PROJECT TITLE: Evaluation of regional spring wheat, durum, and oat yield trials - 2002

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OBJECTIVE: To evaluate new and introduced lines and cultivars of spring wheat, durum, and oat 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:

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-seven experimental lines and varieties of spring wheat were tested under dryland conditions (Table 1). Six experimental lines and varieties yielded significantly less than the check variety, Verde, and none yielded more. Average yield was 43.1 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 four yielded significantly less. Average yield was 37.7 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 irrigated conditions (Table 9). Five lines and varieties yielded significantly more than the check variety Renville. Average yield was 69.3 bu/acre. 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. C. Erickson of the USDA-ARS National Small Grain Facility, Aberdeen, ID. Thirty-two experimental lines and varieties were tested (Table 14). Four lines and varieties yielded significantly more the check variety, Otana and nine yielded significantly less. Average yield was 57.9 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: 30 April 2002 Harvest date: 12 August 2002

Variety	Days to heading [1]	Height, inches	Protein content	Test wt, lb/bu	Yield bu/acre	
SD3641	56	28	12.7	59.5	50.3	
HY469	59	24	12.5	57.7	49.6	
ND744	58	28	13.0	60.3	46.8	
MN98389A	59	28	12.0	57.2	46.5	
01M96	59	28	13.6	62.3	46.4	
SD3623	59	32	13.3	59.2	46.4	
ND749	59	29	13.2	59.2	46.3	
01M98	58	28	13.2	57.3	46.3	
SD3540	58	29	13.0	60.5	45.9	
Verde	62	28	13.2	58.2	45.9	
ND741	60	28	13.2	58.5	45.5	
N99-0107	60	26	13.1	59.3	45.4	
ND739	59	27	12.8	60.2	45.0	
N98-0286	61	25	13.2	56.3	44.8	
Keene	61	31	13.8	60.5	44.8	
N97-0117	60	25	13.5	57.0	44.8	
2375	60	28	13.0	58.8	44.7	
MN976954	59	27	13.6	60.5	44.7	
N98-0328	60	25	12.8	56.0	44.6	
SD3533	58	30	13.7	59.8	43.7	
Outlook	62	26	13.1	57.7	43.4	
CA901712	57	25	13.2	59.2	43.0	
BW313	59	34	15.2	59.0	42.6	
01M88	62	22	13.1	59.0	42.4	
N98-0326	60	23	12.9	55.7	41.9	
SD3546	59	30	12.7	59.2	41.7	
ND750	60	28	13.8	59.8	41.4	
WA7914	60	29	11.8	57.0	41.3	
NDSW0246	61	30	14.0	59.2	41.1	
FA900720	62	28	12.6	60.8	40.3	
N96-0055	61	24	13.8	57.7	39.7	
WA7899	60	24	12.5	55.0	39.5	x
01M97	58	28	13.8	62.7	39.3	x
BW306	60	28	14.2	59.5	38.4	x
MT9929	60	25	13.0	57.7	37.7	x
Chris, 525-1	62	32	14.3	57.0	33.9	x
Marquis	63	33	15.0	58.7	29.8	x
mean	60	28	13.3	58.7	43.1	
probability	<0.001	<0.001	<0.001	<0.001	<0.001	
CV (s/mean)	0.3	4.5	2.6	0.8	8.9	
$LDS_{0.05}$	0.8	2.0	0.6	0.8	6.2	

Check variety is Chris with an average yield of 43.0 bu/acre.
[1] Heading date is number of 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	1998	1999	2000	2001	2002	Ave	as % of Verde
Outlook	--	--	--	60.5	43.4	52.0	106.9
ND740	--	--	--	54.2	--	54.2	105.7
ND744	--	--	--	--	46.8	46.8	102.0
ND749	--	--	--	--	46.3	46.3	100.9
Verde	58.8	69.6	59.5	51.3	45.9	57.0	100.0
Keene	62.8	69.4	57.1	50.2	44.8	56.9	99.7
ND741	--	--	--	50.5	45.5	48.0	98.8
ND729	--	--	55.1	54.2	--	54.7	98.6
ND739	--	--	--	--	45.0	45.0	98.0
2375	62.8	68.4	52.6	51.0	44.7	55.9	98.0
ND743	--	--	--	47.9	--	47.9	93.4
ND750	--	--	--	--	41.4	41.4	90.2
ND742	--	--	--	44.4	--	44.4	86.5
Chris 525-1	48.5	58.9	52.7	43.0	33.9	47.4	83.1
MT9929	--	--	--	--	37.7	37.7	82.1
Marquis	44.0	51.7	45.5	46.7	29.8	43.5	76.4

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	1998	1999	2000	2001	2002	Ave	as % of Verde
ND744	--	--	--	--	60.3	60.3	103.6
ND739	--	--	--	--	60.2	60.2	103.4
Keene	61.3	62.7	62.5	62.2	60.5	61.8	102.8
ND750	--	--	--	--	59.8	59.8	102.7
ND740	--	--	--	62.0	--	62.0	102.5
ND742	--	--	--	62.0	--	62.0	102.5
ND743	--	--	--	61.7	--	61.7	102.0
ND749	--	--	--	--	59.2	59.2	101.7
2375	60.7	61.8	62.8	60.7	58.8	61.0	101.3
ND741	--	--	--	61.7	58.5	60.1	101.3
ND724	--	61.0	62.2	--	--	61.6	100.2
Marquis	58.0	61.3	62.5	60.5	58.7	60.2	100.0
Verde	59.2	60.8	62.2	60.5	58.2	60.2	100.0
Chris 525-1	58.8	61.2	62.7	59.8	57.0	59.9	99.5
MT9929	--	--	--	--	57.7	57.7	99.1
Outlook	--	--	--	59.7	57.7	58.7	98.9

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	1998	1999	2000	2001	2002	Ave	as % of Verde
ND743	--	--	--	14.4	--	14.4	119.0
ND742	--	--	--	13.9	--	13.9	114.9
ND729	--	--	13.4	13.6	--	13.5	111.6
Marquis	15.4	13.0	13.1	13.3	15.0	14.0	109.9
Chris 525-1	15.5	13.3	12.9	13.3	14.3	13.9	109.1
Keene	15.0	12.7	13.9	13.0	13.8	13.7	107.7
ND741	--	--	--	13.8	13.2	13.5	106.7
ND750	--	--	--	--	13.8	13.8	104.5
Outlook	--	--	--	12.8	13.1	13.0	102.4
2375	14.6	11.8	12.1	12.2	13.0	12.7	100.3
Verde	14.3	11.8	12.1	12.1	13.2	12.7	100.0
ND749	--	--	--	--	13.2	13.2	100.0
ND744	--	--	--	--	13.0	13.0	98.5
MT9929	--	--	--	--	13.0	13.0	98.5
ND739	--	--	--	--	12.8	12.8	97.0
ND740	--	--	--	11.7	--	11.7	96.7

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: 1 May 2002 Harvest date: 12 August 2002

Variety	Days to heading[1]	Height, inches	Protein content	Test wt, lb/bu	Yield bu/acre	
Lebsock	60	27	14.0	60.7	40.6	
D97643	62	27	12.5	60.7	40.5	
D98730	60	28	14.6	59.7	40.5	
D98682	60	27	13.9	58.7	40.5	
D98867	60	27	13.9	60.2	39.7	
Pierce	61	28	14.4	60.2	39.5	
Dilse	61	26	15.1	59.5	39.4	
D98813	60	28	13.8	59.8	39.4	
D98530	60	26	14.3	59.0	39.2	
Ben	60	27	14.4	59.7	38.8	
D96604	61	27	14.6	60.0	38.8	
Maier	61	27	14.5	59.8	38.7	
D98062	60	28	13.8	59.8	38.6	
Renville	60	28	14.8	59.3	38.6	
D98887	64	26	13.4	61.3	38.0	
D98908	60	28	14.4	59.0	37.9	
D98529	59	26	14.6	58.8	37.7	
D96622	60	28	14.2	59.3	37.5	
D95672	60	29	14.0	61.0	37.3	
Mountrail	61	27	14.9	57.8	37.1	
D95123	60	27	14.7	60.2	37.1	
D95097	60	26	14.0	58.7	37.0	
Plaza	61	24	14.6	58.3	36.9	
D98016	63	23	14.3	58.2	36.5	
D97780	61	26	14.9	57.7	36.1	
D95077	60	26	14.5	59.0	35.9	
D98717	60	26	15.3	57.2	35.8	
D971511	61	27	14.8	58.7	35.7	
AC Avonlea	60	27	15.1	58.7	34.7	x
D98015	61	25	15.0	58.3	34.7	x
FA989782	61	29	15.2	60.0	34.1	x
D971015	61	28	14.9	59.8	33.5	x
Mean	61	27	14.4	59.3	37.7	
probability	<0.001	<0.001	<0.001	<0.001	0.004	
CV (S/mean)	1.4	3.2	3.9	1.2	6.0	
$LDS_{0.05}$	1.4	1.4	0.9	1.1	3.7	

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
[1] 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	1998	1999	2000	2001	2002	Ave	as % of Renville
Mountrail	61.2	77.9	50.8	55.8	37.1	56.6	107.2
Plaza	59.3	65.4	56.7	54.7	36.9	54.6	103.5
Pierce	57.9	64.6	52.8	53.6	39.5	53.7	101.7
AC Avonlea	--	69.3	52.3	50.8	34.7	51.8	101.2
Renville	59.1	63.0	51.5	51.6	38.6	52.8	100.0
Dilse	61.1	64.1	50.5	47.8	39.4	52.6	99.7
Maier	59.6	61.6	52.7	48.1	38.7	52.1	98.8
Ben	54.0	59.7	50.9	51.4	38.8	51.0	96.6
Lebsock	58.1	59.4	48.3	47.0	40.6	50.7	96.1

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	1998	1999	2000	2001	2002	Ave	as % of Renville
Lebsock	61.2	63.3	63.3	62.5	60.7	62.2	102.5
Pierce	60.8	62.3	63.0	62.0	60.2	61.7	101.6
Ben	60.2	62.8	62.8	62.0	59.7	61.5	101.4
Dilse	60.2	62.7	62.5	61.7	59.5	61.3	101.1
Maier	61.0	61.8	62.5	60.8	59.8	61.2	100.9
Plaza	60.0	62.0	62.7	60.5	58.3	60.7	100.1
Renville	59.8	61.8	61.2	61.2	59.3	60.7	100.0
AC Avonlea	--	61.2	61.8	61.3	58.7	60.8	99.8
Mountrail	59.7	61.7	62.2	61.0	57.8	60.5	99.7

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.

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	1998	1999	2000	2001	2002	Ave	as % of Renville
Dilse	15.0	12.6	13.3	13.5	15.1	13.9	102.5
AC Avonlea	--	12.4	13.3	13.7	15.1	13.6	101.9
Maier	14.7	12.1	13.2	13.4	14.5	13.6	100.1
Renville	14.3	11.5	13.4	13.8	14.8	13.6	100.0
Ben	14.5	12.2	13.2	13.3	14.4	13.5	99.7
Pierce	14.4	12.1	12.8	12.9	14.4	13.3	98.2
Mountrail	14.3	12.3	12.4	12.4	14.9	13.3	97.8
Lebsock	14.0	11.6	13.5	12.8	14.0	13.2	97.2
Plaza	14.0	10.9	12.3	12.8	14.6	12.9	95.3

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare 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: 14 May 2002 Harvest date: 16 August 2002

Variety	Days to heading [1]	Height, inches	Lodging index	Protein content	Test wt, lb/bu	Yield bu/acre	
D97780	51	34	0.7	12.6	62.3	76.5	a
D98016	54	32	0.0	11.0	62.8	74.6	a
D98908	51	36	0.0	11.0	63.2	73.7	a
D97643	52	35	0.3	11.1	62.3	73.6	a
Mountrail	52	35	1.3	11.6	63.2	73.3	a
Plaza	53	32	0.0	11.8	62.7	72.4	
D95077	51	34	0.3	12.0	63.3	71.9	
Pierce	51	36	1.0	11.4	64.0	71.6	
D98529	51	34	0.3	12.1	63.2	71.6	
D96622	51	39	1.3	11.7	63.0	71.4	
D95123	51	34	0.0	11.3	63.7	71.1	
D98730	50	38	1.0	12.9	64.0	70.8	
D971511	52	36	1.0	11.1	63.3	70.4	
D98015	52	33	0.0	11.9	62.2	69.8	
D96604	51	34	0.3	11.9	63.0	69.4	
D98867	50	35	0.0	12.0	63.7	69.1	
D98717	51	34	0.7	12.2	62.3	68.9	
D98813	52	37	0.7	12.2	63.0	68.9	
Renville	51	37	1.3	11.4	63.2	68.3	
D98682	50	33	0.3	11.6	63.0	68.2	
Dilse	52	35	0.7	11.5	62.3	67.5	
D98530	51	34	0.0	11.4	62.5	67.2	
D98887	52	34	0.3	12.3	63.3	67.1	
D95097	50	34	0.7	11.8	62.0	66.8	
Maier	52	35	0.3	12.3	63.3	66.7	
D95672	50	36	0.7	11.7	63.8	66.6	
Lebsock	51	35	0.3	11.5	63.5	66.3	
D98062	51	34	1.0	12.2	63.0	66.3	
Ben	51	36	0.7	12.0	63.2	65.3	
D971015	51	35	0.7	11.3	63.0	64.6	
AC Avonlea	51	34	0.3	12.3	62.0	64.4	
FA989782	51	40	1.3	12.0	64.0	64.2	
mean	51	35	0.6	11.8	63.0	69.3	
probability	<0.001	<0.001	0.085	0.431	<0.001	<0.001	
CV (S/mean)	0.9	2.7	111.8	6.8	0.5	4.3	
LDS $_{0.05}$	0.7	1.5	1.0	ns	0.5	4.8	

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
[1] 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	2002	Ave	as % of Renville
Mountrail	65.9	85.9	103.2	48.0	73.3	75.3	114.0
Plaza	63.5	88.5	94.6	57.2	72.4	75.2	113.9
Dilse	62.9	89.3	94.0	53.7	67.5	73.5	111.3
Lebsock	63.5	83.8	94.5	54.5	66.3	72.5	109.8
Maier	63.4	89.4	93.9	46.6	66.7	72.0	109.0
Ben	65.0	79.5	96.2	50.6	65.3	71.3	108.0
Pierce	64.0	85.1	94.3	32.8	71.6	69.6	105.3
Renville	60.8	80.9	85.9	34.3	68.3	66.0	100.0
AC Avonlea	--	70.1	94.9	27.7	64.4	64.3	95.4

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	1998	1999	2000	2001	2002	Ave	as % of Renville
Lebsock	62.5	61.7	64.0	58.8	63.5	62.1	102.0
Ben	62.5	61.5	63.3	58.3	63.2	61.8	101.4
Pierce	62.5	61.5	63.2	57.1	64.0	61.7	101.2
Dilse	62.5	62.0	62.8	57.7	62.3	61.5	100.9
Maier	61.8	60.8	62.8	57.2	63.3	61.2	100.5
Plaza	62.8	60.5	62.8	56.7	62.7	61.1	100.3
Mountrail	62.2	60.7	63.0	55.7	63.2	61.0	100.1
Renville	62.0	60.8	62.7	55.8	63.2	60.9	100.0
AC Avonlea	--	58.5	62.3	52.4	62.0	58.8	97.0

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	1998	1999	2000	2001	2002	Ave	as % of Renville
AC Avonlea	--	14.6	12.9	17.2	12.3	14.3	104.6
Maier	13.5	13.6	12.8	15.9	12.3	13.6	100.9
Renville	13.0	13.8	13.4	15.9	11.4	13.5	100.0
Dilse	12.8	13.6	13.2	16.2	11.5	13.5	99.7
Ben	13.2	13.6	13.0	15.4	12.0	13.4	99.6
Mountrail	13.4	13.3	11.8	15.8	11.6	13.2	97.6
Lebsock	12.7	13.8	12.5	15.2	11.5	13.1	97.3
Pierce	12.5	12.8	12.2	15.8	11.4	12.9	95.9
Plaza	13.2	12.7	11.4	15.1	11.8	12.8	95.1

NOTE: Average protein contents in this summary should not be compared to each other since they are not grown in the same years. Compare 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	1996	1999	2000	2001	2002	Ave	as % of Renville
Renville	3.5	5.0	0.0	8.7	1.3	3.7	100.0
Pierce	--	2.0	0.0	8.3	1.0	2.8	75.3
AC Avonlea	--	3.0	0.0	7.7	0.3	2.8	73.3
Mountrail	--	1.7	0.0	8.0	1.3	2.8	73.3
Maier	--	2.0	0.0	7.7	0.3	2.5	66.7
Ben	1.3	2.7	0.0	7.3	0.7	2.4	64.9
Dilse	--	1.0	0.0	6.7	0.7	2.1	56.0
Lebsock	--	0.7	0.0	7.3	0.3	2.1	55.3
Plaza	--	0.0	0.0	3.7	0.0	0.9	24.7

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: 30 April 2002 Harvest date: 7 August 2002

Variety	Days to heading [1]	Height, inches	Protein content	Test wt, lb/bu	Yield bu/acre	
91AB1502	58	23	29.0	12.3	83.9	a
98AB6491	60	25	28.3	12.1	74.1	a
UC129	57	27	30.3	10.8	72.8	a
Whitestone	62	26	29.3	11.2	70.6	a
Rio Grande	59	25	27.5	11.0	70.0	
90AB1322	62	22	29.2	11.8	69.5	
ABSP 14-6	61	25	29.7	11.3	66.3	
ABSP 9-2	60	26	31.3	12.8	65.4	
UC128	59	27	29.3	11.4	65.2	
87AB5632	62	26	29.7	12.0	64.4	
Cayuse	62	26	27.7	11.2	62.5	
Otana	62	31	31.5	11.2	61.7	
ABSP 19-9	63	27	30.8	13.3	60.3	
95A12584	59	28	30.5	11.8	59.8	
96AB8597	63	26	31.0	11.4	59.7	
94AB5943	61	26	31.7	11.4	59.5	
97AB7571	62	28	30.3	12.4	58.4	
Ajay	62	19	27.5	11.7	58.2	
Celcia	63	27	28.7	11.7	58.0	
Killdeer	60	25	32.8	12.0	57.6	
95A12661	62	24	30.7	11.9	55.8	
96AB8796	63	24	28.7	12.9	55.0	
98AB6646	62	25	33.2	11.4	54.8	
Monida	63	29	29.7	10.2	52.3	x
Powell	63	24	28.5	10.4	52.0	x
CDC Dancer	62	30	32.7	10.6	49.7	x
Derby	62	31	30.8	10.6	45.9	x
CDC Pacer	62	29	32.2	11.3	44.7	x
94AB5543	63	25	32.3	12.2	41.7	x
95A10854	64	27	31.3	10.6	40.7	x
OT382	63	31	31.0	12.9	38.2	x
UC125	60	21	30.0	11.5	25.6	x
mean	61	26	30.2	11.6	57.9	
probability	<0.001	<0.001	<0.001	0.001	<0.001	
CV (S/mean)	0.3	4.5	3.2	7.3	8.9	
$LDS_{0.05}$	0.8	1.9	1.6	1.4	8.4	

Check variety is Otana with an average yield of 102.4 bu/acre.
x indicates significantly lower yield than check variety, Otana, at a probability of <0.05
[1] 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	1998	1999	2000	2001	2002	Ave	as % of Otana
Whitestone	--	174.1	153.1	111.0	70.6	127.2	108.8
ABSP 19-9	147.2	176	155.2	122.9	60.3	132.3	107.5
ABSP 14-6	--	--	--	--	66.3	66.3	107.5
Monida	151.2	178	152.2	117.8	52.3	130.3	105.9
90Ab1322	144	169.4	149.7	116.5	69.5	129.8	105.5
ABSP 9-2	146.6	168	152.2	111.4	65.4	128.7	104.6
Killdeer	--	169.6	152.2	99.1	57.6	119.6	102.3
Celsia	138.1	161	151.3	118.3	58.0	125.3	101.9
Cayuse	148	161.4	148.6	104.3	62.5	125.0	101.6
Otana	147.6	160	143.5	102.4	61.7	123.0	100.0
CDC Pacer	134.9	155.3	155.1	121.8	44.7	122.4	99.4
UC 129	--	--	--	90.3	72.8	81.6	99.4
Powell	136.8	159.1	143.5	116.9	52.0	121.7	98.9
UC 128	--	--	--	96.2	65.2	80.7	98.4
Derby	134.3	158.7	146.9	119.0	45.9	121.0	98.3
Rio Grande	140.7	164.7	134	95.4	70.0	121.0	98.3
CDC Dancer	--	--	--	101.0	49.7	75.4	91.8
Ajay	136.5	143	126.8	90.2	58.2	110.9	90.2
UC 125	--	--	--	82.1	25.6	53.9	65.6

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

Cultivar	1998	1999	2000	2001	2002	Ave	as % of Otana
CDC Dancer	--	--	--	37.8	32.7	35.3	102.2
ABSP 9-2	33.5	39.5	40.5	37.7	31.3	36.5	101.2
Otana	33.3	38.8	39.3	37.5	31.5	36.1	100.0
Killdeer	--	38	39.2	36.8	32.8	36.7	99.8
Derby	31.5	38.5	40.3	38.5	30.8	35.9	99.6
ABSP 19-9	33.2	39	38.8	37.7	30.8	35.9	99.5
CDC Pacer	31.7	36.5	39.8	39.2	32.2	35.9	99.4
Whitestone	--	38.7	39.7	35.8	29.3	35.9	97.6
90Ab1322	29.7	38	39	37.8	29.2	34.7	96.3
Monida	29.3	37.7	38.3	38	29.7	34.6	95.9
Rio Grande	32.7	38	37.8	36.8	27.5	34.6	95.8
UC 129	--	--	--	35.5	30.3	32.9	95.4
Celsia	29.7	37.8	38.7	36.8	28.7	34.3	95.2
UC 125	--	--	--	35.3	30	32.7	94.6
ABSP 14-6	--	--	--	--	29.7	29.7	94.3
Ajay	31.5	36.3	38	36.3	27.5	33.9	94.0
UC 128	--	--	--	35.2	29.3	32.3	93.5
Powell	29.5	36.7	36.8	35	28.5	33.3	92.3
Cayuse	30.5	36.7	36.7	34.7	27.7	33.3	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	1998	1999	2000	2001	2002	Ave	as % of Otana
Ajay	12.2	11.6	11.9	13.3	11.7	12.1	104.8
Rio Grande	12.2	11	11.9	13.2	11	11.9	102.4
ABSP 14-6	--	--	--	--	11.3	11.3	100.9
Otana	11.8	10.4	11.7	12.8	11.2	11.6	100.0
90Ab1322	11.4	10.8	11.5	11.7	11.8	11.4	98.8
ABSP 9-2	12	9.6	10.7	11.4	12.8	11.3	97.6
ABSP 19-9	11.5	9.6	10.4	11.6	13.3	11.3	97.4
Killdeer	--	11.3	10	11.6	12	11.2	97.4
Cayuse	11.7	10.8	11	11.5	11.2	11.2	97.1
Whitestone	--	10.5	11.3	11.5	11.2	11.1	96.5
CDC Pacer	11.4	10.1	10.4	12.5	11.3	11.1	96.2
Powell	11.8	10.8	10.3	12.3	10.4	11.1	96.0
UC 128	--	--	--	11.3	11.4	11.4	94.6
UC 129	--	--	--	11.6	10.8	11.2	93.3
Monida	11.8	10.2	9.9	11.7	10.2	10.8	92.9
Celsia	11	10	10.1	10.7	11.7	10.7	92.4
Derby	11.3	9.6	10	11	10.6	10.5	90.7
CDC Dancer	--	--	--	11	10.6	10.8	90.0
UC 125	--	--	--	9.7	11.5	10.6	88.3

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.