

Spring Grain Varieties for 1996



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Russ Karow, Helle Ruddenklau, Mike Moore, Mike Barnum, Mylen Bohle, Randy Dovel, Steve James, Gary Reed, Rich Roseberg, Clint Shock¹

This publication describes spring wheats, barleys, oats, and triticales commonly grown in Oregon and provides, when available, yield and agronomic data to aid in variety selection. The wheat, barley, and triticale data presented in this publication were generated through a state-wide variety testing program. This program was initiated in 1992 with funding and support dollars provided by the Oregon State University Agricultural Experiment Station, Oregon Wheat Commission, Oregon Grains Commission, and Oregon State University Extension Service. The program is centrally coordinated by Russ Karow and Helle Ruddenklau and involves research cooperators at eight experiment stations across Oregon. Grower cooperators make small plot testing possible at four sites. Research sites, site coordinators, and grower cooperators for 1995 are listed below.

Site	Coordinator/Cooperator
Corvallis	Karow/Ruddenklau
Hermiston	Moore/Reed
Klamath	Dovel
LaGrande	Moore
	Grower: John Cuthbert
Madras	James/Bohle
Medford	Roseberg
Moro	Moore/Jacobsen
Morrow Co.	Moore
	Grower: Charlie Anderson
North Valley	Karow/Ruddenklau
	Grower: Moritz Farms
Ontario	Barnum/Shock
Pendleton	Moore

Without the support of these funding organizations and the research and grower cooperators, this data would not

be available. Please be sure to thank these groups and people for their contributions if you find this information beneficial.

If you have comments about or suggestions for improvement of this publication, please contact Russ Karow, Extension cereals specialist, Crop Science Bldg., Room 131, Oregon State University, Corvallis, OR, 97331-3002 (phone: 541-737-5857).

We thank Barbara Reed, Office specialist in Crop and Soil Science, for her many hours of work in formatting this and other cereal variety publications. Without her skills these publications would not exist.

Factors to Consider when Selecting Varieties

While yield often is the key factor in variety selection, other characteristics also can be of importance. As you look through the data tables in this publication, you will discover that yield performance of recently released varieties is often quite similar. Rarely do we find one variety that consistently outyields all others. This is not surprising since intensive breeding efforts have improved the yield potential and stability of grains in general. What this means to you is that factors other than yield can receive greater attention as you select varieties to grow on your farm. The following criteria should be considered as you think about variety selection.

Height and Lodging. Varieties differ in height and lodging resistance. Though generally correlated, taller varieties do not necessarily have poorer lodging resistance. Lodging reduces both grain yield and grain quality. As soil fertility levels increase, stiffer-strawed varieties should be used. You also should pay careful attention to both timing and rate of fertilizer applications and irrigation, when used.

Disease/Stress Resistance. Diseases can be a major production problem; however, type of disease and disease pressure varies from location to location and from year to year. Select cultivars with resistance or tolerance to the diseases and stresses commonly found in your area. Barley yellow dwarf virus and leaf rust are the most common diseases of spring grains. Russian wheat aphid is a newer pest to the state and has devastated spring grain crops, especially late planted crops, in production areas east of the Cascade Mountains. None of the currently available spring wheats, barleys or triticales have resistance to Russian wheat aphid, but oats are immune. Barley stripe rust is a new disease of barley. Resistant varieties will not be available until 1997. Baytan seed treatment and foliar fungicides may be necessary in areas where the disease is prevalent.

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Maturity. As a group, barleys mature earlier than other grains; oats later. However, varieties differing in rate of maturity exist within each grain type. Early maturing varieties may avoid yield and quality reductions caused by heat or drought in late summer. Later maturing varieties may yield more when moderate temperatures and favorable moisture conditions persist into late-summer; however, stem rust and other diseases favored by warm weather may become a problem. Choose varieties with a maturity that matches your environment and cropping needs.

Intended Use. Barley varieties are classified either as feed or malting types. Feed types generally have a higher protein content than malting types. Those listed as malt types have been approved by the American Malting Barley Association (AMBA). Oats are used as animal feed, for cover crop, and as human food. Some varieties are better suited for specific end uses than others. Otana, Monida and Border are preferred food-type oats. Most oat varieties can be used for forage. Soft white wheats, both common and club, have occupied 95+ percent of Oregon's wheat acreage in recent years. Hard red wheats are most often grown in irrigated areas but spring dryland production is increasing. Triticales are being grown for forage and feed grain use.

Grain Quality. Test weight (bushel weight) is a price determining factor in the market place. Choose varieties with good test weight records. All PNW released varieties meet minimum quality standards established by PNW breeders, but suitability for different end use applications can vary. Premiums for low protein soft white wheat have been paid in recent years. Varieties differ in genetic protein percent potential. Spring grains, as a rule, have higher protein levels than winter grains. This is likely due to environmental rather than genetic causes.

Yield Potential. Yield potential varies from variety to variety and, for a variety, from one area and from one year to another. Yield potential is a genetic trait but is moderated by other factors such as disease and stress tolerance. To evaluate the yield potential of a variety, review data from test sites with an environment similar to that in your area. Where possible, compare performance over several years, as a single year's data can be misleading.

Variety Descriptions

The following descriptions are designed to provide key information about commonly grown varieties. Material for these descriptions was drawn from the tables in this publication, Idaho Bulletin 697 "Irrigated Spring Wheat Production Guide for Southern Idaho" and the 1995 Certified Seed Buyers Guide distributed by Washington State Crop Improvement Association.

Wheats

Agronomic characteristics, disease ratings, and yield data for wheats are presented in written or tabular form. Table contents are:

Agronomic ratings	Table 1
Disease ratings	Table 2
1995 heading and lodging	Table 5
1995 height data	Table 6
1993 yield data	Table 7
1994 yield data	Table 8
1995 yield data	Table 9
1993-95 yield data	Table 10-11
1995 test weight data	Table 14
1995 protein data	Table 15

Club Wheats

CALORWA is the only spring club wheat available to Pacific Northwest growers at this time. It was released by California, Oregon and Washington in 1994. Yields, quality and seed characteristics are marginal. Calorwa was released simply to give club growers a variety to use in overseeding damaged winter club wheat fields.

Common Soft Whites

ALPOWA is a white-chaffed, awned soft white released by Washington State University (WSU) in 1993. It is intended as a replacement for Penawawa. Alpowa has slightly higher yield and test weight than Penawawa and better stripe rust resistance.

CENTENNIAL was released in 1990 by the University of Idaho. It is earlier than Penawawa or Alpowa and slightly taller. Centennial has excellent yield potential across environments but is known to thresh hard. This can be a problem given recently established dockage discounts.

DIRKWIN is a white-chaffed, awnless, semi-dwarf released by the University of Idaho in 1978. It is commonly used as a forage wheat. Dirkwin is resistant to prevalent races of stripe rust but is susceptible to a common race of leaf rust. Test weight is lower than that of other soft white spring varieties..

PENAWAWA is a white-chaffed, awned, semi-dwarf released by WSU in 1985. Penawawa has been the dominant spring wheat variety in Oregon. Alpowa was released as a replacement for Penawawa. Centennial has also outperformed Penawawa across small-plot testing environments.

TWIN is a white-chaffed, awnless semi-dwarf released by the University of Idaho in 1971. It has been used primarily as a hay variety in recent times. Dirkwin has supplanted most Twin acreage. Twin is susceptible to stripe rust. In the absence of rust, Twin has had a good yield record.

WADUAL94 is a white-chaffed, awned, semi-hard spring wheat first released by WSU in 1988 and re-released in 1994. Wadual94 was released as a dual purpose wheat. At low protein levels, it is to have the milling and baking characteristics of a soft white wheat. At high protein levels it takes on the attributes of a hard wheat. It has been grown primarily as a soft wheat. Acreage has been limited.

WAKANZ is a white-chaffed, awned, semi-dwarf released by WSU in 1987. Wakanz was released because it is resistant to Hessian fly. Yield potential is excellent but erratic under Oregon conditions. Test weights tend to be low. Wawawai has been released as a replacement for Wakanz.

WAWAWAI was released by WSU in 1994 as a replacement for Wakanz. Both varieties have good Hessian fly resistance. In Oregon testing, Wawawai has had slightly lower yield but significantly better test weights than Wakanz.

Hard Whites

ID377S is hard white released to the Idaho Wheat Commission by the University of Idaho in 1994. The Commission will control seed supplies and harvested grain. Variety-identified shipments will be made to Pacific Rim customers interested in hard white wheats.

KLASIC is a white-chaffed, awned, short statured, hard white spring wheat released by Northrup King in 1982. Production has been centered in California and Washington in recent years. Test weights have been excellent. Yield potential is excellent but performance has been erratic.

WORLD SEEDS 1 is a white-chaffed, awned, tall, hard white spring wheat released by the private company World Seeds in 1972. Certified seed stocks are not known.

Hard Reds

MC KAY is a white-chaffed, awned semi-dwarf released by Idaho in 1981. McKay is taller than many other currently grown hard red spring wheats and has only average lodging resistance. It has excellent milling and baking properties across environments and has been on limited acreage for local markets.

WESTBRED906R is a white-chaffed, awned semi-dwarf released by Western Plant Breeders in 1980. It is early to mid-season in maturity and intermediate in height with good lodging resistance. It has been supplanted by Westbred 926R in most areas. It is susceptible to shatter.

WESTBRED 926 was released by Western Plant Breeders in 1987. It is the dominant hard red spring variety in Oregon. Yield potential and disease resistance levels are good. It has Hessian fly resistance. Shatter-resistance is slightly better than WPB906R.

WESTBRED 936 was released by Western Plant Breeders in 1992. Yield potential and shatter resistance are superior to that of Westbred 926. It is susceptible to leaf rust and Hessian fly.

YECORA ROJO is a white-chaffed, awned semi-dwarf released by California in 1975. It is short and matures early. Yield potential is less than that of the Westbred materials but performance has been good across environments. It is resistant to Hessian fly.

Barleys

Agronomic characteristics, disease ratings, and yield data for barleys are presented in written or tabular form. Table contents are:

Agronomic ratings	Table 3
1995 heading and lodging	Table 5
1995 height data	Table 6
1993 yield data	Table 7
1994 yield data	Table 8
1995 yield data	Table 9
1993-95 yield data	Table 12-13
1995 test weight data	Table 14
1995 protein data	Table 15

Malt Types

MOREX is a 6-row malt barley released by the University of Minnesota in 1978. It is early maturing, tall and tends to lodge under Oregon conditions. It is grown on a limited basis in Klamath Falls and north eastern Oregon.

CRYSTAL is a 2-row malt barley released by the University of Idaho and USDA-ARS in 1989. It is a mid-to-late maturing, medium height, stiff strawed variety grown in the same areas as Morex.

HARRINGTON is a 2-row malt barley released by the University of Saskatchewan in 1986. Yield potential is less than that of feed barleys and has been consistent across environments.

Feed Types

BARONESSE is a 2-row feed barley released by Western Plant Breeders in 1992. It has exhibited excellent yield potential and above average test weights across locations. It is later maturing than Steptoe.

MARANNA is a 6-row feed barley released by OSU in 1993. It is a short-statured, stiff-strawed variety intended for use in irrigated areas though yields have been above average across environments.

GUSTOE is a 6-row feed barley released in 1983. It is marketed by Western Plant Breeders. It is the shortest-statured, full-season, spring feed barley available. It is used under wheel-lines and in other irrigated production. Lodging resistance is excellent.

STEPTOE is a 6-row feed barley released by WSU in 1973. It has been the dominant spring barley in Oregon for nearly two decades. It is extremely resilient and adapted to all production environments. It is susceptible to lodging in high production environments and generally has low test weights and protein levels. Newer varieties like Baroness and Maranna may eventually replace Steptoe.

Oats

Agronomic characteristics, disease ratings, and yield data for oats are presented in written or tabular form. Table contents are:

Agronomic ratings	Table 4
1994 Corvallis data	Table 16
1993-95 Klamath Falls data	Table 16
1990-94 Pullman data	Table 16

AJAY (82AB1142) is a new release from the University of Idaho/USDA-ARS. It is a short-statured, lodging resistant line with excellent yield potential under irrigated conditions. It has light yellow seed and good test weight.

CAYUSE is a yellow hulled oat released by WSU in 1966. It is the most popular cultivar in the PNW at this

time. It is early maturing, is short in stature and has good lodging resistance. It has fair tolerance to BYDV.

KANOTA is a red oat (*Avena byzantina*) released in Kansas during the 1920's. It is grown for hay. It is similar in maturity to Cayuse. Kanota is taller than most grain cultivars and has finer stems. Grain yields are generally low.

MONIDA is a white hulled oat released by the University of Idaho/ARS in 1985. It is the progeny of an 'Otana'/'Cayuse' cross. It is mid-to-late season, similar in height to Otana and has a test weight intermediate to those of Otana and Cayuse. It has good milling characteristics. Lodging resistance is good.

MONTEZUMA is a red hay oat (*Avena byzantina*) released by California in 1969. It is early in maturity and short statured. Lodging resistance is good.

OGLE is a yellow hulled oat released by Illinois in 1983. It has excellent tolerance to BYDV and has been raised on limited acreage in the PNW. It is a mid-tall, early maturing cultivar. Test weight and lodging resistance are good.

OTANA is a white hulled oat released by Montana State University in 1976. It is tall and somewhat susceptible to lodging. Otana consistently has a better test weight than most other PNW cultivars and is a preferred milling oat.

PAUL is a hullless oat released by North Dakota State Univ. in 1993. It is tall and has only fair yield potential in comparison to hulled oat varieties.

PENNUDA is a naked (hullless) oat released by Pennsylvania in the 1987. Hullless oats are thought to be beneficial in some feed uses (swine, poultry), but yields to date are low, even if lack of hull is considered.

RIO GRANDE is a tan-hulled oat bred by USDA-ARS scientists at Aberdeen, Idaho. It was released in 1994. It has test weights superior to Cayuse and many other currently grown varieties as well as above average yield potential. Preliminary milling tests show that Rio Grande dehulls poorly. This may limit its food use potential.

SWAN is a tan hulled oat primarily grown for hay. It was developed in Western Australia and introduced into California in 1970. It is very early in maturity and is similar in height to Cayuse.

Triticales

Agronomic characteristics, disease ratings, and yield data for triticales are presented in written or tabular form.

Table contents are:

Agronomic ratings	Table 1
Disease ratings	Table 2
1995 heading and lodging	Table 5
1995 height data	Table 6
1993 yield data	Table 7
1994 yield data	Table 8
1995 yield data	Table 9
1993-95 yield data	Table 10-11
1995 test weight data	Table 14
1995 protein data	Table 15

JUAN was released by California in 1985. It has been the most commonly grown spring triticale in Oregon. Yields have been above trial averages in most years. Juan appears to have wide adaptation. It is photoperiod insensitive and has been used as a late-summer-seeded covercrop as it will sometimes joint in winter.

TRICAL 2700 was released by Resource Seeds in 1993. It is a facultative variety that is usually spring planted. It is a tall, awned variety intended for use as both grain and forage.

TRICAL VICTORIA was released by Resource Seeds in 1988. Seed stocks are limited. Victoria is being replaced by newer varieties.

Table 1. Agronomic data for soft white, hard white and hard red spring wheat and triticale varieties.

Variety	Year	State ¹	Height ²	Head type	Maturity ³	Lodging ⁴
<i>Soft white club</i>						
Calorwa	1994	WA	S-M	Awned	E	R
<i>Soft white common</i>						
Alpowa	1993	WA	M-T	Awned	M	R
Bliss	1984	ID	T	Awned	L	R
Centennial	1990	ID	M	Awned	E-M	R
Dirkwin	1976	ID	M	Awnless	E-M	R
Edwall	1984	WA	M	Awned	M	MR
Fieldwin	1977	ID	M	Awned	M	R
Owens	1981	ID	M	Awned	E	MR
Penawawa	1985	WA	M	Awned	M	R
Treasure	1986	ID	M	Awned	L	MR
Twin	1971	ID	M	Awnless	M	R
Wadual 94	1994	WA	M	Awned	M	R
Wawawai	1994	WA	M-T	Awned	M	R
Wakanz	1988	WA	M	Awned	L	MR
Westbred Vanna	1992	P-WPB	M	Awned	M	R
<i>Hard white</i>						
Adams	1968	OR	M	Awned	M	MR
ID377S	1994	ID	M	Awned	E-M	MR
Klasic	1982	P-NK	S	Awned	E	R
World Seeds 1	1972	P-WS	T	Awned	L	MS
<i>Hard red</i>						
Borah	1974	ID	M	Awned	E-M	R
Bronze Chief	1986	P-GPS	M	Awned	E	R
Copper	1987	ID	M	Awned	M	MR
Kodiak	1986	P-GPS	S	Awned	VE	R
McKay	1981	ID	M	Awned	E-M	MR
Spillman	1989	WA	M	Awned	M-L	MR
Wampum	1978	WA	T	Awned	M	MS
Westbred 906R	1980	P-WPB	M	Awned	E-M	R
Westbred 926R	1987	P-WPB	M	Awned	E	R
Westbred 936R	1992	P-WPB	M	Awned	E-M	R
Yecora Rojo	1975	CA	S	Awned	E	R
Yolo	1981	CA	M-T	Awned	M	R
<i>Durum wheats</i>						
Westbred 881	--	P-WPB	S-M	Awned	E-M	R
<i>Triticales</i>						
Juan	1985	CA	T	Awned	M-L	R
Trical 2700	1993	P-RS	T	Awned	M	R
Trical Victoria	1988	P-RS	M-T	Awned	M	R

¹CA=California, ID=Idaho, OR=Oregon, WA=Washington, P=private (GPS=Great Plains Seeds, NK=Northrup King, RS=Resource Seeds, WPB=Western Plant Breeders, WS=World Seeds)

²M=medium, S=short, T=tall

³E=early, M=midseason, L=late

⁴R=resistant, MR=moderately resistant, MS=moderately susceptible

Table 2. Disease reactions of soft white, hard white and hard red spring wheat and triticale varieties..

Variety	Rust			Powdery mildew	Black chaff	Black point	Hessian fly
	Stripe	Leaf	Stem				
<i>Soft white club</i>							
Calorwa	MR	R	R	MR	--	--	S
<i>Soft white common</i>							
Alpowa	R	MR	MS	--	--	--	S
Blanca	S	--	-	--	--	--	--
Bliss	R	MS	S	--	MR	R	--
Centennial	MR	MS	R	--	--	--	S
Dirkwin	MR	MS	S	MR	S	MS	S
Fielder	S	MS	S	MR	MS	MS	S
Fieldwin	S	MS	S	MR	MS	MS	S
Owens	MR	MR	S	S	MS	S	S
Penawawa	MR	MR	MS	S	MS	MS	S
Treasure	R	MS	R	S	MS	MS	S
Twin	S	S	S	S	MS	S	S
Wadual 94	MR	MR	MR	MS	--	--	S
Wawawai	MR	MR	R	R	--	--	R
Wakanz	MR	MR	S	MS	--	--	R
Waverly	MR	MR	S	S	--	--	S
Westbred Vanna	MR	R	MS	R	--	--	S
<i>Hard white</i>							
ID377S							
Klasic	MR	R	R	--	--	--	S
<i>Hard Red</i>							
Borah	R	MR	MR	--	VS	MR	--
Bronze Chief	MS	MS	MS	MR	--	--	S
Copper	MR	MR	MR	MS	MR	MR	--
Kodiak	MS	MS	MS	MR	--	--	--
McKay	R	R	MR	MR	MR	MS	--
Spillman	R	R	R	R	S	--	S
WestBred 906R	R	R	--	R	--	--	S
Westbred 926R	R	R	--	R	--	--	R
Westbred 936R	R	MS	R	--	--	--	MS
Yecora Rojo	MS	R	R	R	--	--	R
<i>Durum wheats</i>							
Westbred 881	S	MR	MR	MR	--	MR	--
<i>Triticale</i>							
Juan	R	--	--	--	--	--	--
Trical 2700	R	--	--	--	--	--	--
Trical Victoria	R	MS	T	R	--	--	--

R=resistant, MR=moderately resistant, MS=moderately susceptible, S=susceptible, T=tolerant, VS=very susceptible, - = unknown

Taken in part from "Irrigated Spring Wheat Production Guide for Southern Idaho", edited by Ken Kephart, University of Idaho Extension Crop Management Specialist and Jeff Stark, University of Idaho Aberdeen Center Research Agronomist.

Table 3. Agronomic data for spring barleys.

Variety	Release date	Originator	Head type	Plant height	Straw strength	Heading date
<i>Malt types</i>						
Crest	1992	WSU	2-row	M	Mod.-stiff	M-L
Crystal	1989	USDA-ARS/UI	2-row	M	Stiff	M-L
Excel	1990	U. of Minn.	6-row	M	Mod.-stiff	M
Harrington	1986	U. of Saskatchewan	2-row	M	Stiff	M
Morex	1978	U. of Minn.	6-Row	M-T	Mod.-stiff	E-M
Russell	1985	USDA-ARS/UI	6-row	M	Stiff	E-M
<i>Feed types</i>						
Baronesse	1992	WPB	2-row	M	Mod.-stiff	M
Columbia	1979	Germaines	6-row	M	Stiff	M
Colter	1991	USDA-ARS/UI	6-row	M	Stiff	E-M
Gallatin	1986	USDA-ARS/MSU	2-row	M	Mod.-stiff	M
Gustoe	1983	WPB	6-row	M	Stiff	M
Gus	1976	WPB	6-row	M	Stiff	M
Lindy	1983	Cenex	6-row	M	Mod.-stiff	M
Lud	1975	Cenex	6-row	L	Stiff	L
Maranna	1993	OSU	6-row	S	Stiff	M-L
Medallion	1991	WPB	6-row	M	Mod.-stiff	M
Menuet	1980	Cenex	6-row	M	Stiff	M
Payette	1993	USDA-ARS/UI	6-row	S	Stiff	M-L
Steptoe	1973	WSU	6-row	M	Mod-stiff	E
<i>Hooded types</i>						
Belford	1943	WSU	6-row	M-T	Weak	M
Horsford	1880	MSU	6-row	M-T	Weak	M

Table 4. Agronomic characteristics for spring oats.

Cultivar	Year releasing	Releasing state	Species ¹	Hull color ²	Maturity ³	Height ⁴
Ajay	1991	ID	<i>A. sativa</i>	LY	L	S
Appaloosa	1978	WA	<i>A. sativa</i>	Y	M	M
Border	1982	WY	<i>A. sativa</i>	W	M	M
Calibre	1983	CAN	<i>A. sativa</i>	Y	L	T
Cayuse	1966	WA	<i>A. sativa</i>	Y	E	M
Kanota	1916	KN	<i>A. byzantina</i>	R	E	M
Minimax	1990	Private	<i>A. sativa</i>	T	L	VS
Monida	1985	ID	<i>A. sativa</i>	W	ML	M-T
Montezuma	1969	CA	<i>A. byzantina</i>	R	VE	M
Ogle	1983	IL	<i>A. sativa</i>	Y	M	M
Otana	1976	MT	<i>A. sativa</i>	W	M	T
Park	1953	ID	<i>A. sativa</i>	W	M	M-T
Paul	1993(?)	ND	<i>A. sativa</i>	hulles	E-M	M-T
Pennuda	1987	PN	<i>A. sativa</i>	hulless	M	M-T
RioGrande	1994(?)	ID	<i>A. Sativa</i>	T	E	S-M
Swan	1970	CA	<i>A. sativa</i>	T	VE	S

¹ Genus = Avena² LY=Light yellow, R=red, T=tan, W=white, Y=yellow³ VE=very early, E=early, M=midseason, L=late⁴ VS=very short, S=short, M=mid-height, T=tall, VT=very tall

Table 5. 1995 state-wide variety testing program spring grain Julian heading dates and lodging across five sites in Oregon

Variety/ line	Market class	Corvallis	Klamath	Madras	Ontario	Pendleton	5-site average	Madras	Medford	Ontario
								Lodging percent	Lodging percent	Lodging score
Spring wheats and triticales										
Alpowa	SW	151	202	177	153	150	167	70		1.7
Anza	HR				153					1.0
Calorwa	Club	146	194	176	153	147	163	95		2.0
Centennial	SW	149	194	176	151	147	163	93		1.0
Dirkwin	SW	153	199	179	155	147	167	58		1.0
Fieldwin	SW									
ID377S	HW	150	192	177	153	150	164	92		1.0
ID448	SW	155	198	181	155	150	168	57		1.0
ID471	SW	150	194	175	152	147	163	93		1.3
Juan	Triticale	155	199	177	154	150	167	33		1.0
Klasic	HW	147	189	168	150	148	160	100		1.0
Owens	SW	149	192	179	152	149	164	93		1.3
Penawawa	SW	150	196	177	154	150	165	65		1.0
Treasure	SW	152	196	180	155	151	167	63		1.0
Trical 2700	Triticale					149				
Trical Victoria	Triticale	150	200	175	153	149	166	73		1.0
Westbred Vanna	SW		197	180	154			62		1.0
Westbred 881	Durum					148				
Westbred 906R	HR			172				37		
Westbred 926R	HR	148	191	173	150	146	161	30		1.0
Westbred 936R	HR		191	174	151			42		1.0
Wakanz	SW	153	203	178		149		65		
Wawawai	SW	150	193	175	153	151	164	98		2.3
Yecora Rojo	HR	145	190	169	150	148	160	64		1.0
Yolo	HR				153					1.0
Average		151	195	176	153	149	164	69		1.2
PLSD (5%)		2	3	3	2	—	—	NS		0.7
PLSD (10%)		1	2	2	2	—	—	NS		0.6
EMS		0.3	2.9	2.4	1.9	—	—	1331.0		0.2
CV		1	2	1	1	—	—	53		35
P-VALUE		0.00	0.00	0.00	0.00	—	—	0.34		0.01
Spring barleys										
78Ab10274	2RF/M	149	197	172	153	141	162	67	100	6.0
82Ab23222 (Payette)	6RF	150	200	176	154	135	163	92	38	1.3
BSR 41	2RF/M	141	188		146	142				6.0
BSR 45	2RF/M	144			147	140				2.3
Baronesse	2RF	151	194	173	152	140	162	75	15	3.0
Colter	6RF	144	189	168	150	141	158	57	80	1.0
Columbia	6RF		199	177	154			80		1.7
Crest	2RM	151	198	171	153	140	163	85	100	5.7
Crystal	2RM	151			153				60	3.7
Gus	6RF		192							
Gustoe	6RF		195						0	
Harrington	2RM				153					3.7
Maranna	6RF	151	198	171	154	140	163	80	50	1.0
Russell	6RM	144	191	164	148	141	158	60	0	1.0
Stander	6RM		194							
Steptoe	6RF	148	189	171	151	138	160	73	48	1.3
WA 11045-87	6R awnless	159								
WPB-BZ489-74	6R hullless	153	201	176	153	144	165	95	50	3.0
WPB-Sissy	6RF		194	176	153			57		1.7
Average		149	194	172	151	140	161	76	45	2.7
PLSD (5%)		1	2	3	2	—	—	NS	NS	1.6
PLSD (10%)		1	2	3	1	—	—	25.3	NS	1.3
EMS		0.7	1.6	3.7	1.1	—	—	326.5	1568.0	0.9
CV		1	1	1	1	—	—	24	88	35
P-VALUE		0.00	0.00	0.00	0.00	—	—	0.10	0.20	0.00

Grain did not lodge at other locations.

Lodging score: 1 = none; 2 = 1-20%; 3 = 21-40%; 4 = 41-60%; 5 = 61-80%; 6 = >81%

Table 6. 1995 state-wide variety testing program spring grain heights across nine sites in Oregon

Variety/ line	Market class	Corvallis	Klamath	LaGrande	Madras	Medford	Morrow	North Valley	Ontario	Pendleton	8-site average
Spring wheats and triticales		Height (inches)									
Alpowa	SW	36	31	35	35	34		23	34	36	33
Anza	HR								32		
Calorwa	Club	33	28	32	34	34		18	30	31	30
Centennial	SW	36	25	34	35	35		21	33	34	32
Dirkwin	SW	38	30	37	33	34		22	33	38	33
Fieldwin	SW					30					
ID377S	HW	39	30	36	35	35		24	37	38	34
ID448	SW	37	30	32	34	31		23	34	36	32
ID471	SW	38	27	35	33	36		22	33	31	32
Juan	Triticale	47	36	48	46	44		29	41	44	42
Klasic	HW	29	20	25	29	26		19	25	25	25
Owens	SW	38	30	39	34	38		23	35	38	34
Penawawa	SW	33	27	35	34	34		21	34	35	31
Treasure	SW	35	29	33	35	30		23	33	37	32
Trical 2700	Triticale									61	
Trical Victoria	Triticale	40	33	38	41	38		28	36	39	37
Westbred Vanna	SW		29		33				34		
Westbred 881	Durum			31						35	
Westbred 906R	HR				31						
Westbred 926R	HR	35	28	34	32	32		22	33	35	31
Westbred 936R	HR		25		32				33		
Wakanz	SW	36	31	35	33	30		23		36	
Wawawai	SW	42	31	43	38	40		28	38	41	38
Yecora Rojo	HR	27	19	27	28	27		17	24	29	25
Yolo	HR								32		
Average		36	28	35	34	34		23	33	37	33
PLSD (5%)		4	3	3	3	--		2	2	--	--
PLSD (10%)		3	2	3	3	--		2	2	--	--
EMS		5.6	2.7	3.6	4.3	--		1.8	1.3	--	--
CV		6	2	5	6	--		6	3	--	--
P-VALUE		0.00	0.00	0.00	0.00	--		0	0.00	--	--
<i>Spring barleys</i>											
78Ab10274	2RF/M	35	30	35	35	35	27	22	31	37	32
82Ab23222 (Payette)	6RF	30	26	32	40	32	23	18	29	28	28
BSR 41	2RF/M	37	28				37		29	35	
BSR 45	2RF/M	38					33		32	36	
Baronesse	2RF	34	27	31	35	30	26	20	29	31	29
Colter	6RF	38	25	30	43	39	29	21	33	38	32
Columbia	6RF		25	29	36				29		
Crest	2RM	34	27	32	31		27	20	29	36	29
Crystal	2RM	35				34			32		
Gus	6RF		22								
Gustoe	6RF		21			22					
Harrington	2RM								31		
Maranna	6RF	27	26	31	38		22	17	25	27	27
Russell	6RM	38	30	34	39	31	31	23	34	32	33
Stander	6RM		31								
Steptoe	6RF	40	29	33	37	32	31	20	32	34	32
WA 11045-87	6R awnless	34									
WPB-BZ489-74	6R hullless	32	27	33	38		26	21	28	35	30
WPB-Sissy	6RF		26		34				28		
Average		35	27	32	37	32	28	20	30	34	19
PLSD (5%)		3	2	NS	4	--	--	3	2	--	--
PLSD (10%)		2	2	NS	4	--	--	3	2	--	--
EMS		2.7	1.9	22.6	6.8	--	--	3.2	1.4	--	--
CV		5	1	15	7	--	--	9	4	--	--
P-VALUE		0.00	0.00	0.92	0.00	--	--	0.00	0.00	--	--

Table 7. 1993 state-wide variety testing program spring grain yields across eleven sites in Oregon

Variety/ line	Market class	Corvallis	Hermiston	Klamath	LaGrande	Madras	Medford	Moro	Morrow	North Valley	Ontario	Pendleton	10 site average	11 site average
<i>Spring wheats and triticales</i>		Yield (bu/a; 10% moisture)												
Alpowa	SW										123			
Anza	HR										113			
Calorwa	Club	32	65	60	61	66	67	29	42	18	103	33	51	52
Celia	Triticale	35	76	61	48	26	48	47	25		126	59		
Centennial	SW	40	58	85	70	71		48	44	19	138	39	61	
Dirkwin	SW	34	85	59	61	65		46	52	13	113	40	57	
Federation	SW										101			
Fieldwin	SW			72										
Juan	Triticale	60	105	74	74	44	87	53	47	57	125	48	69	70
Klasic	HW	39	40	67	75	87	77	24	44	24	62	33	50	52
McKay	HR										109			
ML042A	SW	39	76							29				
Owens	SW	45	76	81	65	66		36	52	19	125	50	62	
Penawawa	SW	33	79	63	64	78	67	40	49	15	100	33	55	56
RCI200	Triticale		107									67		
Treasure	SW	46	83	76	62	60		49	55	28	116	50	63	
Twin	SW					64								
Victoria	Triticale	50	95	73	65	48		62	58	70	157	64	74	
Wakanz	SW				58			62	59			58		
WB906R	HR	57				70								
WB926R	HR	54	58	65	73	67	65	43	54	48	92	53	61	61
Yecora Rojo	HR			62		82					97			
Yolo	HR					73					120			
Trial average		44	77	69	65	64	69	45	48	32	114	48	60	58
PLSD (5%)		7	21	18	13	14	11	6	12	12	24	13	12	12
PLSD (10%)		6	18	15	11	12	9	5	10	10	20	11	10	10
CV (%)		10	16	15	12	13	10	9	14	22	13	16	22	25
<i>Spring barleys</i>		Yield (lb/a; 10% moisture)											9 site average	10 site average
Baroness	2RF	5438	6307	4993	5906	6186		4416	3849	5520	7190		5534	
Colter	6RF	3903	6104	4842	5441	6680		3774	3996	3941	6781		5051	
Columbia	6RF		5753			6578					6838			
Crest	2RM	4729	6615	3469	5950	5036	4352	3938	3401	4622	7131		4988	4924
Crystal	2RM	4744	6556	4312	5456	5530		4167	3752	4827	7800		5238	
Gustoe	6RF		5210			7045					8151			
Maranna	6RF	3966	7712	4767	5866	7478	4724	4276	4104	4271	6585		5447	5375
Micah	6RF					6111								
Russell	6RM	4028	5340	4072	6375	5733		3834	3421	4285	4663		4639	
Step toe	6RF	4359	6731	5110	5723	6138	4776	4322	4527	3933	7347		5354	5297
Trial average		4452	6259	4509	5817	6251	4445	4104	3864	4486	6636		5179	5082
PLSD (5%)		709	NS	740	NS	586	NS	NS	NS	NS	1920		542	NS
PLSD (10%)		582	NS	608	NS	484	NS	421	NS	NS	1600		452	NS
CV (%)		9	21	9	13	5	12	7	22	15	18		11	11

Trial averages include some data not shown. Pendleton barley was lost during processing.

Table 8. 1994 state-wide variety testing program spring grain yields across eleven sites in Oregon.

Variety/ line	Market class	Corvallis	Hermiston	Klamath	LaGrande	Madras	Medford	Moro	Morrow	North Valley	Ontario	Pendleton	Average
<i>Spring wheats and triticales</i>		Yield (60 pound bu/a; 10% moisture)											
Alpowa	SW	47	71	85	49	78	98	43	15	16	130	46	62
Calorwa	Club	39	59	92	48	75	89	48	12	16	102	43	57
Centennial	SW	43	76	116	39	89	104	46	11	22	147	39	67
Dirkwin	SW	42	58	83	37	80	87	36	2	7	118	19	52
ID 377S	HW	48	75	97	39	87	96	44	24	10	120	50	63
Juan	Triticale	41	79	99	31	58	84	41	12	17	134	42	58
Klasic	HW	27	63	107	48	88	90	41	22	13	128	46	61
Owens	SW	42	67	100	41	77	89	39	8	15	139	35	59
Penawawa	SW	37	56	100	35	83	85	41	5	13	146	33	58
Treasure	SW	48	71	101	40	81	99	42	16	17	120	37	61
Trical 2700	Triticale		61									60	
Trical Victoria	Triticale	49	76	110	33	75	84	43	22	25	160	52	66
Twin						78							
Wakanz	SW	58	69	93	42	72	89	47	12	8	132	69	63
Wawawai	SW	46	73	73	39	71	89	41	9		122	63	
Westbred 881	Durum		41					23	14		80		
Westbred 906R	HR					70							
Westbred 926R	HR	31	63	90	38	70	73	43	23	6	116	65	56
Yecora Rojo	HR	30	60	99	53	76	80	48	24	14	100	38	57
Yolo	HR										117		
Average		39	60	96	40	77	89	40	14	16	125	43	60
PLSD (5%)		9	14	NS	8	120	11	7	6	6	15	9	7
CV (%)		14	14	16	12	8	9	11	27	22	7	13	14
P-VALUE		0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
<i>Spring barleys</i>		Yield (lb/a; "as is" moisture)											
Baronesse	2RM	4070	6994	6011	3786	4949	5578	3025	2937		8494	5423	5127
Colter	6RF	2974	6777	6414	3717	4743	5207	3074	1585		8912	4888	4829
Columbia	6RF		6458	8087		5831					8804		
Crest	2RM	2815	6499	7292	4150	4552	4125	2783	2290		7223	4693	4642
Crystal	2RM	3320	5202	6275	3575	3983	2727	2815	1462		7502	5190	4205
Gallatin	2RM										7862		
Gustoe	6RF					5429	5105				10050		
Maranna	6RF	3085	7361	8616	3547	5415	5175	3136	1527		9377	5279	5252
Russell	6RM	2793	6198	7340	3629	4722	4684	2822	1479		8816	4452	4694
SDM 306B	6RF		6775			5292					9091		
Steptoe	6RF	3516	5270	5043	3232	4668	4742	3301	3210		9008	4894	4688
Sun Star	6RF	2633			4017			3121	2500		8730	4730	
Average		3151	6393	6885	3707	4958	4668	3010	2124		8656	4944	4777
PLSD (5%)		594	1351	1272	NS	707	1028	NS	565		1120	461	566
CV (%)		11	12	11	13	8	15	10	15		7	17	13
P-VALUE		0.00	0.04	0.00	0.46	0.00	0.00	0.44	0.00		0.00	0.01	0.01

Table 9. 1995 state-wide variety testing program spring grain yields across ten sites in Oregon

Variety/ line	Market class	Corvallis	Klamath	LaGrande	Madras	Medford	Moro	Morrow	North Valley	Ontario	Pendleton	10-site average	Percent of trial average
<i>Spring wheats and triticales</i>		Yield (bu/a; 10% moisture)											
Alpowa	SW	72	83	62	99	95	50	40	56	113	67	74	1.11
Calorwa	Club	75	58	56	73	108	49	40	46	105	55	66	1.00
Centennial	SW	77	69	58	85	106	52	38	52	108	54	70	1.05
Dirkwin	SW	68	74	60	79	81	51	40	49	91	52	65	0.99
Fieldwin	SW					78							
ID377S	HW	72	84	63	90	108	52	39	50	110	61	73	1.09
ID448	SW	66	89	47	86	71	59	34	52	108	64	68	1.02
ID471	SW	73	79	59	86	99	60	33	53	111	58	71	1.07
Juan	Triticale	61	76	44	91	89	36	19	46	101	32	59	0.85
Klasic	HW	74	50	49	97	99	49	38	47	108	39	65	0.96
Owens	SW	71	71	56	78	95	53	27	46	98	50	65	0.96
Penawawa	SW	74	77	59	82	96	49	34	50	116	58	69	1.03
Treasure	SW	79	91	57	86	100	51	31	54	111	68	73	1.09
Trical 2700	Triticale										73		
Trical Victoria	Triticale	61	63	50	92	89	49	28	51	86	59	63	0.94
Westbred Vanna	SW		53		86					108			
Westbred 881	Durum			44				29			27		
Westbred 906R	HR				80								
Westbred 926R	HR	62	55	51	79	90	47	38	50	91	52	61	0.93
Westbred 936R	HR		48		99					102			
Wakanz	SW	59	78	53	94	77	57	36	46		68		
Wawawai	SW	70	65	69	72	87	51	38	55	129	65	70	1.05
Yecora Rojo	HR	64	48	52	94	75	52	41	49	101		63	0.96
Yolo	HR										111		
Average		68	68	55	86	91	51	35	50	105	56	67	1.00
PLSD (5%)		9	17	NS	14	16	11	11	NS	12	12	7	0.10
PLSD (10%)		8	14	NS	12	13	9	9	NS	10	10	6	0.08
EMS		33.0	103.3	168.5	71.8	125.9	45.5	45.4	23.5	51.1	53.5	58.4	0.0
CV		8	10	24	10	13	13	19	10	7	13	11	11
P-VALUE		0.00	0.00	0.72	0.00	0.00	0.05	0.02	0.26	0.00	0.00	0.00	0.00
<i>Spring barleys</i>		Yield (lb/a; 10% moisture)											
78Ab10274	2RF/M	3942	4937	3547	4725	2389	3606	3016	2835	5187	5158	3934	1.03
82Ab23222 (Payette)	6RF	3121	4006	4439	4473	4334	3065	2315	2099	5298	3463	3661	0.94
BSR 41	2RF/M	3726	4295				3667	2480		6047	4444		
BSR 45	2RF/M	3736					2911	2877		5207	4706		
Baronesse	2RF	4382	5151	4274	4002	4712	4198	2984	2676	5608	5079	4307	1.12
Colter	6RF	4153	4609	3730	4733	2869	3758	2542	2253	6250	5262	4016	1.03
Columbia	6RF		4779	3336	4513					5943			
Crest	2RM	3883	4241	3869	4697	4098	3631	2563	2469	5290	4593	3933	1.02
Crystal	2RM	3421				3632				5165			
Gus	6RF		4497										
Gustoe	6RF		4225			5563							
Harrington	2RM									5130			
Maranna	6RF	3478	4735	2992	4524	4850	3580	2241	2137	5425	3654	3762	0.96
Russell	6RM	3408	3809	3670	3685	4612	3204	2770	2566	4572	3707	3600	0.95
Stander	6RM		4181										
Steptoe	6RF	4412	4711	3468	5661	3011	3778	2682	2243	5752	5061	4078	1.04
WA 11045-87	6R awnless	3085											
WPB-BZ489-74	6R hullless	3586	3480	3896	3710	4583	2989	2203	2288	5380	3889	3600	0.93
WPB-Sissy	6RF		4606		3766					4674			
Average		3718	4406	3722	4409	4116	3490	2607	2440	5457	4456	3877	1.00
PLSD (5%)		423	583	NS	1016	1543	503	430	469	NS	710	463	0.11
PLSD (10%)		350	485	NS	841	1283	416	355	387	900	587	386	0.09
EMS		62930	123200	564700	360100	1148000	87120	63620	74700	422100	173600	268900	0.02
CV		7	8	20	14	26	8	10	11	12	9	13	13
P-VALUE		0.00	0.00	0.57	0.03	0.01	0.00	0.00	0.02	0.07	0.00	0.04	0.02

Table 10. 1993-95 spring wheat and triticale yields over locations expressed as a percent of trial average

Variety	Market class	Corvallis	Klamath	LaGrande	Madras	Moro	Morrow	North Valley	Ontario	Pendleton	Average
1993-95 average yield expressed as a percent of trial average											
Calorwa	Club	0.94	0.90	1.05	0.95	0.94	0.95	0.83	0.90	0.88	0.93
Centennial	SW	1.05	1.15	1.03	1.08	1.08	0.92	0.99	1.14	0.90	1.04
Dirkwin	SW	0.95	0.93	0.98	0.99	0.98	0.79	0.61	0.93	0.73	0.88
Juan	Triticale	1.11	1.07	0.90	0.83	0.97	0.77	1.25	1.04	0.85	0.98
Klasic	HW	0.89	0.94	1.08	1.21	0.84	1.19	0.83	0.86	0.81	0.96
Owens	SW	1.05	1.08	1.01	0.98	0.94	0.81	0.81	1.05	0.92	0.96
Penawawa	SW	0.93	1.03	0.98	1.08	0.96	0.78	0.76	1.05	0.83	0.93
Treasure	SW	1.15	1.16	1.00	0.99	1.05	1.03	1.00	1.01	1.04	1.05
Trical Victoria	Triticale	1.10	1.04	0.91	0.93	1.14	1.17	1.59	1.16	1.20	1.14
Westbred 926R	HR	0.98	0.89	1.00	0.95	0.99	1.27	0.97	0.87	1.18	1.01
PLSD (5%)											0.12
PLSD (10%)											0.10
EMS (234)											0.05
CV											22
P-VALUE											0.00
1993-95 average (bu/a)		50	78	53	76	45	33	33	115	49	59

Table 11. 1994-95 spring wheat and triticale yields over locations expressed as a percent of trial average

Variety		Corvallis	Klamath	LaGrande	Madras	Medford	Moro	Morrow	North Valley	Ontario	Pendleton	Average
1994-95 average yield expressed as a percent of trial average												
Alpowa	SW	1.12	1.05	1.17	1.08	1.07	1.03	1.10	1.06	1.06	1.14	1.09
Calorwa	Club	1.05	0.91	1.10	0.91	1.09	1.09	1.00	0.96	0.91	0.99	1.00
Centennial	SW	1.11	1.11	1.01	1.07	1.17	1.09	0.93	1.18	1.10	0.94	1.07
Dirkwin	SW	1.04	0.97	1.00	0.98	0.93	0.96	0.64	0.71	0.90	0.68	0.88
ID 377S	HW	1.15	1.12	1.05	1.09	1.13	1.06	1.41	0.80	1.00	1.12	1.09
Juan	Triticale	0.98	1.07	0.78	0.90	0.96	0.86	0.67	0.97	1.02	0.77	0.90
Klasic	HW	0.88	0.92	1.04	1.14	1.04	1.00	1.32	0.87	1.02	0.88	1.01
Owens	SW	1.06	1.04	1.01	0.96	1.03	1.01	0.67	0.92	1.02	0.86	0.96
Penawawa	SW	1.02	1.09	0.98	1.02	1.00	0.99	0.66	0.89	1.13	0.90	0.97
Treasure	SW	1.20	1.19	1.02	1.02	1.11	1.04	0.98	1.05	1.01	1.05	1.07
Trical Victoria	Triticale	1.07	1.03	0.86	1.03	0.96	1.02	1.16	1.28	1.05	1.13	1.06
Wakanz	SW	1.21	0.89	0.98	0.93	1.00	1.05	0.97	0.73	0.96	1.27	1.00
Wawawai	SW	1.03	0.95	0.96	1.01	0.92	1.08	0.81	0.46	0.49	1.34	0.91
Westbred 926R	HR	0.91	0.94	1.10	0.87	0.89	1.05	1.34	0.74	1.08	1.34	1.03
Yecora Rojo	HR	0.85	0.86	1.13	1.04	0.86	1.12	1.40	0.91	0.88	0.95	1.00
PLSD (5%)												0.12
PLSD (10%)												0.10
EMS (266)												0.04
CV												20
P-VALUE												0.00
1994-95 average (bu/a)		54	82	48	81	90	45	25	33	115	49	62

Table 12. 1993-95 spring barley yields over locations expressed as a percent of trial average

	Market	Corvallis	Klamath	LaGrande	Madras	Moro	Morrow	Ontario	Average
	class								
1993-95 average yield expressed as a percent of trial average									
Baronesse	2RF	1.23	1.05	1.06	0.97	1.09	1.17	1.03	1.09
Colter	6RF	0.98	1.02	0.98	1.03	1.01	0.92	1.07	1.00
Crest	2RM	1.00	0.93	1.06	0.93	0.97	0.98	0.96	0.98
Maranna	6RF	0.94	1.13	0.92	1.10	1.04	0.88	1.02	1.00
Russell	6RM	0.90	0.94	1.02	0.90	0.93	0.88	0.85	0.92
Steptoe	6RF	1.09	0.98	0.93	1.07	1.08	1.24	1.07	1.06
PLSD (5%)									0.08
PLSD (10%)									0.07
EMS (100)									0.02
CV									12
P-VALUE									0.00
1993-95 average (lb/a)		3774	5267	4415	5206	3535	2865	6916	4568

Table 13. 1994-95 spring barley yields over locations expressed as a percent of trial average

	Market	Corvallis	Klamath	LaGrande	Madras	Medford	Moro	Morrow	Ontario	Pendleton	Average
	class										
1994-95 average yield expressed as a percent of trial average											
Baronesse	2RF	1.24	1.02	1.08	0.95	1.17	1.10	1.26	1.00	1.12	1.11
Colter	6RF	1.03	0.99	1.00	1.02	0.91	1.05	0.86	1.09	1.08	1.00
Crest	2RM	0.97	1.01	1.08	0.99	0.94	0.98	1.03	0.90	0.99	0.99
Maranna	6RF	0.96	1.16	0.88	1.06	1.14	1.03	0.79	1.04	0.94	1.00
Russell	6RM	0.90	0.97	0.98	0.89	1.06	0.93	0.88	0.93	0.87	0.93
Steptoe	6RF	1.15	0.90	0.90	1.11	0.87	1.09	1.27	1.05	1.06	1.05
PLSD (5%)											0.09
PLSD (10%)											0.08
EMS (85)											0.02
CV											14
P-VALUE											0.01
1994-95 average (lb/a)		3434	5646	3715	4684	4392	3250	2365	7057	4700	4360

Table 14. 1995 state-wide variety testing program spring grain test weights across ten sites in Oregon

Variety/ line	Market class	Corvallis	Klamath	LaGrande	Madras	Medford	Moro	Morrow	North Valley	Ontario	Pendleton	10-site average
Spring wheats and triticales		Test weight (lb/bu)										
Alpowa	SW	62.3	62.8	59.0	61.5	62.4	62.5	60.0	63.5	64.1	63.1	62.1
Anza	HR									63.3		
Calorwa	Club	60.5	59.6	60.1	56.4	61.8	60.8	59.0	63.0	61.4	62.3	60.5
Centennial	SW	60.6	61.9	57.6	58.0	62.9	62.3	59.7	62.8	64.0	62.3	61.2
Dirkwin	SW	58.1	58.5	54.8	56.4	59.4	58.4	57.5	61.5	58.6	57.8	58.1
Fieldwin	SW					61.2						
ID377S	HW	63.3	62.0	58.8	58.4	61.9	63.0	60.4	63.9	64.1	63.1	61.9
ID448	SW	58.5	61.6	54.8	57.5	60.1	62.3	58.1	62.4	60.9	60.9	59.7
ID471	SW	58.9	62.3	58.1	59.7	62.5	62.2	58.6	62.8	63.8	62.3	61.1
Juan	Triticale	53.3	53.4	43.1	53.0	54.3	52.0	43.4	47.9	54.7	51.7	50.7
Klasic	HW	64.1	62.0	61.9	59.6	62.5	62.3	58.3	62.4	63.6	62.4	61.9
Owens	SW	60.9	61.8	57.5	58.3	61.5	60.9	53.4	62.3	63.2	61.1	60.1
Penawawa	SW	61.3	61.7	58.1	59.7	61.4	61.4	57.4	62.9	63.2	61.9	60.9
Treasure	SW	61.0	61.8	57.2	59.8	61.7	62.0	54.9	63.1	62.2	61.2	60.5
Trical 2700	Triticale										53.7	
Trical Victoria	Triticale	55.0	52.4	48.4	52.4	53.9	55.1	47.5	53.1	52.9	53.6	52.4
Westbred Vanna	SW		58.8		58.8							
Westbred 881	Durum			56.5				59.6			59.9	
Westbred 906R	HR			0.0	58.8							
Westbred 926R	HR	63.0	61.2	60.0	59.0	61.9	62.8	60.9	63.8	64.1	61.3	61.8
Westbred 936R	HR		58.9		58.8					64.3		
Wakanz	SW	58.7	61.5	57.7	60.4	57.7	61.8	57.6	61.4		61.8	
Wawawai	SW	62.5	62.1	60.6	58.9	61.4	62.8	60.1	63.8	64.4	62.4	61.9
Yecora Rojo	HR	64.4	61.8	61.0	60.3	61.7	62.9	61.1	64.2	63.5	63.1	62.4
Yolo	HR									63.6		
Average		60.4	60.4	57.0	58.3	60.6	61.0	57.2	61.6	62.1	60.4	59.8
PLSD (5%)		1.6	1.0	3.0	2.2	0.8	1.3	3.9	1.1	1.0	1.1	--
PLSD (10%)		1.4	0.9	2.5	1.8	0.7	1.1	3.2	0.9	0.9	0.9	--
EMS		1.0	0.4	3.3	1.7	0.3	0.6	5.4	0.5	0.4	0.4	--
CV		2	1	3	2	1	1	4	1	1	1	--
P-VALUE		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--
Spring barleys												
78Ab10274	2RF/M	51.8	54.9	52.0	52.8	52.9	54.7	53.4	50.9	54.1	55.3	53.3
82Ab23222 (Payette)	6RF	47.7	51.0	52.0	48.7	55.0	52.7	48.2	53.3	53.4	53.5	51.5
BSR 41	2RF/M	53.3	52.9				53.8	52.5		52.9	54.3	
BSR 45	2RF/M	52.1					53.8	52.3		53.9	55.4	
Baronesse	2RF	53.6	54.0	52.8	51.0	53.5	54.3	52.7	51.7	55.0	55.1	53.4
Colter	6RF	50.8	51.0	49.3	47.9	52.8	51.5	44.7	51.5	52.3	53.7	50.5
Columbia	6RF		46.8	48.3	46.8					51.2		
Crest	2RM	53.2	54.4	51.6	51.3	52.7	54.5	52.9	52.1	51.5	55.3	53.0
Crystal	2RM	51.8				54.2				54.3		
Gus	6RF		48.9									
Gustoe	6RF		49.6			52.7						
Harrington	2RM									54.1		
Maranna	6RF	46.8	51.2	50.6	49.7	54.2	51.6	47.9	50.4	52.2	53.3	50.8
Russell	6RM	51.3	51.8	51.8	49.8	53.6	53.6	51.6	52.3	55.5	53.8	52.5
Stander	6RM		51.9									
Steptoe	6RF	48.6	51.1	49.3	47.8	51.2	50.3	44.6	49.1	52.0	52.9	49.7
WA 11045-87	6R awnless	54.2										
WPB-BZ489-74	6R hullless	62.8	60.6	59.1	54.5	60.8	61.1	56.9	61.8	63.4	61.9	60.3
WPB-Sissy	6RF		52.9		49.9					54.2		
Average		52.2	52.3	51.7	50.0	53.7	53.8	50.7	52.6	53.9	54.9	52.8
PLSD (5%)		0.9	1.3	3.5	2.4	2.3	0.8	4.2	2.5	0.9	0.6	--
PLSD (10%)		0.8	1.1	2.9	2.0	1.9	0.7	3.4	2.0	0.8	0.5	--
EMS		0.3	0.6	4.3	2.1	2.6	0.2	6.0	2.1	0.3	0.1	--
CV		1	1	4	3	3	1	5	3	1	1	--
P-VALUE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--

Table 15. 1995 state-wide variety testing program spring grain proteins across ten sites in Oregon

Variety/ line	Market class	Corvallis	Klamath	LaGrande	Madras	Medford	Moro	Morrow	North Valley	Ontario	Pendleton	10-site average
<i>Spring wheats and triticales</i>		Protein percent (12% moisture basis)										
Alpowa	SW	6.8	11.3	14.0	11.3	11.5	10.9	10.2	9.4	10.5	11.3	10.7
Anza	HR									10.5		
Calorwa	Club	7.5	12.5	13.5	12.7	11.4	11.7	9.9	11.4	10.0	11.9	11.2
Centennial	SW	6.8	11.9	13.0	12.3	11.4	10.6	10.0	9.6	10.2	11.9	10.8
Dirkwin	SW	8.0	11.3	12.8	12.1	12.0	11.2	10.3	10.5	10.2	12.0	11.0
Fieldwin	SW	0.0				12.4						
ID377S	HW	7.9	12.6	13.3	13.4		12.0	10.4	10.9	11.3	13.2	10.5
ID448	SW	7.9	10.6	13.7	12.4	12.7	10.5	10.0	9.6	9.5	11.1	10.8
ID471	SW	7.0	11.4	12.1	11.9	11.1	10.7	10.0	9.3	9.9	11.5	10.5
Juan	Triticale	8.5	10.5	11.6	11.5	10.9	11.4	12.0	10.3	10.4	12.0	10.9
Klasic	HW	7.9	13.8	13.9	13.4	12.4	13.0	12.4	11.5	12.6	14.5	12.5
Owens	SW	7.1	11.5	13.4	12.5	11.6	11.2	13.6	9.8	10.5	11.6	11.3
Penawawa	SW	7.0	11.8	12.8	12.2	11.7	10.7	11.4	9.4	10.8	11.9	11.0
Treasure	SW	7.0	11.1	12.2	11.5	11.5	10.9	14.8	9.9	9.8	11.4	11.0
Trical 2700	Triticale										11.1	
Trical Victoria	Triticale	8.2	10.9	13.3	12.1	11.1	11.5	11.8	10.5	10.3	11.6	11.1
Westbred Vanna	SW		11.6		12.4					10.1	0.0	
Westbred 881	Durum			14.2				12.9			14.6	
Westbred 906R	HR				13.5							
Westbred 926R	HR	8.6	13.7	14.4	13.9	12.9	13.3	11.3	11.3	13.4	14.2	12.7
Westbred 936R	HR		14.2		14.1					12.4		
Wakanz	SW	8.4	11.3	12.9	11.9	12.2	11.4	11.5	10.5		12.0	
Wawawai	SW	7.8	12.0	11.8	12.5	11.8	11.3	10.9	10.2	10.0	12.2	11.0
Yecora Rojo	HR	8.5	13.9	14.5	13.3	13.1	12.4	10.8	11.5	13.3	14.5	12.6
Yolo	HR									10.3		
Average		7.8	12.1	13.2	12.5	11.3	11.5	11.4	10.4	10.8	12.4	11.2
PLSD (5%)		0.6	0.6	1.5	1.0	0.6	1.0	2.5	0.7	0.6	0.5	—
PLSD (10%)		0.5	0.4	3.6	0.8	0.5	0.8	2.0	0.6	0.5	0.4	—
EMS		0.1	0.1	0.8	0.3	0.2	0.3	2.2	0.2	0.2	0.1	—
CV		4	1	7	5	3	5	13	4	4	2	—
P-VALUE		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	—
<i>Spring barleys</i>												
78Ab10274	2RF/M	8.2	10.0	12.7	12.7	11.6	11.8	9.1	8.3	11.1	11.2	10.7
82Ab23222 (Payette)	6RF	8.9	10.5	12.6	12.8	11.1	11.1	11.1	9.8	11.4	11.4	11.1
BSR 41	2RF/M	8.3	10.7				10.4	8.6		11.6	11.6	
BSR 45	2RF/M	9.0					12.0	12.2		12.1	12.0	
Baronesse	2RF	7.6	10.7	12.5	13.0	11.2	11.0	9.1	8.3	11.3	11.3	10.6
Colter	6RF	8.0	10.4	11.6	11.5	9.7	9.7	9.9	8.3	9.8	9.4	9.8
Columbia	6RF		10.4	12.6	12.8					11.2		
Crest	2RM	8.0	11.4	13.3	13.0	11.9	11.6	8.8	8.6	10.9	11.5	10.9
Crystal	2RM	7.9				11.6				11.4		
Gus	6RF		11.0									
Gustoe	6RF		10.1			10.2						
Harrington	2RM									11.1		
Maranna	6RF	8.3	10.2	12.9	12.9	10.8	11.5	9.2	9.8	11.6	12.0	10.9
Russell	6RM	8.6	10.1	11.3	11.7	10.3	10.8	8.1	8.7	11.0	10.3	10.1
Stander	6RM		11.0									
Steptoe	6RF	8.4	9.8	12.3	11.9	10.4	10.3	9.5	9.3	10.3	9.8	10.2
WA 11045-87	6R awnless	9.1										
WPB-BZ489-74	6R hullless	8.4	13.7	15.1	15.5	12.8	13.4	12.6	9.2	13.4	14.6	12.9
WPB-Sissy	6RF		10.2		14.0					11.8		
Average		8.4	10.7	12.7	12.8	11.0	11.2	9.8	8.9	11.4	11.4	10.8
PLSD (5%)		0.3	0.9	1.2	1.0	0.6	0.8	2.6	0.7	0.6	0.5	—
PLSD (10%)		0.3	0.8	1.0	0.8	0.5	0.6	2.1	0.6	0.5	0.5	—
EMS		0.0	0.3	0.5	0.3	0.2	0.2	2.3	0.2	0.2	0.1	—
CV		2	1	5	4	4	4	15	5	3	3	—
P-VALUE		0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	—

Table 16. Western regional spring oat data for Corvallis, Klamath Falls and Pullman.

Variety/line	Corvallis - 1994				Klamath Falls - 1995					Klamath 1994-95	Klamath 1993-95	Pullman 1994			Pullman 1993-94	Pullman 1992-94	Pullman 1990-94
	Plant height (in)	Julian heading date	Grain yield (lb/a)	Test weight (lb/bu)	Julian heading date	Plant height (in)	Lodging percent	Test weight (lb/bu)	Grain yield (lb/A)	2-year average (lb/A)	3-year average (lb/A)	Plant height (in)	Test weight (lb/bu)	Grain yield (lb/a)	Grain yield (lb/a)	Grain yield (lb/a)	Grain yield (lb/a)
Ajay	26	164	4102	39.3	207	39	0	40.5	6598	6350	6215	22	31.4	2724	3524	3425	4009
Calibre	43	165	3987	40.4	209	53	24	38.0	1827	3706	3723	33	33.4	1975	2934	2953	3317
Cayuse	33	164	4609	39.5	204	45	25	38.0	4669	5596	5617	26	29.9	2467	3612	3687	4200
Derby	40	163	4328	41.1	204	49	0	40.5	3253	4394	4978	35	34.5	2471	3239	3265	--
Monida	37	166	4723	38.3	207	47	30	38.5	4545	5475	5482	31	30.8	2934	3677	3644	3998
Newdak	33	157	4304	40.6	201	45	6	38.0	5721	5911	5909	32	32.9	3442	3831	3712	--
Ogle	34	157	3889	39.5	204	40	0	38.5	5929	6149	6032	26	31.7	2025	2890	3113	3944
Otana	41	164	4241	40.9	206	50	30	40.5	3729	4803	4941	33	34.2	2852	3625	3528	3916
Park	39	166	4029	39.4	207	48	15	39.0	4050	4889	4787	36	34.0	2861	3844	3573	3716
Paul (hulless)	39	165	3173	47.1	207	55	0	44.5	3943	4163	--	35	41.2	875	--	--	--
Rio Grande	31	163	4459	40.9	202	38	8	40.5	6207	6588	6545	27	30.3	2758	3434	3619	4283
Valley	34	162	4330	42.8	204	45	8	42.0	5101	5804	5696	30	35.3	3357	4007	3674	4177
Whitestone	33	164	4641	42.3	206	45	13	39.5	4960	5241	--	27	32.5	1988	--	--	--
83Ab3250 (prerulease)	30	166	4429	38.9	205	41	51	37.5	4851	6026	6131	25	28.9	2990	3915	3829	4205
86Ab1616 (hulless)	31	171	2969	46.1	209	47	0	45.0	4298	4737	4537	28	38.8	1259	2120	--	--
86Ab664 (prerulease)	37	164	4382	40.3	206	47	1	37.5	4931	5818	5923	29	31.1	2870	3646	3596	4234
88Ab3073 (hulless)	28	166	2812	48.5	208	42	0	46.0	4939	4719	4513	26	44.5	1053	1728	1733	--
Average	33	164	4183	40.9	205	44	10	40.1	5082	5610	5566	28	32.7	2403	3334	3397	4001
PLSD	2	2	456	1.4	2	4	21	--	998	629	542	3	1.2	812	575	402	382
CV	4	1	7	2	1	6	147	--	14	11	12	8	3	29	22	19	20

