

STATE-WIDE CEREAL VARIETY TESTING PROGRAM TRIALS IN CENTRAL OREGON, 2001

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Abstract

Grain variety trials were conducted at Madras, Oregon, as part of the eighth year of a state-wide variety testing program. Winter wheat, triticale, and barley trials were established as well as spring wheat and barley trials. Soft spring wheat varieties were planted separately from hard spring wheat varieties to facilitate application of different nitrogen fertilizer rates. In previous years, all varieties received the same rate of nitrogen, a site-specific rate, expected to maximize yield of the soft white cultivars. Consequently, grain protein concentrations in hard wheats have been generally lower than desired. This year, hard spring wheats were fertilized to increase grain protein concentrations. As groups, winter triticale (28 varieties) had the highest average yield (9,300 lb/acre) followed by winter wheat (45 varieties; 7,260 lb/acre), winter barley (8 varieties; 5,547 lb/acre), hard spring wheats (31 varieties; 5,280 lb/acre), soft spring wheats (30 varieties; 4,860 lb/acre), and spring barley (16 varieties; 3,757 lb/acre). Spring wheat yields were lower than in past years, which may have been due to moisture problems in the soil. Lodging was a problem in the winter barley trial, but was limited in all other trials. Within each grain class, several varieties appear to be top performers across years. Growers are encouraged to carefully review prospective varieties for both yield and other desirable characteristics, such as grain quality, plant height, and resistance to disease and lodging.

Introduction

Public and private Pacific Northwest plant breeders release new cereal varieties each year. To provide growers with accurate, up-to-date information on variety performance, a statewide variety testing program was initiated in 1993 with funding provided by the Oregon State University (OSU) Extension Service, OSU Agricultural Experiment Station, Oregon Wheat Commission, and Oregon Grains Commission. Ten sites are included in the testing network. More than 50 varieties are tested each year at each site. Height, lodging, yield, test weight, 1,000-kernal weight, and protein data are determined for all plots in Madras, Oregon. Other information is collected as time and labor allows. Data are summarized in extension publications and county extension newsletters as well as in other popular press media. Data for all trials are on the OSU Cereals Extension web page (<http://www.css.orst.edu/cereals>). For future reference, use the web page for earliest access to data, as trial results are posted as soon as they are available.

Materials and Methods

Plots (4.5 ft x 20 ft) were planted at a rate of 30 seeds/ft² using an Oyjord plot drill. Winter trials were planted on October 17, 2000. Spring trials were planted on April 5, 2001. The nitrogen supply goal for winter wheat and triticale is 200 lb N/acre. The

nitrogen supply goal for hard spring wheat is 320 lb N/acre and 220 lb N/acre for soft spring wheats. The nitrogen target for winter and spring barley is 100 lb N/acre.

Table 1. Soil test results from samples taken on March 14, 2001, for the winter wheat, winter triticale, and winter barley, state-wide variety test trial, at COARC, Madras, Oregon.

Soil depth	pH	NO ₃ (lb/acre)	NH ₄ (lb/acre)	P (ppm)	K (ppm)	S (ppm)
0-12 in	7.5	21	8	12	321	4.0
12-24 in	8.0	24	-	8	232	4.2
0-24 in total		45	8			

Table 2. Soil test results from samples taken on April 4, 2001, for spring wheat state-wide variety test trial, at COARC, Madras, Oregon.

Soil depth	pH	NO ₃ (lb/acre)	NH ₄ (lb/acre)	P (ppm)	K (ppm)	S (ppm)
0-12 in	7.0	122	13	34	353	18.4
12-24 in	7.9	90	18	17	248	14.1
0-24 in total		212	31			

Table 3. Soil test results from samples taken on March 28, 2001, for the spring barley state-wide variety test trial at COARC, Madras, Oregon.

Soil depth	pH	NO ₃ (lb/acre)	NH ₄ (lb/acre)	P (ppm)	K (ppm)	S (ppm)
0-12 in	7.1	26	15	26	444	5.2
12-24 in	7.5	16	9	17	346	4.9
0-24 in total		42	24			

The winter wheat and triticale variety trials were fertilized with 450 lb/acre of 30-10-0-7 on April 21, 2001. Total nitrogen (soil + fertilizer N) available to the plants was 180 lb/acre. The hard spring wheat variety trial was fertilized with 350 lb/acre of 30-10-0-7 on April 6, 2001. Total nitrogen (soil + fertilizer N) available to the plants was 317 lb/acre. Soft spring wheat was not fertilized and total nitrogen available to the plants was 212 lb/acre. The spring barley variety trial was fertilized with 150 lb/acre of 30-10-0-7 on April 6, 2001. Total nitrogen (soil + fertilizer N) available to the plants was 87 lb/acre. Only soil NO₃ is used for the nitrogen budget, in addition to the applied nitrogen.

Weed control for the trials included applying 1.3 pints/acre of 2,4-D on April 13, 2001 on the winter wheat, triticale, and barley variety trial, and 1.5 pints/acre of 2,4-D on May 29, 2001 to the spring wheat and spring barley variety trial.

The trials were irrigated as needed with a 30-ft x 40-ft-spacing solid-set irrigation system. Date of first irrigation for the winter wheat, triticale, and barley variety trial occurred on April 17, 2001, for spring wheat variety trials on April 18, 2001, and for the spring barley variety trial on April 17, 2001. The last irrigation for the winter wheat, triticale, and barley variety trial occurred on July 10, 2001 and July 17, 2001 for spring wheat and spring barley variety trials.

Heading dates were recorded when 50 percent heading occurred. Just prior to harvest, lodging scores (percent) and plant height (in) measurements were taken. The trials were harvested with a Hege plot combine. Harvest dates for the winter wheat and triticale variety trial, spring wheat and triticale variety trial, and spring barley variety trial were August 14, August 16, and August 15, 2001. The grain samples were shipped to the OSU Hyslop Farm at Corvallis and the grain was cleaned on a Peltz rub-bar cleaner. Plot yield, test weight, protein, moisture, and 1,000-kernel weight (not reported in tables, but is located on tables on the internet) were all determined on cleaned grain samples. Yields are reported on 10 percent moisture, bu/acre basis (60 lb/bu). Barley yields are reported as lb/acre. Protein and moisture levels were determined using a whole-grain, near-infrared protein analyzer. Proteins are reported on a 12 percent moisture basis.

Results and Discussion

Weed control in all trials was excellent. The lowest temperature recorded at the Agri-met weather station was 19.7°F. Frost events occurred on June 13, and may have affected yield.

Winter Wheat and Winter Triticale Trial

The winter wheat and triticale trial average yield was 121 bu/acre and yields ranged from 96 to 154 bu/acre (Table 4). For the top-yielding 14 entries, 'ID52814A' to 'WA7855' (a range of 148 bu/acre to 130 bu/acre), there were no significant differences between varieties. The top-yielding variety in the trial was 'KFT 31', a triticale variety out of Kansas. Given the similarity in yields for the leading varieties, selections should be made based on traits such as disease and lodging resistance, plant height, grain quality, or other desired characteristics.

Average plant height was 36 in and average lodging was six percent for the trial. The lodging was considerably less than the 38 percent reported in the 2000 trial.

Average grain protein was 9.5 percent. The classes and species protein percentage ranges were oat, 16.6 to 6.7; rye, 7.4; triticale, 9.8 to 11.1; club wheat, 8.4 to 9.8; hard red wheat, 9.7 to 0.5; durum, 10.4; and soft white wheat, 8.3 to 11.2. Only five of the soft white varieties had protein percentages greater than 9.4. Optimum grain yield occurs at approximately 9.5 percent protein for soft white winter wheat and 11.5 percent for hard red wheat and is an indicator of sufficient nitrogen supply for yield. Though the trial averaged 9.5 percent protein, many soft white wheat varieties did not achieve that percentage, which would indicate that some of the varieties did not maximize yield. The lower proteins would indicate that the 180 lb/acre total N available at the beginning of the season was not sufficient to optimize yield for soft white wheat and hard red wheat.

Two additional seeding rates of 20 and 45 seeds/ft² were compared to 30 seeds/ft² for the variety 'MacVicar'. Significant differences between the seeding rates occurred. There were significant differences between yield, protein, test weight, and heading date. This may have been an anomaly or was it a varietal response? More than 1 year of data is

needed to make any conclusions. The plots with 20 and 45 seeds/ft² were all in the third rep and were not randomized in each rep.

The winter oat varieties were included to obtain winter hardiness and other agronomic information. The oats were ripe and shattered before the trial could be harvested, which helps explain the low yields for the two oat varieties. The lodging resistance of ‘Crater’ and ‘Kolding’ winter oats was excellent considering the high nitrogen fertility conditions.

Winter Triticale Trial

The winter triticale variety trial average yield was 155 bu/acre and yields ranged from 129 to 179 bu/acre (Table 5). The winter triticale varieties averaged 30 bu/acre more than the winter wheat varieties, comparing trial to trial. There were no statistically significant differences between the top six yielding varieties (‘RSI-MAH 3198’, at 179 bu/acre, to ‘Lamberto’ at 166 bu/acre). ‘Bogo’ and ‘Alzo’, Polish cultivars, are grown locally.

‘Celia’, the check triticale variety, and ‘Weatherford’, the check soft white wheat variety, were the lowest yielding at 129 and 133 bu/acre. ‘Weatherford’, a soft white winter wheat variety, was used as the wheat check variety because it has the best disease resistance package of any wheat variety. Much progress has been made in increasing yield over the years.

Many of these varieties in the trial are from Poland. The RSI lines are entries from Resource Seed in Gilroy, California. Resource Seed has made great strides in improving yields of their lines. As yield has increased in the triticale cultivars, protein contents have decreased. Average protein content (9.5 percent) was the same as for the winter soft white wheat trial.

Test weight average was 56.6 lb/bu, unchanged from the 2000 trial. ‘Celia’ was the last variety to head out. Great strides have been made in breeding earlier heading cultivars.

Spring Hard Wheat Trial

In contrast to the winter trials where soft white varieties dominate, hard white and hard red lines and varieties tend to have higher yields in the spring trials. While yields are high for the hard classes, desired protein levels have never been reached. In previous years, all spring varieties received the same rate of nitrogen; a site-specific rate managed to maximize yield of the soft white cultivars. Consequently, grain protein concentrations in hard wheats have been generally lower than desired. This year, hard spring wheat varieties and lines were planted in a separate trial and fertilized to maximize grain protein concentrations. The trial was compromised by a frost event.

The hard spring wheat trial average yield was 88 bu/acre and yields ranged from 72 to 113 bu/acre (Table 6). However, there was no significant difference ($P = 0.10$) between the top eight yielding entries. ‘IDO 377S’ was the highest yielding entry but had the lowest grain protein concentration of 9.9 percent. Average protein concentration was 12.3 percent compared to the average of 11.1 percent in the 2000 state-wide trial.

'Bonus' was another high-yielding variety. 'Bonus' is early maturing and shorter than most hard wheat cultivars, but had lower protein than the trial average. The 317 lb/acre of nitrogen (soil and fertilizer) available at the beginning of the trial was not sufficient for achieving desired protein levels.

'Yecora Rojo', hard red wheat cultivar, was planted at seeding rates of 10, 20, 30, and 40 seeds per square foot with in this trial. There were no significant differences between seeding rates for yield, test weight, and protein. Winsome, hard white cultivar, was planted at 20, 30 and 45 seeds/ft², and there were no differences in yield, test weight, and protein.

No lodging occurred in the trial.

Spring Soft White Wheat Trial

The soft spring wheat variety trial average yield was 88 bu/acre and ranged from 75 to 115 bu/acre (Table 7), similar to the hard wheat trial. There was no significant difference between the top five yielding entries. Among soft white lines, there has been high yield variability from year to year. 'IDO 526' and 'Whitebird' have been among the most consistent of the high-yielding varieties. 'Whitebird' is later maturing than most other soft white lines and has slightly lower protein. 'IDO 526' has good resistance to lodging and excellent stripe rust resistance. 'Chalis', 'Treasure', and 'Penawawa' are other soft white lines that have good yield potential in central Oregon. 'Challis' and 'Treasure' yield well under irrigation and have good resistance to lodging. Only one plot in the entire trial lodged at around 5 percent.

The average protein content of the cultivars was 12.2 percent, which would suggest that the 212 lb/acre nitrogen available at the beginning of the trial was greater than needed for maximizing yield.

'Provena' and 'Lamont' naked spring oats were included in the soft white trial to gain some data on agronomic characteristics. Again, as in the winter trial, the oat varieties ripened and shattered before harvest.

The 'Recora Rojo X' (hard red wheat) entry yield at 63 bu/acre in the trial really represents yield from only 0.615 acre and actual yield should be 87 bu/acre. The two outside rows were not harvested to check the accuracy of the plot area of 4.5 ft², which is presently being used. In this first year test, it suggests that perhaps the yield data presented are under-represented by 9 percent, or that yields shown in the tables should be 9 percent greater. This exercise needs to be repeated for a few more years.

Spring Barley

Spring barley data are presented in Table 8. The average yield for spring barleys was 4,257 lb/acre and ranged from 2,981 to 4,762 lb/acre. Yield was down considerably from last year. There were no significant differences ($P = 0.10$) between the top eight yielding barley varieties. The 87 lb/acre nitrogen available at the beginning of the season may not have been sufficient for maximum yield.

The varieties were equally lodged, at an average of 15 percent. Average height was slightly higher and test weights were down compared to the 2000 trial data. ‘Garnet’ (2RM) is a feed variety that shows potential as a malt-type barley, but needs further testing. ‘Garnet’ competes favorably in yield with existing two-rowed varieties.

Winter Barley

The data for the winter barley are in Table 9. The winter barley trial was only replicated twice due to land restrictions. The average yield was 5,547 lb/acre and ranged from 3,904 lb/acre to 7,473 lb/acre. Lodging was a major problem in the 2001 trial due to fertilization of the field for winter wheat and triticale. That was the only available site on station. ‘Scio’ was the highest yielding variety and normally shows good resistance to lodging.

Table 4. Statewide variety testing program for winter wheat, Madras, Oregon, 2001.

Variety or line ¹	Market class ²	Yield (bu/acre)			Test wt. (lb/bu)	Protein (%)	2001 Data		
		2001	2000	1999			Heading (day) ³	Height (in)	Lodging (% of plot)
KFT31	Trit	154	-	-	58.3	10.5	141	39	3
ID52814A	SW	148	151	-	60.1	8.8	152	36	1
Alzo	Trit	145	179	155	55.7	9.8	150	41	2
Titan	Trit	142	178	186	56.1	11.1	143	36	5
Rod	SW	137	156	165	60.7	8.5	160	35	4
ID-B-96	SW	137	145	-	60.1	8.9	155	33	1
ID517	HR	135	-	-	59.9	10.5	150	32	1
OR 941044	HW	135	-	-	62.4	9.5	151	35	0
Brundage	SW	135	-	-	61.6	8.8	150	29	0
OR 941904	SW	134	-	-	61.1	8.8	159	34	2
Bogo	Trit	132	163	190	53.8	10.2	147	38	3
Hiller	Club	131	138	147	59.6	8.4	158	34	2
Macvicar (45 seeds/ft ²)	SW	131	-	-	60.2	9.6	152	35	0
WA7855	Club	130	-	-	58.9	9.3	161	37	27
Basin	SW	129	149	-	59.5	8.3	161	28	1
Madsen/Stephens	SW	128	162	166	60.0	8.9	152	34	0
OR 939526	SW	128	149	-	60.0	8.8	155	36	2
Malcolm	SW	126	-	-	59.4	9.7	152	35	0
Weatherford	SW	125	150	150	60.5	8.9	159	36	0
Boundry	HR	125	120	-	61.7	9.7	153	34	0
ID17113A	SW	124	-	-	59.6	9.1	161	34	0
MacVicar	SW	123	149	-	59.9	8.5	152	33	1
OR 850513-19	HW	122	127	-	60.6	8.9	158	34	0
OR 939528	SW	122	153	161	59.9	9.1	157	36	2
Rely	Club	121	122	140	59.4	8.4	160	38	31
Rohde	Club	121	124	147	60.8	8.9	151	32	3
OR 941899	SW	121	-	-	61.5	8.9	161	35	0
Coda	Club	121	130	139	60.8	8.8	160	39	3
Madsen	SW	120	141	156	62.3	9.0	159	34	0
WA7853	SW	118	-	-	60.2	9.2	159	37	1

Temple	Club	118	127	143	61.1	8.6	152	36	20
Foote	SW	117	136	145	59.6	9.7	153	36	0
Hubbard (ID10420A)	SW	116	-	-	60.8	9.3	158	40	1
OR 850513-8	HW	116	133	-	60.4	8.7	152	36	0
Rifle	Rye	116	121	119	55.5	7.4	143	36	1
Stephens	SW	113	151	178	59.0	9.6	151	32	0

Table 4. cont.

Variety or line ¹	Market class ²	Yield (bu/acre)			Test wt. (lb/bu)	Protein (%)	2001 Data		
		2001	2000	1999			Heading (doy) ³	Height (in)	Lodging (% of plot)
OR 943560	SW	110	132		60.4	8.8	157	33	0
Bruehl	Club	110	137		61.2	8.7	161	39	3
Yamhill	SW	107	-		58.8	9.1	162	42	5
Connie	Durum	103	137	80	61.9	10.4	150	30	0
Edwin	Club	102	106		60.1	9.8	158	43	40
ID550	HW	102	115		60.7	9.1	152	40	67
MacVicar (20 seeds/ft ²)	SW	96	-	-	57.5	11.2	160	34	2
Kolding oat	Oat	70	-	-	43.3	16.7	162	42	18
Crater Oat	Oat	32	-	-	39.1	16.6	162	47	27
Trial Mean		121	141	153	58.9	9.5	155	36	6
PLSD 0.05		24	17	15	2.5	10.5	avg	avg	avg
PLSD 0.10		20	14	7	2.4	1.6			
CV (%)		12	7	7	2.0	1.3			
P > F		<0.00	0.00	0.00	<0.00	<0.00			

¹All seed treated with fungicide and Gaucho[®] (insecticide) prior to planting unless otherwise noted. Seeding rate was 30 seeds/ ft² unless otherwise noted.

HR = hard red, HW = hard white, SW =soft white.

³Doy = day of year.

Table 5. Statewide variety testing program for winter triticale, Madras, Oregon, 2001.

Variety or line ¹	Market class ²	Yield (bu/acre)			2001 Data				
		2001	2000	1999	Test wt. (lb/bu)	Protein (%)	Heading (doy) ³	Height (in)	Lodging (% of plot)
RSI-MAH 3198	Trit	179	-	-	57.3	8.2	145	37	2
Elan	Trit	177	-	-	57.0	9.0	143	37	0
RSI-17318	Trit	175	-	-	56.6	9.0	143	39	2.7
Magnito	Trit	171	-	-	56.6	8.7	149	40	0.7
RSI-MAL 366	Trit	170	155	-	56.1	9.1	144	38	2.7
Lamberto	Trit	166	178	-	57.1	8.9	147	42	1
RSI-5420	Trit	163	175	-	57.3	9.6	147	39	0
Piano	Trit	163	-	-	55.9	9.8	147	42	1.7
Kitaro	Trit	161	181	-	56.6	9.2	146	39	4.3
Cahar	Trit	161	-	-	53.4	9.7	144	40	5
RSI-8917	Trit	157	-	-	56.1	9.7	149	42	1
Décor	Trit	157	-	-	59.0	9.8	143	36	2
Disko	Trit	156	-	-	55.5	8.7	148	45	0
Dictor	Trit	154	-	-	56.4	10.0	144	40	5
Fidelio	Trit	154	-	-	55.2	8.9	150	40	0
Bogo	Trit	154	164	175	55.5	9.5	149	40	4.3
Sturdy	Trit	153	-	-	57.0	10.3	142	40	1.7
Titan	Trit	152	178	186	56.6	9.4	146	37	1
Enot	Trit	150	-	-	57.1	10.0	143	37	3
RSI-VIC 1439	Trit	150	152	-	57.0	9.5	148	41	0
M99-748	Trit	148	-	-	58.2	9.8	143	42	12.7
RSI-10008	Trit	147	-	-	56.8	10.5	147	46	21.7
Stephens	SW	147	151	178	58.2	9.1	151	32	0
Celia/Presto	Trit	137	-	-	56.5	10.5	148	36	4.3
Alzo	Trit	134	185	155	55.1	9.2	150	43	2.7
Steel	Trit	133	-	-	55.9	11.4	141	39	2.7
Weatherford	SW	133	150	150	57.8	8.9	150	34	0
Celia	Trit	129	157	139	56.8	10.2	151	35	0
Trial Mean		155	149	-	56.6	9.5	146	39	2.9
CV		18	16	-	3.2	6.5	avg	avg	avg
PLSD (0.05)		15	8	-	NS	1.0			
PLSD (0.10)		7.2	19	-	NS	0.8			
Pr > F		<0.00	<0.00	-	0.35	<0.00			

¹All seed treated with fungicide and Gaucho[®] (insecticide) prior to planting unless otherwise noted. Seeding rate was 30 seeds/ft² unless otherwise noted.

Wtrit = winter triticale, Sptri t= spring triticale, WSWW = soft white winter wheat.

³Doy = day of year.

Table 6. Statewide variety testing program for hard spring wheat, Madras, Oregon, 2001.

Variety or line ¹	Market class ²	Yield (bu/acre)			Test wt. (lb/bu)	2001 Data		
		2001	2000	1999		Protein (%)	Height (in)	Heading (doy) ³
IDO 377S	HW	113	133	107	64.1	9.9	35	170
Bonus	HR	108	122	-	62.2	11.4	26	165
IDO 560	HW	105	129	-	62.9	10.3	36	171
Yecora Rojo (20 seeds/ft ²)	HR	98	-	-	63.2	12.2	24	165
Alpowa	SW	96	114	109	62.1	10.9	33	172
Brooks	HR	95	119	-	62.3	12.0	27	166
Yecora Rojo	HR	94	114	143	63.2	12.0	27	165
ML 181,A,1-38	HW	94	-	-	61.9	11.6	32	169
Yecora Rojo (10 seeds/ft ²)	HR	92	-	-	63.7	12.2	24	163
Scarlet	HR	91	106	100	62.4	12.2	37	169
Pronto	HR	91	-	-	63.4	13.2	34	165
Hank	HR	90	98	-	61.9	14.2	31	165
WA 7839	HR	89	-	-	62.5	13.1	33	168
WPB 936	HR	89	117	144	61.7	13.4	29	167
Yecora Rojo (40 seeds/ft ²)	HR	87	-	-	63.3	12.4	25	164
IDO 557	HR	87	-	-	63.5	12.8	32	168
WA 7900	HW	87	-	-	61.8	11.6	34	170
Penawawa	SW	86	121	133	61.0	10.9	29	171
OR 4910028	HR	86	-	-	61.0	11.6	31	167
IDO 545	HR	83	-	-	61.4	13.4	36	172
Winsome (45 seeds/ft ²)	HW	83	-	-	60.5	11.5	31	173
WA 7901	HW	82	-	-	61.0	12.5	36	172
Winsome	HW	82	127	-	61.8	11.7	31	173
Winsome (20 seeds/ft ²)	HW	81	-	-	61.6	11.7	32	172
Lolo (IDO 533)	HW	78	122	-	63.1	11.9	33	170
Tara (WA 7824)	HR	77	111	-	62.3	14.2	36	167
Jefferson	HR	76	112	113	61.0	14.1	30	168
Sunco	HW	75	-	-	61.2	12.6	30	174
WA 7899	HW	74	-	-	61.9	12.5	33	170
OR 49120002	HR	74	-	-	61.1	11.9	31	171
Iona	HR	72	-	-	62.0	14.2	34	169
Trial Mean		88			62.1	12.3	31	169
LSD (0.05)		14.1			2.3	7.8	avg	avg
LSD (0.10)		20.0			NS	1.5		
CV (%)		17			1.9	1.3		
P > F		0.00			0.06	<0.00		

¹ All seed treated with fungicide and Gaucho[®] (insecticide) prior to planting unless otherwise noted. Seeding rate was 30 seeds/ft² unless otherwise noted.

HR = hard red, HW = hard white, SW = soft white.

³Doy = day of year.

Table 7. Statewide variety testing program for soft spring wheat, Madras, Oregon, 2001.

Variety or line ¹	Market class ²	Yield (bu/acre)			Test wt. (lb/bu)	2001 Data		Heading (doy) ³
		2001	2000	1999		Protein (%)	Height (in)	
IDO 526	SW	115	116	124	62.7	10.2	32	169
Jefferson	HR	100	112	113	64.0	12.3	33	166
Whitebird	SW	95	130	105	64.1	10.8	31	171
Challis	SW	94	122	-	61.7	11.3	30	169
Treasure	SW	90	111	-	62.9	10.8	27	173
WA 7902	SW	88	-	-	63.4	10.2	30	170
Penawawa	SW	87	121	133	61.9	9.6	29	168
Zak	SW	85	108	90	62.8	11.4	31	170
Alpowa (no gaucho)	SW	84	126	108	63.0	11.7	29	171
Alpowa (untreated)	SW	84	118	-	63.5	10.0	28	169
Winsome	HW	83	127	-	62.4	10.4	29	171
Jubilee (IDO 525)	SW	81	117	126	63.5	11.9	30	171
Yecora Rojo	HR	79	114	143	63.7	11.4	23	164
Wawawai	SW	78	106	105	63.7	11.0	32	169
WA 7884	SW	77	-	-	63.4	10.5	29	172
Alpowa	SW	75	114	143	63.1	11.1	29	171
Cayuse	Oat	67	-	-	39.2	14.6	34	172
Yecora Rojo X	HR	63	-	-	63.8	12.0	25	162
Provena	N Oat	35	-	-	52.2	22.9	33	177
Lamont	N Oat	34	-	-	48.4	20.0	36	177
Trial Mean		80			60.6	12.2	30	170
LSD (0.05)		26			1.0	1.5	avg	avg
LSD (0.10)		21			0.9	1.2		
CV (%)		19.4			1	7.4		
P > F		<0.00			<0.00	<0.00		

¹ All seed treated with fungicide and Gaucho® (insecticide) prior to planting unless otherwise noted. Seeding rate was 30 seeds/ft² unless otherwise noted.

HR = hard red, HW = hard white, SW = soft white, N = naked.

³Doy = day of year.

Table 8. Statewide variety testing program for spring barley, Madras, Oregon, 2001.

Variety or line ¹	Market class ²	Yield (lb/acre) ³			2001 Data				
		2001	2000	1999	Test wt. (lb/bu)	Protein (%)	Height (in)	Heading (doy) ⁴	Lodge (% plot)
Garnet	2RM	4762	4854	-	53.9	11.1	24	171	13.9
Chinook	2 RM	4458	4309	6101	52.2	9.5	30	171	15.8
Stab-113	2RF/M	4214	-	-	53.8	9.8	28	171	15.6
Othello (BCD-47)	2RF/M	4194	4497	-	53.0	10.2	24	172	13.9
H3860224	2RF	4029	4265	-	53.8	9.7	28	172	13.3
Morex	6RM	3962	-	-	51.5	10.8	34	170	15.6
Stab-47	2RF/M	3887	-	-	53.9	9.4	28	171	13.6
Orca	6RF	3855	3772	4898	52.3	8.9	30	169	16.6
Valier	2RF	3698	4676	-	52.2	9.7	25	168	14.3
Stab-7	2RF/M	3685	-	-	52.1	9.7	26	167	12.9
Steptoe	6RF	3468	4417	6227	53.6	9.2	28	171	16.8
Harrington	2RM	3414	4481	-	51.5	9.6	29	171	14.8
Bancroft	2RM	3229	4097	4946	50.7	9.6	30	169	13.8
Farmington	2RF/M	3186	-	-	50.4	10.2	27	169	14.3
Tango	6RF	3099	4736	5984	51.0	9.9	31	168	15.1
WA 8682-96	6RF/M	2981	-	-	50.6	9.9	31	167	16.5
Mean		3757	4257	5953	52.2	9.8	28	170	14.8
LSD (0.05)		NS	944	1064	NS	NS	avg	avg	avg
LSD (0.10)		909	784	884	NS	NS			
CV (%)		17	13	11	3.4	9.1			
Pr > F		0.10	0.00	0.00	0.23	0.39			

¹ All seed was treated with fungicide and Gaucho[®] (insecticide) prior to planting unless otherwise noted. Seeding rate was 30 seeds/ft² unless otherwise noted.

2R = two row; 6R = six row; F = feed; M = malt; F/M = may be considered for feed and malt.

³Adjusted to 10% moisture. ⁴ Doy = day of year.

Table 9. Statewide variety testing program for winter barley, Madras, Oregon, 2001.

Variety or line ¹	Market class ²	Yield (lb/acre) ³			2001 Data				
		2001	2000	1999	Test wt. (lb/bu)	Protein (%)	Height (in)	Heading (doy) ⁴	Lodge (% of plot)
Scio	6RF	7473	-	-	49.9	10.8	31	142	73
Strider	6RF	6410	-	-	49.5	11.7	29	138	95
Kold	6RF	6310	-	-	51.2	12.1	34	145	78
Stab-47	6RF/M	6066	-	-	49.8	12.2	30	137	93
Kab 37	2RF/M	5177	-	-	51.8	12.2	33	143	78
Stab-113	6RF/M	4534	-	-	49.9	13.3	35	145	80
88Ab536	6RM	4498	-	-	48.6	13.8	31	136	95
Stab-7	6RF	3904	-	-	48.5	13.1	31	137	93
Trial Mean		5547	-	-	49.9	12.4	32	140	85
		avg			avg	avg	avg	avg	avg

¹All seed was treated with fungicide and Gaucho[®] (insecticide) prior to planting unless otherwise noted. Seeding rate was 30 seeds/ft² unless otherwise noted.

RF = row and feed; RM = row and malt; F/M = being evaluated for feed and malt.
³Adjusted to 10% moisture. ⁴Doy = day of year.
