

**PROJECT TITLE:** Evaluation of regional spring wheat, durum, and oat yield trials - 2001

**PROJECT LEADER:**

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**PROJECT PERSONNEL:**

Dr. G. Linkert, University of Minnesota  
Dr. G Hareland, North Dakota State University  
Dr. E.M. Elias, North Dakota State University  
Dr. D.M. Wesenberg, USDA National Small Grain Facility, Aberdeen, Idaho

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

**MATERIALS AND METHODS:**

Soil type: Williams clay loam  
Previous crops: 2000 - fallow, 1999 - safflower. 1998 - small grain plots  
Residual soil N to 3 ft: 163 lb/ac  
Residual soil P to 6 in: 43 ppm  
Residual soil K to 6 in: 342 ppm  
Applied fertilizer: none  
Herbicides: 1.5 pt/ac Bronate applied 6 June 2001  
Precipitation Apr-Aug, 2001: 16.43 inches  
Ave (53 yr) precipitation Apr – Aug: 9.53 inches  
Precipitation Sep 2000 – Aug 2001: 22.79 inches  
Ave (53 yr) precipitation Sep – Aug: 13.91 inches

**Irrigated:**

SOIL TYPE: Savage silty clay  
PREVIOUS CROPS: 2000 - sugarbeets, 1999 - foundation durum, 1998 - safflower plots  
Residual soil N to 4 ft: 17 lb/ac, 50 lb/ac assumed for sugarbeet tops  
Residual soil P to 6 in: 15 ppm  
Residual soil K to 6 in: 270 ppm  
Applied fertilizer: 400 lb/ac 18-46-0 and 30 N/ac as liquid 28-0-0 applied 11 October 2000  
Irrigated (flood) on: 10 July, three inches applied  
Herbicides: 1.5 pt/ac Bronate applied 8 June 2001  
Precipitation Apr-Aug, 2001: 12.79 inches  
Ave (53 yr) precipitation Apr – Aug: 9.53 inches  
Precipitation Sep 2000 – Aug 2001: 18.37 inches  
Ave (53 yr) precipitation Sep – Aug: 13.91

Planting and harvest dates in 2001 were:

<u>Nursery</u>	<u>Planting date</u>	<u>Harvest date</u>
Uniform Regional Hard Red Spring Wheat Trial	26 April	16 August
Uniform Regional Durum Trial – dryland	26 April	17 August

Uniform Regional Durum Trial – irrigated  
Uniform Regional Oat Trial

10 May  
27 April

22 August  
22 August

## **RESULTS:**

**Uniform Regional Hard Red Spring Wheat trial:** The Uniform Regional Hard Red Spring wheat trial is conducted in cooperation with Dr. G. Linkert of the University of Minnesota, St. Paul. Dr. G. Hareland of North Dakota State University, Fargo, tests quality of each line and variety. Thirty-two experimental lines and varieties of spring wheat were tested under dryland conditions (Table 1). Eighteen experimental lines and varieties yielded significantly more than the check variety, Chris. Average yield was 50.8 bu/acre. Five-year summaries for yield, test weight, and protein are shown in Tables 2 through 4.

**Uniform Regional Durum trial, dryland:** The Uniform Regional Durum trial is conducted in cooperation with Dr. E.M. Elias, North Dakota State University, Fargo. Dr. G. Hareland of North Dakota State University, Fargo, tests quality of each line and variety. Thirty-two experimental lines and varieties were tested under dryland fallow conditions (Table 5). No lines or varieties significantly out yielded the check variety, Renville and two lines had significantly lower yields than Renville. Average yield was 49.4 bu/acre. Five-year summaries for yield, test weight, and protein are shown in Tables 6 through 8.

**Uniform Regional Durum trial, irrigated:** The Uniform Regional Durum trial is conducted in cooperation with Dr. E.M. Elias, North Dakota State University, Fargo. Dr. G. Hareland of North Dakota State University, Fargo, tests quality of each line and variety. Thirty-two experimental lines and varieties were tested under irrigated conditions (Table 9). Twenty-four lines and varieties yielded significantly more than the check variety Renville. Average yield was 45.1 bu/acre. Yields and test weights were reduced because of severe lodging. Five-year summaries for yield, test weight, lodging and protein of durum varieties grown under irrigation are shown in Tables 10 through 13.

**Uniform Regional Oat trial:** The Uniform Regional Oat trial is conducted in cooperation with Dr. D. M. Wesenberg of the USDA-ARS National Small Grain Facility, Aberdeen, ID. Thirty-one experimental lines and varieties were tested (Table 14). Eleven lines and varieties yielded significantly more the check variety, Otana and one line yielded significantly less than Otana. Average yield was 110.5 bu/acre. Five-year summaries for yield, test weight, and protein are shown in Tables 15 through 17.

**SUMMARY:** The uniform regional yield trials are conducted at many sites in several states across the western USA, and have been in place since the 1930's. These trials provide important information about experimental lines from state breeding programs, private companies, and the USDA-ARS breeding programs. New varieties are released based on data from these trials.

**FUTURE PLANS:** New and existing varieties and experimental lines of spring wheat, durum and oat will continue to be tested under dryland and irrigated 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. A durum selection and breeding program has been established at EARC in cooperation with the durum breeder from NDSU for development of new varieties adapted to irrigated and dryland conditions in eastern Montana and western North Dakota. New and existing varieties and experimental lines of winter wheat are now being tested under dryland conditions at the Williston Research Center in cooperation with the winter wheat breeder from MSU.

Table 1. Agronomic data obtained from a Uniform Regional hard red spring wheat yield trial grown under dryland fallow conditions at the Eastern Agricultural Research Center, Sidney, MT.

Planting date: 26 April 2001 Harvest date: 16 August 2001

Variety	Days to heading <sup>1</sup>	Height, inches	Protein content	Test wt, lb/bu	Yield bu/acre
SD 3506	57	29	12.7	63.0	60.5 a
MN97063	58	26	13.1	60.8	57.0 a
MT9874	60	27	12.8	59.7	56.7 a
SD3540	54	28	13.1	61.5	55.2 a
98S0191	59	31	12.6	60.8	55.0 a
FA900720	60	29	12.3	62.7	54.3 a
ND729	58	31	13.6	62.3	54.2 a
ND740	55	26	11.7	62.0	54.2 a
SD3546	55	28	12.7	61.3	54.1 a
SD3496	54	30	12.5	62.0	53.9 a
N97-2627	59	26	12.3	59.8	53.4 a
MN97448	56	26	12.1	60.7	53.2 a
N97-0117	56	24	13.1	60.5	52.4 a
BW270	58	33	14.5	60.2	52.1 a
N96-0055	57	25	13.2	61.3	51.4 a
Verde	59	26	12.1	60.5	51.3 a
N97-0189	56	24	12.3	59.7	51.2 a
2375	57	26	12.2	60.7	51.0 a
ND741	58	28	13.8	61.7	50.5
Keene	58	32	13.0	62.2	50.2
MN97803	55	27	12.6	61.2	49.9
WA7875	55	30	12.3	60.7	49.2
ND743	56	27	14.4	61.7	47.9
WA7859	57	29	12.9	59.7	47.9
N97-0100	56	24	13.8	60.7	47.5
RL4958	56	27	14.4	60.8	47.0
Marquis	60	36	13.3	60.5	46.7
SD3367	54	26	13.2	60.8	45.4
ND742	57	25	13.9	62.0	44.4
WA7899	56	27	11.0	59.2	44.0
Chris 525-1	58	34	13.3	59.8	43.0
FA900793	54	22	13.4	61.2	41.8
mean	57	28	12.9	61.0	50.8
probability	<0.001	<0.001	<0.001	<0.001	<0.001
CV (s/mean)	1.0	5.9	6.0	0.8	9.4
LDS <sub>0.05</sub>	1.0	2.7	1.3	0.8	7.8

Check variety is Chris 525-1 with an average yield of 43.0 bu/acre.

a indicates significantly greater yield than check variety, Chris, at a probability of <0.05

<sup>1</sup> Heading date is number of days from planting

Table 2. Relative yields of spring wheat varieties as compared to Chris when grown under dryland fallow conditions in the Uniform Regional Hard Red Spring Wheat trial at Sidney, MT.

Cultivar	1997	1998	1999	2000	2001	Ave	as % of Chris
MT9874	--	--	--	--	60.5	60.5	140.7
Reeder	49.3	64.9	--	--	--	57.1	133.6
McVey	53.0	60.7	--	--	--	56.9	133.0
Scholar	48.8	--	--	--	--	48.8	131.9
ND740	--	--	--	--	54.2	54.2	126.0
Norpro	41.2	63.5	--	--	--	52.4	122.5
Keene	--	62.8	69.4	57.1	50.2	59.9	117.9
Verde	--	58.8	69.6	59.5	51.3	59.8	117.8
ND741	--	--	--	--	50.5	50.5	117.4
Parshall	44.9	54.2	--	--	--	49.6	115.9
2375	--	62.8	68.4	52.6	51.0	58.7	115.6
ND729	--	--	--	55.1	54.2	54.7	114.2
ND743	--	--	--	--	47.9	47.9	111.4
ND742	--	--	--	--	44.4	44.4	103.3
Chris 525-1	37.0	48.5	58.9	52.7	43.0	48.0	100.0
Zeke	31.6	53.7	--	--	--	42.7	99.8
Marquis	31.6	44.0	51.7	45.5	46.7	43.9	91.4

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.

Table 3. Relative test weights of spring wheat varieties as compared to Chris when grown under dryland fallow conditions in the Uniform Regional Hard Red Spring Wheat trial at Sidney, MT.

Cultivar	1997	1998	1999	2000	2001	Ave	as % of Chris
Parshall	61.0	61.2	--	--	--	61.1	103.9
Scholar	61.0	--	--	--	--	61.0	103.7
ND740	--	--	--	--	62.0	62.0	103.7
ND742	--	--	--	--	62.0	62.0	103.7
ND741	--	--	--	--	61.7	61.7	103.2
ND743	--	--	--	--	61.7	61.7	103.2
Norpro	60.0	61.0	--	--	--	60.5	102.9
Reeder	60.8	60.2	--	--	--	60.5	102.9
Keene	--	61.3	62.7	62.5	62.2	62.2	102.6
2375	--	60.7	61.8	62.8	60.7	61.5	101.4
Marquis	59.9	58.0	61.3	62.5	60.5	60.4	100.3
Verde	--	59.2	60.8	62.2	60.5	60.7	100.1
Chris 525-1	58.8	58.8	61.2	62.7	59.8	60.3	100.0
MT9874	--	--	--	--	59.7	59.7	99.8
Zeke	58.7	58.7	--	--	--	58.7	99.8
ND724	--	--	61.0	62.2	--	61.6	99.4
McVey	57.5	56.3	--	--	--	56.9	96.8

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.

Table 4. Relative protein contents of spring wheat varieties as compared to Chris when grown under dryland fallow conditions in the Uniform Regional Hard Red Spring Wheat trial at Sidney, MT.

Cultivar	1997	1998	1999	2000	2001	Ave	as % of Chris
ND743	--	--	--	--	14.4	14.4	108.3
ND742	--	--	--	--	13.9	13.9	104.5
ND741	--	--	--	--	13.8	13.8	103.8
ND729	--	--	--	13.4	13.6	13.5	103.1
Parshall	15.7	16.3	--	--	--	16.0	101.6
Chris 525-1	16.0	15.5	13.3	12.9	13.3	14.2	100.0
Zeke	16.5	14.9	--	--	--	15.7	99.7
Keene	--	15.0	12.7	13.9	13.0	13.7	99.3
Marquis	15.4	15.4	13.0	13.1	13.3	14.0	98.9
Norpro	15.7	15.2	--	--	--	15.5	98.1
MT9874	--	--	--	--	12.8	12.8	96.2
Reeder	14.7	15.3	--	--	--	15.0	95.2
Scholar	14.8	--	--	--	--	14.8	92.5
2375	--	14.6	11.8	12.1	12.2	12.7	92.2
Verde	--	14.3	11.8	12.1	12.1	12.6	91.5
ND740	--	--	--	--	11.7	11.7	88.0
McVey	13.2	13.6	--	--	--	13.4	85.1

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.

Table 5. Agronomic data obtained from a Uniform Regional durum yield trial grown under dryland fallow conditions at the Eastern Agricultural Research Center, Sidney, MT.

Planting date: 26 April 2001 Harvest date: 17 August 2001

Variety	Days to heading <sup>1</sup>	Height, inches	Protein content	Test wt, lb/bu	Yield bu/acre
Mountrail	60	29	12.4	61.0	55.8
D941033	57	27	12.9	60.5	54.9
Plaza	60	25	12.8	60.5	54.7
Pierce	59	30	12.9	62.0	53.6
D97680	59	30	13.0	62.3	53.3
D95747	59	29	13.3	61.2	53.2
Renville	59	31	13.8	61.2	51.6
Ben	58	29	13.3	62.0	51.4
AC Avonlea	57	29	13.7	61.3	50.8
D97780	57	27	13.4	61.3	50.7
D971511	60	30	13.2	60.3	50.5
D95123	58	29	13.4	62.2	50.0
D971508	59	29	13.5	61.8	50.0
D95077	58	27	13.0	60.7	49.8
D96604	58	27	12.9	61.2	49.7
D941030	59	31	13.2	61.2	49.7
D97004	60	27	13.2	61.7	49.6
D96622	58	30	13.0	61.3	49.5
D971002	59	28	12.5	61.0	49.0
D95565	58	30	12.5	61.8	48.3
Maier	59	30	13.4	60.8	48.1
Rugby	59	33	13.9	61.0	47.8
D941261	60	28	13.5	61.7	47.8
D97643	59	29	12.1	61.0	47.7
D971505	60	30	13.6	60.2	47.4
Lebsock	59	29	12.8	62.5	47.0
Munich	57	28	13.2	60.5	46.2
D95672	59	31	13.6	62.0	45.9
D95097	55	28	13.8	59.7	45.9
D971015	58	29	13.4	61.7	45.3
D97038	58	27	14.1	60.2	44.3 x
D97062	57	25	13.7	59.0	42.8 x
Mean	58	29	13.2	61.2	49.4
probability	<0.001	<0.001	<0.001	<0.001	0.049
CV (S/mean)	1.2	4.1	2.9	0.7	8.6
LDS <sub>0.05</sub>	1.1	4.9	0.6	0.7	6.9

Check variety is Renville with an average yield of 51.6 bu/acre.

x indicates significantly lower yield than check variety, Renville, at a probability of <0.05

<sup>1</sup> Heading date is number of days from planting

Table 6. Relative yields of durum varieties as compared to Renville when grown in the Uniform Regional Durum trial under dryland fallow conditions at the EARC, Sidney, Montana.

Cultivar	1997	1998	1999	2000	2001	Ave	as % of Renville
Mountrail	36.2	61.2	77.9	50.8	55.8	56.4	109.4
Plaza	39.9	59.3	65.4	56.7	54.7	55.2	107.1
AC Avonlea	--	--	69.3	52.3	50.8	57.5	103.8
Pierce	--	57.9	64.6	52.8	53.6	57.2	101.6
Maier	37.9	59.6	61.6	52.7	48.1	52.0	100.9
Renville	32.5	59.1	63.0	51.5	51.6	51.5	100.0
Ben	40.6	54.0	59.7	50.9	51.4	51.3	99.6
D941261	--	61.1	64.1	50.5	47.8	55.9	99.2
Lebsock	35.1	58.1	59.4	48.3	47.0	49.6	96.2
Munich	33.8	54.9	59.1	52.2	46.2	49.2	95.5
Rugby	31.0	56.1	55.2	48.5	47.8	47.7	92.6

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.

Table 7. Relative test weights of durum varieties as compared to Renville when grown in the Uniform Regional Durum trial under dryland fallow conditions at the EARC, Sidney, Montana.

Cultivar	1997	1998	1999	2000	2001	Ave	as % of Renville
Lebsock	61.2	61.2	63.3	63.3	62.5	62.3	102.0
Pierce	--	60.8	62.3	63.0	62.0	62.0	101.7
Rugby	62.3	60.5	62.8	62.8	61.0	61.9	101.3
D941261	--	60.2	62.7	62.5	61.7	61.8	101.3
Ben	60.9	60.2	62.8	62.8	62.0	61.7	101.1
Maier	60.2	61.0	61.8	62.5	60.8	61.3	100.3
AC Avonlea	--	--	61.2	61.8	61.3	61.4	100.1
Renville	61.4	59.8	61.8	61.2	61.2	61.1	100.0
Plaza	59.8	60.0	62.0	62.7	60.5	61.0	99.9
Mountrail	60.0	59.7	61.7	62.2	61.0	60.9	99.7
Munich	61.2	58.7	61.0	61.8	60.5	60.6	99.3

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.

Table 8. Relative protein contents of durum varieties as compared to Renville when grown in the Uniform Regional Durum trial under dryland fallow conditions at the EARC, Sidney, Montana.

Cultivar	1997	1998	1999	2000	2001	Ave	as % of Renville
D941261	--	15.0	12.6	13.3	13.5	13.6	102.6
Rugby	15.4	14.2	12.8	13.6	13.9	14.0	102.2
AC Avonlea	--	--	12.4	13.3	13.7	13.1	101.8
Munich	15.1	15.0	12.7	13.6	13.2	13.9	101.8
Maier	15.3	14.7	12.1	13.2	13.4	13.7	100.4
Renville	15.4	14.3	11.5	13.4	13.8	13.7	100.0
Ben	14.5	14.5	12.2	13.2	13.3	13.5	99.0
Pierce	--	14.4	12.1	12.8	12.9	13.1	98.5
Lebsock	14.4	14.0	11.6	13.5	12.8	13.3	96.9
Mountrail	14.5	14.3	12.3	12.4	12.4	13.2	96.3
Plaza	14.0	14.0	10.9	12.3	12.8	12.8	93.6

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

Table 9. Agronomic data obtained from a Uniform Regional durum yield trial grown under irrigated conditions at the Eastern Agricultural Research Center, Sidney, MT.

Planting date: 10 May 2001

Harvest date: 22 August 2001

Variety	Days to heading <sup>1</sup>	Height, inches	Lodging index	Protein content	Test wt, lb/bu	Yield bu/acre	
Plaza	55	28	3.7	15.1	56.7	57.2	a
D97780	52	34	6.7	15.4	57.5	57.0	a
Lebsock	53	34	7.3	15.2	58.8	54.5	a
D941261	54	36	6.7	16.2	57.7	53.7	a
D95123	53	33	6.7	15.4	58.2	51.7	a
Ben	53	38	7.3	15.4	58.3	50.6	a
D96604	53	36	9.0	14.9	58.2	50.6	a
D941033	53	35	8.0	15.4	56.2	49.9	a
D971511	55	38	7.7	16.2	56.8	48.9	a
D97643	53	35	7.7	14.9	56.7	48.8	a
D971002	55	35	6.7	15.2	56.0	48.4	a
Mountrail	54	36	8.0	15.8	55.7	48.0	a
D971505	56	36	8.0	15.6	58.0	47.0	a
Maier	53	34	7.7	15.9	57.2	46.6	a
D971015	52	36	7.7	15.5	57.5	46.4	a
D97004	54	30	5.3	15.2	56.5	46.0	a
D97680	54	36	7.0	15.6	57.7	45.5	a
Munich	53	34	7.3	15.8	55.3	45.1	a
D97062	53	29	6.3	16.1	54.8	44.7	a
D96622	54	36	8.7	16.0	56.2	44.4	a
D95097	52	34	7.3	15.7	55.5	44.1	a
D95077	52	35	8.3	15.5	55.2	43.8	a
D971508	54	34	7.3	15.5	55.5	42.7	a
D97038	53	32	6.3	16.0	56.5	42.2	a
D95747	54	36	7.3	16.3	55.8	41.7	
D941030	53	35	8.0	15.4	56.2	41.1	
D95672	53	36	8.0	16.3	58.2	39.9	
D95565	54	35	8.3	16.3	56.2	38.4	
Renville	53	39	8.7	15.9	55.8	34.3	
Pierce	54	34	8.3	15.8	57.1	32.8	
Rugby	53	38	9.0	15.9	55.2	29.2	
AC Avonlea	52	36	7.7	17.2	52.4	27.7	
mean	53	35	7.4	15.7	56.5	45.1	
probability	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
CV (S/mean)	1.2	6.3	11.5	2.8	1.6	10.7	
LDS <sub>0.05</sub>	1.1	3.6	1.4	0.7	1.5	7.8	

Check variety is Renville with an average yield of 34.3 bu/acre.

a indicates significantly greater yield than check variety, Renville, at a probability of <0.05

<sup>1</sup> Heading date is number of days from planting

Table 10. Relative yields of durum varieties compared to Renville when grown in the irrigated Uniform Regional Durum Trial at the EARC, Sidney, Montana.

Cultivar	1998	1999	2000	2001	Ave	as % of Renville
Plaza	63.5	88.5	94.6	57.2	76.0	116.0
Mountrail	65.9	85.9	103.2	48.0	75.8	115.7
D941261	62.9	89.3	94.0	53.7	75.0	114.5
Lebsock	63.5	83.8	94.5	54.5	74.1	113.1
Maier	63.4	89.4	93.9	46.6	73.3	111.9
Ben	65.0	79.5	96.2	50.6	72.8	111.1
Munich	64.6	83.7	95.7	45.1	72.3	110.4
Pierce	64.0	85.1	94.3	32.8	69.1	105.5
Renville	60.8	80.9	85.9	34.3	65.5	100.0
Rugby	64.4	72.4	85.3	29.2	62.8	95.9
AC Avonlea	--	70.1	94.9	27.7	64.2	95.8

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.

Table 11. Relative test weights of durum varieties compared to Renville when grown in the irrigated Uniform Regional Durum Trial at the EARC, Sidney, Montana.

Cultivar	1998	1999	2000	2001	Ave	as % of Renville
Lebsock	62.5	61.7	64.0	58.8	61.8	102.5
Ben	62.5	61.5	63.3	58.3	61.4	101.8
D941261	62.5	62.0	62.8	57.7	61.3	101.7
Pierce	62.5	61.5	63.2	57.1	61.1	101.3
Plaza	62.8	60.5	62.8	56.7	60.7	100.7
Maier	61.8	60.8	62.8	57.2	60.7	100.7
Mountrail	62.2	60.7	63.0	55.7	60.4	100.2
Renville	62.0	60.8	62.7	55.8	60.3	100.1
Rugby	62.7	59.2	63.0	55.2	60.0	99.5
Munich	61.2	60.5	62.5	55.3	59.9	99.3
AC Avonlea	--	58.5	62.3	52.4	57.7	93.8

NOTE: Average test weights 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.

Table 12. Relative protein contents of durum varieties compared to Renville when grown in the irrigated Uniform Regional Durum Trial at the EARC, Sidney, Montana.

Cultivar	1998	1999	2000	2001	Ave	as % of Renville
AC Avonlea	--	14.6	12.9	17.2	14.9	103.7
Rugby	13.2	14.1	13.4	15.9	14.2	101.4
Renville	13.0	13.8	13.4	15.9	14.0	100.0
Maier	13.5	13.6	12.8	15.9	14.0	100.0
D941261	12.8	13.6	13.2	16.2	14.0	100.0
Ben	13.2	13.6	13.0	15.4	13.8	98.6
Munich	13.3	13.4	12.7	15.8	13.8	98.6
Lebsock	12.7	13.8	12.5	15.2	13.6	97.1
Mountrail	13.4	13.3	11.8	15.8	13.6	97.1
Pierce	12.5	12.8	12.2	15.8	13.3	95.0
Plaza	13.2	12.7	11.4	15.1	13.1	93.6

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

Table 13. Relative lodging indices of durum varieties compared to Renville when grown in the irrigated Uniform Regional Durum Trial at the EARC, Sidney, Montana.

Cultivar	1995	1996	1999	2000	2001	Ave	as % of Renville
Renville	2.2	3.5	5.0	0.0	8.7	3.9	100.0
Rugby	--	--	4.0	0.0	9.0	4.3	94.9
AC Avonlea	--	--	3.0	0.0	7.7	3.6	78.1
Pierce	--	--	2.0	0.0	8.3	3.4	75.2
Maier	--	--	2.0	0.0	7.7	3.2	70.8
Mountrail	--	--	1.7	0.0	8.0	3.2	70.8
Ben	--	1.3	2.7	0.0	7.3	2.8	65.7
Lebsock	--	--	0.7	0.0	7.3	2.7	58.4
D941261	--	--	1.0	0.0	6.7	2.6	56.2
Munich	1.5	1.0	1.0	0.0	7.3	2.2	55.7
Plaza	--	--	0.0	0.0	3.7	1.2	27.0

NOTE: Average lodging indices 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.

Table 14. Agronomic data obtained from a dryland Uniform Regional oat yield trial grown under dryland fallow conditions at the Eastern Agricultural Research Center, Sidney, MT.

Planting date: 27 April 2001 Harvest date: 22 August 2001

Variety	Days to heading <sup>1</sup>	Height, inches	Protein content	Test wt, lb/bu	Yield bu/acre	
95Ab10854	62	28	11.7	39.2	132.9	a
94Ab5543	61	28	12.1	38.2	127.8	a
96Ab8796	59	27	11.8	35.5	126.6	a
ABSP 19-9	59	28	11.6	37.7	122.9	a
OT382	58	29	11.7	38.0	122.0	a
ABSP 14-6	58	25	11.9	37.0	122.0	a
CDC Pacer	58	34	12.5	39.2	121.8	a
87Ab5632	58	29	10.4	37.7	120.8	a
Deby	59	34	11.0	38.5	119.0	a
Celsia	59	30	10.7	36.8	118.3	a
Monida	60	31	11.7	38.0	117.8	a
Powell	60	24	12.3	35.0	116.9	
90Ab1322	60	25	11.7	37.8	116.5	
91Ab406	59	25	12.3	36.2	116.2	
91Ab502	55	24	11.8	37.3	114.4	
95Ab12584	56	29	11.7	36.2	112.8	
ABSP 9-2	59	28	11.4	37.7	111.4	
Whitestone	60	28	11.5	35.8	111.0	
90Ab1620	59	26	12.4	38.3	108.3	
89Ab4088	57	28	12.7	39.3	106.6	
Cayuse	57	24	11.5	34.7	104.3	
87Ab5125	59	24	11.0	36.7	102.9	
Otana	59	34	12.8	37.5	102.4	
CDC Dancer	58	33	11.0	37.8	101.0	
Killdeer	57	27	11.6	36.8	99.1	
UC 128	55	29	11.3	35.2	96.2	
87Ab4983	56	23	10.9	38.2	96.0	
Rio Grande	57	24	13.2	36.8	95.4	
UC 129	54	28	11.6	35.5	90.3	
Ajay	60	21	13.3	36.3	90.2	
UC 125	59	24	9.7	35.3	82.1	x
mean	58	27	11.7	37.1	110.5	
probability	<0.01	<0.01	<0.01	<0.01	<0.01	
CV (S/mean)	0.4	9.1	6.6	1.8	8.4	
LDS <sub>0.05</sub>	1.1	4.1	1.3	1.1	15.1	

Check variety is Otana with an average yield of 102.4 bu/acre.

a indicates significantly greater yield than check variety, Otana, at a probability of <0.05

x indicates significantly lower yield than check variety, Otana, at a probability of <0.05

<sup>1</sup> Heading date is number of days from planting

Table 15. Relative yields of oat varieties as compared to Otana when grown under dryland fallow conditions at the EARC, Sidney, Montana.

Cultivar	1997	1998	1999	2000	2001	Ave	as % of Otana
ABSP 19-9	124.8	147.2	176.0	155.2	122.9	145.2	109.6
Monida	120.7	151.2	178.0	152.2	117.8	144.0	108.7
Whitestone	--	--	174.1	153.1	111.0	146.1	108.0
ABSP9-2	134.4	146.6	168.0	152.2	111.4	142.5	107.6
90Ab1322	127.0	144.0	169.4	149.7	116.5	141.3	106.7
Celsia	131.0	138.1	161.0	151.3	118.3	139.9	105.6
Killdeer	--	--	169.6	152.2	99.1	140.3	103.7
Derby	127.8	134.3	158.7	146.9	119.0	137.3	103.7
CDC Pacer	118.6	134.9	155.3	155.1	121.8	137.1	103.5
Powell	127.5	136.8	159.1	143.5	116.9	136.8	103.2
Cayuse	115.9	148.0	161.4	148.6	104.3	135.6	102.4
Otana	108.9	147.6	160.0	143.5	102.4	132.5	100.0
CDC Dancer	--	--	--	--	101.0	101.0	98.6
Rio Grande	101.7	140.7	164.7	134.0	95.4	127.3	96.1
UC 128	--	--	--	--	96.2	96.2	93.9
Ajay	119.4	136.5	143.0	126.8	90.2	123.2	93.0
UC 129	--	--	--	--	90.3	90.3	88.2
UC 125	--	--	--	--	82.1	82.1	80.2

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.

Table 16. Relative test weights of oat varieties as compared to Otana when grown under dryland fallow conditions at the EARC, Sidney, Montana.

Cultivar	1997	1998	1999	2000	2001	Ave	as % of Otana
ABSP9-2	35.0	33.5	39.5	40.5	37.7	37.2	101.4
CDC Dancer	--	--	--	--	37.8	37.8	100.8
Otana	34.8	33.3	38.8	39.3	37.5	36.7	100.0
ABSP 19-9	34.2	33.2	39.0	38.8	37.7	36.6	99.6
Derby	33.0	31.5	38.5	40.3	38.5	36.4	99.0
Whitestone	--	--	38.7	39.7	35.8	38.1	98.8
Killdeer	--	--	38.0	39.2	36.8	38.0	98.6
CDC Pacer	33.7	31.7	36.5	39.8	39.2	36.2	98.5
Rio Grande	32.0	32.7	38.0	37.8	36.8	35.5	96.5
90Ab1322	32.7	29.7	38.0	39.0	37.8	35.4	96.5
Monida	33.2	29.3	37.7	38.3	38.0	35.3	96.1
Celsia	32.3	29.7	37.8	38.7	36.8	35.1	95.4
Ajay	33.0	31.5	36.3	38.0	36.3	35.0	95.3
UC 129	--	--	--	--	35.5	35.5	94.7
UC 125	--	--	--	--	35.3	35.3	94.1
UC 128	--	--	--	--	35.2	35.2	93.9
Powell	32.0	29.5	36.7	36.8	35.0	34.0	92.5
Cayuse	30.8	30.5	36.7	36.7	34.7	33.9	92.2

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.

Table 17. Relative protein contents of oat varieties as compared to Otana when grown under dryland fallow conditions at the EARC, Sidney, Montana.

Cultivar	1997	1998	1999	2000	2001	Ave	as % of Otana
Ajay	14.0	12.2	11.6	11.9	13.3	12.6	104.3
Rio Grande	13.8	12.2	11.0	11.9	13.2	12.4	102.8
Otana	13.7	11.8	10.4	11.7	12.8	12.1	100.0
Powell	13.6	11.8	10.8	10.3	12.3	11.8	97.4
90Ab1322	13.2	11.4	10.8	11.5	11.7	11.7	97.0
Cayuse	13.0	11.7	10.8	11.0	11.5	11.6	96.0
Whitestone	--	--	10.5	11.3	11.5	11.1	95.4
CDC Pacer	13.0	11.4	10.1	10.4	12.5	11.5	95.0
Killdeer	--	--	11.3	10.0	11.6	11.0	94.3
ABSP 19-9	13.7	11.5	9.6	10.4	11.6	11.4	94.0
Monida	13.1	11.8	10.2	9.9	11.7	11.3	93.9
ABSP 9-2	12.6	12.0	9.6	10.7	11.4	11.3	93.2
UC 129	--	--	--	--	11.6	11.6	90.6
Derby	12.8	11.3	9.6	10.0	11.0	10.9	90.6
Celsia	12.5	11.0	10.0	10.1	10.7	10.9	89.9
UC 128	--	--	--	--	11.3	11.3	88.3
CDC Dancer	--	--	--	--	11.0	11.0	85.9
UC 125	--	--	--	--	9.7	9.7	75.8

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.