

PROJECT TITLE: Plant and variety selection in spring barley for disease resistance in new and introduced varieties.

YEAR/PROJECT: 1990/756

INVESTIGATORS: Leaders - Vern R. Stewart and Tom Blake, Research Specialists - Todd Keener and Pat Hensleigh

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

RESULTS: Sixty four spring barley lines were evaluated under high moisture conditions during the 1990 growing season. Although foliar diseases can be moderate to severe in the Kalispell area this year there was very little disease recorded in the spring grain nurseries. This may be related to extremes in weather that we experienced in early spring and at harvest time. Yields were very good for this nursery. All but two varieties yielded above 100 bushels per acre while the highest yields were above 150 bu/A. Test weights and percent plumps were very good, averaging 50.64 lbs/bu and 94.5% respectively. Lodging did not occur until late in the season so yields were not greatly affected. Table 1.

SUMMARY:

No foliar diseases were observed in varieties of the Early Yield Spring Barley Nursery in Kalispell this season. High yields and above average test weights gave good quality and performance data for these barley selections.

FUTURE PLANS:

Disease resistant varieties will continue to be evaluated at Kalispell, and across Montana's varied environments through cooperative regional testing.

Table 1. Agronomic data from the Early Yield Spring Barley nursery grown on the Northwestern Agricultural Research Center, Kalispell, MT in 1990. Planted: April 2, 1990 Harvested: August 15, 1990 Field Y-4.

VARIETY	YIELD BU/A	TEST WT LB/BU	% PLUMP	HEAD DATE	HT (IN)	LODGING SEVER.	PREV.
MT890008 Fleet/Bowman	153.46	50.40	98.00	176.67	35.56	.00	.00
MT890128 Steptoe/Robust	152.23	48.80	98.00	171.00	37.40	.00	.00
MT890123 Steptoe/Columbia	150.44	48.77	99.00	174.00	41.73	2.67	16.67
MT890059 Morex/ID910719	149.42	50.60	95.00	171.00	42.91	.00	.00
MT890151 Unitan/Robust	148.23	48.90	96.00	172.00	43.70	.67	30.00
MT890173 WA889278/Bowman	145.77	50.77	94.00	175.00	41.08	.00	.00
MT890145 Unitan/Robust	145.17	48.40	97.00	172.33	44.09	.00	.00
MT890040 Lewis/ID91019	143.15	51.70	94.00	170.33	39.50	.00	.00
CI 15229 Steptoe	142.50	47.50	99.00	172.67	38.32	.00	.00
MT890061 Morex/ID910719	141.33	50.47	95.00	170.67	45.14	.00	.00
CI 15478 Klages	141.02	50.47	91.00	175.33	39.63	1.33	58.00
MT890069 MT4126/Pirolina	137.92	52.23	91.00	173.00	38.32	.67	8.33
MT890171 WA889278/Bowman	137.90	49.97	93.00	174.33	39.63	2.00	16.67
MT890006 Fleet/Abee	136.94	51.47	88.00	174.33	29.27	.00	.00
MT890148 Unitan/Robust	136.73	48.63	95.00	172.00	46.33	1.33	18.33
MT890060 Morex/ID910719	136.60	49.90	94.00	170.33	41.60	.00	.00
MT890033 Hector/Fleet	136.33	50.10	77.00	173.00	30.18	.00	.00
MT890014 Fleet/Menuet	136.19	50.30	70.00	175.67	27.69	.00	.00
MT890089 MT81161/Harr.	133.54	52.17	94.00	172.33	38.71	.00	.00
MT890028 Hector/Bowman	132.63	51.20	92.00	173.00	40.94	2.67	99.00
MT890172 WA889278/Bowman	131.75	50.70	93.00	174.00	40.55	.00	.00
MT890023 Gallatin/Piro	128.50	53.10	95.00	173.33	41.34	2.67	63.00
MT890082 MT41279/Teton	128.06	52.37	96.00	173.00	37.14	.67	33.00
MT890111 Robust/ID910719	127.69	50.30	95.00	172.00	46.19	.00	.00
MT890170 WA889278/Bowman	127.25	50.30	91.00	172.33	38.06	1.67	16.67
MT890022 Gallatin/Piro	126.75	54.30	95.00	173.00	41.60	1.33	58.00
MT890088 MT81161/Harrg.	126.71	51.53	96.00	172.67	39.76	.00	.00
MT890167 WA889278/Azure	126.06	48.87	98.00	173.00	41.99	.00	.00
MT890157 Unitan/Robust	126.06	48.10	97.00	171.33	44.49	.00	.00
MT890029 Hector/Bowman	125.23	51.53	90.00	172.33	41.34	2.00	64.67
MT890005 Bowman/Lewis	124.52	51.17	98.00	174.00	36.35	2.33	63.00
MT890176 WA889278/Clark	123.44	52.23	91.00	174.00	39.89	.00	.00
MT890039 Lewis/ID91019	122.83	48.70	69.00	171.33	36.22	.00	.00
MT890020 Gallatin/Piro	121.50	52.13	91.00	171.67	40.55	2.67	82.67
MT890136 Summit/Piro	120.83	50.87	93.00	174.00	41.47	5.33	66.33
MT890087 MT81161/Harr.	120.75	51.30	96.00	171.00	38.45	.67	33.00
MT890038 Lewis/ID91019	119.85	48.07	71.00	170.67	40.55	5.00	13.33
MT890031 Hector/Fleet	119.81	51.93	96.00	172.33	37.53	3.33	76.67
MT890034 Hector/Fleet	119.46	49.20	71.00	172.33	27.95	.00	.00
MT890098 Robust/Azure	118.67	46.60	57.00	172.67	37.93	4.00	99.00
MT890016 Gallatin/Apex	117.35	53.10	90.00	176.33	36.75	2.33	25.00
SK 76333 Harrington	116.44	50.73	93.00	173.00	38.19	1.33	66.00
MT890112 Robust/ID910719	116.27	50.27	98.00	173.00	46.06	1.00	8.33
MT890018 Gallatin/Apex	115.40	51.17	87.00	172.67	33.60	2.33	76.00

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

VARIETY	YIELD BU/A	TEST WT LB/BU	% PLUMP	HEAD DATE	HT (IN)	LODGING SEVER. PREV.	
MT890057 Morex/Columbia	115.31	50.77	97.00	172.00	46.98	.67	8.33
MT890066 MT4126/Morav III	113.71	52.23	91.00	172.67	38.45	1.33	49.67
CI 15773 Morex	113.60	51.10	99.00	171.67	48.56	.00	.00
MT890065 MT4126/Morav III	112.58	51.30	95.00	170.00	38.71	.67	33.00
MT890021 Gallatin/Piro	111.98	53.07	92.00	172.33	39.11	3.67	99.00
MT890030 Hector/Fleet	111.50	50.40	83.00	173.00	29.27	.00	.00
MT890179 WAB89278/Clark	111.21	52.87	94.00	173.33	41.60	2.67	99.00
MT741232 Drought Sel. 2	111.19	51.57	90.00	173.00	38.06	2.67	58.00
CI 15514 Hector	109.67	51.70	92.00	173.33	40.81	3.00	99.00
MT890015 Gallatin/Apex	108.67	53.47	94.00	174.00	38.98	1.00	16.67
MT741394 Drought Sel. 1	107.25	49.97	84.00	171.67	34.38	1.67	16.67
MT890178 WAB89278/Clark	106.90	52.03	90.00	173.00	41.21	2.33	58.00
MT890009 Fleet/Gallatin	105.81	51.50	94.00	174.33	38.19	.67	30.00
MT890070 MT47219/Bowman	104.42	51.57	95.00	172.33	38.71	1.67	63.00
MT741183 Drought Sel. 6	104.13	50.50	89.00	172.00	40.81	3.00	82.67
MT741214 Drought Sel. 4	103.17	47.77	99.00	170.67	42.78	2.67	43.33
MT741405 Drought Sel. 5	103.06	48.07	99.00	172.67	44.49	2.67	33.33
MT741456 Drought Sel. 3	102.88	48.60	100.00	171.00	43.96	2.33	10.00
MT890012 Fleet/Gallatin	97.98	49.63	83.00	173.00	30.05	.67	16.67
MT890071 MT47219/Bowman	97.71	51.33	95.00	170.33	39.24	1.67	66.00
EXPERIMENTAL MEANS	124.08	50.64	.00	172.68	39.38	1.33	30.84
F TEST FOR VAR.	4.88	19.70	.00	6.81	18.04	2.12	3.89
C.V. 1: (S/MEAN)*100	9.25	1.24	.00	.55	4.67	122.01	94.73
LSD (0.05)	18.55	1.01	.00	1.53	2.97	2.62	47.21