

PROJECT TITLE: Offstation Spring Barley Variety Evaluation

YEAR/PROJECT: 1990/756

INVESTIGATORS: Leader - Vern R. Stewart, Todd K. Keener - Research Specialist

OBJECTIVE: Evaluation of new and introduced spring barley varieties in various growing conditions of western Montana.

RESULTS: Offstation spring barley nurseries were seeded in three locations this year.
- Ravalli County - Robert Christ farm, Hamilton, MT.
- Lake County - Starkle farms, Ronan, MT
- Ravalli County - Western Agricultural Reserch Center, Corvallis, MT.

All locations were irrigated and recieved adequate rainfall during the growing season. Yields were good to excellent for the majority of entries and most varieties had average to above average test weights. Disease incidence was slight to non-existent in all areas. Lodging was prevalent at the Hamilton and Ronan locations.

The nursery located at the Robert Christ farm in Hamilton had yields in excess of 115 bushel per acre for all varieties. The top yielding variety (BA 2601), a Bush Agriculture entry, yielded 148.4 bu/A. All test weights in the nursery, except for Steptoe, were above 50 lbs/bu. Percent plumps averaged 95.13% and lodging was prevalent in all but one variety (BA 2601).

Yields from the nursery grown on the Starkle farm in Ronan ranged from 87.8 to 126.5 bu/A. Steptoe had the highest yield. The average test weight weight was 48.84 lbs/bu. Percent plumps were the lowest of all three locations which may be related to the high incidence of lodging.

Yields from the nursery located on the Western Agricultural Research Center in Corvallis exceeded 100 bu/A for all entries. The three highest yields were from BA 1215, BA 1202, and BA 2601. Test weights were very good at this location with 52.38 lb/bu as the test average. Percent plump were less than would be expected from this area. Lodging was slight to moderate at the this location.

SUMMARY:

The top yielding varieties averaged across all the offstation locations were BA 2601, BA 1202, and BA 1215. The average yield for all entries comparing all sites was 120 bu/A. The only test weights less than 50 lb/bu were Steptoe, Klages, Russel and Bearpaw. The varieties least resistant to lodging were Bearpaw and Hector which lodged moderately to severly at all locations.

FUTURE PLANS:

Offstation nursery trials are planned in the future to continue building the long term database of variety evaluation in the varied climates of western Montana.

Table 1. Agronomic data from the Offstation Spring Barley Nursery grown on the Christ farm, Hamilton, MT (Ravalli Co.). Planted: April 12, 1990 Harvested: August 8, 1990

CI/STATE NUMBER	VARIETY	YIELD BU/A	TEST WT LB/BU	% PLUMP	HT IN	- LODGING - SEVER	PREV
BA 2601	BA 2601	148.41a	51.27b	95.33	33.60b	.00	.00
CI 15229	Steptoe	146.76a	48.63b	96.67	39.11	5.00	88.33
CO 3	Moravian 3	141.96a	52.63	94.33	34.78b	5.33	56.67
PI483127	Russell	138.49a	50.37b	94.67	38.32	1.33	10.00
BA 1202	BA 1202	136.62	53.50	98.67	39.11	3.67	64.67
CI 15478	Klages	135.57	51.67b	96.67	35.56	2.00	10.00
BA 1215	BA 1215 (BA 8529)	134.33	52.20	95.00	37.40	2.67	23.33
VD 3	Menuet	129.40	54.13	97.67	35.83	.67	3.33
CI 15856	Lewis	127.99	54.00	95.00	39.50	4.33	61.33
78Ab6871	Crystal	125.98	52.93	93.33	38.98	3.33	36.67
CI 15773	Morex	125.07	51.03b	92.00b	43.18a	6.33	71.00
CI 15857	Clark	122.61	53.87	97.67	38.19	3.00	28.33
SK 76333	Harrington	121.74	51.40b	97.00	35.30	2.33	16.67
ND 9866	ND 7014/Bowman sib	121.65	54.47	98.67	38.71	3.67	50.00
CI 10083	Ingrid	121.36	53.47	95.33	36.61	3.67	33.33
PI531228	Bearpaw	119.93	50.07b	92.00b	38.98	5.67	83.00
CI 15514	Hector	119.67	53.43	93.33	41.47	6.67	71.33
PI491534	Gallatin 1/	119.64	53.73	97.33	38.32	3.67	39.67
MT851012	Clark/WA877178	117.97	51.87	93.00	40.03	7.33	86.33
MT140523	Hector/Klages	115.66	51.33b	89.00b	38.71	5.67	63.00
EXPERIMENTAL MEANS		128.54	52.30	95.13	38.08	3.82	44.85
F TEST FOR VAR.		2.45**	5.90**	1.95	3.66**	1.56	2.13*
C.V. 2: (S OF X/X)*100		4.92	1.24	1.89	3.16	41.94	43.66
LSD (0.05)		18.10	1.86	5.16	3.45	4.58	56.06

1/ Check variety
* Indicates statistical significance at the .05 level of probability
** Indicates statistical significance at the .01 level of probability
a/ Values significantly greater than the check variety at the .05 level
b/ Values significantly less than the check variety at the .05 level

Table 2. Agronomic data from the Offstation Spring Barley Nursery grown on the Starkle farm in Lake County in 1990.
Planted: April 20, 1990 Harvested: August 9, 1990

CI/STATE Number PREV	VARIETY	YIELD BU/A	TEST WT LB/BU	% PLUMP	HEIGHT IN	--LODGING-- SEVER PREV	
CI 15229	Steptoe	126.54a	47.87	95.00a	36.61	.00	.00
78Ab6871	Crystal	123.58a	50.27	94.33a	37.14	1.00	3.33
ND 9866	ND 7014/Bowman	118.02a	49.53	91.67a	39.89a	1.00	3.33
BA 1202	BA 1202	117.19a	50.23	93.33a	41.47a	1.67	20.00
VD 3	Menuet	115.17a	50.57	91.67a	36.61	.67	3.33
BA 2601	BA 2601	115.15a	47.23	72.33	36.22	1.67	30.00
MT140523	Hector/Klages	114.44a	49.20	84.33a	37.80	4.67	30.00
CI 15856	Lewis	113.63a	50.43	91.00a	37.66	3.33	23.33
CI 15478	Klages	112.71a	47.23	71.33	39.50a	4.67	31.67
CO 3	Moravian 3	109.83a	48.27	79.67a	36.09	2.67	16.67
BA 1215	BA 1215 (BA 8529)	108.63a	49.43	89.67a	37.93	3.00	40.00
CI 15773	Morex	106.94a	49.97	91.67a	45.80a	.67	8.33
MT851012	Clark/WA877178	106.58a	48.60	84.67a	40.03a	4.00	76.67a
CI 15857	Clark	101.25	50.33	83.00a	38.19	5.00a	72.67
CI 15514	Hector	98.15	49.33	79.00a	37.93	4.00	89.67a
PI531228	Bearpaw	97.71	47.93	85.33a	36.75	6.33a	61.67
CI 10083	Ingrid	95.04	47.97	73.33	36.35	5.67a	79.67
aK 76333	Harrington	90.79	47.33	79.00a	37.53	5.67a	53.33
PI491534	Gallatin	89.21	49.60	68.33	34.91	1.33	33.00
PI483127	Russell	87.83	45.47b	70.33 ^b	33.46	.00	.00
EXPERIMENTAL MEANS		107.42	48.84	83.45	37.89	2.85	33.83
F TEST FOR VAR.		3.68**	2.52**	6.11**4	4.18**	2.58**	3.87**
C.V. 2: (S OF X/X)*100		5.50	1.79	4.28	3.36	44.78	43.73
LSD (0.05)		16.91	2.50	10.22	3.65	3.65	42.36

1/ Check variety

* Indicates statistical significance at the .05 level of probability

** Indicates statistical significance at the .01 level of probability

a/ Values significantly greater than the check variety at the .05 level

b/ Values significantly less than the check variety at the .05 level

Table 4. Data summary from the three Offstation Spring Barley Nurseries grown in western Montana in 1990 (Lake and Ravalli Co.).

CI/STATE NUMBER	VARIETY	YIELD BU/A	TEST WT LB/BU	% PLUMP	HT IN	LODGING SEVER PREV	
BA 2601	BA 2601	135.8	50.0	88.0	35.2	.6	10.0
CI 15229	Steptoe	128.4	48.2	92.9	37.2	2.6	38.3
CO 3	Moravian 3	122.3	51.3	86.8	35.0	2.7	24.5
PI483127	Russell	122.2	49.3	87.7	36.7	.4	3.3
BA 1202	BA 1202	135.2	52.4	97.0	40.3	1.8	28.2
CI 15478	Klages	119.8	49.9	83.9	36.5	2.2	13.9
BA 1215	BA 1215 (BA 8529)	131.8	51.7	94.0	37.5	1.9	21.1
VD 3	Menuet	116.2	52.6	94.9	36.2	.5	2.2
CI 15856	Lewis	116.7	52.7	93.7	37.8	2.6	28.2
78Ab6871	Crystal	116.7	51.6	89.7	36.7	1.4	13.3
CI 15773	Morex	113.0	50.4	89.1	43.9	2.9	37.4
CI 15857	Clark	119.3	52.5	92.5	37.5	2.7	33.7
SK 76333	Harrington	118.1	50.6	91.2	36.4	3.0	25.6
ND 9866	ND 7014/Bowman sib	119.2	52.6	94.9	39.9	2.0	20.0
CI 10083	Ingrid	108.9	51.7	86.9	35.7	3.8	43.2
PI531228	Bearpaw	115.3	49.9	91.1	37.2	4.8	54.9
CI 15514	Hector	111.6	51.9	87.2	38.3	4.2	59.2
PI491534	Gallatin	117.1	52.2	85.9	36.4	1.7	24.2
MT851012	Clark/WA877178	112.5	50.7	88.2	39.3	4.8	64.3
MT140523	Hector/Klages	119.0	51.2	87.3	37.6	3.7	32.7
EXPERIMENTAL MEANS		119.9	51.2	90.1	37.5	2.5	28.9