

TITLE: Off-station Spring Wheat variety investigations.

YEAR: 1990

LOCATION: Western Triangle Agricultural Research Center, Conrad, MT.

PERSONNEL:

Project Leader: Gregory D. Kushnak

Cooperators: Luther Talbert & Sue Lanning, MSU and  
Landowners (listed in footnotes to data tables).

Off-station dryland spring wheat variety trials were grown near Cut Bank, Oilmont, Choteau, and Sun River; and irrigated at Fairfield. All Trials were grown on fallow, except Fairfield irrigated.

Data for the 1990 spring wheat tests at the various locations are presented in Tables 1-10. Three-year averages are included among the data tables. Yield and test weights were low in most cases due to low growing season rainfall and above average temperatures.

Sawfly damage was much less than in previous years, possibly due to the later-than-normal emergence of flys (June 16) in the spring of 1990. However, sawfly damage at Choteau was sufficient to cause yield loss, as indicated by the superior ranking of the resistant varieties. Sawfly resistant varieties in the tests included three semidwarfs Glenman, Rambo, and Cutless; and four standard height varieties Lew, Fortuna, Lancer, and Amidon. It should be noted that Amidon and Rambo showed only partial resistance, and the level of resistance in Amidon was not considered high enough to offer protection from sawfly infestations normally encountered in the Triangle Area.

Table 1. Dryland spring wheat variety trial grown north of Cut Bank, 1990. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Variety	Yield bu/a	Test wt.	Plant hgt. inches	% Protein
Penawawa (s.white)	42.9	60.1	27	12.7
Amidon *	38.7	60.0	34	15.9
MT 8402	38.4	59.1	27	15.6
Pondera	36.7	61.1	27	16.2
Stoa	36.7	59.5	32	15.0
Owens (s. white)	36.7	58.5	28	12.3
Alex	36.4	60.2	33	16.1
Grandin	36.0	61.5	29	15.9
Len	35.9	59.7	26	15.3
Glenman *	35.5	59.2	29	16.2
Olaf	34.7	59.7	26	15.5
Westbred 906R	34.5	59.6	25	15.8
Lancer *	33.1	60.6	31	15.3
Westbred 926R	32.5	60.0	25	15.9
Newana	31.5	57.6	27	15.4
Rambo*	31.3	58.7	27	14.6
Gus	30.9	59.9	28	16.2
Fortuna *	29.9	61.4	32	16.8
Lew *	29.7	59.8	32	17.3
Cutless*	29.5	60.4	29	14.4

Cooperator & location : Don Bradley, north of Cut Bank, Glacier Co.  
 Fertilizer : 100# 11-51-0 with the seed  
 Previous crop : Fallow  
 Date Seeded : May 9, 1990  
 Date harvested : August 29, 1990  
 Rainfall from June 6 to August 29 : 3.85".  
 Soil moisture probe depth at seeding : 2'6".  
 \* Sawfly resistant varieties (Amidon and Rambo partial resistance).  
 Yield experimental mean : 34.56  
 Error degrees of freedom : 38  
 F test for var. : 7.11  
 C.V. 2 : 3.81  
 LSD (0.05) : 3.77

Table 2. Three-year summary for spring wheat varieties grown north of Cut Bank, MT. 1988-1989-1990. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Varieties	Yield bu/a	Test wt.	Plant hgt. inches	% Protein
Penawawa (s.white)	41	59	26	11.8
Amidon	38	58	34	14.4
Owens (s.white)	38	57	27	11.9
Glenman	36	57	28	14.4
Grandin	36	61	29	15.0
Alex	35	58	32	14.7
Len	35	58	26	14.4
MT 8402	35	59	27	15.0
Olaf	35	58	26	14.3
Pondera	35	60	27	15.1
Lew	34	59	32	15.3
Rambo	34	58	26	13.6
Stoa	34	58	30	14.8
Westbred 906R	34	58	26	15.0
Fortuna	33	60	32	15.3
Lancer	33	60	32	14.8
Cutless	32	59	28	14.4
Newana	32	58	26	14.8
Gus	31	59	28	15.2

Cooperator : Don Bradley

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

154  
 Table 3. Dryland spring wheat variety trial grown east of Oilmont, 1990. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Variety	Yield bu/a	Test wt.	Plant hgt. inches	% Protein
Alex	20.8	56.1	34	19.2
Amidon *	20.3	54.9	33	19.2
Westbred 906R	19.9	51.0	27	21.3
Westbred 926R	19.6	51.2	27	21.5
Pondera	19.5	53.5	27	20.0
Penawawa (s.white)	18.9	50.9	23	17.6
Newana	18.7	52.0	25	18.7
MT 8402	18.5	50.3	27	21.5
Olaf	18.5	50.4	28	19.4
Lew *	18.2	55.4	30	19.9
Stoa	18.2	52.8	32	20.3
Glenman *	18.2	51.0	27	17.7
Fortuna *	18.2	55.5	31	19.7
Gus	17.6	52.5	25	21.6
Grandin	17.6	48.5	27	21.3
Rambo *	17.4	58.8	21	20.7
Owens (s.white)	17.4	53.1	23	18.0
Lancer *	17.3	55.8	30	21.0
Len	15.4	47.1	30	19.5
Cutless *	12.7	53.9	25	20.5

Cooperator & Location : Terry Alme, 8 miles east of Oilmont, Toole Co.  
 Fertilizer : 100# 11-51-0 with the seed.  
 Previous crop : Fallow  
 Date seeded : April 17, 1990  
 Date harvested : August 8, 1990.  
 Rainfall from May 17 to July 31 : 4.9".  
 Soil moisture probe depth at seeding : 2'8".  
 \* Sawfly resistant varieties (Amidon & Rambo partial resistance).  
 Yield experimental mean : 18.14  
 Error degrees of freedom : 38  
 F Test for var. : 1.57  
 C.V. 2: 7.71  
 LSD (0.05) : 4.0

Table 4. Three-year summary for spring wheat varieties grown east of Oilmont, MT. 1988-1989-1990. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT,

Varieties	Yield bu/a	Test wt.	Plant hgt. inches	% Protein
Amidon	20	57	27	18.5
Penawawa (s.white)	20	55	22	17.0
Westbred 926R	20	53	24	20.2
Alex	19	58	29	18.0
Glenman	19	54	24	17.1
Stoa	19	56	27	18.8
Fortuna	18	57	27	18.2
Grandin	18	51	24	20.0
Gus	18	55	23	20.2
MT 8402	18	55	23	18.6
Newana	18	55	22	18.2
Pondera	18	57	24	19.1
Westbred 906R	18	54	23	18.9
Lancer	17	57	26	17.9
Len	17	53	25	17.8
Lew	17	57	26	18.0
Rambo	17	59	20	18.2
Olaf	17	55	23	18.3
Owens (s.white)	17	54	22	17.3
Cutless	15	57	23	19.3

Cooperator : Terry Alme  
Location : Eight miles east of Oilmont, Toole Co.

Table 5. Dryland spring wheat variety trial grown east of Choteau, 1990. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Variety	Yield bu/a	Test wt.	Plant hgt. inches	% Protein
Glenman *	29.8	58.3	29	15.7
Lew *	28.5	53.3	31	15.4
Len	27.9	60.3	27	14.5
Lancer *	27.5	60.5	33	17.1
Cutless *	26.7	61.5	28	16.2
Stoa	26.5	58.4	31	14.4
Amidon *	26.1	55.8	33	16.0
Rambo *	26.0	56.0	26	15.3
Gus	25.5	59.4	27	16.6
Fortuna *	25.2	57.2	31	16.3
MT 8402	24.9	61.3	27	15.6
Pondera	24.8	60.8	28	15.0
Grandin	24.0	58.6	28	16.8
Owens (s. white)	23.5	58.7	26	13.2
Westbred 926R	23.0	59.7	28	15.3
Penawawa (s.white)	22.2	59.9	25	13.6
Newana	21.1	57.7	26	14.8
Olaf	20.3	59.5	28	15.9
Westbred 906R	20.2	60.5	27	15.7
Alex	19.9	59.1	32	14.9

Cooperator & Location : Rick Corey, northeast of Choteau, Teton, Co.

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

Previous crop : Fallow.

Date seeded : April 17, 1990

Date harvested : August 7, 1990

Rainfall from April 26 to July 31 : 3.27".

Soil moisture probe depth at seeding : 3'6" +

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

Yield experimental mean : 24.68

Error degrees of freedom : 38

F test for var. : 3.16

C.V. 2 : 6.55

LSD (0.05) : 4.63

Table 6. Three-year summary for spring wheat varieties grown east of Choteau, MT 1988-1989-1990. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Varieties	Yield bu/a	Test wt.	Plant hgt. inches	% Protein
Owens (s.white)	36	59	27	12.3
Penawawa (s.white)	35	60	24	12.8
Glenman	34	58	27	14.3
MT 8402	34	62	25	15.3
Gus	33	60	26	16.1
Len	33	60	26	14.3
Lew	33	58	32	14.8
Rambo	33	58	25	14.2
Amidon	32	58	31	16.0
Lancer	32	61	32	15.8
Pondera	31	61	27	14.8
Stoa	31	59	30	14.7
Westbred 906R	31	60	27	14.9
Fortuna	30	60	32	15.4
Grandin	30	60	27	16.3
Cutless	29	62	28	15.7
Newana	28	58	25	14.6
Alex	26	60	31	15.0
Olaf	25	60	27	15.2

Cooperator : Rick Corey

Location : Fifteen miles east of Choteau, MT.

Table 7. Dryland spring wheat variety trial grown southeast of Sun River, 1990. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Variety	Yield bu/a	Test wt.	Plant hgt. inches	% Protein
Len	23.2	57.1	24	19.8
Stoa	22.5	58.1	28	19.5
Grandin	21.9	58.8	25	20.4
Owens (s.white)	21.7	59.9	24	16.2
Olaf	21.0	58.8	24	19.2
Westbred 906R	20.8	59.1	24	20.9
Pondera	20.8	60.5	24	19.3
Alex	20.1	60.5	28	20.2
Amidon *	19.1	60.0	30	18.7
MT 8402	19.0	57.6	24	20.2
Newana	18.5	60.0	23	18.0
Fortuna *	18.4	61.2	28	18.8
Penawawa (s.white)	18.1	60.8	22	16.4
Lancer *	17.6	60.7	28	19.9
Gus	17.5	58.7	24	20.7
Westbred 926R	17.3	58.6	24	20.3
Glenman *	17.1	60.1	23	19.9
Cutless *	16.9	60.5	25	20.2
Rambo *	14.0	61.0	23	19.5
Lew *	12.7	60.4	27	19.5

Cooperator and Location : Chuck Merja, southeast of Sun River,  
Cascade, Co.

Fertilizer : 100# 11-51-0 with the seed & 50# AA-N.

Previous crop : Fallow

Date seeded : April 18, 1990

Date harvested : August 7, 1990

Rainfall from April 30 to July 26 : 4.25".

Soil moisture probe depth at seeding : 2'.

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

Yield experimental mean : 18.91

Error degrees of freedom : 38.0

F test for var. : 1.7

C. V. 2 : 10.95

LSD (0.05) : 5.93

Table 8. Three year summary of spring wheat varieties grown southeast of Sun River, MT. 1988-1989-1990. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Variety	Yield bu/a	Test wt.	Plant hgt.	% Protein
Grandin	27	57	24	19.7
Len	25	57	24	18.8
Olaf	25	57	24	18.6
Owens	25	56	23	16.0
Amidon	24	58	27	18.5
Newana	24	56	22	18.1
Penawawa	24	59	21	15.7
Pondera	24	59	24	19.1
Westbred 906R	24	57	23	19.7
Alex	23	58	28	19.5
Stoa	23	57	26	19.0
Glenman	22	56	23	17.8
Gus	22	57	24	20.0
Fortuna	21	59	27	18.1
Lancer	21	57	27	19.8
Rambo	21	58	22	18.6
Cutless	20	59	24	19.7
Lew	20	58	26	18.7

Cooperator & Location : Chuck Merja, southeast of Sun River.

Table 9. Irrigated spring wheat variety trial grown north of Fairfield, 1990. Mont. Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Variety	Yield bu/a	Test wt.	Plant hgt. inches	% Protein
Penawawa (s.white)	79.2	61.1	33	10.2
Westbred 926R	74.5	58.9	32	12.9
Alex	73.9	61.8	41	11.4
Owens (s.white)	73.8	59.3	34	10.6
Grandin	73.5	61.9	37	11.8
Rambo *	73.2	58.2	31	12.2
Amidon *	69.3	61.2	40	10.9
Stoa	69.3	61.6	40	11.7
Gus	69.2	61.0	36	12.2
Newana	67.8	58.1	31	12.8
MT 8402	67.5	61.7	31	13.1
Lew *	66.8	58.8	40	12.6
Fortuna *	66.7	61.9	38	13.4
Len	65.9	61.7	31	11.2
Westbred 906R	65.8	59.9	33	12.8
Olaf	65.2	59.1	36	13.3
Pondera	65.2	58.9	30	13.3
Glenman *	62.5	59.9	33	12.7
Cutless *	61.7	61.0	35	12.9
Lancer *	57.2	62.9	40	13.1

Cooperator & location : Al Meyer, north of Fairfield, Teton, Co.  
 Fertilizer : 100# 11-51-0 with the seed and 100# N actual topdressed.  
 Previous crop : Barley  
 Date seeded : April 13, 1990  
 Date harvested : August 15, 1990  
 Irrigation method : Flood  
 \* Sawfly resistant varieties (Amidon and Rambo partial resistance).  
 Yield experimental mean : 68.41  
 Error degrees of freedom : 38.0  
 F test for var. : 1.24  
 C.V. 2 : 6.8  
 LSD (0.05) : 13.31

Table 10. Three-year summary for spring wheat varieties grown north of Fairfield, MT. 1987-1989-1990. Mont Agr. Expt. Sta., Western Triangle Research Center, Conrad, MT.

Varieties	Yield bu/a	Test wt.	Plant height	% Protein
Penawawa s. white	90	60	32	10.2
Newana	81	60	31	11.6
Rambo	81	58	32	10.6
Owens s. white	80	58	32	10.6
Grandin	80	61	37	11.6
Westbred 906R	79	60	33	12.3
Amidon	77	60	41	11.5
Pondera	76	60	31	12.9
NK 751	75	61	40	11.9
Gus	75	60	36	12.0
Stoa	75	60	39	11.8
Len	74	60	32	12.5
Lew	73	60	40	12.5
Glenman	72	60	33	11.7
Fortuna	71	60	38	13.1
Olaf	70	58	36	13.1
Cutless	68	60	36	12.8
Lancer	67	61	40	13.2

Cooperator : Al Meyer

Location : Four miles north of Fairfield, MT.