

TITLE: Off-Station Spring Wheat Variety investigations.

YEAR: 1992

LOCATION: Western Triangle Research Center, Conrad, MT.

PERSONNEL: Gregory D. Kushnak, Ron Thaut, and Larry Christiaens, Research Center, Conrad; and Dr. Luther Talbert, MSU Dept. of Plant & Soil Science.

Off-station dryland spring wheat variety trials were grown near Cut Bank, Oilmont, Choteau, and Sun River. All Trials were grown on fallow. In addition, a no-till recrop trial was planted at Conrad, but failed due to drought conditions early in the growing season. In spite of early season drought, mid-summer rains brought yields up substantially for the trials grown on fallow.

Data for the 1992 spring wheat tests at the various locations are presented in Tables 1-8. Five-year averages are included among the data tables. (Emphasis should be placed more on the five-year averages when predicting which varieties are best suited for a given area. The 1992 tables reflect performance under the conditions of only one year, and therefore should not be relied on too heavily). Performance varied among varieties depending on moisture, sawflys, and other conditions at the different locations. Sawfly damage was heavy at Choteau, but harvest was accomplished before lodging was severe. The Cut Bank location experieced some frost damage in 1992.

The variety 'Hi-Line' (MT 8402), recently developed by MSU, generally produced a combination of high yield and protein at most locations. Hi-Line is susceptible to sawfly and would not be suitable for growers meeding a variety with sawfly resistance. However, in areas where hollow stemmed varieties have been grown successfully, Hi-Line showed some advantages over Newana and Pondera. When averaged over several Western Triangle locations during the last five years, Hi-Line was slightly higher in yield, nearly one percent higher in protein, and four days earlier to ripen than Newana. Hi-Line was similar to Pondera for protein, ripening date, and dryland yield; but yielded three bu/a higher than Pondera on irrigated. Test weight and plant height of Hi-Line were slightly less than for Pondera.

Among sawfly resistant varieties, Glenman yielded the highest when averaged over all locations during the five-year period, but averaged low in protein and test weight. Rambo and Amidon also ranked high for yield, but both showed only partial resistance to sawfly. In addition, Amidon was tall (like Lew and Fortuna) and would not be suitable for irrigated conditions. At some of the dryland locations, Lew and Fortuna yielded nearly as much as Glenman, and yet had much higher protein. Proteins, when averaged over the 4 locations for 5 years, were 15.6% for Amidon, 15.5% for Lew and Fortuna, 15.0% for Rambo, and 14.8% for Glenman.

Table: 1 Dryland Spring Wheat variety trial grown north of Cut Bank, 1992. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety		Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
PENAWAWA	(s. white)	48.67	58.06	29	9.5
MT 8849		46.16	56.37	33	10.3
GLENMAN	*	43.10	55.59	30	9.7
WESTBRED	926	40.74	57.71	32	11.2
OWENS	(s. white)	40.37	55.59	30	10.2
RAMBO	*	40.17	57.85	27	10.2
AMIDON	*	38.34	55.45	35	10.1
LEW	*	38.30	57.00	34	10.0
FORTUNA	*	37.99	59.83	34	11.7
HI-LINE		36.73	61.31	29	11.7
GRANDIN		35.80	58.84	33	10.6
PONDERA		34.13	60.60	29	11.8
NEWANA		33.88	57.43	27	10.2
CUTLESS	*	33.84	58.84	33	11.7
LANCER	*	33.59	59.12	36	11.6
LEN		33.20	57.15	28	11.0
GUS		32.65	58.63	31	11.2
STOA		30.73	58.06	33	11.0
KLASIC	(h. white)	29.77	61.24	23	12.1
OLAF		29.68	57.36	29	11.7

Cooperator : Don Bradley  
 Location : Fifteen miles north of Cut Bank, Glacier County.  
 Fertilizer : 100# 11-51-0 with the seed.  
 Previous crop : Fallow  
 Date seeded : April 15, 1992.  
 Date harvested : September 1, 1992.  
 Rainfall : From seeding to harvest, 7 + inches.  
 \* = Sawfly resistant varieties. (Amidon and Rambo partial resistance)

Yield experimental mean : 36.89  
 Error degrees of freedom : 38.00  
 F test for var. : 11.22  
 C.V. 2 : 4.22  
 LSD (0.05) : 4.46

Table: 2 Five-year summary for Spring Wheat varieties grown north of Cut Bank, MT. 1988 - 1989 - 1990 - 1991 - 1992. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

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5 - year comparable average					
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Variety		Yield Bu\ac	Test wt. lbs\bu.	Plant hgt. inches	% Protein
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PENAWAWA	(s. white)	42.40	59.47	26.62	10.71
OWENS	(s. white)	40.04	57.63	28.20	10.98
AMIDON	*	37.73	58.13	34.93	12.71
GLENMAN	*	36.94	57.89	28.20	12.22
HI-LINE		36.71	60.11	27.40	13.04
RAMBO	*	36.15	58.77	26.80	11.94
WESTBRED 926		35.72	58.77	27.59	12.85
PONDERA		35.52	60.70	27.80	13.22
LEN		34.89	58.80	27.00	12.88
LEW	*	34.61	58.97	33.00	12.84
GRANDIN		34.28	60.40	29.54	13.64
OLAF		34.24	58.77	27.00	13.14
STOA		34.21	58.65	31.00	12.76
FORTUNA	*	33.53	60.67	33.40	13.20
LANCER	*	33.25	59.95	34.00	13.04
CUTLESS	*	32.70	60.15	30.40	13.18
GUS		32.30	59.66	28.57	13.13
NEWANA		32.23	58.49	26.60	12.84
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Cooperator : Don Bradley  
 Location : Fifteen miles north of Cut Bank, Glacier County.  
 \* = Sawfly resistant varieties. (Rambo and Amidon have partial resistance.)

Table: 3

Dryland Spring Wheat variety trial grown east of Oilmont, 1992. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, Mt.

Variety		Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
PENAWAWA	(s. white)	41.56	63.07	21	15.02
GLENMAN	*	40.76	62.72	23	15.39
MT 8849		39.42	61.66	23	18.27
OWENS	(s. white)	39.07	62.86	20	14.85
LEW	*	36.57	63.99	25	16.21
LANCER	*	36.44	62.51	24	17.13
RAMBO	*	36.07	64.34	22	15.65
GRANDIN		34.31	64.55	23	16.52
OLAF		32.97	63.28	23	16.15
LEN		32.56	63.21	25	16.73
HI-LINE		31.39	63.21	22	17.45
KLASIC	(h. white)	30.76	62.23	16	16.32
STOA		30.70	62.72	24	17.20
CUTLESS	*	29.93	63.21	21	16.70
AMIDON	*	29.91	62.51	24	15.88
PONDERA		29.08	63.57	22	17.43
NEWANA		28.79	61.73	21	16.66
FORTUNA	*	28.40	59.97	25	16.46
GUS		27.93	63.14	22	17.19
WESTBRED 926		26.90	63.00	19	16.77

Cooperator : Terry Alme

Location : Eight miles east of Oilmont, Toole County.

Fertilizer : 100# 11-51-0 with the seed.

Previous crop : Fallow

Date seeded : March 30, 1992.

Date harvested : August 10, 1992.

Rainfall : From seeding to harvest was 7 + inches.

\* = Sawfly resistant varieties. (Amidon and Rambo partial resistance)

Yield experimental mean : 33.18

Error degrees of freedom : 38.00

F test for var. : 3.49

C.V. 2 : 6.07

LSD (0.05) : 5.77

Table: 4 Five-year summary for Spring Wheat varieties grown east of Oilmont, MT. 1988 - 1989 - 1990 - 1991 - 1992. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

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5 - year comparable average					
Variety		Yield Bu\ac	Test wt. lbs\bu.	Plant hgt. inches	% Protein
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PENAWAWA	(s. white)	30.55	55.27	23.35	15.63
GLENMAN	*	29.97	56.13	26.20	15.88
WESTBRED	926	27.63	56.65	23.71	18.32
AMIDON	*	27.39	57.89	29.70	17.03
GRANDIN		27.33	55.34	26.41	18.07
OLAF		26.95	56.33	25.80	16.97
HI-LINE		26.74	56.16	25.00	17.79
LEN		26.74	55.26	27.00	16.73
FORTUNA	*	26.52	57.63	29.60	16.99
LEW	*	26.18	57.50	29.60	16.84
PONDERA		26.15	57.35	25.80	17.67
RAMBO	*	25.94	57.96	23.44	16.97
STOA		25.94	55.95	29.40	18.02
NEWANA		25.90	55.76	24.00	17.11
OWENS	(s. white)	25.68	54.23	24.20	16.13
LANCER	*	24.73	56.93	29.60	17.11
GUS		24.00	55.62	25.21	18.97
CUTLESS	*	22.68	57.42	25.40	17.96
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Cooperator : Terry Alme  
Location : Eight miles east of Oilmont, Toole County.  
\* = Sawfly resistant varieties. (Rambo and Amidon have partial resistance.)

Table: 5      Dryland Spring Wheat variety trial grown east of  
Choteau, 1992. Mont. Agr. Expt. Sta., Western  
Triangle Ag. Research Center, Conrad, MT.

Variety		Yield bu/a	Test wt. lbs/bu.	Plant hgt. inches	% Protein
GLENMAN	*	25.62	57.35	27	16.56
FORTUNA	*	23.83	59.89	29	16.59
MT 8849		22.99	57.70	26	17.09
LEW	*	22.82	59.18	29	16.37
LANCER	*	22.06	58.62	34	17.26
CUTLESS	*	21.63	57.91	30	17.35
RAMBO	*	21.56	56.51	26	15.64
AMIDON	*	21.23	56.71	32	17.23
HI-LINE		20.60	58.13	26	16.68
PONDERA		20.59	58.97	26	17.18
PENAWAWA	(s. white)	19.83	58.76	25	16.33
WESTBRED 926		19.22	56.51	26	15.35
OWENS	(s. white)	19.00	57.49	28	16.50
NEWANA		17.03	57.00	26	16.67
GRANDIN		16.71	56.86	25	17.94
GUS		16.49	56.22	25	16.84
KLASIC	(h. white)	15.57	57.98	18	17.40
OLAF		15.11	55.16	27	16.69
STOA		14.23	54.95	30	17.71
LEN		14.23	54.53	26	17.44

Cooperator : Rick Corey  
 Location : Northeast of Choteau, Teton County.  
 Fertilizer : 100# 11-51-0 with the seed, + 75# AA-N.  
 Previous crop : Fallow  
 Date seeded : March 31, 1992.  
 Date harvested : August 10, 1992.  
 Rainfall : From seeding to harvest was 7 + inches.  
 \* = Sawfly resistant varieties. (Amidon and Rambo partial  
 resistance)  
 Yield experimental mean : 19.52  
 Error degrees of freedom : 38.00  
 F test for var. : 3.19  
 C.V. 2 : 9.62  
 LSD (0.05) : 5.38

Table: 6 Five-year summary for dryland Spring Wheat varieties grown northeast of Choteau, MT. 1988 - 1989 - 1990 - 1991 - 1992. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

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5 - year comparable average					
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Variety		Yield Bu\ac	Test wt. lbs\bu.	Plant hgt. inches	% Protein
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GLENMAN	*	33.25	57.21	28.60	14.33
HI-LINE		32.21	60.33	26.60	15.00
FORTUNA	*	32.15	60.04	33.80	15.14
LANCER	*	31.11	59.98	34.60	15.67
PENAWAWA	(s. white)	31.03	59.75	26.60	12.99
OWENS	(s. white)	30.72	57.83	28.60	12.74
LEN		30.37	58.68	27.40	14.39
RAMBO	*	30.29	56.64	26.20	14.07
LEW	*	30.17	58.33	33.60	14.89
WESTBRED 926		30.04	59.17	27.13	14.33
AMIDON	*	29.30	57.47	33.25	15.49
PONDERA		28.77	60.04	27.80	14.74
CUTLESS	*	28.44	60.29	29.80	15.73
STOA		27.99	57.86	32.20	14.94
GRANDIN		26.37	59.11	28.41	15.68
NEWANA		25.39	57.32	26.00	14.55
GUS		25.03	58.87	27.45	15.38
OLAF		24.17	57.95	28.00	14.84
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Cooperator : Rick Corey

Location : Northeast of Choteau, Teton County.

\* = Sawfly resistant varieties. (Rambo and Amidon have partial resistance.)

Table: 7      Dryland Spring Wheat variety trial grown southeast of Sun River, 1992. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety		Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
PENAWAWA	(s. white)	54.24	61.73	26	13.79
HI-LINE		53.07	62.44	23	15.40
OWENS	(s. white)	48.14	59.54	27	14.40
GRANDIN		47.81	62.23	32	16.71
KLASIC	(h. white)	46.27	62.72	20	16.54
WESTBRED 926		46.08	60.81	24	14.94
STOA		45.47	59.90	33	16.05
PONDERA		44.79	60.11	27	15.43
MT 8849		44.38	55.66	28	16.03
FORTUNA	*	42.47	60.39	31	15.33
LEW	*	42.13	58.27	35	15.02
LANCER	*	41.57	58.84	35	15.40
GUS		41.01	58.34	29	15.59
NEWANA		40.67	55.95	27	15.27
GLENMAN	*	40.34	52.14	28	14.03
AMIDON	*	39.77	58.77	31	14.88
CUTLESS	*	38.25	59.76	27	16.21
OLAF		37.84	59.05	27	15.68
LEN		37.36	60.18	27	15.54
RAMBO	*	34.36	56.44	30	14.52

Cooperator : Chuck Merja  
 Location : Three miles southeast of Sun River, Cascade County.  
 Fertilizer : 100# 11-51-0 with the seed + 40# N actual topdressed.  
 Previous crop : Fallow  
 Date seeded : March 31, 1992.  
 Date harvested : July 30, 1992.  
 Rainfall : From seeding to harvest was 7 + inches.  
 \* = Sawfly resistant varieties. (Amidon and Rambo partial resistance)

Yield experimental mean : 43.30  
 Error degrees of freedom : 38.00  
 F test for var. : 4.63  
 C.V. 2 : 5.47  
 LSD (0.05) : 6.78

Table: 8 **Five-year summary for dryland Spring Wheat varieties grown east of Sun River, MT. 1988 - 1989 - 1990 - 1991 - 1992. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.**

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5 - year comparable average				
Variety	Yield Bu\ac	Test wt. lbs\bu.	Plant hgt. inches	% Protein
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WESTBRED 926	29.99	58.30	24.13	17.88
HI-LINE	29.63	57.34	24.41	18.24
PENAWAWA (s. white)	29.33	58.18	23.72	15.06
GRANDIN	28.98	57.90	28.66	18.60
OWENS (s. white)	28.54	56.22	25.60	15.46
PONDERA	28.06	58.12	26.80	17.83
GUS	27.78	56.77	25.92	18.63
NEWANA	27.41	55.43	25.20	16.99
AMIDON *	27.01	57.59	30.20	17.08
STOA	26.60	57.01	30.60	18.05
LEN	26.30	57.04	26.40	17.69
FORTUNA *	24.80	59.27	31.00	16.81
OLAF	24.53	56.69	26.28	17.96
CUTLESS *	23.83	58.46	26.40	18.42
GLENMAN *	23.82	54.34	26.80	16.57
RAMBO *	23.70	57.09	26.00	17.04
LANCER *	23.29	57.38	30.93	18.04
LEW *	23.12	57.61	30.80	17.44
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Cooperator : Chuck Merja

Location : Three miles southeast of Sun River, Cascade County.

\* = Sawfly resistant varieties. (Rambo and Amidon have partial resistance.)