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, to determine adaptability of those lines and varieties to conditions in eastern Montana.

RESULTS:

Uniform Regional Hard Red Spring Wheat Yield Trial

The Uniform Regional Hard Red Spring Wheat trial is conducted in cooperation with Dr. R.H. Busch of the University of Minnesota, St. Paul. Thirty-three varieties and experimental lines were evaluated in the 1992 regional spring wheat yield trial (Table 1). The highest yielding line was the check variety, Chris 525-1. Average yield of the nursery was 69.2 bu/acre. Relative yields, test weights, and protein contents of varieties grown in this trial are shown in Tables 2 through 4.

Northern Regional Winter Wheat Yield Trial

The Northern Regional Winter Wheat trial is conducted in cooperation with Dr. C.J. Peterson of the University of Nebraska, Lincoln. Thirty-four varieties and experimental lines were evaluated in 1991-92 (Table 5). The highest yielding line was a hybrid winter wheat from Hybritech, XNH-1605. Average grain yield of the nursery was 87.0 bu/acre. Relative yields, test weights, and protein contents are shown in Tables 6 through 8.

Uniform Regional Durum Yield Trial

The Uniform Regional Durum trial is conducted in cooperation with Dr. E.M. Elias of North Dakota State University, Fargo. Thirty-one varieties and experimental lines were evaluated in 1992 (Table 9). The highest yielding line was North Dakota line D87-1534. Average yield was 63.5 bu/acre. Relative yields, test weights, and protein contents are shown in Tables 10 through 12.

Uniform Regional Oat Yield 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 varieties and experimental lines were evaluated (Table 13.) The highest yielding line was North Dakota line ND860416. Average yield was 179.8 bu/acre. Relative yields, test weights, and protein contents are shown in Tables 14 through 16.

SUMMARY:

The regional yield trials were conducted under dryland conditions at the Eastern Agricultural Research Center in Sidney. High rainfall and moderate temperatures during the growing season resulted in unusually high grain yields for this area.

FUTURE PLANS:

New and existing varieties and experimental lines will continue to be evaluated at the Eastern Agricultural Research Center so that breeders can release improved varieties and producers can have information on the varieties that are best adapted to conditions in their areas.

Table [1] Agronomic data obtained from a dryland uniform hard red spring wheat nursery conducted at the Eastern Agricultural Research Center, Sidney, Montana, 1992

Date Seeded: April 16, 1992 Date Harvested: August 14, 1992 Size of Plot: 40 Sq. Ft.[1]

Variety	C.I. number or pedigree	Average Days to Heading[2]	Average Height Inches	Average Protein Content Percent	Average Test Weight Lbs/Bu	Average Yield Bu/Acre
CHRIS, 525-1	CI 13751	67	34	13.0	60.7	95.5
MN 89408	MN85437/MN84047	64	30	14.9	62.0	88.2
XW398A4	MN7357/SD2903	64	29	15.6	62.7	80.2xx
MT 8849	RS6880/MT7819	66	31	15.0	62.7	79.0xx
ERA	CI 13986	66	30	14.0	62.5	77.4xx
SD 8073	SD8052/SD2971	63	33	15.9	62.8	77.3xx
N86-0348	HS81-0074/ALEX	65	28	16.1	62.3	75.6xx
MARQUIS	CI 3651	66	38	15.5	62.5	72.1xx
ND 673	GRANDIN/STOA'S'	63	36	15.6	63.7	71.7xx
PH986-61	PH986-61	60	26	16.0	63.3	71.5xx
SD 8070	GUARD/SHARP	61	31	16.0	63.2	71.4xx
XW397A3	MN7357/SD2881	63	31	16.0	62.8	70.1xx
N88-0022	HS81-0074/MN7357	62	26	15.7	62.8	69.7xx
MN 88334	MN84436/VANCE	67	33	14.9	61.3	69.7xx
STOA	ND 582	63	34	15.4	62.2	69.0xx
ND 682	GUS//BUTTE/ND590	65	35	16.2	63.5	68.3xx
N87-0306	HS81-0074/MN7357	62	27	15.4	62.7	67.6xx
SD 8074	SD8052/SD2971	60	33	16.1	62.8	67.5xx
TR983239	TR 983-239	60	29	16.0	63.2	67.5xx
ND 681	STOA//BUTTE*2/ND507	64	34	16.7	62.8	67.1xx
BW 152	KATEPWA/RL4509(LR21)	63	37	16.8	62.5	67.1xx
MN 88415	MN74103/SD8026	61	29	15.7	63.0	66.6xx
MN 89028	MN84377/MN85048	62	28	16.4	62.8	66.5xx
ND 671	STOA'S'/ND620	61	34	16.7	62.7	66.3xx
BUTTE86	ND 597	62	33	16.1	62.8	65.3xx
N88-3034	SINTON/STOA	66	31	17.0	60.0	65.1xx
MN 88076	MN84008/MN84606	62	29	15.6	62.5	62.5xx
SD 8072	SD8052/SD2971	62	31	16.1	62.8	60.5xx
BW 150	KATEPWA*6/RL4509(LR2	63	35	16.3	62.5	59.7xx
N88-3136	SINTON/STOA	64	31	15.7	62.2	59.4xx
ND 675	GRANDIN*2/ND643	62	31	16.6	64.0	57.7xx
SD 3056	ND604/SD2971	65	35	15.5	62.7	55.7xx
BW 148	BW83(ND499/RL4137)/N	62	34	17.1	62.3	55.0xx

(Continued)

Table 1 Agronomic data obtained from a dryland uniform hard red spring wheat nursery conducted at the Eastern Agricultural Research Center, Sidney, Montana, 1992

Variety	C.I. number or pedigree	Average Days to Heading	Average Height Inches	Average Protein Content Percent	Average Test Weight Lbs/Bu	Average Yield Bu/Acre
Mean		63	32	15.8	62.6	69.2
F-Value		19.47**	8.34**	3.99**	8.63**	6.28**
SE of the mean		0.46	1.05	0.41	0.26	3.43
LSD (0.05)		1.29	2.96	1.17	0.74	9.69
LSD 0.01						12.86
CV (S/mean)		0.46	5.74	4.52	0.72	8.59
CV (SE/mean)		0.27	3.31	2.61	0.42	4.96

** Indicates a significant difference at probability less than 0.01
xx Indicates a significantly lower yield than Chris at the 0.01 level of significance.

[1] 4 row plots, rows 10 ft. long and 1.0 ft. apart. At harvest, four 10 ft. samples were taken from each row for yield, test weight and protein determinations.

[2] Heading dates are number of days from planting.

Chris is the check variety for this nursery with an average yield of 95.50 bu/acre.

Previous crop: Summer fallow

Residual soil N: 148 lb/acre to 3 ft.

Applied fertilizer: None

Herbicide: 1.5 pints per acre Bronate applied May 29. Insecticide: None

Precipitation for average crop year = 13.64 inches. Precipitation for 1991-1992 crop year = 21.86 inches. Crop year considered to be from September 1, 1991 through harvest, 1992.

Precipitation for April 1 - July 31 period during 1992 = 11.53 inches. Average precipitation for the same period = 7.79 inches.

Table 2. Relative yielding abilities of uniform regional spring wheat varieties as compared to Chris when grown under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, during the 1988-1992 period.

Variety	number of years	1988	1989	1990	1991	1992	average yield bu/acre	yield as % of Stoa
MT 8849	1	--	--	--	--	79.0	79.0	114.5
Chris	5	5.5	18.9	33.8	33.0	95.5	37.3	107.8
Dalen	2	--	23.0	41.2	--	--	32.1	105.6
HiLine	1	--	--	42.3	--	--	42.3	103.4
Era	5	3.5	19.4	39.3	35.8	77.4	35.1	101.3
Stoa	5	5.7	19.9	40.9	37.7	69.0	34.6	100.0
Pasqua	1	--	--	--	37.4	--	37.4	99.2
Butte 86	5	5.5	19.7	38.0	40.5	65.3	33.8	97.6
Marquis	5	6.1	14.2	30.5	24.0	72.1	29.4	84.8

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, Stoa.

Table 3. Relative test weights of uniform regional spring wheat varieties as compared to Chris when grown under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, during the 1988-1992 period.

Variety	number of years	1988	1989	1990	1991	1992	average test weight lb/bu	test weight as % of Stoa
Pasqua	2	--	--	--	61.1	--	61.1	102.3
Butte 86	5	56.7	57.1	57.0	60.5	62.8	58.8	100.9
MT 8849	1	--	--	--	--	62.7	62.7	100.8
Dalen	2	--	56.9	57.5	--	--	57.2	100.7
Marquis	5	56.7	55.4	59.4	58.8	62.5	58.6	100.4
Stoa	5	56.0	56.6	57.0	59.7	62.2	58.3	100.0
Era	5	55.7	56.0	56.0	57.7	62.5	57.6	98.8
HiLine	1	--	--	56.0	--	--	56.0	98.2
Chris	5	54.0	55.5	56.0	59.3	60.7	57.1	97.9

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, Stoa.

Table 4. Relative protein contents of uniform regional spring wheat varieties as compared to Chris when grown under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, during the 1988-1992 period.

Variety	number of years	1988	1989	1990	1991	1992	average protein percent	protein as % of Stoa
Pasqua	1	--	--	--	17.1	--	17.1	103.0
Dalen	2	--	18.0	17.3	--	--	17.7	101.1
Marquis	5	17.5	18.7	16.6	16.4	15.5	16.9	100.7
HiLine	1	--	--	16.8	--	--	16.8	100.6
Butte 86	5	17.3	17.9	16.7	16.3	16.1	16.9	100.2
Stoa	5	17.2	18.2	16.7	16.6	15.4	16.8	100.0
Chris	5	18.2	18.2	17.3	17.1	13.0	16.8	99.6
Era	5	18.0	18.3	16.3	16.0	14.0	16.5	98.2
MT 8849	1	--	--	--	--	15.0	15.0	97.4

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

Table 5 Agronomic data obtained from a dryland Northern Regional Winter Wheat nursery conducted at the Eastern Agricultural Research Center, Sidney, Montana, 1992.

Date Seeded: September 28, 1991 Date Harvested: August 6, 1992 Size of Plot: 40 Sq. Ft.[1]

Variety	C.I. number or pedigree	Percent Winter Survival	Average Head Date[2]	Average Height Inches	Average Protein Content Percent	Average Test Weight Lbs/Bu	Average Yield Bu/Acre
XNH1605	Quantum Hybrid Wheat	68.8	160	29	10.8	63.9	107.3aa
ND8955	Seward/SD76705	63.8	162	33	10.9	62.5	102.6a
XNH1629	Quantum Hybrid Wheat	63.8	161	30	10.5	64.5	101.6
ND8944	Seward sib/NE80413	48.8	164	34	10.4	63.6	99.7
SD89102	NAPB 80300/Centurk 78	41.3	163	35	12.8	63.9	96.0
ND8844	Wnk/SD6914//Siouxland	61.3	163	36	13.2	62.8	94.5
W-236	Winalta/Bezostaya	58.8	162	36	11.5	62.8	91.7
SD89204	Bennett/Dawn	46.3	162	29	11.9	62.8	91.3
SD88201	Brule/Dawn	50.0	162	33	13.6	64.4	91.1
SD88137	TX78V3630/Lco	63.8	160	31	11.8	62.6	90.1
ND8933	Nsr/4/Ctk//Wnk/Uln/3/SD76	61.3	164	38	11.2	62.1	89.8
MT8713	Msc/Ctk A+//Iul	65.0	162	27	12.1	64.0	89.3
XNH1598	Quantum Hybrid Wheat	52.5	159	27	10.7	64.0	88.8
W-193	Winalta/Bezostaya	68.8	163	34	11.1	63.0	88.3
SD88191	Brule/Dawn	51.3	162	27	10.9	64.1	88.1
SD88185	Brule/Dawn	37.5	160	28	12.2	63.9	87.9
ND89142	Bnz//Frd/Lcr/3/Bnz/Mrt-2	65.0	164	35	11.3	63.2	87.9
SD89271	Bennett/Rose	48.8	159	29	12.1	64.5	87.7
ND8892	Mvr/KS79397//Nsr/3/Siouxl	65.0	163	36	12.1	62.9	87.6
ROUGHRIDER	CI17439	67.5	163	35	12.2	63.3	87.5
ND8930	Nsr/3/Mnt/NB68466//SD7670	62.5	164	34	13.1	63.1	86.9
W-198	Winalta/Bezostaya	67.5	165	37	11.6	63.0	86.7
NE89522	TX80GH2679/Brule seln.	30.0	160	28	10.2	62.8	84.9
NE89657	Brule/3/Parker*4/Agent//B	38.8	161	29	12.1	62.7	83.4
MT8719	Rri/MT6928	61.3	162	31	12.4	63.5	83.0
SD88171	Rri/Siouxland	61.3	160	34	11.3	62.6	80.0
NE88536	T.Diccocoides/Brule//Arka	61.3	160	30	12.7	61.4	79.5
XNH1597	Quantum/Hybrid Wheat	38.8	160	28	11.7	63.4	78.1

(Continued)

Table 5 Agronomic data obtained from a dryland Northern Regional Winter Wheat nursery conducted at the Eastern Agricultural Research Center, Sidney, Montana, 1992.

Variety	C.I. number or pedigree	Percent Winter Survival	Average Head Date	Average Height Inches	Average Protein Content Percent	Average Test Weight Lbs/Bu	Average Yield Bu/Acre
SD87143	Lco/Frd/NE69559/Wnk/3/Nell	55.0	160	30	12.3	62.4	77.6
NE89479	Siouxland/NE7060	46.3	159	31	11.9	61.4	75.9
3 COLT	PI476975	32.5	160	26	11.9	63.5	75.0
NE87513	Colt*2/Chisholm	35.0	160	29	13.0	63.0	73.8
SCOUT66	CI1442	62.5	159	32	11.1	62.5	73.2
NE89525	Lancota seln/Sxld//TX792729	41.3	160	29	12.2	62.3	70.5x
Means		54.2	161	31	11.8	63.2	87.0
F-Value		5.099**	27.20**	9.455**	6.154**	12.63**	2.760**
SE of the mean		5.194	0.3363	1.099	0.3410	0.2207	5.204
LSD (0.05)		14.58	0.9437	3.084	0.9569	0.6194	14.60
LSD 0.01							18.98
CV (S/mean)		19.17	0.4172	7.018	5.789	0.6994	11.97
CV (SE/mean)		9.585	0.2086	3.509	2.894	0.3497	5.983

** Indicates a significant difference at probability less than 0.01
a Indicates a significantly greater yield than check Roughrider at the 0.05 level of significance.
aa Indicates a significantly greater yield than check Roughrider at the 0.01 level of significance.
x Indicates a significantly lower yield than check Roughrider at the 0.05 level of significance.

1 4 row plots, rows 10 ft. long and 1.0 ft. apart. At harvest, a sample was taken from each center row for yield, test weight, and protein determinations.
2 Heading dates are number of days from January 1.

Roughrider is the check variety for this nursery with an average yield of 87.52 bu/acre.
Previous crop: Summer fallow
Residual soil N: 148 lb/ac to 3 ft.
Applied fertilizer: None
Herbicide: 1.5 Pints Buctril + 1.5 pints MCPA-ester applied May 19. Insecticide: None

Precipitation for average crop year = 13.64. Average precipitation for same period = 21.86 inches. Crop year considered to be from September 1, 1991 through harvest 1992.
Precipitation for April 1 - July 31 period during 1992 = 11.53 inches. Average precipitation for same period = 7.79 inches.

Table 6. Relative yielding abilities of winter wheat varieties as compared to Roughrider when grown in the dryland Northern Regional Winter Wheat trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1987-1992 period.

Variety	number of years	1987	1988	1990	1991	1992	average yield bu/acre	yield as % of Roughrider
Judith	2	50.0	9.3	--	--	--	29.6	107.8
MT 7811	1	--	--	41.7	--	--	41.7	106.9
Norwin	1	47.3	--	--	--	--	47.3	105.3
Abilene	2	45.7	11.4	--	--	--	28.5	103.8
MT 8713	1	--	--	--	--	89.3	89.3	102.1
Roughrider	5	44.9	10.1	39.0	43.0	87.5	44.9	100.0
Colt	4	45.1	10.7	43.6	--	75.0	43.6	96.1
MT 8719	1	--	--	--	--	83.0	83.0	94.9
Scout 66	1	--	--	--	--	73.2	73.2	83.7
Kharkof	4	40.6	9.9	40.0	23.9	--	28.6	83.5

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, Roughrider.

NOTE: Winter wheat was not harvested in 1989 due to severe winter kill.

Table 7. Relative test weights of winter wheat varieties as compared to Roughrider when grown in the dryland Northern Regional Winter Wheat trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1987-1992 period.

Variety	number of years	1987	1988	1990	1991	1992	average test weight lb/bu	test weight as % of Roughrider
Abilene	2	65.3	59.6	--	--	--	62.5	105.1
Norwin	1	64.5	--	--	--	--	64.5	101.9
MT 8713	1	--	--	--	--	64.0	64.0	101.3
Colt	4	63.1	57.7	58.0	--	63.4	60.6	100.9
Kharkof	4	61.9	57.8	58.0	61.5	--	59.8	100.9
MT 8719	1	--	--	--	--	63.5	63.5	100.5
Roughrider	5	63.3	55.5	58.0	60.2	63.2	60.0	100.0
MT 7811	1	--	--	58.0	--	--	58.0	100.0
Judith	2	61.8	56.9	--	--	--	59.4	99.9
Scout 66	1	--	--	--	--	62.5	62.5	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, Roughrider.

NOTE: Winter wheat was not harvested in 1989 due to severe winter kill.

Table 8. Relative protein contents of winter wheat varieties as compared to Roughrider when grown in the dryland Northern Regional Winter Wheat trial at the Eastern Agricultural Research Center, Sidney, Montana, during the 1987-1992 period.

Variety	number of years	1987	1988	1990	1991	1992	average protein percent	protein as % of Roughrider
MT 7811	1	--	--	16.6	--	--	16.6	119.4
Abilene	2	13.0	14.8	--	--	--	13.9	105.7
MT 8719	1	--	--	--	--	12.4	12.4	101.6
Roughrider	5	10.4	15.9	15.4	14.1	12.2	13.6	100.0
Kharkof	4	11.7	15.2	15.1	13.9	--	14.0	99.6
MT 8713	1	--	--	--	--	12.1	12.1	99.2
Colt	4	11.2	14.4	14.4	--	11.9	13.0	96.3
Judith	2	9.9	15.3	--	--	--	12.6	95.8
Scout 66	1	--	--	--	--	11.1	11.1	91.0
Norwin	1	8.7	--	--	--	--	8.7	83.7

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, Roughrider.

NOTE: Winter wheat was not harvested in 1989 due to severe winter kill.

Table 9 ... Characteristics of durum wheat varieties in the Uniform Regional Durum Yield Trial tested under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, 1992.

Date Seeded: April 16, 1992 Date Harvested: August 19, 1992 Size of Plot: 40 Sq. Ft.[1]

Variety	C.I number or pedigree	Average Days to Heading[2]	Average Height Inches	Average Grain Protein	Average Test Weight Lbs/Bu	Average Yield Bu/Acre
D87-1534	VIC/LLYOD	64	27	15.7	63.0	74.5aa
D87240	D7798/DT367	66	33	14.8	62.0	72.1aa
D88277	D8189/D81141	64	30	16.1	63.3	71.4aa
D88273	D8189/D1141	64	31	16.9	62.8	71.1aa
D88058	D8279/D7925	64	25	14.4	63.5	71.0aa
D88284	D8189/D81141	64	31	16.9	62.7	70.0aa
RENVILLE	RENVILLE	65	34	16.0	62.8	69.0aa
D88450	JO'S'/CR'S'//D.COLL.01/3/DOMIL/4/D8288/5/D8261	66	28	15.2	63.8	68.4aa
D86398	MONROE/D8019	66	32	15.3	62.3	66.8aa
D86741	RSPC1S2-227/D8292	64	26	14.9	63.5	66.8aa
D87436	W85 GH-227/D804	64	27	16.0	63.2	66.5aa
MEDORA	MEDORA	64	33	15.8	63.2	65.9aa
D87450	D82104/Aust#820198//D82108	63	27	14.7	62.3	65.7aa
D86-1523	STOCKHOLM/EDMORE	62	26	16.6	63.2	65.6aa
D88-303	D2106/D8179	64	27	17.2	63.5	65.5aa
D87-122	D8024/MONROE	65	32	15.5	63.0	65.0a
D87-130	D8024/MONROE	64	33	15.7	63.0	64.8a
LLOYD	LLOYD	66	27	14.2	62.0	64.0a
SCEPTRE	SCEPTRE	66	31	14.9	62.5	63.7a
D88289	D8189/D81141	63	30	16.8	62.7	63.5a
VIC	VIC	64	33	15.9	62.8	62.1a
D88793	D81170/D8177	64	33	18.2	62.2	61.5
D8460	D8030/D8016	64	29	15.2	62.2	60.7
D88758	HD81-485/D81104	64	30	17.1	62.7	59.0
D87141	D8019/D7958	64	33	15.7	62.5	58.6
RUGBY	RUGBY	64	34	16.1	62.7	55.9
MINDUM	MINDUM	68	42	14.9	64.5	55.7
MONROE	MONROE	62	32	16.9	62.5	55.5
WARD	WARD	64	33	16.8	62.7	52.5
D87121	D8024/MONROE	62	29	16.8	62.3	51.1
STOA	STOA	66	31	15.8	60.0	43.9

(Continued)

Table 9 (Continued) Characteristics of durum wheat varieties in the Uniform Regional Durum Yield Trial tested under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, 1992.

Variety	C.I. number or pedigree	Average Days to Heading[2]	Average Height Inches	Average Grain Protein	Average Test Weight Lbs/Bu	Average Yield Bu/Acre
Means		64	31	15.9	62.8	63.5
F-Value		13.98**	28.03**	2.090**	7.049**	4.143**
SE of the mean		0.3599	0.6480	0.6547	0.2844	3.378
LSD (0.05)		1.018	1.833	1.852	0.8045	9.556
LSD 0.01						12.71
CV (S/mean)		0.9679	3.670	7.131	0.7850	9.213
CV (SE/mean)		0.5588	2.119	4.117	0.4532	5.319

** Indicates a significant difference at probability less than 0.01.
a Indicates a significantly greater yield than check Ward at the 0.05 level of significance.
aa Indicates a significantly greater yield than check Ward at the 0.01 level of significance.

[1] 4 row plots, rows 10 ft. long and 1.0 ft apart. At harvest, four 10 ft. samples were taken from each row for yield test weight and protein determinations.

[2] Heading dates are number of days from planting.

Ward is the check variety for this nursery with an average yield of 52.21 bu/acre.

Previous crop: Summer fallow

Residual soil N: 148 lb/ac to 3 ft.

Applied fertilizer: None

Herbicide: 1.5 pints per acre Bronate applied May 29. Insecticide: None

Precipitation for average crop year = 13.64 inches. Precipitation for 1991-1992 crop year = 21.86 inches. Crop year considered to be from September 1, 1991 through harvest 1992.

Precipitation for April 1 - July 31 period during 1992 = 11.53 inches. Average precipitation for same period = 7.79 inches.

Table 10. Relative yielding abilities of uniform regional durum varieties as compared to Monroe when grown under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, during the 1988-1992 period.

Variety	number of years	1988	1989	1990	1991	1992	average yield bu/acre	yield as % of Monroe
Renville	5	2.8	22.2	36.6	41.6	69.0	34.4	116.6
Sceptre	5	4.0	18.2	34.5	44.6	63.7	33.0	111.7
Lloyd	5	3.8	18.5	36.9	37.7	64.0	32.2	108.9
Medora	5	0.9	14.1	36.0	39.0	65.9	31.2	105.6
Vic	5	3.7	18.9	33.1	32.7	63.1	30.3	102.6
Monroe	5	4.8	18.2	33.9	35.3	55.5	29.5	100.0
Rugby	5	2.4	19.4	33.0	36.9	55.8	29.5	99.9
Ward	5	1.4	18.5	34.8	38.7	52.5	29.2	98.8
Mindum	5	0.1	15.3	31.1	35.0	55.7	27.4	92.9
Westbred Regal	2	3.9	16.2	--	--	--	10.1	87.4

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, Monroe.

Table 11. Relative test weights of uniform regional durum varieties as compared to Monroe when grown under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, during the 1988-1992 period.

Variety	number of years	1988	1989	1990	1991	1992	average test weight lb/bu	test weight as % of Monroe
Westbred Regal	2	57.8	59.5	--	--	--	58.6	103.5
Mindum	4	***	58.7	62.4	58.9	64.5	61.1	103.4
Vic	5	56.4	59.5	60.0	59.6	62.8	59.7	101.8
Rugby	4	***	58.4	60.0	59.6	62.8	60.2	101.8
Ward	4	***	58.3	60.0	59.5	62.8	60.2	101.7
Medora	4	***	56.9	60.5	59.9	63.2	60.1	101.7
Renville	5	55.7	58.2	59.5	60.4	62.8	59.3	101.3
Sceptre	5	56.4	57.4	59.0	59.6	62.5	59.0	100.7
Monroe	5	56.4	56.9	59.0	58.1	62.5	58.6	100.0
Lloyd	5	56.0	56.9	60.0	57.5	62.0	58.5	99.8

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, Monroe.

***indicates not enough sample to measure test weight

Table 12. Relative protein contents of uniform regional durum varieties as compared to Monroe when grown under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, during the 1988-1992 period.

Variety	number of years	1988	1989	1990	1991	1992	average protein percent	protein as % of Monroe
Medora	5	20.0	20.6	19.0	17.9	15.8	18.7	104.1
Renville	5	19.9	19.1	17.7	17.9	16.0	18.1	101.1
Ward	5	18.8	19.0	18.1	17.2	16.8	18.0	100.3
Monroe	5	18.4	19.7	17.2	17.5	16.8	17.9	100.0
Westbred Regal	2	18.6	19.3	--	--	--	19.0	99.5
Rugby	5	19.0	18.6	17.8	17.5	16.1	17.8	99.3
Sceptre	5	19.8	19.6	18.3	16.2	14.9	17.8	99.1
Mindum	4	***	19.3	17.8	17.6	14.9	17.4	97.8
Vic	5	18.2	18.7	17.4	17.2	15.9	17.5	97.5
Lloyd	5	17.7	19.1	16.4	17.8	14.2	17.0	95.1

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

***indicates not enough sample to measure protein content

Table 13 Agronomic data obtained from a dryland Uniform Regional oat variety nursery conducted at the Eastern Agricultural Research Center, Sidney, Montana, 1992.

Date Seeded: April 17, 1992 Date Harvested: August 12, 1992 Size of Plot: 40 Sq. Ft.[1]

Variety	C.I. number or pedigree	Average Heading[2] Date	Average Height Inches	Protein Content Percent	Average Test Weight Lbs/Bu	Average Yield Bu/Acre
ND860416	Otana/Valley	66	36	12.0	38.7	208.4
ND852107	ND 810603/Otana	64	36	11.6	37.8	206.2
87AB5125	Ogle/75Ab861	66	28	11.6	38.2	199.9
Calibre	OT 308	68	38	11.1	38.7	199.5
Derby	Derby	66	39	11.9	39.7	195.6
86AB664	Ogle/75Ab861	65	32	12.2	36.7	194.9
83AB3250	Cayuse/Monida	67	28	11.3	35.8	194.7
82AB248	Cayuse/Monida	68	30	10.6	36.3	192.0
84Ab825	Ogle/Border	66	29	12.3	36.8	191.4
Otana	CI 9252	66	36	12.1	38.3	188.7
80AB5322	Border/74Ab1956	67	28	11.3	36.7	188.2
Monida	CI483126 (ID751170)	67	35	10.2	38.3	187.0
Newdak	Newdak	60	32	11.7	35.7	186.2
Border	CI467882	68	31	11.9	36.5	182.2
83Ab3119	Cayuse/76Ab6843	67	28	11.8	36.7	182.0
Appaloosa	CI 9267	67	30	11.4	36.0	177.9
80AB5807	80Ab5807	67	30	11.1	37.2	177.2
Robert	W 82056 (OT 212/RL3064)	68	36	11.9	36.7	176.1
Park	CI 6611	66	36	12.3	36.0	175.7
Agay	74Ab1952/74Ab2608	64	24	11.9	37.3	170.4
Rio Grande	81AB5792	63	27	11.1	37.3	169.9
82AB1178	74Ab1952/75Ab1576	64	24	10.6	37.5	169.7
Riel	W 80474 (RL 3057/Otana)	65	37	11.9	37.7	169.6
Trucker	SD810109 (Moore//Dal/Nodaw)	63	34	12.8	40.8	166.6
Cayuse	CI 8263	65	29	10.9	36.2	166.3
Valley	ND820603	65	30	12.1	38.2	164.3
Ogle	CI 9401	60	27'	11.9	36.3	162.3
86AB1867	81Ab5772/Ogle	60	25	11.9	39.2	160.6
NPB86801	Ogle/OT 32-15, Sel. NZ 84	67	23	13.2	34.0	160.2
88Ab3073	Pennlo/PI 447276	68	30	12.8	44.7	130.8 xx

(Continued)

Table 13 (Continued) Agronomic data obtained from a dryland Uniform Regional oat variety nursery conducted at the Eastern Agricultural Research Center, Sidney, Montana, 1992.

Variety	C.I. number or pedigree	Average Heading[2] Date	Average Height Inches	Protein Content Percent	Average Test Weight Lbs/Bu	Average Yield Bu/Acre
Means		65	31	11.7	37.5	179.8
F-Value		31.90**	20.69**	3.03**	11.39**	2.36**
SE of the mean		0.41	0.99	0.39	0.57	10.83
LSD (0.05)		1.17	2.81	1.11	1.61	30.67
LSD 0.01						40.75
CV (S/mean)		0.41	5.57	5.79	2.62	10.44
CV (SE/mean)		0.24	3.21	3.34	1.52	6.02

** Indicates a significant difference at probability less than 0.01.
xx Indicates a significantly lower yield than check Otana at the 0.01 level of significance.

[1] 4 row plots, rows 10 ft. long and 1.0 ft. apart. At harvest, four 10 ft. samples were taken from each row for yield, test weight, and protein determinations.
[2] Heading dates are number of days from planting.

Otana is the check variety for this nursery with an average yield of 188.72 bu/acre.

Previous crop: Summer fallow

Residual soil N: 148 lb/acre to 3 ft.

Applied fertilizer: None

Herbicide: 1.5 pints Bronate applied May 29. Insecticide: None

Precipitation for average crop year = 13.64 inches. Precipitation for 1991-1992 crop year = 21.86 inches. Crop year considered to be from September 1, 1991 through harvest 1992.

Precipitation for April 1 - July 31 period during 1992 = 11.53 inches. Average precipitation for same period = 7.79 inches.

Table 14. Relative yielding abilities of oat varieties in the Uniform Regional Oat yield trial as compared to Otana when grown under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, during the 1988-1992 period.

Variety	number of years	1988	1989	1990	1991	1992	average yield bu/acre	yield as % of Otana
Derby	1	--	--	--	--	195.6	195.6	103.7
Newdak	2	--	--	--	94.7	186.2	140.1	103.2
Border	5	7.7	29.6	79.6	98.7	182.2	79.6	102.7
Monida	5	8.3	29.5	77.5	90.2	187.0	78.5	101.3
Rio Grande	5	7.2	43.6	80.4	89.7	169.9	78.2	100.9
Otana	5	7.3	32.4	75.5	83.4	188.7	77.5	100.0
Cayuse	5	7.6	38.0	81.7	91.6	166.3	77.0	99.5
Agay	5	7.5	31.8	77.7	97.4	170.4	77.0	99.4
Appaloosa	5	7.3	34.4	73.3	88.1	177.9	76.2	98.4
Ogle	5	5.0	42.4	77.0	93.7	162.3	76.1	98.2
Rodney	2	7.1	--	73.8	--	--	40.5	97.7
Park	5	7.4	26.9	69.6	85.1	175.7	72.9	94.2
Calibre	5	6.4	18.0	64.9	74.0	199.5	72.6	93.7
Riel	5	8.0	30.4	72.3	78.9	169.6	71.8	92.7
Valley	5	6.2	29.7	71.6	84.7	164.3	71.3	92.0
Robert	5	7.3	27.7	62.1	81.4	176.1	70.9	91.6
Trucker	5	5.7	35.0	64.1	71.2	166.6	68.5	88.5

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, Otana.

Table 15 . Relative test weights of oat varieties in the Uniform Regional Oat yield trial as compared to Otana when grown under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, during the 1988-1992 period.

Variety	number of years	1988	1989	1990	1991	1992	average test weight lb/bu	test weight as % of Otana
Trucker	5	18.9	35.5	42.0	42.4	40.8	35.9	111.6
Riel	5	23.9	30.5	39.5	38.7	37.7	34.1	105.8
Derby	1	--	--	--	--	39.7	39.7	103.7
Agay	5	22.2	31.0	34.1	36.6	37.3	32.2	100.2
Otana	5	18.2	30.5	38.1	35.8	38.3	32.2	100.0
Valley	5	17.0	31.2	37.3	37.0	38.2	32.1	99.9
Newdak	2	--	--	--	37.2	35.7	36.4	98.4
Robert	5	19.1	28.3	36.4	36.8	36.7	31.5	97.8
Monida	5	21.0	29.5	35.8	32.5	38.3	31.4	97.6
Rodney	2	16.5	--	38.2	--	--	27.4	97.2
Ogle	5	14.7	32.0	34.2	37.2	36.3	30.9	96.0
Rio Grande	5	15.2	30.5	34.5	36.0	37.3	30.7	95.4
Calibre	5	16.7	23.2	39.3	34.3	38.7	30.4	94.6
Park	5	16.4	27.0	36.9	34.5	36.0	30.2	93.7
Border	5	17.0	27.5	31.7	32.7	36.5	29.1	90.4
Cayuse	5	16.5	27.5	31.9	31.6	36.2	28.7	89.3
Appaloosa	5	16.8	27.5	31.8	29.9	36.0	28.4	88.3

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, Otana.

Table 16. Relative protein contents of oat varieties in the Uniform Regional Oat yield trial as compared to Otana when grown under dryland conditions at the Eastern Agricultural Research Center, Sidney, Montana, during the 1987-1991 period.

Variety	number of years	1988	1989	1990	1991	1992	average protein percent	protein as % of Otana
Trucker	5	13.9	16.4	15.3	15.2	12.8	14.7	107.3
Agay	5	13.8	15.6	15.0	14.4	11.9	14.1	103.1
Riel	5	13.9	15.8	14.6	14.0	11.9	14.0	102.3
Park	5	12.8	15.3	14.7	14.0	12.3	13.8	100.7
Robert	4	13.5	15.1	14.0	14.3	11.9	13.8	100.3
Otana	5	12.7	15.8	14.2	13.8	12.1	13.7	100.0
Valley	5	11.9	15.1	15.1	14.1	12.1	13.7	99.6
Rodney	2	12.1	--	14.7	--	--	13.4	99.6
Ogle	5	13.1	15.6	13.8	13.4	11.9	13.6	98.8
Derby	1	--	--	--	--	11.9	11.9	98.3
Rio Grande	5	12.2	15.9	13.9	14.1	11.1	13.4	98.0
Appaloosa	5	12.3	15.4	14.2	13.6	11.4	13.4	97.5
Border	5	11.8	14.9	14.8	13.4	11.9	13.4	97.4
Newdak	2	--	--	--	13.3	11.7	12.5	96.5
Cayuse	5	12.0	15.1	14.0	14.0	10.9	13.7	96.2
Calibre	5	11.9	14.1	14.4	13.6	11.1	13.0	94.9
Monida	5	12.5	14.8	13.4	12.8	10.2	12.7	92.9

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