PROJECT TITLE: Evaluation of regional spring wheat, durum, and oat yield trials - 2005

PROJECT LEADER:
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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.

RESULTS:

Dryland site:

Soil type: Williams clay loam

Uniform Regional Hard Spring Wheat Trial, Uniform Regional Oat Trial:
Previous crops: 2004 - fallow, 2003 - safflower. 2002 - small grain plots
Residual soil N to 3 ft: 65 lb N/ac
Residual soil P to 6 in: 34 ppm
Applied fertilizer: None

Uniform Regional Durum Trial:
Previous crops: 2004 – spring wheat, 2003 - safflower. 2002 - small grain plots
Residual soil N to 3 ft: 56 lb N/ac
Residual soil P to 6 in: 23 ppm
Applied fertilizer: 30 lb N as 28-0-0

Herbicides: 1.5 pt/ac Bronate applied June 7
Precipitation April – August, 2005: 9.01 inches
Ave (57 yr) precipitation April – August: 9.45 inches
Precipitation September 2004 – August 2005: 12.95 inches
Ave (57 yr) precipitation September – August: 13.83 inches

Irrigated site:

Previous crops: 2004 – sugarbeets, 2003 – small grain, 2002 – potatoes
Residual soil N to 3 ft: 42 lb N/ac
Residual soil P to 6 in: 36 ppm
Applied fertilizer: 80 liquid N (28-0-0) applied November 8, 2004
Irrigated (sprinkler) on: May 4 and June 20
Herbicides: 1.75 pt/ac Bronate applied June 3
Fungicide: Tilt 2 oz and Folicur 3 oz applied July 5
Precipitation April – August, 2005: 10.04 inches
Ave (57 yr) precipitation April – August: 9.45 inches
Precipitation September 2004 – August 2005: 14.48 inches
Ave (57 yr) precipitation September – August: 13.83 inches

Uniform Regional Hard Red Spring Wheat trial: The Uniform Regional Hard Red Spring wheat trial is conducted in cooperation with Dr. D. Garvin of the University of Minnesota, St. Paul. Dr. G. Hareland of North Dakota State University, Fargo, tests quality of each line and variety. Thirty-nine experimental lines and varieties of spring wheat were tested under dryland conditions (Table 1). Three experimental lines and varieties yielded significantly less than the check variety, Verde, and none yielded significantly more. Average yield was 45.8 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 recrop conditions (Table 5). No lines or varieties significantly yielded more or less than the check variety, Mountrail. Average yield was 40.7 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 sprinkle irrigated conditions (Table 9). One variety yielded significantly less than the check variety, Mountrail. Average yield was 88.9 bu/acre. Five-year summaries for yield, test weight, protein content and lodging 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. C. Erickson of the USDA-ARS National Small Grain Facility, Aberdeen, ID. Twenty-seven experimental lines and varieties were tested (Table 14). Two lines yielded significantly more the check variety, Otana and two yielded significantly less. Average yield was 134.8 bu/acre. Five-year summaries for yield, test weight, and protein are shown in Tables 15 through 17.

SUMMARY: The experiments reported under this project are all of the replicated small plot type. 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.
Planted: April 14 Harvested: August 2

Line or variety	Heading*	Height, cm	Grain protein	Test weight, lb/bu	Yield, bu/ac	
MT 0245	69.0	71.3	13.95	61.3	52.4	
98S12706	68.3	62.0	12.36	62.8	51.9	
ND03113	66.7	74.3	11.87	62.8	50.9	
99S00062	67.7	62.0	11.63	63.0	50.7	
SD 3687	67.0	75.0	12.75	60.0	50.4	
ND04318	66.0	71.0	13.18	63.3	49.7	
SD 3868	67.3	79.7	12.03	60.7	49.6	
BW361	68.3	76.7	12.59	63.0	48.9	
MN01311A	67.7	68.0	12.91	62.7	48.8	
ND04319	69.0	69.3	12.77	61.7	48.8	
MT 0266	67.3	70.7	13.90	59.7	48.4	
SD 3854	64.3	76.3	11.59	63.5	48.4	
WA 7957	68.7	78.0	12.82	60.3	48.1	
Verde	69.0	70.7	12.56	62.0	47.4	
ND03115	68.3	74.3	12.56	62.7	47.3	
MN02072	68.3	67.3	12.83	63.0	47.1	
ND0319	68.0	78.7	13.96	62.8	46.8	
CA904741	68.7	59.7	12.98	60.3	46.6	
SD 3870	66.3	81.7	11.95	62.2	46.6	
99S05131	68.0	64.7	11.83	61.0	46.3	
NDSW0350	68.3	67.0	12.75	62.2	45.7	
CA904743	66.7	68.0	13.49	62.3	45.2	
2375	67.0	70.3	12.33	62.0	45.2	
98S11320	65.3	64.3	13.42	63.0	45.2	
SD 3851	65.3	78.0	11.96	63.8	45.1	
Keene	69.0	81.3	13.47	62.0	44.7	
MN13333A	67.0	67.3	12.21	61.8	44.3	
BW367	68.3	81.0	13.52	60.7	44.2	
BW364	67.7	78.3	12.98	60.7	44.1	
MN02252A	69.0	63.7	12.03	62.3	43.8	
MN002614	69.0	64.7	13.43	63.0	43.7	
BZ999592	69.3	72.0	12.25	61.3	43.6	
97S25481	69.0	65.0	13.09	62.5	43.5	
CA904742	70.3	64.0	15.13	63.7	43.0	
NDSW0348	68.3	66.0	13.29	61.4	42.4	
NDSW0345	70.7	80.3	14.35	62.0	40.8	
Marquis	70.0	87.0	12.84	60.8	36.6	x
00H04*J3	70.0	81.7	12.07	62.2	36.4	x
Chris, 525-1	68.0	82.3	13.27	59.7	34.6	x
Average	68.0	72.2	12.84	62.0	45.8	
Probability	<0.001	<0.001	<0.001	<0.001	<0.001	
CV (S/Mean)	1.0	5.2	4.2	0.8	9.6	
CV (SE/mean)	0.6	3.0	2.5	0.5	5.6	
LSD (0.05)	1.1	6.1	0.89	0.8	7.2	

*days from planting
x indicates significantly lower yield than check variety, Verde, at a probability of 0.05

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	2001	2002	2003	2004	2005	Ave	as % of Verde
MT0245	--	--	--	72.5	52.4	62.5	118.7
ND03113	--	--	--	--	50.9	50.9	107.4
ND04318	--	--	--	--	49.7	49.7	104.9
2375	51.0	44.7	56.3	66.6	45.2	52.8	103.2
ND04319	--	--	--	--	48.8	48.8	103.0
MT0266	--	--	--	--	48.4	48.4	102.1
Keene	50.2	44.8	54.4	62.5	44.7	51.3	100.4
Verde	51.3	45.9	53.2	57.8	47.4	51.1	100.0
ND03115	--	--	--	--	47.3	47.3	99.8
ND0319	--	--	--	--	46.8	46.8	98.7
CA904741	--	--	--	--	46.6	46.6	98.3
NDSW0350	--	--	--	--	45.7	45.7	96.4
CA904743	--	--	--	--	45.2	45.2	95.4
NDSW0345	--	--	--	59.1	40.8	50.0	95.0
BZ999592	--	--	--	--	43.6	43.6	92.0
CA904742	--	--	--	--	43.0	43.0	90.7
NDSW0348	--	--	--	--	42.4	42.4	89.5
Chris 525-1	43.0	33.9	41.8	44.1	34.6	39.5	77.2
Marquis	46.7	29.8	43.4	40.8	36.6	39.5	77.2

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 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	2001	2002	2003	2004	2005	Ave	as % of Verde
CA904742	--	--	--	--	63.7	63.7	102.7
ND04318	--	--	--	--	63.3	63.3	102.1
Keene	62.2	60.5	62.7	62.0	62.0	61.9	102.0
ND03113	--	--	--	--	62.8	62.8	101.3
ND0319	--	--	--	--	62.8	62.8	101.3
ND03115	--	--	--	--	62.7	62.7	101.1
CA904743	--	--	--	--	62.3	62.3	100.5
2375	60.7	58.8	61.3	61.7	62.0	60.9	100.4
NDSW0350	--	--	--	--	62.2	62.2	100.3
NDSW0345	--	--	--	61.2	62.0	61.6	100.2
Verde	60.5	58.2	61.7	61.0	62.0	60.7	100.0
MT0245	--	--	--	61.3	61.3	61.3	99.7
ND04319	--	--	--	--	61.7	61.7	99.5
Marquis	60.5	58.7	62.0	59.2	60.8	60.2	99.3
NDSW0348	--	--	--	--	61.4	61.4	99.0
BZ999592	--	--	--	--	61.3	61.3	98.9
Chris 525-1	59.8	57.0	60.2	58.8	59.7	59.1	97.4
CA904741	--	--	--	--	60.3	60.3	97.3
MT0266	--	--	--	--	59.7	59.7	96.3

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 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	2001	2002	2003	2004	2005	Ave	as % of Verde
CA904742	--	--	--	--	15.1	15.1	119.8
NDSW0345	--	--	--	15.9	14.4	15.2	112.2
ND0319	--	--	--	--	14.0	14.0	111.1
MT0266	--	--	--	--	13.9	13.9	110.3
Marquis	13.3	15.0	15.3	16.3	12.8	14.5	109.8
MT0245	--	--	--	15.4	14.0	14.7	108.9
Chris 525-1	13.3	14.3	15.0	16.0	13.3	14.4	108.6
Keene	13.0	13.8	15.1	15.8	13.5	14.2	107.6
CA904743	--	--	--	--	13.5	13.5	107.1
NDSW0348	--	--	--	--	13.3	13.3	105.6
ND04318	--	--	--	--	13.2	13.2	104.8
CA904741	--	--	--	--	13.0	13.0	103.2
ND04319	--	--	--	--	12.8	12.8	101.6
NDSW0350	--	--	--	--	12.8	12.8	101.6
Verde	12.1	13.2	13.9	14.4	12.6	13.2	100.0
ND03115	--	--	--	--	12.6	12.6	100.0
2375	12.2	13.0	13.6	14.6	12.3	13.1	99.2
BZ999592	--	--	--	--	12.2	12.2	96.8
ND03113	--	--	--	--	11.9	11.9	94.4

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
Planted: April 15 Harvested: August 4

Line of variety	Heading*	Height, cm	Hard vitreous amber color	grain protein	test weight, lb/bu	Yield, bu/ac
D00704	69.0	74.3	78.3	13.01	59.5	44.7
D01128	67.3	75.7	80.7	13.18	60.5	43.1
D99938	68.7	72.3	79.3	12.94	60.3	42.6
Maier	68.3	71.3	79.3	12.74	61.2	42.5
Alkabo	68.3	68.3	78.6	12.74	61.0	42.5
DG013141	67.7	75.3	66.5	11.95	59.7	42.0
D01112	68.7	70.0	80.3	12.34	60.8	42.0
D00095	67.3	79.3	77.7	12.41	60.7	41.9
D02021	68.0	80.0	77.4	13.02	61.5	41.8
D98530	67.3	73.7	80.7	13.08	60.2	41.6
D001097	68.7	72.0	72.1	12.59	59.3	41.5
Divide	67.3	72.3	58.1	11.85	60.2	41.5
D011233	68.3	73.7	75.2	11.76	59.5	41.2
Lebsock	67.3	69.3	76.9	11.91	61.8	41.1
Ben	67.3	75.3	78.0	13.89	60.7	41.0
D01279	68.7	70.7	83.4	13.00	59.5	41.0
D98529	67.7	71.0	80.0	13.64	60.3	40.9
D01050	67.7	61.3	70.5	11.73	62.0	40.8
Grenora	67.7	66.3	77.1	12.76	59.8	40.7
Plaza	68.7	65.3	78.8	12.67	59.7	40.7
Mountrail	68.3	70.0	77.7	12.15	59.7	40.6
D01066	68.7	72.0	79.6	12.90	60.8	40.5
D00752	69.0	73.0	87.7	14.09	60.3	40.3
D01113	68.0	69.3	81.6	13.01	61.0	39.6
D011238	68.7	74.7	73.9	12.23	60.3	39.0
D00969	68.7	65.7	77.6	13.17	60.3	38.7
D99983	67.0	70.7	72.3	12.90	57.5	38.6
D01706	67.3	72.0	83.4	13.97	59.8	38.5
D99541	68.0	67.0	81.0	14.29	58.5	38.4
Pierce	67.7	73.7	78.4	12.46	61.3	38.3
D01130	67.0	66.0	71.9	12.22	61.0	37.3
D01068	69.0	72.0	85.5	13.86	60.3	36.6
Average	68.0	71.4	77.5	12.83	60.3	40.7
Probability	<0.001	0.002	0.001	0.038	<0.001	0.926
CV (S/Mean) %	0.8	6.3	8.0	7.2	1.4	9.6
CV (SE/Mean)%	0.5	3.7	4.6	4.2	0.8	5.5
LSD (0.05)	0.9	7.4	10.1	1.51	1.3	ns

* 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	2001	2002	2003	2004	2005	Ave	as % of Mountrail
Mountrail	55.8	37.1	56.8	60.7	40.6	50.2	100.0
Plaza	54.7	36.9	54.6	59.7	40.7	49.3	98.2
Maier	48.1	38.7	54.3	58.2	42.5	48.4	96.3
Alkabo	49.7	38.8	52.7	57.9	42.5	48.3	96.3
Grenora	50.7	36.1	55.5	57.1	40.7	48.0	95.7
Pierce	53.6	39.5	53.1	54.8	38.3	47.9	95.3
Divide	50.5	35.7	54.9	55.9	41.5	47.7	95.0
Ben	51.4	38.8	53.3	53.3	41.0	47.6	94.7
Lebsock	47.0	40.6	53.6	45.6	41.1	45.6	90.8

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 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	2001	2002	2003	2004	2005	Ave	as % of Mountrail
Lebsock	62.5	60.7	62.5	61.0	61.8	61.7	102.5
Pierce	62.0	60.2	62.0	61.8	61.3	61.5	102.1
Ben	62.0	59.7	63.3	61.0	60.7	61.3	101.9
Alkabo	61.2	60.0	62.5	61.7	61.0	61.3	101.8
Maier	60.8	59.8	63.0	61.3	61.2	61.2	101.7
Divide	60.3	58.7	62.5	60.8	60.2	60.5	100.5
Grenora	61.3	57.7	61.8	61.7	59.8	60.5	100.4
Mountrail	61.0	57.8	61.3	61.2	59.7	60.2	100.0
Plaza	60.5	58.3	61.7	60.8	59.7	60.2	100.0

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	2001	2002	2003	2004	2005	Ave	as % of Mountrail
Ben	13.3	14.4	13.8	15.0	13.9	14.1	104.9
Grenora	13.4	14.9	14.4	13.6	12.8	13.8	103.0
Maier	13.4	14.5	13.9	13.9	12.7	13.7	101.9
Pierce	12.9	14.4	14.8	13.7	12.5	13.7	101.8
Divide	13.2	14.8	14.4	13.8	11.8	13.6	101.3
Lebsock	12.8	14.0	14.4	14.5	11.9	13.5	100.7
Alkabo	12.9	14.6	14.5	12.5	12.7	13.4	100.1
Mountrail	12.4	14.9	14.2	13.4	12.2	13.4	100.0
Plaza	12.8	14.6	13.8	13.2	12.7	13.4	100.0

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

Table 9. Agronomic data obtained from a Uniform Regional durum yield trial grown under sprinkle irrigated conditions at the Eastern Agricultural Research Center, Sidney, MT.
Planted: April 28 Harvested: August 19

Line or variety	Heading*	Height, cm	Lodging index	Hard vitreous amber color	grain protein	test wt, lb/bu	Yield, bu/ac	
D99541	57.3	91.0	0.7	87.9	13.20	61.5	96.6	
D01066	57.7	98.0	1.0	89.8	13.35	62.3	95.6	
D99983	57.3	99.7	2.0	87.4	12.11	62.3	95.2	
Mountrail	58.0	98.0	1.3	89.5	13.26	62.3	93.5	
D011233	58.3	101.0	0.3	73.6	11.98	61.8	93.4	
D01279	58.3	92.3	0.3	86.0	13.38	62.0	93.0	
D001097	58.3	104.0	2.3	87.7	13.41	62.8	91.9	
D00095	57.7	106.7	1.0	87.8	13.36	62.2	91.8	
Plaza	59.7	84.3	0.0	83.8	12.76	62.3	91.3	
Divide	59.3	101.7	1.3	87.5	13.35	62.7	91.3	
Maier	56.7	97.7	1.0	91.1	13.96	62.3	90.5	
D00969	58.0	93.3	0.0	81.9	13.23	62.2	89.8	
Grenora	57.0	94.0	0.3	89.4	13.58	61.7	89.6	
D01112	57.3	100.7	0.0	90.8	13.24	62.5	89.6	
D01706	56.3	99.3	0.3	92.7	14.43	62.3	89.6	
D01068	58.0	98.0	1.7	96.6	13.49	63.3	88.9	
D011238	59.7	99.3	3.2	90.1	13.34	62.0	88.8	
D01128	56.3	92.3	0.7	88.7	13.97	62.5	88.2	
D99938	59.3	104.3	3.0	91.7	13.68	62.3	88.1	
Pierce	57.3	99.0	0.7	89.4	13.36	62.5	88.1	
D02021	56.7	103.7	2.3	91.1	14.01	62.3	87.7	
D01050	57.7	87.0	0.0	80.8	12.72	63.2	87.6	
D98530	57.7	98.0	0.0	89.6	13.51	62.2	86.9	
D00752	60.3	101.7	0.3	99.6	13.68	63.8	86.4	
Lebsock	57.0	98.3	0.3	85.2	13.36	62.7	85.8	
D01130	57.0	87.7	0.0	89.6	13.89	62.2	85.2	
DG013141	56.7	97.0	0.3	77.0	12.79	61.5	84.5	
Alkabo	57.7	95.0	0.0	90.1	13.20	62.5	84.4	
D00704	58.7	100.0	0.3	86.4	13.75	61.7	84.2	
D01113	58.0	96.0	0.3	87.8	13.45	62.2	84.0	
D98529	57.3	96.3	0.0	87.4	13.62	62.0	82.9	
Ben	58.3	101.3	1.3	87.9	13.89	62.3	80.1	x
Average	57.8	97.4	0.8	88.0	13.38	62.3	88.9	
Probability	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
CV (S/Mean) %	1.1	3.1	68.6	4.7	3.2	0.6	4.1	
CV (SE/Mean)%	0.6	1.8	39.6	2.7	1.9	0.4	2.4	
LSD (0.05)	1.0	5.0	0.9	6.7	0.71	0.6	5.9	

*days from planting

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

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	2001	2002	2003	2004	2005	Ave	as % of Mountrail
Grenora	57.0	76.5	125.4	86.8	89.6	87.1	104.0
Plaza	57.2	72.4	117.0	96.6	91.3	86.9	103.8
Mountrail	48.0	73.3	124.3	79.4	93.5	83.7	100.0
Alkabo	50.6	69.4	115.5	84.2	84.4	80.8	96.6
Maier	46.6	66.7	118.9	78.6	90.5	80.3	95.9
Divide	48.9	70.4	114.8	68.8	91.3	78.8	94.2
Lebsock	54.5	66.3	110.8	68.4	85.8	77.2	92.2
Ben	50.6	65.3	107.5	73.4	80.1	75.4	90.1
Pierce	32.8	71.6	116.1	65.5	88.1	74.8	89.4

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 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	2001	2002	2003	2004	2005	Ave	as % of Mountrail
Lebsock	58.8	63.5	64.3	63.5	62.7	62.6	101.7
Alkabo	58.2	63.0	64.8	63.8	62.5	62.5	101.5
Ben	58.3	63.2	64.5	63.8	62.3	62.4	101.4
Pierce	57.1	64.0	64.3	63.2	62.5	62.2	101.1
Maier	57.2	63.3	64.0	63.8	62.3	62.1	100.9
Divide	56.8	63.3	63.8	62.8	62.7	61.9	100.6
Grenora	57.5	62.3	63.8	63.7	61.7	61.8	100.4
Plaza	56.7	62.7	63.3	63.8	62.3	61.8	100.4
Mountrail	55.7	63.2	63.7	62.8	62.3	61.5	100.0

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	2001	2002	2003	2004	2005	Ave	as % of Mountrail
Mountrail	15.8	11.6	13.6	13.0	13.3	13.5	109.2
Maier	15.9	12.3	14.2	13.0	14.0	13.9	109.2
Ben	15.4	12.0	14.3	13.0	13.9	13.7	103.4
Divide	16.2	11.1	14.2	13.5	13.4	13.7	100.0
Pierce	15.8	11.4	14.0	12.8	13.4	13.5	92.4
Lebsock	15.2	11.5	13.7	13.2	13.4	13.4	84.0
Grenora	15.4	12.6	13.9	12.3	13.6	13.6	80.7
Alkabo	14.9	11.9	13.0	11.5	13.2	12.9	80.7
Plaza	15.1	11.8	13.1	11.3	12.8	12.8	37.0

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare 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	2001	2002	2003	2004	2005	Ave	as % of Mountrail
Pierce	8.3	1.0	3.0	0.0	0.7	2.6	109.2
Ben	7.3	0.7	2.7	1.0	1.3	2.6	109.2
Divide	7.7	1.0	2.0	0.3	1.3	2.5	103.4
Mountrail	8.0	1.3	1.3	0.0	1.3	2.4	100.0
Maier	7.7	0.3	2.0	0.0	1.0	2.2	92.4
Grenora	6.7	0.7	2.3	0.0	0.3	2.0	84.0
Alkabo	9.0	0.3	0.3	0.0	0.0	1.9	80.7
Lebsock	7.3	0.3	1.7	0.0	0.3	1.9	80.7
Plaza	3.7	0.0	0.7	0.0	0.0	0.9	37.0

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 uniform regional oat yield trial grown under dryland fallow conditions at the Eastern Agricultural Research Center, Sidney, MT.
Planted: April 13 Harvested: July 29

Line of variety	Heading*	Height, cm	Grain protein	Test wt, lb/bu	Yield, bu/ac	
Monico	71.7	84.7	12.11	38.2	147.1	a
Killdeer	70.7	85.7	11.54	36.8	145.7	a
Maverick	71.7	77.3	11.83	36.2	143.8	
96AB8597	74.0	83.3	10.92	37.3	143.7	
96AB8796	72.7	80.3	11.18	34.3	143.4	
87AB5632	72.0	87.0	11.62	36.2	142.1	
92AB791	73.0	83.3	12.65	34.7	141.8	
95A12770	72.0	87.3	11.57	37.5	140.4	
Monida	73.7	95.7	12.24	34.8	139.7	
99A11259	71.0	86.0	11.17	38.2	139.5	
CDC Dancer	71.3	107.0	11.56	38.3	138.7	
98AB6646	71.7	87.7	11.28	38.5	135.4	
Otana	72.7	101.0	12.25	36.8	134.6	
OT382	73.3	96.0	11.23	36.5	134.1	
94AB5943	71.3	82.7	11.86	37.5	132.4	
99A10971	70.7	86.0	11.00	37.5	132.3	
Cayuse	71.7	91.3	11.48	35.3	131.8	
94AB5818	69.7	79.7	11.56	37.8	131.5	
96AB8963	71.0	77.3	12.40	37.0	131.5	
98AB6491	70.7	84.7	11.50	35.0	130.9	
91AB502	69.3	84.0	12.31	36.7	130.4	
95A12584	70.3	84.7	12.39	36.7	128.2	
94AB5469	70.3	77.0	13.26	37.8	126.6	
95A10854	74.7	88.7	11.21	37.3	126.1	
99A11136	75.3	79.7	11.08	32.8	124.5	
CDC Pacer	71.3	98.3	11.91	35.8	122.5	x
97AB8081	73.0	88.3	12.62	37.0	122.0	x
Average	71.9	86.8	11.77	36.6	134.8	
Probability	<0.001	<0.001	0.006	<0.001	<0.001	
CV (S/Mean) %	0.8	4.8	5.8	1.8	5.0	
CV (SE/Mean)%	0.4	2.8	3.4	1.0	2.9	
LSD (0.05)	0.9	6.8	1.12	1.1	11.0	

* days from planting
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

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

Cultivar	2001	2002	2003	2004	2005	Ave	as % of Otana
Monico	111.4	65.4	128.3	153.7	147.1	121.2	108.2
Maverick	116.5	69.5	122.2	146.9	143.8	119.8	106.9
OT382	122.0	38.2	136.2	152.5	134.1	116.6	104.1
Monida	117.8	52.3	124.3	147.7	139.7	116.4	103.9
Killdeer	99.1	57.6	131.5	146.9	145.7	116.2	103.7
Cayuse	104.3	62.5	123.6	140.1	131.8	112.5	100.4
CDC Pacer	121.8	44.7	123.9	148.4	122.5	112.3	100.2
Otana	102.4	61.7	125.9	135.6	134.6	112.0	100.0
CDC Dancer	101.0	49.7	127.2	142.5	138.7	111.8	99.8

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

Cultivar	2001	2002	2003	2004	2005	Ave	as % of Otana
CDC Dancer	37.8	32.7	37.5	36.2	38.3	36.5	101.6
Killdeer	36.8	32.8	38.3	36.0	36.8	36.1	100.6
CDC Pacer	39.2	32.2	36.7	36.5	35.8	36.1	100.4
Monico	37.7	31.3	37.0	35.7	38.2	36.0	100.2
Otana	37.5	31.5	36.8	37.0	36.8	35.9	100.0
OT382	38.0	31.0	37.7	35.8	36.5	35.8	99.7
Maverick	37.8	29.2	34.2	33.7	36.2	34.2	95.3
Monida	38.0	29.7	32.8	33.5	34.8	33.8	94.0
Cayuse	34.7	27.7	34.2	32.5	35.3	32.9	91.5

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	2001	2002	2003	2004	2005	Ave	as % of Otana
Cayuse	11.5	11.2	15.2	13.6	11.5	12.6	100.2
Otana	12.8	11.2	13.9	12.8	12.2	12.6	100.0
Monico	11.4	12.8	13.5	13.0	12.1	12.6	99.8
CDC Pacer	12.5	11.3	14.1	12.5	11.9	12.5	99.0
Maverick	11.7	11.8	13.8	12.8	11.8	12.4	98.4
OT382	11.7	12.9	13.0	13.0	11.2	12.4	98.3
Monida	11.7	10.2	14.8	12.8	12.2	12.3	98.1
Killdeer	11.6	12.0	13.9	12.2	11.5	12.2	97.3
CDC Dancer	11.0	10.6	13.7	12.4	11.6	11.9	94.3

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.