

Title: 2013 Off-Station Spring Wheat evaluations in the Western Triangle Area

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Four off station locations were grown 2013. Off station trials were grown north of Cut Bank, MT, north of Devon, MT, near the 'Knees' east of Brady, MT, and northeast of Choteau, MT in Teton county.

Results: Results are tabulated in Table 1 for the irrigated spring wheat nursery and Table 2 is six year averages for selected varieties in the irrigated spring wheat nursery. Tables 3 and 4 are for the Choteau location. Tables 5 and 6 are for the Cut Bank location, with Table 7 and 8 representing the 'Knees' location. Table 9 is of the soil test values for the off station plots. The Devon location was lost due to a very poor stand caused by soil crusting.

Top yielding varieties at Choteau were MT 1172, MT 1142, and ONeal with protein averaging 16.6% across all varieties. Volt, Duclair, and MT 1142 were the high yielding varieties at Cut Bank while averaging 12.5% protein across all varieties. The 'Knees' high yielders were MT 1053, Duclair, and Vida with 13.3% protein across all varieties. The top yielders in the irrigated trial were MT 1053, MT 1172, and Volt, with protein averaging 12.9 percent.

Summary: Yields ranged from 22.5 to 45.7 bu/acre at Choteau, 44.2 to 76.8 bu/acre north of Cut Bank, and 36.7 to 61.0 bu/a at the 'Knees'. Yields in the irrigated trial ranged from 49.1 to 72.8 bu/a.

Off station cooperators: Bradley Farms, north of Cut Bank, MT
Brian Aklestad, north of Devon, MT
Aaron Killion, east of Brady, MT
Inbody Farms, northeast of Choteau

Funding Summary: The Office of Special Projects will provide expenditure information. No other grants support this project.

MWBC FY2015 Grant Submission Plans: A similar project will be proposed for FY 2015.

Table 1. 2013 Irrigated Spring Wheat variety trial, Conrad, MT.

Variety	Class	Yield bu/a	Test Wt lb/bu	Height in.	Head date	Protein %
MT 1053		72.8	62.7	29.0	192.7	12.0
MT 1172		71.6	60.8	30.3	192.0	12.2
Volt		70.7	63.8	30.3	195.3	12.0
Duclair	**	69.9	61.8	29.7	190.7	13.1
MT 1142		69.4	62.6	28.7	192.3	12.2
WB9879CLP		67.2	61.2	29.3	191.7	13.2
WB Gunnison	*	66.9	63.1	26.7	191.7	13.7
Vida	*	66.2	62.3	30.0	192.3	12.5
Choteau	**	65.9	61.1	28.0	191.3	13.5
McNeal		65.5	62.9	31.3	193.0	12.4
Mott		64.5	61.8	35.0	192.7	12.3
SY Tyra		64.4	62.9	25.7	192.0	12.7
Reeder		64.4	63.2	30.0	192.3	13.4
ONeal	*	64.3	63.7	30.7	192.3	11.6
Corbin	*	64.3	62.9	28.3	191.3	13.4
AP 604CL	CL	62.3	62.8	29.3	190.7	13.6
Hank		61.2	61.8	26.3	190.7	12.8
Kelby		55.0	61.8	25.7	191.0	15.5
Fortuna	**	54.1	61.0	37.0	191.3	13.6
Jedd	CL	49.1	61.7	23.7	191.3	12.5
Mean		64.5	62.3	29.4	191.9	12.9
LSD (.05)		7.87	0.45	1.65	0.40	
C.V. (s/mean)*100		7.38	0.43	3.40	0.32	

Planted: May 22, 2013 on chemical fallow. Harvested: September 13, 2013.

Fertilizer, actual lbs/a, 210-22.5-20, 11-52-0 placed with seed, Urea and potash topdressed on 6/5/2013. Fertility rate is based on soil tests and a yield goal of 80 bu/a for irrigated spring wheat.

Sprayed with: Roundup PowerMax at 20 oz/a on 5/21/2013.

Total precipitation from planting to harvest: 6.93 inches with 8.55 inches irrigation water applied.

** = Solid stem sawfly-resistant (solid stem score of 19 or higher). * = Less preferred by sawfly (behavioral preference) in small plots.

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

Table 2. Six-year Means, Irrigated Spring Wheat varieties, Conrad area, Pondera County. 2007 and 2009 - 2013.

Variety	Source	Class	6-Year Means				
			Yield bu/a	Test wt.	Height in.	Head date	Protein %
Duclair	MSU	**	93.5	61.2	32.6	185.1	14.0
SY Tyra	Syngenta	-	86.2	62.1	30.8	187.6	13.1
Volt	WestBred	-	85.9	63.2	32.2	187.9	13.3
WB Gunnison	WestBred	*	85.9	61.9	32.5	187.2	13.7
Choteau	MSU	**	83.7	61.7	32.2	187.2	14.1
Hank	WestBred	-	82.0	60.4	30.2	185.5	13.4
Oneal	WestBred	*	81.8	62.1	34.9	187.1	12.9
Jedd	WestBred	CL2	77.8	61.4	27.7	186.1	12.9
Corbin	WestBred	*	77.0	61.4	27.7	186.1	12.9
Vida	MSU	*	74.4	60.6	34.0	187.4	13.6
McNeal	MSU	-	74.2	60.9	34.4	187.5	13.5
AP604 CL	AgriPro-8	CL	72.3	62.7	33.8	185.4	14.1
Reeder	N.Dak	-	71.7	62.1	34.8	187.5	13.9
Fortuna	N.Dak	**	66.1	62.1	40.0	186.9	14.2
Kelby	AgriPro	-	65.9	61.5	29.1	184.5	15.3
Nursery Mean			78.4	61.6	32.9	186.6	13.7

** = Solid stem sawfly-resistant (solid stem score of 19 or higher). * = Less preferred by sawfly (behavioral preference) in small plots.

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

Table 3. Off-station spring wheat variety trial located northeast of Choteau, MT. Teton county. Western Triangle Ag. Research Center. 2013.

Variety	Class	Yield bu/a	Test Wt lb/bu	Height in.	Protein %
MT 1172	-	45.7	57.6	27.7	16.1
MT 1142	-	44.2	58.4	30.0	16.6
ONeal	*	41.3	57.2	28.3	17.1
AP604 CL	CL	41.1	59.9	30.0	16.8
Volt	-	40.5	60.7	27.3	16.2
WB9879CLP	-	40.2	59.7	26.7	15.9
MT 1053	-	39.4	58.5	26.0	15.8
McNeal	-	38.3	56.7	30.7	17.5
Choteau	**	38.2	58.9	27.3	16.1
Corbin	*	36.6	60.2	27.7	17.0
WB Gunnison	*	35.7	59.8	25.7	16.2
Fortuna	**	35.3	60.7	36.0	16.5
Duclair	**	34.4	57.0	29.0	17.0
Mott	-	33.4	60.6	28.3	16.8
Reeder	-	32.8	60.1	26.0	16.7
SY Tyra	-	31.3	57.9	23.0	16.3
Kelby	-	31.3	60.2	23.0	17.2
Vida	*	30.6	58.7	25.3	16.7
Jedd	CL2	28.7	58.3	23.7	16.5
Hank	-	22.5	56.0	25.0	17.8
Mean		36.1	58.9	27.3	16.6
LSD (.05)		10.9	1.8	2.3	
C.V. 1 (%) (S/mean)*100		18..2	1.9	5.0	

Cooperator and Location: Inbody Farms, Teton county.

Planted: May 9, 2013 on chem-fallow. Harvested: August 17, 2013.

Fertilizer, actual lbs/a: 11-22.5-0 with seed at planting, 58-0-20 was broadcast while planting. Fertilizer rate was determined through soil test data and a yield goal of 50 bu/a.

Sprayed : None

Precipitation: Not available

** = Solid stem sawfly-resistant (solid stem score of 19 or higher). * = Less preferred by sawfly (behavioral preference) in small plots.

Conducted by MSU Western Triangle Ag. Research Center.

Table 4. Two-year averages, dryland Spring Wheat varieties, Choteau MT. Teton County, 2012-2013.

Variety	2-year average				
	Class	Yield bu/a	Test Weight	Height in.	Protein %
Volt	-	41.0	61.0	27.8	15.4
McNeal	-	40.5	57.1	30.2	16.4
ONeal	*	40.1	57.6	28.3	16.6
WB Gunnison	*	39.8	58.4	26.2	15.7
AP604CL	CL	38.5	59.7	28.7	16.3
Choteau	**	37.3	58.0	26.2	16.1
Duclair	**	36.6	58.3	29.4	16.2
Corbin	*	36.2	59.4	27.0	16.4
Vida	*	36.2	58.0	26.3	15.9
Reeder	-	35.6	59.5	27.2	16.3
Jedd	CL2	35.3	58.2	23.9	16.0
SY Tyra	*	34.7	57.7	24.0	-
Fortuna	**	34.5	60.1	34.2	15.8
Kelby	-	31.9	60.9	24.7	16.5
Hank	-	29.1	56.3	24.9	16.8
Mean		36.5	58.7	27.2	16.1

** = Solid stem sawfly-resistant (solid stem score of 19 or higher). * = Less preferred by sawfly (behavioral preference) in small plots.

CL= Clearfield technology

Cooperator and Location: Inbody Farms, Teton county.

Conducted by MSU Western Triangle Ag. Research Center.

Cooperator and Location: Bradley Farms, northern Glacier County.

Conducted by MSU Western Triangle Ag. Research Center.

Table 5. Off-station spring wheat variety trial located north of Cut Bank, MT.
Glacier county. Western Triangle Ag. Research Center. 2013.

Variety	Class	Yield (bu/a)	Test Wt (lb/bu)	Height (in)	Protein (%)
Volt		76.8	64.4	32.7	12.2
Duclair	**	76.1	60.2	33.0	12.8
MT1142		69.5	62.3	35.3	12.0
WB9879CLP	CL	69.4	59.9	33.3	13.4
Kelby		69.2	61.9	32.0	13.7
Reeder		68.8	62.6	38.0	13.8
WB Gunnison	*	68.3	63.1	35.3	12.5
MT 1172		67.8	61.4	34.0	11.8
McNeal		67.5	61.0	35.7	11.5
Choteau	**	67.3	59.5	32.7	12.6
Corbin	*	67.1	62.9	34.3	11.9
SY Tyra		66.4	60.7	31.7	11.8
Vida	*	64.8	61.9	35.0	12.0
Mott		62.2	60.9	40.7	12.4
Hank		59.3	57.4	32.7	12.1
MT 1053		58.0	58.1	33.3	12.5
Fortuna	**	57.2	62.4	43.3	13.6
ONeal	*	55.3	58.3	34.3	13.1
Jedd	CL	51.3	57.2	29.7	12.1
AP604CL	CL	44.2	60.9	36.0	12.7
mean		64.3	60.9	34.7	12.5
LSD (.05)		7.2	0.89	2.72	
C.V. 1 (%) (S/mean)*100		6.77	0.89	4.75	

Cooperator and Location: Bradley Farms, northern Glacier county.

Planted: May 15, 2013 on chem-fallow. Harvested: September 16, 2013.

Fertilizer, actual lbs/a: 11-22.5-0 with seed at planting, 85-0-20 was broadcast while planting.

Fertilizer rate was determined through soil test data and a yield goal of 50 bu/a.

Sprayed with Huskie at 11 oz/a and Axial XL at 16.4 oz/a on 6/27/2013.

Precipitation from 5/15/2013 until harvest was: 13.0 inches.

** = Solid stem sawfly-resistant (solid stem score of 19 or higher). * = Less preferred by sawfly (behavioral preference) in small plots.

Conducted by MSU Western Triangle Ag. Research Center.

Table 6. Three-year averages, Spring Wheat varieties, Cut Bank area, northern Glacier County, 2008, 2011, and 2013.

Variety	Class	3-Year Average			
		Yield (bu/a)	Test weight	Height (in)	Protein (%)
Volt	-	72.5	63.7	32.2	12.6
Choteau	**	72.3	59.1	31.9	13.4
WB Gunnison	*	71.5	62.8	33.2	12.2
Duclair	**	71.2	57.4	32.7	13.6
Corbin	*	68.4	61.3	33.3	12.6
Kelby	-	66.1	62.1	31.9	14.0
Vida	*	65.8	59.4	33.7	13.2
Reeder	-	64.8	60.6	35.2	13.4
ONeal	*	63.2	56.2	33.7	13.8
SY Tyra	*	62.4	58.0	30.2	12.2
McNeal	-	59.4	58.0	33.4	12.6
Hank	-	58.2	55.7	31.4	13.5
AP604 CL	CL	58.0	61.8	35.0	13.2
Fortuna	**	54.4	62.4	39.8	13.2
Jedd	CL2	52.7	55.7	28.4	13.1
average		64.0	59.6	33.0	13.1

Data for plant height is for two years, 2011 and 2013.

** = Solid stem sawfly-resistant (solid stem score of 19 or higher). * = Less preferred by sawfly (behavioral preference) in small plots.

CL= Clearfield technology

Cooperator and Location: Bradley Farms, northern Glacier county.

Conducted by MSU Western Triangle Ag. Research Center.

Cooperator and Location: Bradley Farms, northern Glacier County.

Conducted by MSU Western Triangle Ag. Research Center.

Table 7. Off-station spring wheat variety trial located near the Knees.
Chouteau county. Western Triangle Ag. Research Center. 2013.

Variety	Class	Yield (bu/a)	Test Wt (lb/bu)	Height (in)	Protein (%)
MT 1053	-	61.0	62.8	26.0	12.2
Duclair	**	59.3	62.1	25.7	13.1
Vida	*	59.2	62.1	25.7	13.2
MT 1172		58.7	62.3	25.3	12.3
Reeder	-	58.1	62.9	26.3	13.2
Corbin	*	57.2	62.9	23.0	13.4
WB9879CL	-	55.5	62.9	24.3	13.3
Choteau	**	55.2	62.9	24.3	13.5
Mott	-	53.7	63.0	28.6	13.5
Volt	-	51.7	63.5	24.7	12.2
SY Tyra	-	50.4	64.6	23.3	12.0
ONeal	*	50.1	61.8	26.6	12.3
MT 1142	-	48.7	62.9	25.7	13.8
WB Gunnison	*	48.6	63.4	26.0	13.8
AP604 CL	CL	46.7	64.4	24.7	13.2
McNeal	-	44.9	61.6	26.0	13.6
Jedd	CL2	42.8	63.1	20.0	12.8
Hank	-	42.8	61.4	22.3	13.4
Fortuna	**	40.9	62.5	29.0	14.9
Kelby	-	36.7	62.8	20.7	15.3
Mean		51.3	62.8	24.8	13.3
LSD (.05)		10.0	1.3	1.6	
C.V. 1 (%) (S/mean)*100		9.6	1.1	3.2	

Cooperator and Location: Aaron Killion, western Chouteau county.

Planted: May 9, 2013 on chem-fallow. Harvested: August 23, 2013.

Fertilizer, actual lbs/a: 11-22.5-0 with seed at planting and 58-0-20 broadcast while planting.

Fertilizer rates are based on soil testing and a yield goal of 50 bu/a.

Preplant sprayed with Roundup Max™ @ 20 oz/a on May 9, 2013. Sprayed with Huskie at 11 oz/a and Axial XL at 16.4 oz/a on 6/17/2013.

Precipitation: Not Available.

** = Solid stem sawfly-resistant (solid stem score of 19 or higher). * = Less preferred by sawfly (behavioral preference) in small plots.

Conducted by MSU Western Triangle Ag. Research Center.

Table 8. Five-year means, Spring Wheat varieties, Knees area, western Chouteau County, 2009-2013.

Variety	Class	5-Year Means			
		Yield bu/a	Test weight	Height in.	Protein %
Duclair	**	53.0	59.7	27.0	13.7
Corbin	*	49.8	60.5	26.6	13.7
Vida	*	49.5	60.4	27.7	13.5
WB Gunnison	*	48.6	61.1	27.2	13.7
Choteau	**	48.2	60.2	25.9	14.1
ONeal	*	47.0	60.7	27.7	13.5
Reeder	-	44.8	60.4	27.3	14.3
Volt	-	44.6	62.0	25.7	13.2
McNeal	-	44.4	59.0	28.6	13.9
Jedd	CL2	41.3	60.1	22.0	13.8
SY Tyra	*	40.7	59.2	23.9	13.3
AP604 CL	CL	39.6	61.0	26.7	13.9
Fortuna	**	38.6	60.8	32.2	14.5
Kelby	-	38.1	61.2	23.3	14.9
Hank	-	36.9	58.5	25.1	14.0
Mean		44.3	60.3	26.5	13.9

** = Solid stem sawfly-resistant (solid stem score of 19 or higher).

* = Less preferred by sawfly (behavioral preference) in small plots.

CL= Clearfield technology

Cooperator and Location: Aaron Killion, western Chouteau county.

Conducted by MSU Western Triangle Ag. Research Center.

Table 9. Soil test values for off station plots, 2013.

Location	N (lbs/a) ¹	Olsen-P (ppm)	K (ppm)	pH	OM (%)	EC (mmhos/cm)
Cut Bank	44.7	14	495	7.4	2.8	0.41
Devon	33	7	170	8.9	0.9	0.86
Knees	59.5	25	414	7.3	2.6	0.57
Choteau	71.5	13	580	8.0	3.0	0.51

¹Nitrogen soil samples were to a depth of four feet in one foot increments. All other soil tests were for zero to six inches in depth.