

2003

THE WESTERN REGIONAL
SPRING BARLEY
AND
WESTERN DRYLAND SPRING
BARLEY NURSERIES



UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
NORTHERN PLAINS AND PACIFIC WEST REGIONS
in cooperation with
State Agricultural Experiment Stations



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AGRICULTURAL RESEARCH SERVICE

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State Agricultural Experiment Stations

WESTERN REGIONAL SPRING BARLEY NURSERY
and the
WESTERN REGIONAL DRYLAND SPRING BARLEY NURSERY

2003

Compiled by C. A. Erickson, Agronomist, USDA-ARS

This report is compiled in electronic format intended for transmittal to the nursery cooperators. The files and their contents are as follows:

2003WRBNREPORT.doc: WORD[®] document explaining the contents of the report with the following sections:

- Cover Page and Contents Page
- Location of Experiments and Personnel
- Western Regional Spring Barley Nursery Narrative
 - Nursery contents and locations
 - General Information
 - Data Analysis
 - Data Highlights
 - Data Tables
- Western Regional Dryland Spring Barley Nursery Narrative
 - Nursery contents and locations
 - General Information
 - Data Analysis
 - Data Highlights
 - Data Tables

2003wrsbndata.xls: Excel[®] files containing data for the 2003 Western Regional Spring Barley Nursery in both English and metric format.

2003wrdsbndata.xls: Excel[®] files containing data for the 2003 Western Regional Dryland Spring Barley Nursery in both English and metric format.

This is a joint progress report of cooperative investigations underway in the State Agricultural Experiment Stations and the Agricultural Research Service of the U.S. Department of Agriculture. This report contains preliminary data which have not been sufficiently confirmed to justify general release; interpretations may be modified with additional experimentation. Confirmed results will be published through established channels. This report is primarily a tool for use by cooperators, their official staffs and those persons having direct and special interest in the development of agricultural research programs.

This report includes data furnished by the State Agricultural Experiment Stations as well as by the Agricultural Research Service and was compiled in the Northern Plains Area and the Pacific West Area, Agricultural Research Service, U.S. Department of Agriculture. The report is not intended for publication and should not be referred to in literature citations nor quoted in publicity or advertising. Use of the data may be granted for certain purposes upon written request to the agency or agencies involved.

National Small Grains Germplasm Research Facility, Aberdeen, Idaho, 2004

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WESTERN REGIONAL SPRING BARLEY NURSERY, 2003

This nursery is intended to be grown under irrigation, or in areas of high rainfall. It contains both 2- and 6-rowed feed and malting barley.

2003 nursery sites that were harvested and summarized for yield from 11 locations are:

- | | | |
|---------------------|------------------------|-------------------------------|
| (1) Tulelake, CA | (6) Manhattan, MT | (11) Pullman, WA |
| (2) Aberdeen, ID | (7) Fargo, ND | (12) Powell, WY |
| (3) Hazelton, ID | (8) Minot, ND | (13) Saskatoon, Sask., Canada |
| (4) Idaho Falls, ID | (9) Williston, ND | |
| (5) Fairfield, MT | (10) Klamath Falls, OR | |

General Information

The entry list for the 2003 Western Regional Spring Barley Nursery is shown in Table 1. In 2003, commercial cultivars were again entered into the nursery, including those from: Busch Agricultural Resources (5 lines); Plant Breeders 1 (1 line); and Western Plant Breeders (3 lines).

There were 33 entries in this nursery in 2003. Entries in the 2002 test that were dropped in 2003 were: BCD 47, ND15422, PB1-97-2R-7090, all tested 3 years; BZ594-20, MT970116, CDC Copeland (TR150), CDC Select, WA10147-96, 95SR149C, all tested 2 years; BZ596-117, TR166, TR169, WA8792-96, and 97ID1269B, all tested 1 year. New entries in the test were: 97ID1269A, BZ596-189, YU598-043, YU599-006, MT970229, Samish 23, UT97B1480-1534, WA7494-98, WA8601-97, and WA10497-97.

Data Analysis

Computer software, in Excel[®] format, was used to obtain the cultivar means and period of years summary for all characteristics. With this software, we were also able to calculate the coefficient of variation (C.V.) and the Least Significant Difference (LSD) at the .05 level for grain yield. These two statistics are included to provide some indication of the variability in the individual test locations and an indication of cultivar rank at each location and the overall average.

Data Highlights

Seasonal measurements for the check cultivars Baronesse, Morex, Stander, and Steptoe (Table 2), for 1999 through 2003, show that the check mean yield value for the 2003 season was above average and slightly lower than the best two years. Test weight was higher than average, plant height was 0.2 cm higher than average, heading date was later than average, and percent plump barley was 2.5% lower than average.

In 2003 the highest yielding line over all locations was UT95B1216-4087, a six-rowed feed barley, at 6.48 Mg ha⁻¹ (Table 3). The fourth and fifth highest yielding lines were the potential malting barley lines 98Ab12905 and 98Ab12362, both yielding 6.28 Mg ha⁻¹. The top 13 lines were statistically equal at a 95% confidence level, of which six were malting or potential malting barley cultivars.

In the period of years summary for 2001 through 2003 (Table 4), WA10197-97 was the highest yielding, PB1-95-2R-522 had the highest test weight, and 6B98-9940 and 94Ab13449 had the highest percent plump.

Tables 5 through 13 present the 2003 WRSBN data for individual locations for grain yield, test weight, height, heading date, plumps, thins, lodging, protein, and disease ratings, respectively.



Table 1: 2003 Western Regional Spring Barley Nursery, Entry List

Seed Source	Entry Number	Entry	Type	Parentage	Grade
	1	Steptoe	2 row	CI 15229	feed
	2	Baronesse	2 row	PI 568246	feed
	3	Morex	6 row	CI 15773	malting
	4	Stander	6 row	PI 564743	malting
	5	Harrington	2 row		malting
BARI	6	2B97-4004	2 row	2B91-4947/TR129	malting
BARI	7	2B97-4299	2 row	2B91-4947/2B91-4450	malting
BARI	8	2B98-5312	2 row	B1215/TR226/Baronesse	malting
BARI	9	6B98-9339	6 row	B1614/B1614/M75	malting
BARI	10	6B98-9940	6 row	6B92-7166/Stander	malting
USDA-ARS	11	94Ab13449	6 row	Russell/M64	malting
USDA-ARS	12	98Ab12362	6 row	90Ab852/Excel	malting
USDA-ARS	13	98Ab12905	6 row	88Y315/82Ab519//M64	malting
USDA-ARS	14	95SR316A	2 row	Bancroft/Crystal	malting
USDA-ARS	15 *	97ID1269A	6 row	Stander*4/PI366450	malting
USDA-ARS	16	98ID242	2 row	Harr/Orca//D172(Shyri/Galena)	malting
WPB	17 *	BZ596-189	2 row	Baronesse//Gallatin/Baronesse	feed
WPB	18 *	YU598-043	2 row	Baronesse/Gus	feed
WPB	19 *	YU599-006	6 row	Waxy, hulless Stander/Nebula	feed
MSU	20	MT960099	2 row	Manley/Baronesse	feed/malting
MSU	21	MT960228	2 row	Stark/ Baronesse	feed
MSU	22 *	MT970229	2 row	MT890021/Stark	feed/malting
PB1	23	PB1-95-2R-522	2 row	PB1-88-2R-801/VD403582	feed
Lewis	24 *	Samish 23	2 row	85Ab2323/Aclaim	feed/malting
USU	25	UT95B1216-4087	6 row	UT84B427-250/OR3	feed
USU	26 *	UT97B1480-1534	6 row	UT89B747-1263/UT90B774-2467	feed
USU	27	UT97B1480-1632	6 row	UT89B747-1263/UT90B774-2467	feed
WSU	28	Bob (WA8682-96)	2 row	A308/Baronesse	malting
WSU	29 *	WA10197-97	2 row	WA9035-84/Baronesse	feed/malting
WSU	30 *	WA7194-98	2 row	WA11556-91/Chinook	feed/malting
WSU	31 *	WA8601-97	2 row	WA7758-89/Baronesse	feed/malting
WSU	32	98-NZ 015	2 row	Caminant{ant28-484(Grit)/Blenheim}/Baronesse	feed
WSU	33	98-NZ 223	2 row	Mut. Pant-667 in Harrington/Baronesse	feed

*New entries

Table 2: Check Seasonal Measurements (1999-2002) of the Western Regional Spring Barley Nursery

Average of adjusted means of checks Baronesse, Morex, Stander, and Steptoe

Yield		
Year	Station Years	Mg ha ⁻¹
1999	12	6.2
2000	12	6.1
2003	13	6.0
2001	13	5.3
2002	11	4.5
Adj. Mean	61	5.6

Test Weight		
Year	Station Years	kg m ⁻³
2000	12	668.6
2003	13	665.2
2001	13	653.8
2002	11	651.9
1999	12	647.5
Adj. Mean	61	657.6

Plant Height		
Year	Station Years	cm
1999	12	85.2
2000	12	82.3
2003	12	79.0
2001	14	76.6
2002	11	75.8
Adj. Mean	61	78.8

Heading Date		
Year	Station Years	Julian
1999	12	182.4
2003	9	180.2
2002	10	176.6
2001	9	175.8
2000	12	173.9
Adj. Mean	52	177.8

Percent Plump Barley		
Year	Station Years	%
2002	10	93.5
1999	12	90.1
2000	10	89.8
2001	10	88.1
2003	12	87.1
Adj. Mean	54	89.6

Table 3: 2003 Western Regional Spring Barley Nursery, Means Summary

Entry Number	Variety or Selection	Grain Yield		Test Weight	Plant Height	Heading Date	Plump Barley*	Thin Barley**	Protein
		Mg ha ⁻¹	Rank	kg m ⁻³	cm	Julian	%	%	%
	Number of Locations	13		13	12	9	13	12	3
1	Steptoe	6.18	9	631.03	75.90	175.97	89.33	3.02	10.70
2	Baronesse	6.00	17	672.93	73.15	180.88	87.96	4.30	12.87
3	Morex	5.35	33	649.32	86.78	177.30	83.42	3.86	12.50
4	Stander	6.13	11	661.93	80.19	179.39	92.22	1.82	12.47
5	Harrington	5.72	28	665.76	77.38	181.78	88.95	4.11	12.47
6	2B97-4004	5.87	23	655.17	75.14	181.83	81.63	6.57	12.53
7	2B97-4299	5.96	19	660.18	76.09	183.27	85.20	4.77	12.50
8	2B98-5312	5.93	20	654.77	74.22	182.47	76.45	8.06	12.23
9	6B98-9339	5.74	26	655.41	80.03	180.33	88.72	2.22	12.70
10	6B98-9940	6.04	15	663.19	82.70	177.81	91.82	2.08	12.30
11	94Ab13449	6.25	7	661.28	75.59	176.74	91.99	2.03	10.33
12	98Ab12362	6.28	5	661.19	78.48	178.26	90.51	3.36	12.00
13	98Ab12905	6.28	4	650.49	77.38	176.08	91.45	2.44	10.73
14	95SR316A	5.60	31	673.70	78.09	182.62	83.48	5.48	12.77
15	97ID1269A	5.87	24	657.55	79.90	178.79	91.11	2.04	12.20
16	98ID242	5.72	27	680.95	79.08	181.76	90.63	2.81	12.57
17	BZ596-189	5.97	18	678.08	76.41	180.94	87.66	5.17	12.87
18	YU598-043	5.67	29	658.38	68.47	180.36	91.81	2.66	12.30
19	YU599-006	5.57	32	616.76	58.89	181.87	90.59	1.92	13.40
20	MT960099	6.25	6	676.48	68.01	182.42	78.38	8.16	12.30
21	MT960228	6.21	8	680.23	74.33	181.31	88.77	4.65	12.10
22	MT970229	5.80	25	691.90	74.32	180.50	92.56	2.53	12.43
23	PB1-95-2R-522	6.37	2	693.76	74.40	181.02	84.82	5.63	11.63
24	Samish 23	5.91	22	671.71	69.95	183.09	80.60	6.21	13.13
25	UT95B1216-4087	6.48	1	657.06	74.43	179.16	84.51	5.02	12.10
26	UT97B1480-1534	6.07	12	670.29	75.72	176.11	86.70	3.70	11.77
27	UT97B1480-1632	6.28	3	669.80	76.10	176.11	87.99	3.48	11.87
28	Bob (WA8682-96)	5.92	21	678.94	75.83	180.67	88.31	4.68	12.47
29	WA10197-97	6.15	10	682.49	71.79	180.86	87.22	4.43	12.93
30	WA7194-98	6.05	14	677.98	74.49	179.76	86.66	4.66	12.63
31	WA8601-97	6.00	16	663.88	74.98	182.26	88.29	3.89	12.60
32	98-NZ 015	5.64	30	662.43	68.48	183.34	85.59	5.33	12.77
33	98-NZ 223	6.07	13	666.26	73.30	182.14	77.87	9.34	12.13
	Entry Mean	5.98		665.19	75.15	180.22	87.07	4.26	12.28
	Check Mean	5.91		653.80	79.00	178.38	88.23	3.25	12.13
	LSD .05	0.39		10.28	3.66	1.90	4.73	2.15	1.02
	C.V.	9.76		2.33	7.19	1.32	8.18	72.97	6.00

* Percent over sieve, 2-rowed >2.4mm, 6-rowed >2.2mm

** Percent through 2.2mm screen

Table 4: Summary Across Locations and Years, Western Regional Spring Barley Nursery, 2001-2003.

Entry Number	Variety or Selection	Station Years	Grain Yield		Test Weight	Plant Height	Heading Date	Plump Barley	Thin Barley	Protein
			Mg ha ⁻¹	RANK	kg m ⁻³	cm	Julian	%	%	%
1	Step toe	37	5.58	16	626.5	75.5	174.8	91.0	3.3	11.3
2	Baronesse	37	5.45	20	673.3	70.7	180.0	88.8	3.8	13.6
3	Morex	37	4.75	33	648.6	84.5	175.7	86.8	4.1	13.3
4	Stander	37	5.32	25	664.5	77.8	177.2	92.7	2.4	12.7
5	Harrington	37	5.04	30	666.3	74.7	180.3	86.2	4.9	13.4
6	2B97-4004	24	5.21	27	656.4	75.0	181.4	81.8	5.8	12.9
7	2B97-4299	37	5.50	19	663.9	75.0	181.5	86.3	4.0	12.6
8	2B98-5312	24	5.36	21	657.0	73.5	181.8	76.0	6.8	12.6
9	6B98-9339	24	5.14	29	657.3	76.7	179.2	91.5	2.7	13.0
10	6B98-9940	24	5.34	22	659.4	79.5	176.5	93.8	2.3	12.5
11	94Ab13449	24	5.33	24	662.0	73.3	176.2	93.8	2.3	10.6
12	98Ab12362	24	5.26	26	659.3	76.4	177.4	93.2	2.5	12.3
13	98Ab12905	24	5.58	15	650.8	76.0	175.3	93.7	2.3	10.8
14	95SR316A	24	5.04	31	673.0	77.3	182.6	81.6	5.5	13.1
15	97ID1269A	13	5.87	8	657.6	79.9	178.8	91.1	1.9	12.2
16	98ID242	24	5.18	28	679.6	76.5	181.2	90.3	2.3	12.9
17	BZ596-189	13	5.97	5	678.1	76.4	180.9	87.7	4.8	12.9
18	YU598-043	13	5.67	11	658.4	68.5	180.4	91.8	2.5	12.3
19	YU599-006	13	5.57	17	616.8	58.9	181.9	90.6	1.8	13.4
20	MT960099	37	5.63	12	677.5	67.4	181.4	79.6	6.8	12.8
21	MT960228	37	5.62	13	681.7	73.7	179.8	88.7	3.9	12.3
22	MT970229	13	5.80	9	691.9	74.3	180.5	92.6	2.3	12.4
23	PB1-95-2R-522	24	5.79	10	693.3	73.4	179.9	85.4	4.5	12.3
24	Samish 23	13	5.91	7	671.7	70.0	183.1	80.6	5.7	13.1
25	UT95B1216-4087	37	5.91	6	656.5	74.8	177.1	88.0	4.4	12.8
26	UT97B1480-1534	13	6.07	2	670.3	75.7	176.1	86.7	3.4	11.8
27	UT97B1480-1632	37	5.59	14	672.3	76.2	174.0	90.4	3.3	12.3
28	Bob (WA8682-96)	37	5.33	23	682.4	74.7	179.1	87.8	4.4	13.3
29	WA10197-97	13	6.15	1	682.5	71.8	180.9	87.2	4.1	12.9
30	WA7194-98	13	6.05	3	678.0	74.5	179.8	86.7	4.3	12.6
31	WA8601-97	13	6.00	4	663.9	75.0	182.3	88.3	3.6	12.6
32	98-NZ 015	24	4.93	32	660.3	67.2	182.5	86.1	4.4	13.1
33	98-NZ 223	24	5.56	18	668.6	70.3	181.1	77.5	7.8	12.5
	AVERAGE		5.463		665.15	74.48	179.05	87.64	4.00	12.57
	BASE AVERAGE		5.275		653.24	77.13	176.90	89.85	3.38	12.70

Base Average = the average of the check varieties Step toe, Baronesse, Morex, and Stander

Table 5: 2003 Western Regional Spring Barley Nursery, Grain Yield (Mg ha⁻¹)

Entry Number	Selection or Variety	Tulelake CA	Aberdeen ID	Hazleton ID	Idaho Falls ID	Fairfield MT	Manhattan MT	Fargo ND	Minot ND	Williston ND	Klamath Falls OR	Pullman WA	Powell WY	Saskatoon SK	Regional Average		
		1	2	3	4	5	6	7	8	9	10	11	12	13	Ave.	Rank	Rank Ave
1	Steptoe	8.7	8.8	9.5	8.2	8.9	5.3	4.9	3.6	4.0	2.7	4.2	8.1	3.4	6.2	9	15.3
2	Baronesse	6.9	9.2	7.8	7.3	8.2	5.3	4.8	4.0	4.2	3.1	5.6	7.7	3.8	6.0	17	15.9
3	Morex	7.0	6.5	8.6	6.4	7.9	5.1	3.9	3.6	3.9	2.7	4.3	5.7	3.9	5.4	33	26.1
4	Stander	8.7	8.0	9.0	9.6	8.7	5.4	4.7	3.6	4.0	2.1	4.3	7.8	3.8	6.1	11	16.4
5	Harrington	6.1	8.3	7.8	7.4	9.0	4.8	4.8	3.4	4.0	2.7	4.9	7.2	4.0	5.7	28	21.2
6	2B97-4004	7.0	8.1	8.6	8.1	9.0	5.0	4.9	3.7	3.8	2.3	4.8	7.1	3.8	5.9	23	19.9
7	2B97-4299	6.9	7.9	8.7	7.9	8.9	5.5	4.8	4.0	4.3	2.2	4.9	7.6	3.9	6.0	19	16.4
8	2B98-5312	7.7	8.8	8.3	7.1	9.6	4.3	4.5	4.1	4.3	2.6	4.2	7.5	4.0	5.9	20	18.2
9	6B98-9339	7.4	7.1	8.4	8.6	8.2	5.8	5.4	3.4	3.8	1.9	4.0	6.6	3.8	5.7	26	21.8
10	6B98-9940	7.9	7.5	9.0	8.9	9.2	5.3	4.7	3.7	4.0	1.8	4.5	7.8	4.1	6.0	15	15.3
11	94Ab13449	8.8	8.0	8.9	10.5	10.1	5.7	4.0	3.3	4.2	2.3	4.4	7.3	3.7	6.2	7	16.5
12	98Ab12362	8.4	8.7	9.3	9.8	9.3	4.9	4.1	3.8	4.2	3.5	4.4	7.1	4.0	6.3	5	14.2
13	98Ab12905	8.2	8.5	10.1	8.3	9.8	5.4	4.5	3.5	4.1	2.7	4.5	7.8	4.2	6.3	4	12.7
14	95SR316A	6.2	8.0	8.6	5.8	7.8	5.3	4.5	4.1	4.6	2.9	4.6	6.9	3.3	5.6	31	20.3
15	97ID1269A	8.3	7.4	9.3	8.6	8.1	5.0	5.0	3.1	4.2	2.6	4.2	6.7	3.9	5.9	24	19.8
16	98ID242	6.1	7.7	9.4	7.7	8.6	4.8	4.0	3.1	4.0	2.0	5.2	7.6	4.0	5.7	27	21.5
17	BZ596-189	6.3	9.1	8.8	7.2	8.3	4.7	5.2	4.9	4.0	2.8	5.0	7.1	4.1	6.0	18	16.0
18	YU598-043	8.7	7.4	7.6	8.2	7.3	5.3	4.4	3.6	4.0	1.9	4.5	6.8	3.9	5.7	29	22.5
19	YU599-006	7.9	7.8	8.6	8.7	7.4	4.9	4.1	3.6	2.9	2.8	3.2	6.2	4.1	5.6	32	22.5
20	MT960099	7.5	8.6	9.1	7.8	10.1	5.5	5.2	4.2	4.5	2.7	5.1	7.5	3.5	6.3	6	11.8
21	MT960228	7.3	8.1	9.8	6.9	9.2	5.3	5.2	4.6	4.2	3.4	5.1	7.9	3.8	6.2	8	11.9
22	MT970229	7.2	8.2	7.9	8.4	8.1	5.2	4.5	3.8	4.6	1.6	5.2	6.7	3.9	5.8	25	19.3
23	PB1-95-2R-522	7.1	8.8	8.6	8.7	9.9	5.3	5.4	5.0	4.5	2.2	5.3	7.7	4.2	6.4	2	9.5
24	Samish 23	7.1	8.0	7.5	9.2	8.9	5.4	4.6	4.4	4.0	1.4	4.6	7.5	4.0	5.9	22	17.5
25	UT95B1216-4087	7.7	9.7	10.3	8.9	9.1	5.5	4.8	4.0	4.8	3.2	4.6	7.9	3.6	6.5	1	8.8
26	UT97B1480-1534	7.9	8.3	9.9	9.0	8.5	5.4	4.5	3.6	4.2	2.6	4.1	6.8	4.1	6.1	12	16.6
27	UT97B1480-1632	9.0	8.6	9.5	9.1	8.5	5.5	4.6	3.7	4.4	3.0	4.0	7.8	3.9	6.3	3	12.6
28	Bob (WA8682-96)	6.6	8.9	8.8	7.0	8.1	4.7	4.8	4.0	4.5	2.9	5.0	7.8	3.8	5.9	21	17.5
29	WA10497-97	7.1	8.9	8.2	7.6	9.8	4.9	4.7	4.4	4.3	3.0	5.5	7.8	3.8	6.2	10	13.8
30	WA7194-98	6.9	8.3	8.5	7.2	8.8	5.2	4.4	3.8	4.9	4.2	4.4	8.0	4.0	6.0	14	15.9
31	WA8601-97	7.1	8.6	8.4	7.5	9.0	5.0	4.7	4.3	4.4	2.1	5.3	8.0	3.7	6.0	16	16.2
32	98-NZ 015	7.1	7.7	8.1	8.0	9.1	5.1	4.1	2.8	3.5	1.2	5.2	7.0	4.4	5.6	30	21.8
33	98-NZ 223	5.9	8.9	8.2	7.8	9.3	5.1	4.5	3.7	4.4	4.2	5.0	7.9	4.0	6.1	13	14.8
	Average	7.42	8.25	8.78	8.11	8.81	5.18	4.64	3.84	4.17	2.58	4.67	7.37	3.90	5.98		
	LSD .05	1.0	0.8	0.7	2.0	0.7	0.7	0.5	0.6	0.5		0.4	1.1	0.5	0.39		
	C.V.	8.0	6.9	4.8	15.3	4.9	8.1	8.0	11.6	6.6		6.0	9.0	9.3	9.8		

Table 6: 2003 Western Regional Spring Barley Nursery, Test Weight (kg m⁻³)

Entry Number	Selection or Variety	Tulelake CA	Aberdeen ID	Hazleton ID	Idaho Falls ID	Fairfield MT	Manhattan MT	Fargo ND	Minot ND	Williston ND	Klamath Falls OR	Pullman WA	Powell WY	Saskatoon SK	Average
		1	2	3	4	5	6	7	8	9	10	11	12	13	
1	Steptoe	625.5	635.5	684.7	711.3	699.7	598.5	617.8	617.8	558.6	585.6	600.2	635.8	632.7	631.0
2	Baronesse	661.5	668.0	737.9	759.3	782.1	641.6	669.2	656.4	611.3	579.2	651.2	662.8	667.7	672.9
3	Morex	647.4	634.3	719.4	760.2	759.3	636.4	604.9	617.8	583.0	592.0	640.9	613.9	631.6	649.3
4	Stander	661.5	661.9	727.2	766.6	743.0	666.7	630.6	630.6	588.2	579.2	644.8	628.1	676.7	661.9
5	Harrington	669.2	675.0	672.7	727.6	756.8	664.1	656.4	643.5	610.0	592.0	656.4	670.5	660.6	665.8
6	2B97-4004	651.2	660.1	695.0	745.6	758.0	663.4	643.5	630.6	606.2	592.0	628.5	617.8	625.3	655.2
7	2B97-4299	665.4	666.4	697.6	723.7	762.8	658.9	643.5	643.5	624.2	572.7	615.6	669.2	638.8	660.2
8	2B98-5312	662.8	657.4	679.5	724.2	750.3	644.8	630.6	643.5	613.9	579.2	601.5	679.5	644.9	654.8
9	6B98-9339	647.4	633.0	704.4	761.0	756.8	665.4	604.9	630.6	601.0	579.2	643.9	633.2	659.6	655.4
10	6B98-9940	644.8	635.5	714.7	781.2	751.2	671.8	617.8	630.6	624.2	592.0	632.3	643.5	681.7	663.2
11	94Ab13449	660.2	653.7	709.1	760.6	702.7	664.1	604.9	643.5	599.7	585.6	664.1	652.5	695.7	661.3
12	98Ab12362	669.2	645.9	727.2	752.5	728.9	628.7	643.5	630.6	619.0	608.1	637.1	631.9	672.8	661.2
13	98Ab12905	639.6	656.0	690.3	725.9	701.8	646.7	592.0	643.5	622.9	579.2	661.5	611.3	685.5	650.5
14	95SR316A	669.2	679.4	723.7	731.4	770.9	677.0	643.5	643.5	638.4	611.3	646.9	669.2	653.5	673.7
15	97ID1269A	662.8	649.1	728.0	750.3	730.2	673.1	630.6	630.6	579.2	579.2	630.6	633.2	671.2	657.5
16	98ID242	658.9	677.3	733.2	771.3	778.2	671.8	643.5	669.2	634.5	617.8	675.3	657.7	663.7	681.0
17	BZ596-189	665.4	675.9	715.6	748.6	787.2	657.7	656.4	656.4	640.9	611.3	659.4	666.7	673.6	678.1
18	YU598-043	679.5	646.4	669.7	744.7	731.0	652.5	630.6	656.4	626.8	566.3	637.5	643.5	674.0	658.4
19	YU599-006	621.6	606.3	667.1	698.0	699.7	599.7	604.9	604.9	589.4	514.8	598.0	580.4	633.0	616.8
20	MT960099	666.7	664.7	692.8	766.2	780.8	680.2	656.4	656.4	642.2	592.0	649.9	668.0	678.0	676.5
21	MT960228	664.1	671.6	716.9	763.6	785.1	668.0	669.2	656.4	625.5	604.9	654.2	669.2	694.3	680.2
22	MT970229	679.5	682.8	735.3	769.2	789.4	693.7	669.2	669.2	649.9	592.0	672.2	700.1	691.9	691.9
23	PB1-95-2R-522	674.4	694.1	703.6	797.9	791.5	691.1	682.1	669.2	658.9	630.6	689.4	660.2	675.7	693.8
24	Samish 23	666.7	667.5	671.8	763.6	757.6	665.4	643.5	656.4	633.2	598.5	646.1	671.8	690.2	671.7
25	UT95B1216-4087	644.8	647.5	713.9	770.5	745.6	638.4	630.6	630.6	607.5	579.2	634.1	643.5	655.8	657.1
26	UT97B1480-1534	674.4	664.7	731.0	769.6	749.5	669.2	630.6	630.6	590.7	598.5	674.0	647.4	683.5	670.3
27	UT97B1480-1632	675.7	649.8	733.6	749.0	751.2	658.3	617.8	630.6	617.8	624.2	655.1	655.1	689.4	669.8
28	Bob (WA8682-96)	674.4	682.0	719.0	754.2	795.4	644.1	656.4	643.5	629.3	604.9	652.5	673.1	697.4	678.9
29	WA10497-97	677.0	678.4	727.6	763.6	780.8	648.0	656.4	656.4	626.8	611.3	668.4	704.0	673.9	682.5
30	WA7194-98	678.2	688.6	720.3	771.8	763.6	665.4	630.6	643.5	613.9	637.1	660.7	678.2	661.8	678.0
31	WA8601-97	670.5	663.2	699.3	725.4	782.9	648.0	643.5	656.4	642.2	553.4	629.3	678.2	638.0	663.9
32	98-NZ 015	649.9	655.7	710.4	742.6	758.9	642.9	656.4	643.5	633.2	579.2	637.1	644.8	657.0	662.4
33	98-NZ 223	648.6	666.4	694.1	747.7	773.1	646.1	669.2	643.5	612.6	604.9	628.5	674.4	652.3	666.3
	Entry Mean	660.86	660.44	708.07	751.49	756.24	655.80	638.82	642.72	616.82	591.73	644.76	653.60	666.11	665.19
	LSD .05														10.28
	C.V.														2.33

Table 7: 2003 Western Regional Spring Barley Nursery, Plant Height (cm)

Entry Number	Variety or Selection	Tulelake CA	Aberdeen ID	Hazelton ID	Idaho Falls ID	Manhattan MT	Fargo ND	Minot ND	Williston ND	Klamath Falls OR	Pullman WA	Powell WY	Saskatoon SK	Average
		1	2	3	4	6	7	8	9	10	11	12	13	
1	Steptoe	88.9	87.6	88.9	60.0	82.6	90.7	55.0	60.0	97.5	64.3	78.3	57.0	75.9
2	Baronesse	94.0	77.5	86.4	60.3	77.5	88.7	55.0	60.3	90.0	66.9	64.3	57.0	73.1
3	Morex	104.1	113.0	101.6	73.3	88.9	92.3	63.3	73.3	85.0	89.7	87.7	69.0	86.8
4	Stander	101.6	101.6	96.5	65.0	85.1	87.0	61.7	65.0	80.0	74.5	82.3	62.0	80.2
5	Harrington	94.0	85.1	109.2	60.0	87.6	94.7	58.3	60.0	75.0	68.6	74.0	62.0	77.4
6	2B97-4004	83.8	83.8	83.8	60.7	85.1	96.3	60.0	60.7	82.5	70.3	71.7	63.0	75.1
7	2B97-4299	94.0	80.0	88.9	60.0	86.4	93.3	61.7	60.0	90.0	63.5	74.3	61.0	76.1
8	2B98-5312	91.4	82.6	99.1	60.7	81.3	91.3	53.3	60.7	100.0	66.0	49.3	55.0	74.2
9	6B98-9339	104.1	96.5	96.5	56.0	86.4	85.7	61.7	56.0	110.0	71.1	76.3	60.0	80.0
10	6B98-9940	104.1	99.1	96.5	63.3	88.9	84.7	60.0	63.3	105.0	78.7	84.7	64.0	82.7
11	94Ab13449	94.0	86.4	99.1	57.0	87.6	77.7	53.3	57.0	100.0	67.7	73.3	54.0	75.6
12	98Ab12362	99.1	95.3	94.0	58.0	85.1	83.0	60.0	58.0	90.0	75.4	82.0	62.0	78.5
13	98Ab12905	94.0	96.5	91.4	59.0	90.2	80.0	55.0	59.0	85.0	78.7	78.7	61.0	77.4
14	95SR316A	99.1	87.6	88.9	63.3	83.8	95.0	65.0	63.3	85.0	71.1	77.0	58.0	78.1
15	97ID1269A	96.5	96.5	99.1	68.3	95.3	86.7	51.7	68.3	82.5	77.9	78.0	58.0	79.9
16	98ID242	96.5	86.4	101.6	64.7	90.2	92.3	53.3	64.7	85.0	77.0	78.3	59.0	79.1
17	BZ596-189	88.9	82.6	106.7	63.7	81.3	89.7	60.0	63.7	82.5	66.9	72.0	59.0	76.4
18	YU598-043	88.9	69.9	94.0	55.0	74.9	78.0	53.3	55.0	80.0	61.0	64.7	47.0	68.5
19	YU599-006	76.2	63.5	91.4	38.3	64.8	63.0	51.7	38.3	77.5	45.7	51.3	45.0	58.9
20	MT960099	81.3	71.1	88.9	52.3	77.5	83.7	56.7	52.3	70.0	62.7	68.7	51.0	68.0
21	MT960228	94.0	82.6	91.4	66.3	82.6	91.0	56.7	66.3	67.5	64.3	71.3	58.0	74.3
22	MT970229	96.5	90.2	73.7	62.3	80.0	98.0	53.3	62.3	70.0	70.3	73.3	62.0	74.3
23	PB1-95-2R-522	91.4	88.9	86.4	59.0	77.5	91.0	63.3	59.0	72.5	66.9	76.0	61.0	74.4
24	Samish 23	91.4	74.9	86.4	57.7	73.7	81.0	58.3	57.7	77.5	60.1	65.7	55.0	70.0
25	UT95B1216-4087	94.0	90.2	88.9	59.7	81.3	80.3	56.7	59.7	80.0	67.7	77.7	57.0	74.4
26	UT97B1480-1534	88.9	91.4	91.4	63.7	87.6	84.7	55.0	63.7	77.5	73.7	75.0	56.0	75.7
27	UT97B1480-1632	96.5	92.7	88.9	60.7	82.6	86.0	55.7	60.7	77.5	72.0	84.0	56.0	76.1
28	Bob (WA8682-96)	91.4	83.8	94.0	59.3	82.6	94.0	60.0	59.3	77.5	72.8	77.3	58.0	75.8
29	WA10497-97	88.9	82.6	91.4	55.0	74.9	85.3	55.0	55.0	75.0	66.0	78.3	54.0	71.8
30	WA7194-98	94.0	86.4	94.0	62.3	80.0	89.3	53.3	62.3	75.0	62.7	77.7	57.0	74.5
31	WA8601-97	96.5	83.8	88.9	60.7	85.1	87.3	60.7	60.7	75.0	67.7	77.3	56.0	75.0
32	98-NZ 015	86.4	67.3	78.7	56.0	77.5	84.7	53.3	56.0	75.0	65.2	67.7	54.0	68.5
33	98-NZ 223	94.0		88.9	54.0	83.8	89.3	55.0	54.0	77.5	64.3	78.3	56.0	73.3
	Average	93.29	86.16	92.29	59.87	82.70	87.14	57.16	59.87	82.73	68.84	74.14	57.70	75.15
	LSD .05													3.66
	C.V.													7.19

Table 8: 2003 Western Regional Spring Barley Nursery, Heading Date (Julian)

Entry Number	Selection or Variety	Tulelake CA	Fairfield MT	Manhattan MT	Fargo ND	Minot ND	Williston ND	Klamath Falls OR	Pullman WA	Powell WY	Saskatoon SK	Average
		1	5	6	7	8	9	10	11	12	13	
1	Step toe	172	175	181	173	174	181	169	172	187	181	176
2	Baronesse	177	180	184	177	182	184	172	184	189	184	181
3	Morex	172	177	182	173	175	186	168	173	190	182	177
4	Stander	171	178	185	175	175	189	168	185	189	185	179
5	Harrington	177	178	184	177	181	191	173	185	190	184	182
6	2B97-4004	175	180	185	178	180	189	173	186	191	185	182
7	2B97-4299	178	181	185	179	183	186	178	186	194	185	183
8	2B98-5312	176	182	185	179	183	184	177	186	191	185	182
9	6B98-9339	175	181	185	176	179	181	171	185	190	185	180
10	6B98-9940	172	182	182	174	176	181	169	176	188	182	178
11	94Ab13449	170	180	182	175	174	183	167	172	188	182	177
12	98Ab12362	171	180	185	176	175	183	168	177	189	185	178
13	98Ab12905	169	176	182	175	174	184	164	173	188	182	176
14	95SR316A	178	175	185	179	182	186	179	186	193	185	183
15	97ID1269A	172	178	184	175	177	187	170	177	190	184	179
16	98ID242	177	175	184	178	182	189	175	185	190	184	182
17	BZ596-189	176	180	183	176	180	189	170	184	191	183	181
18	YU598-043	176	178	183	175	179	189	171	185	188	183	180
19	YU599-006	178	180	186	174	181	189	174	185	190	186	182
20	MT960099	177	181	185	178	183	189	175	185	189	185	182
21	MT960228	175	179	185	177	182	189	170	186	189	185	181
22	MT970229	174	179	183	174	178	189	173	184	191	183	181
23	PB1-95-2R-522	176	180	184	177	181	189	170	184	189	184	181
24	Samish 23	180	180	185	178	183	189	177	185	191	185	183
25	UT95B1216-4087	172	181	182	176	176	191	169	177	189	182	179
26	UT97B1480-1534	169	179	180	173	172	191	164	170	187	180	176
27	UT97B1480-1632	169	181	180	172	171	191	164	171	186	180	176
28	Bob (WA8682-96)	175	177	183	177	178	191	173	183	189	183	181
29	WA10497-97	176	174	183	176	179	191	173	184	192	183	181
30	WA7194-98	173	173	182	175	178	191	173	183	190	182	180
31	WA8601-97	177	180	185	178	180	190	174	184	192	185	182
32	98-NZ 015	180	180	187	179	181	190	177	185	191	187	183
33	98-NZ 223	177	179	184	179	182	189	173	185	191	184	182
	Average	174.6	178.8	183.6	176.1	178.7	187.4	171.5	181.5	189.8	183.6	180.2
	LSD .05											1.90
	C.V.											1.32

Table 9: 2003 Western Regional Spring Barley Nursery, Percent Plump Barley*

Entry Number	Variety or Selection	Tulelake CA	Aberdeen ID	Hazleton ID	Idaho Falls ID	Fairfield MT	Manhattan MT	Fargo ND	Minot ND	Williston ND	Klamath Falls OR	Pullman WA	Powell WY	Saskatoon SK	Average
		1	2	3	4	5	6	7	8	9	10	11	12	13	
1	Steptoe	96.5	96.0	93.5	97.6	99.2	78.0	82.0	88.0	72.8	94.4	83.0	99.2	81.1	89.3
2	Baronesse	83.8	95.1	92.7	93.9	98.8	72.2	90.0	92.0	89.0	87.3	78.0	97.9	72.7	88.0
3	Morex	85.8	78.1	97.8	98.9	99.2	78.6	73.0	74.0	66.8	92.5	83.0	98.1	58.6	83.4
4	Stander	95.7	85.7	98.2	98.9	99.4	87.7	86.0	88.0	83.5	93.7	93.0	99.1	90.0	92.2
5	Harrington	91.1	94.0	87.9	94.3	98.1	80.5	85.0	92.0	86.5	95.3	89.0	98.2	64.6	89.0
6	2B97-4004	76.2	86.1	82.5	92.7	98.1	78.8	81.0	87.0	83.7	90.5	76.0	93.0	35.6	81.6
7	2B97-4299	89.3	91.1	87.9	94.1	98.9	79.8	82.0	91.0	83.9	91.0	71.0	96.1	51.5	85.2
8	2B98-5312	87.9	83.6	83.3	87.9	98.9	63.8	76.0	84.0	75.9	89.0	30.0	95.1	38.5	76.5
9	6B98-9339	93.7	82.0	97.8	99.2	99.4	80.0	85.0	91.0	88.0	92.4	90.0	98.9	56.0	88.7
10	6B98-9940	94.0	91.8	98.9	99.3	99.3	91.5	86.0	91.0	80.7	89.3	87.0	99.5	85.3	91.8
11	94Ab13449	94.3	92.0	97.4	99.1	99.3	82.5	82.0	88.0	80.0	95.6	95.0	99.1	91.6	92.0
12	98Ab12362	96.0	94.8	98.9	98.5	99.3	59.7	93.0	94.0	69.7	95.7	94.0	98.7	84.3	90.5
13	98Ab12905	96.7	94.1	98.3	98.2	99.3	75.5	79.0	94.0	78.8	95.0	96.0	98.6	85.5	91.5
14	95SR316A	83.2	94.6	89.4	89.2	99.0	78.0	73.0	83.0	77.1	93.3	84.0	97.8	43.7	83.5
15	97ID1269A	97.3	90.3	98.2	97.9	99.3	81.3	90.0	89.0	81.4	94.9	90.0	98.9	76.0	91.1
16	98ID242	87.1	97.2	94.9	96.3	98.7	80.4	87.0	91.0	91.8	95.6	93.0	96.9	68.2	90.6
17	BZ596-189	90.2	95.1	85.3	89.5	98.7	64.5	89.0	92.0	86.8	90.2	89.0	97.8	71.6	87.7
18	YU598-043	93.8	93.7	92.2	96.9	98.7	78.8	86.0	94.0	94.3	92.3	96.0	97.6	79.2	91.8
19	YU599-006	96.4	93.7	98.5	99.1	99.3	64.7	89.0	91.0	84.9	90.2	91.0	99.3	80.6	90.6
20	MT960099	79.1	87.3	76.9	91.2	98.5	68.0	84.0	83.0	69.2	80.3	71.0	95.1	35.5	78.4
21	MT960228	87.7	94.7	91.0	89.8	98.9	71.8	87.0	92.0	80.7	96.0	88.0	96.6	79.9	88.8
22	MT970229	91.9	96.8	92.7	95.1	98.7	89.7	89.0	91.0	95.9	92.6	93.0	98.8	78.2	92.6
23	PB1-95-2R-522	81.3	93.7	80.9	94.7	97.7	77.9	83.0	85.0	83.9	94.6	89.0	96.8	44.1	84.8
24	Samish 23	78.7	89.7	83.1	93.6	98.3	69.5	67.0	86.0	79.5	84.8	73.0	93.1	51.5	80.6
25	UT95B1216-4087	85.0	94.7	98.2	98.3	99.1	65.4	79.0	80.0	56.7	89.6	90.0	98.3	64.2	84.5
26	UT97B1480-1534	93.4	92.5	97.3	98.1	98.9	77.0	69.0	81.0	60.8	93.4	93.0	97.8	74.9	86.7
27	UT97B1480-1632	95.0	94.5	98.6	97.4	98.7	74.9	78.0	78.0	62.6	95.9	88.0	98.1	84.2	88.0
28	Bob (WA8682-96)	90.2	95.9	92.1	92.2	98.8	62.2	88.0	90.0	86.1	94.1	80.0	96.7	81.6	88.3
29	WA10497-97	90.7	96.6	93.7	91.3	98.6	60.8	88.0	89.0	87.1	92.5	93.0	97.9	54.7	87.2
30	WA7194-98	95.8	93.7	93.5	94.9	98.2	73.0	78.0	78.0	76.6	94.3	87.0	96.8	66.7	86.7
31	WA8601-97	89.6	96.4	93.4	92.5	99.3	78.6	88.0	94.0	85.6	88.4	89.0	97.8	55.1	88.3
32	98-NZ 015	79.0	92.1	90.3	89.1	98.5	65.1	87.0	93.0	85.4	87.7	92.0	97.3	56.3	85.6
33	98-NZ 223	65.0	89.9	79.7	91.1	98.0	49.1	89.0	91.0	75.2	91.6	47.0	90.8	55.0	77.9
	Average	88.83	92.05	91.97	94.87	98.82	73.92	83.27	88.03	80.03	91.94	84.27	97.32	66.56	87.07
	LSD .05														4.73
	C.V.														8.18

* Percent over sieve, 2-rowed >2.4mm, 6-rowed >2.2mm

Table 10: 2003 Western Regional Spring Barley Nursery, Percent Thin Barley*

Entry Number	Variety or Selection	Tulelake CA	Hazleton ID	Idaho Falls ID	Fairfield MT	Manhattan MT	Fargo ND	Minot ND	Williston ND	Klamath Falls OR	Pullman WA	Powell WY	Saskatoon SK	Average
		1	3	4	5	6	7	8	9	10	11	12	13	
1	Steptoe	1.4	1.6	2.3	0.6	6.9	2.0	1.0	10.4	1.5	4.0	0.8	3.8	3.02
2	Baronesse	7.8	7.2	5.9	1.0	9.4	2.0	1.0	3.0	4.6	4.0	0.7	5.1	4.30
3	Morex	6.5	2.1	0.9	0.5	5.5	3.0	2.0	13.2	1.7	3.0	1.9	6.0	3.86
4	Stander	1.8	1.6	0.9	0.4	2.5	2.0	1.0	5.9	1.7	1.0	0.9	2.0	1.82
5	Harrington	3.9	12.0	5.6	2.1	6.3	3.0	1.0	3.7	1.4	2.0	0.4	8.0	4.11
6	2B97-4004	12.7	17.3	6.7	1.8	5.8	4.0	2.0	5.2	2.6	6.0	1.6	13.2	6.57
7	2B97-4299	4.6	12.0	5.7	0.9	6.5	3.0	1.0	4.6	2.8	8.0	0.7	7.5	4.77
8	2B98-5312	5.2	16.5	11.8	0.9	10.3	4.0	2.0	6.3	3.2	22.0	0.8	13.7	8.06
9	6B98-9339	2.9	2.1	0.5	0.5	4.3	2.0	1.0	3.2	2.0	1.0	1.1	6.0	2.22
10	6B98-9940	3.0	0.9	0.5	0.5	1.4	2.0	1.0	7.0	3.1	1.0	0.5	4.1	2.08
11	94Ab13449	1.7	2.5	0.8	0.6	4.2	2.0	1.0	7.5	1.4	1.0	0.9	0.9	2.03
12	98Ab12362	1.9	1.1	1.3	0.4	12.2	1.0	1.0	14.8	1.2	1.0	1.3	3.2	3.36
13	98Ab12905	1.3	1.5	1.7	0.5	7.1	2.0	1.0	8.8	1.5	1.0	1.4	1.5	2.44
14	95SR316A	7.5	10.4	10.7	0.9	6.4	5.0	2.0	8.1	2.0	2.0	0.5	10.1	5.48
15	97ID1269A	0.9	1.7	1.8	0.5	4.8	1.0	1.0	6.5	1.5	1.0	1.1	2.7	2.04
16	98ID242	5.6	5.1	3.7	1.1	5.2	2.0	1.0	2.1	1.4	2.0	0.8	3.7	2.81
17	BZ596-189	3.9	14.5	10.2	1.3	12.3	2.0	2.0	4.0	3.2	2.0	0.8	5.9	5.17
18	YU598-043	2.3	7.7	2.9	1.1	5.7	2.0	1.0	1.4	2.6	1.0	0.8	3.5	2.66
19	YU599-006	0.7	1.4	0.7	0.7	7.9	1.0	1.0	3.3	2.6	1.0	0.7	2.1	1.92
20	MT960099	8.5	22.9	8.5	1.3	9.8	4.0	2.0	11.1	6.1	6.0	0.9	16.8	8.16
21	MT960228	7.1	8.9	9.9	1.1	9.5	4.0	1.0	6.6	1.2	2.0	0.9	3.6	4.65
22	MT970229	3.3	7.2	4.7	1.2	2.9	1.0	1.0	1.1	2.7	1.0	0.4	3.7	2.53
23	PB1-95-2R-522	8.1	18.9	4.1	2.1	6.4	3.0	3.0	4.5	1.5	2.0	1.0	13.0	5.63
24	Samish 23	10.1	16.7	6.1	1.5	9.3	6.0	2.0	5.3	4.7	5.0	0.9	6.8	6.21
25	UT95B1216-4087	6.7	1.6	1.4	0.7	9.6	3.0	2.0	21.0	2.7	2.0	1.7	7.8	5.02
26	UT97B1480-1534	2.3	2.5	1.6	0.9	4.8	3.0	2.0	18.5	1.5	1.0	2.2	4.0	3.70
27	UT97B1480-1632	1.6	1.3	2.3	1.1	6.2	2.0	2.0	16.9	1.0	3.0	2.0	2.4	3.48
28	Bob (WA8682-96)	3.5	7.8	7.5	1.1	15.1	3.0	2.0	4.9	1.9	5.0	0.4	3.8	4.68
29	WA10497-97	3.6	6.1	8.3	1.3	14.8	2.0	1.0	3.9	2.6	1.0	0.5	8.0	4.43
30	WA7194-98	1.5	6.3	5.0	1.6	9.7	3.0	4.0	9.5	1.6	2.0	0.7	10.9	4.66
31	WA8601-97	3.7	6.5	7.3	0.7	5.9	2.0	1.0	4.1	3.8	3.0	0.4	8.4	3.89
32	98-NZ 015	9.5	9.6	10.6	1.4	10.1	2.0	1.0	4.1	3.4	1.0	0.7	10.6	5.33
33	98-NZ 223	20.7	20.2	8.5	1.9	19.3	3.0	1.0	8.6	2.6	15.0	1.5	9.9	9.34
	Average	5.02	7.75	4.86	1.04	7.82	2.61	1.48	7.25	2.41	3.42	0.96	6.45	4.26
	LSD .05													2.15
	C.V.													72.97

* Percent through 2.2mm screen

Table 11: 2003 Western Regional Spring Barley Nursery, Lodging

Entry Number	Selection or Variety	Tulelake	Aberdeen	Idaho Falls	Manhattan
		CA	ID	ID	MT
		1 to 8	%	0-10*	%
1	Steptoe	2.7	18	0	0
2	Baronesse	5.3	0	1	65
3	Morex	5.0	30	2	80
4	Stander	2.3	0	0	25
5	Harrington	5.7	14	0	65
6	2B97-4004	4.0	1	3	0
7	2B97-4299	4.0	8	4	40
8	2B98-5312	4.3	20	6	20
9	6B98-9339	2.0	1	8	70
10	6B98-9940	2.0	0	0	35
11	94Ab13449	2.3	0	5	20
12	98Ab12362	3.0	0	0	90
13	98Ab12905	2.7	16	0	45
14	95SR316A	5.3	18	0	30
15	97ID1269A	1.0	0	5	45
16	98ID242	4.3	3	4	45
17	BZ596-189	6.7	0	8	65
18	YU598-043	3.0	0	0	45
19	YU599-006	2.0	0	5	65
20	MT960099	5.3	8	4	15
21	MT960228	5.7	21	0	55
22	MT970229	4.3	0	0	25
23	PB1-95-2R-522	4.0	0	8	0
24	Samish 23	3.7	0	9	75
25	UT95B1216-4087	3.0	4	4	0
26	UT97B1480-1534	4.0	0	0	15
27	UT97B1480-1632	1.7	1	0	0
28	Bob (WA8682-96)	5.3	14	0	75
29	WA10497-97	5.0	5	0	55
30	WA7194-98	5.3	29	6	35
31	WA8601-97	4.7	8	7	80
32	98-NZ 015	4.3	0	8	40
33	98-NZ 223	5.7	9	5	55
Average		3.93	6.82	3.09	41.67

* Scoring system is 0.0 to 10.0 where 0.0 = no lodging, 10.0 = complete lodging, calculated as (((% of plot area lodged)/100)*((% lodged [*lean*])/100))*10; i.e. (90/100)*(90/100)*10=(.9*.9)*10=8.1

Table 12: 2003 Western Regional Spring Barley Nursery, Percent Protein

Entry Number	Selection or Variety	Manhattan MT	Williston ND	Pullman WA	AVERAGE
1	Steptoe	10.9	11.3	9.9	10.7
2	Baronesse	13.4	14.3	10.9	12.9
3	Morex	12.6	13.4	11.5	12.5
4	Stander	12.4	12.9	12.1	12.5
5	Harrington	13.4	14.3	9.7	12.5
6	2B97-4004	12.9	14.3	10.4	12.5
7	2B97-4299	12.9	13.5	11.1	12.5
8	2B98-5312	13.2	14.1	9.4	12.2
9	6B98-9339	12.6	13.3	12.2	12.7
10	6B98-9940	12.8	12.8	11.3	12.3
11	94Ab13449	11.1	10.7	9.2	10.3
12	98Ab12362	13	12.6	10.4	12.0
13	98Ab12905	11.4	10.9	9.9	10.7
14	95SR316A	13.1	14.7	10.5	12.8
15	97ID1269A	12.7	13.2	10.7	12.2
16	98ID242	13	14.0	10.7	12.6
17	BZ596-189	13.8	14.8	10.0	12.9
18	YU598-043	12.9	13.1	10.9	12.3
19	YU599-006	14.1	13.4	12.7	13.4
20	MT960099	12.5	14.0	10.4	12.3
21	MT960228	12.7	13.0	10.6	12.1
22	MT970229	12.3	13.9	11.1	12.4
23	PB1-95-2R-522	11.8	12.9	10.2	11.6
24	Samish 23	13.1	14.5	11.8	13.1
25	UT95B1216-4087	12.5	13.3	10.5	12.1
26	UT97B1480-1534	11.9	12.4	11.0	11.8
27	UT97B1480-1632	11.6	12.4	11.6	11.9
28	Bob (WA8682-96)	14.1	13.3	10.0	12.5
29	WA10497-97	14.7	13.9	10.2	12.9
30	WA7194-98	13.3	14.3	10.3	12.6
31	WA8601-97	12.6	14.7	10.5	12.6
32	98-NZ 015	13.2	14.2	10.9	12.8
33	98-NZ 223	13.2	13.4	9.8	12.1
	Average	12.78	13.39	10.68	12.28
	LSD .05				1.02
	C.V.				6.00

Table 13: 2003 Western Regional Spring Barley Nursery, Disease Ratings

Entry Number	Variety or Selection	Tulelake, CA Stripe Rust 1 to 8	Fargo, ND Leaf Spot 1 to 9	Saskatoon, SK Spot Blotch 1 to 9	Saskatoon, SK Net Blotch 1 to 9
1	Step toe	4.7	3.7	7	2
2	Baronesse	2.3	4.0	6	2
3	Morex	1.7	4.3	3	2
4	Stander	2.0	3.3	5	2
5	Harrington	1.0	4.0	8	7
6	2B97-4004	1.3	3.0	5	4
7	2B97-4299	1.3	3.0	4.5	1
8	2B98-5312	1.0	3.3	4	4
9	6B98-9339	1.0	2.0	5	2
10	6B98-9940	1.0	2.3	6	1
11	94Ab13449	1.7	2.0	4	2
12	98Ab12362	2.0	2.0	5	2
13	98Ab12905	2.0	2.3	7	2
14	95SR316A	1.0	6.3	5	6
15	97ID1269A	3.0	2.7	4	1
16	98ID242	1.0	3.3	7	1
17	BZ596-189	2.0	3.0	5	3
18	YU598-043	1.3	3.0	5	3
19	YU599-006	2.0	4.3	4	1
20	MT960099	2.3	3.3	5	2
21	MT960228	1.7	3.3	4	3
22	MT970229	1.3	6.0	6	4
23	PB1-95-2R-522	2.0	1.7	5	1
24	Samish 23	1.0	4.3	7	7
25	UT95B1216-4087	1.7	2.7	6	2
26	UT97B1480-1534	1.0	5.0	4	3
27	UT97B1480-1632	1.0	3.0	6	2
28	Bob (WA8682-96)	1.0	3.7	5	3
29	WA10497-97	1.0	5.0	6	3
30	WA7194-98	1.0	6.3	4	5
31	WA8601-97	1.0	3.7	6	4
32	98-NZ 015	1.0	3.3	6	3
33	98-NZ 223	1.0	3.3	5	1
	Average	1.55	3.53	5.29	2.76

WESTERN REGIONAL SPRING DRYLAND BARLEY NURSERY, 2003

This nursery is intended to be grown under dryland conditions. It contains both 2- and 6-rowed feed and malting barley. 2003 nursery sites that were harvested and summarized for yield from nine locations are:

- | | | |
|---------------------|----------------|------------------|
| 1) Potlatch, ID | 4) Bozeman, MT | 7) Hettinger, ND |
| 2) Soda Springs, ID | 5) Conrad, MT | 8) Williston, ND |
| 3) Teton, ID | 6) Fargo, ND | 9) Saskatoon, SK |

The Hettinger, ND location was not used to determine averages as one entry was not planted.

General Information

The entry list for the 2003 Western Regional Dryland Spring Barley Nursery is shown in Table 14. In 2003, commercial cultivars were again entered into the nursery, including those from: Busch Agricultural Resources (5 lines), Plant Breeders 1 (1 line), and Merrill Lewis (1 line).

There were 24 entries in this nursery in 2003. Entries in the 2002 test that were dropped in 2003 were: UT4087 and UT5828, both tested 4 years; UT4938, UT4988, and UT4990, all tested 3 years; MT970116, tested 2 years; and 95SR149C and 97ID1269B, both tested 1 year. New entries in the 2002 test were: 98ID251, MT970229, ND19119, PB1-95-2R-522, Samish 23, UT87B1480-1534, and UT97B1480-1632.

Data Analysis

Computer software, in Excel[®] format, was used to obtain the cultivar means and period of years summary for all characteristics. With this software, we were also able to calculate the coefficient of variation (C.V.) and the Least Significant Difference (LSD) at the .05 level for grain yield. These two statistics are included to provide some indication of the variability in the individual test locations and an indication of cultivar rank at each location and the overall average.

Data Highlights

Seasonal measurements for the check cultivars Munsing, Clark, and Steptoe (Table 15), for 1980 through 2003, show that the check mean grain yield for the 2003 season was lower than average, but slightly higher than last year. Test weight and percent plump barley were lower than average; heading date was 5 days earlier than average; and plant height was higher than average.

In 2003 the highest yielding line over locations was MT960229, a two-rowed feed/malting barley, at 3.63 Mg ha⁻¹ (Table 16). Steptoe, the check 6-row feed barley was the second highest yield line. The top nine lines were statistically equal, of which five were potential malting barley cultivars. MT960099 was the second highest yielding potential malting barley, ranked fourth at 3.48 Mg ha⁻¹.

In the period of years summary for 2001 through 2003 (Table 17), MT960228 was the highest yielding, 6B98-9339 had the highest test weight, and 97Ab7973 had the highest percent plump.

Tables 18 through 26 present the 2003 WRDSBN data for individual locations for grain yield, test weight, height, heading date, plumps, thins, lodging, and disease ratings, respectively.



Table 14: 2003 Western Regional Dryland Spring Barley Nursery, Entry List

Seed Source	Entry Number	Entry	Parentage	Type	Grade
CHECK	1	Munsing	CI 6009	2 row	feed
CHECK	2	Steptoe	CI 15229	6 row	feed
CHECK	3	Clark	CI 15857	2 row	feed
CHECK	4	Hector	CI 15514	2 row	feed
BARI	5	2B97-4004	2B91-4947/TR129	2 row	malting
BARI	6	2B97-4299	2B91-4947/2B91-4450	2 row	malting
BARI	7	2B98-5312	B1215/TR226/Baronesse	2 row	malting
BARI	8	6B98-9339	B1614/B1614/M75	6 row	malting
BARI	9	6B98-9940	6B92-7166/Stander	6 row	malting
USDA-ARS	10	95Ab11469	87Ab9561/ND9870	2 row	feed
USDA-ARS	11	95M4623	91Ab3074/85Ab2323	2 row	malting
USDA-ARS	12	97Ab7973	90Ab241/Baronesse	2 row	malting
USDA-ARS	13	98Ab11993	90Ab241/Baronesse	2 row	malting
USDA-ARS	14	95SR316A	Bancroft/Crystal	2 row	malting
USDA-ARS	15	98ID242	Baronesse/3/Crystal/Klages*3/PI366450	2 row	malting
USDA-ARS	16	* 98ID251	Baronesse/3/Crystal/Klages*3/PI366450	2 row	malting
MSU	17	MT960099	Manley/Baronesse	2 row	feed/malting
MSU	18	MT960228	Stark/ Baronesse	2 row	feed
MSU	19	* MT970229	MT890021/Stark	2 row	feed/malting
NDSU	20	* ND19119	ND15403-3/ND15368//ND16453	2 row	feed
PB1	21	* PB1-95-2R-522	PB1-88-2R-801/VD403582	2 row	feed
Lewis	22	* Samish 23	85Ab2323/Acclaim	2 row	feed/malting
USU	23	* UT97B1480-1534	UT89B747-1263/UT90B774-2467	6 row	feed
USU	24	* UT97B1480-1632	UT89B747-1263/UT90B774-2467	6 row	feed

* new entries

Table 15: Check Seasonal Measurements (1980-2003) of the Western Regional Dryland Spring Barley Nursery

Average of Cultivars Munsing, Steptoe, Clark

Yield			Test Weight			Plant Height			Heading date			Plump		
Year	Station Years	Mg ha ⁻¹	Year	Station Years	kg m ⁻³	Year	Station Years	cm	Year	Station Years	Julian	Year	Station Years	%
1997	8	4.63	1980	15	665	1998	9	78.9	1996	8	188	1987	11	89.7
1996	9	4.56	1987	12	664	1981	13	73.3	1999	5	187	1997	5	86.6
1998	10	4.44	1982	13	658	1993	6	72.8	1995	8	185	1996	6	85.1
1995	9	4.33	1996	7	656	1991	9	72.5	2002	8	185	1995	5	84.6
2000	7	4.22	1988	11	654	1994	9	72.3	2000	6	184	1993	3	84.5
2001	6	4.11	1990	10	653	1999	8	70.5	2003	6	184	1986	12	83.1
1982	14	4.02	1983	14	652	1982	11	69.9	1982	9	183	2000	5	82.1
1987	13	4.02	1986	13	648	1997	7	69.3	1997	6	183	1980	9	82.1
1999	9	3.94	2000	6	646	2001	5	68.8	1998	8	182	1982	10	80.3
1993	7	3.90	1992	8	643	2003	4	67.8	1993	6	181	2001	5	79.7
1980	15	3.78	1989	10	642	1983	10	65.8	2001	5	182	2002	7	79.5
1994	9	3.77	1984	14	638	1995	8	65.7	1991	8	180	1983	12	77.3
1991	9	3.73	1997	6	635	1980	10	64.9	1983	10	179	1998	7	76.9
1981	17	3.61	1998	9	634	1984	13	64.9	1984	10	179	1999	7	73.2
1986	14	3.58	1995	9	631	1990	9	64.6	1989	8	179	1998	8	71.8
1992	8	3.42	2001	6	630	1996	8	64.6	1990	9	179	1992	7	70.5
2003	8	3.26	1993	4	625	2000	6	62.7	1988	7	178	2003	8	70.5
1983	14	3.15	1994	9	624	1987	13	62.2	1994	8	178	1981	11	64.4
1990	10	3.13	2002	9	623	2002	8	61.6	1992	7	177	1989	8	59.9
2002	9	3.12	1985	16	622	1986	11	61.2	1981	12	176	1994	8	59.8
1984	16	3.09	1999	8	622	1992	8	60.5	1986	9	176	1990	8	59.5
1989	10	2.75	2003	8	621	1989	9	59.0	1980	9	171	1991	7	59.1
1988	11	2.39	1981	16	621	1985	17	53.0	1985	9	171	1984	11	58.9
1985	18	2.19	1991	9	616	1988	11	51.6	1987	9	170	1985	13	44.9
Ave	260	3.55	Ave	242	640	Ave	222	65.1	Ave	190	179	Ave	193	72.1

Table 16: 2003 Western Regional Dryland Spring Barley Nursery, Means Summary

Entry No.	Variety or Selection	Grain Yield		Test Weight	Plant Height	Heading Date	Plump Barley*	Thin Barley**	Protein
		Mg ha ⁻¹	Rank	kg m ⁻³	cm	Julian	%	%	%
	Number of Locations	8		8	4	6	8	8	2
1	Munsing	3.06	23	643.0	58.6	183	66.4	18.1	15.9
2	Step toe	3.62	2	596.4	70.9	181	81.7	9.1	12.5
3	Clark	3.09	21	624.1	74.0	184	63.4	23.3	16.5
4	Hector	3.12	20	636.9	76.1	183	64.7	21.8	15.9
5	2B97-4004	3.23	13	617.4	71.0	184	66.9	20.6	16.5
6	2B97-4299	3.26	10	624.8	69.8	185	74.6	16.3	15.6
7	2B98-5312	3.23	14	614.3	68.1	187	58.1	28.7	16.3
8	6B98-9339	3.07	22	611.8	66.6	184	70.6	23.0	15.5
9	6B98-9940	3.20	17	618.2	70.1	183	75.7	18.5	15.1
10	95Ab11469	3.36	7	644.9	75.6	184	80.8	10.4	14.9
11	95M4623	3.20	16	655.4	74.7	185	82.5	9.4	15.6
12	97Ab7973	3.17	18	632.2	69.4	185	83.6	9.0	16.9
13	98Ab11993	3.31	8	620.5	66.0	184	79.1	14.1	15.9
14	95SR316A	3.13	19	632.6	72.5	185	65.9	22.1	16.8
15	98ID242	3.22	15	643.8	70.3	186	73.5	17.2	14.6
16	98ID251	3.28	9	631.1	67.8	185	71.8	15.6	16.2
17	MT960099	3.48	4	636.6	63.7	184	55.7	29.2	16.5
18	MT960228	3.43	5	645.2	69.3	184	70.7	19.6	15.8
19	MT970229	3.63	1	662.0	70.0	184	81.9	10.3	15.6
20	ND19119	3.36	6	643.5	74.8	183	90.2	5.4	12.9
21	PB1-95-2R-522	3.60	3	668.1	69.0	185	72.3	15.2	15.2
22	Samish 23	2.91	24	640.7	64.8	185	68.6	18.5	16.4
23	UT97B1480-1534	3.25	12	620.2	70.9	181	63.9	19.9	15.0
24	UT97B1480-1632	3.25	11	624.7	71.1	180	72.1	15.7	14.0
	Test Average	3.27		632.85	69.79	184.0	72.28	17.12	15.48
	Check Average	3.26		621.18	67.82	182.8	70.47	16.83	14.96
	LSD .05	0.352		16.99	4.83	2.3	8.84	7.80	1.12
	C.V.	11.78		3.145	5.74	1.3	14.32	53.34	4.24

* Percent over sieve, 2-rowed >2.4mm, 6-rowed >2.2mm

** Percent through 2.2mm screen

Table 17: Summary Across Locations and Years, Western Regional Dryland Spring Barley Nursery, 2001-2003.

ENTRY NO.	CULTIVAR/ DESIGNATION	STATION YEARS	YIELD		TEST WEIGHT	PLANT HEIGHT	HEADING DATE	PLUMP	THIN
			Mg ha ⁻¹	Rank	kg m ⁻³	cm	julian	%	%
1	Munsing*	23	3.24	17	645.8	66.3	185.2	77.6	11.3
2	Steptoe*	23	3.74	3	626.0	63.0	186.1	82.3	8.9
3	Clark*	23	3.30	13	599.7	68.2	181.2	85.1	7.0
4	Hector	23	3.40	11	644.6	60.3	186.8	62.3	19.7
5	2B97-4004	17	3.08	20	642.4	71.6	183.4	85.9	6.1
6	2B97-4299	23	3.58	9	632.6	64.9	186.3	86.4	5.9
7	2B98-5312	17	3.16	18	662.0	70.0	184.2	81.9	10.3
8	6B98-9339	17	3.02	23	668.1	69.0	184.7	72.3	15.2
9	6B98-9940	17	3.16	19	631.0	65.5	186.9	79.5	10.4
10	95Ab11469	23	3.68	5	651.0	70.0	186.4	85.1	6.2
11	95M4623	23	3.57	10	637.7	72.2	185.8	69.4	14.6
12	97Ab7973	23	3.63	6	643.5	74.8	182.7	90.2	5.4
13	98Ab11993	23	3.76	2	632.9	69.2	186.2	73.8	13.3
14	95SR316A	17	3.05	22	631.1	67.8	185.2	71.8	15.6
15	98ID242	17	3.07	21	624.7	71.1	180.4	72.1	15.7
16	98ID251	8	3.28	14	620.2	70.9	180.6	63.9	19.9
17	MT960099	23	3.72	4	639.3	58.9	182.3	69.0	13.4
18	MT960228	23	3.87	1	619.0	64.2	188.2	62.2	21.4
19	MT970229	8	3.63	7	620.6	66.0	182.8	80.4	13.8
20	ND19119	8	3.36	12	625.8	64.5	186.5	71.1	15.2
21	PB1-95-2R-522	8	3.60	8	643.0	66.4	187.9	78.9	10.9
22	Samish 23	8	2.91	24	634.0	67.6	188.9	69.9	16.9
23	UT97B1480-1534	8	3.25	16	617.4	62.1	185.1	77.0	16.7
24	UT97B1480-1632	8	3.25	15	640.7	64.8	185.5	68.6	18.5
	AVERAGE		3.430		633.70	66.52	185.25	76.37	16.52
	BASE AVERAGE		3.428		623.98	65.47	183.25	75.96	11.22

Base Average is the average of the checks Munsing, Steptoe, and Clark

Table 18: 2003 Western Regional Dryland Spring Barley Nursery, Grain Yield (Mg ha⁻¹)

Entry Number	Selection or Variety	Potlatch ID	Soda Springs ID	Tetonia ID	Bozeman MT	Conrad MT	Fargo ND	Hettinger ND	Williston ND	Saskatoon SK	AVERAGE*	RANK	RANK AVERAGE
		1	2	3	4	5	6	7	8	9			
1	Munsing	3.08	1.59	1.27	4.40	4.38	2.18	3.67	4.14	3.43	3.06	23	13.5
2	Steptoe	3.51	1.88	1.57	4.15	4.27	4.93	4.10	4.55	4.06	3.62	2	5.6
3	Clark	3.49	1.27	1.36	3.94	2.96	4.14	3.90	4.54	3.22	3.09	21	13.5
4	Hector	3.66	1.11	1.38	4.05	3.64	3.19	4.08	4.46	4.13	3.12	20	10.6
5	2B97-4004	3.56	1.07	1.23	4.18	3.66	4.84	3.37	4.19	3.95	3.23	13	11.8
6	2B97-4299	3.55	0.82	0.94	3.88	3.83	4.99	4.00	4.87	3.44	3.26	10	12.6
7	2B98-5312	3.33	1.24	1.21	3.75	3.62	4.46	3.84	4.40	4.11	3.23	14	13.0
8	6B98-9339	3.14	0.86	1.24	3.43	2.86	5.14	4.18	4.18	3.85	3.07	22	17.3
9	6B98-9940	3.32	1.34	1.09	3.81	3.54	4.28	4.43	4.30	3.92	3.20	17	14.8
10	95Ab11469	3.53	1.46	1.40	4.08	3.93	3.88	4.10	4.41	4.22	3.36	7	8.4
11	95M4623	3.72	1.21	1.26	3.43	3.30	3.75	4.13	4.15	4.00	3.20	16	14.6
12	97Ab7973	3.36	1.06	1.35	3.86	3.45	4.14	4.09	4.02	3.99	3.17	18	15.5
13	98Ab11993	3.98	1.39	1.25	3.77	3.27	4.61	4.44	4.42	4.08	3.31	8	10.5
14	95SR316A	3.53	1.04	1.23	4.03	3.45	4.15	4.16	4.43	3.90	3.13	19	14.1
15	98ID242	3.01	1.18	1.24	3.57	3.87	4.72	4.26	4.03	3.83	3.22	15	15.1
16	98ID251	3.26	1.10	1.26	3.38	4.22	4.44	4.47	4.22	4.15	3.28	9	13.3
17	MT960099	3.38	1.36	1.04	3.57	4.72	5.06	4.15	4.61	4.09	3.48	4	9.6
18	MT960228	3.48	1.42	1.05	4.18	4.82	4.41	4.59	4.61	3.81	3.43	5	10.1
19	MT970229	3.29	1.68	1.21	3.30	5.23	4.35	4.46	5.04	4.28	3.63	1	9.9
20	ND19119	2.97	1.01	1.59	3.46	4.03	4.50	4.56	4.85	3.81	3.36	6	12.9
21	PB1-95-2R-522	3.66	1.08	1.32	3.52	5.14	4.97	4.12	4.63	4.58	3.60	3	7.3
22	Samish 23	2.27	0.77	0.97	3.32	4.11	3.81	4.47	4.42	3.55	2.91	24	19.6
23	UT97B1480-1534	3.30	1.12	1.40	3.63	3.69	3.88	not planted	4.77	3.99	3.25	12	12.0
24	UT97B1480-1632	2.88	1.06	1.39	3.36	3.75	4.29	3.71	4.69	3.89	3.25	11	14.5
	Average	3.34	1.21	1.26	3.75	3.91	4.30	4.14	4.45	3.93	3.27		
	LSD .05	0.634	0.484	0.333	0.308	0.830	0.457	0.430	0.503	0.498	0.352		
	C.V.	11.6	24.30	16.00	5.82	13.72	7.10	6.20	6.89	9.26	11.78		

* All locations except Hettinger, ND

Table 19: 2003 Western Regional Dryland Spring Barley Nursery, Test Weight (kg m⁻³)

Entry Number	Selection or Variety	Potlatch ID	Soda Springs ID	Tetonia ID	Bozeman MT	Conrad MT	Fargo ND	Hettinger ND	Williston ND	Saskatoon SK	AVERAGE*
		1	2	3	4	5	6	7	8	9	
1	Munsing	673.1	626.1	604.2	626.1	727.6	604.9	621.6	599.7	682.3	643.0
2	Steptoe	626.8	584.9	584.9	538.6	625.1	617.8	550.8	550.8	642.5	596.4
3	Clark	658.9	612.0	606.8	583.0	616.5	656.4	608.8	619.0	640.2	624.1
4	Hector	669.2	639.0	622.3	575.9	659.4	630.6	598.5	644.8	653.9	636.9
5	2B97-4004	664.1	627.4	615.2	504.5	626.8	656.4	549.5	624.2	620.6	617.4
6	2B97-4299	666.7	620.3	624.2	513.5	652.5	656.4	568.9	631.9	632.8	624.8
7	2B98-5312	643.5	614.5	624.2	530.9	592.0	643.5	584.3	625.5	640.4	614.3
8	6B98-9339	653.8	597.8	598.5	522.5	634.5	630.6	612.6	607.5	649.5	611.8
9	6B98-9940	652.5	610.0	592.7	561.1	656.8	604.9	606.2	589.4	678.3	618.2
10	95Ab11469	674.4	636.4	624.2	603.6	679.1	643.5	556.0	628.1	669.9	644.9
11	95M4623	678.2	648.0	646.1	601.7	678.7	656.4	611.3	658.9	675.1	655.4
12	97Ab7973	649.9	600.4	618.4	559.2	656.4	656.4	593.3	642.2	674.9	632.2
13	98Ab11993	642.2	590.1	601.0	529.0	655.5	643.5	572.7	633.2	669.3	620.5
14	95SR316A	674.4	635.8	639.0	536.7	625.1	656.4	592.0	648.6	644.6	632.6
15	98ID242	673.1	639.6	624.8	583.7	664.1	656.4	619.0	651.2	657.6	643.8
16	98ID251	660.2	636.4	624.8	540.5	679.5	656.4	604.9	619.0	631.5	631.1
17	MT960099	656.4	615.2	615.2	554.1	710.9	656.4	603.6	626.8	658.4	636.6
18	MT960228	658.9	630.6	636.4	574.6	684.3	669.2	602.3	620.3	686.9	645.2
19	MT970229	661.5	639.6	639.0	605.5	731.4	669.2	639.6	658.9	690.5	662.0
20	ND19119	669.2	632.6	633.2	617.1	668.8	643.5	621.6	615.2	668.7	643.5
21	PB1-95-2R-522	698.8	669.9	679.5	561.8	728.9	669.2	595.9	670.5	666.1	668.1
22	Samish 23	665.4	647.4	648.0	544.4	665.0	643.5	601.0	640.9	670.9	640.7
23	UT97B1480-1534	668.0	589.4	615.2	561.8	660.7	617.8	not planted	585.6	663.0	620.2
24	UT97B1480-1632	661.5	579.8	616.5	574.0	678.7	617.8	593.3	589.4	680.1	624.7
	Average	662.54	621.8	622.3	562.66	664.91	644.04	595.99	624.25	660.33	632.85
	LSD .05										16.99
	C.V.										3.145

* All locations except Hettinger, ND

Table 20: 2003 Western Regional Dryland Spring Barley Nursery, Plant Height (cm)

Entry Number	Selection or Variety	Bozeman MT	Fargo ND	Hettinger ND	Williston ND	Saskatoon SK	AVERAGE*
		4	6	7	8	9	
1	Munsing	69.0	70.4	74.0	52.0	43.0	58.6
2	Steptoe	77.2	89.6	84.0	63.7	53.0	70.9
3	Clark	70.3	90.9	80.0	66.7	68.0	74.0
4	Hector	72.5	98.5	78.0	69.3	64.0	76.1
5	2B97-4004	65.5	97.9	73.0	62.7	58.0	71.0
6	2B97-4299	65.0	92.7	66.0	60.7	61.0	69.8
7	2B98-5312	65.8	88.9	75.0	61.7	56.0	68.1
8	6B98-9339	64.3	82.1	83.0	59.0	61.0	66.6
9	6B98-9940	76.5	80.7	81.0	65.3	58.0	70.1
10	95Ab11469	72.5	94.9	88.0	71.0	64.0	75.6
11	95M4623	73.3	93.7	81.0	69.7	62.0	74.7
12	97Ab7973	68.0	89.8	71.0	62.7	57.0	69.4
13	98Ab11993	64.0	85.2	64.0	63.7	51.0	66.0
14	95SR316A	67.0	96.6	68.0	67.3	59.0	72.5
15	98ID242	68.5	90.7	79.0	63.0	59.0	70.3
16	98ID251	65.5	87.8	76.0	63.0	55.0	67.8
17	MT960099	60.0	85.1	68.0	58.7	51.0	63.7
18	MT960228	69.0	92.3	75.0	62.0	54.0	69.3
19	MT970229	67.7	93.4	76.0	59.7	59.0	70.0
20	ND19119	81.0	91.1	86.0	69.0	58.0	74.8
21	PB1-95-2R-522	64.0	91.5	78.0	64.3	56.0	69.0
22	Samish 23	64.0	81.0	73.0	59.3	55.0	64.8
23	UT97B1480-1534	74.5	85.4	not planted	66.7	57.0	70.9
24	UT97B1480-1632	77.7	85.6	89.0	63.0	58.0	71.1
	Average	69.28	88.99	76.78	63.51	57.38	69.79
	LSD .05						4.83
	C.V.						5.74

* All locations except Hettinger, ND

Table 21: 2003 Western Regional Dryland Spring Barley Nursery, Heading Date (Julian)

Entry Number	Selection or Variety	Tetonia ID	Bozeman MT	Conrad MT	Fargo ND	Hettinger ND	Williston ND	Saskatoon SK	AVERAGE*
		3	4	5	6	7	8	9	
1	Munsing	194	181	184	171	169	179	189	183
2	Steptoe	188	179	184	173	168	174	189	181
3	Clark	198	182	185	175	170	178	189	184
4	Hector	196	182	179	176	170	177	190	183
5	2B97-4004	194	183	180	178	172	181	190	184
6	2B97-4299	198	182	182	178	174	181	190	185
7	2B98-5312	198	184	184	178	173	182	194	187
8	6B98-9339	194	183	184	174	170	179	190	184
9	6B98-9940	194	180	184	173	169	176	189	183
10	95Ab11469	196	181	185	175	166	177	189	184
11	95M4623	194	181	184	178	171	182	189	185
12	97Ab7973	196	182	185	177	176	181	190	185
13	98Ab11993	196	182	175	176	174	183	189	184
14	95SR316A	200	185	176	178	176	182	191	185
15	98ID242	198	182	185	175	171	182	193	186
16	98ID251	198	183	185	175	172	180	190	185
17	MT960099	198	182	176	178	174	182	191	184
18	MT960228	196	182	184	177	172	180	188	184
19	MT970229	196	182	184	174	172	178	191	184
20	ND19119	196	179	184	172	168	175	190	183
21	PB1-95-2R-522	196	184	183	176	172	181	189	185
22	Samish 23	194	185	185	179	174	183	187	185
23	UT97B1480-1534	188	177	185	172	not planted	172	189	181
24	UT97B1480-1632	188	177	184	172	166	172	190	180
	Average	195.2	181.6	182.8	175.4	171.3	179.0	189.8	184.0
	LSD .05								2.3
	C.V.								1.3

* All locations except Hettinger, ND

Table 22: 2003 Western Regional Dryland Spring Barley Nursery, Percent Plump Barley*

Entry Number	Selection or Variety	Potlatch ID	Soda Springs ID	Tetonia ID	Bozeman MT	Conrad MT	Fargo ND	Hettinger ND	Williston ND	Saskatoon SK	AVERAGE**
		1	2	3	4	5	6	7	8	9	
1	Munsing	89.0	82.5	58.0	36.3	87.9	49.0	55.5	58.9	69.3	66.4
2	Steptoe	94.0	86.0	81.5	53.3	92.9	85.0	50.4	75.8	84.9	81.7
3	Clark	91.0	73.5	66.5	21.4	56.2	83.0	30.3	77.2	38.2	63.4
4	Hector	91.0	78.5	73.0	19.1	64.1	65.0	30.7	83.7	43.2	64.7
5	2B97-4004	93.0	69.0	77.0	14.7	75.9	79.0	18.4	84.1	43.0	66.9
6	2B97-4299	93.0	85.5	86.5	19.3	76.0	88.0	31.4	83.3	65.3	74.6
7	2B98-5312	82.0	73.5	74.5	7.7	42.4	82.0	15.1	70.1	32.7	58.1
8	6B98-9339	92.0	67.5	63.0	40.6	78.7	81.0	34.9	89.9	51.8	70.6
9	6B98-9940	96.0	75.5	64.0	42.1	87.7	83.0	23.1	76.0	81.0	75.7
10	95Ab11469	98.0	89.5	82.5	39.7	87.7	86.0	28.6	90.0	73.1	80.8
11	95M4623	98.0	89.0	91.0	46.6	86.2	83.0	38.4	94.8	71.1	82.5
12	97Ab7973	98.0	91.5	91.0	40.9	91.1	87.0	38.4	96.0	73.0	83.6
13	98Ab11993	96.0	76.5	83.5	21.6	90.9	86.0	38.6	93.7	84.9	79.1
14	95SR316A	95.0	90.5	74.5	10.1	59.1	77.0	22.1	83.6	37.7	65.9
15	98ID242	97.0	82.5	79.0	12.8	78.9	87.0	44.6	93.3	58.0	73.5
16	98ID251	97.0	87.0	84.0	13.4	83.7	80.0	43.2	84.2	45.4	71.8
17	MT960099	81.0	56.0	61.5	6.5	75.3	80.0	16.0	58.3	27.5	55.7
18	MT960228	95.0	74.0	75.5	13.3	76.8	82.0	15.6	76.5	72.6	70.7
19	MT970229	98.0	91.5	88.0	31.6	88.7	87.0	52.8	95.9	74.5	81.9
20	ND19119	98.0	87.0	92.0	71.2	95.3	93.0	74.8	98.1	87.3	90.2
21	PB1-95-2R-522	92.0	86.5	84.0	20.2	83.5	82.0	24.1	88.3	42.2	72.3
22	Samish 23	91.0	86.5	81.5	12.2	78.2	73.0	17.8	77.9	48.9	68.6
23	UT97B1480-1534	93.0	64.0	62.5	37.1	89.0	55.0	not planted	47.7	63.1	63.9
24	UT97B1480-1632	94.0	65.0	59.5	54.2	94.1	71.0	35.9	62.9	75.8	72.1
	Average	93.42	79.52	76.42	28.01	80.01	79.33	33.94	80.84	60.18	72.28
	LSD .05										8.84
	C.V.										14.32

* Percent over sieve, 2-rowed >2.4mm, 6-rowed >2.2mm

**All locations except Hettinger, ND

Table 23: 2003 Western Regional Dryland Spring Barley Nursery, Percent Thin Barley*

Entry Number	Selection or Variety	Potlatch ID	Soda Springs ID	Tetonia ID	Bozeman MT	Conrad MT	Fargo ND	Williston ND	Saskatoon SK	AVERAGE
		1	2	3	4	5	6	8	9	
1	Munsing	11.0	17.0	42.0	29.8	11.9	9.0	17.7	6.5	18.1
2	Steptoe	6.0	14.0	18.5	14.0	7.0	2.0	9.1	2.3	9.1
3	Clark	9.0	26.0	33.5	47.9	43.7	3.0	8.6	14.8	23.3
4	Hector	9.0	21.0	27.0	53.7	35.7	7.0	5.5	15.4	21.8
5	2B97-4004	7.0	31.0	23.0	57.8	23.9	5.0	5.6	11.2	20.6
6	2B97-4299	7.0	14.0	13.5	58.2	23.8	2.0	5.1	6.5	16.3
7	2B98-5312	18.0	26.0	25.5	71.9	57.3	4.0	9.6	17.0	28.7
8	6B98-9339	8.0	32.0	37.0	71.5	20.9	3.0	3.4	7.9	23.0
9	6B98-9940	4.0	24.0	36.0	56.8	12.1	2.0	9.7	3.4	18.5
10	95Ab11469	2.0	10.0	17.5	29.8	12.1	2.0	3.5	6.1	10.4
11	95M4623	2.0	11.0	9.0	27.1	13.4	4.0	2.1	6.3	9.4
12	97Ab7973	2.0	8.0	9.0	33.7	8.7	2.0	1.5	6.9	9.0
13	98Ab11993	4.0	23.0	16.5	50.8	11.3	2.0	2.3	3.1	14.1
14	95SR316A	5.0	9.0	25.5	74.9	40.6	4.0	6.0	12.0	22.1
15	98ID242	3.0	17.0	21.0	65.1	20.9	2.0	1.9	6.8	17.2
16	98ID251	3.0	13.0	16.0	57.8	16.1	5.0	5.3	8.8	15.6
17	MT960099	19.0	44.0	38.5	79.8	17.6	4.0	9.5	21.3	29.2
18	MT960228	5.0	26.0	24.5	59.1	23.2	5.0	7.6	6.5	19.6
19	MT970229	2.0	8.0	12.0	40.7	11.2	2.0	1.4	5.2	10.3
20	ND19119	2.0	13.0	8.0	11.3	4.7	1.0	0.7	2.2	5.4
21	PB1-95-2R-522	8.0	13.0	16.0	44.7	16.4	4.0	3.5	16.2	15.2
22	Samish 23	9.0	13.0	18.5	66.9	21.6	5.0	6.1	8.3	18.5
23	UT97B1480-1534	7.0	36.0	37.5	26.8	10.6	7.0	25.9	8.3	19.9
24	UT97B1480-1632	6.0	35.0	40.5	14.6	5.9	3.0	17.4	3.5	15.7
	Average	6.58	20.17	23.58	44.63	19.61	3.71	7.04	8.60	17.12
	LSD .05									7.80
	C.V.									53.34

*Percent through 2.2mm screen

Table 24: 2003 Western Regional Dryland Spring Barley Nursery, Lodging

Entry Number	Selection or Variety	Hettinger, ND	Williston, ND
		0-10*	%
1	Munsing	6.7	56.7
2	Steptoe	1.0	0.0
3	Clark	1.7	3.3
4	Hector	3.5	23.3
5	2B97-4004	1.0	0.0
6	2B97-4299	1.0	0.0
7	2B98-5312	1.0	0.0
8	6B98-9339	1.7	0.0
9	6B98-9940	2.0	0.0
10	95Ab11469	2.5	0.0
11	95M4623	2.0	0.0
12	97Ab7973	1.0	0.0
13	98Ab11993	2.0	0.0
14	95SR316A	1.0	0.0
15	98ID242	1.0	0.0
16	98ID251	1.0	0.0
17	MT960099	1.0	0.0
18	MT960228	1.0	0.0
19	MT970229	1.0	0.0
20	ND19119	1.5	0.0
21	PB1-95-2R-522	1.0	0.0
22	Samish 23	1.0	0.0
23	UT97B1480-1534	not planted	0.0
24	UT97B1480-1632	1.3	0.0
	Average	1.65	3.47

Table 25: 2003 Western Regional Dryland Spring Barley Nursery, Percent Protein

Entry Number	Selection or Variety	Bozeman MT	Williston ND	AVERAGE
1	Munsing	16.7	15.1	15.9
2	Steptoe	14.0	11.0	12.5
3	Clark	18.3	14.6	16.5
4	Hector	17.2	14.6	15.9
5	2B97-4004	19.0	14.0	16.5
6	2B97-4299	17.7	13.5	15.6
7	2B98-5312	18.4	14.1	16.3
8	6B98-9339	17.5	13.5	15.5
9	6B98-9940	16.8	13.3	15.1
10	95Ab11469	16.3	13.5	14.9
11	95M4623	16.7	14.4	15.6
12	97Ab7973	18.4	15.3	16.9
13	98Ab11993	18.0	13.7	15.9
14	95SR316A	18.9	14.7	16.8
15	98ID242	15.4	13.7	14.6
16	98ID251	17.5	14.8	16.2
17	MT960099	18.7	14.2	16.5
18	MT960228	17.5	14.1	15.8
19	MT970229	17.5	13.7	15.6
20	ND19119	14.1	11.6	12.9
21	PB1-95-2R-522	17.0	13.3	15.2
22	Samish 23	18.7	14.1	16.4
23	UT97B1480-1534	17.2	12.8	15.0
24	UT97B1480-1632	15.5	12.5	14.0
	Average	17.21	13.75	15.48
	LSD .05			1.12
	C.V.			4.24

Table 26: 2003 Western Regional Dryland Spring Barley Nursery, Disease Ratings

Entry Number	Selection or Variety	Potlatch, ID Stripe Rust	Saskatoon, SK	Saskatoon, SK
			Spot Blotch	Net Blotch
			1-9	1-9
1	Munsing	0	5	4
2	Steptoe	0	7	2
3	Clark	0	3	7
4	Hector	0	4	8
5	2B97-4004	0	3	5
6	2B97-4299	0	4	1
7	2B98-5312	0	3	5
8	6B98-9339	3S	6	3
9	6B98-9940	tr	5	2
10	95Ab11469	0	3	7
11	95M4623	0	4	5
12	97Ab7973	0	3	6
13	98Ab11993	0	5	2
14	95SR316A	0	3	5
15	98ID242	0	6	3
16	98ID251	0	5	3
17	MT960099	0	6	3
18	MT960228	0	5	4
19	MT970229	0	6	4
20	ND19119	0	5	2
21	PB1-95-2R-522	0	5	4
22	Samish 23	0	8	7
23	UT97B1480-1534	0	3	1
24	UT97B1480-1632	0	6	1
	Average		4.71	3.92