PROJECT TITLE: Evaluation of regional spring wheat, winter wheat, durum, and oat yield trials

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OBJECTIVE: To evaluate new and introduced lines and cultivars of spring wheat, winter wheat, durum, and oats developed by other Universities, the USDA-ARS, and private seed companies, and to determine adaptability of those lines and varieties to conditions in eastern Montana.

RESULTS:

The experimental site was fallow in 1994. All yield trials had three replications. Soil type is a Williams loam. Plots were 10 ft long and four rows wide with one ft between rows. At harvest, all rows were harvested with a plot combine for yield, test weight, and grain protein determinations.

Residual soil N was 140 lb/acre to three feet and residual soil P was 33 lb/acre to six inches. No fertilizer was applied. Bronate was applied for weed control at a rate of 2 pt/acre on 16 May 1995.

Uniform Regional Hard Red Spring Wheat yield trial:

The Uniform Regional Hard Red Spring wheat yield trial is conducted in cooperation with Dr. R.H. Busch of the University of Minnesota, St. Paul. Quality of each line and variety is tested by Dr. G. Hareland of North Dakota State University, Fargo.

Thirty-two experimental lines and varieties of hard red spring wheat were tested under dryland conditions (Table 1). AgriPro line N92-0434 yielded most followed by South Dakota lines SD3165 and SD3156. Average yield was 34.2 bu/acre. Five-year summaries for yield, test weight, and protein are shown in Tables 2 through 4.

Northern Regional Winter Wheat yield trial:

The Northern Regional Winter Wheat yield trial is conducted in cooperation with Dr. C.J. Peterson at the University of Nebraska, Lincoln. Quality of each line and variety is tested by Dr. O.K. Chung at Kansas State University, Manhattan.

Thirty experimental lines and varieties of winter wheat were tested under dryland conditions (Table 5). Hybritech line XNH1773 and Nebraska line NE92662 yielded most.

Average yield was 59.2 bu/acre. Five-year summaries for yield, test weight, and protein are shown in Tables 6 through 8.

Uniform Regional Durum yield trial:

The Uniform Regional Durum yield trial is conducted in cooperation with Dr. E.M. Elias, North Dakota State University, Fargo. Quality of each line and variety is tested by Dr. G. Hareland of North Dakota State University, Fargo.

Thirty-five experimental lines and varieties were tested under dryland conditions (Table 9). North Dakota lines D901313, D91076, and Renville had the highest yields. Average yield was 47.8 bu/acre. Five-year summaries for yield, test weight, and protein are shown in Tables 10 through 12.

Uniform Regional Oat yield trial:

The Uniform Regional Oat yield trial is conducted in cooperation with Dr. A.M. Wesenberg of the USDA-ARS National Small Grain Facility, Aberdeen, ID.

Thirty-five experimental lines and varieties were tested Table 13). Monida, Border, and Whitestone yielded most. Average yield was 109.3 bu/acre. Five-year summaries for yield, test weight, and protein are shown in Tables 14 through 16.

SUMMARY:

The uniform regional yield trials are trials that are conducted at many sites in several states across the western USA. Experimental lines from state breeding programs, private companies, and the USDA-ARS breeding programs are tested in these trials.

The regional yield trials at Sidney were conducted under dryland conditions at the Eastern Agricultural Research Center. The Northern Regional Winter Wheat trial was planted on 19 September 1994 and harvested on 26 July 1995. The Uniform Regional Hard Red Spring trial was planted on 27 April and harvested on 14 August. The Uniform Regional Durum trial was planted on 27 April and was harvested on 16 August. The Uniform Regional Oat trial was planted on 27 April and harvested on 7 August. Good soil moisture at planting with adequate rainfall during the growing season resulted in normal yields. High winds and possibly hail at maturity caused shattering in the spring grain trials so that shatter resistant lines performed better than lines susceptible to shatter. The winter wheat yield trials were harvested before the storms occurred, and did not suffer shatter damage.

FUTURE PLANS:

New and existing varieties and experimental lines will continue to be tested under dryland conditions at the Eastern Agricultural Research Center, so that breeders can release improved varieties and producers can have information on varieties that are adapted to this area.

Table 1. Agronomic data obtained from a dryland Uniform Regional hard red spring wheat yield trial conducted at the Eastern Agricultural Research Center, Sidney, MT, 1995.
Planting date: 27 April 1995 Harvest date: 14 August 1995

Variety	Days to heading [1]	Height, inches	Lodging index	Protein content	Test wt, lb/bu	Yield bu/acre
N92-0434	60	28	0.0	14.5	61.2	50.6 aa
SD3165	54	28	0.0	14.5	62.3	47.9
SD3156	55	27	0.0	13.9	62.5	46.6
SD3161	55	28	1.9	13.6	62.0	44.5
N89-0562	56	24	0.0	15.4	61.0	42.7
MN91309	55	24	0.0	14.5	61.0	42.7
MN2540	59	27	0.0	13.1	60.7	41.8
Stoa	58	33	0.0	14.1	60.7	40.7
Era	59	26	0.0	13.5	60.8	39.9
Butte 86	57	31	0.0	14.5	61.6	39.3
BW191	54	31	0.9	15.0	60.2	39.0
ND678	58	33	0.0	14.6	61.5	38.3
FA993401	61	30	0.0	13.3	59.9	38.2
FA993402	59	34	4.6	14.2	61.1	38.2
HY417	59	27	0.0	13.6	61.7	37.2
SD3164	56	28	0.0	14.8	62.8	36.5
SD3151	56	30	0.0	15.3	62.1	35.5
SBF0402	57	26	0.0	14.2	61.4	33.3 x
MN92387	56	27	0.0	14.1	62.3	33.2 x
MT9354	60	30	12.2	15.1	61.5	33.1 x
SBE0050	57	27	0.0	14.2	61.4	32.8 x
N92-0248	59	25	0.0	15.3	62.5	32.7 x
MN91324	56	25	0.0	14.6	61.4	32.3 x
Chris 525-1	59	34	25.6	14.7	61.2	32.2 x
MT9360	57	29	0.0	15.0	61.8	23.0 xx
Marquis	62	39	17.8	15.3	61.4	19.7 xx
BW173	60	32	0.0	15.6	60.8	17.6 xx
SD8089	58	30	0.0	13.7	60.6	17.3 xx
N92-2031	60	30	0.0	14.7	62.6	16.3 xx
SD8088	58	31	0.0	13.5	61.8	14.3 xx
ND688	58	28	0.0	14.5	60.6	8.8 xx
mean	57.8	29.0	2.0	14.4	61.4	34.2
LDS 0.05	1.13	2.28	4.89	0.82	0.65	7.21
LSD 0.01						9.59

[1] Heading date is number of days from planting
Check variety is Stoa with an average yield of 40.7 bu/a.
aa indicates significantly greater than check variety Stoa, at a probability of <0.01
x indicates significantly less than check variety Stoa, at a probability of <0.05
xx indicates significantly less than check variety Stoa, at a probability of <0.01

Table 2. Relative yielding abilities of spring wheat varieties as compared to Stoa when grown in the dryland Uniform Regional Hard Red Spring Wheat yield trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Stoa
McNeal	2	--	79.0	64.4	--	--	71.7	125.5
Trenton	3	--	71.7	50.8	58.6	--	60.4	117.4
Hamer	1	--	--	--	67.1	--	67.1	114.5
Lars	1	--	--	--	66.7	--	66.7	113.8
Era	5	35.8	77.4	51.9	60.5	39.9	53.1	105.7
Kulm	3	41.3	66.3	51.4	--	--	53.0	104.6
Norlander	1	--	--	--	59.4	--	59.4	101.4
Butte 86	5	40.5	65.3	47.5	62.0	39.3	50.9	101.3
Stoa	5	37.7	69.0	45.3	58.6	40.7	50.3	100.0
Ernest	2	--	--	46.2	53.2	--	49.7	95.7
MT 9354	1	--	--	--	--	33.1	33.1	81.3
Chris 525-1	4	33.0	--	34.2	47.5	32.2	36.7	80.6
Marquis	5	24.0	72.1	32.8	47.1	19.7	39.1	77.9
MT 9360	1	--	--	--	--	23.0	23.0	56.5

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety, Stoa.

Table 3. Relative test weights of spring wheat varieties as compared to Stoa when grown in the dryland Uniform Regional Hard Red Spring Wheat yield trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Stoa
Kulm	3	62.5	62.7	58.5	--	--	61.2	102.9
Trenton	3	--	63.7	58.8	59.7	--	60.7	101.8
Hamer	1	--	--	--	61.1	--	61.1	101.8
Norlander	1	--	--	--	61.1	--	61.1	101.8
McNeal	2	--	62.7	58.2	--	--	60.4	101.7
MT 9360	1	--	--	--	--	61.8	61.8	101.6
Ernest	2	--	--	57.2	61.3	--	59.2	101.5
MT 9354	1	--	--	--	--	61.5	61.5	101.2
Butte 86	5	60.5	62.8	56.5	61.4	61.6	60.6	101.1
Marquis	5	58.8	62.5	57.3	60.2	61.4	60.0	100.3
Chris 525-1	4	59.3	--	56.7	60.3	61.2	59.4	100.1
Stoa	5	59.7	62.2	56.7	60.0	60.8	59.9	100.0
Era	5	57.7	62.5	56.7	59.6	60.8	59.5	99.3
Lars	1	--	--	--	59.0	--	59.0	98.3

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety, Stoa.

Table_4_. Relative protein contents of spring wheat varieties as compared to Stoa when grown in the dryland Uniform Regional Hard Red Spring Wheat yield trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Stoa
MT 9354	1	--	--	--	--	15.1	15.1	107.1
MT 9360	1	--	--	--	--	15.0	15.0	106.4
Kulm	3	17.4	16.7	14.7	--	--	16.3	104.3
Chris 525-1	4	17.1	--	14.2	13.7	14.7	14.9	101.9
Stoa	5	16.6	15.4	14.8	13.1	14.1	14.8	100.0
Ernest	2	--	--	14.7	13.2	--	14.0	100.0
Hamer	1	--	--	--	13.1	--	13.1	100.0
Trenton	3	--	15.6	13.8	13.8	--	14.4	99.8
Marquis	5	16.4	15.5	13.0	13.4	15.2	14.7	99.3
Norlander	1	--	--	--	13.3	--	13.0	99.2
Butte 86	5	16.3	16.1	13.2	12.9	14.5	14.6	98.6
McNeal	2	--	15.0	14.0	--	--	14.5	96.0
Lars	1	--	--	--	12.3	--	12.3	93.9
Era	5	16.0	14.0	13.0	11.3	13.5	13.6	91.6

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety, Stoa.

Table 5. Agronomic data obtained from a dryland Northern Regional winter wheat yield trial conducted at the Eastern Agricultural Research Center, Sidney, MT, 1995.
Planting date: 19 September 1994 Harvest date: 26 July 1995

Variety	Days to heading [1]	Height, inches	Lodging index	Protein content	Test wt, lb/bu	Yield bu/acre
XNH1773	164	75	0.8	12.8	59.9	66.5
NE92662	165	78	0.0	13.2	60.1	65.2
XH1689A	165	81	3.5	13.5	60.3	65.1
ND8974	167	90	8.3	13.6	60.1	64.6
ND9272	167	77	1.9	13.2	60.3	64.3
ND9257	167	81	1.9	13.4	60.1	63.7
NE90479	164	78	0.0	13.4	61.9	62.9
NE92522	164	80	1.9	12.9	59.4	62.8
XNH1798	166	77	0.0	12.4	59.9	61.9
Abilene	165	64	0.0	14.4	62.4	61.1
XH1752	164	79	0.0	13.3	59.5	60.7
NE91631	167	80	0.0	12.5	59.3	60.5
NE92628	165	80	0.0	13.3	59.9	60.0
ND9274	166	75	0.0	14.1	59.8	59.5
SD89180	165	89	3.6	13.6	61.9	59.3
XNH1802	167	75	0.0	12.9	57.0	59.3
SD89153	166	85	0.0	13.7	61.9	59.2
Roughrider	168	92	4.4	13.5	62.4	59.1
AMN4LV	170	99	11.1	13.2	60.8	58.3
ND9043	168	91	4.0	14.1	60.4	58.2
SD89186	164	91	23.3	12.7	60.5	57.9
ND9064	167	97	3.2	13.4	60.6	57.6
SD89205	165	89	26.7	13.2	61.8	57.4
SD89119	165	84	0.0	14.9	61.6	57.2
XNH1799	168	75	0.0	12.0	56.4	56.7
NE91648	166	78	1.7	13.2	60.0	54.8
MT88046	165	84	1.0	15.4	61.1	53.6
W259	170	93	19.2	13.7	59.9	52.0
Kharkof	168	99	25.6	14.8	60.5	51.2 x
Vanguard	168	77	0.0	14.3	59.1	45.5 xx
mean	166.1	82.9	4.7	13.5	60.3	59.2
LSD 0.05	0.92	4.82	5.03	0.89	0.94	7.65
LSD 0.01						10.15

[1] Heading date is number of days from 1 January.
Check variety is Roughrider with an average yield of 59.1 bu/a.
x indicates significantly less than check variety, Roughrider, at a probability of <0.05
xx indicates significantly less than check variety, Roughrider, at a probability of <0.01

Table 6. Relative yielding abilities of winter wheat varieties as compared to Roughrider when grown in the Northern Regional Winter Wheat yield trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Roughrider
Quantum 566	1	--	--	--	62.6	--	62.6	115.3
ND8889	2	--	--	45.1	60.3	--	52.7	114.9
ND8974	2	--	--	--	59.3	64.6	62.0	109.3
ND9272	1	--	--	--	--	64.3	64.3	108.8
ND9257	1	--	--	--	--	63.7	63.7	107.8
ND90109	2	--	--	45.0	53.1	--	49.0	107.0
MT 8713	2	--	89.3	43.3	--	--	66.3	106.2
ND9064	2	--	--	--	60.3	57.6	59.0	104.0
MT8719	2	--	83.0	44.1	--	--	63.6	101.8
Abilene	3	--	--	40.7	50.1	61.1	50.6	100.7
ND9274	1	--	--	--	--	59.5	59.5	100.7
Roughrider	5	43.0	87.5	37.4	54.3	59.1	56.3	100.0
Elkhorn	3	--	89.8	35.6	52.7	--	59.4	99.4
ND9043	2	--	--	--	51.5	58.2	55.0	97.0
MT88046	1	--	--	--	--	53.6	53.6	90.7
Kharkof	4	28.9	--	31.8	46.6	51.2	39.6	81.8
Tomahawk	1	--	--	29.0	--	--	29.0	77.5
Vanguard	1	--	--	--	--	45.5	45.5	77.0

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety, Roughrider.

Table 7. Relative test weights of winter wheat varieties as compared to Roughrider when grown in the Northern Regional Winter Wheat yield trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Roughrider
Abilene	3	--	--	63.1	63.4	62.4	63.0	100.7
MT 8713	2	--	64.0	61.8	--	--	62.9	100.5
Quantum 566	1	--	--	--	63.3	--	63.3	100.3
Roughrider	5	60.2	63.2	62.0	63.1	62.4	62.2	100.0
Kharkof	4	61.5	--	61.6	63.0	60.5	61.6	99.6
MT8719	2	--	63.5	60.5	--	--	62.0	99.0
ND8889	2	--	--	60.7	63.2	--	62.0	99.0
ND8974	2	--	--	--	63.3	60.1	61.7	98.3
ND9064	2	--	--	--	62.8	60.6	61.7	98.3
ND90109	2	--	--	60.9	62.0	--	61.4	98.2
Elkhorn	3	--	62.1	60.3	62.0	--	61.5	97.9
MT88046	1	--	--	--	--	61.1	61.1	97.9
ND9043	2	--	--	--	62.0	60.4	61.2	97.5
Tomahawk	1	--	--	60.3	--	--	60.3	97.3
ND9272	1	--	--	--	--	60.2	60.2	96.5
ND9257	1	--	--	--	--	60.1	60.1	96.3
ND9274	1	--	--	--	--	59.8	59.8	95.8
Vanguard	1	--	--	--	--	59.1	59.1	94.7

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety, Roughrider.

Table 8. Relative protein contents of winter wheat varieties as compared to Roughrider when grown in the Northern Regional Winter Wheat yield trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Roughrider
Tomahawk	1	--	--	11.8	--	--	11.8	120.4
MT88046	1	--	--	--	--	15.4	15.4	114.1
Abilene	3	--	--	11.4	13.1	14.4	13.0	111.8
Vanguard	1	--	--	--	--	14.3	14.3	105.9
ND9043	2	--	--	--	12.1	14.1	13.1	104.8
Kharkof	4	13.9	--	10.1	12.4	14.8	12.8	104.7
ND9274	1	--	--	--	--	14.1	14.1	104.4
MT8719	2	--	12.4	10.5	--	--	11.5	104.1
ND9064	2	--	--	--	11.8	13.4	12.6	100.8
Roughrider	5	14.1	12.2	9.8	11.5	13.5	12.2	100.0
ND9257	1	--	--	--	--	13.4	13.4	99.5
ND9272	1	--	--	--	--	13.2	13.2	97.8
ND8974	2	--	--	--	10.8	13.6	12.4	97.6
ND90109	2	--	--	9.6	11.1	--	10.4	97.2
MT 8713	2	--	12.1	9.2	--	--	10.6	96.8
ND8889	2	--	--	9.0	11.1	--	10.0	94.4
Elkhorn	3	--	11.2	9.6	10.7	--	10.5	94.0
Quantum 566	1	--	--	--	10.7	--	10.7	93.0

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety, Roughrider.

Table 9. Agronomic data obtained from a dryland Uniform Regional durum yield trial conducted at the Eastern Agricultural Research Center, Sidney, MT, 1995.
Planting date: 27 April 1995 Harvest date: 16 August 1995

Variety	Days to heading [1]	Height, inches	Lodging index	Protein content	Test wt, lb/bu	Yield bu/acre
D901313	60	30	0.7	14.0	62.2	57.6 a
D91076	60	26	0.0	14.5	61.5	56.0
Renville	59	32	1.0	13.8	62.3	55.3
D91080	60	28	0.0	14.8	62.8	52.2
Rugby	58	31	0.7	15.2	62.7	52.0
D901442	58	28	0.0	14.7	63.2	51.6
D901419	57	25	0.0	14.9	62.3	51.0
Lloyd	59	26	0.0	15.1	61.0	50.9
Munich	58	31	0.3	13.7	62.2	50.7
D901518	60	28	0.3	15.6	61.7	50.4
D87240	59	32	2.0	14.1	61.7	50.1
D91321	58	30	3.7	15.4	61.3	49.9
Sceptre	59	31	0.3	14.4	61.2	49.2
D89135	58	30	0.0	14.0	62.2	49.0
Ward	58	30	1.0	15.6	62.3	48.7
Kyle	62	35	3.7	16.3	62.5	48.3
D87130	58	30	0.7	14.2	62.7	48.3
D91410	61	29	0.3	14.2	62.5	47.4
Vic	59	33	1.0	14.9	62.7	47.3
D91066	59	30	0.7	13.9	62.2	47.1
D901536	58	28	0.3	14.4	62.5	46.5
D91103	60	33	1.3	15.0	63.7	46.0
Voss	58	26	0.0	14.8	62.3	46.0
D901786	56	24	0.0	14.0	62.0	46.0
D91306	56	31	0.7	15.1	61.5	45.8
D88303	57	26	0.0	13.9	61.7	45.5
Monroe	55	30	3.0	16.2	62.0	45.5
D91309	61	31	0.0	14.4	61.5	44.5
D91180	59	28	0.0	14.7	62.1	43.9
D901155	57	33	0.3	15.1	62.5	43.6
Plenty	58	31	1.3	15.8	62.0	43.1
Mindum	62	45	8.3	14.8	63.8	42.0
D91058	60	27	0.0	15.6	62.3	41.4
Medora	60	32	1.7	14.4	62.2	41.2
D901486	58	26	0.0	15.5	60.5	40.2 x
mean	58.7	29.8	1.0	14.8	62.2	47.8
LSD 0.05	1.01	2.13	1.38	0.75	0.50	7.73
LSD 0.01						10.26

[1] Heading date is number of days from planting
Check variety is Ward with an average yield of 48.7 bu/a.
a indicates significantly greater than check variety, Ward, at a probability of <0.05
x indicates significantly less than check variety, Ward, at a probability of <0.05

Table 10. Relative yielding abilities of durum varieties as compared to Ward when grown in the dryland Uniform Regional Durum yield trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Ward
Renville	5	41.6	69.0	36.4	66.6	55.3	53.8	112.8
D87240	5	45.3	72.1	35.8	64.2	50.0	53.5	112.2
D87130	5	43.6	64.8	46.8	62.0	48.3	53.1	111.4
Munich	5	40.7	60.7	48.8	61.8	50.6	52.5	110.2
Sceptre	5	44.6	63.7	41.7	59.2	49.2	51.7	108.4
Lloyd	5	37.7	64.0	30.9	62.0	50.9	49.1	103.0
Rugby	5	36.9	55.8	38.4	57.7	52.0	48.2	101.0
Kyle	2	--	--	--	58.0	48.3	53.2	100.3
Ward	5	38.7	52.5	41.2	57.4	48.6	47.7	100.0
Medora	5	39.0	65.9	31.7	60.4	41.2	47.6	99.9
Plenty	3	--	--	44.5	59.2	43.1	48.9	99.7
Vic	5	32.7	63.1	31.8	61.6	47.3	47.3	99.2
Monroe	5	35.3	55.5	30.6	59.2	45.5	45.2	94.8
Voss	1	--	--	--	--	46.0	46.0	94.7
Mindum	5	35.0	55.7	30.1	55.5	42.0	43.7	91.6

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety, Ward.

Table 11. Relative test weights of durum varieties as compared to Ward when grown in the dryland Uniform Regional Durum yield trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Ward
D87130	5	61.7	63.0	568.7	63.0	62.7	61.8	101.4
Mindum	5	58.9	64.5	58.2	62.4	63.8	61.6	101.0
Ward	5	59.5	62.8	57.8	62.5	62.3	61.0	100.0
Rugby	5	59.6	62.8	57.7	62.1	62.7	61.0	100.0
Voss	1	--	--	--	--	62.3	62.3	100.0
Vic	5	59.6	62.8	57.1	62.4	62.6	60.9	99.9
Renville	5	60.4	62.8	57.5	61.4	62.3	60.9	99.8
Medora	5	59.9	63.2	56.9	61.7	62.3	60.8	99.7
Munich	5	59.3	62.2	57.2	63.2	62.2	60.8	99.7
Sceptre	5	59.6	62.5	56.2	61.3	61.2	60.2	98.7
Plenty	3	--	--	57.2	61.0	62.0	60.1	98.7
Kyle	2	--	--	--	60.6	62.5	61.6	98.6
Monroe	5	58.1	62.5	56.4	61.1	62.0	60.0	98.4
D87240	5	58.3	62.0	54.2	61.5	61.7	59.5	97.6
Lloyd	5	57.5	62.0	53.7	59.2	61.0	58.7	96.2

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety, Ward.

Table 12. Relative protein contents of durum varieties as compared to Ward when grown in the dryland Uniform Regional Durum yield trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Ward
Kyle	2	--	--	--	12.4	16.3	14.4	102.5
Ward	5	17.2	16.8	14.5	12.4	15.6	15.3	100.0
Monroe	5	17.5	16.8	13.4	12.2	16.2	15.2	99.5
Rugby	5	17.5	16.1	13.3	12.7	15.2	15.0	97.8
Plenty	3	--	--	13.8	11.8	15.8	13.8	97.4
Medora	5	17.9	15.8	13.8	12.5	14.4	14.9	97.3
Vic	5	17.2	15.9	13.7	12.4	14.9	14.8	96.5
D87130	5	17.8	15.7	13.9	11.8	14.2	14.7	95.9
Lloyd	5	17.8	14.2	13.9	12.4	15.1	14.7	95.9
Munich	5	17.9	15.2	14.3	11.6	13.7	14.5	95.0
Voss	1	--	--	--	--	14.8	14.8	94.9
D87240	5	17.6	14.8	14.3	11.3	14.1	14.4	94.2
Renville	5	17.9	16.0	13.1	11.2	13.8	14.4	94.1
Mindum	5	17.6	14.9	13.7	11.0	14.8	14.4	94.1
Sceptre	5	16.2	14.9	13.4	11.4	14.4	14.1	91.9

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety, Ward.

Table 13 Agronomic data obtained from a dryland Uniform Regional oat yield trial conducted at the Eastern Agricultural Research Center, Sidney, MT, 1995.
Planting date: 27 April 1995 Harvest date: 7 August 1995

Variety	Days to heading [1]	Height, inches	Lodging index	Protein content	Test wt, lb/bu	Yield bu/acre
Monida	61	35	0.0	13.4	37.8	129.4 a
Border	61	32	0.0	13.3	36.2	126.4
Whitestone	60	33	0.0	13.1	38.2	124.2
Appaloosa	60	31	0.0	13.3	36.2	124.1
AB82248	61	29	0.0	12.6	37.0	122.4
AB901322	58	27	0.0	12.6	38.2	121.1
Rio Grande	57	31	0.0	13.5	36.8	119.5
AB833250	62	29	0.0	12.7	36.2	119.2
AB894088	57	29	0.0	14.6	40.2	118.1
AB86664	60	33	0.0	12.9	36.5	116.7
Newdak	55	34	0.0	14.0	35.5	116.6
ND860416	60	35	0.0	13.6	37.3	116.4
Prairie	55	30	0.0	14.2	36.3	115.1
IAH6133	55	35	0.0	13.6	36.7	114.8
Otana	60	39	0.0	14.3	38.2	114.1
Park	59	35	7.4	14.7	35.8	113.8
Cayuse	59	32	0.0	13.1	35.3	113.8
AB91502	54	27	0.0	13.8	38.2	112.7
AB874983	56	27	0.0	13.7	37.7	111.1
Celsia	61	35	0.0	13.2	36.5	110.6
AB891545	55	30	0.0	12.9	38.5	109.3
AB833119	61	26	0.0	13.0	36.3	107.7
AB84825	61	30	0.0	14.1	35.3	106.9
Ajay	58	24	0.0	14.3	36.8	105.4
Valley	59	33	0.0	14.1	36.7	105.4
Ogle	55	30	0.0	14.0	36.8	104.9
AB861867	55	26	0.0	13.7	36.5	103.1
Calibre	61	35	5.6	13.6	38.0	102.9
AB896153	54	28	0.0	14.1	39.0	102.6
AB875125	60	28	0.0	13.0	37.2	101.0
Derby	61	37	8.7	13.8	38.0	95.4 xx
Rodney	59	35	0.0	15.1	36.5	93.4 xx
AB861616	61	30	0.0	16.5	44.3	77.6 xx
AB883073	61	29	0.0	17.2	47.3	76.2 xx
Paul	61	34	0.0	17.9	47.3	74.6 xx
mean	58.7	31.2	0.6	13.9	37.9	109.3
LSD 0.05	1.17	2.30	1.31	0.71	1.57	13.74
LSD 0.01						18.24

[1] Heading date is number of days from planting
Check variety is Otana with an average yield of 114.1 bu/a.
a indicates significantly greater than check variety, Otana, at a probability of <0.05
xx indicates significantly less than check variety, Otana, at a probability of <0.01

Table 14. Relative yields of oat varieties as compared to Otana when grown under dryland conditions in the Uniform Regional Oat Yield Trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Otana
Border	5	98.7	182.2	99.5	145.0	126.4	130.4	110.4
Whitestone	2	--	--	--	125.4	124.2	124.8	108.8
Monida	5	90.2	187.0	100.8	131.1	129.4	127.7	108.1
Rio Grande	5	89.7	169.9	102.0	129.6	119.5	122.1	103.4
Ajay	5	97.4	170.4	101.7	126.9	105.4	120.4	101.9
Appaloosa	5	88.1	177.9	89.0	122.4	124.1	120.3	101.9
Newdak	5	94.7	186.2	86.6	116.3	116.6	120.1	101.7
Prairie	1	--	--	--	--	115.1	115.1	100.9
Otana	5	83.4	188.7	88.9	115.4	114.1	118.1	100.0
Cayuse	5	91.6	166.3	91.1	109.2	113.8	114.4	96.9
Celsia	1	--	--	--	--	110.6	110.6	96.9
Calibre	5	74.0	199.5	97.0	92.2	102.9	113.1	95.8
Valley	5	84.7	164.3	91.0	118.5	105.4	112.8	95.5
Ogle	5	93.7	162.3	89.6	112.6	104.9	112.6	95.4
Park	5	85.1	175.7	76.5	102.0	113.8	110.6	93.7
Derby	4	--	195.6	90.9	89.6	95.4	117.9	93.0
Robert	4	81.4	176.1	69.3	105.6	--	108.1	90.8
Riel	4	78.9	169.9	79.9	86.0	--	103.7	87.0
Rodney	2	--	--	--	100.6	93.4	97.0	84.5
Paul	2	--	--	--	89.1	74.6	81.8	71.3

NOTE: Average yields in this summary should not be compared to each other since they are not grown in the same years. Compare yields only to the check variety, Otana.

Table 15. Relative test weights of oat varieties as compared to Otana when grown under dryland conditions in the Uniform Regional Oat Yield Trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Otana
Paul	2	--	--	--	47.9	47.3	47.6	116.8
Reil	4	38.7	37.7	37.0	44.5	--	39.5	101.4
Otana	5	35.8	38.3	38.3	43.3	38.2	38.8	100.0
Derby	4	--	39.7	37.2	43.0	38.0	39.5	99.9
Valley	5	37.0	38.2	37.6	44.0	36.7	38.7	99.8
Whitestone	2	--	--	--	43.0	38.2	40.6	99.6
Ogle	5	37.2	36.3	37.2	42.3	36.8	38.0	97.9
Calibre	5	34.3	38.7	35.7	42.8	38.0	37.9	97.7
Monida	5	32.5	38.3	37.0	42.3	37.8	37.6	96.9
Rio Grande	5	36.0	37.3	36.0	41.8	36.8	37.6	96.9
Ajay	5	36.6	37.3	36.8	38.7	36.8	37.2	96.0
Robert	4	36.8	36.7	36.1	39.8	--	37.4	96.0
Newdak	5	37.2	35.7	35.8	41.3	35.5	37.1	95.7
Celsia	1	--	--	--	--	36.5	36.5	95.5
Prairie	1	--	--	--	--	36.3	36.3	95.0
Rodney	2	--	--	--	40.7	36.5	38.6	94.7
Park	5	34.5	36.0	34.7	42.3	35.8	36.7	94.5
Border	5	32.7	36.5	35.5	39.0	36.2	36.0	92.8
Cayuse	5	31.6	36.2	33.5	40.5	35.3	35.4	91.3
Appaloosa	5	29.9	36.0	34.5	39.0	36.2	35.1	90.6

NOTE: Average test weights in this summary should not be compared to each other since they are not grown in the same years. Compare test weights only to the check variety Otana.

Table 16. Relative protein contents of oat varieties as compared to Otana when grown under dryland conditions in the Uniform Regional Oat Yield Trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1991-1995 period.

Cultivar	# of years	1991	1992	1993	1994	1995	Ave	as % of Otana
Paul	2	--	--	--	12.5	17.9	15.2	120.6
Rodney	2	--	--	--	10.9	15.1	13.0	103.2
Reil	4	14.0	11.9	11.7	12.2	--	12.4	102.3
Ajay	5	14.4	11.9	12.3	11.4	14.3	12.9	102.1
Park	5	14.0	12.3	11.9	11.4	14.7	12.9	102.1
Valley	5	14.1	12.1	11.6	11.4	14.0	12.6	100.3
Otana	5	13.8	12.1	11.9	10.9	14.3	12.6	100.0
Prairie	1	--	--	--	--	14.2	14.2	99.3
Robert	4	14.3	11.9	11.0	10.7	--	12.0	98.4
Newdak	5	13.3	11.7	11.4	11.3	14.0	12.3	97.9
Border	5	13.4	11.9	11.4	11.1	13.3	12.2	97.0
Derby	4	--	11.9	11.1	10.9	13.8	11.9	97.0
Ogle	5	13.4	11.9	10.6	11.1	14.0	12.2	96.8
Rio Grande	5	14.1	11.1	10.4	11.2	13.5	12.1	95.7
Calibre	5	13.6	11.1	11.5	10.4	13.6	12.0	95.6
Cayuse	5	14.0	10.9	11.4	10.4	13.1	12.0	94.9
Appaloosa	5	13.6	11.4	10.6	10.2	13.3	11.8	93.8
Whitestone	2	--	--	--	10.5	13.1	11.8	93.6
Celsia	1	--	--	--	--	13.2	13.2	92.3
Monida	5	12.8	10.2	10.8	9.5	13.4	11.3	90.0

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare protein contents only to the check variety Otana.