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

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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 1995 Winifred trial was hailed out. The Denton and Moore trials were on fallow and Highwood was recropped no-till following spring wheat.

Denton: Yields were above the 7 year average, ranging from 88 to 51 bu/a, with Arapahoe producing the highest yield. Test weights averaged 61.5 lbs/bu, while proteins averaged 12.8%. Data for the Denton site are presented in Tables 1 & 2.

Highwood: Yields were above the 7 year average, ranging from 78 to 56 bu/a. Manning and Hybritech 542 were the high yielders. Test weights averaged 61.1 lbs/bu, while proteins averaged 12%. Data for the Highwood site are presented in Tables 3 and 4.

Moore: Yields were near the 9 year average, ranging from 52 to 29 bu/a. Winridge was the high yielder. Test weights averaged 60.4 lbs/bu, while proteins averaged 12.1%. Data are presented in Tables 5 and 6.

SUMMARY:
Denton: Judith has the high average yield (54 bu/a) over 7 yr, followed by Neeley (52 bu/a). Over 5 seasons, Hybritech 542 has averaged 5 bu/a more than Neeley, and 3 bu/a more than Judith.

Highwood: Neeley has the high average yield over 7 yr, averaging 61 bu/a. Over 5 comparable yr, Hybritech 542 has an ave yield of 67 bu/a and Neeley has a 65 bu/a ave.

Moore: Neeley has the high 9 yr average yield, followed closely by Tiber and Judith. Hybritech 542 and MT 7811 (NuWest) have a 3 and 2 bu/a , respectively, advantage over Neeley in comparable years.

FUTURE PLANS:
Winter wheat variety evaluations will continue at Denton, Highwood, Moore, and Winifred.

Table 1 1995 Denton Winter Wheat Variety Performance Trial
Exp. 3871 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Plant Ht.	-Lodging- Index		Grain Yield	Test Wt.	Shatter Index	Protein Content
		"	degree	%	bu/a	lbs/bu	degree	%
PI518591	ARAPAHOE	37	1	4	87.8	60.8	0	12.8
MT 8039	JUDITH	39	1	4	87.2	60.2	0	11.9
CI 17846	MANNING	37	4	5	86.0	60.4	1	12.1
CI 17940	ARCHER	31	0	0	85.7	60.5	2	12.2
CI 17860	NEELEY	39	1	4	81.9	62.3	0	12.0
S86-15	KESTREL	38	1	4	80.3	60.4	1	11.6
PI512302	BLIZZARD	42	3	4	79.2	61.7	1	12.7
QT 542	HYBRITECH 542	40	1	3	78.2	61.4	1	12.8
CI 17727	WESTON	41	2	4	77.8	62.5	2	12.9
CI 17952	HAWK	29	0	0	77.1	62.7	3	13.0
MTS92042	LEW/TBR//RDW	38	0	0	75.9	61.2	1	13.6
CI 15075	CENTURK	40	2	4	74.0	62.5	2	12.2
PI517194	TIBER	44	0	0	73.4	61.5	0	12.6
CI 17879	ROCKY	41	1	4	73.2	62.2	1	12.3
RH78W296	BIGHORN	29	0	0	73.0	61.8	1	12.1
PI564761	MT 8719	39	0	0	70.9	62.3	1	13.3
MT 88046	MT 88046	39	0	0	70.8	61.9	0	14.5
CI 17902	WINRIDGE	42	0	0	68.6	60.5	3	12.2
MT 7811	MT 7811	37	0	0	66.6	61.2	1	12.5
PI478771	AGASSIZ	48	3	4	60.9	61.9	2	13.5
RDW(SEL)	AC READYMADE	41	0	0	60.1	61.8	1	13.5
CI 17844	REDWIN	43	0	0	58.7	61.9	0	13.7
MTSF2238	VANGUARD	38	0	0	56.1	60.3	2	13.7
CI 17735	NORSTAR	48	1	4	51.3	61.6	0	13.0
EXPERIMENTAL MEANS					73.11	61.48		12.79
F TEST FOR VAR.					5.14	10.10		6.89
C.V. 1: (S/MEAN)*100					10.55	.70		3.70
LSD (0.05)					12.68	.71		.78

Lodging Index-degree (0-5) 0=none, 5=flat on ground.
Shatter Index-degree (0-5) 0=none

Planted: 9-23-1994 on fallow. Harvested: 8-22-1995.
Fertilizer: 50 units N preplant and 50# 28-28-0 w/seed.
Growing Season Precipitation (April-July): 13.39 inches
Producer: Richard Barber, Denton.

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

Variety	1988	1989	1990	1991	1992	1993	1995	Ave.	Neeley Same Yrs
	bu/a								
CENTURK	24	53	48	59	25	55	74	48	52
NORSTAR	11	59	44	39	24	55	51*	40	52
REDWIN	21	62	50	50	23	63	59	47	52
NEELEY	20	52	55	64	24	66	82	52	--
ROCKY	26	67	50	60	22	57	73	51	52
TIBER	20	59	52	55	28	65	73	50	52
JUDITH	27	64	59	61	26	55	87	54	52
HYBRITECH 542		71	57		40	59	78	61	56
BIGHORN			48	60#	23	56	73	52	58
HAWK				62	17	50	77	51	59
AGASSIZ				46	15	51	61	43	59
MT7811			50	54			67	57	67
KESTREL						60	80	70	74
AC READYMADE						53	60	56	74
ARAPAHO					13	48	88	50	57
Mean	20.5	55.3	49.0	53.2	22.2	56.0	73.1		

#Bighorn was planted on one end (not randomized).
1994 trial was abandoned due to variable stands resulting from wind damage.
*Suspected low germination resulted in low yields.
Trials were located on Richard Barber farm, Denton, MT.

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Table 3 1995 Highwood Winter Wheat Variety Performance Trial
Exp. 3872 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety		Plant Ht.	Lodge Index	Grain Yield	Grain Test Wt	Grain Protein
			"	0-5	bu/a	lbs/bu	%
CI 17846	MANNING		36	1	78.3	61.8	10.9
QT 542	HYBRITECH 542		39	1	78.1	63.0	11.9
MTS92042	LEW/TBR//RDW		37	0	76.9	62.9	12.4
RDW(SEL)	AC READYMADE	g	38	1	74.5	59.2	12.5
PI512302	BLIZZARD	g	39	2	74.2	60.4	11.5
CI 17902	WINRIDGE	g	41	0	73.8	56.8	11.3
PI517194	TIBER	g	43	0	73.7	60.3	11.9
C1 17727	WESTON	g	41	3	72.7	62.5	12.4
PI564761	MT 8719		33	2	71.9	63.1	12.3
CI 17940	ARCHER		30	0	70.6	63.0	11.5
MT 8039	JUDITH		34	0	70.2	61.5	11.4
S86-15	KESTREL		42	3	70.2	60.3	10.9
RH78W296	BIGHORN		32	0	69.7	61.6	11.0
CI 17860	NEELEY		37	0	68.9	60.2	11.2
MTSF2238	VANGUARD		40	1	67.8	61.5	11.7
CI 15075	CENTURK		35	1	66.5	61.4	11.8
MT 7811	MT 7811		36	3	65.9	60.3	11.7
CI 17844	REDWIN	g	42	0	63.4	59.6	13.0
CI 17879	ROCKY		36	2	63.0	60.5	12.1
PI478771	AGASSIZ		45	4	61.8	60.4	12.9
PI518591	ARAPAHOE		33	0	61.3	62.3	13.0
CI 17952	HAWK		27	0	59.4	63.7	13.3
MT 88046	PMN5MMT77003//HP344		34	2	59.3	62.5	13.3
CI 17735	NORSTAR	g	45	2	56.2	57.2	11.4
EXPERIMENTAL MEANS					68.68	61.09	11.98
F TEST FOR VAR.					4.86	6.77	4.64
C.V. 1: (S/MEAN)*100					7.17	1.93	5.00
LSD (0.05)					8.09	1.94	.99

Lodging: 0 - upright 5 - near flat. Some of the lodging was a combination of weak stem and root rot, examp. NuWest (MT7811).
g - varieties which were green at harvest and required drying.

Planted: 10-24-1994 no-till into spring wheat stubble. There was a high degree of volunteer spring wheat. 1 pt. of Roundup was applied post plant.
Moisture Probe depth: 12" Soil Temp: 45 degrees F.
Harvested: 8-7-1995.
Fertilizer: 50# 28-28-0 w/seed, 60 units N broadcast.
Growing Season Precipitation (April-July): 12.32 inches
Producer: Ron Long, Shonkin.
File: AR387295

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

Variety	1988	1989	1990	1991	1993	1994	1995	Avg.	Neeley Same Yrs
	bu/a								
CENTURK	20	68	55	66	50	45	66	53	61
NORSTAR	21	74	53	55	49	43	56*	50	61
REDWIN	20	73	55	58	50	45	63	52	61
NEELEY	26	83	64	74	58	50	69	61	--
ROCKY	21	75	56	68	51	44	63	54	61
TIBER	24	76	59	66	56	47	74	57	61
JUDITH	24	70	67	63	39	44	70	54	61
HYBRITECH542		81	70		54	52	78	67	65
BIGHORN			59	66#	55	43	70	59	63
HAWK				66	53	42	59	55	63
AGASSIZ				57	48	40	62	52	63
MT 7811			58	63		41	66	57	64
KESTREL					58	44	70	57	59
AC READYMADE					51	43	74	56	59
ARAPAHO					46	43	61	50	59
MT 8719						44	72	58	59
VANGUARD						40	68*	54	59
MTS92042						45	77	61	59
Mean	21.3	70.9	58.1	62.1	51.3	44.5	68.7		

#Bighorn was planted on one end (not randomized).
1992 Highwood Trial was abandoned due to volunteer barley infestation.
*Suspected low germination resulted in low yields.
1995 trial had a high incidence of volunteer spring wheat.
Trials were located on the Ron Long farm, Shonkin, MT.

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Table 5 1995 Moore Winter Wheat Variety Perfomance Trial
Exp. 3873 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Plant Ht.	Grain Yield	Test Wt.	Protein Content
		"	bu/a	lbs/bu	%
CI 17902	WINRIDGE	37	52.2	61.3	9.6
C1 17727	WESTON	35	49.9	64.1	12.9
MT 8039	JUDITH	31	47.5	59.5	11.5
MT 7811	MT 7811	34	45.9	61.2	10.9
CI 17860	NEELEY	31	45.4	61.4	10.4
MTS92042	LEW/TBR//RDW	33	44.0	60.3	12.9
QT 542	HYBRITECH 542	33	42.8	60.2	12.4
PI517194	TIBER	34	42.8	60.9	12.6
PI478771	AGASSIZ	38	42.4	61.5	12.4
CI 17940	ARCHER	25	42.0	59.7	12.1
PI564761	MT 8719	33	41.6	61.2	13.4
S86-15	KESTREL	31	41.1	59.2	10.5
RH78W296	BIGHORN	26	41.0	59.6	11.0
MT 88046	PMN5MMT77003//HP344	29	40.7	59.8	13.5
CI 17879	ROCKY	32	39.8	59.8	11.7
CI 17846	MANNING	28	39.8	60.2	11.7
CI 17844	REDWIN	34	39.8	61.7	13.0
PI518591	ARAPAHOE	32	38.1	58.5	12.4
RDW(SEL)	AC READYMADE	34	37.7	60.3	12.9
PI512302	BLIZZARD	33	34.2	59.0	12.4
CI 17952	HAWK	23	32.3	60.8	12.6
CI 15075	CENTURK	29	31.0	58.8	12.4
CI 17735	NORSTAR	37	30.8	60.5	11.5
MTSF2238	VANGUARD	37	29.3	59.8	12.7
EXPERIMENTAL MEANS			40.53	60.41	12.09
F TEST FOR VAR. df=23			2.75	3.10	7.75
C.V. 1: (S/MEAN)*100			12.32	1.57	4.21
LSD (0.05)			10.33	1.97	1.05

Planted: 9-23-1994 on fallow ground.
Previous crop: barley
Moisture Probe Depth: 18"
Harvested: 8-22-1995.
Fertilizer: 50# 28-28-0 w/seed, 56 units N as Urea broadcast.
Growing Season Precipitation (May-July): 14.60 inches.
Producer: Gary Heilig, Moore.

File: AR387395

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

Variety	1986	1987	1988	1989	1990 @	1991	1992	1994	1995	Avg.	Neeley Same Yrs
	bu/a										
CENTURK	39	69	26	45	35	58	30	36	31	41	46
NORSTAR	32	71	9	47	35	49	28	37	31*	38	46
REDWIN	31	75	19	43	37	50	41	35	40	41	46
NEELEY	39	92	17	46	34	64	42	37	45	46	--
ROCKY	35	69	24	49	29	57	33	36	40	41	46
TIBER	39	86	20	50	33	56	41	35	43	45	46
JUDITH	39	78	28	49	36	56	32	34	47	44	46
HYBRITECH542				52	41		48	35	43	44	41
BIGHORN					42	58#	34	35	41	42	44
HAWK						62	31	35	32	40	47
AGASSIZ						49	35	33	42	40	47
MT 7811					47	55		42	46	47	45
KESTREL								34	41	37	41
AC READYMADE								35	38	36	41
ARAPAHO							21	39	38	33	41
MT 8719								37	42	39	41
VANGUARD								29	29*	29	41
MTS92042								34	44	39	41
Mean	36.0	70.7	20.1	46.3	36.4	54.3	35.4	35.4	40.5		

Bighorn was planted on one end (not randomized).
@ 1990 Nursery suffered aphid damage.
1993 Nursery suffered hail damage
*Suspected low germination resulted in low yields.

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