

PROJECT TITLE: Statewide Spring Oat Variety Performance

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OBJECTIVES:

To evaluate the agronomic performance of new and existing oat varieties under various growing conditions in Montana.

RESULTS:

The 1997 Montana Uniform Oat Yield Trial was grown at five dryland locations (Tables 1 to 5) and three irrigated/high rainfall sites (Tables 6 to 10) in replicated multi-row plots.

Wet soil conditions and cool temperatures early in the spring resulted in late plantings and delayed seedling development at most locations. Late rains increased tiller production, especially under dryland conditions, resulting in above average yields at several locations. The late rains also resulted in delayed harvests, which seems to have benefited later maturing varieties. Plant height and test weight was slightly above average at the dryland locations. Although dryland yields were above average, the yield response of individual varieties varied greatly by site. Of the varieties evaluated, Celsia was the most consistent under dryland conditions and produced well at all dryland locations except Moccasin.

Oat yields at the irrigated/high rainfall sites were similar to previous years. The yield response of individual varieties was more consistent across sites, with Monida and 83/Ab3119/Monida producing high yields, and Ajay performing poorly, at all irrigated sites. Plant height and test weight was slightly below average at the irrigated sites.

SUMMARY:

The 1997 Montana Uniform Oat Nursery demonstrated the need to evaluate varieties under a wide range of growing conditions as variety performance varied by site.

FUTURE PLANS:

The Montana Uniform Oat Nursery will be continued in 1998.

Table 1.

1997 MONTANA SPRING OAT STATEWIDE DRYLAND SUMMARY

ID	Pedigree	Yield (bu/ac)	Test Weight	Heading Date	Plant Height
81Ab5792	Rio Grande	101.1	33.4	174.1	26.9
82Ab1142	Ajay	97.7	34.1	177.4	23.2
83AB3250	Powell	106.1	32.3	178.8	26.2
86AB4582	Monida/Reselection	110.0	35.2	175.7	29.5
86AB664	Ogle/75Ab861	110.7	33.4	176.8	30.1
87AB5125	Ogle/75Ab861	110.8	34.1	177.8	27.8
90Ab1322	80Ab1322/Monida	109.8	33.5	177.3	26.2
ABSP 9-2	83/Ab3119/Monida	108.2	35.6	175.8	28.7
CELSIA	Celsia	110.0	33.2	178.8	33.5
CI 9252	Otana	101.4	35.6	176.0	33.8
CI483126	Monida	110.9	34.0	178.7	32.1
ND860416	Otana/Valley	111.2	35.7	176.9	34.1
ND870258	Whitestone	111.0	34.8	177.7	29.6
PRAIRIE	Prairie	100.4	33.1	172.8	28.6
SITEMEAN	SITE MEAN	106.1	34.1	176.6	29.1

Table 2.

**1997 SPRING OAT STATEWIDE DRYLAND SUMMARY
YIELD (bu/ac)**

ID	Pedigree	Havre	Sidney	Sidney Recrop	Mocc- asin	Hunt- ley	AVG	BYX	RSQ
81Ab5792	Rio Grande	97.0	101.7	72.5	98.6	135.8	101.1	1.09	0.74
82Ab1142	Ajay	90.3	119.4	70.4	93.1	115.2	97.7	1.10	0.96
83AB3250	Powell	92.1	127.5	77.7	105.7	127.5	106.1	1.22	0.99
86AB4582	Monida/Reselection	100.7	118.0	80.2	119.0	132.1	110.0	1.06	0.89
86AB664	Ogle/75Ab861	96.8	129.7	83.5	107.3	136.1	110.7	1.23	0.99
87AB5125	Ogle/75Ab861	94.1	136.9	88.8	106.7	127.4	110.8	1.11	0.90
90Ab1322	80Ab1322/Monida	99.2	127.0	83.7	115.1	123.8	109.8	1.00	0.96
ABSP 9-2	83/Ab3119/Monida	92.4	134.4	75.0	111.1	128.2	108.2	1.37	0.97
CELSIA	Celsia	97.8	131.0	92.8	97.5	130.9	110.0	0.99	0.84
CI 9252	Otana	95.9	108.9	83.5	101.9	116.9	101.4	0.70	0.97
CI483126	Monida	93.9	120.7	93.6	111.6	134.7	110.9	0.94	0.89
ND860416	Otana/Valley	90.4	141.6	85.1	112.2	126.7	111.2	1.26	0.88
ND870258	Whitestone	98.1	131.7	87.5	110.0	127.8	111.0	1.05	0.98
PRAIRIE	Prairie	104.2	106.3	74.3	96.2	120.9	100.4	0.84	0.77
SITEMEAN	SITE MEAN	95.9	121.4	82.0	106.1	124.9	106.1	1.00	1.00
C.V. 1	S/MEAN * 100	5.47	7.80	5.20	9.22	6.98	---	---	---
L.S.D.	LSD (.05)	8.81	15.48	7.16	16.42	14.25	---	---	---

Table 3.

**1997 SPRING OAT STATEWIDE DRYLAND SUMMARY
TEST WEIGHT (lb/bu)**

ID	Pedigree	Havre	Sidney	Sidney Recrop	Mocc- asin	Hunt- ley	AVG	BYX	RSQ
81Ab5792	Rio Grande	32.0	32.0	30.8	36.3	36.1	33.4	0.87	0.99
82Ab1142	Ajay	33.1	33.0	31.0	37.4	35.9	34.1	0.84	0.94
83AB3250	Powell	29.6	32.0	29.7	35.7	34.6	32.3	0.93	0.95
86AB4582	Monida/Reselection	33.0	34.3	31.3	38.6	38.5	35.2	1.11	0.99
86AB664	Ogle/75Ab861	31.3	32.5	31.0	36.6	35.6	33.4	0.86	0.98
87AB5125	Ogle/75Ab861	33.1	32.2	30.7	37.2	37.2	34.1	1.00	0.96
90Ab1322	80Ab1322/Monida	30.6	32.7	29.7	38.5	36.2	33.5	1.25	0.95
ABSP 9-2	83/Ab3119/Monida	33.8	35.0	31.5	38.4	39.5	35.6	1.09	0.94
CELSIA	Celsia	30.9	32.3	29.5	36.2	37.1	33.2	1.11	0.97
CI 9252	Otana	33.4	34.8	32.8	39.3	37.5	35.6	0.92	0.96
CI483126	Monida	30.2	33.2	31.8	37.9	37.1	34.0	1.08	0.89
ND860416	Otana/Valley	33.7	33.7	32.5	38.8	39.8	35.7	1.12	0.97
ND870258	Whitestone	32.8	33.5	31.5	37.8	38.7	34.8	1.08	0.98
PRAIRIE	Prairie	32.9	32.2	30.2	35.0	35.5	33.1	0.70	0.89
SITEMEAN	SITE MEAN *****	32.2	32.9	31.0	37.4	37.0	34.1	1.00	1.00
C.V. 1	S/MEAN * 100	2.48	2.47	2.94	2.76	2.15	---	---	---
L.S.D.	LSD (.05)	1.34	1.33	1.53	1.73	1.30	---	---	---

Table 4.

**1997 SPRING OAT STATEWIDE DRYLAND SUMMARY
PLANT HEIGHT (inches)**

ID	Pedigree	Havre	Sidney	Sidney Recrop	Moccasin	Huntley	AVG	BYX	RSQ
81Ab5792	Rio Grande	31.6	19.2	20.3	34.7	29.0	26.9	1.09	0.93
82Ab1142	Ajay	24.6	17.9	18.6	29.3	25.5	23.2	0.79	0.98
83AB3250	Powell	26.8	22.6	20.1	34.0	27.5	26.2	0.86	0.96
86AB4582	Monida/Reselection	31.5	22.6	24.3	39.0	30.0	29.5	1.07	0.99
86AB664	Ogle/75Ab861	31.6	23.5	24.1	38.3	33.0	30.1	1.02	0.98
87AB5125	Ogle/75Ab861	27.4	24.7	22.4	35.0	29.5	27.8	0.76	0.92
90Ab1322	80Ab1322/Monida	27.7	20.5	20.7	34.0	28.0	26.2	0.93	0.99
ABSP 9-2	83/Ab3119/Monida	29.1	25.1	22.7	36.3	30.5	28.7	0.84	0.95
CELSIA	Gelsia	35.2	28.2	28.4	40.7	35.0	33.5	0.86	0.99
CI 9252	Otana	34.0	25.7	26.8	45.3	37.0	33.8	1.31	0.98
CI483126	Monida	34.5	22.2	27.3	42.7	34.0	32.1	1.25	0.96
ND860416	Otana/Valley	35.9	28.1	28.4	44.0	34.0	34.1	1.07	0.99
ND870258	Whitestone	30.3	24.0	23.0	39.7	31.0	29.6	1.09	0.98
PRAIRIE	Prairie	29.9	22.3	23.6	37.3	30.0	28.6	0.99	1.00
SITEMEAN	SITE MEAN	30.7	23.1	23.6	37.9	30.4	29.1	1.00	1.00
C.V. 1	S/MEAN * 100	6.48	7.43	4.83	4.62	4.35	---	---	---
L.S.D.	LSD (.05)	3.34	2.80	1.91	2.94	2.70	---	---	---

Table 5.

1997 SPRING OAT STATEWIDE DRYLAND SUMMARY
 HEADING DATE (Days from Jan. 1)

ID	Pedigree	Havre	Sidney	Sidney Recrop	Moccasin	AVG	BYX	RSQ
81Ab5792	Rio Grande	179.7	169.0	164.0	183.7	174.1	0.91	0.99
82Ab1142	Ajay	184.0	170.0	166.3	189.3	177.4	1.10	1.00
83AB3250	Powell	185.0	172.0	168.0	190.3	178.8	1.06	1.00
86AB4582	Monida/Reselection	181.0	170.0	165.3	186.3	175.7	0.97	1.00
86AB664	Ogle/75Ab861	182.0	171.3	166.0	187.7	176.8	0.99	1.00
87AB5125	Ogle/75Ab861	183.3	171.7	167.0	189.3	177.8	1.03	1.00
90Ab1322	80Ab1322/Monida	183.7	171.0	166.3	188.3	177.3	1.04	1.00
ABSP 9-2	83/Ab3119/Monida	181.7	171.0	164.7	186.0	175.8	0.97	0.99
CELSIA	Celsia	183.7	173.0	169.3	189.0	178.8	0.92	1.00
CI 9252	Otana	180.7	171.0	166.3	186.0	176.0	0.89	0.99
CI483126	Monida	184.7	172.0	168.3	189.7	178.7	1.02	1.00
ND860416	Otana/Valley	182.3	171.3	166.7	187.3	176.9	0.96	1.00
ND870258	Whitestone	183.7	171.7	166.7	188.7	177.7	1.02	0.99
PRAIRIE	Prairie	177.3	167.3	163.7	183.0	172.8	0.89	1.00
SITEMEAN	SITE MEAN	182.3	170.1	166.3	187.5	176.6	1.00	1.00
C.V. 1	S/MEAN * 100	0.43	0.26	0.36	0.45	---	---	---
L.S.D	LSD (.05)	1.30	0.71	1.01	1.41	---	---	---

Table 6.

1997 MONTANA SPRING OAT STATEWIDE IRRIGATED SUMMARY

ID	Pedigree	Yield (bu/ac)	Test Weight	Heading Date	Plant Height
81Ab5792	Rio Grande	160.6	36.4	183.0	34.6
82Ab1142	Ajay	142.9	37.0	185.0	29.3
83AB3250	Powell	167.4	36.1	189.4	34.1
86AB4582	Monida/Reselection	167.9	38.7	184.5	38.4
86AB664	Ogle/75Ab861	179.0	37.2	185.8	39.0
87AB5125	Ogle/75Ab861	180.0	38.6	186.0	35.2
90Ab1322	80Ab1322/Monida	169.1	38.2	184.9	32.8
ABSP 9-2	83/Ab3119/Monida	190.6	39.7	184.7	37.3
CELSIA	Celsia	177.4	38.2	188.9	41.7
CI 9252	Otana	154.0	38.0	185.9	40.0
CI483126	Monida	194.5	37.8	186.9	41.9
ND860416	Otana/Valley	164.8	38.7	186.3	39.7
ND870258	Whitestone	160.8	38.3	186.9	35.2
PRAIRIE	Prairie	172.7	36.5	182.2	37.0
SITEMEAN	SITE MEAN	169.3	37.9	185.4	36.9

Table 7.

1997 SPRING OAT STATEWIDE IRRIGATED SUMMARY
YIELD (bu/ac)

ID	Pedigree	Sidney	Kalispell	Bozeman	AVG	BYX	RSQ
81Ab5792	Rio Grande	172.9	97.7	211.2	160.6	1.35	0.93
82Ab1142	Ajay	134.4	100.3	194.1	142.9	1.15	0.99
83AB3250	Powell	160.7	122.7	218.8	167.4	1.18	1.00
86AB4582	Monida/Reselection	160.8	125.9	217.0	167.9	1.12	1.00
86AB664	Ogle/75Ab861	167.5	157.7	211.8	179.0	0.68	0.94
87AB5125	Ogle/75Ab861	165.7	140.7	233.6	180.0	1.15	0.97
90Ab1322	80Ab1322/Monida	155.9	127.4	224.0	169.1	1.19	0.98
ABSP 9-2	83/Ab3119/Monida	178.9	168.2	224.8	190.6	0.71	0.94
CELSIA	Celsia	167.1	144.3	220.9	177.4	0.95	0.98
CI 9252	Otana	160.3	112.7	188.9	154.0	0.91	0.95
CI483126	Monida	175.5	185.5	222.7	194.5	0.49	0.65
ND860416	Otana/Valley	164.7	127.3	202.3	164.8	0.91	0.99
ND870258	Whitestone	177.6	86.1	218.7	160.8	1.57	0.91
PRAIRIE	Prairie	169.5	128.7	219.9	172.7	1.11	1.00
SITEMEAN	SITE MEAN *****	165.1	130.4	212.3	169.3	1.00	1.00
C.V 1	S/MEAN * 100	5.79	18.36	5.10	---	---	---
L.S.D.	LSD (.05)	16.03	40.16	15.23	---	---	---

Table 8.

**1997 SPRING OAT STATEWIDE IRRIGATED SUMMARY
TEST WEIGHT (lb/bu)**

ID	Pedigree	Sidney	Kalispell	Bozeman	AVG	BYX	RSQ
81Ab5792	Rio Grande	33.3	36.6	39.3	36.4	1.01	1.00
82Ab1142	Ajay	33.8	38.2	39.1	37.0	0.89	0.87
83AB3250	Powell	33.2	36.4	38.8	36.1	0.95	0.99
86AB4582	Monida/Reselection	36.0	37.4	42.6	38.7	1.12	0.91
86AB664	Ogle/75Ab861	34.5	36.5	40.6	37.2	1.03	0.96
87AB5125	Ogle/75Ab861	35.8	38.5	41.6	38.6	0.97	1.00
90Ab1322	80Ab1322/Monida	34.5	38.8	41.3	38.2	1.15	0.98
ABSP 9-2	83/Ab3119/Monida	36.3	39.9	42.9	39.7	1.11	1.00
CELSIA	Celsia	35.5	38.4	40.7	38.2	0.88	1.00
CI 9252	Otana	35.8	37.9	40.4	38.0	0.77	1.00
CI483126	Monida	34.5	39.2	39.7	37.8	0.87	0.81
ND860416	Otana/Valley	36.0	38.8	41.4	38.7	0.91	1.00
ND870258	Whitestone	36.2	36.2	42.5	38.3	1.07	0.76
PRAIRIE	Prairie	33.7	37.3	38.5	36.5	0.81	0.91
SITMEAN	SITE MEAN *****	34.9	37.9	40.9	37.9	1.00	1.00
C.V. 1	S/MEAN * 100	1.84	--	--	--	--	--
L.S.D.	LSD (.05)	1.08	--	--	--	--	--

Table 9.
1997 SPRING OAT STATEWIDE IRRIGATED SUMMARY
PLANT HEIGHT (inches)

ID	Pedigree	Sidney	Kalispell	Bozeman	AVG	BYX	RSQ
81Ab5792	Rio Grande	29.0	34.8	40.2	34.6	1.12	0.98
82Ab1142	Ajay	24.4	32.0	31.5	29.3	0.78	0.82
83AB3250	Powell	28.7	35.8	37.8	34.1	0.95	0.97
86AB4582	Monida/Reselection	31.4	39.9	44.1	38.4	1.31	1.00
86AB664	Ogle/75Ab861	32.5	41.1	43.3	39.0	1.13	0.97
87AB5125	Ogle/75Ab861	30.8	37.7	37.0	35.2	0.68	0.79
90Ab1322	80Ab1322/Monida	28.9	32.4	37.0	32.8	0.81	0.96
ABSP 9-2	83/Ab3119/Monida	31.2	39.2	41.3	37.3	1.06	0.97
CELSIA	Celsia	34.6	43.9	46.5	41.7	1.24	0.97
CI 9252	Otana	37.5	37.6	44.9	40.0	0.68	0.63
CI483126	Monida	35.6	45.5	44.5	41.9	0.98	0.78
ND860416	Otana/Valley	35.2	40.7	43.3	39.7	0.84	1.00
ND870258	Whitestone	31.2	30.2	44.1	35.2	1.17	0.56
PRAIRIE	Prairie	32.0	37.3	41.7	37.0	0.98	0.99
SITEMEAN	SITE MEAN *****	31.6	37.7	41.4	36.9	1.00	1.00
C.V. 1	S/MEAN * 100	3.30	14.45	---	---	---	---
L.S.D.	LSD (.05)	1.75	9.15	---	---	---	---

Table 10.

1997 SPRING OAT STATEWIDE IRRIGATED SUMMARY
HEADING DATE (Days from Jan. 1)

ID	Pedigree	Sidney	Kalispell	Bozeman	AVG	BYX	RSQ
81Ab5792	Rio Grande	172.3	188.0	188.8	183.0	1.04	0.99
82Ab1142	Ajay	175.0	190.0	190.0	185.0	0.97	0.99
83AB3250	Powell	178.0	195.0	195.2	189.4	1.11	0.99
86AB4582	Monida/Reselection	174.3	189.3	189.8	184.5	0.99	1.00
86AB664	Ogle/75Ab861	175.7	191.0	190.8	185.8	0.99	1.00
87AB5125	Ogle/75Ab861	175.0	191.7	191.2	186.0	1.07	1.00
90Ab1322	80Ab1322/Monida	175.0	189.3	190.2	184.9	0.96	0.99
ABSP 9-2	83/Ab3119/Monida	174.0	190.3	189.8	184.7	1.04	1.00
CELSIA	Celsia	178.3	194.0	194.2	188.9	1.02	0.99
CI 9252	Otana	175.7	191.3	190.8	185.9	1.00	1.00
CI483126	Monida	176.0	193.0	191.8	186.9	1.07	1.00
ND860416	Otana/Valley	175.7	191.7	191.5	186.3	1.03	0.99
ND870258	Whitestone	176.0	193.0	191.8	186.9	1.07	1.00
PRAIRIE	Prairie	171.3	187.0	188.2	182.2	1.05	0.98
SITEMEAN	SITE MEAN *****	175.2	191.1	190.0	185.4	1.00	1.00
C.V 1	S/MEAN * 100	0.29	0.32	0.27	--	--	--
L.S.D.	LSD (.05)	0.85	1.02	0.72	--	--	--