

TITLE: Off-Station Spring Wheat Variety Investigations.

YEAR: 1991

LOCATION: Central Agricultural Research Center, Moccasin

PERSONNEL:

Project Leader: David M. Wichman

Cooperators: Luther Talbert, MSU. and Landowners

Off-station spring wheat trials were grown at Highwood, Denton, Geraldine, and Moccasin. The Moccasin location was hailed 7-14-1991. The Highwood Geraldine locations were planted on tilled 1990 barley stubble. Denton was planted on fallow.

Spring wheat yields were near average at the Highwood location, higher than average at Denton, and below average at Geraldine. Fortuna was the only variety to place in the top four at all three locations. The new Montana release "Hi-Line" performed poorly at Highwood and slightly above nursery average at Denton and Geraldine. Test weights were low at all locations as a result of late season stress.

Wheat streak mosaic virus symptoms were observed in the nurseries at Denton and Moccasin. Olaf, Stoa, Rambo, and Lew exhibited the most streaking.

Several triticale varieties continue to perform well relative to Newana spring wheat. At the Denton location, five triticale varieties produced yields higher than Newana. Six of nine triticale varieties tested have three year average yields greater than Newana spring wheat.

Table . 1991 Spring Wheat Off-Station Recrop at CARC
Exp.#9919 Central Agricultural Research Center, Moccasin, Mt.

ID#	Variety	Heading Date day of year	Plant to head days	Disease Rating *
				10=100%
C982-324	RAMBO	187.33	75	4
CI 17429	LEW	187.33	75	3
CI 17430	NEWANA	187.00	75	1
WA 6920	PENAWAWA	186.67	75	1
PI483235	GLENMAN	186.00	74	1
NDCUT	CUTLESS	185.33	73	2
CI 15930	OLAF	185.33	73	5
ND 618	GUS	185.00	73	2
CI 13596	FORTUNA	185.00	73	2
CI 17904	OWENS	185.00	73	2
ND 626	GRANDIN	184.67	73	1
ND 606	AMIDON	184.67	73	0
MT 8402	HI-LINE	184.00	72	1
CI 17828	PONDERA	184.00	72	1
ND 582	STOA	183.67	72	4
CI 17790	LEN	183.33	71	3
WPB 926	WESTBRED 926	183.00	71	2
EXPERIMENTAL MEANS		185.14		
F TEST FOR VAR. df=32		4.45		
C.V. 1: (S/MEAN)*100		.60		
C.V. 2: (S OF MEAN/MEAN)*100		.35		
LSD (0.05)		1.85		

*Wheat Streak Mosaic Virus symptoms.

Planted: 4-22-1991 (day 112) no-till on barley stubble.
Growing season precipitation (April-July): 11.59 inches
Fertility: 50 lbs/ac 18-46-0 applied with seed, broadcast 60
units of N. as Urea.

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TABLE . 1991 SPRING WHEAT TRIAL OFF-STATION AT HIGHWOOD.
Exp.#9918 Central Agricultural Research Center - Moccasin, MT.

VARIETY	GRAIN YIELD	TEST WEIGHT	PLANT HEIGHT	PROTEIN %
	Bu/A.	Lb/Bu.	Inches	
ND 582 STOA	34.2	56.8	37	
ND 618 GUS	33.1	56.3	31	
CI 13596 FORTUNA	33.1	58.2	37	
NDCUT CUTLESS	31.4	58.3	35	
WPB 926 WESTBRED 926	30.8	53.8	29	
CI 15930 OLAF	29.9	55.1	31	
PI483235 GLENMAN	29.7	54.9	31	
CI 17430 NEWANA	29.0	55.7	29	
ND 626 GRANDIN	28.9	53.3	31	
CI 17904 OWENS	27.3	52.9	30	
C982-324 RAMBO	26.8	56.7	30	
WA 6920 PENAWAWA	26.8	52.4	27	
CI 17790 LEN	25.5	55.4	30	
ND 606 AMIDON	25.3	57.3	36	
CI 17429 LEW	24.2	56.6	37	
CI 17828 PONDERA	22.1	55.1	31	
MT 8402 HI-LINE	21.9	52.9	28	
EXPERIMENTAL MEANS	28.22	55.39		
F TEST FOR VAR.	3.72	8.45		
C.V. 1: (S/MEAN)*100	11.83	2.00		
C.V. 2: (S OF MEAN/MEAN)*100	6.83	1.15		
LSD (0.05)	5.55	1.84		

Planted: 5-17-1991 on tilled barley stubble, moist surface soil.
Soil probe depth 20", 2" soil temp. 57 degrees F.

Harvested: 8-20-1991

Fertility: Broadcast 100 units of N. as Ammonium Nitrate,
50 lbs/ac of 18-46-0 applied with seed.

Soil Test: NO3-N=17.4 mg/kg Olsen P = 55.3 mg/kg

Growing Season Precip.: 10.6 inches

Cooperator: D. Wichman, J. Vavrovsky, L. Talbert, S. Lanning

Producer: Ron Long, Shonkin

Comments: High temperatures in late July and early August
contributed to low test weight. 3/8 pt. L.V.E. 2,4-D
+ 1/20 oz. Glean/ac applied for weed control.

Table . 1991 OFF-STATION SPRING WHEAT TRIAL AT DENTON.
Exp.#9916 Central Agricultural Research Center - Moccasin, MT.

VARIETY	GRAIN YIELD	TEST WEIGHT	PLANT HEIGHT	PROTEIN
	Bu/A.	Lb/Bu.	Inches	
CI 17430 NEWANA	65.3	57.4	29	
WA 6920 PENAWAWA	63.3	55.5	27	
CI 17904 OWENS	61.9	55.2	29	
CI 13596 FORTUNA	61.6	59.4	35	
WPB 926 WESTBRED 926	61.2	55.5	27	
ND 626 GRANDIN	60.0	55.1	30	
ND 606 AMIDON	60.0	57.5	32	
MT 8402 HI-LINE	59.0	54.8	27	
CI 17828 PONDERA	58.1	57.9	29	
ND 582 STOA	56.9	57.1	34	
ND 618 GUS	53.9	55.9	30	
CI 17790 LEN	52.5	55.5	28	
PI483235 GLENMAN	51.3	55.2	31	
CI 17429 LEW	50.5	58.5	35	
CI 15930 OLAF	50.2	54.6	29	
C982-324 RAMBO	49.5	55.9	27	
NDCUT CUTLESS	46.8	55.7	30	
EXPERIMENTAL MEANS	56.60	56.28		
F TEST FOR VAR. (df 32.)	4.81	13.57		
C.V. 1: (S/MEAN)*100	7.82	1.19		
C.V. 2: (S OF MEAN/MEAN)*100	4.51	.68		
LSD (0.05)	7.36	1.11		

Planted: 5-9-1991 on fallow, pre-plant Fargo, very moist. Seed depth 1/2 inch.

Harvested: 8-19-1991

Fertility: Preplant anhydrous 50 units N. 50 lbs/ac. 18-46-0.

Soil Test: NO₃-N=15.9 mg/kg Olsen P = 29.4 mg/kg

Growing Season Precip.: 8.5"

Cooperator: D. Wichman, J. Vavrovsky, L. Talbert, S. Lanning

Producer: Richard Barber

Comments: High temperatures in late July appears to have reduced test weights.

TABLE . 1991 OFF-STATION SPRING WHEAT VARIETY TRIAL AT GERALDINE.
Exp.#9917 Central Agricultural Research Center - Moccasin, MT.

VARIETY	GRAIN YIELD	TEST WEIGHT	PLANT HEIGHT	PROTEIN
	Bu/A.	Lb/Bu.	Inches	
WA 6920 PENAWAWA	24.1	53.6	27	
CI 17904 OWENS	23.6	54.4	28	
CI 13596 FORTUNA	23.3	58.1	29	
CI 17430 NEWANA	22.4	55.9	27	
CI 17828 PONDERA	22.1	56.3	27	
PI483235 GLENMAN	21.6	54.3	27	
MT 8402 HI-LINE	21.4	54.7	26	
ND 582 STOA	21.2	55.7	27	
CI 17790 LEN	20.5	55.5	27	
ND 618 GUS	20.4	55.8	23	
WPB 926 WESTBRED 926	20.4	56.9	27	
CI 15930 OLAF	19.8	54.4	25	
CI 17429 LEW	19.5	55.5	28	
ND 606 AMIDON	19.4	56.3	28	
ND 626 GRANDIN	19.3	52.9	26	
NDCUT CUTLESS	18.8	56.9	27	
C982-324 RAMBO	16.0	54.2	25	
EXPERIMENTAL MEANS	20.81	55.36		
F TEST FOR VAR. (df 32.)	4.74	7.76		
C.V. 1: (S/MEAN)*100	7.64	1.50		
C.V. 2: (S OF MEAN/MEAN)*100	4.41	.87		
LSD (0.05)	2.64	1.38		

Planted: 4-25-1991 on tilled burnt off winter wheat stubble,
surface soil moist, soil probe depth 15".

Harvested: 8-5-1991

Fertility: 50 lbs N anhydrous. 50 lbs/a of 18-46-0.

Soil Test: NO₃-N=12.0 mg/kg Olsen P = 48.7 mg/kg

Growing Season Precip.: 8.5"

Cooperator: D. Wichman, J. Vavrovsky, L. Talbert, S. Lanning

Producer: Buck Goldhahn - Ft. Benton

Comments: High temperatures in late July contributed to low
test weights.

TABLE MOCCASIN OFF-STATION SPRING WHEAT MULTI-YEAR SUMMARY
Central Ag. Research Center, Moccasin, MT.

VARIETY	1983 *	1984 *	1985 *	1985 **	1985 ***	1989 **	1990	AVG. NEWANA SAME YRS
-----bu/a-----								
GUS							24.5	24.5 19.1
LANCER						32.8	23.9	28.3 30.3
PENAWAWA						44.7	23.8	34.2 30.3
CUTLESS						35.6	23.2	29.4 30.3
OWENS		15.4				47.7	22.6	28.6 25.9
GRANDIN							21.6	21.6 19.1
WESTBRED 906R						40.2	21.0	30.6 30.3
GLENMAN			15.3	13.0	14.1	43.1	20.7	21.2 20.8
RAMBO						39.0	20.6	29.8 30.3
ALEX	23.2		12.2	12.3	14.8	39.2	20.5	20.4 21.5
WESTBRED 926R							20.1	20.1 19.1
AMIDON						39.2	20.0	29.6 30.3
STOA		16.8	14.2	13.9	16.3	40.0	19.6	20.1 20.2
HI-LINE						39.0	19.3	29.1 30.3
LEN						34.3	19.2	26.7 30.3
NEWANA	25.4	17.1	14.4	14.9	13.9	41.6	19.1	20.9 20.9
PONDERA	23.0	16.4				39.0	18.6	24.2 25.8
LEW	25.9	17.7	12.1	12.2	14.8	36.4	17.7	19.5 20.9
OLAF	21.7	15.4				39.2	17.6	23.5 25.8
FORTUNA	22.6	15.2	9.9	9.5	8.7	35.2	14.8	16.6 20.9

* Recrop
** No-till
*** Chem.Fallow

1991 variety trial on no-till barley stubble was hailed out.

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TABLE — HIGHWOOD OFF-STATION SPRING WHEAT MULTI-YEAR SUMMARY
Central Ag. Research Center, Moccasin, MT.

VARIETY	1982	1983	1990	1991	AVG.	NEWANA SAME YRS.
	-----bu/a-----					
PENAWAWA			48.2	26.8	37.5	31.9
AMIDON			44.7	25.3	35.0	31.9
WESTBRED 926R			43.7	30.8	37.2	31.9
PONDERA	24.1	41.9	41.0	22.1	32.3	34.8
GRANDIN			40.8	28.9	34.8	31.9
HI-LINE			40.3	21.9	31.1	31.9
LEW	22.5	51.2	39.6	24.2	34.4	34.8
WESTBRED 906R			39.3		39.3	34.8
GLENMAN			38.9	29.7	34.3	31.9
OWENS	22.7		38.5	27.3	29.5	30.3
OLAF	26.8	46.0	38.2	29.9	35.2	34.8
STOA			37.9	34.2	36.0	31.9
GUS			37.2	33.1	35.1	31.9
LEN	26.7		36.8	25.5	29.7	30.3
FORTUNA	21.7	41.8	36.5	33.1	33.3	34.8
LANCER			36.0		36.0	34.8
ALEX	26.4	53.8	35.7		38.6	36.8
RAMBO			35.5	26.8	31.1	31.9
CUTLESS			35.5	31.4	33.4	31.9
NEWANA	27.1	48.5	34.8	29.0	34.8	34.8

Variety trials were located at Ron Long farm from 1989-1991.
The 1989 trial was hailed out.
Variety trials were located at Barry Wharram farm in 1982 and 1983

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TABLE DENTON OFF-STATION SPRING WHEAT MULTI-YEAR SUMMARY
Central Ag. Research Center, Moccasin, MT.

VARIETY	1987	1988	1989	1990	1991	AVG.	NEWANA SAME YRS
	-----bu/a-----						
ALEX	37.5	22.4	41.2	28.6		32.4	33.9
OLAF		22.2	43.0	27.4	50.2	35.7	39.0
AMIDON			47.6	26.0	60.0	44.5	43.3
PENAWAWA			44.1	25.9	63.3	44.4	43.3
LEN	37.0	24.7	40.3	25.9	52.5	36.1	40.2
OWENS	39.2	26.2	45.8	25.6	61.9	39.7	40.2
STOA		22.9	40.3	25.1	56.9	36.3	39.0
WESTBRED 906R	37.6	21.8	38.5	24.6		30.6	33.9
GLENMAN		24.3	38.5	23.9	51.3	34.5	39.0
WESTBRED 926R				23.6	61.2	42.4	43.2
GRANDIN				23.3	60.0	41.6	43.2
LANCER	33.2	23.2	36.0	23.0		28.8	33.9
FORTUNA	37.1	16.8	37.9	22.8	61.6	35.2	40.2
RAMBO	44.3	23.6	41.7	22.3	49.5	36.3	40.2
LEW	33.9	21.7	40.0	22.0	50.5	33.6	40.2
PONDERA	39.8	22.9	39.7	21.6	58.1	36.4	40.2
GUS				21.5	53.9	37.7	43.2
NEWANA	44.9	26.0	43.5	21.2	65.3	40.2	40.2
CUTLESS	30.4	20.4	35.7	20.4	46.8	30.7	40.2
HI-LINE			41.3	17.5	59.0	39.3	43.3

Variety trials were located on Richard Barber farm.
The 1988 trial suffered some sawfly damage.

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TABLE GERALDINE OFF-STATION SPRING WHEAT MULTI-YEAR SUMMARY
Central Ag. Research Center, Moccasin, MT.

VARIETY	1985 FAL.	1986 RECROP	1986 FAL.	1987	1989	1991	AVG.	NEWANA SAME YRS.
	----- bu/a -----							
GUS						20.4	20.4	22.4
LANCER				47.7	30.9		39.3	49.2
PENAWAWA					35.9	24.1	30.0	28.7
CUTLESS				56.3	37.0	18.8	37.4	40.3
OWENS		58.4	57.6	73.5	36.4	23.6	49.9	44.8
GRANDIN						19.3	19.3	22.4
WESTBRED 906R					39.9		39.9	35.0
GLENMAN	12.5	52.4	61.9	65.3	35.9	21.6	41.6	39.7
RAMBO				62.3	33.2	16.0	37.2	40.3
ALEX	10.6	46.0	43.2	53.3	37.6		38.1	43.2
WESTBRED 926R						20.4	20.4	22.4
AMIDON					33.0	19.4	26.2	28.7
STOA	12.3	52.4	50.0	64.4	39.6	21.2	40.0	39.7
HI-LINE					37.1	21.4	29.2	28.7
LEN		54.6	54.5	63.1	34.8	20.5	45.5	44.8
NEWANA	14.4	52.3	50.9	63.4	35.0	22.4	39.7	39.7
PONDERA		57.2	57.2	63.7	38.8	22.1	47.8	44.8
LEW	10.2	43.9	44.6	54.5	33.6	19.5	34.4	39.7
OLAF					36.8	19.8	28.3	28.7
FORTUNA	12.0	37.1	41.2	48.7	37.0	23.3	33.2	39.7

Variety trials were located at Buck Goldhahn farm.
The 1988 trial was not harvested due to poor stands caused by drought and grasshopper damage.
The 1990 trial was hailed out.

TABLE . DENTON OFF-STATION SPRING TRITICALE MULTI-YEAR SUMMARY
Central Ag. Research Center, Moccasin, MT.

VARIETY	1987	1988	1989	1990	1991	AVG.	NEWANA SAME YRS.
	-----lbs/ac-----						
NEWANA	1917	1549	2330	1448	1873	1823	1823
JUAN		1709	2805	1322	1997	1958	1800
SUNLAND			2560	1388	2049	1999	1884
WAPITI		1947	2845	1181	1793	1941	1800
BEAGLE 82			2570	1173	1985	1909	1884
CARMAN	1940	1191	2685	1161	1761	1748	1823
KARL	2460	1407	2525	1701	1969	2012	1823
KRAMER		1602	2700	1725	2087	2028	1800
MARVAL	2019	1525	2380	1006	1642	1714	1823
WELSH	1743	1527	2480	1218	1828	1759	1823

TABLE . MOCCASIN SPRING TRITICALE MULTI-YEAR SUMMARY
Central Ag. Research Center, Moccasin, MT.

VARIETY	1988	1989	1990	AVG.	NEWANA SAME YRS.
		*			
	-----lbs/ac-----				
NEWANA	1892	1460	1271	1541	1541
JUAN	1904	2500	1183	1862	1541
SUNLAND		2465	1390	1927	1365
WAPITI	1638	2455	1473	1855	1541
BEAGLE 82		2120	1171	1645	1365
CARMAN	1098	2140	1129	1456	1541
KARL	1249	2260	1153	1554	1541
KRAMER	1788	2040	1171	1666	1541
MARVAL	1779	2045	1216	1680	1541
WELSH	1343	2145	1175	1554	1541

* Planted no-till
1991 Variety trial on no-till barley stubble was hailed out.