

PROJECT TITLE: Montana Statewide Spring Oat Cultivar Performance

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OBJECTIVES:

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

RESULTS:

The 2001 Montana Statewide Spring Oat Yield trial was grown at five dryland locations (Table 1 to 5) and four irrigated/high rainfall sites (Tables 6 to 10) in replicated multi-row plots. Yield, test weight, Julian heading date, and plant height are summarized across locations in Tables 1 and 6.

Yields at **Bozeman** were slightly higher in 2001 compared to the previous year. On average, yields were 185 bu/a and ranged from a low of 173 for Ajay to a high of 204 for ABSP 9-2. Test weights were exceptional and averaged 39 lb/bu.

Oat yields at **Havre** in 2001 were less than 40% of the long-term average for the station. Yields only averaged 19 bu/A, ranging from a low of 14.3 bu/A for Ajay to a high of 24.9 bu/A for Otana. Topsoil moisture at planting was very marginal and successful stand establishment for all spring crops was credited primarily to no-till seeding. Crop year precipitation was 72% of normal. Precipitation from oat seeding to harvest was 4.19 inches of which only 3.26 came in events greater than 0.1 inches. Growing season temperature means were 108% of normal with 44 days over 90F in comparison to a long-term mean of 26.3 days over 90F. Wind was relentless at 110% of normal with new all-time monthly peak velocity records set during both May and July.

Dryland yields at **Huntley** were less than the previous year, with average yields being 57 and 36 bu/A during 2000 and 2001, respectively. Dryland yields this season ranged from a low of 28 for Killdeer to a high of 43 for Rio Grande. Average test weights were similar to last years, and averaged 39 lb/bu. Plants headed earlier and were generally shorter compared to the previous year. Irrigated yields were excellent and averaged 209 bu/A. Yields ranged from 190 bu/A for Whitestone to 241 bu/A for 90AB1322. Test weights were good, averaging 35 lb/bu.

Disease infections were low at **Kalispell** due to limited precipitation during the 2001 production season. However, the lack of rainfall did not seem to limit yields. With an

average yield of 190 bu/A, yields were 45 bu/A greater in 2001 compared 2000. Oat yields ranged from a low of 165 bu/acre for Ajay to yields exceeding 200 bu/acre for cultivars ABSP9-2 and CDC Pacer. The greatest test weight was 36 lbs/bu from cultivars CDC Pacer, Killdeer, and Otana. Heading dates ranged from 175-182 days. Plant height ranged from 29 to 44 inches and lodging was minor.

Dry and windy conditions prevailed at **Moccasin** during most of the growing season. However, oat yields were still acceptable and averaged 86 bu/A. Yields ranged from a low of 77 bu/A for Otana to a high of 96 bu/A for Rio Grande. Test weights were also acceptable, averaging 33 lb/bu. Heading date ranged from 181 to 190 days and plant height ranged from 26 inches for Ajay to 32 inches for CDC Pacer, Otana, and Whitestone.

Sidney conducted three trials including recrop, dryland, and irrigated nurseries. Yields in the dryland study were approximately 8 bu/A greater than that of the recrop nursery. The recrop nursery averaged 92.8 bu/A and ranged from a low of 81 bu/A for 89AB4088 to a high of 101 bu/A for Celsia. The Dryland nursery averaged 110 bu/A and ranged from 90 bu/A for Ajay to 123 bu/A for ABSP19-9. In the irrigated nursery, yields averaged 151 bu/A, ranging from 138 bu/A for 89AB4088 to 171 bu/A for CDC Pacer. Test weights were very good with both the recrop and dryland nurseries, averaging 36 and 37 lb/bu respectively. However, the irrigated nursery had lowest test weights, averaging 31 lb/Bu.

SUMMARY:

The Statewide Oat dryland trial average yield was 72 bu/A. On average, Ajay produced the lowest yield of 65 bu/A while Monida had the greatest yield of 76 bu/A. Test weights were excellent and averaged 36 lb/bu. Test weights ranged from a low of 34 lb/bu for Celsia to a high of 38 for 89AB4088.

The Statewide Oat irrigated nursery had an average yield of 184 bu/A. Yield ranged from a low of 171 for Ajay to a high of 202 for CDC Pacer. Test weights were good, averaging 35 lb/A. Test weights ranged from a low of 34 lb/bu for 90Ab1322 to a high of 36.8 lb/bu for ABSP 9-2.

FUTURE PLANS:

The Montana Statewide Oat Yield Trial will be continued in 2002.

Table 1. 2001 SPRING OATS STATEWIDE DRYLAND OVERALL SUMMARY
(Days from January 1)

ID	PEDIGREE	Yield bu/ac	Test Weight lb/bu	Heading Date	Plant Height inches
CI483126	Monida	76.0	35.9	180.7	26.7
CDCPACER	CDC PACER	74.0	37.2	177.5	28.9
87AB5125	Ogle/75Ab861	73.9	35.9	179.7	23.6
ABSP19-9	83Ab3083/Monida	73.6	37.0	178.4	24.6
90Ab1322	80Ab1322/Monida	73.1	35.5	178.1	22.2
81Ab5792	Rio Grande	73.0	35.4	175.8	24.5
PI583735	Celsia	72.8	34.6	179.7	27.3
PI591810	Whitestone	72.5	36.3	178.0	26.5
Site Mean	SITE MEAN	72.2	36.4	177.6	25.3
ABSP 9-2	83/Ab3119/Monida	71.8	37.4	177.0	25.1
87Ab4983	Ogle/Border	69.8	37.2	175.3	22.3
89AB4088	75Ab861/IL 75-3402	69.4	38.1	176.0	25.2
ND930122	Killdeer	69.4	36.7	174.7	25.8
CI 9252	Otana	67.2	37.7	177.2	31.3
PI537436	Ajay	65.8	35.2	178.3	20.9

Table 2. 2001 SPRING OAT STATEWIDE DRYLAND REPORT – YIELD (bu/ac)

ID	PEDIGREE	Havre	Moccasin	Huntley	Sidney	Sidney	Avg	BYX	RSQ
		Dryland	Recrop	Dryland	Recrop	Dryland			
81Ab5792	Rio Grande	36.3	96.6	43.7	92.8	95.4	73.0	0.84	0.92
87AB5125	Ogle/75Ab861	33.4	95.8	41.4	95.8	102.9	73.9	0.95	0.96
87Ab4983	Ogle/Border	33.0	84.4	39.7	95.9	96.0	69.8	0.88	0.96
89AB4088	75Ab861/IL 75-3402	38.3	82.5	38.0	81.6	106.6	69.4	0.87	0.99
90Ab1322	80Ab1322/Monida	37.5	84.9	35.6	90.8	116.5	73.1	1.02	1.00
ABSP 9-2	83/Ab3119/Monida	29.7	88.7	33.7	95.8	111.4	71.8	1.08	0.99
ABSP19-9	83Ab3083/Monida	36.7	90.3	32.6	85.5	122.9	73.6	1.09	0.97
CDCPACER	CDC PACER	37.5	80.5	33.2	96.8	121.8	74.0	1.09	0.98
CI 9252	Otana	33.6	76.9	31.3	91.9	102.4	67.2	0.95	0.99
CI483126	Monida	37.7	83.5	40.7	100.4	117.8	76.0	1.03	0.99
ND930122	Killdeer	35.8	92.8	28.2	91.1	99.1	69.4	0.97	0.96
PI537436	Ajay	34.5	80.0	35.5	89.0	90.2	65.8	0.81	0.97
PI583735	Celsia	32.1	79.3	33.5	101.0	118.3	72.8	1.12	0.99
PI591810	Whitestone	36.6	86.6	37.2	91.1	111.0	72.5	0.97	1.00
Site Mean	SITE MEAN *****	35.2	85.9	36.0	92.8	110.5	72.2	1.00	1.00
C.V.	C.V. (S/Mean) * 100	12.94	5.0	16.30	10.74	8.35	***	***	***
F-Value		0.92	***	***	0.86	5.53	***	***	***
L.S.D.	L.S.D. (.05)	7.65	2.8	ns	16.73	15.07	***	***	***

Table 3. 2001 SPRING OAT STATEWIDE DRYLAND REPORT – TEST WEIGHT (lb/bu)

ID	PEDIGREE	Havre	Moccasin	Huntley	Sidney	Sidney	Avg	BYX	RSQ
		Dryland	Recrop	Dryland	Recrop	Dryland			
81Ab5792	Rio Grande	34.0	30.9	39.8	35.7	36.8	35.4	1.52	0.98
87AB5125	Ogle/75Ab861	35.3	32.7	38.6	36.0	36.7	35.9	0.99	0.98
87Ab4983	Ogle/Border	34.9	36.4	40.2	36.5	38.2	37.2	0.76	0.65
89AB4088	75Ab861/IL 75-3402	37.4	35.7	41.7	36.2	39.3	38.1	1.07	0.87
90Ab1322	80Ab1322/Monida	36.1	29.0	38.1	36.5	37.8	35.5	1.47	0.72
ABSP 9-2	83/Ab3119/Monida	37.0	34.4	40.6	37.3	37.7	37.4	1.01	0.97
ABSP19-9	83Ab3083/Monida	37.0	34.3	40.1	36.0	37.7	37.0	0.96	0.94
CDCPACER	CDC PACER	36.0	34.8	40.0	36.2	39.2	37.2	0.97	0.88
CI 9252	Otana	36.8	35.5	40.7	38.0	37.5	37.7	0.85	0.90
CI483126	Monida	35.9	32.2	37.2	36.0	38.0	35.9	0.87	0.71
ND930122	Killdeer	35.0	35.0	40.5	36.0	36.8	36.7	0.96	0.84
PI537436	Ajay	35.5	30.6	38.8	34.7	36.3	35.2	1.33	0.93
PI583735	Celsia	32.2	33.4	36.0	34.5	36.8	34.6	0.60	0.48
PI591810	Whitestone	36.2	34.7	39.7	35.2	35.8	36.3	0.81	0.77
Site Mean	SITE MEAN *****	35.7	33.6	39.4	36.1	37.1	36.4	1.00	1.00
C.V.	C.V. (S/Mean) * 100	1.84	***	1.1	2.30	1.85	***	***	***
F-Value		13.18	***	***	3.75	10.57	***	***	***
L.S.D.	L.S.D. (.05)	1.10	***	0.8	1.39	1.12	***	***	***

Table 4. 2001 SPRING OAT STATEWIDE DRYLAND REPORT – HEADING DATE
(Days from January 1)

ID	PEDIGREE	Havre	Moccasin	Huntley	Sidney	Sidney	Avg	BYX	RSQ
		Dryland	Recrop	Dryland	Recrop	Dryland			
81Ab5792	Rio Grande	182.3	182.0	164.7	176.3	173.7	175.8	1.10	0.96
87AB5125	Ogle/75Ab861	182.3	189.0	169.0	182.0	176.0	179.7	1.12	0.93
87Ab4983	Ogle/Border	183.0	182.0	163.0	176.0	172.7	175.3	1.22	0.95
89AB4088	75Ab861/IL 75-3402	181.3	182.0	165.0	177.7	174.0	176.0	1.07	0.99
90Ab1322	80Ab1322/Monida	182.7	182.0	169.0	180.3	176.7	178.1	0.86	0.98
ABSP 9-2	83/Ab3119/Monida	181.0	182.0	168.3	178.0	175.7	177.0	0.84	0.99
ABSP19-9	83Ab3083/Monida	182.7	183.0	167.7	182.3	176.3	178.4	1.01	0.98
CDCPACER	CDC PACER	181.0	182.0	168.0	181.3	175.0	177.5	0.92	0.98
CI 9252	Otana	180.7	181.0	167.0	181.7	175.7	177.2	0.93	0.95
CI483126	Monida	182.3	190.0	171.3	182.7	177.3	180.7	1.01	0.89
ND930122	Killdeer	179.0	180.0	163.0	177.0	174.3	174.7	1.05	0.97
PI537436	Ajay	183.0	182.0	167.7	182.0	176.7	178.3	0.98	0.97
PI583735	Celsia	181.7	187.0	171.0	182.7	176.3	179.7	0.92	0.93
PI591810	Whitestone	181.7	182.0	167.3	182.0	177.0	178.0	0.96	0.96
Site Mean	SITE MEAN *****	181.8	183.3	167.3	180.1	175.4	177.6	1.00	1.00
C.V.	C.V. (S/Mean) * 100	0.59	14.0	0.4	0.40	0.39	***	***	***
F-Value		3.18	***	***	37.37	19.56	***	***	***
L.S.D.	L.S.D. (.05)	1.80	ns	1.0	1.21	1.12	***	***	***

Table 5. 2001 SPRING OAT STATEWIDE DRYLAND REPORT – PLANT HEIGHT (in)

ID	PEDIGREE	Havre	Moccasin	Huntley	Sidney	Sidney	Avg	BYX	RSQ
		Dryland	Recrop	Dryland	Recrop	Dryland			
81Ab5792	Rio Grande	18.9	31.0	22.5	26.1	24.0	24.5	1.01	0.85
87AB5125	Ogle/75Ab861	17.8	30.0	20.6	25.5	24.2	23.6	1.09	0.91
87Ab4983	Ogle/Border	17.8	28.0	19.1	23.4	23.4	22.3	0.92	0.88
89AB4088	75Ab861/IL 75-3402	18.8	31.0	22.1	26.4	28.0	25.2	1.16	0.97
90Ab1322	80Ab1322/Monida	15.0	27.0	20.8	23.5	24.9	22.2	1.11	0.96
ABSP 9-2	83/Ab3119/Monida	18.0	30.0	21.4	27.8	28.5	25.1	1.25	0.98
ABSP19-9	83Ab3083/Monida	18.5	28.0	22.7	25.7	28.2	24.6	0.97	0.94
CDCPACER	CDC PACER	22.5	32.0	26.2	29.9	34.0	28.9	1.04	0.86
CI 9252	Otana	24.9	32.0	29.9	36.1	33.7	31.3	0.89	0.74
CI483126	Monida	21.2	27.0	23.6	30.8	30.8	26.7	0.87	0.69
ND930122	Killdeer	20.4	31.0	22.9	27.6	27.0	25.8	1.00	0.96
PI537436	Ajay	14.3	26.0	20.0	23.4	20.7	20.9	1.01	0.90
PI583735	Celsia	22.4	27.0	25.1	32.4	29.5	27.3	0.73	0.59
PI591810	Whitestone	19.7	32.0	26.1	26.4	28.1	26.5	1.00	0.86
Site Mean	SITE MEAN *****	19.3	29.4	23.1	27.5	27.4	25.3	1.00	1.00
C.V.	C.V. (S/Mean) * 100	7.19	10.3	8.1	6.17	9.13	***	***	***
F-Value		12.80	***	***	14.20	5.32	***	***	***
L.S.D.	L.S.D. (.05)	2.33	ns	3.1	2.85	4.09	***	***	***

Table 6. 2001 SPRING OATS STATEWIDE IRRIGATED OVERALL SUMMARY

ID	PEDIGREE	Yield	Test Weight	Heading	Plant Height
		bu/ac	lb/bu	Date	inches
CDCPACER	CDC PACER	202.6	35.7	179.1	38.0
ABSP 9-2	83/Ab3119/Monida	199.4	36.8	178.2	34.1
90Ab1322	80Ab1322/Monida	194.8	34.1	179.5	29.9
ND930122	Killdeer	191.8	35.5	176.3	33.4
ABSP19-9	83Ab3083/Monida	189.7	35.0	181.3	33.5
87AB5125	Ogle/75Ab861	187.1	34.8	180.1	32.8
Site Mean	SITE MEAN *****	184.0	35.0	178.9	33.8
PI583735	Celsia	182.2	34.3	180.4	36.6
CI483126	Monida	180.8	33.8	181.2	37.0
PI591810	Whitestone	180.5	35.5	180.2	35.6
CI 9252	Otana	179.5	36.3	178.5	39.5
81Ab5792	Rio Grande	177.9	33.6	177.4	30.7
89AB4088	75Ab861/IL 75-3402	177.4	36.5	176.9	33.6
87Ab4983	Ogle/Border	177.3	35.5	176.5	29.3
PI537436	Ajay	171.1	33.5	180.0	28.2

Table 7. 2001 SPRING OAT STATEWIDE IRRIGATED REPORT – YIELD (bu/ac)

ID	PEDIGREE	Kalispell	Sidney	Huntley	Bozeman	Avg	BYX	RSQ
		High Moisture	Irrigated	Irrigated	Irrigated			
81Ab5792	Rio Grande	173.6	146.8	205.5	185.8	177.9	0.98	0.92
87AB5125	Ogle/75Ab861	193.0	152.9	218.6	183.7	187.1	1.12	0.99
87Ab4983	Ogle/Border	178.4	145.0	205.9	179.8	177.3	1.03	0.99
89AB4088	75Ab861/IL 75-3402	193.0	138.1	199.4	179.1	177.4	1.11	0.94
90Ab1322	80Ab1322/Monida	191.9	153.8	241.1	192.4	194.8	1.43	0.93
ABSP 9-2	83/Ab3119/Monida	211.0	161.1	221.1	204.5	199.4	1.08	0.96
ABSP19-9	83Ab3083/Monida	193.0	153.7	224.5	187.8	189.7	1.19	0.98
CDCPACER	CDC PACER	209.2	171.1	230.1	199.9	202.6	1.01	0.99
CI 9252	Otana	189.2	139.9	198.0	190.9	179.5	1.05	0.90
CI483126	Monida	190.1	151.1	200.1	182.1	180.8	0.87	0.98
ND930122	Killdeer	191.5	160.9	214.6	200.2	191.8	0.92	0.95
PI537436	Ajay	165.2	143.9	202.0	173.1	171.1	0.94	0.89
PI583735	Celsia	182.8	152.5	217.0	176.5	182.2	1.06	0.92
PI591810	Whitestone	194.7	151.2	190.2	185.9	180.5	0.74	0.80
Site Mean	SITE MEAN *****	189.8	151.6	209.5	185.1	184.0	1.00	1.00
C.V.	C.V. (S/Mean) * 100	7.32	6.90	7.7	6.96	***	***	***
F-Value		2.31	2.14	***	5.38	***	***	***
L.S.D.	L.S.D. (.05)	23.30	17.56	26.2	18.09	***	***	***

Table 8. 2001 SPRING OAT STATEWIDE IRRIGATED REPORT – TEST WEIGHT

ID	PEDIGREE	Kalispell	Sidney	Huntley	Bozeman	Avg	BYX	RSQ
		High Moisture	Irrigated	Irrigated	Irrigated			
81Ab5792	Rio Grande	31.1	31.0	33.5	38.9	33.6	1.05	0.89
87AB5125	Ogle/75Ab861	33.2	31.2	35.5	39.3	34.8	1.02	0.96
87Ab4983	Ogle/Border	34.5	32.5	34.6	40.5	35.5	1.01	0.97
89AB4088	75Ab861/IL 75-3402	35.9	33.0	35.4	41.8	36.5	1.10	0.97
90Ab1322	80Ab1322/Monida	31.6	31.0	34.2	39.4	34.1	1.11	0.93
ABSP 9-2	83/Ab3119/Monida	35.5	33.3	36.9	41.5	36.8	1.03	0.99
ABSP19-9	83Ab3083/Monida	33.8	32.2	35.5	38.5	35.0	0.80	0.97
CDCPACER	CDC PACER	36.1	31.7	35.2	39.7	35.7	0.96	0.94
CI 9252	Otana	36.1	33.0	35.9	40.3	36.3	0.90	0.99
CI483126	Monida	33.7	29.8	33.6	38.2	33.8	1.01	0.98
ND930122	Killdeer	36.3	30.2	35.0	40.7	35.5	1.24	0.92
PI537436	Ajay	31.8	30.3	33.3	38.5	33.5	1.05	0.98
PI583735	Celsia	34.1	30.8	34.3	38.1	34.3	0.88	0.98
PI591810	Whitestone	34.8	30.8	35.4	40.9	35.5	1.23	0.99
Site Mean	SITE MEAN *****	34.2	31.5	34.9	39.5	35.0	1.00	1.00
C.V.	C.V. (S/Mean) * 100	2.12	2.48	4.1	2.36	***	***	***
F-Value		17.79	6.31	***	4.81	***	***	***
L.S.D.	L.S.D. (.05)	1.21	1.31	2.3	1.90	***	***	***

Table 9. 2001 SPRING OAT STATEWIDE IRRIGATED REPORT – HEADING DATE
(Days from January 1)

ID	PEDIGREE	Kalispell High Moisture	Sidney Irrigated	Huntley Irrigated	Bozeman Irrigated	Avg	BYX	RSQ
81Ab5792	Rio Grande	177.0	178.7	176.3	177.5	177.4	0.52	0.89
87AB5125	Ogle/75Ab861	180.0	182.0	179.0	179.5	180.1	0.67	0.83
87Ab4983	Ogle/Border	177.0	178.3	173.3	177.3	176.5	1.17	0.92
89AB4088	75Ab861/IL 75-3402	177.3	179.0	173.3	178.0	176.9	1.32	0.90
90Ab1322	80Ab1322/Monida	179.3	181.0	178.0	179.5	179.5	0.68	0.98
ABSP 9-2	83/Ab3119/Monida	179.0	179.7	175.3	178.8	178.2	1.02	0.88
ABSP19-9	83Ab3083/Monida	182.7	183.0	178.7	180.8	181.3	1.02	0.83
CDCPACER	CDC PACER	179.0	181.7	176.0	179.8	179.1	1.30	0.97
CI 9252	Otana	179.7	181.7	174.0	178.8	178.5	1.79	0.97
CI483126	Monida	181.3	183.0	180.0	180.5	181.2	0.67	0.83
ND930122	Killdeer	177.0	178.3	172.3	177.5	176.3	1.41	0.87
PI537436	Ajay	178.0	182.7	179.7	179.5	180.0	0.61	0.31
PI583735	Celsia	180.3	182.7	178.3	180.3	180.4	0.98	0.98
PI591810	Whitestone	179.7	182.0	179.3	179.8	180.2	0.58	0.72
Site Mean	SITE MEAN *****	179.1	181.0	176.6	179.0	178.9	1.00	1.00
C.V.	C.V. (S/Mean) * 100	0.32	0.33	0.7	0.33	***	***	***
F-Value		26.67	27.92	***	26.20	***	***	***
L.S.D.	L.S.D. (.05)	0.97	0.99	2.1	0.82	***	***	***

Table 10. 2001 SPRING OAT STATEWIDE IRRIGATED REPORT – PLANT HEIGHT (in)

ID	PEDIGREE	Kalispell High Moisture	Sidney Irrigated	Huntley Irrigated	Bozeman Irrigated	Avg	BYX	RSQ
81Ab5792	Rio Grande	29.5	26.5	36.0	30.8	30.7	0.88	0.94
87AB5125	Ogle/75Ab861	29.3	26.4	41.2	34.3	32.8	1.47	0.99
87Ab4983	Ogle/Border	27.7	25.7	33.5	30.3	29.3	0.76	0.99
89AB4088	75Ab861/IL 75-3402	29.3	29.4	39.4	36.1	33.6	1.12	0.95
90Ab1322	80Ab1322/Monida	28.1	25.2	34.6	31.6	29.9	0.93	0.99
ABSP 9-2	83/Ab3119/Monida	30.1	29.9	40.4	36.1	34.1	1.13	0.96
ABSP19-9	83Ab3083/Monida	32.2	29.8	37.3	34.7	33.5	0.73	0.99
CDCPACER	CDC PACER	36.5	33.1	42.4	40.0	38.0	0.91	0.97
CI 9252	Otana	39.1	33.7	43.9	41.1	39.5	0.92	0.89
CI483126	Monida	36.6	31.6	40.7	38.9	37.0	0.83	0.87
ND930122	Killdeer	30.3	30.8	37.4	35.1	33.4	0.74	0.92
PI537436	Ajay	25.2	23.4	34.7	29.4	28.2	1.15	1.00
PI583735	Celsia	34.4	32.0	42.7	37.2	36.6	1.04	0.98
PI591810	Whitestone	31.4	31.6	42.8	36.7	35.6	1.19	0.94
Site Mean	SITE MEAN *****	31.4	29.2	39.2	35.3	33.8	1.00	1.00
C.V.	C.V. (S/Mean) * 100	5.03	6.44	6.8	4.02	***	***	***
F-Value		18.58	8.87	***	25.96	***	***	***
L.S.D.	L.S.D. (.05)	2.65	3.16	4.3	1.99	***	***	***