.1
CDC Falcon	55.1		56.9	66.6	52.4	46.3	67.6	89.2	62.0	53.8	65.3
Yellowstone	91.4		67.5	65.9	109.1	51.9	80.3	100.9	81.0	100.3	73.3
Average	67.7		56.8	61.5	66.3	45.9	75.7	93.7	66.8	67.0	66.7
LSD (0.05)	15.1		9.5	10.6	13.6	6.8	8.7	10.9	14.9	31.1	6.7
C. V. (%)	13.4		9.6	9.9	12.0	8.9	6.7	6.6	21.3	23.1	8.1
P-value (Varieties)	<.0001		<.0001	0.0012	<.0001	<.0001		<.0001	<.0001	<.0001	<.0001

Averages, LSD and CV calculated on a 49 entry trial

Table 3. 2005-2011 Intrastate Winter Wheat Test (Exp. 35):

Combined locations Sawfly Cutting and Stripe Rust

Cultivar/Line	Sawfly Cutting (%) Have		Stripe Rust (%) Bozeman and Kalispell	
	2011	2010-11	2011	2010-11
location-years	1	2	2	3
WB-Quake (BZ9W05-2043)	3	3	19	14
Genou	1	8	63	52
Rampart	0	3	47	33
CDC Falcon	2	5	58	40
Yellowstone	4	7	25	17
Average	5.9	9.0	47.8	40.2
LSD (0.05)	6.3	10.7	22.2	21.6
C.V.	62	59	23	33

Averages, LSD and CV calculated on a 49 entry trial

Table 4. 2010-2011 Intrastate Winter Wheat Test (Exp. 35):

Cultivar/Line	Winter Survival (%)			Yield under Winterkill conditions		
	2010	2011	2010-11	2010	2011	2010-11
location-years	1	1	2	1	1	2
WB-Quake (BZ9W05-2043)	50.0	52.7	54.0	49.6	57.9	51.2
Genou	48.3	43.5	51.3	48.9	54.2	46.2
Rampart	31.7	47.4	40.5	40.9	49.2	44.2
CDC Falcon	66.1	56.9	67.2	60.9	68.3	58.9
Yellowstone	50.5	67.5	52.0	62.1	53.5	64.8
Average	50.1	56.8	54.4	54.8	55.7	55.6
LSD (0.05)	10.5	9.5	13.8	9.4	14.6	9.7
C.V.	12.1	9.6	12.5	10.1	14.9	8.6

Averages, LSD and CV calculated on a 49 entry trial

Table 5. 2010-2011 Intrastate Winter Wheat Test (Exp. 35): Combined Locations Heading Date, Height, and Lodging									
Cultivar/Line	Heading Date (Julian)			Plant Height (in)			Lodging Score %		
	2010	2011	2010-11	2010	2011	2010-11	2010	2011	2010-11
location-years	7	8	15	7	8	15	2	2	4
WB-Quake (BZ9W05-2043)	172.2	177.0	174.8	35.8	34.8	35.2	0	2	1
Genou	171.2	176.0	173.8	39.4	37.6	38.5	12	15	13
Rampart	171.5	175.3	173.5	39.5	37.9	38.6	14	24	19
CDC Falcon	170.0	174.5	172.4	33.8	32.9	33.3	1	1	1
Yellowstone	171.5	176.9	174.4	37.3	35.7	36.4	27	2	14
Average	170.2	175.5	172.9	36.9	35.3	36.0	5.5	4.9	5.1
LSD (0.05)	1.1	1.1	0.8	1.2	1.7	1.1	ns	12.6	ns
C.V.	0.6	0.6	0.6	3.1	5.0	4.4	173	128	166
Averages, LSD and CV calculated on a 49 entry trial									

Table 6. 2010 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Stem Solidness (5-25)						
Cultivar/Line	Bozeman	Sidney	Havre	Moccasin	Conrad	5 Loc Avg.
WB-Quake	17.3	21.4	19.8	17.0	22.1	19.5
Rampart	15.2	22.8	21.3	17.4	20.9	19.5
Genou	12.6	19.2	17.5	15.5	16.9	16.3
Carter	11.2	17.2	16.5	14.9	15.4	15.0
CDC Falcon	5.1	6.7	9.1	8.3	8.5	7.5
Average	14.2	19.1	19.1	17.0	18.7	17.6
LSD (0.05)	1.8	2.6	2.5	2.1	1.7	1.0
C. V. (%)	7.7	8.4	7.9	7.7	5.6	7.5
P-value (Varieties)	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
% stems with tunneling	none	none	15.9	4.4	13.3	

Table 7. 2011 Intrastate Winter Wheat Test (Exp. 35): Multi-Location Stem Solidness (5-25)						
Cultivar/Line	Bozeman	Havre	Moccasin	Conrad	4 Loc Avg.	
WB-Quake	15.0	19.1	19.2	18.9	18.1	
Genou	12.6	19.5	19.7	17.3	17.3	
Rampart	17.2	23.1	23.5	20.3	21.0	
Carter	11.5	13.9	14.6	11.4	12.9	
CDC Falcon	5.1	6.3	7.2	5.8	6.1	
Average	14.2	18.8	19.2	17.3	17.4	
LSD (0.05)	3.5	3.2	2.4	4.5	1.7	
C. V. (%)	14.8	10.0	7.6	15.4	11.9	
P-value (Varieties)	<.0001	<.0001	<.0001	<.0001	<.0001	
% stems with tunneling	3.1	15.2	1.9	none		

Table 8. 2010 Means across 4 locations (Exp. 35) Intrastate Winter Wheat Nursery - Mill & Bake and Noodle Data

VARIETY	CLASS	Single Kernel Hardness	Wheat protein, % (12 m.b.)	Flour Yield %	Flour Protein%(14%m.b)	Flour Color			Wheat Ash, %	Flour Ash, %	Mixograph			Test Bake			Crumb Grain Score
						L*brightness	A*green-red	B*blue-yellow			Tolerance	Mixing Time Min	Water Absorption%	Mixing Time Min	Water Absorption%	Loaf Volume	
WB-Quake	HRW	73.8	11.8	68.6	10.5	90.9	-1.73	11.2	1.47	0.40	3.8	5.5	62.0	10.5	72.0	1009	8.0
Genou	HRW	75.3	12.0	66.5	10.6	90.8	-1.56	10.2	1.51*	0.41	4.0	5.6	61.4	11.3	71.4	979	8.0
Rampart	HRW	75.8	13.1	67.9	11.5	90.5	-1.78	12.0	1.57	0.41	3.8	5.8	62.7	12.3	72.8	1068	7.8
CDC Falcon	HRW	71.0	11.5	63.6	9.7	91.0	-1.25	9.3	1.55	0.42	4.0	5.8	58.6	9.7	68.4	948	7.3
Yellowstone	HRW	75.5	11.7	67.4	10.1	90.5	-1.39	10.6	1.57	0.41	4.8	7.9	62.2	14.0	72.6	976	7.3
Average		73.0	11.8	66.3	10.2	90.8	-1.65	11.0	1.54	0.40	3.7	5.5	60.8	9.7	71.1	993	7.5
LSD (0.05)		5.2	0.7	1.7	0.6	0.3	0.15	0.4	0.09	0.15	0.9	1.2	1.8	2.3	2.0	50	1.3
C.V.		5.1	4.1	1.8	4.4	0.2	6.6	2.6	4.4	2.7	17.4	15.5	2.1	17.3	2.0	3.6	12.9
P-Value		<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0002	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0065