

PROJECT TITLE: Montana Statewide Spring Oat Variety Performance

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OBJECTIVES:

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 1999 Montana Statewide Spring Oat Yield Trial was grown at five dryland locations (Tables 2 to 6) and four irrigated/high rainfall sites (Tables 8 to 12) in replicated multi-row plots. Yield, test weight, heading date, plant height, and percent protein are summarized across locations in Tables 1 and 7.

Cool temperatures resulted in slow germination and plant development at **Kalispell** through June. Well below average growing season precipitation did not impact yield as soil available water was adequate at critical developmental stages. The absence of diseases and lodging led to excellent yields (mean = 217 bu/A) and above average test weights (mean = 38.2 lbs/bu). **Sidney** was cool and wet through June, remaining cool in July before August's heat. A severe hail storm occurred on June 8th when the small grain was at the boot stage. Damage was not apparent at the time but was visible to some spikes at heading. Overall, yields were excellent and test weights good. Above average precipitation combined with normal temperatures resulted in good stands in the dryland trial at **Huntley**. Precipitation four inches below normal for May through July combined with high winds during anthesis and grain fill resulted in early maturation. Yields were slightly above average at 66 bu/A and test weights light at 29.8 lbs/bu. Timely irrigations in May and June resulted in excellent yields (239 bu/A) and heavy test weights (37.5 lbs/A) in the irrigated trial. Soil moisture was good for germination and stand establishment at **Moccasin**. However, low moisture and wide temperature swings in July caused significant stress on small grains. A June 26 and July 15 frost contributed to below average yields (67 bu/A) and low test weights (30.7 lbs/bu). The irrigated nursery at **Bozeman** was planted into good moisture

on May 6th. Precipitation was good in April and May but below normal in June and July. Plots were irrigated twice with a total of seven inches applied. Yields and test weights were generally good with some stress occurring due to low precipitation in July. Growing season precipitation at Havre was 126 percent of normal with cooler temperatures prevailing from April through mid July. Heat stress during grain fill occurred in late July when seven out of ten days recorded temperatures above 90 F. This, in combination with a hail storm at heading still resulted in good yields and average test weights.

SUMMARY:

Cooler temperatures and adequate moisture resulted in timely planting and good stand establishment across the state. Environmental stresses were noted at all locations with hail occurring at Sidney and Havre, very late frost at Moccasin, and below average precipitation at Huntley, Kalispell, and Bozeman. However, agronomic performances were good as a whole. Experimental lines ABSP 9-2 and 19-9 yielded best across the dryland and irrigated sites. Entries 88AB3073, 86AB1616, and Paul are hulless varieties which explains their low comparable yield and high test weights.

FUTURE PLANS:

The Montana Statewide Spring Oat Yield Trial will be continued in 2000.

Table 1. 1999 SPRING OATS STATEWIDE DRYLAND OVERALL SUMMARY

ID	Pedigree	YIELD bu/ac	TEST WEIGHT lb/bu	HEADING DATE	PLANT HEIGHT inches	PROTEIN PERCENT
ABSP 9-2	83/Ab3119/Monida	114.7	34.0	179.0	31.5	12.4
ABSP19-9	83Ab3083/Monida	112.9	32.6	183.2	32.0	12.6
87AB5125	Ogle/75Ab861	112.4	32.8	181.5	29.0	12.3
CI483126	Monida	110.7	31.3	182.5	34.2	12.2
90Ab1322	80Ab1322/Monida	110.1	31.8	181.9	27.9	13.1
81Ab5792	Rio Grande	109.7	31.7	178.3	30.1	13.5
PRAIRIE	Prairie	109.2	31.9	174.3	31.2	12.9
ND870258	Whitestone	107.3	32.5	182.4	32.0	12.8
CI 9252	Otana	106.6	34.4	180.9	36.6	12.9
83AB3250	Powell	106.2	30.2	182.9	28.6	13.0
ND860416	Otana/Valley	105.6	34.3	178.7	35.2	12.3
CELSIA	Celsia	102.1	31.8	183.2	32.8	12.3
82Ab1142	Ajay	99.4	31.7	181.3	25.0	13.6
88Ab3073	Pennlo/PI 447276	68.7	42.0	183.0	30.0	18.2
86AB1616	86Ab1616	68.3	37.5	184.5	31.2	15.8
ND862915	Paul	61.2	40.3	182.7	36.6	16.9
SiteMean	SITE MEAN	101.0	33.7	181.2	31.5	13.4

Table 2. 1999 SPRING OAT STATEWIDE DRYLAND REPORT -

YIELD (Bu/ac)

ID	Pedigree	Havre	Sidney	Sidney Recrop	Moccasin	Huntley	AVE.	BYX	RSQ
81Ab5792	Rio Grande	97.4	164.7	128.7	79.6	78.3	109.7	0.98	0.98
82Ab1142	Ajay	98.0	143.0	112.8	68.2	74.8	99.4	0.81	1.00
83AB3250	Powell	103.3	159.1	123.4	71.3	73.8	106.2	0.98	1.00
86AB1616	86Ab1616	67.3	103.1	81.2	45.3	44.6	68.3	0.67	1.01
87AB5125	Ogle/75Ab861	114.9	162.7	128.0	76.5	79.9	112.4	0.95	0.99
88Ab3073	Pennlo/PI 447276	74.5	94.4	85.2	45.7	43.6	68.7	0.59	0.92
90Ab1322	80Ab1322/Monida	106.1	169.4	124.9	69.2	80.8	110.1	1.05	0.98
ABSP 9-2	83/Ab3119/Monida	111.3	168.0	136.2	76.7	81.2	114.7	1.02	0.99
ABSP19-9	83Ab3083/Monida	109.5	176.0	129.6	74.9	74.6	112.9	1.13	0.99
CELSIA	Celsia	103.4	161.0	128.0	67.1	51.1	102.1	1.18	0.98
CI 9252	Otana	108.7	160.0	127.2	74.1	62.8	106.6	1.05	0.98
CI483126	Monida	103.8	178.0	136.2	70.3	65.3	110.7	1.26	1.00
ND860416	Otana/Valley	100.3	161.1	127.0	67.4	72.2	105.6	1.05	1.00
ND862915	Paul	68.9	82.5	73.2	41.9	39.8	61.2	0.49	0.90
ND870258	Whitestone	94.3	174.1	132.7	70.2	65.1	107.3	1.22	0.99
PRAIRIE	Prairie	99.7	166.2	132.8	75.7	71.9	109.2	1.07	0.99
SiteMean	SITE MEAN	97.6	154.6	119.2	67.1	66.2	101.0	1.00	1.00
C.V. 1	(S/MEAN * 100)	3.47	6.40	3.98	7.07	11.96	---	---	---
LSD (0.05)	LSD (0.05)	5.74	16.16	7.92	7.91	13.21	---	---	---

Table 3. 1999 SPRING OAT STATEWIDE DRYLAND REPORT -

TEST WEIGHT (lb/bu) ³⁰⁸

ID	Pedigree	Havre	Sidney	Sidney Recrop	Moccasin	Huntley	AVE.	BYX	RSQ
81Ab5792	Rio Grande	31.8	38.0	36.0	27.5	25.5	31.7	1.35	0.96
82Ab1142	Ajay	30.6	36.3	35.3	28.0	28.2	31.7	1.01	0.99
83AB3250	Powell	27.8	36.7	34.0	25.9	26.5	30.2	1.23	0.96
86AB1616	86Ab1616	36.3	39.0	38.5	36.7	37.2	37.5	0.26	0.74
87AB5125	Ogle/75Ab861	30.8	39.3	37.7	28.1	27.9	32.8	1.39	0.99
88Ab3073	Pennlo/PI 447276	39.5	42.3	43.3	41.6	43.5	42.0	0.09	0.05
90Ab1322	80Ab1322/Monida	29.1	38.0	36.5	28.7	26.6	31.8	1.31	0.98
ABSP 9-2	83/Ab3119/Monida	33.5	39.5	38.5	30.1	28.3	34.0	1.27	0.98
ABSP19-9	83Ab3083/Monida	30.8	39.0	36.5	28.9	27.6	32.6	1.27	0.99
CELSIA	Celsia	30.0	37.8	35.8	27.9	27.7	31.8	1.20	0.98
CI 9252	Otana	33.1	38.8	38.5	32.8	28.6	34.4	1.07	0.93
CI483126	Monida	29.3	37.7	36.0	27.4	26.2	31.3	1.34	1.00
ND860416	Otana/Valley	32.6	38.5	37.7	31.7	31.0	34.3	0.90	0.99
ND862915	Paul	38.6	42.0	43.2	39.8	37.9	40.3	0.52	0.82
ND870258	Whitestone	31.7	38.7	36.8	27.3	28.1	32.5	1.29	0.97
PRAIRIE	Prairie	32.4	37.2	35.0	28.9	26.0	31.9	1.11	0.90
SiteMean	SITE MEAN	32.4	38.2	37.5	30.7	29.8	33.7	1.00	1.00
C.V. 1	(S/MEAN * 100)	3.04	2.11	2.09	3.47	2.03	---	---	---
LSD (0.05)	LSD (0.05)	1.64	1.31	1.30	1.78	1.01	---	---	---

Table 4. 1999 SPRING OAT STATEWIDE DRYLAND REPORT -

HEADING DATE (Days from Jan. 1)

ID	Pedigree	Havre	Sidney	Sidney Recrop	Moccasin	Huntley	AVE.	BYX	RSQ
81Ab5792	Rio Grande	180.0	172.0	172.7	183.0	184.0	178.3	0.82	0.98
82Ab1142	Ajay	182.3	174.0	174.7	186.3	189.0	181.3	0.97	0.96
83AB3250	Powell	181.7	176.3	176.3	190.0	190.0	182.9	0.99	0.98
86AB1616	86Ab1616	184.0	176.7	177.0	193.0	192.0	184.5	1.14	0.99
87AB5125	Ogle/75Ab861	181.7	174.0	175.3	188.3	188.0	181.5	0.99	1.00
88Ab3073	Pennlo/PI 447276	182.0	175.3	176.0	190.7	191.0	183.0	1.10	0.98
90Ab1322	80Ab1322/Monida	181.7	174.0	174.3	187.7	192.0	181.9	1.13	0.94
ABSP 9-2	83/Ab3119/Monida	181.0	173.3	173.7	187.7	179.3	179.0	0.75	0.76
ABSP19-9	83Ab3083/Monida	181.7	175.7	176.3	191.3	191.0	183.2	1.10	0.98
CELSIA	Celsia	181.3	175.0	175.7	190.0	194.0	183.2	1.20	0.93
CI 9252	Otana	182.0	173.3	174.3	188.7	186.3	180.9	1.01	1.00
CI483126	Monida	181.3	175.0	175.7	189.3	191.0	182.5	1.07	0.97
ND860416	Otana/Valley	181.0	173.3	174.0	187.3	178.0	178.7	0.69	0.68
ND862915	Paul	181.0	174.0	176.0	191.7	190.7	182.7	1.18	0.98
ND870258	Whitestone	183.0	173.7	175.3	188.3	191.7	182.4	1.12	0.96
PRAIRIE	Prairie	179.3	169.7	170.7	181.0	171.0	174.3	0.46	0.35
SiteMean	SITE MEAN	181.6	173.6	174.9	188.4	187.4	181.2	1.00	1.00
C.V. 1	(S/MEAN * 100)	0.80	0.38	0.34	0.43	0.79	---	---	---
LSD (0.05)	LSD (0.05)	2.43	1.09	0.99	1.36	2.46	---	---	---

Table 5. 1999 SPRING OAT STATEWIDE DRYLAND REPORT - PLANT HEIGHT (inches)

ID	Pedigree	Havre	Sidney	Sidney Recrop	Moccasin	Huntley	AVE.	BYX	RSQ
81Ab5792	Rio Grande	31.0	34.9	29.3	27.0	28.5	30.1	0.88	0.96
82Ab1142	Ajay	28.4	27.3	25.3	22.3	21.9	25.0	0.73	0.72
83AB3250	Powell	29.8	33.2	28.4	24.7	27.0	28.6	0.92	0.96
86AB1616	86Ab1616	31.2	37.0	31.4	27.0	29.3	31.2	1.07	0.95
87AB5125	Ogle/75Ab861	33.2	32.7	28.6	25.7	25.0	29.0	1.00	0.79
88Ab3073	Pennlo/PI 447276	32.1	32.8	30.7	27.3	27.1	30.0	0.74	0.88
90Ab1322	80Ab1322/Monida	32.9	31.9	26.9	23.3	24.6	27.9	1.11	0.76
ABSP 9-2	83/Ab3119/Monida	30.3	36.8	31.5	28.7	30.1	31.5	0.84	0.83
ABSP19-9	83Ab3083/Monida	32.7	38.7	31.0	28.7	28.9	32.0	1.19	0.96
CELSIA	Celsia	31.9	39.4	33.7	30.3	28.7	32.8	1.13	0.86
CI 9252	Otana	36.5	41.9	38.1	33.3	33.3	36.6	1.02	0.93
CI483126	Monida	33.9	40.9	35.4	30.0	30.9	34.2	1.25	0.94
ND860416	Otana/Valley	38.7	40.0	34.2	30.3	32.8	35.2	1.13	0.88
ND862915	Paul	35.1	42.0	37.7	34.0	34.1	36.6	0.90	0.81
ND870258	Whitestone	32.4	38.3	32.7	28.7	27.8	32.0	1.21	0.96
PRAIRIE	Prairie	32.8	35.0	30.6	28.0	29.5	31.2	0.80	0.95
SiteMean	SITE MEAN	32.7	36.5	31.6	28.1	28.7	31.5	1.00	1.00
C.V. 1	(S/MEAN * 100)	9.01	3.62	4.83	5.37	3.74	---	---	---
LSD (0.05)	LSD (0.05)	4.91	2.16	2.55	2.51	1.79	---	---	---

ID	Pedigree	Sidney	Sidney Recrop	Moccasin	Huntley	AVE.	BYX	RSQ
81Ab5792	Rio Grande	14.3	12.1	13.2	14.5	13.5	0.07	0.02
82Ab1142	Ajay	11.7	13.2	13.7	16.0	13.6	0.90	0.98
83AB3250	Powell	10.9	12.1	13.1	15.8	13.0	1.03	0.94
86AB1616	86Ab1616	12.8	15.5	16.3	18.6	15.8	1.22	1.00
87AB5125	Ogle/75Ab861	10.7	11.5	12.9	14.0	12.3	0.73	0.95
88Ab3073	Pennlo/PI 447276	14.6	17.8	18.9	21.7	18.2	1.49	1.00
90Ab1322	80Ab1322/Monida	11.7	12.5	13.1	15.0	13.1	0.69	0.93
ABSP 9-2	83/Ab3119/Monida	10.2	11.8	13.1	14.4	12.4	0.91	0.99
ABSP19-9	83Ab3083/Monida	10.5	12.2	13.0	14.8	12.6	0.91	1.00
CELSIA	Celsia	9.3	12.3	12.4	15.1	12.3	1.19	0.97
CI 9252	Otana	10.9	12.6	13.2	14.8	12.9	0.82	1.00
CI483126	Monida	10.4	12.0	12.4	14.1	12.2	0.77	0.99
ND860416	Otana/Valley	10.2	12.5	12.6	14.0	12.3	0.78	0.95
ND862915	Paul	13.4	16.4	17.9	20.1	16.9	1.43	1.00
ND870258	Whitestone	11.0	12.2	13.2	14.8	12.8	0.81	0.98
PRAIRIE	Prairie	10.8	12.3	13.4	14.9	12.9	0.88	0.99
SiteMean	SITE MEAN	11.1	13.1	13.9	15.8	13.4	1.00	1.00

Table 7. 1999 SPRING OATS STATEWIDE IRRIGATED OVERALL SUMMARY

312

ID	Pedigree	YIELD bu/ac	TEST WEIGHT lb/bu	HEADING DATE	PLANT HEIGHT inches	PROTEIN PERCENT
ABSP 9-2	83/Ab3119/Monida	209.4	38.4	176.8	41.2	11.8
ABSP19-9	83Ab3083/Monida	205.4	37.6	180.7	40.8	12.2
90Ab1322	80Ab1322/Monida	205.3	37.0	178.7	35.8	12.1
CELSIA	Celsia	205.0	36.6	180.6	44.2	12.1
CI483126	Monida	204.6	36.4	180.8	43.0	12.1
83AB3250	Powell	204.4	35.3	181.3	36.8	11.9
87AB5125	Ogle/75Ab861	201.0	37.0	178.7	38.6	12.0
ND860416	Otana/Valley	200.8	38.3	177.5	43.6	12.4
81Ab5792	Rio Grande	198.3	36.7	175.5	37.7	11.9
CI 9252	Otana	196.1	39.1	178.0	45.7	13.3
PRAIRIE	Prairie	192.1	35.5	174.5	39.4	12.7
ND870258	Whitestone	189.7	38.0	179.1	40.9	12.5
82Ab1142	Ajay	187.7	36.8	178.4	32.8	13.2
86AB1616	86Ab1616	154.5	41.3	182.2	42.5	15.3
ND862915	Paul	142.6	44.0	179.3	47.2	16.6
88Ab3073	Pennlo/PI 447276	138.4	44.9	180.5	39.2	17.6
SiteMean	SITE MEAN	191.5	38.0	178.6	40.8	12.9

Table 8. 1999 SPRING OAT STATEWIDE IRRIGATED REPORT

YIELD (bu/ac)

313

ID	Pedigree	Sidney	Kalispell High Moisture	Hunt- ley	Boze- man	AVE.	BYX	RSQ
81Ab5792	Rio Grande	183.8	228.9	243.1	137.3	198.3	1.02	0.99
82Ab1142	Ajay	180.0	211.4	233.2	126.0	187.7	0.99	0.99
83AB3250	Powell	196.2	238.7	251.2	131.5	204.4	1.14	0.98
86AB1616	86Ab1616	149.9	176.6	194.2	97.3	154.5	0.90	0.99
87AB5125	Ogle/75Ab861	185.8	226.8	256.3	135.2	201.0	1.12	1.00
88Ab3073	Pennlo/PI 447276	131.4	155.9	169.0	97.4	138.4	0.67	0.99
90Ab1322	80Ab1322/Monida	199.5	221.3	267.4	133.0	205.3	1.17	0.96
ABSP 9-2	83/Ab3119/Monida	195.8	230.0	262.6	149.3	209.4	1.03	0.99
ABSP19-9	83Ab3083/Monida	199.9	227.8	251.3	142.4	205.4	1.00	0.99
CELSIA	Celsia	198.4	231.1	259.9	130.7	205.0	1.18	0.99
CI 9252	Otana	175.3	242.0	225.3	142.1	196.1	0.92	0.88
CI483126	Monida	177.3	252.9	247.8	140.4	204.6	1.13	0.93
ND860416	Otana/Valley	190.1	226.7	251.4	134.8	200.8	1.08	1.00
ND862915	Paul	128.6	178.7	164.1	98.8	142.6	0.72	0.87
ND870258	Whitestone	192.2	211.5	222.3	132.7	189.7	0.83	0.94
PRAIRIE	Prairie	176.6	207.1	240.0	144.6	192.1	0.86	0.97
Sitemean	SITE MEAN	178.8	216.7	238.6	131.9	191.5	1.00	1.00
C.V. 1	(S/MEAN * 100)	6.25	7.51	11.96	7.51	---	---	---
LSD (0.05)	LSD (0.05)	18.25	27.14	13.21	13.91	---	---	---

ID	Pedigree	Sidney	Kalispell High Moisture	Hunt- ley	Boze- man	AVE.	BYX	RSQ
81Ab5792	Rio Grande	36.3	38.5	35.7	36.4	36.7	1.51	0.32
82Ab1142	Ajay	36.3	36.7	35.6	38.4	36.8	2.31	0.80
83AB3250	Powell	35.5	35.6	34.6	35.3	35.3	0.51	0.28
86AB1616	86Ab1616	39.7	40.4	44.0	41.1	41.3	-1.74	0.18
87AB5125	Ogle/75Ab861	35.8	36.5	37.0	38.6	37.0	1.60	0.39
88Ab3073	Pennlo/PI 447276	43.5	44.0	46.0	46.0	44.9	0.28	0.01
90Ab1322	80Ab1322/Monida	37.7	37.7	36.1	36.4	37.0	0.17	0.01
ABSP 9-2	83/Ab3119/Monida	37.5	38.2	37.6	40.4	38.4	2.52	0.72
ABSP19-9	83Ab3083/Monida	37.8	36.3	37.7	38.7	37.6	0.13	0.00
CELSIA	Celsia	37.2	35.9	36.1	37.2	36.6	0.30	0.04
CI 9252	Otana	38.7	39.6	38.2	40.0	39.1	1.79	0.99
CI483126	Monida	35.7	36.6	36.6	36.7	36.4	0.52	0.24
ND860416	Otana/Valley	36.3	39.0	38.4	39.4	38.3	2.08	0.49
ND862915	Paul	42.3	43.5	45.2	45.1	44.0	0.58	0.04
ND870258	Whitestone	36.7	37.8	38.4	39.3	38.0	1.31	0.29
PRAIRIE	Prairie	35.2	35.4	34.9	36.4	35.5	1.26	0.78
SiteMean	SITE MEAN	37.6	38.2	37.5	38.4	38.0	1.00	0.99
C.V. 1	(S/MEAN * 100)	2.40	---	2.08	4.58	---	---	---
LSD (0.05)	LSD (0.05)	1.50	---	1.27	2.47	---	---	---

HEADING DATE (Days from Jan. 1)

ID	Pedigree	Sidney	Kalispell High Moisture	Hunt- ley	Boze- man	AVE.	BYX	RSQ
81Ab5792	Rio Grande	171.7	174.3	173.0	183.0	175.5	0.92	0.97
82Ab1142	Ajay	174.0	177.7	176.0	186.0	178.4	0.96	0.99
83AB3250	Powell	175.0	181.3	180.0	188.8	181.3	1.02	0.97
86AB1616	86Ab1616	175.3	183.0	181.7	189.0	182.2	0.98	0.91
87AB5125	Ogle/75Ab861	173.3	178.0	176.7	186.8	178.7	1.04	0.99
88Ab3073	Pennlo/PI 447276	174.0	180.3	179.0	188.5	180.5	1.08	0.97
90Ab1322	80Ab1322/Monida	173.0	178.0	178.0	185.8	178.7	0.94	0.95
ABSP 9-2	83/Ab3119/Monida	172.0	177.3	173.0	184.8	176.8	1.05	0.98
ABSP19-9	83Ab3083/Monida	173.7	183.0	178.0	188.0	180.7	1.09	0.93
CELSIA	Celsia	175.3	180.3	178.3	188.2	180.6	1.01	1.00
CI 9252	Otana	173.0	178.3	174.0	186.5	178.0	1.11	0.98
CI483126	Monida	174.7	181.7	179.0	187.8	180.8	0.98	0.97
ND860416	Otana/Valley	173.7	174.7	175.0	186.8	177.5	1.07	0.90
ND862915	Paul	172.3	179.0	177.0	188.8	179.3	1.26	0.99
ND870258	Whitestone	174.0	177.3	178.3	186.8	179.1	0.95	0.92
PRAIRIE	Prairie	171.0	173.3	171.0	182.5	174.5	0.97	0.94
SiteMean	SITE MEAN	173.5	178.6	176.0	186.2	178.6	1.00	1.00
C.V. 1	(S/MEAN * 100)	0.27	0.62	0.20	0.32	---	---	---
LSD (0.05)	LSD (0.05)	0.79	1.84	0.56	0.83	---	---	---

Table 11. 1999 SPRING OAT STATEWIDE IRRIGATED REPORT - PLANT HEIGHT (inches) 316

ID	Pedigree	Sidney	Kalispell High Moisture	Hunt- ley	Boze- man	AVE.	BYX	RSQ
81Ab5792	Rio Grande	40.9	40.8	38.0	31.0	37.7	1.41	0.90
82Ab1142	Ajay	35.2	33.9	35.5	26.5	32.8	1.32	0.95
83AB3250	Powell	39.4	38.2	37.9	31.7	36.8	1.07	0.94
86AB1616	86Ab1616	43.7	45.0	44.0	37.3	42.5	1.12	0.99
87AB5125	Ogle/75Ab861	40.7	39.0	41.6	33.1	38.6	1.16	0.89
88Ab3073	Pennlo/PI 447276	42.1	39.7	38.7	36.2	39.2	0.60	0.59
90Ab1322	80Ab1322/Monida	37.9	37.4	37.4	30.4	35.8	1.14	0.98
ABSP 9-2	83/Ab3119/Monida	42.0	43.8	42.7	36.1	41.2	1.09	0.98
ABSP19-9	83Ab3083/Monida	41.6	43.4	41.0	37.0	40.8	0.81	0.88
CELSIA	Celsia	45.7	47.4	45.2	38.7	44.2	1.19	0.95
CI 9252	Otana	44.2	48.7	48.8	40.9	45.7	1.05	0.75
CI483126	Monida	42.6	45.7	45.4	38.3	43.0	1.04	0.89
ND860416	Otana/Valley	43.7	45.5	45.4	39.8	43.6	0.84	0.95
ND862915	Paul	46.2	50.5	48.3	43.6	47.2	0.80	0.71
ND870258	Whitestone	43.8	40.5	41.8	37.3	40.9	0.72	0.68
PRAIRIE	Prairie	41.9	41.6	39.9	34.4	39.4	1.08	0.93
SiteMean	SITE MEAN	42.0	42.6	42.4	36.1	40.8	1.00	1.00
C.V. 1	(S/MEAN * 100)	4.18	2.68	5.12	3.64	---	---	---
LSD (0.05)	LSD (0.05)	2.93	1.90	3.54	1.84	---	---	---

Table 12. 1999 SPRING OAT STATEWIDE IRRIGATED REPORT - PROTEIN PERCENT 317

ID	Pedigree	Sidney	Kalispell High Moisture	Hunt- ley	Boze- man	AVE.	BYX	RSQ
81Ab5792	Rio Grande	10.8	12.0	11.2	13.8	11.9	1.06	0.95
82Ab1142	Ajay	11.8	13.4	11.9	15.8	13.2	1.49	0.96
83AB3250	Powell	10.7	11.7	10.9	14.2	11.9	1.24	0.89
86AB1616	86Ab1616	12.8	16.0	14.8	17.6	15.3	1.57	0.91
87AB5125	Ogle/75Ab861	11.1	11.9	11.6	13.3	12.0	0.73	0.90
88Ab3073	Pennlo/PI 447276	14.9	19.1	16.6	19.9	17.6	1.80	0.92
90Ab1322	80Ab1322/Monida	11.4	11.7	11.4	14.0	12.1	0.90	0.77
ABSP 9-2	83/Ab3119/Monida	10.4	11.8	11.3	13.6	11.8	1.05	0.91
ABSP19-9	83Ab3083/Monida	10.6	12.4	11.7	14.1	12.2	1.16	0.94
CELSIA	Celsia	10.8	12.5	11.6	13.6	12.1	0.97	0.97
CI 9252	Otana	12.2	13.4	12.9	14.8	13.3	0.87	0.94
CI483126	Monida	11.3	11.6	11.5	14.1	12.1	0.93	0.75
ND860416	Otana/Valley	11.0	12.5	11.8	14.3	12.4	1.11	0.94
ND862915	Paul	15.0	16.5	16.0	18.7	16.6	1.21	0.90
ND870258	Whitestone	11.7	12.6	11.7	14.1	12.5	0.90	0.95
PRAIRIE	Prairie	10.9	14.0	12.0	13.9	12.7	1.12	0.83
Sitemean	SITE MEAN	11.7	13.3	12.0	14.4	12.9	1.00	1.00