

Title: Off-station **Spring Wheat** variety evaluations in the Western Triangle Area.

Year: 2007

Location: Western Triangle Research Center, Conrad, MT.

Personnel: Gregory D. Kushnak, Ag Research Center, Conrad; and  
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Dryland off-station spring wheat variety trials were grown in Teton County near Choteau, Glacier County near Cut Bank, and Toole County near Oilmont. An irrigated spring wheat variety trial was grown at Conrad. These locations represent diverse environments with Teton having deep soil and typically favorable moisture; Oilmont with limited moisture, and Cut Bank with a short, cool growing season. The Choteau, Cut Bank and Oilmont trials were no-till planted on chem-fallow, while the irrigated trial was planted on tillage-fallow.

Results: Data for the spring wheat trials are presented in Tables 1 - 9, and include 2007 and multi-year averages. Table 9 is a summary of all the Western Triangle area tests over the past six years, and is equivalent to 30 tests on each variety.

Temperatures were unusually high for most of the growing season, and rainfall was far below average. Consequently, spring wheat yield and test weight were below average.

'Agawam', 'Vida', 'Choteau' and MT0515 were the top-ranking spring wheat varieties for yield across all locations over the past six years (Table 9). Other varieties with above-average yield included 'Outlook', 'Hank', 'Reeder' and 'McNeal'. Agawam, Choteau, Reeder and MT0515 also had above-average test weight. Agawam is in the Hard White class, and had the highest test weight of the varieties tested. MT0515 is a hard-red experimental line with semi-solid stem. 'Corbin' was in the off-station trials for the first time in 2007, and averaged 3 bu/a higher than 'Conan' across all locations this season.

Agawam and Choteau exhibited good sawfly tolerance, and had stem-solidness ratings slightly higher than 'Fortuna'. The semi-solid stemmed Corbin and Conan had medium levels of sawfly cutting in 2007. The semi-solid MT0515 had slight sawfly cutting.

Future Plans: Variety trials will be repeated in 2008 at these same locations.

Table 1. 2007 **Spring Wheat** variety trial, off-station Choteau, MT.

Variety	Class	Yield bu/a	Test Wt lb/bu	Height in.	Protein %
CORBIN	+	48.6	58.4	30	16.4
OUTLOOK		45.8	55.4	30	15.9
AGAWAM	++ HW	45.4	60.2	28	15.1
MT 0515	+	45.1	56.5	30	16.1
VIDA		44.5	55.7	28	16.0
ERNEST	+	44.4	57.5	32	16.6
CHOTEAU	++	43.7	55.4	27	16.7
CONAN	+	43.7	54.6	28	16.2
MCNEAL		42.8	55.0	28	16.1
MT 0415		42.6	57.9	30	17.1
MT 0414		40.7	58.3	30	16.8
REEDER		39.6	57.0	29	16.7
WB 926		38.3	56.4	29	16.6
KNUDSON		38.2	57.9	30	16.3
HANK		38.0	54.2	28	16.5
FREYR		37.6	57.3	33	15.8
FORTUNA	++	35.8	58.8	32	16.9
NORPRO		35.6	54.6	26	16.6
EXPLORER	HW	35.5	56.9	27	16.2
SCHOLAR	+	32.8	55.4	32	16.8
mean		40.9	56.7	29.4	16.4
LSD (.05) = 4.58 bu. C.V.1&2 = 6.77 & 3.91					

++ = sawfly resistant (solid stem score 19 or higher).

+ = partial sawfly resistance.

HW = hard white.

Cooperator & location: Scott & Roy Inbody, east of Choteau, MT

Planted April 17, 2007.

Fertilizer, actual: 71-52-0

Harvested Aug 7, 2007.

Conducted by MSU Western Triangle Ag Research Center.

Table 2. Five-year averages, **Spring Wheat** varieties, Choteau area, Teton Co. 2003 - 07.

Variety	Source	Class	5-Year Average			
			Yield bu/a	Test weight	Height in.	Protein %
Vida	MSU		50.0	56.5	33	16.3
Outlook	MSU		49.4	55.8	33	16.2
Agawam	WestBred	++ HW	48.6	60.4	31	15.4
MT 0515		+	46.9	57.5	32	16.6
Choteau	MSU	++	46.6	57.1	31	16.7
McNeal	MSU		46.4	55.5	33	16.8
Conan	WestBred	+	44.8	56.8	30	16.4
Reeder	ND		44.5	57.3	33	16.8
WB 926	WestBred		43.3	55.5	31	17.2
Hank	WestBred		43.2	54.4	31	17.3
Ernest	ND	+	43.1	58.4	38	17.0
Fortuna	ND	++	41.6	59.3	39	16.6
Explorer	MSU	HW	41.4	57.1	31	16.3
Norpro	AgriPro		40.7	54.6	31	16.9
Freyr	AgriPro		40.7	57.4	34	16.1
Knudson	AgriPro		40.3	57.9	34	16.9
Scholar	MSU	+	38.4	57.2	36	17.3
nursery mean			44.2	56.9	33.0	16.7

++ Sawfly resistant (solid stem score of 19 or higher).

+ Partial sawfly resistance

HW = Hard White

Cooperator & Location: Scott & Roy Inbody, Choteau, MT. Teton Co.  
 Conducted by MSU Western Triangle Agr Research Center.

Table 3. 2007 **Spring Wheat** variety trial, off-station Cut Bank.

Variety	Class	Yield bu/a	Test Wt lb/bu	Height in.	Protein %
FORTUNA	++	28.8	56.4	31	16.2
MT 0515	+	28.1	53.0	26	15.5
AGAWAM	++ HW	27.6	55.7	27	16.2
MT 0414		27.4	54.1	26	16.7
CORBIN	+	26.8	52.9	27	16.6
MT 0415		25.6	52.9	26	16.9
CHOTEAU	++	25.2	54.8	24	16.1
WB 926		24.9	50.8	22	17.5
ERNEST	+	24.6	52.6	27	16.9
VIDA		24.5	48.0	26	16.3
OUTLOOK		24.4	48.7	27	16.2
EXPLORER	HW	24.3	53.5	28	17.0
REEDER		24.1	51.4	27	16.2
CONAN	+	23.6	51.4	24	17.1
HANK		23.2	51.1	25	16.9
FREYR		22.9	51.4	29	16.0
MCNEAL		22.8	49.9	27	16.5
KNUDSON		21.9	53.8	25	17.3
SCHOLAR	+	19.3	49.9	27	16.0
NORPRO		17.8	49.0	24	17.4
mean		24.4	52.1	26.3	16.6

LSD (.05) = 3.66 bu. C.V.1&2 = 9.09 & 5.25

++ = sawfly resistant (solid stem score 19 or higher).

+ = partial sawfly resistance.

HW = hard white.

Cooperator & location: Kevin Bradley, north of Cut Bank, MT

Planted April 17, 2007 on chem-fallow.

Fertilizer, actual: 71-52-0

Harvested Aug 2, 2007.

Conducted by MSU Western Triangle Ag Research Center.

Table 4. Five-year averages, **Spring Wheat** varieties,  
Cut Bank area, Glacier Co. 2003 - 07.

Variety	Source	Class	5-Year Average			
			Yield bu/a	Test weight	Height in.	Protein %
MT 0515		+	51.3	60.0	33	12.6
Agawam	WestBred	++ HW	51.0	62.0	31	12.4
Vida	MSU		48.9	57.4	33	12.8
Choteau	MSU	++	48.7	60.2	30	12.7
Fortuna	ND	++	48.6	60.7	39	13.3
Hank	WestBred		46.6	57.6	31	12.7
Outlook	MSU		46.2	56.8	33	12.4
Explorer	MSU	HW	44.5	59.1	32	12.9
WB 926	WestBred		43.9	57.9	29	13.3
Reeder	ND		43.7	58.5	32	12.9
Knudson	AgriPro		43.3	59.5	32	12.9
McNeal	MSU		43.0	57.8	33	13.0
Freyr	AgriPro		43.0	58.9	34	12.6
Conan	WestBred	+	42.7	57.8	30	13.4
Ernest	ND	+	41.6	59.7	37	12.9
Scholar	MSU	+	40.7	58.2	37	13.0
Norpro	AgriPro		38.8	56.2	30	13.0
nursery mean			45.2	58.6	32.6	12.9

++ Sawfly resistant (solid stem score of 19 or higher).

+ Partial sawfly resistance

HW = Hard White

Cooperator & Location: Kevin Bradley, north of Cut Bank, MT  
Conducted by MSU Western Triangle Agr Research Center.

Table 5. 2007 **Spring Wheat** variety trial, off-station Oilmont.

Variety	Class	Yield bu/a	Test Wt lb/bu	Height in.	Protein %
AGAWAM	++ HW	23.2	55.0	25	16.5
VIDA		22.9	49.1	25	16.7
MT 0515	+	22.8	52.2	26	16.7
MT 0415		22.2	50.0	27	17.5
REEDER		21.8	49.5	21	16.6
ERNEST	+	21.8	52.4	26	17.8
OUTLOOK		21.5	48.7	23	16.5
WB 926		21.3	52.1	24	17.7
CORBIN	+	21.1	55.2	24	18.8
CHOTEAU	++	20.9	51.7	21	16.7
EXPLORER	HW	20.9	51.1	24	18.0
FORTUNA	++	20.6	52.1	27	16.3
MT 0414		20.4	52.8	26	16.8
HANK		20.4	50.0	23	18.3
CONAN	+	20.1	51.0	22	16.9
MCNEAL		18.6	50.1	25	18.1
SCHOLAR	+	18.2	50.5	26	17.3
FREYR		18.1	48.3	27	17.3
KNUDSON		18.1	52.9	23	18.4
NORPRO		17.1	50.9	23	18.5
mean		20.6	51.3	24.4	17.4
LSD (.05) = 3.25 bu. C.V.1&2 = 9.55 & 5.51					

++ = sawfly resistant (solid stem score 19 or higher).

+ = partial sawfly resistance.

HW = hard white.

Cooperator & location: Terry Alme, east of Oilmont, MT.

Planted April 17, 2007 on chem-fallow.

Fertilizer, actual: 71-52-0

Harvested July 26, 2007.

Conducted by MSU Western Triangle Ag Research Center.

Table 6. Three-year averages, **Spring Wheat** varieties, Oilmont area, Toole Co. 2003, 2006 & 2007.

Variety	Source	Class	3-Year Average			
			Yield bu/a	Test weight	Height in.	Protein %
Agawam	WestBred	++ HW	28.3	52.7	28	17.3
MT 0515		+	28.0	50.2	30	17.6
Vida	MSU		27.6	47.6	29	18.1
Outlook	MSU		26.9	47.3	30	17.6
Reeder	ND		26.0	48.6	30	17.8
Choteau	MSU	++	25.3	50.5	27	17.6
Hank	WestBred		24.7	47.5	27	19.1
WB 926	WestBred		24.3	47.9	28	18.9
Explorer	MSU	HW	24.1	48.8	28	18.7
Ernest	ND	+	24.0	50.6	33	18.6
Conan	WestBred	+	23.9	49.4	27	18.1
McNeal	MSU		23.5	46.7	29	18.9
Fortuna	ND	++	23.5	50.4	34	17.4
Freyr	AgriPro		21.7	48.2	31	18.0
Norpro	AgriPro		21.5	47.4	27	19.0
Scholar	MSU	+	21.3	48.7	34	19.0
Knudson	AgriPro		19.9	50.2	29	18.8
nursery mean			24.4	48.9	29.6	18.3

++ Sawfly resistant (solid stem score of 19 or higher).

+ Partial sawfly resistance

HW = Hard White

Cooperator & Location: Terry Alme, Oilmont, Toole Co. MT  
 Conducted by MSU Western Triangle Agr Research Center.

Table 7. 2007 Irrigated Spring Wheat variety trial, Conrad, MT.

Variety	Class	Yield bu/a	Test Wt lb/bu	Height in.	Head date	Protein %
CHOTEAU	++	84.5	61.4	34	180	14.8
MT 0515	+	79.2	62.3	33	180	14.4
SCHOLAR	+	78.6	61.2	38	181	15.3
HANK		77.0	59.8	29	178	14.8
VIDA		74.7	59.7	34	180	14.7
REEDER		74.5	61.6	37	178	14.9
MCNEAL		73.2	60.0	33	179	14.5
MT 0415		69.4	62.4	33	179	15.1
CORBIN	+	69.4	61.4	34	178	14.9
AGAWAM	++ HW	68.2	63.6	29	176	13.9
ERNEST	+	67.0	60.7	37	179	15.4
NORPRO		66.5	60.7	30	180	14.8
CONAN	+	64.1	60.5	31	178	14.7
MT 0414		64.1	61.7	33	179	15.4
FORTUNA	++	63.8	62.4	38	178	14.9
FREYR		61.6	61.7	33	180	14.7
OUTLOOK		61.3	60.0	35	181	14.0
EXPLORER	HW	60.8	60.5	32	176	15.2
KNUDSON		60.7	60.5	33	179	14.3
WB 926		55.3	60.0	30	176	15.4
mean		68.7	61.1	33.3	178.8	14.8

LSD (.05) = 6.08 bu. C.V.1&2 = 5.36 & 3.09

++ = sawfly resistant (solid stem score 19 or higher).

+ = partial sawfly resistance.

HW = hard white.

Location: MSU Western Triangle Ag Research Center, Conrad, MT

Planted April 27, 2007 on fallow. Harvested Aug 22, 2007.

Fertilizer, actual: 100-52-0

Table 8. Six-year averages, irrigated Spring Wheat varieties, Conrad area, Pondera Co. 2002 - 07.

Variety	Source	Class	6-Year Average				
			Yield bu/a	Test wt.	Height in.	Head date	Protein %
MT 0515		+	85.0	62.6	34	183	14.4
Agawam	WestBred	++ HW	82.6	63.6	32	179	13.6
Hank	WestBred		82.2	60.1	32	180	14.7
Choteau	MSU	++	82.0	61.5	33	182	14.7
Vida	MSU		80.8	60.5	35	183	14.7
Reeder	ND		76.7	61.8	36	181	15.0
McNeal	MSU		76.4	60.4	35	182	14.4
WB 926	WestBred		76.1	60.6	32	179	14.7
Outlook	MSU		75.0	59.7	35	183	14.2
Norpro	AgriPro		74.5	60.8	31	182	14.5
Scholar	MSU	+	74.1	61.5	40	183	15.4
Explorer	MSU	HW	73.7	61.3	33	179	14.7
Conan	WestBred	+	71.4	60.9	33	181	14.5
Freyr	AgriPro		70.9	61.8	36	182	14.8
Knudson	AgriPro		68.2	61.1	35	182	14.0
Ernest	ND	+	68.2	61.4	41	181	15.4
Fortuna	ND	++	65.6	61.9	40	181	14.8
nursery mean			75.2	61.1	35.1	181.1	14.7

++ Sawfly resistant (solid stem score of 19 or higher).

+ Partial sawfly resistance

HW = Hard White

Location: MSU Western Triangle Agr Research Center, Conrad, MT

Table 9. Multi-Year x Location Averages - **Spring Wheat** Varieties.  
Western Triangle Area

Variety	Source	Class	30-Year x Location Average*				Head date**
			Yield bu/a	Test weight	Height in.	Protein %	
MT 0515		+	53.3	57.9	33	15.1	183
Agawam	WestBred	++ HW	53.0	60.1	30	14.4	179
Vida	MSU		51.7	56.1	32	15.2	183
Choteau	MSU	++	50.8	57.7	30	15.3	182
Hank	WestBred		49.2	55.2	31	15.8	180
Outlook	MSU		49.0	55.2	32	15.0	183
Reeder	ND		48.4	57.0	33	15.5	181
McNeal	MSU		47.9	55.8	32	15.5	182
WB 926	WestBred		47.0	55.7	31	15.9	179
Explorer	MSU	HW	46.4	56.9	31	15.5	179
Norpro	AgriPro		45.3	55.2	30	15.5	182
Conan	WestBred	+	45.3	56.7	30	15.5	181
Freyr	AgriPro		45.0	57.0	34	15.2	182
Fortuna	ND	++	44.9	58.4	38	15.3	181
Scholar	MSU	+	44.4	57.1	37	16.1	183
Knudson	AgriPro		44.2	57.7	32	15.4	182
Ernest	ND	+	43.7	57.8	37	15.9	181
nursery mean			47.6	56.8	32.6	15.4	181.1

++ Sawfly resistant (solid stem score of 19 or higher).

+ Partial sawfly resistance

HW = Hard White

\*\* Head date, Conrad only.

\* Conrad 6-yr, Conrad Irr 6-yr, Choteau 5-yr, Knees 5-yr, Cut Bank 5-yr, Oilmont 3-yr.  
Years included are 2002 to 2007. Comparable average calculations.

Cooperators: Kevin Bradley, Cut Bank; Roy and Scott Inbody, Choteau;  
Terry Alme, Oilmont; Dan Picard, Knees area.

Conducted by MSU Western Triangle Agr Research Center.