

PROJECT TITLE: Evaluation of early generation spring barley selections in cooperation with Dr. Tom Blake.

YEAR/PROJECT: 1991/756

INVESTIGATORS: Bob Stougaard and Todd Keener, NWARC, Kalispell, MT. Tom Blake, Plant and Soil Science, Bozeman, MT.

OBJECTIVE: Evaluation of spring barley varieties for yield, quality and improved resistance to foliar diseases in consideration for future release to Montana grain growers.

RESULTS: Sixty-four spring barley lines were evaluated under high moisture growing conditions. Although weather patterns were similar to previous years the disease pressures at Kalispell in 1991 were low, or nonexistent, such that disease recordings were not taken.

All entries yielded above 100 bu/a with the highest yield being 162 bu/a and the lowest was 104.7 bu/a. Steptoe, Russel and Clark yielded 147, 141, and 121 bu/a respectively. Test weights were very good through out the nursery and averaged 50.5 lb/bu. Percent plumps were taken from only one replication and averaged 91%. The nursery weathered two heavy rain showers in early August which caused extensive lodging in the majority of plots. All varieties exhibited some degree of lodging, with severe lodging in more than 80% of the plots.

SUMMARY: Severe lodging was prevalent in the majority of the sixty-four entries grown in the 1991 Early Yield Spring Barley Nursery. The lack of disease pressure prohibited plant resistant evaluations. Yields ranged from 105-162 bu/a.

FUTURE PLANS: Disease resistant varieties will continue to be evaluated at Kalispell, and across the varied environments of Montana, through cooperative regional testing.

Table 1. Agronomic data from the Early Yield Spring Barley Nursery grown on the Northwestern Agricultural Research Center in Kalispell, MT. Planted April 12, 1991 Harvested August 27, 1991 Field Y-5.

CI or State #	VARIETY	Yield Bu/A	Test Wt Lb/Bu	Height In	Heading Date	% Plump	Lodging Index 1/
MT900166	Robust/ID910719	161.63	46.63	38.71	175.33	85.00	64.53
MT900165	Robust/ID910719	157.60	49.03	43.31	181.00	91.00	34.63
MT900176	Steptoe/Robust	148.20	46.57	41.34	175.00	93.00	81.47
CI 15529	Steptoe	147.43	46.43	38.06	172.33	92.00	68.40
H4851224	ID810264/MT 41918 (MT85122	142.93	51.10	43.31	177.67	94.00	76.00
MT900154	DR8405/Steptoe	142.53	47.37	45.28	179.00	97.00	63.80
MT900040	Fleet/Bowman	142.40	51.67	38.71	181.00	94.00	67.77
PI483127	Russell	140.53	48.57	43.31	172.00	88.00	17.57
H5851195	MT41918/TR450 (MT851195 H	140.47	51.43	45.93	176.00	93.00	77.00
MT900011	Bowman/Bellona	140.27	51.20	38.71	175.00	87.00	65.40
MT900125	MT4126/Bowman	139.97	50.67	39.37	172.33	90.00	45.93
MT900071	Hector/Bowman	139.77	51.33	44.62	176.33	92.00	68.73
H6851032	Harrington/Clark (MT851032	138.60	51.73	43.96	179.67	90.00	56.00
H3851195	MT41918/TR450 (MT851195 H	136.77	50.90	42.00	175.67	93.00	77.90
MT900108	Menuet/Andre	136.60	50.47	37.40	179.00	87.00	63.47
H6860756	Gallatin/Bellona (MT86075	135.90	52.67	42.00	178.33	93.00	24.43
H6851224	ID810264/MT 41918 (MT85122	135.80	51.23	40.68	178.33	96.00	81.67
MT900169	Steptoe/Columbia	135.23	47.67	42.65	175.00	98.00	53.13
MT900194	Unitan/UT1422	134.93	47.70	40.03	172.33	91.00	45.37
MT900162	Robust/Columbia	134.80	46.83	42.00	175.00	96.00	28.53
H4851195	MT41918/TR450 (MT851195 H	133.83	51.50	44.62	174.33	94.00	64.53
MT900139	MT81161/Bowman	133.73	50.63	40.03	172.67	93.00	77.30
MT900155	Pirolina/Fleet	133.53	51.97	42.65	176.33	93.00	68.43
H4851161	MT 41918/MT 41279 (MT85116	130.17	51.20	42.65	177.00	93.00	67.33
MT900034	Clark/Premier	129.17	51.87	43.96	176.00	89.00	73.07
MT900180	Unitan/Azure	128.90	46.77	47.25	173.67	90.00	86.67
MT900148	MT81161/Harrington	128.83	50.50	44.62	177.67	89.00	81.67
MT900117	Menuet/MT4126	128.80	51.67	40.03	176.33	89.00	48.90
CI 15514	Hector	128.77	50.30	44.62	176.33	85.00	84.33
MT900143	MT81161/Bowman	128.77	52.53	39.37	172.00	95.00	26.10
MT900014	Bowman/ID810099	128.70	51.17	40.68	173.33	96.00	57.77
MT900027	Bowman/Premier	128.57	50.93	38.71	174.67	88.00	8.53
H1851195	MT41918/TR450 (MT851195 H	128.33	51.30	45.28	176.00	95.00	79.00
H1861572	Lewis/MT 41549 (MT861572 H	127.97	51.70	43.31	177.33	88.00	60.57
H5861572	Lewis/MT 41549 (MT861572 H	127.47	51.70	42.00	177.67	88.00	74.67
H3851032	Harrington/Clark (MT851032	126.60	50.87	43.31	180.00	93.00	56.10
H1860219	Lewis/Apex (MT860219 HR #	126.43	51.13	40.03	178.33	86.00	15.93
CI 15773	Morex	125.93	48.63	47.90	173.67	82.00	83.07
MT900147	MT81161/Harrington	125.73	51.03	42.00	176.00	93.00	40.00
MT900158	Pirolina/Harrington	125.50	49.20	42.00	178.00	82.00	83.00
H4861572	Lewis/MT 41549 (MT861572 H	125.47	51.23	42.65	176.33	86.00	65.83
H1851161	MT 41918/MT 41279 (MT85116	125.43	50.30	40.68	176.00	91.00	78.03
H5860219	Lewis/Apex (MT860219 HR #	124.97	52.57	40.68	180.33	94.00	19.43
MT900132	MT4126/Moravian III	124.40	51.97	42.65	175.33	96.00	64.43
H4851032	Harrington/Clark (MT851032	124.33	51.73	43.31	179.33	93.00	34.43

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Table 1. ( Cont'd ) Agronomic data from the Early Yield Spring Barley Nursery.

CI or State #	VARIETY	Yield Bu/A	Test Wt Lb/Bu	Height In	Heading Date	% Plump	Lodging Index 1/
MT900111	Menuet/Bowman	124.23	51.90	42.65	173.67	95.00	45.93
SK 76333	Harrington	124.13	49.87	41.34	179.33	90.00	78.10
H6851195	MT41918/TR450 (MT851195 H	123.90	51.80	42.65	177.00	96.00	50.67
H5851161	MT 41918/MT 41279(MT85116	123.13	51.40	42.00	176.33	90.00	74.70
H4860219	Lewis/Apex (MT860219 HR #	123.00	52.43	42.65	179.33	96.00	32.40
H1851012	Clark/WAB77178(MT851012 H	122.77	50.13	43.31	177.67	88.00	80.70
CI 15857	Clark	121.13	51.17	44.62	177.67	90.00	64.57
MT900167	Robust/ID910719	120.03	48.20	49.87	175.33	76.00	74.07
MT900064	Gallatin/Piroline	119.47	52.23	42.00	173.67	84.00	70.20
MT900145	MT81161/Fleet	119.07	52.00	43.96	177.67	94.00	69.00
CI 15478	Klages	117.97	49.43	42.00	182.00	82.00	74.43
H1851032	Harrington/Clark(MT851032	117.87	50.87	43.31	179.33	95.00	52.57
MT900002	Bowman/Apex	117.33	51.50	38.71	178.67	96.00	46.67
H6851012	Clark/WAB77178(MT851012 H	116.63	50.53	42.65	177.67	89.00	77.50
MT900204	WAB89278/Bowman	113.90	49.70	42.65	180.67	85.00	78.33
MT900054	Gallatin/Apex	110.40	52.70	40.03	178.33	95.00	51.10
MT900055	Gallatin/Apex	109.90	52.60	38.71	177.00	92.00	73.03
PI531228	Bearpaw	106.43	49.83	43.31	181.33	91.00	78.37
MT900152	OR763128/Azure	104.70	47.20	45.28	173.00	94.00	18.17
EXPERIMENTAL MEANS		129.20	50.49	42.31	176.67	90.92	60.18
F TEST FOR VAR.		2.64**	19.69**	5.11**	28.29**	1 rep	2.96**
C.V. 2: (S OF MEAN/MEAN)*100		5.19	.77	2.55	.27	data	19.65
LSD (0.05)		18.77	1.09	3.01	1.34	only	33.09

1/ Lodging Index = a combined score of lodging severity X prevalence.

0 = no lodging, 99 = very severe lodging

\*\* Indicates statistical significance at the .01 level