

PROJECT TITLE: Early Yield Spring Barley Evaluation - Screening of early generation spring barely selections.

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

RESULTS: Yields were extremely high as a result of the excessive amounts of rain received during the season. Barley that resisted lodging and diseases yielded well above the average for this location. Steptoe had the highest yield at 168.4 bu/A, although the test weight was extremely low (40.5 lb/bu). The average yield for he nursery was 112.1 bu/A while the mean test weight was 44.4 lb/bu. Most varieties, although yielding well above average, were poor in test weight as well as other characteristics (plumpness and color) . Test weights ranged from 38.9 to 49.1 lb/bu. The cool, wet growing season was not only reflected in the late heading dates but also the delayed harvest date. Late tillering also complicated and delayed harvest in the majority of barley varieties. Lodging was severe in the majority of plots.

SUMMARY: Abundant rainfall during the growing season contributed to high yields in spring barley but also caused severe lodging in many varieties.

FUTURE PLANS: Disease resistant varieties will continue to be evaluated at Kalispell through cooperative regional variety trails.

Table 1. Agronomic data from the Early Yield Spring Barley Nursery grown on the Northwestern Agricultural Research Center, Kalispell, MT.
Planted: April 16, 1993 Harvested: September 9, 1993

CI Number VARIETY	YIELD BU/A	TEST WT LB/BU	% PLUMP	HEADING DATE	HEIGHT INCHES	LODGING INDEX 1/
CI 15229 Steptoe	168.37	40.47	86.00	178.00	36.09	43.33
MT920041 MT 81143/MT 81161	145.67	49.00	96.00	171.33	36.75	.00
MT920161 MT 83424/MT 81161	144.90	48.20	89.00	172.33	37.40	3.33
MT920207 MT 83435/MT 81502	144.27	49.10	95.00	173.00	34.78	31.83
MT920073 MT 81161/MT 83518	141.83	46.97	88.00	171.67	36.09	50.37
MT920027 Heartland/ID910719	140.50	42.30	93.00	168.33	34.12	.00
MT920074 MT 81161/MT 83518	130.87	47.97	91.00	173.00	36.75	23.70
MT920163 MT 83424/MT 81161	129.37	48.07	93.00	174.00	39.37	27.03
MT920072 MT 81161/MT 83518	129.00	48.20	93.00	172.67	37.40	7.80
MT920021 Harrington/MT 83518	128.73	47.03	95.00	177.00	38.06	29.80
MT920071 MT 81161/MT 83518	127.90	47.03	88.00	172.33	36.75	27.60
MT920201 MT 83435/MT 81161	127.40	48.10	84.00	174.67	40.03	14.80
MT920174 MT 83424/MT140523	127.30	43.90	71.00	172.33	39.37	52.37
MT920129 MT 83422/MT 81143	127.03	47.43	85.00	175.67	35.43	30.37
MT920167 MT140523/MT 83435	126.27	44.57	76.00	173.00	37.40	52.77
MT920146 MT 83424/Elrose	125.03	47.23	96.00	176.33	34.12	35.53
MT920053 MT 81143/MT140523	124.03	46.20	92.00	173.33	37.40	42.97
MT920070 MT 81161/MT 83518	121.13	46.67	75.00	173.00	38.71	49.07
MT140523 Hector/Klages	121.00	46.10	95.00	173.00	36.75	42.57
MT920200 MT 83435/MT 81161	120.37	45.23	76.00	174.33	39.37	37.40
MT920234 MT 83491/MT 81161	119.57	44.70	79.00	175.00	39.37	49.27
MT920112 MT 81502/MT140523	119.40	46.97	93.00	174.67	36.75	43.87
MT920164 MT 83424/MT 81502	118.90	47.00	97.00	172.33	37.40	38.87
MT920178 MT 83424/ND 7691	118.77	43.43	67.00	175.67	36.09	51.87
MT920024 Harrington/MT 83592	118.77	43.40	69.00	175.33	37.40	45.93
MT920208 MT 83435/MT 81502	118.57	43.43	77.00	173.33	37.40	60.73
MT920057 MT 81143/VD403582	118.37	45.30	75.00	173.67	40.03	53.70
MT920064 MT 81161/MT 83422	118.37	47.20	88.00	175.33	37.40	39.27
MT920059 MT 81143/VD403582	118.03	46.80	77.00	175.00	40.03	42.60
MT920022 Harrington/MT 83592	115.47	46.33	79.00	177.00	38.06	33.33
MT920095 MT 81502/Gallatin	114.50	44.53	64.00	171.00	35.43	55.57
MT920068 MT 81161/MT 83422	112.60	43.87	82.00	172.33	41.34	57.03
MT920234 MT 83491/MT 81161	111.30	46.80	84.00	172.67	37.40	58.30
MT920069 MT 81161/MT 83422	109.83	44.50	74.00	173.00	36.09	56.63
MT920113 MT 81502/MT140523	108.93	44.73	76.00	173.67	38.06	57.03
MT920045 MT 81143/MT 81161	108.93	45.97	88.00	170.67	36.75	11.87
MT920162 MT 83424/MT 81161	108.77	43.33	79.00	172.33	37.40	49.27
MT920015 Elrose/MT 83518	107.50	44.13	73.00	175.33	36.75	59.23
MT920156 MT140523/MT 83435	107.27	42.10	59.00	176.00	37.40	62.57
MT920097 MT 81502/Gallatin	107.03	43.77	68.00	172.00	36.75	50.17
MT920223 MT 83444/MT 81502	105.37	44.77	81.00	172.00	36.09	69.63
MT920238 MT 83592/MT 83422	104.53	42.50	56.00	171.67	36.75	46.27
MT920211 MT 83435/MT 81502	104.27	43.80	69.00	175.33	37.40	68.13
MT920154 MT 83424/Harrington	103.70	43.83	70.00	175.33	37.40	49.67

Cont'd

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

CI Number	VARIETY	YIELD BU/A	TEST WT LB/BU	% PLUMP	HEADING DATE	HEIGHT INCHES	LODGING INDEX 1/
MT920096	MT 81502/Gallatin	103.27	42.57	56.00	172.33	37.40	60.73
SK 76333	Harrington	101.30	43.20	83.00	176.33	38.06	53.70
MT920062	MT 81161/MT 83422	100.67	43.30	70.00	174.00	36.75	59.80
MT920189	MT 83435/Clark	100.53	43.37	60.00	176.67	40.68	57.40
MT920047	MT 81143/MT 81161	100.27	46.03	91.00	171.33	36.09	27.40
MT920212	MT 83444/MT 81502	99.30	42.33	69.00	174.00	38.06	80.80
MT920099	MT 81502/Gallatin	97.17	43.70	85.00	171.67	38.06	36.70
MT920049	MT 81143/MT140523	96.50	43.87	81.00	170.67	37.40	63.33
CI 15514	Hector	95.83	43.40	65.00	173.33	40.03	66.10
MT920109	MT 81502/MT140523	94.53	44.73	73.00	174.00	37.40	69.27
MT910208	Gallatin/Awnless Betzes	91.57	39.53	52.00	170.67	41.99	22.80
MT920101	MT 81502/Gallatin	89.20	41.13	70.00	171.67	38.06	78.20
AZ90 123	Washonupana/MT 83424	88.87	44.60	42.00	170.33	34.12	84.33
MT920249	MT140523/MT 81161	86.27	40.17	73.00	173.00	36.75	75.20
MT920115	MT 83422/Lamont	85.53	41.57	71.00	174.33	38.71	65.17
CI 16569	Haybet	84.70	38.43	39.00	172.33	39.37	60.90
MTSU 247	Shonkin	81.63	40.07	38.00	177.00	38.06	75.53
MT910103	Gallatin/Awnless Betzes	79.90	39.73	53.00	168.33	39.37	10.00
MT910207	Gallatin/Awnless Betzes	76.53	38.90	41.00	170.00	39.37	53.33
MT920196	MT 83435/MT 81143	73.87	39.87	62.00	174.67	38.06	73.70
EXPERIMENTAL MEANS		112.14	44.43	.00	173.39	37.61	46.68
LSD (0.05)		21.97	2.55	.00	3.67	2.50	25.81

1/ Lodging Index = lodging prevalence X lodging severity divided by 9.