Title: Off-station winter wheat variety tests.

Year: 1994

Location: Western Triangle Agric. Research Center, Conrad.

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Winter wheat variety trials were grown near Conrad, Chester, Dutton, and the Knees during 1994. The Knees location was not harvested due to stand losses from wind damage, but the plots were evaluated for sawfly damage. Sawfly cutting was moderately severe at Dutton and the Knees except for the two experimental sawfly resistant lines MTS92042 and MTSF2238, which had very little damage. These two lines ranked medium for yield in areas without sawfly damage. At Dutton, however, they ranked high, indicating the yield losses suffered among the susceptible varieties were due to sawfly. Although sawfly cutting was severe at Dutton, harvest was accomplished before the stems lodged. This demonstrated the effect of larval feeding on the disruption of nutrient flow in stem tissue.

Wheat streak was minimal at the three harvested locations, and stored soil moisture was abundant. Summer rainfall was very limited, with the Conrad site receiving the most with 5.23 inches.

Data for the 1994 trials are presented in Tables 2 - 7, and include five-year averages. Varieties not included in the five-year summaries do not have enough test years to be certain of their adaptation to this area, and caution should be used when considering these for production. Detailed descriptions of most of the varieties tested are included in Extension Bulletin 1098 "Performance Summary of Winter Wheat Varieties in Montana", available at County Agent offices. Other observations concerning the varieties are presented in the following pages.

Table 2: Dryland Winter Wheat variety trial grown north of Conrad, 1994. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety		Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	Head date	Spring survival class 1/
QUANTUM 542		70.1	61.6	35	169	3
NORWIN		68.6	61.0	27	172	
MERIDIAN		65.8	57.4	32	172	
JULES		65.4	59.7	33	169	
MANNING		65.2	59.3	31	169	
BLIZZARD		62.0	58.9	37	176	2-3
YUMA		61.6	61.7	30	160	
PROMONTORY		61.2	61.0	31	164	
MT 7811	*	60.7	59.5	33	170	
VISTA		59.4	60.9	29	163	
CENTURK		58.2	61.7	32	161	2
NEELEY		57.8	58.9	35	171	3
TIBER		56.8	60.7	36	171	3
WINRIDGE		56.5	56.9	38	173	2
KESTREL		56.2	57.6	33	172	5
AC READYMADE		55.7	59.0	37	176	3
ARAPAHO		55.4	59.4	34	166	3
LAMAR		53.4	61.9	31	165	
ROCKY		53.1	62.3	32	166	2
REDWIN		52.2	60.3	33	172	3
VONA		52.0	61.7	28	157	
MTS92042	**	51.8	61.1	32	171	
MT 8719		50.9	60.7	32	171	
WINALTA		49.1	61.7	40	171	4
MTSF2238	**	48.2	61.9	34	166	
AGASSIZ		47.5	58.3	39	172	4
KARL 92		47.2	60.7	29	160	
WESTON		43.5	59.6	33	172	
NORSTAR		43.4	59.5	39	176	
JUDITH		43.1	56.7	32	171	3
ROUGHRIDER		41.6	60.3	35	172	

Cooperator: Western Triangle Ag. Research Center.
Location: Ten miles north of Conrad, Pondera County.
Fertilizer: 100# 11-51-0 with the seed, + 35# N broadcast.
Previous crop: Fallow.
Date seeded: Sept. 28, 1993.
Date harvested: Aug. 11, 1994.
Rainfall: From April 1 to harvest was 5.23 inches.
1/ = Spring survival class: 5=best; 1=very low; based several location-years of observation.
Yield experimental mean: 56.17
Error degrees of freedom: 96.00
F test for var. = 4.10, c.v. 2 = 7.60, LSD (0.05) = 11.99
* = Hard white wheat.
** = Sawfly resistant variety.

Table 3. **Five-year summary for Winter Wheat varieties grown near Conrad, MT.** 1988 - 1989 - 1990 - 1993 - 1994. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

Variety	5 - year comparable average				
	Yield bu\ac	Test wt. lbs\bu.	Plant hgt. inches	Head date	% Protein 1/
QUANTUM 542	63.2	62.2	35.6	166	11.6
NEELEY	60.8	61.2	32.4	171	11.7
BLIZZARD	60.2	61.5	34.4	173	12.3
MT 7811	60.0	61.3	32.8	169	12.1
TIBER	58.7	62.5	34.4	169	11.2
ROCKY	58.6	63.4	32.2	166	11.2
WINRIDGE	58.4	60.0	34.8	171	10.2
MT 8713	56.3	62.4	27.4	168	11.9
JUDITH	56.1	60.6	32.4	167	10.5
CENTURK	55.6	62.7	32.8	165	11.7
MT 8719	54.3	62.5	30.0	170	12.6
WESTON	54.1	60.4	34.9	168	11.5
REDWIN	53.3	61.2	33.0	169	12.0
WINALTA	52.1	63.1	36.8	168	12.8
AGASSIZ	51.6	61.7	38.4	170	11.8
NORSTAR	51.5	61.8	40.4	174	11.6
ROUGHRIDER	47.5	62.1	34.8	168	12.6

Cooperator: Conrad Research Center.
Location: Ten miles north of Conrad, MT. (Pondera County)
1/ = Proteins based on four years of data. (1988-89-90-93-94)

Table 4. Dryland Winter Wheat variety trial grown near Chester, 1994. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety		Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	Spring survival class 1/	% protein
ROCKY		49.1	59.3	30	2	13.7
HAWK		48.2	61.7	23	2-3	15-3
ARAPAHOE		46.9	59.7	27	3	14.8
MT 7811	*	46.4	57.2	30		15.1
QUANTUM 542		46.1	58.0	29	3	14.5
CENTURK		46.1	58.1	31	2	14.2
NEELEY		45.9	56.2	27	3	14.6
ARCHER		45.9	57.0	26		14.2
MANNING		45.7	56.9	29	2	14.8
MT 8713		43.1	59.2	25		15.2
MTS92042	**	42.2	58.1	30		15.3
S86-736		41.6	54.7	31		14.3
WINRIDGE		41.4	56.3	29	2	14.4
AC READYMADE		41.4	59.0	31	3	15.9
BIGHORN		41.3	57.6	27	3	14.7
MTSF2238	**	40.9	58.3	27		16.1
TIBER		40.4	58.7	30	3	16.5
MT 8719		39.7	60.1	26		15.8
KESTREL		39.6	55.0	30	5	14.8
REDWIN		39.2	58.6	30	3	16.0
JUDITH		38.3	55.1	27	3	15.0
WESTON		37.4	58.8	31	2	15.3
NORSTAR		36.0	57.8	33	5	15.1
AGASSIZ		35.3	57.8	35	4	15.4

Cooperator: Mike Violet.
Location: Ten miles southwest of Chester, Liberty County.
Fertilizer: 100# 11-51-0 with the seed, + 45 units AA-N.
Previous crop: Fallow.
Date seeded: Sept. 27, 1993.
Date harvested: Aug. 1, 1994.
Rainfall: From May 3 to harvest was 2.9 inches.
1/ = Spring survival class: 5=best; 1=very low; based on several location-years of observation.
Yield experimental mean = 42.42
Error degrees of freedom = 46.00
F test for var. = 3.59.
c.v. 2 = 4.83.
LSD (0.05) = 5.83
* = Hard white wheat.
** = Sawfly resistant variety.

Table 5. **Five-year summary** for **Winter Wheat** varieties grown southwest of **Chester, MT.** 1988 - 1989 - 1990 - 1993 - 1994. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

		5 - year comparable average			
Variety	Years grown	Yield bu\ac	Test wt. lbs\bu.	Plant hgt. inches	% Protein
NEELEY	5	50.4	57.5	28.4	14.0
QUANTUM 542	3	50.0	57.9	30.6	13.3
KESTREL	2	48.9	57.3	29.7	12.5
ROCKY	5	47.3	58.9	29.6	14.0
MT 7811	3	47.1	57.8	29.4	13.3
ARAPAHOE	2	47.0	58.7	27.8	14.7
ARCHER	3	46.9	60.3	27.0	13.6
TIBER	5	46.8	58.6	29.8	14.2
JUDITH	5	46.8	58.4	29.4	14.1
CENTURK	5	46.2	58.1	29.0	13.8
AC READYMADE	2	46.1	59.2	30.1	15.1
WINRIDGE	5	45.7	56.7	29.2	13.3
BIGHORN	2	45.4	58.8	26.8	14.3
REDWIN	5	44.6	59.5	29.0	15.2
MANNING	2	44.2	57.7	27.8	14.1
HAWK	3	43.9	60.0	24.3	14.8
NORSTAR	5	42.8	59.8	33.2	13.7
WESTON	2	42.6	59.7	31.1	15.1
AGASSIZ	3	40.1	58.4	34.0	15.2

Cooperator: Mike Violet.
Location: Ten miles southwest of Chester, MT. (Liberty Co.)

Table 6. Dryland Winter Wheat variety trial grown near Dutton, 1994. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety		Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	Spring survival class 1/	% protein
ARCHER		53.0	56.8	33		12.74
MTSF2238	**	50.5	59.1	33		12.16
MTS92042	**	49.7	59.3	33		12.82
ARAPAHOE		47.6	58.7	33	3	13.69
ROCKY		46.6	59.3	36	2	12.12
AC READYMADE		46.1	59.5	37	3	13.22
HAWK		45.9	61.9	27	2-3	12.57
TIBER		45.5	60.0	36	3	13.89
REDWIN		45.2	59.7	37	3	12.85
CENTURK		44.4	58.8	35	2	12.74
QUANTUM 542		43.4	59.0	34	3	12.00
MANNING		43.2	56.8	34	2	12.54
MT 8719		42.8	58.8	34		13.12
BIGHORN		42.6	58.3	31	3	11.48
S86-736		41.7	56.9	35		11.88
WINRIDGE		40.1	56.8	36	2	12.86
NEELEY		39.7	58.3	36	3	11.58
WESTON		38.5	57.9	36	2	13.75
MT 8713		37.7	59.3	30		11.87
KESTREL		35.9	56.2	37	5	12.04
AGASSIZ		35.7	57.9	40	4	13.64
JUDITH		35.2	55.2	35	3	12.37
MT 7811	*	33.5	56.8	35		13.27
NORSTAR		33.4	59.3	37	5	14.13

Cooperator: Darrell Goodmundson.
Location: Three miles east of Dutton, Teton County.
Fertilizer: 100# 11-51-0 with the seed, + 90# AA-N.
Previous crop: Fallow.
Date seeded: Sept. 27, 1993.
Date harvested: Aug. 1, 1994.
Rainfall: From May 3 to harvest was 2.8 inches.
1/ = Spring survival class: 5=best; 1=very low; based on several location-years of observation.
Yield experimental mean = 42.41
Error degrees of freedom = 46.00
F test for var. = 5.63
c.v. 2 = 5.39
LSD (0.05) = 6.50
* = Hard white wheat.
** = Sawfly resistant variety.

Table 7. **Five-year summary for Winter Wheat varieties grown east of Dutton, MT.** 1988 - 1989 - 1990 - 1993 - 1994. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

Variety	Years grown	5 - year comparable average Yield bu\ac	Test wt. lbs\bu.	Plant hgt. inches	% Protein
ARAPAHOE	2	57.7	59.7	29.5	12.7
NEELEY	5	56.5	60.3	32.8	11.9
ARCHER	3	56.3	59.0	31.9	11.6
REDWIN	5	55.5	60.0	34.4	12.4
BIGHORN	2	55.5	60.2	29.5	11.1
ROCKY	5	54.8	61.0	33.4	11.3
MANNING	2	54.2	58.8	32.4	10.8
TIBER	5	51.6	60.4	34.2	11.8
QUANTUM 542	4	54.1	59.7	33.7	11.2
AC READYMADE	2	53.4	60.6	36.2	12.1
JUDITH	5	52.1	59.0	33.2	12.0
HAWK	2	50.4	61.8	25.2	11.0
CENTURK	5	49.2	60.6	32.0	11.7
NORSTAR	5	48.5	60.8	38.2	12.6
WINRIDGE	5	47.9	59.1	34.6	11.0
KESTREL	2	46.3	59.0	35.2	10.2
AGASSIZ	2	43.8	59.7	38.1	12.7
WESTON	2	44.5	60.2	34.7	12.9
MT 7811	2	43.9	59.5	33.3	11.8

Cooperator: Darrell Goodmundson.
Location: Three miles east of Dutton, MT. (Teton County)