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PROJECT TITLE: Evaluation of winter wheat variety performance in off-station trials at Highwood, Moore, and Winifred.

PROJECT LEADER: David M. Wichman, Agronomist - Moccasin

PROJECT PERSONNEL: P.L. Bruckner, WW Breeder, Bozeman
J. Berg, WW Research Assoc., Bozeman
J. Vavrovsky, Technician, Moccasin
Dave Phillips, Fergus Cty. Extension Agent
Judee Wargo, Chouteau Cty. Extension Agent

OBJECTIVES:

To evaluate the performance of winter wheat varieties in environments and cropping methods different from those at the Central Agricultural Research Center.

RESULTS:

The Denton trial was abandoned due to uneven stand resulting from wind damage.

Highwood: Yields at the Highwood site were below the 6 year average, ranging from 52 to 40 bu/a. Test weights averaged 63.1 lbs/bu, while proteins averaged 8.86 %. Data from the Highwood site is presented in Tables 1 and 2.

Moore: Yields were below the 8 year average at the Moore site, ranging from 42 to 29 bu/a. Some fusarium and wheat streak was present. Test weights were below average (58.8 lbs/bu), while proteins were above average (14.8%). Data from the Moore site is presented in Tables 3 and 4.

Winifred: Yields were above average at the Winifred site as a result of more timely precipitation. They ranged from 63 to 40 bu/a. Test weights were below average (58.4 lbs/bu) while proteins were above average (13.9%). Yield data from Tiber is questionable, as it is unusual to vary that much below Redwin. Data from the Winifred site is presented in Tables 5 and 6.

SUMMARY:

Highwood: Neeley has the high average yield over the 6 years at this location, averaging 59 bu/a. Although (Hybritech) Quantum 542 has been in this trial for only four years, its average yield is equal to Neeley during that time frame.

Moore: Neeley and Winridge have the high average yields over the 8 years at this location, followed closely by Tiber and Judith. Quantum 542 has a 4 bu/a advantage over Neeley in comparable years, while MT 7811, a hard white winter wheat, has a 3 bu/a advantage over Neeley during the 3 years it has been in the trial.

FUTURE PLANS:

Off-station winter wheat variety trials are to be continued at Denton, Highwood, Moore, and Winifred.

Table 1 1994 Highwood Winter Wheat Variety Performance Trial
Exp. 3873 Central Agricultural Research Center, Moccasin, MT

Variety	Grain Yield	Test Weight	Plant Ht.	Protein Content
	bu/a	lbs/bu	"	%
QUANTUM 542	52.1	63.7	36	8.4
NEELEY	50.4	63.9	36	7.9
S86-736	48.7	62.0	38	7.8
TIBER	47.0	62.8	38	8.2
WINRIDGE	46.1	61.8	34	7.9
WESTON	45.4	64.3	38	8.8
ARCHER	45.3	62.4	29	8.3
CENTURK	45.2	63.5	36	8.9
REDWIN	44.9	62.8	36	10.0
MT8713	44.6	64.7	30	9.8
MTS92042	44.6	63.1	35	9.6
MT 8719	44.5	64.3	33	10.6
KESTREL	44.3	61.8	36	7.8
JUDITH	44.0	61.6	36	8.1
ROCKY	43.8	63.6	33	8.1
AC READYMADE	43.1	63.2	37	9.3
MANNING	43.0	63.2	33	8.4
NORSTAR	42.7	63.2	41	8.2
ARAPAHOE	42.7	62.6	32	9.2
BIGHORN	42.7	62.8	31	9.4
HAWK	42.1	65.0	27	9.9
MT 7811	41.5	62.8	34	8.6
MTSF2238	40.1	62.9	34	9.7
AGASSIZ	39.6	63.6	39	9.6
EXPERIMENTAL MEANS	44.52	63.15	1 rep	8.86
F TEST FOR VAR. df=46	4.54	11.09		3.12
C.V. 1: (S/MEAN)*100	5.30	.75		9.15
LSD (0.05)	3.87	.78		1.33

Planted: 10-05-94 No-Till into Barley stubble.
Harvested: 7-27-1994
Growing season precip: April-2.89, May-1.98, June-0.85, July-0.50
Total-6.22 inches.
Fertilizer: 50# 18-46-0 with seed.
Producer: Ron Long, Shonkin.

Table 2 Highwood Off-Station Winter Wheat Multi-Year Summary
Central Agricultural Research Center, Moccasin, MT.

Variety	1988	1989	1990	1991	1993	1994	Avg.	Neeley Same Yrs
	-----bu/ac-----							
CENTURK	20	68	55	66	50	45	51	59
NORSTAR	21	74	53	55	49	43	49	59
REDWIN	20	73	55	58	50	45	50	59
NEELEY	26	83	64	74	58	50	59	--
ROCKY	21	75	56	68	51	44	52	59
WINRIDGE	19	74	59	58	47	46	50	59
TIBER	24	76	59	66	56	47	55	59
JUDITH	24	70	67	63	39	44	51	59
HYBRITECH542		81	70		54	52	64	64
BIGHORN			59	66#	55	43	56	61
HAWK				66	53	42	54	61
BLIZZARD				68	60		64	66
AGASSIZ				57	48	40	48	61
MT 7811			58	63		41	54	63
KESTREL					58	44	51	54
AC READYMADE					51	43	47	54
ARAPAHO					46	43	44	54
Mean	21.3	70.9	58.1	62.1	51.3	44.5		

#Bighorn was planted on one end (not randomized).
1992 Highwood Trial was abandoned due to volunteer barley infestation.
Trials were located on the Ron Long farm, Shonkin, MT.

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Table 3 1994 Moore Winter Wheat Variety Performance Trial
Exp. 3874 Central Agricultural Research Center, Moccasin MT

Variety	Grain Yield	Test Weight	Plant Ht.	Protein Content
	bu/a	lbs/bu	"	%
MT 7811	41.6	59.4	28	14.0
ARAPAHOE	38.6	58.1	28	14.5
ARCHER	38.3	56.4	27	14.3
NORSTAR	37.5	59.4	34	14.4
MT 8719	37.4	60.4	28	14.9
NEELEY	37.3	59.3	31	14.2
ROCKY	36.2	59.2	31	13.8
WINRIDGE	36.0	58.9	30	14.3
CENTURK	36.0	58.8	30	13.7
MT8713	35.4	59.7	25	15.1
BIGHORN	35.3	59.3	26	15.2
AC READYMADE	35.3	59.3	32	16.0
HAWK	35.3	61.2	24	15.2
QUANTUM 542	35.2	58.0	33	14.5
TIBER	35.0	60.1	33	15.6
REDWIN	34.9	59.7	32	16.0
JUDITH	34.1	57.0	30	14.2
KESTREL	33.8	56.7	30	14.0
MANNING	33.8	57.1	30	15.3
MTS92042	33.6	58.6	28	16.0
AGASSIZ	33.5	59.3	34	15.0
S86-736	32.9	57.0	31	14.8
WESTON	32.7	58.8	33	15.5
MTSF2238	29.2	58.6	28	15.9
EXPERIMENTAL MEANS	35.37	58.76		14.85
F TEST FOR VAR. df=46	2.84	3.58		4.06
C.V. 1: (S/MEAN)*100	7.08	1.90		4.24
LSD (0.05)	4.12	1.83		1.04

Planted: 10-1-93

Harvested: 8-1-94 Fertilizer: 50# 18-46-0 w/seed, 125# 46-0-0.

Growing season precipitation (April-August): 7.25 inches

Herbicide: 1/10 Ally+2,4-D

Producer: Gary Heilig, Moore.

Some fusarium and wheat streak present. The stand in the third rep was quite variable. It was attributed to soil movement rather than variety. Yields were calculated accordingly.

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Table 4 Moore Off-Station Winter Wheat Multi-Year Summary
 Central Agricultural Research Center, Moccasin, MT.

Variety	1986	1987	1988	1989	1990 *	1991	1992	1994	Avg.	Neeley Same Yrs
	-----bu/ac-----									
CENTURK	39	69	26	45	35	58	30	36	42	46
NORSTAR	32	71	9	47	35	49	28	37	38	46
REDWIN	31	75	19	43	37	50	41	35	41	46
NEELEY	39	92	17	46	34	64	42	37	46	--
ROCKY	35	69	24	49	29	57	33	36	41	46
WINRIDGE	46	86	14	54	41	57	38	36	46	46
TIBER	39	86	20	50	33	56	41	35	45	46
JUDITH	39	78	28	49	36	56	32	34	44	46
HYBRITECH542				52	41		48	35	44	40
BIGHORN					42	58#	34	35	42	44
HAWK						62	31	35	43	48
BLIZZARD						51	44		47	53
AGASSIZ						49	35	33	39	48
MT 7811					47	55		42	48	45
KESTREL								34		37
AC READYMADE								35		37
ARAPAHO							21	39	30	39
Mean	36.0	70.7	20.1	46.3	36.4	54.3	35.4	35.4		

Bighorn was planted on one end (not randomized).

* 1990 Nursery suffered aphid damage.

1993 Nursery suffered hail damage

Table 5 1994 Winifred Winter Wheat Variety Performance Trial
Exp. 3875 Central Agricultural Research Center, Moccasin, MT

Variety	Grain Yield	Test Weight	Plant Ht.	Protein Content
	bu/a	lbs/bu	"	%
ARAPAHOE	63.5	60.2	38	13.2
QUANTUM 542	59.1	58.9	39	12.4
S86-736	57.1	57.2	39	12.7
REDWIN	55.6	61.0	39	14.1
HAWK	54.8	61.2	31	13.1
KESTREL	53.6	57.0	38	13.1
CENTURK	53.3	58.9	39	13.2
AC READYMADE	53.2	60.8	40	14.6
BIGHORN	52.7	58.3	32	14.3
MT 8719	52.4	60.2	37	13.9
NEELEY	51.7	57.4	38	14.4
JUDITH	51.5	56.5	36	13.1
NORSTAR	50.1	60.1	42	13.5
ROCKY	49.9	59.2	39	12.9
MTS92042	49.3	58.8	37	14.4
MT 7811	49.0	57.4	39	14.2
MT8713	47.5	58.4	32	14.3
TIBER	47.3	58.5	41	15.5
WESTON	46.0	58.7	42	15.3
ARCHER	44.4	55.6	33	13.7
MTSF2238	44.1	58.9	38	14.6
MANNING	44.1	54.9	35	14.1
AGASSIZ	42.4	59.0	45	13.8
WINRIDGE	40.4	55.2	39	15.0
EXPERIMENTAL MEANS	50.54	58.42		13.89
F TEST FOR VAR. df=46	9.82	14.84		2.81
C.V. 1: (S/MEAN)*100	6.03	1.35		6.12
LSD (0.05)	5.00	1.29		3.54

Planted: 10-04-1993

Harvested: 8-2-1994

Fertilizer: 60# N-anhydrous, 50# 18-46-0 with seed.

Producer: Bruce Udelhoven, Winifred.

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Table 6 Winifred Off-Station Winter Wheat Multi-Year Summary
Central Agricultural Research Center, Moccasin, MT.

Variety	1992	1994	Ave.
	-----bu/ac-----		
CENTURK	31	53	42
NORSTAR	30	50	40
REDWIN	38	56	47
NEELEY	40	52	46
ROCKY	32	50	41
WINRIDGE	29	40	34
TIBER	36	47	41
JUDITH	30	51	40
HYBRITECH 542	47	59	53
BIGHORN	31	53	42
HAWK	25	55	40
BLIZZARD	31		
AGASSIZ	30	42	36
MT 7811		49	
KESTREL		54	
AC READYMADE		53	
ARAPAHO	31	63	47
Mean	31.6	50.5	

1993 trial was not harvested due to hail damage.
 # Bighorn was planted on one end (not randomized).
 * 1990 Nursery suffered aphid damage.
 1993 Nursery suffered hail damage