

PROJECT TITLE: 1993 Montana Spring Oat Performance Trial

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OBJECTIVES: To determine the adaptability of new and introduced oat varieties to Montana. The Montana Spring Oat Nursery is grown throughout Montana in several locations under, irrigation, high moisture, or dryland conditions.

RESULTS: All locations, with the exception of Kalispell, had similar yields, etc. so data was summarized over all locations (Table 1).

The highest yielding cultivar overall was Cayuse (124.7 Bu/A). Hytest had the highest test weight (37.2 Lb/Bu). Settler (170.7) was the earliest, while Robert (179.0) was the latest. Ajay a new semi-dwarf line was the shortest (32.6 inches), while Derby was the tallest.

Kalispells data (in Tables 2, 3, 4, and 5) shows Robert the highest yielding with 236.9 Bu/A (Table 2). Troy (37.5 Lb/Bu) had the highest test weight (Table 3), with Ogle and Newdak (180) the earliest, with Robert (190.7) the latest (Table 4). Plant heights (Table 5) at Kalispell show Derby the tallest (56.4 inches), and Ajay the shortest here also (38.1 inches).

FUTURE PLANS: Variety evaluation will continue in the future.

TABLE 1. 1993 MONTANA SPRING OAT STATEWIDE OVERALL SUMMARY

PEDIGREE	YIELD bu/ac	TEST WEIGHT lb/bu	HEADING DATE	PLANT HEIGHT inches
Rio Grande	113.0	34.2	174.1	36.5
Ajay	117.7	33.5	176.0	32.6
Park	105.9	33.6	175.7	45.0
Cayuse	124.7	33.9	176.4	40.8
Otana	115.8	35.7	176.7	45.1
Appaloosa	121.7	32.3	177.7	41.0
Ogle	111.1	32.6	171.6	38.6
Border	125.4	32.6	177.9	40.5
Monida	131.0	33.8	178.4	42.9
Derby	113.5	35.2	176.3	46.4
Hyttest	86.7	37.2	171.6	43.3
Valley	104.5	34.2	175.5	39.5
Newdak	107.6	32.9	171.3	40.8
Calibre	114.1	35.2	178.3	44.4
Troy	111.1	34.5	174.6	44.9
Settler	95.2	35.4	170.7	40.0
Riel	105.6	34.8	175.8	43.7
Robert	118.7	33.1	179.0	42.6
SITE MEAN	112.4	34.1	175.4	41.6

TABLE 2. 1993 MONTANA SPRING OAT STATEWIDE SUMMARY
YIELD (bu/ac)

Pedigree	Havre Dry	Havre Peterson	Sidney Recrop	Sidney Irr	Kalispell	Moccasin	Grass Range	Huntley Dry	Irr	Mean	BYX	RSQ
Rio Grande	68.2	117.5	124.8	132.4	171.2	96.8	88.7	77.2	140.4	113.0	0.83	0.75
Ajay	96.4	115.7	119.9	123.4	210.3	74.3	79.0	82.8	157.5	117.7	1.21	0.92
Park	127.0	124.7	95.0	97.1	171.8	77.6	78.8	63.3	118.1	105.9	0.89	0.86
Cayuse	122.8	137.8	139.8	106.1	197.2	89.8	91.0	88.8	148.8	124.7	0.98	0.90
Otana	132.4	135.3	96.3	105.7	191.7	91.2	86.7	72.0	131.0	115.8	0.99	0.89
Appaloosa	124.4	142.2	128.6	118.4	192.4	85.8	94.7	76.8	131.6	121.7	0.97	0.94
Ogle	75.6	114.2	109.2	124.2	205.5	81.5	73.2	67.1	149.3	111.1	1.25	0.93
Border	132.9	131.8	121.8	120.2	222.6	83.2	91.2	77.0	148.3	125.4	1.24	0.96
Monida	140.9	125.7	126.0	125.2	228.6	101.6	98.3	91.7	140.5	131.0	1.13	0.92
Derby	112.9	140.0	93.8	114.1	166.1	86.5	84.5	101.7	121.4	113.5	0.69	0.81
Hyttest	85.9	96.0	88.2	91.7	111.5	74.1	65.6	62.1	105.2	86.7	0.45	0.85
Valley	82.4	120.2	110.0	102.8	200.5	81.1	77.0	49.7	117.0	104.5	1.20	0.96
Newdak	59.5	150.7	99.0	113.1	176.5	90.4	79.5	64.5	135.2	107.6	1.02	0.78
Calibre	123.9	121.6	88.6	112.3	198.1	99.1	87.8	88.1	107.7	114.1	0.90	0.82
Troy	114.9	128.0	109.0	118.8	174.0	82.1	76.9	73.8	122.2	111.1	0.88	0.95
Settler	69.7	115.0	98.2	117.2	163.9	75.3	59.8	41.1	117.1	95.2	1.03	0.90
Riel	86.2	118.8	104.3	108.1	179.2	92.3	69.0	56.9	136.0	105.6	1.03	0.95
Robert	108.1	110.5	98.6	131.4	236.9	112.2	79.7	70.2	120.8	118.7	1.30	0.87
SITE MEAN	103.6	124.8	108.4	114.6	188.8	87.5	81.2	72.5	130.5	112.4	1.00	1.00
C.V. 1	16.78	10.27	9.43	7.77	12.70	10.73	10.08	8.50	13.64	--	--	--
LSD (0.05)	28.83	21.27	16.96	14.77	39.79	7.62	13.58	10.23	29.52	--	--	--

TABLE 3. 1993 MONTANA SPRING OAT STATEWIDE SUMMARY
TEST WEIGHT (lb/bu)

Pedigree	Dry	Havre Peterson	Sidney Recrop	Irr	Kali- spell	Mocc- asin	Grass Range	Huntley Dry	Irr	Mean	BYX	RSQ
Rio Grande	31.1	29.8	35.3	36.2	33.5	32.3	37.9	35.6	36.4	34.2	1.04	0.90
Ajay	30.0	28.7	33.3	36.2	35.9	30.5	37.2	32.7	36.7	33.5	1.26	0.95
Park	31.6	29.4	31.7	34.2	34.0	31.6	36.6	38.3	34.8	33.6	0.84	0.55
Cayuse	30.7	28.2	34.0	32.3	33.1	34.3	37.6	33.4	41.5	33.9	1.21	0.60
Otana	35.0	31.9	36.2	36.7	36.4	31.1	39.3	36.5	38.2	35.7	0.99	0.83
Appaloosa	29.6	28.0	31.8	31.5	33.8	32.9	36.9	33.1	33.3	32.3	0.82	0.63
Ogle	29.5	28.7	33.5	34.2	33.6	30.2	35.4	33.5	34.5	32.6	0.98	0.98
Border	30.0	26.6	32.7	34.2	33.5	29.5	37.4	34.2	35.5	32.6	1.32	0.95
Monida	30.5	28.2	35.0	34.2	35.7	31.3	37.9	34.8	37.0	33.8	1.27	0.96
Derby	33.2	32.1	35.2	36.0	36.0	32.2	38.0	35.4	38.5	35.2	0.91	0.94
Hystest	33.8	32.9	39.7	41.0	37.2	34.0	39.5	35.7	40.8	37.2	1.17	0.82
Valley	28.3	32.2	35.3	37.5	35.2	33.2	35.3	34.4	35.9	34.2	0.84	0.60
Newdak	30.4	30.2	34.3	35.0	33.7	31.3	34.0	33.6	33.9	32.9	0.66	0.82
Calibre	33.6	31.5	33.2	35.0	36.9	33.8	39.3	36.5	37.2	35.2	0.83	0.71
Troy	31.6	32.4	36.0	36.2	37.5	30.3	36.4	33.6	37.0	34.5	0.92	0.74
Settler	33.0	32.9	37.7	38.3	35.2	29.3	38.3	35.3	38.2	35.4	1.08	0.71
Riel	33.9	30.2	35.3	36.5	36.0	31.6	35.9	35.9	37.5	34.8	0.89	0.83
Robert	30.4	28.3	35.3	36.0	35.7	33.0	36.2	28.1	35.1	33.1	0.98	0.53
SITE MEAN	31.5	30.1	34.8	35.6	35.1	31.8	37.2	34.5	36.8	34.1	1.00	1.00
C.V.	5.05	3.67	2.09	2.87	3.62	6.02	2.22	--	--	--	--	--
LSD (0.05)	2.64	1.83	1.21	1.70	2.11	3.18	1.37	--	--	--	--	--

TABLE 4. 1993 MONTANA SPRING OAT STATEWIDE SUMMARY
HEADING DATE (Days from Jan. 1)

Pedigree	Havre Dry	Sidney Recrop	Sidney Irr	Kalispell	Moccasin	Huntley Dry	Huntley Irr	Mean	BYX	RSQ
Rio Grande	183.0	171.0	175.3	185.3	180.0	160.0	164.0	174.1	1.05	0.99
Ajay	185.7	173.0	178.7	188.0	177.3	162.5	167.0	176.0	1.00	0.96
Park	183.3	172.7	176.7	184.3	181.7	164.5	167.0	175.7	0.87	0.99
Cayuse	187.3	173.0	177.0	187.7	181.0	163.0	166.0	176.4	1.07	1.00
Otana	185.3	173.3	178.3	187.0	181.0	164.5	167.5	176.7	0.95	1.00
Appaloosa	188.0	174.0	178.7	190.3	180.7	164.0	168.0	177.7	1.06	0.98
Ogle	179.3	170.7	174.3	180.0	178.3	157.5	161.0	171.6	0.98	0.97
Border	188.3	174.3	179.7	189.0	180.7	164.0	169.0	177.9	1.02	0.98
Monida	188.7	175.0	179.3	188.7	184.0	165.0	168.0	178.4	1.04	0.99
Derby	183.3	173.7	179.0	185.7	181.7	164.0	167.0	176.3	0.91	0.99
Hyttest	178.7	171.3	172.0	181.3	177.0	159.0	162.0	171.6	0.92	0.98
Valley	186.3	173.3	177.3	186.0	180.0	161.0	164.5	175.5	1.08	0.99
Newdak	179.7	170.0	172.0	180.0	178.7	158.0	160.5	171.3	0.99	0.98
Calibre	188.7	175.0	180.0	188.3	182.0	165.0	169.0	178.3	1.00	0.99
Troy	181.0	172.0	176.0	184.7	178.7	162.5	167.5	174.6	0.85	0.98
Settler	178.0	169.3	170.7	181.0	177.7	158.0	160.0	170.7	0.98	0.98
Riel	185.7	172.7	176.7	187.0	182.3	161.0	165.0	175.8	1.11	1.00
Robert	189.3	175.0	180.0	190.7	185.0	165.0	168.0	179.0	1.11	1.00
SITE MEAN	184.4	172.7	176.8	185.8	180.4	162.1	165.6	175.4	1.00	1.00
C. V. 1	0.87	0.39	0.44	0.59	1.44	0.56	0.46	--	--	--
LSD (0.05)	2.65	1.10	1.30	1.83	4.32	1.93	1.61	--	--	--

TABLE 5. 1993 MONTANA SPRING OAT STATEWIDE SUMMARY
PLANT HEIGHT (inches)

Pedigree	Havre Dry	Havre Peterson	Sidney Recrop	Irr	Kalispell	Moccasin	Huntley Dry	Irr	Mean	BYX	RSQ
Rio Grande	40.8	36.8	30.0	40.7	45.3	34.3	24.0	40.5	36.5	0.90	0.94
Ajay	29.9	31.5	26.3	36.7	38.1	39.3	20.7	38.0	32.6	0.78	0.75
Park	50.6	51.4	36.0	47.3	54.5	43.0	30.3	47.0	45.0	1.06	0.92
Cayuse	44.3	44.1	33.0	43.0	49.9	40.7	26.7	44.5	40.8	0.99	0.99
Otana	48.2	48.5	36.7	48.3	53.8	44.3	31.3	50.0	45.1	1.00	0.98
Appaloosa	43.8	45.1	31.7	43.0	48.6	46.3	25.3	44.0	41.0	1.05	0.94
Ogle	40.7	37.8	31.0	43.3	45.3	43.0	25.7	42.0	38.6	0.88	0.91
Border	44.4	43.1	32.7	43.0	48.6	44.0	25.3	43.0	40.5	1.01	0.97
Monida	46.0	47.5	35.0	44.3	49.9	44.7	26.7	49.0	42.9	1.05	0.95
Derby	49.8	49.4	38.0	50.3	56.4	43.0	31.7	52.5	46.4	1.08	0.95
Hyttest	47.3	43.8	33.0	45.0	53.8	45.0	30.7	47.5	43.3	1.02	0.96
Valley	41.7	43.0	31.0	45.0	49.9	39.7	26.0	40.0	39.5	1.00	0.94
Newdak	43.6	43.4	33.7	43.0	50.5	44.3	28.0	39.5	40.8	0.90	0.91
Calibre	45.4	48.2	37.0	47.0	57.1	42.3	28.7	49.5	44.4	1.13	0.95
Troy	47.0	47.0	36.0	48.7	55.1	42.0	31.0	52.5	44.9	1.06	0.93
Settler	39.1	42.7	29.7	41.0	52.5	44.0	29.0	42.0	40.0	0.97	0.88
Riel	46.0	46.0	34.3	46.3	53.1	46.7	29.0	48.0	43.7	1.06	0.99
Robert	43.8	43.5	34.3	48.7	51.2	43.3	27.3	49.0	42.6	1.06	0.95
SITE MEAN	44.0	44.0	33.3	44.7	50.7	42.8	27.6	45.5	41.6	1.00	1.00
C. V. 1	5.00	5.13	3.54	4.75	2.60	10.73	6.05	5.05	--	--	--
LSD (0.05)	3.66	3.75	1.96	3.52	2.19	7.62	2.77	4.84	--	--	--