

Project Title: Montana Statewide Oat Cultivar Performance

Project Leader: Tom Blake

Project Personnel: Stan Bates, Gregg Carlson, Joyce Eckhoff, Bob Stougaard, and Dave Wichman

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 2006 Montana State Spring Oat Yield Trial was grown at two dryland locations and two irrigated/high rainfall sites in replicated multi-row plots. Yield, test weight, heading date, and plant height are summarized across locations in Tables 1 through 6, respectively.

Yields at **Havre** were noticeably lower than last year. The average yield was only 76 bu/ac in 2006 compared to 111 bu/ac in 2005. Yields ranged from a high of 88 bu/ac for Monida to a low of 66 bu/ac for Otana/87Ab4983. The average test weight of 29 lb/bu in 2006 was slightly lower than last year.

Above average temperatures and soil moisture favored oat growth and development at **Kalispell**. All entries yielded over 200 bu/ac with an average yield of 228 bu/ac. Yields ranged from 204 bu/ac in CDC Dancer to 246 bu/ac in OT383. Test weights averaged 38 lb/bu.

The average dryland yield at **Moccasin** (85 bu/ac) was higher compared to the 2005 season (57 bu/ac). Yields ranged from a high of 92 bu/ac for Monida/75Ab861 and Otana/87Ab4983 to a low of 77 bu/ac for CDC Dancer.

The average irrigated yield at **Sidney** was slightly higher in 2006 (162 bu/ac) as compared to 2005 (157 bu/ac). Yields ranged from a high of 179 bu/ac for Monida/75Ab861 to a low of 149 bu/ac for OT349/J775-1. Test weight was lower in 2006 compared to 2005 (31.6 verses 36.5 lb/bu, respectively).

#### Summary:

Oat yields were generally higher compared to the previous year except at Havre. Overall, Monida/75Ab861 was among the top yielding entries.

#### Future Plans:

The Montana Statewide Oat Yield Trial will be continued in 2007.

Table 1. 2006 Montana Statewide Oat Overall Summary.

<b>ID</b>	<b>Pedigree</b>	<b>Grain Yield</b>	<b>Test weight</b>	<b>Heading date</b>	<b>Plant height</b>	<b>Protein</b>
		bu/ac	lb/bu	Julian	inches	%
87AB5632	Monida/75Ab861	146.7	31.8	173.3	35.0	12.6
ND930122	Killdeer	143.4	33.6	171.6	34.1	12.7
96AB8796	81Ab5792/82Ab248	140.7	30.7	173.9	31.5	13.0
98AB6646	IAH61-3-3/90Ab1322	139.1	34.4	174.1	32.6	13.0
OT351	CDC Pacer	138.7	33.5	173.4	39.1	12.7
98AB6491	90Ab1322/Ogle	138.6	31.4	172.7	32.2	12.9
OT382	OT349/J775-1	138.6	32.8	173.7	38.9	12.9
96AB8597	Otana/87Ab4983	138.5	32.5	175.0	34.4	12.1
CI483126	Monida	137.0	31.6	175.2	38.5	12.2
90AB1322	Maverick	136.7	32.1	173.2	30.5	13.0
94AB5943	86Ab1867/87Ab5597	134.5	33.6	173.7	33.7	12.9
CI 9252	Otana	132.6	34.4	173.9	40.2	13.5
ABSP 9-2	Monico	130.9	35.0	172.4	34.3	12.6
OT373	CDC Dancer	130.6	35.1	173.1	38.2	12.5
	Overall Mean	137.6	33.0	173.5	35.2	12.8

Table 2. 2006 Montana Oat Statewide Summary by Location for Grain Yield (bu/ac).

ID	Pedigree	Dryland		Irrigated <sup>†</sup>		Overall
		Moccasin	Havre	Kalispell	Sidney	Average
87AB5632	Monida/75Ab861	92.4	80.9	234.7	178.6	146.7
90AB1322	Maverick	85.2	68.1	244.0	149.3	136.7
94AB5943	86Ab1867/87Ab5597	90.3	72.0	215.3	160.4	134.5
96AB8597	Otana/87Ab4983	92.4	65.9	226.3	169.2	138.5
96AB8796	81Ab5792/82Ab248	85.9	77.6	230.0	169.2	140.7
98AB6491	90Ab1322/Ogle	78.8	70.3	241.4	164.1	138.6
98AB6646	IAH61-3-3/90Ab1322	77.9	67.4	235.6	175.7	139.1
ABSP 9-2	Monico	85.0	68.5	207.4	162.7	130.9
CI 9252	Otana	79.9	80.0	219.4	151.2	132.6
CI483126	Monida	81.5	88.2	213.5	164.7	137.0
ND930122	Killdeer	83.1	85.9	239.6	165.1	143.4
OT351	CDC Pacer	84.1	82.7	235.2	152.6	138.7
OT373	CDC Dancer	77.4	83.4	203.9	157.7	130.6
OT382	OT349/J775-1	88.5	71.9	245.5	148.6	138.6
	Site Mean	84.5	75.9	228.0	162.1	137.6
	C.V. (S/MEAN)*100	8.18	13.42	10.5	6.3	***
	F-value	1.63	1.67	1.01	8.6	***
	LSD (0.05)	11.60	17.1	NS	16.6	***

† Kalispell high rainfall location.

Table 3. 2006 Montana Oat Statewide Summary by Location for Test Weight (lb/bu).

ID	Pedigree	Dryland	Irrigated <sup>†</sup>		Overall
		Havre	Kalispell	Sidney	Average
87AB5632	Monida/75Ab861	27.5	36.4	31.5	31.8
90AB1322	Maverick	26.5	38.3	31.5	32.1
94AB5943	86Ab1867/87Ab5597	29.0	38.2	33.5	33.6
96AB8597	Otana/87Ab4983	28.0	38.6	31.0	32.5
96AB8796	81Ab5792/82Ab248	26.6	35.9	29.7	30.7
98AB6491	90Ab1322/Ogle	27.7	36.3	30.2	31.4
98AB6646	IAH61-3-3/90Ab1322	28.4	40.5	34.2	34.4
ABSP 9-2	Monico	30.7	39.8	34.5	35.0
CI 9252	Otana	30.8	38.9	33.7	34.4
CI483126	Monida	27.9	37.3	29.5	31.6
ND930122	Killdeer	30.1	37.7	33.2	33.6
OT351	CDC Pacer	30.0	40.1	30.3	33.5
OT373	CDC Dancer	31.7	40.0	33.5	35.1
OT382	OT349/J775-1	28.0	40.1	30.3	32.8
	Site Mean	28.8	38.4	31.9	33.0
	C.V. (S/MEAN)*100	3.52	***	2.8	***
	F-value	7.77	***	21.6	***
	LSD (0.05)	1.7	***	1.5	***

† Kalispell high rainfall location.

Table 4. 2006 Montana Oat Statewide Summary by Location for Heading Date (days from January 1).

ID	Pedigree	Dryland		Irrigated <sup>†</sup>		Overall
		Moccassin	Havre	Kalispell	Sidney	Average
87AB5632	Monida/75Ab861	175.3	169.7	175.7	172.7	173.3
90AB1322	Maverick	176.0	170.3	174.7	172.0	173.2
94AB5943	86Ab1867/87Ab5597	176.3	171.7	174.3	172.3	173.7
96AB8597	Otana/87Ab4983	178.0	169.7	178.0	174.3	175.0
96AB8796	81Ab5792/82Ab248	176.0	170.3	176.3	173.0	173.9
98AB6491	90Ab1322/Ogle	175.7	168.0	175.3	171.7	172.7
98AB6646	IAH61-3-3/90Ab1322	177.7	171.3	175.3	172.0	174.1
ABSP 9-2	Monico	173.7	169.7	174.7	171.7	172.4
CI 9252	Otana	175.0	170.7	176.3	173.7	173.9
CI483126	Monida	178.0	172.0	176.7	174.0	175.2
ND930122	Killdeer	173.7	169.3	173.0	170.3	171.6
OT351	CDC Pacer	175.3	169.7	175.7	173.0	173.4
OT373	CDC Dancer	174.3	171.0	175.7	171.3	173.1
OT382	OT349/J775-1	176.0	169.3	176.7	173.0	173.7
	Site Mean	175.8	170.2	175.6	172.5	173.5
	C.V. (S/MEAN)*100	0.31	0.76	0.6	1.6	***
	F-value	20.41	2.1	3.92	5.8	***
	LSD (0.05)	0.91	2.16	1.8	1.4	***

† Kalispell high rainfall location.

Table 5. 2006 Montana Oat Statewide Summary by Location for Plant Height (inches).

ID	Pedigree	Dryland		Irrigated <sup>†</sup>		Overall
		Moccassin	Havre	Kalispell	Sidney	Average
87AB5632	Monida/75Ab861	32.7	27.5	44.6	35.0	35.0
90AB1322	Maverick	29.9	23.4	39.6	29.0	30.5
94AB5943	86Ab1867/87Ab5597	32.5	26.7	42.8	32.9	33.7
96AB8597	Otana/87Ab4983	32.9	27.0	43.6	34.1	34.4
96AB8796	81Ab5792/82Ab248	29.5	24.5	40.9	31.0	31.5
98AB6491	90Ab1322/Ogle	30.6	26.4	41.5	30.3	32.2
98AB6646	IAH61-3-3/90Ab1322	31.1	27.1	40.9	31.2	32.6
ABSP 9-2	Monico	31.4	28.3	43.7	33.7	34.3
CI 9252	Otana	40.2	31.4	50.0	39.1	40.2
CI483126	Monida	35.7	32.1	46.2	39.8	38.5
ND930122	Killdeer	33.2	29.5	42.3	31.4	34.1
OT351	CDC Pacer	36.6	32.1	50.0	37.5	39.1
OT373	CDC Dancer	35.7	31.6	49.1	36.4	38.2
OT382	OT349/J775-1	37.4	31.1	49.9	37.4	38.9
	Site Mean	33.5	28.5	44.6	34.2	35.2
	C.V. (S/MEAN)*100	5.11	8.82	4.3	3.7	***
	F-value	10.10	3.91	11.56	26.1	***
	LSD (0.05)	7.30	4.22	3.2	5.5	***

† Kalispell high rainfall location.

Table 6. 2006 Montana Oat Statewide Summary by Location for Protein (%).

ID	Pedigree	Dryland		Irrigated <sup>†</sup>		Overall
		Moccassin	Havre	Kalispell	Sidney	Average
87AB5632	Monida/75Ab861	11.8	13.6	12.3	12.80	12.6
90AB1322	Maverick	12.1	14.9	12.5	12.68	13.0
94AB5943	86Ab1867/87Ab5597	12.9	13.9	11.8	12.88	12.9
96AB8597	Otana/87Ab4983	13.0	12.5	10.8	12.04	12.1
96AB8796	81Ab5792/82Ab248	13.2	14.5	11.2	12.91	13.0
98AB6491	90Ab1322/Ogle	13.3	13.4	12.3	12.64	12.9
98AB6646	IAH61-3-3/90Ab1322	13.0	14.2	12.8	12.05	13.0
ABSP 9-2	Monico	11.3	14.2	12.3	12.62	12.6
CI 9252	Otana	11.5	14.4	14.5	13.41	13.5
CI483126	Monida	10.6	13.4	11.7	12.95	12.2
ND930122	Killdeer	12.8	13.1	12.3	12.84	12.7
OT351	CDC Pacer	12.5	12.8	12.2	13.23	12.7
OT373	CDC Dancer	12.9	13.8	11.3	12.20	12.5
OT382	OT349/J775-1	12.9	13.7	12.2	12.97	12.9
	Site Mean	12.4	13.7	12.2	12.7	12.8
	C.V. (S/MEAN)*100	***	***	***	4.4	***
	F-value	***	***	***	3.6	***
	LSD (0.05)	***	***	***	0.9	***

† Kalispell high rainfall location.