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

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

RESULTS:
The Denton trial was on fallow, while Highwood was planted recrop on tilled wheat ground.

Denton: Spring wheat yields at Denton were exceptional, ranging from 105 to 62 bu/a. Test weights averaged 60.75 lbs/bu, while proteins averaged 13.81 %. Penawawa and Owens, two soft white wheats, were the top yielders, followed by MT 8849. Data from the Denton site is presented in Tables 1 & 2.

Highwood: Spring wheat yields were average, ranging from 51 to 33 bu/a. Test weights averaged 60.29 lbs/bu, while proteins averaged 13.18 %. The top three yielders at Highwood were Penawawa, MT 8849, and Owens. Data from the Highwood site is presented in Tables 3 & 4.

SUMMARY:
Varieties with high yield performance over 7 years at Denton are the soft white wheats, Penawawa and Owens, Amidon, Grandin, Westbred 926, Newana, and Hi-Line. Penawawa has a 4 year average yield of 37 bu/a at Highwood, while many other varieties average 29 to 32 bu/a. MT 8849, which has been in these trials for only two years, has performed very well.

FUTURE PLANS:
Off-station spring wheat variety trials are to be continued at Denton and Highwood.

Table 1 1993 Denton Spring Wheat Variety Performance Trial
Exp.9906 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Plant Height	Grain Yield	Test Weight	Grain Protein
		"	bu/a	lbs/bu	%
WA 6920	PENAWAWA	34.5	104.6	59.7	10.0
CI 17904	OWENS	30.0	96.6	60.6	9.2
MT 8849	RS6880/MT7819	34.5	91.7	61.4	13.1
ND 606	AMIDON	39.0	82.9	61.6	14.7
ND 626	GRANDIN	37.0	81.4	61.5	14.3
CI 17430	NEWANA	35.0	81.4	60.3	12.2
ND 582	STOA	40.0	80.0	60.8	14.8
CI 17828	PONDERA	35.0	78.8	62.1	14.6
WPB 926	WESTBRED 926	32.5	77.6	59.0	14.5
MT 8402	HI-LINE	34.0	75.7	61.5	13.3
PI483235	GLENMAN	35.0	74.4	60.1	13.4
C982-324	RAMBO	35.0	74.0	61.5	13.3
ND 618	GUS	38.0	72.6	60.7	15.9
CI 17790	LEN	34.5	72.3	59.8	15.1
PI486139	KLASIC	25.0	70.7	58.0	13.4
CI 15930	OLAF	35.5	70.7	59.4	14.9
CI 13596	FORTUNA	36.5	65.8	60.9	14.6
NDCUT	CUTLESS	35.5	65.5	61.1	14.9
CI 17429	LEW	38.0	65.2	63.0	14.6
CANLANC	LANCER	39.5	62.0	61.8	15.7
EXPERIMENTAL MEANS		35.20	77.20	60.75	13.81
F TEST FOR VAR. df=38		3.81	18.11	61.00	42.22
C.V. 1: (S/MEAN)*100		6.97	5.68	.43	3.31
LSD (0.05)		5.14	7.25	.43	.75

Proteins run on hard red curve. Protein of soft whites , Penawawa & Owens may not be accurate.
Lodging notes were taken on Reps I & II. Fortuna and Lancer had some lodging.

Planted: 4-26-93 on fallow ground.
Moisture Probe Depth: 30" Soil Temp.(2" depth): 53 degrees F
Harvested: 9-27-93
Fertility: Preplant anhydrous 46 units N. 50 lbs/ac of 18-46-0 with seed.
Cooperator: D. Wichman, J. Vavrovsky, L. Talbert, S. Lanning
Producer: Richard Barber, Denton

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

VARIETY	1987	1988	1989	1990	1991	1992 *	1993	AVG.	NEWANA SAME YRS
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OLAF		22	43	27	50	20	71	39	43
AMIDON			48	26	60	23	83	48	47
PENAWAWA			44	26	63	34	105	54	47
LEN	37	25	40	26	52	21	72	39	44
OWENS	49	26	46	26	62	29	97	48	44
STOA	39	23	40	25	57	25	80	41	44
GLENMAN		24	38	24	51	27	74	40	43
WESTBRED 926R				24	61	19	78	45	48
GRANDIN				23	60	25	81	47	48
LANCER	33	23	36	23	·	23	62	33	40
FORTUNA	37	17	38	23	62	17	66	37	44
RAMBO	44	24	42	22	49	25	74	40	44
LEW	34	22	40	22	50	27	65	37	44
PONDERA	40	23	40	22	58	25	79	41	44
GUS				21	54	19	73	42	48
NEWANA	45	26	43	21	65	25	81	44	--
CUTLESS	30	20	36	20	47	18	65	34	44
HI-LINE			41	17	59	26	76	44	47
MT 8849						27	92	59	53
Mean	39.1	23.5	41.1	23.6	56.6	23.8	77.2		

*Planted recrop on field pea ground. All other years on fallow.
Variety trials were located on Richard Barber farm.
The 1988 trial suffered some sawfly damage.

Table 3 1993 Highwood Spring Wheat Variety Performance Trial
Exp.9908 Central Agricultural Research Center, Moccasin, MT.

ID#	Variety	Plant Height	Grain Yield	Test Weight	Grain Protein
		"	bu/a	lbs/bu	%
WA 6920	PENAWAWA	25	50.6	60.2	9.3
MT 8849	RS6880/MT7819	29	47.0	60.4	12.5
CI 17904	OWENS	25	44.9	59.8	8.6
MT 8402	HI-LINE	26	44.4	60.8	12.8
ND 626	GRANDIN	31	43.4	62.0	13.4
C982-324	RAMBO	30	42.7	60.9	12.3
ND 618	GUS	29	42.2	60.8	14.7
CI 17430	NEWANA	28	41.8	61.2	11.5
CI 17429	LEW	32	41.2	62.0	14.1
ND 582	STOA	33	41.1	60.7	14.2
WPB 926	WESTBRED 926	26	40.9	59.8	14.2
CI 17790	LEN	30	40.5	60.3	15.1
ND 606	AMIDON	31	39.6	60.1	13.1
CI 17828	PONDERA	28	38.8	61.2	14.3
PI483235	GLENMAN	29	38.0	58.3	12.7
CANLANC	LANCER	32	37.8	61.0	14.6
CI 15930	OLAF	30	36.7	60.7	13.9
CI 13596	FORTUNA	31	36.5	59.4	13.6
PI486139	KLASIC	18	34.0	57.2	13.1
NDCUT	CUTLESS	25	32.9	59.0	15.0
EXPERIMENTAL MEANS			40.80	60.29	13.18
F TEST FOR VAR. df=38			6.18	9.81	23.68
C.V. 1: (S/MEAN)*100			7.26	1.07	4.64
LSD (0.05)			4.90	1.07	1.01

Proteins run on hard red curve. Protein of soft whites Penawawa & Owens may not be accurate.

Planted: 4-28-93 recrop on tilled wheat ground.
Moisture Probe Depth: 22" Soil Temp.(2" depth): 53 degrees F.
Harvested: 8-25-93
Fertility: 50 lbs 18-46-0 with seed, 60 lbs N as Urea broadcast preplant.
Cooperator: D. Wichman, J. Vavrovsky, L. Talbert, S. Lanning
Producer: Ron Long, Shonkin.

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

VARIETY	1990	1991	1992	1993	AVG.	NEWANA SAME YRS.
	----------bu/a----------					
OLAF	38	30	11	37	29	30
AMIDON	45	25	15	40	31	30
PENAWAWA	48	27	21	51	37	30
LEN	37	25	12	40	28	30
OWENS	38	27	13	45	31	30
STOA	38	34	12	41	31	30
GLENMAN	39	30	19	38	31	30
WESTBRED 926R	44	31	11	41	32	30
GRANDIN	41	29	10	43	31	30
LANCER	36		17	38	30	30
FORTUNA	36	33	12	36	29	30
RAMBO	35	27	15	43	30	30
LEW	40	24	23	41	32	30
PONDERA	41	22	14	39	29	30
GUS	37	33	12	42	31	30
NEWANA	35*	29	14	42	30	--
CUTLESS	35	31	14	33	28	30
HI-LINE	40	22	12	44	29	30
MT 8849			18	47	32	28
Mean	38.9	28.2	14.2	40.8		

*Probable mixup of seed sources, interpret Newana rank with caution.
Variety trials were located at Ron Long farm .
The 1989 trial experienced severe hail damage.
All trials were planted on recrop ground.