

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

Year: 2005

Location: Western Triangle Research Center, Conrad, MT.

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Dryland off-station spring wheat variety trials were grown in Teton County near Choteau, Glacier County near Cut Bank, and western Chouteau County at the Knees Area. An irrigated spring wheat variety trial was grown at Conrad. These locations represent diverse environments with Teton having deep soil and typically favorable moisture; the Knees with deep soil, intermediate moisture and warmer temperatures; and Cut Bank with short, cool growing season. The Cut Bank, Knees and Choteau trials were no-till planted on chem-fallow.

Results: Data for the four locations are presented in Tables 1-8, and include the 2005 and multi-year averages. Table 9 is a summary of all the Western Triangle area spring wheat tests averaged over the past five years, and is equivalent to 18 tests on each variety.

Although nitrogen fertilizer (71 lbs actual) was applied to all dryland spring wheat trials, the Cut Bank protein levels were very low in 2005. Soil test for nitrogen was very low (39 lb N).

Although the sawfly-resistant HRS 'Choteau' produced only average yields in 2005, it remained high in the yield ranking when averaged across all of the Western Triangle area tests over the past five years, yielding 5 bu higher than 'Fortuna' (Table 9). Choteau had the highest stem-solidness (sawfly resistance) rating of 22, compared to 19 for Fortuna, and 16 for Ernest. (Maximum rating = 25). Heading date for 'Choteau' was slightly earlier than McNeal and slightly later than Fortuna.

High stem-solidness scores were also found in the hard white entries 'Agawam' (score = 22) and MTHW0202 (score = 20). The latter is an experimental with higher yield and test weight than 'Explorer'.

Future Plans: Variety trials will be repeated in 2006 at these same locations, plus the addition of Toole county.

Table 1. 2005 **Spring Wheat** variety trial, Choteau, MT.

Variety		Yield bu/a	Test Wt lb/bu	Height in.	Protein %
MT 0266		55.6	54.4	36	15.9
Agawam	++ HW	53.7	60.1	31	13.9
Outlook		50.1	53.8	33	15.5
MT 0245		49.9	54.3	36	15.9
WB 926		49.7	54.2	30	17.2
McNeal		49.3	55.5	34	16.4
Fortuna	++	48.3	59.9	43	15.6
Alsen		47.8	56.9	36	16.0
Explorer	HW	47.6	56.7	33	15.9
Choteau	++	47.4	57.7	33	16.0
Knudson		47.3	58.6	35	15.7
Hank		46.7	53.5	32	16.9
Reeder		45.8	56.2	34	16.0
MT 0260		45.8	52.8	36	15.5
Norpro		44.3	52.7	32	16.1
Conan	+	43.7	56.9	30	15.8
MT 0336		43.1	55.6	33	15.7
Scholar	+	41.5	57.1	38	16.8
MTHW0202	++ HW	41.5	57.4	32	15.3
Ernest	+	40.9	59.1	41	16.2
mean		47.0	56.2	34.4	15.9

LSD (.05) = 6.5 bu. C.V.1&2 = 8.3 & 4.8

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

+ = partial sawfly resistance.

HW = hard white.

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

Planted April 12, 2005, chemfallow. Harvested Aug 15, 05.

Fertilizer, actual: 71-52-0

Conducted by MSU Western Triangle Ag Research Center.

Table 2. Two-year averages, **Spring Wheat** varieties, Choteau area, Teton Co. 2004 - 05.

Variety	2-Year Average			
	Yield bu/a	Test weight	Height in.	Protein %
MT 0245	63.5	57.7	37.5	15.4
Outlook	62.5	56.9	36.0	15.3
MT 0266	60.2	56.3	36.5	15.9
McNeal	57.1	57.4	37.0	16.1
Hank, WestBred	56.7	56.0	34.0	16.3
Choteau ++	56.6	58.7	34.5	15.7
Alsen	56.5	58.8	36.5	16.0
Reeder	56.4	58.5	37.0	16.1
WB 926	55.5	56.4	33.0	16.5
Conan, Westbred +	54.6	58.8	32.5	15.4
Explorer HW	52.4	58.5	34.5	15.2
Fortuna ++	51.5	60.6	44.5	15.9
MTHW 0202 ++ HW	51.0	59.3	34.5	15.0
Ernest +	50.5	59.7	43.0	16.2
Scholar +	47.2	58.8	41.0	16.7
nursery mean	55.5	58.1	36.8	15.9

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

+ Partial sawfly resistance

HW = Hard White

Cooperator & Location: Roy Inbody, Choteau, MT. Teton Co.

Conducted by MSU Western Triangle Agr Research Center.

Table 3. 2005 **Spring Wheat** variety trial, Cut Bank.

Variety		Yield bu/a	Test Wt lb/bu	Height in.	Protein %
Hank		51.0	56.7	34	10.4
Agawam	++ HW	50.2	61.4	33	10.0
MT 0245		49.4	57.3	36	9.9
Explorer	HW	48.1	59.4	36	10.5
MT 0266		47.6	57.9	36	10.6
Alsen		47.6	60.4	37	10.9
Outlook		46.6	57.1	35	9.8
Fortuna	++	46.2	59.6	41	11.0
MT 0336		45.8	59.2	37	9.6
Reeder		44.9	57.9	33	10.2
WB 926		44.1	58.3	33	10.6
McNeal		44.1	59.1	34	10.4
Choteau	++	43.9	60.0	31	10.9
MTHW0202	++ HW	43.9	61.2	33	10.2
Norpro		43.0	57.6	33	9.8
Knudson		42.3	59.4	35	10.8
MT 0260		42.2	56.5	35	9.7
Ernest	+	41.7	60.5	41	10.5
Conan	+	37.7	56.8	33	11.1
Scholar	+	33.6	58.1	42	10.1
mean		44.7	58.7	35.4	10.4

LSD (.05) = 4.9 bu. C.V.1&2 = 6.6 & 3.8

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

+ = partial sawfly resistance.

HW = hard white.

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

Planted April 12, 2005, chemfallow. Harvested Aug 22, 05.

Fertilizer, actual: 71-52-0

Conducted by MSU Western Triangle Ag Research Center.

Table 4. Three-year averages, **Spring Wheat** varieties, Cut Bank area, Glacier Co. 2003 - 05\*.

Variety	3-Year Average				
	Yield bu/a	Test weight	Height in.	Protein %	
MT 0245	44.0	60.7	33.5	12.3	
Outlook	43.3	59.8	34.0	12.3	
McNeal	42.3	61.1	33.3	12.4	
Fortuna	++	42.1	61.7	39.7	13.1
Choteau	++	41.6	62.2	31.0	12.8
Hank, WestBred		40.7	59.8	32.0	12.4
Explorer	HW	39.7	61.3	32.3	12.4
MTHW 0202	++ HW	39.7	63.0	32.1	12.1
MT 0266		39.6	60.1	33.0	12.9
Reeder		39.0	61.0	33.0	12.6
Alsen		38.7	62.2	34.5	13.1
Conan, WestBred +		36.5	60.5	30.7	12.8
WB 926		36.1	60.4	30.7	12.9
Ernest	+	36.0	61.8	38.0	12.9
Scholar	+	33.0	60.9	38.7	12.6
nursery mean		39.4	61.1	33.8	12.7

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

+ Partial sawfly resistance

HW = Hard White

\* test wt is 2-year avg.

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

Conducted by MSU Western Triangle Agr Research Center.

Table 5. 2005 **Spring Wheat** variety trial, Knees area, MT

Variety		Yield bu/a	Test Wt lb/bu	Height in.	Protein %
McNeal		55.8	56.1	34	15.2
Agawam	++ HW	55.3	59.0	33	13.8
MT 0266		54.0	53.8	37	15.0
Outlook		52.8	54.7	34	15.0
MTHW0202	++ HW	51.6	57.4	32	14.6
WB 926		51.6	53.3	33	16.0
MT 0245		51.6	55.9	36	14.9
Hank		50.9	52.3	35	16.3
Norpro		50.9	54.2	33	14.7
Explorer	HW	50.6	55.8	35	14.9
Alsen		49.6	57.5	36	14.3
Fortuna	++	49.1	59.5	41	15.1
Knudson		49.1	58.3	35	14.9
Choteau	++	48.5	56.4	35	15.7
Reeder		48.1	57.4	37	15.4
Scholar	+	48.0	59.3	39	15.8
Conan	+	47.4	57.8	34	15.0
MT 0260		46.9	55.5	35	14.7
MT 0336		46.7	55.9	35	14.3
Ernest	+	42.2	57.9	38	15.9
mean		50.0	56.4	35.4	15.1

LSD (.05) = 5.8 bu. C.V.1&2 = 7.0 & 4.1

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

+ = partial sawfly resistance.

HW = hard white.

Cooperator & location: Dan Picard, western Chouteau Co.

Planted April 11, 2005, chem-fallow. Harvested Aug 9, 05.

Fertilizer, actual: 71-52-0

Conducted by MSU Western Triangle Ag Research Center.

Table 6. Five-year averages, **Spring Wheat** varieties, Knees area, Chouteau Co. 2001 - 05.

Variety	5-Year Average				
	Yield bu/a	Test weight	Height in.	Protein %	
MT 0266	38.9	54.3	32.2	15.3	
MT 0245	38.5	56.3	30.9	15.3	
McNeal	38.0	55.4	30.4	15.8	
Choteau	++	37.9	56.8	29.0	15.8
Hank, WestBred		37.7	54.4	29.6	16.4
Reeder		37.0	56.5	30.8	16.1
MTHW 0202	++ HW	36.9	58.1	28.8	15.4
Outlook		36.5	54.8	31.2	15.4
Explorer	HW	35.9	56.2	30.2	15.7
Fortuna	++	35.8	57.7	35.4	16.2
WB 926		35.8	54.7	29.0	16.9
Scholar	+	35.1	57.4	34.0	16.5
Alsen		35.0	56.8	31.8	16.0
Conan, WestBred	+	33.5	56.4	28.6	15.9
Ernest	+	33.1	57.3	34.0	16.2
nursery mean		36.2	56.2	31.1	16.0

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

+ Partial sawfly resistance

HW = Hard White

Cooperator/location: Dan Picard, Knees area, Chouteau Co

Conducted by MSU Western Triangle Agr Research Center.

Table 7. 2005 Irrigated Spring Wheat variety trial, Conrad, MT.

Variety			Yield bu/a	Test Wt lb/bu	Height in.	Head date	Protein %
MT 0260			69.1	62.0	35	185	13.7
MT 0245			68.8	61.2	35	184	14.4
Explorer		HW	67.7	61.0	33	182	14.3
Agawam	++	HW	66.7	62.2	34	181	13.1
MTHW0202	++	HW	66.2	61.2	34	180	14.0
Outlook			65.6	59.8	36	184	14.0
Alsen			65.0	62.2	36	183	15.1
WB 926			63.3	59.5	31	182	14.5
MT 0266			63.1	59.9	35	182	14.8
Norpro			62.3	60.4	31	183	14.2
McNeal			61.6	60.0	35	185	14.4
MT 0336			60.9	60.7	35	185	14.5
Choteau	++		59.8	61.1	34	184	15.1
Scholar	+		59.1	61.2	41	184	15.7
Knudson			58.5	61.4	36	184	13.9
Hank			58.2	57.6	33	183	15.4
Reeder			57.8	61.2	36	183	15.0
Conan	+		56.7	60.8	32	184	14.4
Fortuna	++		53.6	61.0	42	184	14.3
Ernest	+		51.8	60.5	42	184	15.3
mean			61.8	60.7	35.3	183.3	14.5

LSD (.05) = 10.5 bu. C.V.1&2 = 10.3 & 6.0

++ = 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 25, 2005 on fallow. Harvested Aug 22, 05.

Fertilizer, actual: 100-52-0

Table 8. Four-year average, **irrigated Spring Wheat** varieties  
Conrad area, Pondera Co. 2002 - 05.

Variety	4-Year Average					
	Yield bu/a	Test wt.	Height in.	Head date	Protein %	
Hank, WestBred	83.8	60.1	33.5	182.5	14.9	
MT 0245	82.5	61.5	35.2	184.4	14.9	
WB 926	81.7	60.9	33.0	182.0	14.7	
MTHW 0202	++ HW	80.8	62.4	34.2	180.4	13.6
Choteau	++	80.0	61.6	33.3	183.5	14.9
McNeal		79.5	60.7	35.3	184.5	14.6
Explorer	HW	79.3	61.8	33.0	181.8	14.6
MT 0266		78.7	60.5	35.2	182.0	14.5
Outlook		78.0	59.9	35.0	184.5	14.3
Reeder		77.6	61.9	36.0	183.0	15.2
Alsen		76.3	62.3	35.7	183.0	15.3
Scholar	+	73.8	61.7	40.5	185.0	15.5
Conan, WestBred	+	71.8	61.2	33.8	183.8	14.6
Ernest	+	68.3	61.6	42.3	183.8	15.7
Fortuna	++	64.6	61.9	40.5	182.8	15.0
nursery mean		76.7	61.3	35.9	183.2	14.9

++ 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	18-Year x Location Average <sup>①</sup>					
	Yield bu/a	Test weight	Height in.	Protein %	Head date <sup>②</sup>	
MT 0245	56.4	59.0	33.8	14.3	184.5	
MT 0266	54.2	57.8	33.9	14.7	182.1	
Hank WestBred	54.2	57.6	32.3	14.9	182.3	
Outlook	54.1	57.9	33.6	14.3	184.8	
Choteau	++	54.0	59.8	31.8	14.7	183.6
McNeal		53.7	58.9	33.6	14.6	184.5
Reeder		52.8	59.4	34.1	14.8	182.9
MTHW 0202	++ HW	52.2	60.8	32.3	14.0	180.6
WB 926		52.2	58.3	31.4	15.1	181.7
Alsen		52.1	59.9	34.4	15.1	183.3
Explorer	HW	51.3	59.5	32.0	14.5	181.6
Conan WestBred	+	48.9	59.2	31.1	14.7	183.8
Fortuna	++	48.7	60.5	39.7	14.8	183.3
Scholar	+	47.2	59.7	38.1	15.2	185.3
Ernest	+	46.3	59.9	38.9	15.3	184.0
nursery mean		51.9	59.2	34.1	14.8	183.3

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

+ Partial sawfly resistance

HW = Hard White

① Conrad 4-yr + Conrad Irr 4-yr + Choteau 2-yr + Knees 5-yr +  
 Cut Bank 3-yr. Years included are 2001 to 2005.

② Head date, Conrad only.

Conducted by MSU Western Triangle Agr Research Center.