

## STATEWIDE CEREAL VARIETY TESTING PROGRAM

John P. Bassinette, Russell S. Karow, Scott W. McDonald, Karl Rhinhart,  
and Richard W. Smiley

### Introduction

The statewide cereal variety testing program was initiated in 1992. This program's objective is to provide wheat, feed grain, and near-release experimental line performance data in a timely manner to growers in Oregon's major cereal-producing regions so that informed variety selection decisions can be made. In the 1999-2000 growing season over 50 winter grain varieties were evaluated at eight locations, and over 70 spring grains were evaluated at 11 locations. The trial mix was roughly two-thirds wheat and one-third feed grains. The trial composition varied by location, but included a core set of varieties commonly grown across the state, supplemented by local favorites and new materials that showed promise. Of the 11 trial sites throughout the state, five are located in the Columbia Basin. These five sites encompass dryland (Pendleton, Moro, Lexington) and irrigated (Hermiston, LaGrande) environments. Russ Karow, extension cereals specialist and John P. Bassinette, senior research assistant, with the Department of Crop and Soil Science at Oregon State University (OSU), coordinate the statewide program. Scott W. McDonald, research assistant (now with USDA-Agricultural Research Service, Pullman Washington), managed the Columbia Basin sites. Each site is planted, managed, and harvested by the trial manager with cooperation from growers at off-station locations (Table 1).

Combine-harvested grain is given to the central team (Bassinette and Karow)

who process the grain, analyze data, and provide results to extension agents, seed dealers, agricultural field representatives, and growers across the state and region.

This article reports yield data, collected in 2000 and a compilation from 1998-2000, for the Columbia Basin sites. More complete data, including test weights and protein information, can be found on the Internet ([www.css.orst.edu/cereals/](http://www.css.orst.edu/cereals/)) and in various extension publications.

The statewide variety-testing program is grower-driven. If you have ideas about varieties to be included in your area or have suggestions for program improvement, contact Russ Karow, OSU Extension Cereals Specialist (541-737-5857).

### Materials and Methods

All experiments were designed as a randomized complete block with three replications. Grain was sown at a rate of 20 seeds/ft<sup>2</sup> for dryland and 30 seeds/ft<sup>2</sup> for irrigated sites into plots 20 ft long by 5 ft wide. Seed weight (kernels/lb) was determined for each variety and used to determine the amount of seed to be sown. Among varieties, seeding rates ranged from 60 to 150 lbs/acre to attain the desired plant population. Small-plot equipment (drills, tractors, combines) was used to sow and then harvest plots. Plots were managed using best management practices for each specific location.

Harvested grain from each plot was run through a Pelz rub-bar seed cleaner. After cleaning, plot yield, test weight,

protein, and moisture were determined on grain samples. Yields are reported on a 10 percent moisture basis and in 60-lb bushel for wheat and triticale and in lb/acre for barley.

In addition to small-plot variety trials, large-scale winter wheat drill-strip trials have been conducted across the state for the past 6 years. Cooperating growers were provided with 50 to 80 pounds of seed of each variety to be tested. Cooperators, often with the assistance of local county agents, established single-replicate drill-strip plots on their farms. These drill strips were managed and harvested by the cooperating grower with standard field equipment. Weigh wagons or weigh pads were used to obtain yield data. When possible, a 2-quart grain sample was saved and used for test weight and protein analyses.

## **Results and Discussion**

The tables at the end of this report contain yield information from the 2000 trials as well as compilations of data from 1998 to 2000. Because year-to-year variability is often high, conclusions should not be made from a single year's data. Three-year averages are a better indication of how well a variety is suited to a location. For newer lines that have not been tested over multiple years, the 2000 data may help identify lines to watch in the future.

### ***Soft White Winter Wheat* (Tables 2 and 3)**

Stephens, Madsen, Rod, and Weatherford continued to be among the highest yielding varieties tested for the last 4 years at all locations in the Columbia Basin. Experimental line OR 939526 also continues to perform well. Grain yield from this line has been greater than or equal to current varieties over the past 2 years. Overall quality is similar to Stephens but test weight may be slightly lower. Jim Peterson, wheat

breeder from OSU, has initiated a breeder seed increase of OR 939526, which will be released in the next few years if it continues to perform well.

### ***Winter Club Wheat* (Tables 2 and 3)**

In the 1999-2000 crop year, club wheat mean yields ranged from 84 to 92 bu/acre. The newer lines Coda, Hiller, and Temple continued to perform well but Rhode was the most consistent across locations. Four years of data show that these newer lines have a slight yield advantage over Rhode. The newer club lines also have both stripe rust and foot rot resistance, while Rhode is susceptible to foot rot. Bruehl and Edwin, which showed promise last year (Table 9), performed poorly in 1999-2000.

### ***Winter Barley* (Tables 4 and 5)**

Strider and Kold continue to be the recommended winter barleys in the Columbia Basin. While Scio has had above-average yields at many sites, it tends to have lower test weights. Strider and Kold have barley stripe rust resistance while Scio is susceptible to scald and barley stripe rust.

### ***Soft White Spring Wheat* (Tables 6 and 7)**

New release Challis (Western Plant Breeders) and IDO 526 outperformed other soft white lines in 2000. In the past 3 years, Alpowa, Whitebird and Pomerelle have been the highest yielding soft white lines (Table 9). IDO 525 is being prepared for release under the name "Jubilee." Jubilee is best adapted to high yield production zones. It has a yield similar to Penawawa but has better test weight and quality. However, the mean yield over the past 2 years (data nothown) has been lower than other currently grown varieties.

### ***Hard White Spring Wheat* (Tables 6 and 7)**

Grain yield of Winsome and ID377S are similar to those of the best soft white

entries. Between the lines, 3-year averages show little difference in grain yield, test weights, and protein. In 2000, IDO560 was the highest yielding hard white at three out of five Columbia Basin locations. Protein and test weights of this line are similar to Winsome and ID377S. The Wheat Marketing center in Portland has identified Winsome as a superior cultivar for Asian noodle production and should be considered for identity preserved sales.

#### ***Hard Red Spring Wheat* (Tables 6 and 7)**

The Idaho release, Jefferson, continues to perform well and was the highest yielding hard red at Moro and Lexington. Across market classes, 3-year averages show Jefferson to be the top yielding variety at three of five Columbia Basin locations (Table 7). Mean test weight and protein of Jefferson across Columbia Basin locations are 62.0 lbs/bu and 13.4 percent respectively. For ease of management, these trials are managed for soft white wheat production and higher protein levels are likely with additional nitrogen application.

#### ***Spring Barley* (Tables 8 and 9)**

Across locations, Baronesse and Steptoe are still out-yielding the newer varieties Orca, Tango, and Chinook. However, one advantage Orca, Tango, and Chinook all have is stripe rust resistance, which Steptoe and Baronesse do not have. Experimental line WA-9504-94 and new western plant breeder release, Xena, also show promise. Valier is a spring barley developed by the Montana Agricultural Experiment Station to specifically combine agronomic performance with improved cattle feeding characteristics. Valier did not yield as well as the other entries.

## **Conclusions**

While varieties may excel in a given location in a given year, differences between widely grown varieties are often negligible when data from multiple years are examined. When selecting a variety, growers should consider disease resistance, winter hardiness, or other factors pertinent to the site where the crop is grown. Before switching to a new variety, small acreages of that variety should be grown for more than 1 year before making a larger commitment.

## **Acknowledgements**

We thank John Cuthbert, Norm Goetze, Carl Haugerud, and Chris Rauch for their donations of land, time, and effort to the statewide variety-testing program. Without their contribution of resources, this program would not be possible. The OSU Agricultural Experiment Station, Oregon Wheat Commission, and Oregon Grains Commission provided cash funding for the statewide variety-testing program. The OSU Extension Service provided personnel and facilitative support. Without the support of these organizations, this program would not be feasible.

## **References**

Karow, R. et al. 2000. Winter cereal varieties for 2000. Special Report 775R, Oregon State University Extension Service, Corvallis, OR.

Karow, R. et al. 2000. Spring grain varieties for 2000. Special Report 986, Oregon State University Extension Service, Corvallis, OR.

Table 1. 2000 statewide variety testing program trial type, locations, managers and cooperators, Oregon.

Trial name	Trial type	Location	Manager <sup>2</sup>	Grower cooperator
Corvallis	W+S <sup>1</sup> - dryland	Hyslop Exp. Stn	Bassinette/Karow	
Scio	spring only - dryland	Haugerud Farm	Bassinette/Karow	Carl Haugerud
Moro	W+S- dryland	Sherman Exp. Stn.	McDonald/Smiley	
Lexington	W+S- dryland	Starvation Farms	McDonald/Smiley	Chris Rauch
Hermiston	W+S- irrigated	Madison Farm	McDonald/Smiley	Kent Madison
Pendleton	W+S- dryland	CBARC	McDonald/Smiley	
LaGrande	W+S- irrigated	Cuthbert Farm	McDonald/Smiley	John Cuthbert
Ontario	W+S- irrigated	Eldredge/Shock		
Madras	W+S- irrigated	Bafus/Bohle		
Klamath Falls	Organic spring only - dryland	Central OR Exp. Stn.		
Klamath Falls	Mineral spring only - dryland	Henzel Farms	Clark/Rykrost	Sam and Thurston Henzel
		Klamath Exp. Sta	Clark/Rykrost	

<sup>1</sup> W=winter, S=spring

<sup>2</sup> Statewide trials coordinated through Cereals Extension, OSU, Corvallis.

Table 2. 2000 statewide variety testing program winter wheat, oat, and triticale yield data for Columbia Basin, Oregon, locations.

site Variety or line <sup>1</sup> average	Market class <sup>2</sup>	Moro	Morrow Co.	Pendleton	Hermiston	LaGrande	Across site average	% of Across
Yield (bu/acre at 10% moisture)								
Boundary	HR	52	34	115	97	109	81	80
Bruehl	Club	46	35	124	93	119	84	82
Coda	Club	51	37	110	112	118	86	84
Connie	Durum	34	19	84	129	71	68	66
Edwin	Club	44	42	77	82	100	69	68
Hiller	Club	56	34	132	114	126	92	91
ID-52814A	SW	53	29	116	131	123	90	89
ID-B-96	SW	61	41	119	121	121	93	91
IDO513	HR	43	28	94	94	105	73	71
IDO550	HW	38	26	92	90	107	71	69
Madsen	SW	58	36	116	131	98	88	86
Madsen + Stephens mix	SW	57	36	117	138	114	92	91
OR 850513-8	HW	56	26	110	112	116	84	82
OR 850513-9	HW	46	32	112	111	114	83	82
OR 939526	SW	57	42	132	133	140	101	99
OR 939528	SW	51	34	139	123	139	97	95
OR 943560	SW	60	39	119	121	126	93	91
OR 943575	HW	54	36	124	146	129	98	96
Rely	Club	47	38	116	99	126	85	83
Rod	SW	55	36	132	117	145	97	95
Rohde	Club	57	42	118	93	131	88	86
Stephens (20 seeds/ft <sup>2</sup> )	SW	53	35	113	120	139	92	90
Stephens (30 seeds/ft <sup>2</sup> )	SW	72	39	113	128	133	97	95
Stephens (no Gaucho)	SW	60	35	103	103	132	87	85
Stephens (untreated seed)	SW	52	37	115	105	121	86	84
Temple	Club	43	43	116	104	132	88	86
Weatherford	SW	53	37	111	135	108	89	87
Alzo	Triticale	47	43	148	161	—	—	—
Bogo	Triticale	51	46	155	149	—	—	—
Celia	Triticale	41	41	106	100	—	—	—
Crater	Oat	—	30	—	29	38	—	—
Eltan	SW	—	35	—	104	—	—	—

Table 2. 2000 Statewide variety testing program winter wheat, oat, and triticale yield data for Columbia Basin locations (continued).

site Variety or line <sup>1</sup> average	Market					Across site			Across
	class <sup>2</sup>	Moro	Morrow Co.	Pendleton	Hermiston	LaGrande	average	% of	Basin
----- Yield (bu/acre at 10% moisture) -----									
Foote	SW	35	27	104	86	124	—	—	—
Hybritech 1778	HR	61	42	113	—	—	—	—	—
Hybritech 5019	SW	—	—	126	92	139	—	—	—
Hybritech 7415	SW	—	—	109	120	166	—	—	—
Hybritech 7510	HR	—	—	120	78	—	—	—	—
Hybritech 9803	HR	46	33	113	—	—	—	—	—
Kansas FT31	Triticale	45	44	—	127	—	—	—	—
Kolding	Oat	—	48	—	52	—	—	—	—
Rifle	Rye	—	39	—	80	—	—	—	—
Stephens (10 seeds/ft <sup>2</sup> )	SW	52	37	108	—	—	—	—	—
Stephens (40 seeds/ft <sup>2</sup> )	SW	—	—	—	133	127	—	—	—
Turf seed Durum	Durum	—	26	91	112	—	—	—	—
Trial Mean		51	37	113	110	120	102	—	—
CV		16.0	11.0	9.0	11.0	12.0	avg		
PLSD <sup>3</sup> (0.05)		14	7	17	20	24			
PLSD (0.10)		11	5	14	16	20			
Pr > F		0.00	0.00	0.00	0.00	0.00			

<sup>1</sup> All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 30 seeds /ft<sup>2</sup> for all locations except Morrow Co., Moro and Pendleton where seeding rate was 20 seeds/ft<sup>2</sup>.

<sup>2</sup> SW = soft white, HW = hard white, HR = hard red.  
<sup>3</sup> LSD = Least significant difference

Table 3. 1998-2000 statewide variety testing program winter wheat yield data for Columbia Basin, Oregon, sites.

Variety or line <sup>1</sup>	Market class <sup>2</sup>						Across site average
		Moro	Morrow Co.	Pendleton <sup>3</sup>	Hermiston <sup>3</sup>	LaGrande	
----- Yield (bu/acre at 10% moisture) -----							
1998							
Coda	Club	71	60	83	95	86	79
Hiller	Club	75	61	93	106	81	83
Rely	Club	70	54	91	95	76	77
Rohde	Club	66	65	85	104	70	78
Temple	Club	71	68	92	95	85	82
Boundary	HR	67	64	74	100	80	77
Foote	SW	50	47	97	80	58	66
Madsen	SW	76	81	106	102	90	91
Madsen + Stephens	SW	86	65	103	101	95	90
Rod	SW	67	55	80	117	78	79
Stephens	SW	82	65	97	113	83	88
Stephens (no Gaucho)	SW	83	56	92	105	95	86
Weatherford	SW	80	73	107	92	77	86
Trial average (bu/acre)		71	60	91	100	83	81
1999							
Coda	Club	69	—	96	80	67	78
Hiller	Club	64	—	91	70	38	66
Rely	Club	61	—	87	75	26	62
Rohde	Club	66	—	78	64	41	62
Temple	Club	64	—	92	61	33	63
Boundary	HR	62	—	87	73	47	67
Foote	SW	52	—	74	25	28	45
Madsen	SW	66	—	96	70	63	74
Madsen + Stephens	SW	59	—	80	79	53	68
Rod	SW	64	—	92	96	61	78
Stephens	SW	63	—	85	72	47	67
Stephens (no Gaucho)	SW	63	—	82	73	46	66
Weatherford	SW	60	—	85	92	58	74
Trial average (bu/acre)		58	—	83	83	68	64

Table 3. 1998-2000 Statewide variety testing program winter wheat yield data for Columbia Basin sites (continued).

Variety or line <sup>1</sup>	Market class <sup>2</sup>	Moro	Morrow Co.	Pendleton <sup>3</sup>	Hermiston <sup>3</sup>	LaGrande	Across site average
----- Yield (bu/acre at 10% moisture) -----							
2000							
Coda	Club	51	37	110	112	118	86
Hiller	Club	56	34	132	114	126	92
Rely	Club	47	38	116	99	126	85
Rhode	Club	57	42	118	93	131	88
Temple	Club	43	43	116	104	132	88
Boundary	HR	52	34	115	97	109	81
Foote	SW	35	27	104	86	124	75
Madsen	SW	58	36	116	131	98	88
Madsen + Stephens	SW	57	36	117	138	114	92
Rod	SW	55	36	132	117	145	97
Stephens	SW	72	39	113	128	133	97
Stephens (no Gaucho)	SW	60	35	103	103	132	87
Weatherford	SW	53	37	111	135	108	89
Trial average (bu/acre)		51	36	113	110	120	86
-----							
1998-2000							
Coda	Club	65	48	105	97	82	79
Hiller	Club	63	54	93	87	81	76
Rely	Club	46	37	92	64	70	61
Rohde	Club	68	51	100	106	87	82
Temple	Club	69	45	92	94	91	78
Boundary	HR	64	49	96	96	90	79
Foote	SW	59	46	98	90	76	74
Madsen	SW	59	55	100	87	83	77
Madsen + Stephens	SW	60	49	92	90	79	74
Rod	SW	66	58	106	101	83	83
Stephens	SW	62	45	101	110	94	83
Stephens (no Gaucho)	SW	73	52	98	104	88	83
Weatherford	SW	64	55	101	106	81	81
3-year average (bu/acre)		60	48	96	93	83	76

Table 3. 1998-2000 Statewide variety testing program winter wheat yield data for Columbia basin sites (continued).

Variety or line <sup>1</sup>	Market	class <sup>2</sup>	Moro	Morrow Co.	Pendleton <sup>3</sup>	Hermiston <sup>3</sup>	LaGrande	Across site	
								Percent of average yield	average
<b>1998-2000</b>									
Coda	Club	108	99	110	104	99	104		
Hiller	Club	105	111	98	94	98	101		
Rely	Club	76	76	96	69	85	80		
Rohde	Club	113	105	104	114	106	108		
Temple	Club	115	94	97	101	110	103		
Boundary	HR	106	101	101	103	109	104		
Foote	SW	99	95	102	97	92	97		
Madsen	SW	99	115	105	94	101	103		
Madsen + Stephens	SW	100	101	96	97	96	98		
Rod	SW	111	121	111	109	101	110		
Stephens	SW	103	94	106	119	114	107		
Stephens (no Gaucho)	SW	121	108	103	113	106	110		
Weatherford	SW	107	114	105	115	98	108		

<sup>1</sup> All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 30 seeds /ft<sup>2</sup> for all locations except Morrow Co., Moro, and Pendleton, where seeding rate was 20 seeds/ft<sup>2</sup>.

<sup>2</sup> SW = soft white, HW = hard white, HR = hard red.

<sup>3</sup> Hermiston and La Grande trials were damaged by hail storms on June 24, 1999.

Table 4. 2000 statewide variety testing program winter barley yield data for Columbia Basin, Oregon, sites.

site Variety or line <sup>1</sup> average	Market class <sup>2</sup>	Moro	Morrow Co.	Pendleton	Hermiston	LaGrande	average	% of Across site Across
----- Yield (lb/acre at 10% moisture) -----								
88Ab536	6RF/M	2909	1349	3458	3607	4502	3165	78
Kold	6RF	2411	2192	5456	4421	5739	4044	99
Kold (no Gaucho)	6RF	2141	2171	5051	5066	5685	4023	99
Scio	6RF	2875	2138	4929	5491	6584	4403	109
Strider	6RF	3192	2544	5831	5683	5874	4625	114
Trial Mean		2705	2079	4945	4854	5677	4052	
CV		24	5	10	18	14		
PLSD (0.05)		ns	188	931	ns	ns		
PLSD (0.10)		ns	152	751	1352	ns		
Pr > F		0.35	0.00	0.00	0.1	0.12		

<sup>1</sup> All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 30 seeds/ft<sup>2</sup> for all locations except Morrow Co., Moro, and Pendleton, where seeding rate was 20 seeds/ft<sup>2</sup>.

<sup>2</sup> 6RF = six-row feed; 6RF/M = barley being assessed for malting use.

Table 5. 1998-2000 statewide variety testing program barley yield data across locations in Oregon.

Variety <sup>1</sup>	Market class <sup>2</sup>	Moro	Morrow Co. <sup>3</sup>	Pendleton	Hermiston	LaGrande <sup>4</sup>	Across sites average
----- Yield (lb/acre at 10% moisture) -----							
1998							
Kold	6RF	5904	5807	5972	4754	4841	5386
Scio	6RF	5444	5893	5241	5402	4199	5190
Strider	6RF	5793	5565	5866	4654	5906	5292
Trial average (lb/acre)		5714	5755	5693	4937	4982	5289
1999							
Kold	6RF	2346	—	4672	4220	—	4783
Scio	6RF	3430	—	5628	3940	—	5355
Strider	6RF	2687	—	5564	3793	—	4221
Trial average (lb/acre)		2821	—	5288	3985	—	4598
2000							
Kold	6RF	2411	2192	5456	4421	5739	4044
Scio	6RF	2875	2138	4929	5491	6584	4403
Strider	6RF	3192	2544	5831	5683	5874	4625
Trial average (lb/acre)		2826	2291	5405	5198	6065	4357

Table 5. 1998-2000 statewide variety testing program barley yield data across locations in Oregon (continued).

Variety <sup>1</sup>	Market class <sup>2</sup>	Moro	Morrow Co. <sup>3</sup>	Pendleton	Hermiston	LaGrande <sup>4</sup>	Across sites average
----- Yield (lbs/acre at 10% moisture) -----							
1998-2000 average							
Kold	6RF	3553	3999	5366	4465	5290	4535
Scio	6RF	3916	4015	5266	4945	5392	4707
Strider	6RF	3891	4055	5754	4710	5890	4860
3-year average (lbs/acre)		3787	4023	5462	4707	5524	4700
----- Percent of trial average -----							
1998-2000							
Kold	6RF	94	99	98	95	96	96
Scio	6RF	103	100	96	105	98	100
Strider	6RF/M	103	101	105	100	107	103

<sup>1</sup> All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 30 seeds/ft<sup>2</sup> for all locations except Morrow Co., Moro, and Pendleton, where seeding rate was 20 seeds/ft<sup>2</sup>.

<sup>2</sup> 6RF = six-row feed; 6RF/M = barley being assessed for malting use.

<sup>3</sup> Morrow Co. site data too variable to report in 1999.

<sup>4</sup> Ontario site damaged by hail in 1998. LaGrande site damaged by hail 1999.

Table 6. 2000 statewide variety testing program spring wheat yield data for Columbia Basin locations, Oregon.

site Variety or line <sup>1</sup> average	Market class <sup>2</sup>	Moro	Morrow Co.	Pendleton	Hermiston	LaGrande	average	% of Across
Yield (bu/acre at 10% moisture)								
Alpowa	SW	52	28	41	52	118	58	112
Alpowa (no Gaucho)	SW	52	30	38	57	113	58	111
Alpowa (untreated)	SW	52	29	38	48	111	56	107
Chalis	SW	61	26	42	54	110	59	113
Hank	HR	44	24	54	45	107	55	105
IDO 377S	HW	50	34	49	43	107	57	109
IDO 506	SW	51	24	46	46	118	57	110
IDO 525 (Jubilee)	SW	52	29	36	53	110	56	108
IDO 526	SW	55	35	46	56	111	61	116
IDO 533 (Lolo)	HW	53	33	48	56	104	59	113
IDO 560	HW	55	33	42	55	113	60	115
Iona	HR	38	21	42	44	101	49	95
Jefferson	HR	54	34	51	42	102	57	109
ML 037A(5-2)	SW	38	22	45	44	98	49	95
ML 037C(6-2)	SW	45	24	50	43	88	50	96
ML 107-3,1	HW	41	22	41	49	97	50	96
ML 455	HW	44	19	40	38	108	50	96
OR 4870410	HR	38	30	39	42	98	49	95
OR 4880189	HR	45	25	41	45	101	51	99
OR 4920311	HW	38	25	43	39	91	47	91
OR 4970025	SW	40	26	37	32	80	43	83
OR 4970039	SW	40	28	46	34	90	48	92
OR 4970062	SW	40	26	43	45	95	50	96
OR 942885	SW	48	25	42	48	98	52	100
Penawawa (20 seeds/ft <sup>2</sup> )	SW	48	23	19	37	103	46	89
Penawawa (30 seeds/ft <sup>2</sup> )	SW	52	22	25	48	106	50	97
Pomerelle	SW	40	27	44	48	91	50	96
Scarlet	HR	38	25	48	42	107	52	100
Treasure	SW	49	27	53	52	95	55	106
WA 7824	HR	54	21	46	40	101	52	100
Wawai	SW	44	24	55	47	104	55	106
Whitebird	SW	48	24	44	48	91	51	9

Table 6. 2000 statewide variety testing program spring wheat yield data for Columbia Basin locations (continued).

Variety or line <sup>1</sup>	Market class <sup>2</sup>	Moro	Morrow Co.	Pendleton	Hermiston	LaGrande	Across site average	Across site % of average
Yield (bu/acre at 10% moisture) -----								
Winsome	HW	51	31	48	50	103	57	109
WPB 936	HR	51	21	33	44	102	50	97
Yecora Rojo	HR	50	25	32	51	104	52	100
Zak (WA 7850)	SW	41	26	57	45	101	54	104
Lars	HR	—	25	—	—	—	—	—
M94-4393	Triticale	45	25	48	42	—	—	—
Norlander	HR	—	23	—	—	—	—	—
Penawawa (10 seeds/ft <sup>2</sup> )	SW	42	23	10	—	—	—	—
Penawawa (40 seeds/ft <sup>2</sup> )	SW	—	—	—	50	101	—	—
Trical 2700	Triticale	19	19	57	46	—	—	—
Trial Mean		46	26	42	46	102	52	—
CV		13	11	12	17	11	—	—
PLSD (0.05)		10	4	8	13	18	—	—
PLSD (0.10)		8	4	7	11	15	—	—
Pr>F		0.00	0.00	0.00	0.02	0.00	—	—

<sup>1</sup> All seed was treated with fungicide and insecticide (Gaucho) prior to planting unless otherwise noted. Seeding rate was 30 seeds/ft<sup>2</sup> for all locations except Morrow Co., Pendleton, and Moro, where seeding rate was 20 seeds/ft<sup>2</sup> unless otherwise noted.

<sup>2</sup> SW = soft white, HW = hard white, HR = hard red.

Table 7. 1998-2000 statewide variety testing program spring wheat yield data for Columbia Basin, Oregon, sites.

Variety or line <sup>1</sup>	Market class <sup>2</sup>	Moro	Morrow Co.	Hermiston	Pendleton	LaGrande	Across site average
----- Yield (bu/acre, 10% moisture) -----							
1998							
Alpowa (Gaucho)	SW	54	40	36	47	67	51
Alpowa (no Gaucho)	SW	51	35	36	39	60	47
IDO377S	HW	50	34	42	44	49	46
Jefferson	HR	57	34	41	60	58	54
Penawawa	SW	53	30	46	43	54	49
Pomerelle	SW	46	33	46	44	44	45
Scarlet	HR	50	38	38	54	63	51
Wawaiwai	SW	51	32	42	49	50	48
Whitebird	SW	43	30	41	41	48	43
Winsome	HW	47	30	45	42	52	46
WPB936	HR	45	35	24	54	55	44
Yecora Rojo	HR	41	46	21	53	70	46
Trial average (bu/acre)		49	35	39	48	55	48
1999							
Alpowa (Gaucho)	SW	44	18	18	34	41	42
Alpowa (no Gaucho)	SW	49	16	76	36	34	42
IDO377S	HW	45	19	87	36	58	49
Jefferson	HR	45	20	84	36	44	46
Penawawa	SW	43	17	80	36	48	45
Pomerelle	SW	41	20	90	36	57	49
Scarlet	HR	43	20	65	37	31	39
Wawaiwai	SW	39	21	77	35	26	40
Whitebird	SW	40	19	80	35	48	44
Winsome	HW	41	17	74	35	49	43
WPB936	HR	45	19	60	32	34	38
Yecora Rojo	HR	40	17	45	37	27	33
Trial average (bu/acre)		44	19	77	35	45	44

Table 7. 1998-2000 statewide variety testing program spring wheat yield data for Columbia Basin sites (continued)

Variety or line <sup>1</sup>	Market class <sup>2</sup>	Yield (bu/acre, 10% moisture)						Across site average
		Moro	Morrow Co.	Hermiston	Pendleton	LaGrande		
<hr/>								
2000								
Alpowa	SW	52	28	52	41	118	58	
Alpowa (no Gaucho)	SW	52	30	57	38	113	58	
IDO 377S	HW	50	34	43	49	107	57	
Jefferson	HR	54	34	42	51	102	57	
Penawawa	SW	52	23	48	25	106	51	
Pomerelle	SW	40	27	48	44	91	50	
Scarlet	HR	38	25	42	48	107	52	
Wawawai	SW	44	24	47	55	104	55	
Whitebird	SW	48	24	48	44	91	51	
Winsome	HW	51	31	50	48	103	57	
WPB 936	HR	51	21	44	33	102	50	
Yecora Rojo	HR	50	25	51	32	104	52	
Trial average (bu/acre)		46	26	46	43	102	53	
<hr/>								
1998-2000 average								
Alpowa	SW	50	23	41	54	76	66	
Alpowa (no Gaucho)	SW	51	23	38	56	69	67	
IDO 377S	HW	48	27	43	58	72	69	
Jefferson	HR	52	27	49	55	68	67	
Penawawa	SW	49	20	35	58	69	65	
Pomerelle	SW	42	24	41	61	64	68	
Scarlet	HR	44	23	46	48	67	64	
Wawawai	SW	45	23	47	55	60	63	
Whitebird	SW	44	22	40	56	62	66	
Winsome	HW	46	24	42	56	68	68	
WPB 936	HR	47	20	40	42	63	60	
Yecora Rojo	HR	44	21	41	39	67	59	
3-year average (bu/acre)		47	23	42	53	67	65	

Table 7. 1998-2000 statewide variety testing program spring wheat yield data for Columbia Basin sites (continued)

Variety or line <sup>1</sup>	Market class <sup>2</sup>	Moro	Morrow Co.	Hermiston	Pendleton	LaGrande	Across site average
<hr/>							
1998-2000 average							
<hr/>							
Alpowa	SW	106	100	98	102	113	102
Alpowa (no Gaucho)	SW	109	100	90	106	103	103
IDO 377S	HW	102	115	102	109	107	106
Jefferson	HR	111	117	117	104	101	103
Penawawa	SW	104	87	83	109	103	100
Pomerelle	SW	89	102	98	115	95	105
Scarlet	HR	94	98	110	91	100	98
Wawaiwai	SW	96	98	112	104	90	97
Whitebird	SW	94	93	95	106	93	102
Winsome	HW	98	104	100	106	101	105
WPB 936	HR	100	87	95	79	94	92
Yecora Rojo	HR	94	91	98	74	100	91

<sup>1</sup> All seed was treated with fungicide and insecticide (Gaucho) prior to planting unless otherwise noted. Seeding rate was 30 seeds/ft<sup>2</sup> for all locations except Lexington, Pendleton, and Moro, where seeding rate was 20 seeds/ft<sup>2</sup> unless otherwise noted.

<sup>2</sup> SW = soft white, HW = hard white, HR = hard red.

Table 8. 2000 statewide variety testing program spring barley yield data for Columbia Basin locations, Oregon.

Variety or line <sup>1</sup>	Market class <sup>2</sup>	Yield (lb/acre at 10% moisture)					Across site average	Across site % of average
		Moro	Morrow Co.	Pendleton	Hermiston	LaGrande		
Bancroft	2RM	3241	1474	2505	3991	4951	3232	98
Baronesse	2RF	3474	2345	2454	4491	7242	4001	121
Othello (BCD 47)	2RF/M	3183	1898	2131	4520	5937	3534	107
Belford	Hooded	2040	1543	2049	1150	3238	2004	61
Chinook	2RM	3043	1569	1843	3827	6474	3351	102
Garnet	2RM	3356	1906	2451	3782	5093	3318	101
H3860224	2RF/M	3249	2312	2495	3911	6008	3595	109
Harrington	2RM	3527	1967	2148	3595	5239	3295	100
Orca	2RF	2875	2101	2126	4097	5389	3318	101
Steptoe	6RF	3177	2297	1940	3995	6791	3640	110
Tango	6RF	3893	2288	1852	4187	4695	3383	103
Valier	2RF	3263	2111	2496	3216	4199	3057	93
WA9504-94	2RF/M	3701	1961	2465	4152	5272	3510	106
Xena (BZ594-19)	2RF	3493	2201	2033	4324	6490	3708	112
Sara-I	Hooded	—	955	866	—	3634	—	—
Gallatin	2RF	3265	—	—	—	—	—	—
Trial Mean		3252	1929	2124	3803	5376	3297	
CV		10	11	12	15	16		
PLSD (0.05)		555	369	410.8	943	1422		
PLSD (0.10)		461	306	341.1	782	1181		
Pr > F		0.00	0.00	0.00	0.00	0.00		

<sup>1</sup> All seed was treated with fungicide and Gaucho (insecticide) prior to planting unless otherwise noted. Seeding rate was 30 seeds /ft<sup>2</sup> at all locations except Morrow Co., Pendleton, and Moro, where seeding rate was 20 seeds /ft<sup>2</sup>.

<sup>2</sup> 2R = two row, 6R = six row, F = feed, M = malt, F/M = may be considered for malt.

Table 9. 1998-2000 statewide variety testing program spring wheat yield data for Columbia Basin sites, Oregon.

Variety or line <sup>1</sup>	Market class <sup>2</sup>	Moro <sup>3</sup>	Morrow Co. <sup>3</sup>	Pendleton	Hermiston	LaGrande	Across site average
----- Yield (lb/acre, 10% moisture) -----							
1998							
Bancroft	2RM	—	—	3894	3936	4086	3759
Baronesse	2RF	—	—	3414	4147	4070	3850
Chinook	2RM	—	—	3773	3873	3299	3421
Orca	2RF	—	—	4320	3071	3557	3648
Steptoe	6RF	—	—	3946	3349	3903	3429
Trial average (lb/acre)		—	—	3959	3602	3928	3734
1999							
Bancroft	2RM	3093	1176	2943	3796	1989	3475
Baronesse	2RF	3495	1592	3070	5416	2388	4429
Chinook	2RM	3322	1374	2817	3610	2754	3895
Orca	2RF	3071	1314	2801	2994	3281	3384
Steptoe	6RF	3641	1421	3068	3290	1650	3823
Trial average (lb/acre)		328	1370	2886	4473	2702	3937
2000							
Bancroft	2RM	3241	1474	2505	3991	4951	3840
Baronesse	2RF	3474	2345	2454	4491	7242	4480
Chinook	2RM	3043	1569	1843	3827	6474	3847
Orca	2RF	2875	2101	2126	4097	5389	3813
Steptoe	6RF	3177	2297	1940	3995	6791	3994
Trial average (lb/acre)		252	1929	2124	3803	5376	3855
1998-2000 average							
Bancroft	2RM	3313	1389	3338	3811	3274	3621
Baronesse	2RF	3333	1508	3227	3854	3516	3704
Chinook	2RM	3301	1515	3107	3830	3701	3725
Orca	2RF	3258	1574	2980	3847	3862	3771
Steptoe	6RF	3251	1639	2797	3918	4111	3817
Average yield 1998-2-000 (lb/acre)		3291	1525	3090	3852	3693	3728

Table 9. 1998-2000 statewide variety testing program spring wheat yield data for Columbia Basin sites (continued).

Variety or line <sup>1</sup>	Market class <sup>2</sup>	Moro <sup>3</sup>	Morrow Co. <sup>3</sup>	Pendleton	Hermiston	LaGrande	Across site average
1998-2000 average							
Bancroft	2RM	101	91	108	99	89	97
Baronesse	2RF	101	99	104	100	95	99
Chinook	2RM	100	99	101	99	100	100
Orca	2RF	99	103	96	100	105	101
Steptoe	6RF	99	107	91	102	111	102

<sup>1</sup> All seed was treated with fungicide and Gaucho (insecticide) prior to planting unless otherwise noted. Seeding rate was 30 seeds/ft<sup>2</sup> at all locations except Morrow Co., Pendleton, and Moro, where seeding rate was 20 seeds/ft<sup>2</sup>.

<sup>2</sup> 2R = two row, 6R = six row, F = feed, M = malt, F/M = may be considered for malt.

<sup>3</sup> Moro had high variability in 1998, making comparisons meaningless. Lexington was added in 1999.