

TITLE: Off-station spring wheat variety investigations.

YEAR: 1993

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.

Dryland off-station spring wheat variety trials were grown near Cut Bank, Oilmont, Choteau, and Sun River. The data for the various locations are presented in Tables 1-8, and include 1993 data and five-year averages. (Emphasis should be placed more on the five-year averages when predicting which varieties are best suited for a given area. The 1993 tables reflect performance under the conditions of only one year, and therefore should not be relied on too heavily).

Exceptionally high rainfall produced dryland yields comparable to that of irrigated conditions at most locations. Delayed planting and below normal growing season temperatures extended ripening and harvest by approximately one month, resulting in frost damage at the Cut Bank site. Sawfly infestations were lower than normal, and no stem cutting was observed at any of the sites.

Soil fertility levels were adequate to maintain protein levels close to the average for the Choteau and Sun River locations, but were much below the amount needed for the Oilmont site. Proteins were not measured at Cut Bank due to frost damaged kernels.

Table 1. Dryland Spring Wheat variety trial grown near Cut Bank, 1993. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety		Yield bu/ac	Test wt. lbs/bu. 1/	Plant hgt. inches
PENAWAWA	(s. white)	58.5	52.6	35
OWENS	(s. white)	58.5	51.4	37
AMIDON	*	54.3	52.1	42
GLENMAN	*	49.8	53.3	36
LEN		49.3	52.0	36
STOA		49.0	52.8	42
MT 8849		48.7	53.8	37
PONDERA		48.6	54.1	36
GRANDIN		48.2	54.5	40
OLAF		48.1	53.2	38
GUS		48.0	52.9	40
NEWANA		48.0	52.6	36
RAMBO	*	48.0	52.5	38
WESTBRED 926		47.7	51.9	35
HI-LINE		47.2	54.9	35
LEW	*	46.2	54.0	43
FORTUNA	*	46.0	55.6	42
CUTLESS	*	45.9	53.8	41
KLASIC	(h. white)	45.5	53.6	28
LANCER	*	41.0	55.3	48

Cooperator: Don Bradley.

Location: Fifteen miles north of Cut Bank, MT. (Glacier Co.)

Fertilizer: 100# 11-52-0 with the seed.

Previous crop: Fallow.

Date seeded: May 11, 1993.

Date harvested: Oct. 12, 1993.

Rainfall: From seeding to harvest was 11 + inches.

Soil probe depth at seeding: 30 inches.

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

1/ = Test weights reduced by frost.

Yield experimental mean: 48.81

F test for var: 3.57

C.V. 2: 4.46

LSD (0.05): 6.23

Table 2. Five-year summary for dryland Spring Wheat varieties grown near Cut Bank, MT. 1989 - 1990 - 1991 - 1992 - 1993. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

Variety	5 - year comparable average			
	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein @
PENAWAWA (s. white)	46.4	58.4	28.8	10.2
OWENS (s. white)	45.3	56.5	30.6	10.5
AMIDON *	41.7	57.2	37.0	12.1
HI-LINE	40.0	59.7	29.0	12.3
GLENMAN *	40.0	57.3	30.2	11.6
PONDERA	39.5	59.9	30.0	12.6
RAMBO *	39.2	57.3	29.4	11.2
WESTBRED 926	38.7	57.6	29.5	12.1
STOA	38.1	58.0	34.2	12.0
LEN	38.0	57.7	29.2	12.4
LEW *	37.8	58.2	35.6	12.2
GRANDIN	37.7	59.4	32.2	12.9
OLAF	37.1	57.9	29.8	12.5
FORTUNA *	36.9	59.9	35.8	12.6
GUS	36.2	58.5	31.5	12.5
CUTLESS *	35.4	59.2	33.4	12.6
NEWANA	35.2	57.4	28.8	12.0
LANCER *	34.9	59.2	37.4	12.3
KLASIC (h. white)	34.3	60.0	23.3	13.3

Cooperator: Don Bradley.

Location: Fifteen miles north of Cut Bank, MT. (Glacier Co.)

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

@ = Protein averages based on four years only. (89-90-91-92)

Table 3. Dryland Spring Wheat variety trial grown near Oilmont, 1993. 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)	77.4	61.8	37	5.7
GLENMAN	*	76.9	61.5	38	9.5
OWENS	(s. white)	76.4	61.1	40	8.6
HI-LINE		72.7	63.3	38	11.2
AMIDON	*	70.2	61.9	40	12.0
WESTBRED 926		69.1	61.5	36	9.6
NEWANA		68.8	62.4	36	8.9
GRANDIN		67.1	62.6	39	14.3
LEN		66.7	61.7	38	12.8
LEW	*	66.0	64.1	45	11.0
MT 8849		65.8	61.9	39	11.3
PONDERA		64.1	63.3	36	12.0
OLAF		63.6	61.9	38	13.9
FORTUNA	*	62.2	63.1	42	10.6
GUS		62.1	63.2	38	11.4
STOA		62.0	62.4	45	10.4
KLASIC	(h. white)	61.9	61.7	27	12.5
LANCER	*	62.4	62.6	46	12.0
RAMBO	*	61.3	62.5	37	10.4
CUTLESS	*	56.9	62.7	39	11.9

Cooperator: Terry Alme.
 Location: Eight miles east of Oilmont. (Toole County)
 Fertilizer: 100# 11-52-0 with the seed.
 Previous crop: Fallow.
 Date seeded: April 26, 1993.
 Date harvested: Sept 9, 1993.
 Rainfall: From May 24 to harvest was 8.5 + inches.
 Soil probe depth at seeding: 32 inches.
 * = Sawfly resistant varieties. (Amidon and Rambo have partial resistance.)

Yield experimental mean: 66.64
 Error degrees of freedom: 38.00
 F test for var. = 3.44, C.V. 2 = 4.68, LSD (0.05) = 8.93

Table 4. Five-year summary for dryland Spring Wheat varieties grown near Oilmont, MT. 1989 - 1990 - 1991 - 1992 - 1993. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

Variety	5 - year comparable average			
	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
PENAWAWA (s. white)	43.2	56.1	28.0	13.6
GLENMAN *	42.7	57.0	30.4	14.6
HI-LINE	39.1	57.1	29.6	16.4
AMIDON *	38.9	58.1	34.2	15.9
WESTBRED 926	38.9	57.0	28.1	16.4
OWENS (s. white)	38.7	55.1	29.0	14.7
GRANDIN	38.1	56.3	31.1	17.4
LEW *	37.4	58.4	35.4	15.4
NEWANA	37.4	56.2	28.6	15.2
LEN	37.3	55.9	31.2	16.0
OLAF	37.1	56.9	30.4	16.2
FORTUNA *	36.7	58.4	34.8	15.6
PONDERA	36.4	57.9	29.8	16.3
RAMBO *	35.6	58.3	28.0	15.6
STOA	35.4	56.4	35.0	16.6
LANCER *	34.7	57.9	35.4	16.1
KLASIC (h. white)	34.5	56.5	21.5	16.5
GUS	34.2	56.7	29.9	17.4
CUTLESS *	31.9	58.0	30.0	16.7

Cooperator: Terry Alme.
 Location: Eight miles east of Oilmont, MT. (Toole County)
 * = Sawfly resistant varieties. (Amidon and Rambo have partial resistance.)

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Table 5. Dryland Spring Wheat variety trial grown near Choteau, 1993. Mont. Agr. Expt. Sta., Western Triangle Ag. Research Center, Conrad, MT.

Variety		Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% protein
GLENMAN	*	72.1	59.1	38	14.2
PENAWAWA	(s. white)	67.8	57.9	35	12.5
MT 8849		66.6	58.3	38	15.6
NEWANA		65.4	59.1	36	14.3
PONDERA		64.0	59.8	35	16.2
RAMBO	*	62.4	59.6	37	14.5
HI-LINE		61.9	59.0	34	15.6
LEW	*	60.7	60.5	40	16.2
AMIDON	*	57.0	57.1	39	16.3
GRANDIN		56.2	59.3	39	16.1
OWENS	(s. white)	56.1	57.4	35	12.1
FORTUNA	*	54.6	58.8	40	15.7
WESTBRED 926		51.8	57.8	32	15.9
STOA		49.1	57.6	38	15.6
LEN		48.1	57.1	34	16.3
CUTLESS	*	46.7	57.4	36	16.4
GUS		46.6	57.3	36	17.9
LANCER	*	43.8	58.3	41	17.3
KLASIC	(h. white)	42.4	56.6	22	15.9
OLAF		41.6	57.0	35	16.3

Cooperator: Rick Corey.

Location: Eighteen miles northeast of Choteau. (Teton County)

Fertilizer: 100# 11-52-0 with the seed, + 80# AA-N.

Previous crop: Fallow.

Date seeded: April 29, 1993.

Date harvested: Sept 23, 1993.

Rainfall: From May 13 to harvest was 9.25 inches.

Soil probe depth at seeding: 27 inches.

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

Yield experimental mean: 55.74

Error degrees of freedom: 38.00

F test for var. = 20.23, C.V. 2 = 3.67, LSD (0.05) = 5.86

Table 6. Five-year summary for dryland Spring Wheat varieties grown near Choteau, MT. 1989 - 1990 - 1991 - 1992 - 1993. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

Variety		5 - year comparable average			
		Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
GLENMAN	*	43.7	57.9	31.6	14.6
PENAWAWA	(s. white)	40.4	59.3	29.4	13.0
HI-LINE		40.2	59.9	29.2	15.1
RAMBO	*	38.8	57.6	29.4	14.3
FORTUNA	*	38.8	59.8	36.6	15.4
PONDERA		38.0	60.0	30.2	15.1
LEW	*	38.0	58.6	36.2	15.3
OWENS	(s. white)	37.2	57.7	31.0	12.9
AMIDON	*	36.7	57.3	35.8	15.8
LEN		36.1	58.3	29.8	14.8
WESTBRED	926	35.9	58.9	29.1	14.8
LANCER	*	35.9	59.7	37.2	16.2
NEWANA		35.3	58.0	29.0	14.6
GRANDIN		34.4	59.2	31.9	15.9
CUTLESS	*	34.0	59.7	32.8	15.9
STOA		33.6	57.7	35.0	15.2
GUS		30.9	58.5	30.4	16.1
OLAF		28.9	57.8	30.4	15.2
KLASIC	(h. white)	28.2	59.8	19.9	15.5

Cooperator: Rick Corey.

Location: Fifteen miles northeast of Choteau, MT. (Teton Co.)

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

Table 7. Dryland Spring Wheat variety trial grown near Sun River, 1993. 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)	56.9	59.5	30	12.1
MT 8894		54.6	60.0	34	15.9
HI-LINE		50.8	61.0	30	15.6
LEW	*	50.6	59.3	39	15.3
NEWANA		49.4	60.3	32	14.5
GLENMAN	*	49.1	56.8	35	14.0
PONDERA		49.0	59.3	33	16.0
LEN		48.6	60.5	35	16.0
AMIDON	*	47.6	58.6	35	16.2
OWENS	(s. white)	47.4	60.2	30	11.6
STOA		45.7	58.9	37	16.9
GRANDIN		45.3	61.9	35	16.9
RAMBO	*	45.2	56.2	33	15.2
FORTUNA	*	44.6	61.4	38	15.7
WESTBRED 926		43.7	60.0	31	16.6
GUS		42.8	60.3	33	17.6
KLASIC	(h. white)	42.1	60.1	21	15.9
CUTLESS	*	40.4	60.8	34	16.9
LANCER	*	40.3	60.7	38	17.5
OLAF		39.2	59.8	36	16.3

Cooperator: Chuck Merja.
 Location: Two miles southeast of Sun River, MT. (Cascade Co.)
 Fertilizer: 100# 11-52-0 with the seed, + 40# AA-N.
 Previous crop: Fallow.
 Date seeded: May 11, 1993.
 Date harvested: Sept 9, 1993.
 Rainfall: From May 13 to harvest was 9.25 inches.
 * = Sawfly resistant varieties. (Amidon and Rambo have partial resistance.)

Yield experimental mean: 46.66
 Error degrees of freedom: 38.00
 F test for var. = 3.23, C.V. 2 = 5.56, LSD (0.05) = 7.43

Table 8. Five-year summary for dryland Spring Wheat varieties grown near Sun River, MT. 1989 - 1990 - 1991 - 1992 - 1993. Mont. Agr. Expt. Station, Western Triangle Ag. Research Center, Conrad, MT.

Variety	5 - year comparable average			
	Yield bu/ac	Test wt. lbs/bu.	Plant hgt. inches	% Protein
PENAWAWA (s. white)	38.5	58.8	26.4	14.1
HI-LINE	37.6	58.4	27.0	17.2
OWENS (s. white)	36.0	57.3	28.0	14.3
WESTBRED	35.8	59.0	26.7	17.1
PONDERA	35.6	58.7	29.4	16.9
GRANDIN	35.5	59.1	31.6	17.8
NEWANA	35.3	56.8	28.0	16.0
AMIDON *	34.5	58.2	33.2	16.3
LEN	34.0	58.2	29.6	16.8
STOA	34.0	58.0	34.0	17.4
GUS	33.8	57.9	28.9	18.0
KLASIC (h. white)	33.0	60.2	19.7	17.5
FORTUNA *	32.0	60.2	34.4	16.1
GLENMAN *	31.8	55.2	29.8	15.5
LEW *	31.4	58.3	34.4	16.5
RAMBO *	30.6	57.0	29.0	16.3
OLAF	30.5	57.7	29.8	17.1
CUTLESS *	30.2	59.3	29.4	17.7
LANCER *	29.6	58.4	34.2	17.4

Cooperator: Chuck Merja.
 Location: Two miles southeast of Sun River, MT. (Cascade Co.)
 * = Sawfly resistant varieties. (Amidon and Rambo have partial resistance.)