

PROJECT TITLE: Montana Statewide Spring Oat Variety Performance

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OBJECTIVE:

To evaluate the agronomic performance of new and existing varieties and experimental lines of oats under various growing conditions and environments in Montana.

RESULTS:

The 1998 Montana Statewide Spring Oat Yield Trial was grown at five dryland locations (Tables 2 to 4) and three irrigated/high rainfall sites (Tables 6 to 8) in replicated multi-row plots. Yield, test weight, heading date, and plant height at maturity are summarized across locations in Tables 1 and 5.

Adequate soil moisture at planting resulted in good stands at **Kalispell**. An early season dry period was followed by above average moisture and temperatures. Ideal grain fill conditions resulted in very high yield (mean = 191 bu/A) and above average test weights (mean = 38 lb/bu). Seeding at **Havre** was delayed due to dry soil conditions down to 3". Seed was eventually dusted in at 1" with capillary water movement responsible for good stands 14 days later. Dry conditions continued until the third week in June when moisture exceeded long-term averages. Extended periods of extreme heat in July resulted in high yields but very low test weights. Dryland conditions at **Sidney** were good at planting but remained dry through mid June. Moisture was then abundant through grain fill which resulted in above average yields. Planting at the irrigated site was late and stand uneven. The uneven stand, along with bird and gopher damage resulted in yields below average. **Moccasin** experienced dry and warm conditions through May followed by a cool and wet June. Above average July and early August moisture and heat resulted in average yields but somewhat depressed test weights. The **Huntley** location was lost on July 4th to a hailstorm. **Bozeman** had yield and test weights below average in 1998.

SUMMARY:

Most of the state experienced dry and warm early spring conditions but saw it turn wet and cooler than normal in late May through June. July was wet and hotter than normal. Monida was the top yielding variety at two of the three irrigated locations and two of four dryland environments. Otana had the highest test weight at four of the seven locations.

FUTURE PLANS:

The Montana Statewide Spring Oat Yield Trial will be continued in 1998.

Table 1.

1998 MONTANA SPRING OAT STATEWIDE DRYLAND SUMMARY

ID	Pedigree	Yield (bu/ac)	Test Weight (lb/bu)	Heading Date	Plant Height (inches)
81Ab5792	Rio Grande	103.0	32.1	175.5	29.2
82Ab1142	Ajay	92.3	31.9	177.3	25.4
83AB3250	Powell	95.8	30.0	181.2	27.1
86AB4582	Monida/Reselection	106.5	32.4	177.7	32.3
86AB664	Ogle/75Ab861	101.2	30.8	178.8	31.2
87AB5125	Ogle/75Ab861	101.2	31.7	178.9	27.1
90Ab1322	80Ab1322/Monida	101.7	30.8	178.2	26.4
ABSP 9-2	83/Ab3119/Monida	98.7	33.0	178.0	30.6
GELSIA	Celsia	95.2	31.0	180.6	33.7
CI 9252	Otana	107.5	34.2	178.3	36.5
CI483126	Monida	108.3	30.7	180.8	33.1
ND860416	Otana/Valley	105.8	33.2	179.4	35.1
ND870258	Whitestone	106.6	32.7	179.2	31.3
PRAIRIE	Prairie	103.6	31.8	175.1	30.6
*****	SITE MEAN *****	101.7	31.9	178.3	30.7

Table 2.

1998 SPRING OAT STATEWIDE DRYLAND REPORT -

YIELD (Bu/ac)

ID	Pedigree	Havre Dry	Sidney Dry	Sidney Recrop	Moccasin	AVE.	BYX	RSQ
81Ab5792	Rio Grande	103.1	140.7	102.9	65.1	103.0	0.99	0.92
82Ab1142	Ajay	87.3	136.5	82.1	63.5	92.3	1.04	0.99
83AB3250	Powell	85.8	136.8	88.2	72.3	95.8	0.94	0.99
86AB4582	Monida/Reselection	101.7	153.3	98.0	72.8	106.5	1.13	1.00
86AB664	Ogle/75Ab861	96.6	142.6	92.6	73.0	101.2	0.99	1.00
87AB5125	Ogle/75Ab861	95.6	148.2	91.0	69.9	101.2	1.12	1.00
90Ab1322	80Ab1322/Monida	98.4	144.0	85.6	78.6	101.7	0.97	0.97
ABSP 9-2	83/Ab3119/Monida	93.0	146.6	93.4	61.9	98.7	1.17	0.99
CELSIA	Celsia	89.4	138.1	82.0	71.5	95.2	0.98	0.98
CI 9252	Otana	100.2	147.6	103.8	78.3	107.5	0.97	0.99
CI483126	Monida	97.9	151.2	95.9	88.3	108.3	0.95	0.96
ND860416	Otana/Valley	91.6	145.4	98.2	87.9	105.8	0.87	0.94
ND870258	Whitestone	99.1	151.2	97.7	78.5	106.6	1.04	0.99
PRAIRIE	Prairie	102.7	146.9	94.2	70.7	103.6	1.06	0.99
*****	SITE MEAN *****	95.9	143.9	93.3	73.7	101.7	1.00	1.00

Table 3.

1998 SPRING OAT STATEWIDE DRYLAND REPORT -

TEST WEIGHT (lb/bu)

ID	Pedigree	Havre Dry	Sidney Dry	Sidney Recrop	Moccasin	AVE.	BYX	RSQ
81Ab5792	Rio Grande	29.7	32.7	30.5	35.5	32.1	0.71	0.95
82Ab1142	Ajay	28.4	31.5	30.0	37.6	31.9	1.12	1.00
83AB3250	Powell	27.8	29.5	28.0	34.6	30.0	0.89	0.99
86AB4582	Monida/Reselection	29.8	32.3	30.2	37.4	32.4	0.98	1.00
86AB664	Ogle/75Ab861	27.6	29.8	29.3	36.5	30.8	1.08	0.98
87AB5125	Ogle/75Ab861	28.1	30.7	29.8	38.2	31.7	1.24	0.99
90Ab1322	80Ab1322/Monida	27.6	29.7	28.5	37.6	30.8	1.27	0.99
ABSP 9-2	83/Ab3119/Monida	30.8	33.5	31.3	36.4	33.0	0.70	0.96
CELSIA	Celsia	28.0	29.7	29.7	36.5	31.0	1.04	0.97
CI 9252	Otana	31.6	33.3	33.0	39.0	34.2	0.90	0.98
CI483126	Monida	28.6	29.3	28.2	36.5	30.7	1.07	0.95
ND860416	Otana/Valley	30.1	32.7	31.2	39.0	33.2	1.11	1.00
ND870258	Whitestone	29.4	33.2	30.3	37.8	32.7	1.05	0.98
PRAIRIE	Prairie	28.8	32.3	30.0	35.9	31.8	0.86	0.97
*****	SITE MEAN *****	29.0	31.5	30.0	37.0	31.9	1.00	1.00

Table 4.

1998 SPRING OAT STATEWIDE DRYLAND REPORT - PLANT HEIGHT (inches)

ID	Pedigree	Havre Dry	Sidney Dry	Sidney Recrop	Moccasin	AVE.	BYX	RSQ
81Ab5792	Rio Grande	28.9	31.8	29.0	27.3	29.2	0.66	0.71
82Ab1142	Ajay	28.5	26.2	23.5	23.3	25.4	0.82	0.62
83AB3250	Powell	26.9	29.5	26.6	25.3	27.1	0.66	0.79
86AB4582	Monida/Reselection	33.1	35.2	29.8	31.3	32.3	0.92	0.88
86AB664	Ogle/75Ab861	33.0	35.3	28.9	27.7	31.2	1.51	1.00
87AB5125	Ogle/75Ab861	29.5	30.4	24.5	24.0	27.1	1.39	0.98
90Ab1322	80Ab1322/Monida	26.2	29.5	24.7	25.0	26.4	0.87	0.85
ABSP 9-2	83/Ab3119/Monida	33.7	33.1	28.1	27.7	30.6	1.27	0.88
CELSIA	Celsia	34.5	37.5	31.4	31.3	33.7	1.24	0.97
CI 9252	Otana	38.0	38.1	35.4	34.7	36.5	0.71	0.91
CI483126	Monida	33.4	36.1	31.6	31.3	33.1	0.90	0.94
ND860416	Otana/Valley	35.8	38.1	33.7	32.7	35.1	1.00	0.98
ND870258	Whitestone	32.8	35.3	28.4	28.7	31.3	1.41	0.99
PRAIRIE	Prairie	31.5	32.8	29.1	29.0	30.6	0.79	1.00
*****	SITE MEAN *****	31.9	33.4	28.9	28.5	30.7	1.00	1.00

Table 5.

1998 MONTANA SPRING OAT STATEWIDE IRRIGATED SUMMARY

ID	Pedigree	Yield (bu/ac)	Test Weight (lb/bu)	Heading Date	Plant Height (inches)
81Ab5792	Rio Grande	163.5	36.1	176.8	35.2
82Ab1142	Ajay	156.4	36.0	180.1	31.3
83AB3250	Powell	170.2	36.0	181.6	34.2
86AB4582	Monida/Reselection	170.8	36.4	178.9	38.6
86AB664	Ogle/75Ab861	167.2	36.8	180.2	39.0
87AB5125	Ogle/75Ab861	163.9	36.9	180.2	36.1
90Ab1322	80Ab1322/Monida	171.1	36.3	179.3	34.0
ABSP 9-2	83/Ab3119/Monida	171.6	38.1	178.2	38.7
GELSIA	Celsia	179.1	37.2	181.6	41.6
CI 9252	Otana	153.8	38.4	179.0	41.9
CI483126	Monida	184.7	36.4	182.2	41.9
ND860416	Otana/Valley	163.4	37.6	180.1	40.7
ND870258	Whitestone	166.7	38.2	180.2	37.9
PRAIRIE	Prairie	165.0	35.8	176.3	37.5
*****	SITE MEAN *****	167.5	36.9	179.5	37.7

Table 6.

1998 SPRING OAT STATEWIDE IRRIGATED REPORT -

YIELD (Bu/ac)

ID	Pedigree	Kalispell High Moisture	Sidney Irrigated	Bozeman Irrigated	AVE.	BYX	RSQ
81Ab5792	Rio Grande	200.6	150.4	139.6	163.5	1.45	0.94
82Ab1142	Ajay	190.8	147.8	130.6	156.4	1.41	0.98
83AB3250	Powell	184.2	178.7	147.6	170.2	0.79	0.76
86AB4582	Monida/Reselection	186.4	173.8	152.3	170.8	0.76	0.92
86AB664	Ogle/75Ab861	187.5	169.7	144.5	167.2	0.97	0.95
87AB5125	Ogle/75Ab861	192.9	154.0	144.8	163.9	1.15	0.96
90Ab1322	80Ab1322/Monida	200.6	159.8	153.1	171.1	1.14	0.93
ABSP 9-2	83/Ab3119/Monida	189.7	165.0	160.2	171.6	0.70	0.94
GELSIA	Celsia	235.4	151.4	150.5	179.1	2.07	0.85
CI 9252	Otana	174.4	140.8	146.1	153.8	0.71	0.73
CI483126	Monida	212.6	194.2	147.4	184.7	1.44	0.87
ND860416	Otana/Valley	163.5	177.3	149.4	163.4	0.25	0.15
ND870258	Whitestone	168.9	171.7	159.5	166.7	0.19	0.42
PRAIRIE	Prairie	182.0	167.9	145.1	165.0	0.83	0.94
*****	SITE MEAN *****	190.7	164.5	147.4	167.5	1.00	1.00

Table 7.

1998 SPRING OAT STATEWIDE IRRIGATED REPORT - TEST WEIGHT (lb/bu)

ID	Pedigree	Kalispell High Moisture	Sidney Irrigated	Bozeman Irrigated	AVE.	BYX	RSQ
81Ab5792	Rio Grande	38.0	36.2	34.3	36.1	1.03	0.36
82Ab1142	Ajay	36.9	35.2	35.9	36.0	0.79	1.00
83AB3250	Powell	37.5	34.3	36.0	36.0	1.46	0.97
86AB4582	Monida/Reselection	36.0	36.0	37.3	36.4	-0.12	0.03
86AB664	Ogle/75Ab861	37.9	35.8	36.6	36.8	0.95	1.00
87AB5125	Ogle/75Ab861	38.1	36.3	36.4	36.9	0.87	0.86
90Ab1322	80Ab1322/Monida	38.2	35.7	35.1	36.3	1.31	0.71
ABSP 9-2	83/Ab3119/Monida	37.8	37.5	38.9	38.1	0.06	0.01
CELSIA	Celsia	40.4	34.7	36.5	37.2	2.73	0.99
CI 9252	Otana	39.4	37.5	38.4	38.4	0.86	0.98
CI483126	Monida	38.7	36.0	34.4	36.4	1.46	0.51
ND860416	Otana/Valley	37.0	36.8	39.0	37.6	-0.09	0.01
ND870258	Whitestone	39.4	35.7	39.5	38.2	1.59	0.61
PRAIRIE	Prairie	37.3	35.0	35.0	35.8	1.14	0.87
*****	SITE MEAN *****	38.0	35.9	36.7	36.9	1.00	1.00

Table 8.

1998 SPRING OAT STATEWIDE IRRIGATED REPORT - PLANT HEIGHT (inches)

ID	Pedigree	Kalispell High Moisture	Sidney Irrigated	Bozeman Irrigated	AVE.	BYX	RSQ
81Ab5792	Rio Grande	41.9	34.9	28.9	35.2	1.10	1.00
82Ab1142	Ajay	37.9	31.0	25.0	31.3	1.10	1.00
83AB3250	Powell	38.6	34.9	29.1	34.2	0.80	0.98
86AB4582	Monida/Reselection	45.1	37.7	33.1	38.6	1.02	0.98
86AB664	Ogle/75Ab861	45.7	38.6	32.7	39.0	1.10	1.00
87AB5125	Ogle/75Ab861	41.2	37.0	29.9	36.1	0.96	0.98
90Ab1322	80Ab1322/Monida	39.9	33.1	29.1	34.0	0.92	0.99
ABSP 9-2	83/Ab3119/Monida	45.4	38.1	32.7	38.7	1.08	1.00
CELSIA	Celsia	48.0	40.5	36.2	41.6	1.00	0.98
CI 9252	Otana	49.5	39.8	36.6	41.9	1.10	0.93
CI483126	Monida	48.6	41.1	36.0	41.9	1.07	0.99
ND860416	Otana/Valley	46.5	42.4	33.3	40.7	1.11	0.94
ND870258	Whitestone	40.2	38.7	34.8	37.9	0.45	0.93
PRAIRIE	Prairie	42.8	38.3	31.3	37.5	0.97	0.98
*****	SITE MEAN *****	43.7	37.6	31.9	37.7	1.00	1.00