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PROJECT TITLE: Evaluation of semi-dwarf oats under irrigated management, SARC, Huntley MT 1989.

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PROJECT LOCATION: MSU, Southern Agricultural Research Center, Huntley MT 59037

OBJECTIVES:

To evaluate semi-dwarf oat selections for yield and quality when grown under intensive irrigation management.

SUMMARY AND RESULTS:

A wide selection of semi-dwarf oat selections were compared to several standard height varieties, Monida, Border, Otana, and Cayuse. Table 1 describes the yield and quality data of the SARC variety trial. Results show that several semi-dwarf selections produced yields and test weights comparable to our best standard varieties. The oat yields from the Bridger trial were significantly higher as compared to the SARC site (Table 2). Again, several semi-dwarf selections produced yields and test weights greater or equal to the best standard varieties now in commercial production. The positive results indicate that promising semi-dwarf oats may soon replace standard height varieties which tend to severely lodge under irrigation management.

FUTURE PLANS:

To continue trials for the purpose of developing semi-dwarf oat varieties for use under irrigation.

TABLE 1 . 1989 IRRIGATED SEMIDWARF OAT VARIETY TRIAL, SARC, HUNTLEY, MT.

VARIETY	YIELD BU/AC	TESTWT LB/BU	PLANTHT INCHES	HEAD DATE	SHATTER %	
8UO	MONIDA	170.97	36.10	39.33	191.00	3.33
48UO	84AB838	164.35	35.23	35.33	191.33	2.00
5UO	BORDER	155.23	34.57	36.67	192.00	2.33
41UO	83AB3083	150.23	30.77	31.00	196.00	1.33
43UO	83AB3250	145.58	32.67	33.00	193.00	1.67
3UO	OTANA	145.14	36.23	41.33	191.00	6.33
40UO	82AB1359	142.06	32.93	30.33	194.67	1.50
2UO	CAYUSE	138.69	32.20	37.33	191.33	4.00
44UO	83AB3725	137.50	34.00	30.00	192.33	1.50
15B	82AB1402	137.29	29.67	26.00	193.00	.83
25UO	82AB1142	136.81	33.43	28.00	192.00	1.83
17UO	81AB5792	136.52	33.77	32.00	190.67	3.67
42UO	83AB3119	135.58	30.17	31.00	192.67	5.33
24UO	82AB1178	126.10	33.77	31.33	191.00	1.50
25B	84AB1466	114.81	35.17	26.33	186.00	1.67

***** STATISTICAL TABLE *****

EXPERIMENTAL MEANS	142.46	33.38	32.60	191.87	2.59
TOTAL OBSERVATIONS	45.00	45.00	45.00	45.00	45.00
NO. OF REPLICATIONS	3.00	3.00	3.00	3.00	3.00
NO. OF VARIETIES	15.00	15.00	15.00	15.00	15.00
REP. MEAN SQUARE	731.95	2.03	15.27	1.87	4.31
VAR. MEAN SQUARE	588.06	12.28	62.39	14.37	7.75
ERROR MEAN SQUARE	123.95	3.82	4.24	.80	2.16
ERROR DEGREES OF FREEDOM	28.00	28.00	28.00	28.00	28.00
F TEST FOR REPS.	5.90	.53	3.60	2.35	1.99
F TEST FOR VAR.	4.74	3.22	14.70	18.07	3.58
STANDARD ERROR	11.13	1.95	2.06	.89	1.47
STANDARD ERROR OF THE MEAN	6.43	1.13	1.19	.51	.85
C.V. 1: (S/MEAN)*100	7.82	5.85	6.32	.46	56.80
C.V. 2: (S OF MEAN/MEAN)*100	4.51	3.38	3.65	.27	32.80
LSD (0.05)	18.62	3.27	3.45	1.49	2.46

TABLE 2 . 1989 OFF STATION IRRIGATED OAT TRIAL, BRIDGER,
WITH NEW SEMI-DWARF OAT SELECTIONS.

	VARIETY	YIELD BU/AC	TESTWT LB/BU	PLANT HT INCHES
23UO	82AB248	205.26	36.57	38.33
48UO	84AB838	203.74	36.90	38.17
43UO	83AB3250	200.70	36.03	38.50
20UO	80AB5807	196.82	36.93	39.33
41UO	83AB3083	192.70	32.33	36.33
15B	82AB1402	192.37	36.53	33.17
8UO	MONIDA	190.48	36.00	45.33
17UO	81AB5792	189.86	37.67	38.67
5UO	BORDER	189.35	36.17	41.67
9UO	76AB6843	188.38	37.27	40.00
11UO	75AB861	186.48	36.10	42.00
21UO	VALLEY	186.12	39.27	40.17
42UO	83AB3119	185.68	33.30	35.67
3UO	OTANA	185.29	37.97	47.00
28UO	ROBERT	183.88	34.97	45.17
44UO	83AB3725	183.03	35.67	36.17
40UO	82AB1359	181.17	34.27	35.50
2UO	CAYUSE	180.12	36.27	41.33
24UO	82AB1178	179.61	35.83	35.83
25UO	82AB1142	178.29	35.60	33.17
4UO	APPALOOSA	174.06	33.00	41.00
7UO	CASCADE	172.17	38.70	50.50
1UO	PARK	170.02	36.30	45.00
25B	84AB1466	165.82	35.30	33.17
29UO	TRUCKER	162.07	40.87	43.50

***** STATISTICAL TABLE *****

EXPERIMENTAL MEANS	184.94	36.23	39.79
TOTAL OBSERVATIONS	75.00	75.00	75.00
NO. OF REPLICATIONS	3.00	3.00	3.00
NO. OF VARIETIES	25.00	25.00	25.00
REP. MEAN SQUARE	804.86	8.15	12.96
VAR. MEAN SQUARE	358.73	10.70	61.91
ERROR MEAN SQUARE	144.20	1.68	3.74
ERROR DEGREES OF FREEDOM	48.00	48.00	48.00
F TEST FOR REPS.	5.58	4.84	3.46
F TEST FOR VAR.	2.49	6.36	16.53
STANDARD ERROR	12.01	1.30	1.94
STANDARD ERROR OF THE MEAN	6.93	.75	1.12
C.V. 1: (S/MEAN)*100	6.49	3.58	4.86
C.V. 2: (S OF MEAN/MEAN)*100	3.75	2.07	2.81
LSD (0.05)	19.71	2.13	3.18