

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 2002 Montana Statewide Spring Oat Yield trial was grown at 3 irrigated/high moisture locations (Tables 1-4) and 4 dryland and recrop locations (Tables 5-10) in replicated multi-row plots.

All the tested entries performed well under irrigated/high moisture conditions, with an average of 188.5 bu/ac in yield and 36.2 lb/bu in test weight (Tables 1-3). Among these 3 locations, average yield was the highest (222.2 bu/ac) in Kalispell and lowest in Bozeman (134.4 bu/ac). The low yield in Bozeman could be related to the late heading date (Table 4). The heading date in Bozeman was about 2 weeks later than that in Huntley. Monico had the highest yield and Whitestone had the lowest at both Kalispell and Huntley.

The overall average yield and test weight across the 4 dryland locations were 49.4 bu/ac and 30.2 lb/bu (Tables 5-10). Among these 4 locations, average yield was the highest in Havre (68.7 bu/ac) and lowest in Huntley (21.7 bu/ac). Grain test weight in Havre and Moccasin was acceptable (33-34 bu/ac), but was low in Sidney and Huntley (24-30 lb/bu). Across these 4 dryland locations, the plant height ranged from 16 to 31 inches, with an average of 25 inches. The grain protein content was high, particularly in Moccasin (16.5%) and Huntley (16.0%) during 2002 dryland growing season.

SUMMARY:

Monico, **Maverick**, and **ABSP14-6** performed well under dryland and irrigated/high moisture conditions, producing high yields and good test weights during 2002 growing season. Except for the Huntley irrigated site, **87AB5632** also had high yield and good test weight. **Ajay** was among the lowest yielding cultivars under both irrigated and dryland conditions.

FUTURE PLANS:

The Montana Statewide Oat Yield Trial will be continued in 2003.

Table 1. 2002 Montana Statewide Oat Summary Irrigated and High Moisture Locations.
Overall Summary

ID	PEDIGREE	Yield bu/ac	Test Wt lb/bu	Heading Date	Plant Ht inches
ABSP 9-2	Monico	214.2	37.5	179.5	36.5
90Ab1322	Maverick	206.1	34.8	181.3	31.5
ABSP14-6	83Ab3119/Monida	200.0	37.0	180.0	36.6
94AB5543	83Ab3119/86Ab1867A	197.5	37.1	182.2	36.8
95A10854	(95Ab10854) 84Ab835/Monid	196.6	37.2	185.0	37.2
ABSP19-9	83Ab3083/Monida	193.0	36.1	182.7	36.8
OT351	CDC Pacer	192.7	37.0	181.5	39.6
87AB5632	Monida/75Ab861	187.8	36.3	180.9	36.7
ND930122	Killdeer	187.7	36.9	180.1	34.5
PI583735	Celsia	183.2	35.2	183.2	38.8
81Ab5792	Rio Grande	179.4	34.1	178.9	33.1
CI483126	Monida	178.6	34.2	183.1	38.8
PI537436	Ajay	177.2	33.5	182.2	27.1
OT373	CDC Dancer	176.5	38.9	181.1	40.1
CI 9252	Otana	169.8	37.2	181.3	41.3
PI591810	Whitestone(ND870258)	164.8	36.1	181.8	36.7
Sitemean	SITE MEAN *****	188.5	36.2	181.1	36.2

Table 2. Montana Statewide Oat Summary Irrigated and High Moisture Locations.
Yield (bu/ac)

ID	PEDIGREE	Kalispell High M	Huntley Irr	Bozeman Irr	Avg	BYX	RSQ
81Ab5792	Rio Grande	212.2	193.3	132.6	179.4	0.88	1.00
87AB5632	Monida/75Ab861	225.1	184.3	153.9	187.8	0.67	0.79
90Ab1322	Maverick	241.5	220.1	156.6	206.1	0.93	0.99
94AB5543	83Ab3119/86Ab1867A	214.5	237.4	140.6	197.5	1.00	0.87
95A10854	(95Ab10854) 84Ab835/Monid	232.9	229.0	127.9	196.6	1.25	0.99
ABSP 9-2	Monico	249.6	248.4	144.5	214.2	1.26	0.98
ABSP14-6	83Ab3119/Monida	228.4	225.5	146.1	200.0	0.98	0.99
ABSP19-9	83Ab3083/Monida	229.1	217.7	132.2	193.0	1.12	1.00
CI 9252	Otana	205.6	193.0	110.9	169.8	1.09	1.00
CI483126	Monida	200.3	208.2	127.2	178.6	0.92	0.95
ND930122	Killdeer	221.1	188.6	153.4	187.7	0.67	0.88
OT351	CDC Pacer	246.7	213.7	117.7	192.7	1.41	0.99
OT373	CDC Dancer	225.4	195.9	108.1	176.5	1.28	0.99
PI537436	Ajay	211.5	187.2	133.1	177.2	0.84	0.98
PI583735	Celsia	215.6	215.6	118.6	183.2	1.17	0.98
PI591810	Whitestone(ND870258)	196.1	178.2	120.1	164.8	0.84	1.00
Sitemean	SITE MEAN *****	222.2	208.9	134.4	188.5	1.00	1.00
C.V.	C.V. (S/Mean) * 100	8.17	8.91	8.94	***	***	***
F-Value		2.29	3.24	9.08	***	***	***
L.S.D.	L.S.D. (.05)	0.90	30.38	16.88	***	***	***

Table 3. Montana Statewide Oat Summary Irrigated and High Moisture Locations.
Test Weight (lb/bu)

ID	PEDIGREE	Kalispell	Huntley	Bozeman	Avg	BYX	RSQ
81Ab5792	Rio Grande	33.70	35.70	32.85	34.1	1.34	0.60
87AB5632	Monida/75Ab861	35.00	37.20	36.70	36.3	1.24	0.82
90Ab1322	Maverick	34.50	36.53	33.30	34.8	1.40	0.52
94AB5543	83Ab3119/86Ab1867A	35.80	38.10	37.45	37.1	1.31	0.87
95A10854	(95Ab10854) 84Ab835/Monid	35.50	38.77	37.35	37.2	1.90	0.96
ABSP 9-2	Monico	36.20	38.93	37.25	37.5	1.63	1.00
ABSP14-6	83Ab3119/Monida	35.30	37.57	38.15	37.0	1.18	0.44
ABSP19-9	83Ab3083/Monida	34.90	38.10	35.25	36.1	1.99	0.92
CI 9252	Otana	36.70	38.30	36.65	37.2	1.02	0.84
CI483126	Monida	33.40	34.67	34.60	34.2	0.69	0.67
ND930122	Killdeer	37.00	36.13	37.60	36.9	-0.61	0.48
OT351	CDC Pacer	37.20	38.50	35.40	37.0	0.99	0.29
OT373	CDC Dancer	38.30	39.90	38.65	38.9	0.98	0.96
PI537436	Ajay	32.10	35.00	33.50	33.5	1.71	0.99
PI583735	Celsia	35.00	36.43	34.05	35.2	0.99	0.49
PI591810	Whitestone(ND870258)	35.50	37.77	34.90	36.1	1.49	0.69
Sitemean	SITE MEAN *****	35.38	37.05	36.02	36.2	1.00	1.00
C.V.	C.V. (S/Mean) * 100	***	1.89	3.37	***	***	***
F-Value		***	15.78	4.54	***	***	***
L.S.D.	L.S.D. (.05)	***	1.14	2.48	***	***	***

Table 4. Montana Statewide Oat Summary Irrigated and High Moisture Locations.
Heading Date (days from Jan. 1)

ID	PEDIGREE	Huntley Irr	Bozeman Irr	Avg	BYX	RSQ
81Ab5792	Rio Grande	171.3	186.5	178.9	1.12	1.00
87AB5632	Monida/75Ab861	174.3	187.5	180.9	0.97	1.00
90Ab1322	Maverick	174.7	188.0	181.3	0.98	1.00
94AB5543	83Ab3119/86Ab1867A	176.0	188.5	182.2	0.92	1.00
95A10854	(95Ab10854) 84Ab835/Monid	178.3	191.8	185.0	0.99	1.00
ABSP 9-2	Monico	172.7	186.3	179.5	1.00	1.00
ABSP14-6	83Ab3119/Monida	172.7	187.3	180.0	1.08	1.00
ABSP19-9	83Ab3083/Monida	176.3	189.0	182.7	0.94	1.00
CI 9252	Otana	174.3	188.3	181.3	1.03	1.00
CI483126	Monida	177.0	189.3	183.1	0.90	0.99
ND930122	Killdeer	174.0	186.3	180.1	0.90	0.99
OT351	CDC Pacer	174.7	188.3	181.5	1.00	1.00
OT373	CDC Dancer	175.0	187.3	181.1	0.90	0.99
PI537436	Ajay	176.3	188.0	182.2	0.86	1.00
PI583735	Celsia	176.7	189.8	183.2	0.97	1.00
PI591810	Whitestone(ND870258)	175.0	188.5	181.8	1.00	1.00
Sitemean	SITE MEAN *****	174.4	187.9	181.1	1.00	1.00
C.V.	C.V. (S/Mean) * 100	0.70	0.33	***	***	***
F-Value		10.13	21.45	***	***	***
L.S.D.	L.S.D. (.05)	2.00	0.86	***	***	***

Table 5. 2002 Montana Statewide Oat Summary Dryland and Recrop Locations.
Overall Summary

ID	PEDIGREE	Yield bu/ac	Test Wt lb/bu	Heading Date	Plant Ht inches	Protein Percent
87AB5632	Monida/75Ab861	55.3	29.3	181.3	24.8	14.1
ABSP 9-2	Monico	54.7	31.4	180.0	24.4	14.9
90Ab1322	Maverick	54.2	29.0	181.6	21.2	15.1
ABSP14-6	83Ab3119/Monida	53.4	29.8	181.0	24.6	14.9
CI 9252	Otana	53.0	31.1	181.1	29.6	16.4
81Ab5792	Rio Grande	52.3	28.8	178.2	23.1	15.5
ABSP19-9	83Ab3083/Monida	51.7	30.0	182.4	23.6	15.7
PI591810	Whitestone(ND870258)	51.5	30.8	181.4	25.4	15.9
ND930122	Killdeer	49.6	32.1	178.4	25.6	15.9
SiteMean	SITE MEAN *****	49.4	30.2	181.4	24.8	15.4
OT351	CDC Pacer	48.2	31.2	180.8	28.7	14.8
CI483126	Monida	48.0	28.8	182.6	25.6	14.5
OT373	CDC Dancer	47.1	33.4	181.0	29.4	15.7
PI583735	Celsia	46.2	28.9	182.9	26.3	15.2
PI537436	Ajay	45.1	29.7	182.1	18.1	16.9
95A10854	(95Ab10854) 84Ab835/Monid	41.7	29.6	185.8	23.9	15.1
94AB5543	83Ab3119/86Ab1867A	41.1	30.0	182.8	23.3	15.2

Table 6. 2002 Montana Statewide Oat Summary Dryland and Recrop Locations.
Yield (bu/ac)

ID	PEDIGREE	Havre Dryland	Moccasin Recrop	Sidney Dryland	Huntley Dryland	Avg	BYX	RSQ
81Ab5792	Rio Grande	65.2	44.8	70.1	29.0	52.3	0.86	0.82
87AB5632	Monida/75Ab861	77.3	56.1	64.4	23.4	55.3	1.15	1.00
90Ab1322	Maverick	78.0	46.4	69.5	23.1	54.2	1.20	0.95
94AB5543	83Ab3119/86Ab1867A	62.6	48.4	41.7	11.8	41.1	1.02	0.92
95A10854	(95Ab10854) 84Ab835/Monid	64.5	47.5	40.7	14.1	41.7	0.99	0.90
ABSP 9-2	Monico	72.5	49.6	65.4	31.2	54.7	0.90	0.96
ABSP14-6	83Ab3119/Monida	72.2	52.1	66.3	23.0	53.4	1.08	0.98
ABSP19-9	83Ab3083/Monida	69.3	51.9	60.3	25.4	51.7	0.94	1.00
CI 9252	Otana	67.3	56.6	61.7	26.2	53.0	0.90	0.97
CI483126	Monida	70.5	53.3	52.3	15.9	48.0	1.13	0.97
ND930122	Killdeer	64.5	51.2	57.6	25.2	49.6	0.85	0.99
OT351	CDC Pacer	72.3	54.2	44.7	21.5	48.2	0.98	0.86
OT373	CDC Dancer	68.1	48.4	49.7	22.1	47.1	0.93	0.97
PI537436	Ajay	66.4	35.8	58.2	20.0	45.1	1.00	0.90
PI583735	Celsia	66.1	46.3	58.0	14.5	46.2	1.13	1.00
PI591810	Whitestone(ND870258)	63.1	51.4	70.6	20.8	51.5	1.02	0.87
SiteMean	SITE MEAN *****	68.7	49.6	57.5	21.7	49.4	1.00	1.00
C.V.	C.V. (S/Mean) * 100	9.79	12.51	8.91	18.29	***	***	***
F-Value		1.47	2.01	15.77	5.60	***	***	***
L.S.D.	L.S.D. (.05)	11.23	10.35	8.43	6.62	***	***	***

Table 7. 2002 Montana Statewide Oat Summary Dryland and Recrop Locations.
Test Weight (lb/bu)

ID	PEDIGREE	Havre Dryland	Moccasin Recrop	Sidney Dryland	Huntley Dryland	Avg	BYX	RSQ
81Ab5792	Rio Grande	30.3	33.1	27.5	24.2	28.8	0.88	0.91
87AB5632	Monida/75Ab861	33.2	32.0	29.7	22.4	29.3	1.14	0.95
90Ab1322	Maverick	31.9	33.6	29.2	21.3	29.0	1.32	1.00
94AB5543	83Ab3119/86Ab1867A	33.7	33.6	32.3	20.3	30.0	1.51	0.93
95A10854	(95Ab10854) 84Ab835/Monid	32.9	33.3	31.3	21.1	29.6	1.36	0.95
ABSP 9-2	Monico	34.6	34.1	31.3	25.5	31.4	1.00	0.98
ABSP14-6	83Ab3119/Monida	32.5	32.5	29.7	24.5	29.8	0.90	0.98
ABSP19-9	83Ab3083/Monida	31.6	34.5	30.8	23.0	30.0	1.17	0.97
CI 9252	Otana	33.5	34.8	31.5	24.6	31.1	1.10	1.00
CI483126	Monida	32.0	32.6	29.7	20.8	28.8	1.31	0.98
ND930122	Killdeer	33.0	35.3	32.8	27.1	32.1	0.83	0.96
OT351	CDC Pacer	32.8	33.3	32.2	26.6	31.2	0.73	0.95
OT373	CDC Dancer	35.5	35.7	32.7	29.7	33.4	0.67	0.96
PI537436	Ajay	31.0	33.7	27.5	26.7	29.7	0.67	0.73
PI583735	Celsia	29.7	32.9	28.7	24.2	28.9	0.84	0.93
PI591810	Whitestone(ND870258)	31.7	34.0	29.3	28.1	30.8	0.56	0.79
SiteMean	SITE MEAN *****	32.5	33.7	30.2	24.4	30.2	1.00	1.00
C.V.	C.V. (S/Mean) * 100	2.74	2.70	3.21	***	***	***	***
F-Value		8.44	3.85	7.83	***	***	***	***
L.S.D.	L.S.D. (.05)	1.49	1.51	1.58	***	***	***	***

Table 8. 2002 Montana Statewide Oat Summary Dryland and Recrop Locations.
Heading Date (days from Jan. 1)

ID	PEDIGREE	Moccasin Recrop	Sidney Dryland	Huntley Dryland	Avg	BYX	RSQ
81Ab5792	Rio Grande	184.0	179.3	171.3	178.2	1.08	0.99
87AB5632	Monida/75Ab861	187.0	182.0	175.0	181.3	1.02	1.00
90Ab1322	Maverick	188.0	181.7	175.0	181.6	1.10	1.00
94AB5543	83Ab3119/86Ab1867A	188.3	183.0	177.0	182.8	0.96	1.00
95A10854	(95Ab10854) 84Ab835/Monid	191.0	184.0	182.3	185.8	0.73	0.87
ABSP 9-2	Monico	186.3	180.0	173.7	180.0	1.07	1.00
ABSP14-6	83Ab3119/Monida	187.0	181.3	174.7	181.0	1.05	1.00
ABSP19-9	83Ab3083/Monida	188.0	183.0	176.3	182.4	0.99	1.00
CI 9252	Otana	187.0	181.7	174.7	181.1	1.05	1.00
CI483126	Monida	188.0	182.7	177.0	182.6	0.93	1.00
ND930122	Killdeer	184.0	180.0	171.3	178.4	1.08	0.97
OT351	CDC Pacer	186.3	181.7	174.3	180.8	1.02	0.99
OT373	CDC Dancer	186.7	181.7	174.7	181.0	1.02	1.00
PI537436	Ajay	188.0	182.0	176.3	182.1	0.99	1.00
PI583735	Celsia	188.7	182.7	177.3	182.9	0.96	1.00
PI591810	Whitestone(ND870258)	186.7	182.3	175.3	181.4	0.96	0.98
Sitemean	SITE MEAN *****	187.19	181.54	175.40	181.4	1.00	1.00
C.V.	C.V. (S/Mean) * 100	0.18	0.28	0.49	***	***	***
F-Value		73.89	28.34	26.88	***	***	***
L.S.D.	L.S.D. (.05)	0.57	0.84	1.42	***	***	***

Table 9. 2002 Montana Statewide Oat Summary Dryland and Recrop Locations.
Plant Height (inches)

ID	PEDIGREE	Havre	Moccasin	Sidney	Huntley	Avg	BYX	RSQ
		Dryland	Recrop	Dryland	Dryland			
81Ab5792	Rio Grande	20.9	25.1	24.7	21.9	23.1	0.88	0.65
87AB5632	Monida/75Ab861	25.6	26.3	26.4	21.2	24.8	1.21	0.85
90Ab1322	Maverick	22.0	22.1	21.9	19.0	21.2	0.68	0.73
94AB5543	83Ab3119/86Ab1867A	23.2	25.2	25.2	19.7	23.3	1.37	0.97
95A10854	(95Ab10854) 84Ab835/Monid	23.5	25.5	27.3	19.3	23.9	1.72	0.90
ABSP 9-2	Monico	23.8	25.9	25.7	22.2	24.4	0.93	1.00
ABSP14-6	83Ab3119/Monida	24.4	27.2	25.2	21.4	24.6	1.21	0.91
ABSP19-9	83Ab3083/Monida	21.7	25.1	26.9	20.6	23.6	1.41	0.82
CI 9252	Otana	28.1	32.0	31.2	26.8	29.6	1.29	0.96
CI483126	Monida	25.1	27.4	29.3	20.5	25.6	1.91	0.91
ND930122	Killdeer	25.1	28.1	24.7	24.5	25.6	0.57	0.40
OT351	CDC Pacer	27.7	31.0	29.0	27.2	28.7	0.79	0.78
OT373	CDC Dancer	28.5	29.5	29.5	30.0	29.4	-0.05	0.02
PI537436	Ajay	17.9	19.0	19.4	16.0	18.1	0.79	0.95
PI583735	Celsia	26.0	28.6	27.4	23.2	26.3	1.22	0.98
PI591810	Whitestone(ND870258)	25.0	25.9	26.5	24.3	25.4	0.47	0.85
Sitemean	SITE MEAN *****	24.3	26.5	26.1	22.4	24.8	1.00	1.00
C.V.	C.V. (S/Mean) * 100	5.21	3.90	4.48	7.06	***	***	***
F-Value		14.65	28.45	15.82	15.05	***	***	***
L.S.D.	L.S.D. (.05)	2.11	1.72	1.91	2.63	***	***	***

Table 10. 2002 Montana Statewide Oat Summary Dryland and Recrop Locations.
Protein Percent (dry wt. Basis)

ID	PEDIGREE	Havre	Moccasin	Sidney	Huntley	Avg	BYX	RSQ
		Dryland	Recrop	Dryland	Dryland			
81Ab5792	Rio Grande	14.8	16.8	14.2	16.2	15.5	1.08	0.93
87AB5632	Monida/75Ab861	14.0	15.4	13.5	13.6	14.1	0.53	0.42
90Ab1322	Maverick	14.1	16.4	14.9	15.1	15.1	0.78	0.77
94AB5543	83Ab3119/86Ab1867A	14.8	16.8	14.6	14.5	15.2	0.68	0.45
95A10854	(95Ab10854) 84Ab835/Monid	14.4	16.7	14.4	15.0	15.1	0.90	0.79
ABSP 9-2	Monico	14.2	15.3	13.7	16.5	14.9	0.91	0.62
ABSP14-6	83Ab3119/Monida	14.1	16.2	13.7	15.5	14.9	1.07	0.96
ABSP19-9	83Ab3083/Monida	15.1	16.6	15.1	16.0	15.7	0.68	0.98
CI 9252	Otana	15.9	17.5	15.6	16.4	16.4	0.71	0.83
CI483126	Monida	13.7	16.1	14.9	13.2	14.5	0.45	0.14
ND930122	Killdeer	14.0	17.7	13.6	18.5	15.9	2.18	0.87
OT351	CDC Pacer	13.1	15.6	14.6	16.1	14.8	1.04	0.71
OT373	CDC Dancer	14.9	15.0	15.7	17.2	15.7	0.26	0.07
PI537436	Ajay	14.5	18.9	16.2	18.0	16.9	1.74	0.91
PI583735	Celsia	14.1	15.9	14.5	16.3	15.2	0.92	0.86
PI591810	Whitestone(ND870258)	14.2	17.8	14.0	17.6	15.9	1.90	0.96
Sitemean	SITE MEAN *****	14.4	16.5	14.5	16.0	15.4	1.00	1.00
C.V.	C.V. (S/Mean) * 100	***	***	***	***	***	***	***
F-Value		***	***	***	***	***	***	***
L.S.D.	L.S.D. (.05)	***	***	***	***	***	***	***