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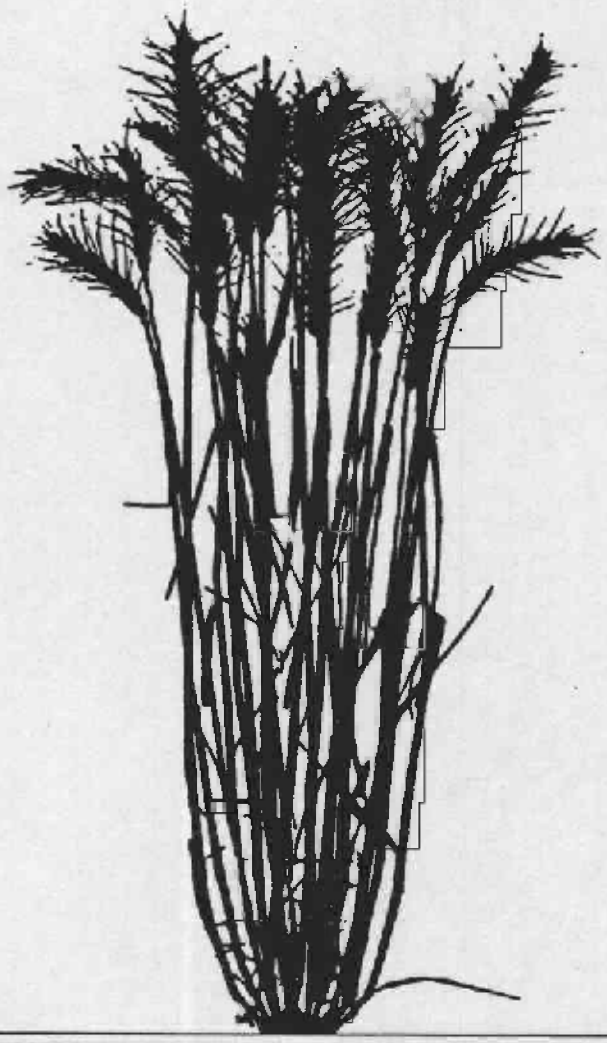
Winter Grain Varieties for 2000



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Winter Grain Varieties for 2000

Russ Karow, Ernie Marx, Scott McDonald, Rhonda Bafus, Mylen Bohle, Eric Eldredge, Pat Hayes, Jim Peterson, Gary Reed, Clint Shock, Dick Smiley[1]

This publication describes winter wheats, barleys, oats, triticales, and ryes 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 statewide variety testing program. This program was initiated in 1992 with funding and support dollars provided by the Oregon Agricultural Experiment Station, Oregon Wheat Commission, Oregon Grains Commission, and Oregon State University Extension Service. The testing program was centrally coordinated by Russ Karow and Ernie Marx and involves research cooperators at six experiment stations across Oregon. Grower cooperators make small plot testing possible at three sites. Research sites, site coordinators, and grower cooperators are listed below.

Site	Coordinators/ Grower Cooperators
Cornelius	Karow/Marx
	Grower: Norm Goetze
Corvallis	Karow/Marx
Hermiston	McDonald/Reed/Smiley
LaGrande	McDonald/Smiley
	Grower: John Cuthbert
Lexington	McDonald/Smiley
	Grower: Chris Rauch
Madras	Bafus/Bohle
Moro	McDonald/Smiley
Ontario	Eldredge/Shock
Pendleton	McDonald/Smiley

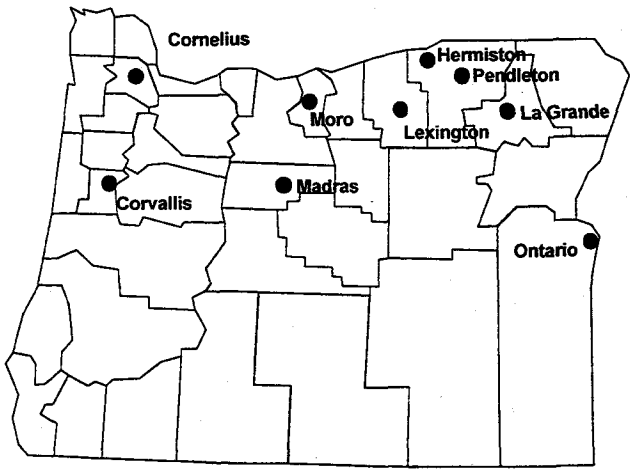
Without the support of the funding organizations and research and grower cooperators, these data would not be available.

Data presented in Table 11 were obtained from an on-farm winter wheat drill strip testing program. In 1999, drill strip trials were conducted by growers in cooperation with county agents at 11 sites across the state. Data for 7 sites are reported; data were not obtained from the others sites due to stand loss or crop damage due to weather problems. Pendleton Grain Growers donated some of the seed for the 1999 drill strip testing program and we thank them for this contribution.

If you have comments about or suggestions for improving 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; email: Russell.S.Karow@orst.edu). This information also is available on the World Wide Web at http://www.css.orst.edu/cereals/.

The authors thank Barbara Reed, office specialist in Crop and Soil Science, for her many hours of work in formatting this and other extension publications. Without her skills, these publications would not exist.

Statewide cereal variety testing program locations and site information are shown in the following map and table.



Location	Elev. (ft)	GDD[1] (@50 °F)	Precip. (in)	Type
Cornelius	750	2,255	44	Dryland
Corvallis	230	2,052	43	Dryland
Hermiston	450	2,824	9	Irrigated
La Grande	2,770	1,830	14	Irrigated
Lexington	1,200	2,294	10	Dryland
Madras	2,230	1,917	10	Irrigated
Moro	1,870	1,988	11	Dryland
Ontario	2,230	2,868	10	Irrigated
Pendleton	1,490	2,278	16	Dryland

[1] Yearly total using a 50 °F base temperature

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Factors to Consider when Selecting Varieties

Although yield often is the key factor in variety selection, other characteristics can be important. As you look through the data tables in this publication, you will discover that yield performance of recently released varieties often is quite similar. Rarely do we find one variety that consistently outyields all others. This is not surprising because 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. Consider the following criteria as you think about variety selection.

Disease/Pest/Stress Resistance. Diseases can be a major problem across the state; however, type of disease and disease pressure vary from location to location and from year to year. Select a variety with resistance or tolerance to the diseases and stresses commonly found in your area. Septoria is the major disease of winter wheats grown in western Oregon. Tolerant varieties such as Madsen and Foote are available. Stripe rust can be a serious disease of older club varieties. Newer, resistant varieties are available. Strawbreaker footrot is a common disease of both common and club wheats. The varieties Madsen and Hyak have good resistance, as does the new variety, Weatherford. Cephalosporium stripe can severely limit yields in parts of eastern Oregon. It is not a problem in western Oregon. There are differences in tolerance among varieties but no true resistance. Barley yellow dwarf virus traditionally has been the most common disease of winter barley and oats. None of the currently available, locally adapted varieties has resistance, but breeding efforts are underway to develop varieties with resistance. Late planting to avoid virus-laden aphids and use of newer seed treatment insecticides (Gaucho and Adage) are the best control strategies. Barley stripe rust is the newest disease of winter barley. It has been present at economically significant levels in the Klamath Basin since 1997. Trace amounts have been found across the rest of the state. This disease can be devastating, but its economic significance in the Pacific Northwest (PNW) is unknown at this time. Resistant varieties, Kold and Strider, are available. None of the currently grown winter wheats or barleys has resistance to Russian wheat aphid (RWA); however, oats are immune. Gaucho and Adage insecticide seed treatment have shown promise as a means of RWA control in many situations. Smut and bunt diseases are ever-present in Oregon and will cause yield losses if not controlled. Most common seed treatments are effective in controlling smuts if properly applied. Dividend seed treatment is especially effective against dwarf (TCK) bunt. For more information on seed treatments, see the latest version of the *Pacific Northwest Disease Control Handbook.* Use of variety mixtures is becoming more common as a means to address disease and environmental stress problems. Mixtures are more genetically diverse than single varieties and sometimes offer greater environmental and disease stress buffering. Club mixtures for improved stripe rust control are in use. A Stephens/Daws mix is being used in areas with potential for winter or spring frost injury. Stephens/Madsen mixtures are proving useful in situations where the greater disease resistance of Madsen is beneficial. Mixtures with Yamhill are being used on wet ground in western Oregon.

Height and Lodging. Varieties differ in height and lodging resistance. Though generally correlated, taller varieties are not necessarily more prone to lodging. 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.

Maturity. As a group, barleys mature earlier than other grains; oats mature later. However, differences among varieties within each grain type can be significant. Early maturing varieties may avoid yield and quality reductions caused by heat or drought in mid to late summer. Later maturing varieties may yield more when moderate temperatures and favorable moisture conditions persist into midsummer; 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.

Winter Hardiness. As a group, winter barleys are less winter-tolerant than wheats; however, some winter wheats have only marginal hardiness levels (see Table 1). Winter hardiness is a complex characteristic that is determined not only by a variety's tolerance of cold, but also by its resistance to other stresses encountered during winter months. Winter hardiness is not a major limiting factor in winter wheat and barley production in Oregon. Varieties with only an average level of winter hardiness perform successfully in most years. Even facultative varieties, which have a low vernalization requirement and can be planted in the fall or spring, can be grown in most parts of Oregon. If winter kill is a problem in your area, select varieties with a higher winter hardiness rating or consider using a mixed variety planting. Winter oats are the least hardy of the winter grains. Production generally is limited to areas south of the 40th parallel except for regions with Mediterranean-type climates such as western Oregon. Winter survival in these areas generally is good. Winter-hardiness trials have been conducted at the Moro Experiment Station in the past. Over the 5-year period 1967-71, survival of Grey Winter, Walken, and Compact winter oats was 100 percent 3 of the 5 years and approximately 5 percent the other 2 years. It would appear that currently available winter oats can tolerate winter minimum temperatures of 10-15 °F without snow cover.

Minimums below this level are likely to cause damage unless snow cover is present. With adequate snow cover, temperatures as low as minus 22 °F have not caused damage. Walken oats are less winter-hardy than Grey Winter or Crater.

Yield Potential. Yield potential varies from variety to variety and, for a given variety, from one area to another 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. Yield data in Tables 6 and 14 are presented as a percent of trial average. In this format, if the average yield for a trial is 100 bu/acre and a variety yields 103 bu/acre, then its percent of average yield is 103.

Intended Use. Barley varieties are classified either as feed or malting types. Feed types generally are classified as such because they did not meet malting barley quality requirements, not because they were bred specifically for feed use. If raising barley for feed, select varieties with consistently high test weight. There are no winter malting barley varieties approved by the American Malting Barley Association (AMBA) at this time. Oats are used as animal feed, for cover crop, and as human food. Some varieties are better suited for specific end uses than others. Amity is the preferred food-type winter oat. Amity, Kenoat, and Walken all can be used as feed oats. Grey winter generally is grown as a seed stock to be used for cover crops and forage, but also has some feed-grain potential. Soft white winter wheats, both common and club, have occupied 85 percent of Oregon's winter wheat acreage in recent years. Hard red winter wheats rarely are grown. Hard white winter wheats have yet to be grown. Spring varieties are now available and the winter variety Ivory should be available in fall 2001. Triticales have been grown for feed use, and there is increased interest in them due to the disease resistance and yield potential expressed by some of the new varieties out of Poland (see Table 5). We have mentioned use of mixtures to address various production problems. Keep in mind that mixtures cannot be grown for certified seed under current regulations.

Grain Quality. Test weight (bushel weight) is a price-determining factor in the marketplace. 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. For an overview of wheat quality, see the article "A Wheat Quality Primer" at http://www.css.orst.edu/cereals/Wheat/quality/whtqual.htm.

Seed Stocks. The Washington State Crop Improvement Foundation Seed Program maintains seed of commonly grown, publicly released Pacific Northwest varieties. Ask your local Extension office for seed stock information or call the Washington program at 509-335-4365. For information on the release status of newer OSU varieties, see the Seed Stock section of the OSU Cereals Home Page at http://www.css.orst.edu/cereals/.

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, Certified Seed Buyers Guides distributed by Washington State Crop Improvement Association, and variety release descriptions.

New Varieties

CODA (WA7752) is a high-yielding, awned club wheat released by Washington State University (WSU) in 1998. It has good resistance to stripe rust and strawbreaker footrot. Milling and baking ratings have been very good.

EDWIN (WA7834) is a club wheat released by WSU in 1999 as a Moro replacement. While inferior to other newer club wheats in terms of yield, it has superior emergence capability like Moro. Foundation seed will be available in fall 2000.

FOOTE (OR880172) is an awned, common soft white released by OSU in 1998. In field testing to date, Foote has shown good resistance to Septoria leaf blotch (*S. tritici*). It is intended to be grown where *S. tritici* limits production. Foundation and registered seed will be available in fall 2000.

IVORY (OR850513) is a hard white wheat to be released by OSU in 2001. Ivory is earlier heading and similar in height to Stephens, but weaker strawed. Winter hardiness is similar to Gene. Ivory has acceptable quality for several types of oriental noodles. Foundation seed is scheduled to be available in fall 2001.

TEMPLE (OR92CL0054) is a high-yielding, stripe rust- and footrot-resistant club wheat with above-average milling and baking quality released by OSU in 1998. Temple has shown above-average yield performance across traditional club wheat producing areas. Foundation and registered seed will be available in fall 2000.

WEATHERFORD (OR898120) is an awned, common, foot-rot resistant, high-yielding soft white released by OSU in 1998. Weatherford is slightly later in heading and taller than Madsen. In field testing to date, Weatherford has shown resistance to stripe rust, leaf rust, common bunt, and footrot. It has Cephalosporium stripe resistance similar to that of Madsen. Foundation and registered seed will be available in fall 2000.

Wheats and Triticales

Agronomic characteristics, disease ratings, and yield data for commonly grown winter wheats and triticales are presented in written and tabular form below. Table contents are:

Soft White Common and Club Winter Wheats

ELTAN is a later maturing, mid-tall, common soft white wheat released by WSU in 1990. It has excellent winter hardiness and snow mold tolerance—the original reasons for its release. Eltan has been found to have superior noodle-making characteristics, and identity-preserved production is being used in Washington.

MADSEN (WA7163) is an awned, common soft white wheat with white and buff chaff. It was released by WSU in 1988. Madsen has shown good field resistance to stripe, leaf, and stem rusts; to Cephalosporium stripe; and to strawbreaker footrot. It has moderate resistance to Septoria. Madsen has become a variety of choice in situations where disease levels are expected to be high.

ROD (WA7662) is an awned, common soft white wheat released by WSU in 1992. Rod is similar in height to Stephens but is weaker strawed and later maturing. Rod has good stripe rust and common bunt resistance and appears to have Cephalosporium stripe tolerance, but is susceptible to other common wheat diseases. Winter hardiness is similar to that of Madsen. Rod has yielded well across environments and appears to have a slightly lower protein level than other varieties. Because of its yield potential, Rod is often used and has performed well in mixtures.

ROHDE (OR855) is a high-yielding, stripe rust-resistant club wheat released by OSU in 1992. It is awned and has bronze chaff. It has yielded well across environments, an unusual trait for a club wheat. Rohde is very susceptible to strawbreaker footrot and should only be grown in fields where strawbreaker has not been a problem. Rohde is taller than commonly grown soft white wheats, but has good lodging resistance. Winter hardiness is average.

STEPHENS is a high-yielding, widely adapted soft white released by OSU in 1977. It occupies approximately 50 percent of the wheat acreage in Oregon. Stephens has only an average level of winter hardiness and is susceptible to Cephalosporium stripe. In areas where either of these problems occurs frequently, it is best to grow several different varieties or variety mixtures to reduce loss risks. Because of its yield potential, Stephens is often used in mixtures.

YAMHILL is a standard-height, beardless, common soft white released by OSU in 1969. It has fair winter hardiness and a strong vernalization requirement. Its unique attribute is the ability to tolerate wet soil conditions better than any other soft white winter wheat. It is susceptible to stripe rust and may require fungicide treatment. Yamhill is commonly used in mixtures to be planted in wet soil situations.

Winter Durum Wheat

CONNIE is a winter durum wheat released by OSU in 1997. Connie is a short, early variety with excellent lodging resistance. Yields tend to be significantly less than those of soft white winter wheats. Connie has poor winter hardiness and should not be grown in areas where winter injury is common. Connie is licensed to Pendleton Flour Mills and is grown under contract.

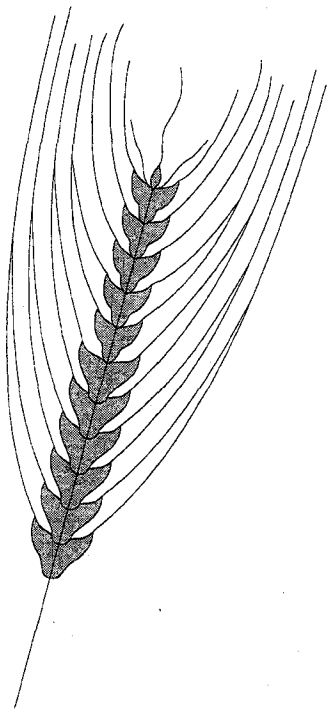
Winter Triticales

Triticales are hybrids of wheat and rye grown primarily for feed. Winter, spring, and facultative types are available. Newer varieties have yield potentials similar to wheat and test weights nearly as good. Most triticales have a broad spectrum of disease resistance due to their rye parentage. Triticales are a feed grain alternative to corn and barley.

ALZO is a tall, high-yielding, late-maturing triticale developed and released in Poland. Resource Seeds and Wilbur-Ellis Company are local seed distributors. Alzo yields have typically been better than those of the best wheats included in the same trial. Additional testing is underway in 2000.

BOGO is also a tall, high-yielding, early-heading but later maturing triticale developed and released in Poland. It too has exhibited exceptional yield potential in trials. Resource Seeds and Wilbur-Ellis are local seed distributors. Seed increases are in progress and more than 5,000 acres of seed for contract production should be available in fall 2000.

CELIA (FT91062) is a medium-height, early- to medium-maturing, awned, stiff-strawed triticale released by OSU in 1993. Celia has prostrate early growth and an excellent disease-resistance profile. Celia is facultative and can be planted in early spring. Due to its short stature and prostrate early-season growth, Celia is being used as a cover crop in orchards, hop yards, and row crop fields. Yield potential of Celia is similar to that of commonly grown winter wheats and less than that of Bogo or Alzo.



Winter Barleys

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

HOODY is a hooded (almost awnless) barley developed by Mat Kolding, retired OSU cereal breeder. Hoody is intended for use as a grain hay. Seed yields and threshability are poor, but forage yields and quality are good. Hoody is susceptible to barley stripe rust.

KOLD (ORWM8407) is a medium-height, lax-headed, six-row feed barley released by OSU in 1993. Kold has resistance to barley stripe rust. Kold is similar to other commonly grown winter barleys in heading date, lodging resistance, and test weight.

SCIO is a medium-short, mid-season, feed-grain variety released by OSU in 1981. It is very stiff strawed and well adapted to the Columbia Basin. Scio is susceptible to barley stripe rust.

STEPTOE is a medium-height, spring feed-grain variety released by WSU in 1973. Although tolerant of cold and commonly fall seeded, Steptoe has lower yield potential and poorer agronomic traits than true winter barleys. Steptoe is susceptible to barley stripe rust. Unless there is some compelling reason to grow Steptoe, true winter varieties should be grown.

STRIDER (ORW6) is a medium-height, rough-awned, semicompact head, barley stripe rust-resistant, six-row feed barley released by OSU in 1997. Strider is earlier in heading and slightly taller than Kold. It has yielded well across environments.

Winter Oats

Agronomic characteristics and yield data for commonly grown winter oats are presented in written and tabular form below. No trial work has been conducted in recent years. The data provided are the most recent or the only data available for an area. Table contents are:

AMITY is a high-yielding, white-kerneled, late-maturing oat released by OSU in 1972. Winter hardiness is fair. The cultivar is tall, with adequate lodging resistance. Test weights have been lighter than those of other varieties. Amity is the preferred food-type winter oat.

CRATER is an improved gray winter oat released by OSU in 1956. Yield is similar to or better than Grey Winter, with reduced height, improved lodging resistance, and earlier heading. Test weights have been lower than those for Grey Winter. Small amounts of foundation are available through Oregon Seed and Grain, Salem, Oregon.

GREY WINTER is a common gray oat released in the early 1900s. Winter hardiness and yield are good. Grey Winter is tall but has fair lodging resistance. Feed and food use are limited. Because breeder seed stocks are not known, only common seed is available.

WALKEN is a yellow-red winter oat released by the University of Kentucky in 1970. It is a late-season, medium-height variety with good lodging resistance. Yields have been superior to most other winter oat varieties.

Winter Ryes

Most rye is sold as "common" seed in Oregon—no variety name is specified. Be aware that ryes can have a winter or spring growth habit. If you are buying common rye seed, ask for documentation on growth-habit type. Rye grain trials have not been conducted in Oregon in recent history. Information about rye varieties that have been grown in Oregon is given below.

ABRUZZI (ABRUZZES) was introduced from Italy by the United States Department of Agriculture (USDA) in the early 1900s. A number of Abruzzi strains have been reselected from the original variety and are available as certified seed. Abruzzis in general have only fair winter hardiness and are used as fall-seeded forage crops in the southeastern United States. Wrens Abruzzi was released by the University of Georgia in 1950. It is an early-maturing forage type. Seed is available in Georgia. Athens Abruzzi was released by the University of Georgia in 1972. It is similar in maturity to Wrens, but has shown superior yield. Athens Abruzzi is available in North Carolina.

ACRIFLE is a dwarf rye bred in Canada. It yielded 70 percent of Madsen in 1999 trials (data not shown in this publication). It is a short-statured rye, similar in height to commonly grown wheats. It may be an attractive alternative to standard-height ryes in cover crop use and can be used as a bread grain. Seed is available in Canada. If there is local interest, a local seed dealer should be able to obtain necessary production licenses.

HANCOCK and **SPOONER** are winter-hardy grain rye varieties developed by the University of Wisconsin. Both exhibited only fair yield potential and excessive height and lodging in 1998 trials at Corvallis and Madras. These varieties are short statured when grown in the Midwest but not under Oregon conditions.

PETKUS was developed in Germany by F. von Lokow in the late 1800s. It was introduced into the United States in 1900 by the USDA. A tetraploid variant was identified in the early 1900s and named Tetra Petkus. Tetra Petkus is a winter-hardy rye that has been grown in Oregon since the mid-1950s. Certified seed is not available.

WHEELER is a privately bred winter-hardy rye. Contact Michigan Crop Improvement (517-355-7438) for possible seed suppliers. Wheeler has allelopathic properties and is being evaluated for use in Oregon as a cover crop to suppress weeds and several soil-borne pests.

Table 1.—Agronomic characteristics of commonly grown winter wheats and triticales.

Variety	Released Year	Released Origin[1]	Emergence[2] index	Winter[2] hardiness	Maturity	Height[3]	Lodging[4] resistance	Test[2] weight	Chaff[5] color	Head type
Common white										
Basin	1985	CBS	5	10	Mid-late	SM	R	8	W	Awned
Cashup	1985	CBS	5	10	Mid-season	M	R	8	W	Awned
Daws	1976	WA	3	10	Mid-season	M	MR	8	W	Awned
Eltan	1990	WA	5	10	Mid-late	MT	MS	7	W	Awned
Foote	1998	OR	—	2	Mid-late	MT-T	MR	7	W	Awned
Gene	1991	OR	5	1	Early	SM	R	6	W	Awnless
Hill 81	1981	OR	5	6	Mid-season	MT	MR	7	W	Awned
Kmor	1990	WA	5	8	Mid-late	MT	MR	6	W	Awned
Lambert	1994	ID	5	3	Early-mid	MT	MR	7	W	Awned
Lewjain	1982	WA	7	8	Late	M	MR	7	W	Awned
MacVicar	1992	OR	5	2	Mid-season	M	R	7	W	Awned
Madsen	1988	WA	5	6	Mid-season	MT	R	8	W	Awned
Malcolm	1987	OR	5	3	Early-mid	M	R	7	W	Awned
Nugaines	1961	WA	5	7	Mid-season	M	R	8	W	Awned
Rod	1992	WA	5	2	Mid-late	M	MR	8	W	Awned
Stephens	1977	OR	5	2	Early-mid	M	R	7	W	Awned
Weatherford	1998	OR	—	2	Mid-late	MT	R	8	W	Awned
Yamhill	1969	OR	7	3	Mid-season	T	MR	7	W	Awnletted
W301	1992	OR	5	8	Early-mid	M	R	7	W	Awned
Club										
Bruehl	2000	WA	6	—	Mid-season	MT	MR	7	W	Awned
Coda	1998	WA	5	6	Mid-late	MT	MR	8	W	Awned
Crew	1982	WA	5	—	Mid-season	MT	MR	6	W-B	Awnless
Edwin	1999	WA	8	6	Mid-season	M	R	7	W	Awnless
Hiller	1995	WA	5	7	Mid-season	M	R	6	W	Awnless
Hyak	1988	WA	4	7	Early-mid	MT	MR	6	W	Awnletted
Moro	1965	OR	8	6	Early-mid	MT	MS	5	B	Awnless
Rely	1990	WA	4	5	Mid-season	M	MR	6	W	Awnless
Rohde	1992	OR	6	4	Early-mid	MT	R	7	B	Awned
Temple	1998	OR	—	4	Early-mid	M	MR	7	W	Awnletted
Tres	1984	WA	5	7	Mid-season	M	R	7	W	Awnless
Hard red										
Andrews	1987	WA	5	M	Early	M	R	7	W	Awned
Batum	1985	WA	5	M	Late	SM	R	6	W	Awned
Blizzard	1988	ID	9	H	Mid-late	T	S	8	W	Awned
Bonneville	1994	ID	—	H	Mid-late	MT	S	8	W	Awned
Buchanan	1989	WA	8	M	Mid-late	MT	S	6	W	Awned
Finley	1998	WA	8	M	Mid-season	T	MR	8	B	Awned
Hatton	1979	WA	6	H	Mid-late	T	MR	8	W	Awned
ID467	1997	ID	—	M	Mid-season	M	MR	8	W	Awnless
Wanser	1965	WA	6	M	Mid-season	MT	MS	8	B	Awned
Hard white										
Ivory	1998	OR	—	1	Early	M	MR	8	W	Awned
Durum										
Connie	1997	OR	5	1	Early-mid	SM	R	8	W	Awned
Triticale										
Alzo	—	Poland	6	H	Mid-late	T	R	7	W	Awned
Bogo	—	Poland	6	H	Mid-late	T	R	3	W	Awned
Celia	1993	OR	5	H	Early-mid	SM	R	4	W	Awned

[1] WA = Washington, OR = Oregon, ID = Idaho, CBS = Columbia Basin Seeds

[2] Scale of 1 to 10, poor to excellent, or L = low, M = moderate, H = high. Winter-hardiness ratings of 2-3 generally are adequate for most of Oregon. Emergence and winter-hardiness ratings are based on Washington State University test data.

[3] SM = short-medium, M = medium, MT = medium-tall, T = tall

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

[5] W = white, B = bronze

Table 2.—Disease ratings for commonly grown winter wheats and triticales.

	Rust		Bunt		Flag	Cephalo-[1]		Foot-[3]	Take-	Snow
	Stripe	Leaf	Common	Dwarf	smut	sporium	Septoria[2]	rot	all	mold
Common white										
Basin	MR	MS	R	MR	MS	6	—	—	—	S
Cashup	MR	MS	R	S	MS	6	—	S	—	S
Daws	MR	MS	R	S	MS	3	MS	S	S	S
Eltan	MR	S	R	MR	MS	5	—	S	S	MR
Foote	R	MR	R	S	—	—	MR	S	S	—
Gene	MR	R	S	S	MS	1	S	MR	S	S
Hill 81	MR	MR	S	S	MS	4	MR	S	S	S
Kmor	R	S	MR	MS	MS	5	S	S	S	S
Lambert	MR	MR	—	S	—	—	S	S		MS
Lewjain	MR	S	R	MR	MS	6	MR	S	S	MS
MacVicar	MR	MS	S	S	MS	1	MS	S	MS	S
Madsen	R	R	R	MR	MS	5	MR	R	—	S
Malcolm	MR	MS	R	S	MS	1	S	S	S	S
Nugaines	MR	S	R	S	—	—	MS	MS	S	S
Rod	MR	MS	R	S	MS	6	S	S	—	S
Stephens	R	MS	S	S	MS	1	S	S	S	S
Weatherford	R	MR	R	—	MS	5	MS	R	S	—
Yamhill	S	MR	S	S	MS	—	MR	MS	S	—
W301	MR	MR	MS	S	MS	—	S	S	—	MS
Club										
Bruehl	MR	MS	—	—	—	—	—	MS	—	R
Coda	R	—	—	—	—	—	—	R	—	—
Crew[4]	M	MS	R	S	S	—	—	S	S	—
Edwin	R	MS	—	—	—	5	—	MR	—	MR
Hiller	R	MR	MR	MS	—	S	—	S	S	
Hyak	MS	MR	MS	MS	S	4	S	R	—	S
Moro	S	S	R	MR	MR	4	—	S	S	MS
Rely	MR	MR	MS	S	VS	4	—	S	S	S
Rohde	MR	MS	MR	S	VS	4	S	VS	—	S
Temple	R	MR	—	—	—	—	—	MR	—	—
Tres	S	M	MS	S	VS	4	—	S	S	S
Hard red										
Andrews	MR	S	R	MR	R	2	—	S	—	MR
Batum	MR	S	R	MS	R	—	MS	S	S	S
Blizzard	MS	MR	R	R	R	—	—	S	S	MR
Bonneville	MR	MR	—	R	—	—	—	—	—	MR
Buchanan	MR	MS	MR	S	R	—	—	S	S	MR
Finley	R	MS	R	R	—	—	—	S	—	—
Hatton	S	S	MR	S	R	3	—	S	—	S
ID467	R	R	R	MR	—	—	—	—	—	MR
Wanser	MR	MS	R	S	R	—	MR	—	—	S
Hard white										
Ivory	MR	R	—	—	—	—	MR	—	S	—
Durum										
Connie	MR	MR	—	—	—	—	—	—	—	—
Triticale										
Alzo	R	R	—	—	—	—	R	—	MS	—
Bogo	R	R	—	—	—	—	R	—	MS	—
Celia	R	R	—	—	—	—	R	MR	MS	MR

R = resistant, MR = moderately resistant, M = intermediate reaction, MS = moderately susceptible, S = susceptible, VS = very susceptible, T = tolerant, — = reaction unknown

[1] Resistance to Cephalosporium may be due to morphological growth patterns rather than true genetic resistance; hence a tolerance index is used for rating, 1 = poor, 5 = medium, 10 = excellent

[2] Rating is for *Septoria tritici,* the triticales may be susceptible to *Septoria nodorum.*

[3] Ratings are for Pseudocercosporella footrot.

[4] Crew is a multiline variety composed of 10 separate lines, some of which are rust-susceptible.

Table 3.—Agronomic characteristics of winter barleys.

	Released			Agronomic Characteristics						Disease Reaction[5]		
	Year	State	Type[1]	Winter[2] hardiness	Heading[3] date	Height[4]	Lodging[5]	Test weight[6]	Awn[7]	Scald	Smut	Stripe rust
Boyer	1975	WA	6F	F	M	M	MR	4	R	MS	MR	S
EightTwelve	1988	ID	6F	G	M	M	I	5	R	—	—	S
Gwen	1991	OR	6F	E	E	M	MR	8	R	MR	MR	S
Hesk	1980	OR	6F	F	M-L	M	MR	4	R	MS	S	S
Hoody	1994	OR	6F	F	E-M	MT	I	3	H	—	—	S
Hudson	1951	NY	6F	G	E-M	MT-T	MS	7	R	MR	MR	S
Hundred	1990	WA	6F	G	M-L	M	MR	4	R	MR	—	S
Kamiak	1971	WA	6F	G	E	MT	I	6	R	MR	MR	S
Kold	1993	OR	6F	F	M	MS	MR	7	R	MR	—	R
Luther	1966	WA	6F	F	L	MS	MS	4	R	MS	MR	S
Mal	1980	OR	6F	F	M-L	M	MR	4	R	MR	MR	S
Schuyler	1969	NY	6F	G-E	M-L	MS	MS	6	R	MR	—	S
Scio	1981	OR	6F	F	M	MS	VR	5	SR	MS	—	S
Showin	1985	WA	6F	G	M-L	MS	R	4	R	MS	—	S
Steptoe[8]	1973	WA	6F	F	E-M	M	I	7	R	MS	—	S
Strider	1997	OR	6F	F	E-M	M	MR	6	R	—	—	R
Wintermalt	1982	NY	6F	G	E-M	MS	MS	5	SR	S	MR	S

[1] 6F = six-row feed barley. No malt-type winter barleys are yet available.

[2] P = poor, F = fair, G = good, E = excellent.

[3] E = early, M = midseason, L = late.

[4] S = short, MS = mid-short, M = medium, MT = mid-tall, T = tall.

[5] S = susceptible; MS = moderately susceptible, I = intermediate, MR = moderately resistant, R = resistant, — = reaction unknown.

[6] Scale of 1 = poor, 5 = medium, 10 = excellent.

[7] R = rough, SR = semi-rough, H = hooded.

[8] A spring barley with a moderate level of winter hardiness.

Table 4. — 1999 statewide variety testing program winter wheat, oat, and triticale heading dates, heights, and lodging across 8 locations in Oregon.

Variety or line[1]	Market class[2]	Cornelius	Corvallis	Hermiston[3]	Madras	Moro	Pendleton	Corvallis	Madras	Madras
		Plant height (inches)						Heading (date of year)		Lodging (%)
Bogo	Triticale	48	49	42	45	37	43	146	153	8
Coda	Club	46	48	42	42	30	38	152	167	56
Connie	Durum	35	39	32	34	25	28	147	164	3
Foote	SW	43	48	36	41	32	37	148	165	3
Gene	SW	36	41	32	33	28	32	141	163	32
Hiller	Club	44	47	37	39	31	35	149	165	13
Hybritech 1021	SW	42	47	37	38	32	34	144	164	15
ID10085-5	SW	48	51	38	42	30	38	147	164	70
ID467	HR	46	46	34	38	30	36	149	163	67
ID86-10420A	SW	49	50	41	44	33	40	150	162	10
Ivory	HW	43	47	36	37	32	36	144	164	4
MacVicar	SW	42	45	38	39	30	34	148	163	58
Madsen	SW	42	45	37	38	31	34	151	166	31
Madsen+Stephens	SW	40	45	35	37	29	34	148	163	26
OR3971244	SW	37	40	33	35	29	34	148	164	23
OR908387	SW	43	47	40	39	31	36	148	166	52
OR939515	SW	42	47	37	40	31	36	149	165	40
OR939526	SW	42	46	39	41	33	37	150	166	50
OR939528	SW	42	48	37	40	30	36	148	164	18
OR943575	HW	41	45	35	42	31	35	152	163	19
Quantum 7817	SW	46	49	40	41	31	38	146	164	43
Rely	Club	49	49	40	42	31	38	153	165	92
Rod	SW	41	47	38	38	29	34	153	165	50
Rohde	Club	43	48	37	37	32	36	148	165	63
Stephens	SW	41	47	35	38	30	34	147	165	17
Stephens (low seed rate)	SW	41	45	35	39	30	35	147	162	5
Stephens (high seed rate)	SW	42	45	35	37	29	34	147	164	9
Stephens (no Gaucho)	SW	40	45	37	37	30	36	147	163	10
Temple	Club	43	40	39	40	29	40	145	163	45
Weatherford	SW	45	47	44	39	31	37	151	165	51
Crater oats	Oats	—	71	—	—	—	—	159	—	—
Rodgers oats	Oats	—	50	—	—	—	—	145	—	—
Brundage	SW	40	45	—	—	—	—	141	—	—
Edwin	SW	—	—	41	—	32	43	—	—	—
Malcolm	SW	—	45	—	—	—	—	148	—	—
Yamhill	SW	47	48	—	46	—	—	149	166	21
Alzo	Triticale	51	—	—	–	—	—	—	—	—
Celia	Triticale	43	44	—	40	—	—	152	162	10
Average		43	47	37	39	30	36.0	148	164	32
PLSD (5%)		2	3	4	3	3	3.0	1	1	48
PLSD (10%)		2	2	3	2	3	2.0	1	1	40
CV		5	4	6	4	5	3	0	0	93
P-value		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 20 seeds per square foot for low rainfall dryland sites and 30 seeds per square foot for irrigated and high rainfall sites unless otherwise noted. The seeding rate was reduced by 10 seeds per square foot for the Stephens low seed rate entry. The seeding rate was increased by 10 seeds per square foot for the Stephens high seed rate entry.

[2] SW=soft white, HW=hard white, HR=hard red

[3] Hermiston trial was damaged by hail storms on June 24, 1999.

Table 5.—1999 statewide variety testing program winter wheat, oat, and triticale yield data across 8 locations in Oregon.

Variety or line[1]	Market class[2]	Cornelius	Corvallis	Hermiston[3]	La Grande[3]	Madras	Moro	Ontario	Pendleton	8-site average	8-site % of average
					Yield (60 lb bu/a; 10% moisture)						
Bogo	Triticale	148	163	109	—	190	67	138	108	—	—
Boundary	HR	134	152	73	47	135	62	114	87	101	102
Coda	Club	121	132	80	67	139	69	107	96	101	103
Connie	Durum	100	110	46	—	80	13	55	39	—	—
Edwin	SW	—	—	61	28	—	50	—	63	—	—
Foote	SW	123	145	25	28	145	52	102	74	87	88
Gene	SW	122	163	73	24	129	50	70	75	88	89
Hiller	Club	129	159	70	38	147	64	129	91	103	105
Hybritech 1021	SW	151	177	52	47	167	59	73	85	101	103
ID10085-5	SW	106	137	56	51	153	56	125	84	96	97
ID86-10420A	SW	138	151	55	53	169	62	108	107	105	106
Ivory	HW	127	143	55	46	147	54	105	82	95	96
MacVicar	SW	137	163	76	44	178	64	126	88	109	111
Madsen	SW	129	151	70	63	151	66	120	96	106	107
Madsen+Stephens	SW	123	153	79	53	166	59	127	80	105	106
OR3971244	SW	122	145	73	55	148	49	110	69	96	97
OR908387	SW	121	147	44	37	166	56	121	89	98	99
OR939515	SW	131	152	78	60	162	66	117	88	107	108
OR939526	SW	144	161	84	64	159	65	119	92	111	112
OR939528	SW	129	160	65	37	161	61	114	87	102	103
OR943575	HW	122	161	84	38	150	59	111	75	100	101
Quantum 7817	SW	143	158	41	50	157	52	101	91	99	100
Rely	Club	95	106	75	26	140	61	117	87	88	89
Rod	SW	141	172	96	61	165	64	112	92	113	114
Rohde	Club	107	129	64	41	147	66	103	78	92	93
Stephens	SW	121	151	72	47	178	63	126	85	105	107
Stephens (high seed rate)	SW	132	150	68	53	160	69	130	83	106	107
Stephens (low seed rate)	SW	116	151	72	43	158	64	106	85	99	100
Stephens (no Gaucho)	SW	115	149	73	46	164	63	111	82	101	102
Temple	Club	111	108	61	33	143	64	107	92	90	91
Weatherford	SW	131	162	92	58	150	60	112	85	106	108
Crater oats	Oats	—	113	—	—	—	—	—	—	—	—
Rodgers oats	Oats	—	97	—	—	—	—	—	—	—	—
Brundage	SW	117	147	—	—	—	—	—	—	—	—
Malcolm	SW	—	157	—	—	—	—	115	—	—	—
Yamhill	SW	137	153	—	—	133	—	—	—	—	—
Alzo	Triticale	170	—	—	—	—	—	—	—	—	—
Celia	Triticale	117	116	—	—	155	—	—	—	—	—
Average		127	146	68	45	153	58	111	83	99	—
PLSD (5%)		16	15	13	14	18	10	19	12	11	—
PLSD (10%)		14	13	11	12	15	8	16	10	9	—
CV		8	6	12	19	7	10	11	7	9	—
P-value		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 20 seeds per square foot for low rainfall dryland sites and 30 seeds per square foot for irrigated and high rainfall sites unless otherwise noted. The seeding rate was reduced by 10 seeds per square foot for the Stephens low seed rate entry and increased by 10 seeds per square foot for the Stephens high seed rate entry.

[2] SW=soft white, HW=hard white, HR=hard red

[3] Hermiston and La Grande trials were damaged by hail storms on June 24, 1999.

Table 6.—1999 statewide variety testing program winter wheat, oat, and triticale yields as a percent of trial average.

Variety or line[1]	Market class[2]	Cornelius	Corvallis	Hermiston[3]	La Grande[3]	Madras	Moro	Ontario	Pendleton	8-site average
		Yield as percent of trial average								
Bogo	Triticale	116	112	160	—	124	116	125	130	—
Boundary	HR	106	104	108	105	88	106	103	104	102
Coda	Club	95	90	118	148	91	119	97	116	103
Connie	Durum	79	75	67	—	52	22	50	47	—
Edwin	SW	—	—	89	62	—	86	—	76	—
Foote	SW	97	99	37	62	95	90	92	89	88
Gene	SW	96	112	107	53	84	86	63	90	89
Hiller	Club	102	109	103	85	96	110	116	109	105
Hybritech 1021	SW	119	121	76	105	109	102	66	102	103
ID10085-5	SW	83	94	82	113	100	96	112	101	97
ID86-10420A	SW	108	104	81	117	111	107	97	128	106
Ivory	HW	100	98	81	102	96	93	95	99	96
MacVicar	SW	108	111	111	97	117	110	114	106	111
Madsen	SW	101	103	103	139	98	114	108	115	107
Madsen+Stephens	SW	97	105	116	118	109	102	114	96	106
OR3971244	SW	96	99	107	122	97	84	99	83	97
OR908387	SW	95	101	65	83	108	96	109	107	99
OR939515	SW	103	104	114	133	106	114	105	106	108
OR939526	SW	113	110	124	142	104	112	107	110	112
OR939528	SW	101	109	95	82	105	105	103	105	103
OR943575	HW	96	110	124	84	98	102	100	90	101
Quantum 7817	SW	112	108	61	110	103	90	91	110	100
Rely	Club	75	73	111	58	91	106	105	104	89
Rod	SW	111	118	141	135	108	111	101	110	114
Rohde	Club	84	88	94	91	96	113	93	93	93
Stephens	SW	95	103	106	104	116	109	114	102	107
Stephens (high seed rate)	SW	104	103	100	118	105	118	117	100	107
Stephens (low seed rate)	SW	91	103	105	96	103	110	96	102	100
Stephens (no Gaucho)	SW	91	102	108	102	107	109	100	99	102
Temple	Club	88	74	90	73	93	110	96	111	91
Weatherford	SW	103	111	135	128	98	103	101	102	108
Crater oats	Oats	—	77	—	—	—	—	—	—	—
Rodgers oats	Oats	—	66	—	—	—	—	—	—	—
Brundage	SW	92	101	—	—	—	—	—	—	—
Malcolm	SW	—	108	—	—	—	—	104	—	—
Yamhill	SW	108	105	—	—	87	—	—	—	—
Alzo	Triticale	134	—	—	—	—	—	—	—	—
Celia	Triticale	92	79	—	—	101	—	—	—	—
Trial average yield (bu/a)		127	146	68	45	153	58	111	83	99

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 20 seeds per square foot for low rainfall dryland sites and 30 seeds per square foot for irrigated and high rainfall sites unless otherwise noted. The seeding rate was reduced by 10 seeds per square foot for the Stephens low seed rate entry and increased by 10 seeds per square foot for the Stephens high seed rate entry.

[2] SW=soft white, HW=hard white, HR=hard red

[3] Hermiston and La Grande trials were damaged by hail storms on June 24, 1999.

Table 7.—1998 statewide variety testing program winter wheat, triticale, and rye yield data across 9 locations in Oregon.

Variety or line[1]	Market class[2]	Cornelius	Corvallis	Hermiston	La Grande	Madras	Moro	Morrow County	Ontario[3]	Pendleton	8-site[4] average	8-site[4] percent of average
						Yield (bu/a; 60 lb bu; 10% moisture)						
Boundary[3]	HR	91	97	100	80	97	67	64	67	74	84	95
Brundage (ID14502B)	SW	100	95	90	99	92	80	62	57	95	89	101
Coda (WA7752)	Club	92	58	95	86	96	71	60	98	83	80	91
Edwin	SW	—	—	89	54	67	61	36	—	50	—	—
Eltan	SW	81	55	108	82	103	56	48	68	66	75	85
Foote (OR880172)	SW	104	95	80	58	81	50	47	42	97	76	87
Gene	SW	82	72	117	82	139	66	55	67	89	88	100
Hiller	Club	89	51	106	81	113	75	61	76	93	84	95
Hybritech 1017	SW	103	94	103	82	122	62	61	67	100	91	103
Hybritech 1019	SW	108	100	100	97	104	82	63	82	102	94	107
ID86-10420A	SW	92	80	95	85	117	63	50	75	96	85	96
Ivory (OR850513)	HW	106	94	96	77	133	64	66	59	104	92	105
Lambert	SW	95	89	101	92	119	64	49	64	105	90	102
MacVicar	SW	107	49	99	93	147	73	54	60	80	88	100
Madsen	SW	87	77	102	90	147	76	81	76	106	96	109
Madsen+Stephens	SW	93	78	101	95	136	86	65	75	103	95	107
OR939515	SW	108	91	108	88	151	73	62	65	112	99	112
PureSeed Durum	Durum	—	—	67	75	95	55	53	—	71	—	—
Rely	Club	94	69	95	76	99	70	54	84	91	81	92
Rod	SW	93	67	117	78	126	67	55	102	80	85	97
Rohde	Club	94	92	104	70	118	66	65	85	85	87	99
Stephens-Dividend+Gaucho	SW	—	—	118	89	128	86	78	73	102	—	—
Stephens-Raxil+Gaucho	SW	105	66	111	83	143	80	60	82	85	92	104
Stephens-Vitavax, no Gaucho	SW	98	42	105	95	129	83	56	63	92	87	99
Stephens-Vitavax+Gaucho	SW	105	68	113	83	132	82	65	73	97	93	106
Temple (ORCL0054)	Club	85	68	95	85	98	71	68	84	92	83	94
Weatherford (OR898120)	SW	103	78	92	77	140	80	73	73	107	94	106
Binova	Triticale	—	—	—	—	145	—	—	—	—	—	—
Bogo	Triticale	127	135	—	—	151	—	—	—	—	—	—
Celia	Triticale	78	91	—	—	130	—	—	—	—	—	—
Hancock	rye	—	79	—	—	61	—	—	—	—	—	—
Spooner	rye	—	79	—	—	55	—	—	—	—	—	—
Yamhill	SW	106	51	—	—	—	—	—	—	—	—	—
SDM 215-2		—	—	—	—	—	—	—	78	—	—	—
Average		98	72	100	83	116	71	60	73	91	88	—
PLSD (5%)		16	25	15	16	20	14	15	19	11	11	—
PLSD (10%)		13	21	12	13	13	11	13	16	9	9	—
CV		10	21	9	12	10	12	16	16	8	13	—
P-value		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted.

[2] SW=soft white, HW=hard white, HR=hard red

[3] Ontario trials were damaged by hail storms in June.

[4] Does not include Ontario due to hail damage.

Table 8.—1997-99 state-wide variety testing program winter wheat yield data across 9 locations in Oregon.

Variety or line[1]	Market class[2]	Cornelius	Corvallis	Hermiston	La Grande	Madras	Moro	Morrow County	Ontario	Pendleton
1997		Yield (bu/a; 10% moisture)								
Boundary	HR	126	59	—	—	120	—	—	111	—
Coda	Club	116	47	93	136	109	81	74	107	94
Foote	SW	138	71	79	114	103	62	41	90	65
Gene	SW	103	68	96	103	102	81	49	124	61
Hiller	Club	113	79	103	135	—	93	60	124	79
ID86-10420A	SW	118	98	75	—	111	65	46	109	73
MacVicar	SW	112	94	94	135	123	70	58	100	40
Madsen	SW	106	68	88	128	104	78	61	117	76
Madsen+Stephens	SW	110	71	86	116	120	82	58	104	70
Quantum 7817	SW	131	98	91	121	130	63	53	104	74
Rely	Club	122	63	95	127	116	81	58	111	79
Rod	SW	127	78	97	125	116	81	58	117	76
Rohde	Club	116	84	85	124	116	83	57	124	73
Stephens	SW	114	89	80	137	119	78	54	127	63
Stephens (no Gaucho)	SW	108	81	86	126	119	71	58	106	62
Temple	Club	122	69	90	135	109	83	61	106	90
Weatherford	SW	118	82	91	134	108	79	64	107	67
1997 trial average (bu/a)		117	82	89	126	112	79	57	110	70

1998	Market class	Cornelius	Corvallis	Hermiston	La Grande	Madras	Moro	Morrow County	Ontario	Pendleton
Boundary	HR	91	97	100	80	97	67	64	67	74
Coda	Club	92	58	95	86	96	71	60	98	83
Foote	SW	104	95	80	58	81	50	47	42	97
Gene	SW	82	72	117	82	139	66	55	67	89
Hiller	Club	89	51	106	81	113	75	61	76	93
ID86-10420A	SW	92	80	95	85	117	63	50	75	96
MacVicar	SW	107	49	99	93	147	73	54	60	80
Madsen	SW	87	77	102	90	147	76	81	76	106
Madsen+Stephens	SW	93	78	101	95	136	86	65	75	103
Quantum 7817	SW	103	94	103	82	122	62	61	67	100
Rely	Club	94	69	95	76	99	70	54	84	91
Rod	SW	93	67	117	78	126	67	55	102	80
Rohde	Club	94	92	104	70	118	66	65	85	85
Stephens	SW	105	68	113	83	132	82	65	73	97
Stephens (no Gaucho)	SW	98	42	105	95	129	83	56	63	92
Temple	Club	85	68	95	85	98	71	68	84	92
Weatherford	SW	103	78	92	77	140	80	73	73	107
1998 trial average (bu/a)		98	72	100	83	116	71	60	73	91

1999	Market class	Cornelius	Corvallis	Hermiston[3]	La Grande[3]	Madras	Moro	Morrow County	Ontario	Pendleton
Boundary	HR	134	152	73	47	135	62	—	114	87
Coda	Club	121	132	80	67	139	69	—	107	96
Foote	SW	123	145	25	28	145	52	—	102	74
Gene	SW	122	163	73	24	129	50	—	70	75
Hiller	Club	129	159	70	38	147	64	—	129	91
ID86-10420A	SW	138	151	55	53	169	62	—	108	107
MacVicar	SW	137	163	76	44	178	64	—	126	88
Madsen	SW	129	151	70	63	151	66	—	120	96
Madsen+Stephens	SW	123	153	79	53	166	59	—	127	80
Quantum 7817	SW	143	158	41	50	157	52	—	101	91
Rely	Club	95	106	75	26	140	61	—	117	87
Rod	SW	141	172	96	61	165	64	—	112	92
Rohde	Club	107	129	64	41	147	66	—	103	78
Stephens	SW	121	151	72	47	178	63	—	126	85
Stephens (no Gaucho)	SW	115	149	73	46	164	63	—	111	82
Temple	Club	111	108	61	33	143	64	—	107	92
Weatherford	SW	131	162	92	58	150	60	—	112	85
1999 trial average (bu/a)		127	146	68	45	153	58	—	111	83

Table 8.—Continued

1997-1999 site average

Variety or line[1]	Market class	Cornelius	Corvallis	Hermiston[3]	La Grande[3]	Madras	Moro	Morrow County	Ontario	Pendleton
1997-1999		Yield (bu/a; 10% moisture)								
Boundary	HR	117	103	—	—	117	—	—	98	—
Coda	Club	110	79	89	96	115	74	—	104	91
Foote	SW	122	104	61	66	110	55	—	78	78
Gene	SW	102	101	95	70	123	65	—	87	75
Hiller	Club	110	97	93	85	—	77	—	110	87
ID86-10420A	SW	116	110	75	—	132	63	—	97	92
MacVicar	SW	118	102	90	90	149	69	—	95	70
Madsen	SW	107	99	86	93	134	73	—	104	92
Madsen+Stephens	SW	109	100	89	88	141	76	—	102	84
Quantum 7817	SW	125	116	78	84	137	59	—	90	88
Rely	Club	104	79	89	76	118	71	—	104	86
Rod	SW	120	105	103	88	136	71	—	110	83
Rohde	Club	105	102	84	78	127	72	—	104	79
Stephens	SW	113	103	88	89	143	74	—	109	82
Stephens (no Gaucho)	SW	107	91	88	89	137	72	—	93	79
Temple	Club	106	82	82	84	117	73	—	99	91
Weatherford	SW	117	107	92	90	133	73	—	97	86
Average yield 1997-1999 (bu/a)		114	100	86	85	127	69	—	98	81

1997-1999 percent of site average		Cornelius	Corvallis	Hermiston[3]	La Grande[3]	Madras	Moro	Morrow County	Ontario	Pendleton
		Yield as percent of trial average								
Boundary	HR	103	103	—	—	92	—	—	100	—
Coda	Club	96	79	104	114	90	106	—	106	112
Foote	SW	107	104	72	78	86	79	—	80	97
Gene	SW	90	101	111	82	97	94	—	89	92
Hiller	Club	97	97	109	100	—	112	—	112	108
ID86-10420A	SW	102	110	88	—	104	91	—	99	113
MacVicar	SW	104	102	105	107	118	99	—	97	86
Madsen	SW	94	99	101	110	106	105	—	107	114
Madsen+Stephens	SW	95	100	104	104	111	110	—	104	104
Quantum 7817	SW	110	116	92	99	108	85	—	92	109
Rely	Club	91	79	104	90	93	102	—	106	105
Rod	SW	106	105	121	104	107	102	—	113	102
Rohde	Club	93	102	99	93	100	103	—	106	97
Stephens	SW	100	103	103	105	112	107	—	111	101
Stephens (no Gaucho)	SW	94	91	103	105	108	104	—	95	97
Temple	Club	93	82	96	100	92	105	—	101	112
Weatherford	SW	103	107	107	106	105	105	—	99	106

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 20 seeds per square foot for low rainfall dryland sites and 30 seeds per square foot for irrigated and high rainfall sites.

[2] SW=soft white, HW=hard white, HR=hard red

[3] Hermiston and La Grande trials were damaged by hail storms on June 24, 1999.

Table 9.—1999 statewide variety testing program winter wheat, oat, and triticale test weight data across 8 locations in Oregon.

Variety or line[1]	Market class[2]	Cornelius	Corvallis	Hermiston[3]	La Grande[3]	Madras	Moro	Ontario	Pendleton	8-site average
					Test weight (lb/bu)					
Bogo	Triticale	58.5	58.4	55.1	—	54.8	52.9	57.5	53.6	—
Boundary	HR	63.3	62.4	61.6	59.6	62.7	59.2	58.9	59.9	61.0
Coda	Club	62.1	60.9	60.6	60.3	60.0	58.6	62.1	59.5	60.5
Connie	Durum	64.8	65.1	62.5	—	61.9	56.9	60.1	56.8	—
Edwin	SW	59.4	—	60.7	59.4	—	56.1	—	58.8	—
Foote	SW	60.8	61.0	49.3	56.2	60.2	58.6	59.6	57.9	58.0
Gene	SW	60.8	60.9	61.2	55.3	58.9	58.1	57.2	56.8	58.7
Hiller	Club	60.1	58.7	58.9	57.4	58.3	56.1	57.7	56.8	58.0
Hybritech 1021	SW	61.3	60.5	60.7	56.4	58.8	57.6	55.1	56.7	58.4
ID10085-5	SW	61.8	59.1	59.7	57.7	60.6	58.3	59.1	59.2	59.4
ID86-10420A	SW	61.1	61.2	61.4	58.9	61.1	59.1	58.0	61.1	60.2
Ivory	HW	62.5	62.7	62.0	58.6	61.7	60.5	61.2	59.7	61.1
MacVicar	SW	62.3	61.1	61.0	57.2	59.7	59.1	56.2	59.2	59.5
Madsen	SW	61.8	60.5	60.7	56.8	60.2	60.1	56.5	59.0	59.5
Madsen+Stephens	SW	62.7	60.9	60.5	57.1	60.2	58.3	59.9	58.6	59.8
OR3971244	SW	61.6	60.7	59.9	56.3	58.9	57.7	59.3	56.4	58.9
OR908387	SW	61.2	60.8	60.4	55.9	59.5	57.3	59.8	58.0	59.1
OR939515	SW	62.7	62.7	60.9	57.9	59.9	58.3	60.6	59.1	60.3
OR939526	SW	62.2	61.4	60.9	57.9	58.9	58.7	54.0	57.3	58.9
OR939528	SW	62.3	62.0	59.9	55.7	60.2	59.5	58.4	57.9	59.5
OR943575	HW	62.7	62.2	60.3	54.6	59.6	57.7	58.4	57.9	59.2
Quantum 7817	SW	61.8	61.6	60.2	58.2	59.3	58.3	58.8	56.9	59.4
Rely	Club	59.1	60.4	59.7	57.8	57.8	56.8	58.9	58.9	58.7
Rod	SW	61.9	62.0	60.8	58.8	60.2	59.0	50.2	57.2	58.8
Rohde	Club	61.3	61.1	61.0	58.8	61.1	60.3	59.5	59.4	60.3
Stephens	SW	63.3	61.3	60.1	57.2	60.7	58.4	58.6	57.5	59.6
Stephens (high seed rate)	SW	62.2	61.1	59.4	57.0	59.9	59.2	58.1	58.1	59.4
Stephens (low seed rate)	SW	62.8	62.2	60.0	56.5	60.1	58.6	55.9	57.3	59.2
Stephens (no Gaucho)	SW	62.4	59.5	60.0	56.6	60.3	58.6	59.0	57.4	59.2
Temple	Club	62.0	59.2	60.7	57.3	61.0	57.1	61.2	58.9	59.7
Weatherford	SW	62.4	60.7	61.2	58.4	60.9	57.5	57.9	59.1	59.8
Crater oats	Oats	—	40.7	—	—	—	—	—	—	—
Rodgers oats	Oats	—	41.6	—	—	—	—	—	—	—
Brundage	SW	63.2	62.7	—	—	—	—	—	—	—
Malcolm	SW	—	60.7	—	—	—	—	57.2	—	—
Yamhill	SW	59.7	59.3	—	—	59.0	—	—	—	—
Alzo	Triticale	60.1	—	—	—	—	—	—	—	—
Celia	Triticale	59.0	58.2	—	—	57.6	—	—	—	—
Average		61.6	59.9	60.0	57.5	59.8	58.2	58.2	58.2	59.2
PLSD (5%)		1.7	2.1	5.0	1.9	1.5	2.0	3.7	3.0	1.3
PLSD (10%)		1.4	1.7	4.2	1.6	1.3	1.7	3.1	2.5	1.1
CV		2	2	5	2	2	2	4	3	4
P-value		0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 20 seeds per square foot for low rainfall dryland sites and 30 seeds per square foot for irrigated and high rainfall sites unless otherwise noted. The seeding rate was reduced by 10 seeds per square foot for the Stephens low seed rate entry and increased by 10 seeds per square foot for the Stephens high seed rate entry.

[2] SW=soft white, HW=hard white, HR=hard red

[3] Hermiston and La Grande trials were damaged by hail storms on June 24, 1999.

Table 10.—1999 statewide variety testing program winter wheat, oat, and triticale protein data across 8 locations in Oregon.

Variety or line[1]	Market class[2]	Cornelius	Corvallis	Hermiston[3]	La Grande[3]	Madras	Moro	Ontario	Pendleton	8-site average
					Protein percent (12% moisture basis)					
Bogo	Triticale	8.0	7.9	8.3	—	7.7	8.6	8.6	9.0	—
Boundary	HR	8.4	9.3	10.4	14.6	10.9	9.6	11.4	10.4	10.6
Coda	Club	8.8	8.9	8.5	12.8	9.9	9.0	9.7	9.7	9.6
Connie	Durum	10.8	10.0	13.2	—	11.7	14.1	11.1	12.9	—
Edwin	SW	9.2	—	9.4	12.9	—	9.3	—	10.6	—
Foote	SW	8.8	8.6	10.6	14.3	9.6	10.0	10.3	10.2	10.3
Gene	SW	9.0	8.6	10.1	13.9	10.8	9.6	10.3	10.4	10.3
Hiller	Club	8.0	7.9	8.5	12.9	9.6	8.1	9.4	9.8	9.3
Hybritech 1021	SW	8.3	7.9	9.3	13.2	9.1	9.0	9.8	10.3	9.6
ID10085-5	SW	9.6	9.3	9.9	13.5	9.5	10.7	10.1	10.1	10.3
ID86-10420A	SW	7.9	8.2	9.8	13.1	9.4	9.4	10.1	9.9	9.7
Ivory	HW	9.2	9.5	10.4	14.2	9.2	9.1	10.4	9.9	10.2
MacVicar	SW	8.3	8.3	9.2	12.9	9.3	9.3	10.3	9.9	9.7
Madsen	SW	8.3	8.4	9.3	13.1	9.8	9.1	10.3	10.3	9.8
Madsen+Stephens	SW	9.2	8.9	9.4	12.9	9.9	9.8	10.0	10.0	10.0
OR3971244	SW	9.0	8.4	9.1	13.1	10.1	9.9	9.7	11.7	10.1
OR908387	SW	8.9	8.4	9.3	13.6	9.8	9.7	9.6	9.9	9.9
OR939515	SW	8.9	8.6	9.1	13.1	9.7	9.5	10.1	10.1	9.9
OR939526	SW	8.5	8.4	9.0	13.1	9.4	8.8	10.7	10.7	9.8
OR939528	SW	9.1	8.3	9.0	13.4	9.7	8.6	10.0	10.0	9.8
OR943575	HW	9.0	8.2	9.4	13.5	10.3	9.4	10.4	10.6	10.1
Quantum 7817	SW	8.4	8.3	9.2	13.1	8.8	9.6	9.6	9.9	9.6
Rely	Club	10.7	10.3	8.5	13.0	9.7	8.8	10.1	9.1	10.0
Rod	SW	8.3	8.0	8.3	13.0	9.1	8.5	10.7	10.3	9.5
Rohde	Club	9.8	9.2	9.3	13.1	9.3	8.3	10.5	9.6	9.9
Stephens	SW	9.7	9.1	9.4	12.8	9.5	9.8	10.2	10.3	10.1
Stephens (high seed rate)	SW	9.0	9.0	9.6	13.3	9.0	9.7	10.7	10.2	10.0
Stephens (low seed rate)	SW	9.7	9.0	9.8	12.9	9.2	9.8	10.7	10.6	10.2
Stephens (no Gaucho)	SW	9.5	9.0	9.7	13.5	9.4	9.9	10.2	10.3	10.2
Temple	Club	9.2	9.5	9.7	13.7	9.0	8.1	10.6	8.8	9.8
Weatherford	SW	8.8	8.7	9.6	12.7	9.1	9.9	10.2	10.2	9.9
Crater oats	Oats	—	9.6	—	—	—	—	—	—	—
Rodgers oats	Oats	—	14.5	—	—	—	—	—	—	—
Brundage	SW	9.2	8.8	—	—	—	—	—	—	—
Malcolm	SW	—	8.5	—	—	—	—	10.4	—	—
Yamhill	SW	8.5	8.5	—	—	9.4	—	—	—	—
Alzo	Triticale	7.0	—	—	—	—	—	—	—	—
Celia	Triticale	8.2	8.4	—	—	8.5	—	—	—	—
Average		8.9	8.9	9.5	13.3	9.5	9.5	10.2	10.2	10.0
PLSD (5%)		0.7	0.5	0.5	0.8	1.1	1.0	0.9	1.6	0.5
PLSD (10%)		0.6	0.4	0.4	0.7	0.9	0.8	0.7	1.3	0.4
CV		5	4	3	4	7	7	5	7	5
P-value		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 20 seeds per square foot for low rainfall dryland sites and 30 seeds per square foot for irrigated and high rainfall sites unless otherwise noted. The seeding rate was reduced by 10 seeds per square foot for the Stephens low seed rate entry and increased by 10 seeds per square foot for the Stephens high seed rate entry.

[2] SW=soft white, HW=hard white, HR=hard red

[3] Hermiston and La Grande trials were damaged by hail storms on June 24, 1999.

Table 11.—1999 grower drill strip winter wheat variety tests across Oregon. Sites are listed in order of descending average yield.

	Miller Dufur	Kaseberg Wasco	Sherman Station Moro	Klages Joseph	von Borstel Buether Kent	Stonebrink Enterprise	Weimar Mikkalo	Average
Variety/mixture				Yield (60 lb bu/a)				
Gene	56	49	39	55	39	16	15	38
Hiller	79	60	57	52	40	35	31	51
Madsen	70	54	47	48	47	26	26	45
Rod	79	46	57	—	54	34	20	–
Rohde	67	53	57	44	45	27	24	45
Stephens	53	46	48	40	43	15	21	38
Quantum 7817	—	51	—	—	—	—	27	—
MacVicar	43	—	—	—	51	—	—	—
Rely	74	—	—	—	54	—	—	—
Rod/Madsen	79	—	—	—	—	—	—	—
Crew/Hyak	74	—	—	—	—	—	—	—
Crew/Hyak/Hiller	77	—	—	—	—	—	—	—
Site average	68	52	51	48	46	25	23	—

Table 12.—1999 state-wide variety testing program winter barley heading dates and heights across locations in Oregon.

Variety or line[1]	Market class[2]	Corvallis	Cornelius	Corvallis	Hermiston[3]	Pendleton
		Heading date (day of year)	Plant height (inches)			
Kold	6RF	144	38	43	36	36
OR1957369	6RF	141	40	44	35	37
ORW10	6RF/M	136	39	48	34	35
ORW11	6RF/M	143	41	41	38	38
Scio	6RF	141	46	47	34	36
Strider	6RF	139	41	45	33	37
Kold (untreated)	6RF	144	40	44	—	—
Orca[4]	2RF	115	42	47	—	—
Average		138	41	45	35	36
PLSD (5%)		1	3	3	NS	NS
PLSD (10%)		1	2	2	NS	NS
CV		0	4	4	9	5
P-value		0.00	0.00	0.00	0.54	0.73

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 20 seeds per square foot for low rainfall dryland sites and 30 seeds per square foot for irrigated and high rainfall sites.

[2] 6RF=six-row feed; 6RF/M=barley being assessed for malting use; 2RF=two-row feed.

[3] Hermiston trial was damaged by hail storms on June 24, 1999.

[4] Orca is a spring barley grown as a winter barley in the Willamette Valley trials.

Table 13.—1999 statewide variety testing program winter barley yield data across 6 locations in Oregon.

Variety or line[1]	Market class[2]	Cornelius	Corvallis	Hermiston[3]	Moro	Ontario	Pendelton	5-site[2] average	5-site[2] % of average
				Yield (lb/a; 10% moisture)					
Kold	6RF	6485	7563	4220	2346	3409	4672	4498	91
OR1957369	6RF	6550	7036	3004	3077	2376	6044	4633	93
ORW10	6RF/M	6369	7713	1699	2476	2333	4448	4243	86
ORW11	6RF/M	6401	7743	1367	2752	3990	5307	4948	100
Scio	6RF	7407	7287	3940	3430	4437	5628	5195	105
Strider	6RF	3556	7710	3793	2687	2015	5564	4494	91
Kold (untreated)	6RF	6313	7893	—	—	—	—	—	—
Orca[4]	2RF/M	7477	3845	—	—	—	—	—	—
Average		6320	7099	3004	2795	3093	5277	4960	—
PLSD (5%)		583	738	952	630	NS	782	NS	—
PLSD (10%)		479	606	774	512	1497	636	NS	—
CV		5	6	17	12	33	8	15	—
P-value		0.00	0.00	0.00	0.03	0.07	0.01	0.15	—

Table 14.—1999 statewide variety testing program winter barley yields as percent of trial average.

Variety or line[1]	Market class[2]	North Valley	Corvallis	Hermiston[3]	Moro	Ontario	Pendelton
				Yield (percent of trial average)			
Kold	6RF	103	107	140	84	110	89
OR1957369	6RF	104	99	100	110	77	115
ORW10	6RF/M	101	109	57	89	75	84
ORW11	6RF/M	101	109	46	98	129	101
Scio	6RF	117	103	131	123	143	107
Strider	6RF	56	109	126	96	65	105
Kold (untreated)	6RF	100	111	—	—	—	—
Orca[4]	2RF/M	118	54	—	—	—	—
Trial average yield (lb/a)		6320	7099	3004	2795	3093	5277

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 20 seeds per square foot for low rainfall dryland sites and 30 seeds per square foot for irrigated and high rainfall sites.

[2] 6RF=six-row feed; 6RF/M=barley being assessed for malting use; 2RF=two-row feed.

[3] Hermiston trial was damaged by hail storms on June 24, 1999, and is not included in the 5-site averages.

[4] Orca is a spring barley grown as a winter barley in the Willamette Valley trials.

Table 15.—1997-99 statewide variety testing program barley yield data across 8 locations in Oregon.

Variety	Market class	Corvallis	Hermiston	La Grande	Moro	Morrow	North Valley	Ontario	Pendleton	All-sites average
					Yield (lb/a; 10% moisture)					
1997										
Kold	6RF	3525	4052	7564	3683	4271	5456	5154	4067	4624
ORW10	6RF	3950	3204	5894	3328	4345	4970	5776	3895	4420
ORW11	6RF	2883	4165	8675	3619	5147	6736	4208	4330	4970
Scio	6RF	3670	4980	8980	4232	4507	5358	6249	3860	5054
Strider	6RF/M	3255	5424	8470	4659	5003	6452	6055	3717	5177
1997 trial average (lb/a)		3146	4518	7138	3942	3961	4548	5565	3802	4577
1998										
Kold	6RF	1948	4754	4841	5904	5807	6352	—	5972	5386
ORW10	6RF/M	3113	3221	4775	4201	5296	6240	—	4570	4137
ORW11	6RF/M	2426	5500	4672	5721	6137	7308	—	5909	4805
Scio	6RF	2851	5402	4199	5444	5893	6460	—	5241	5190
Strider	6RF/M	3018	4654	5906	5793	5565	6622	—	5866	5292
1998 trial average (lb/a)		2416	4714	4890	5127	5682	6249	—	5120	5414
1999										
Kold	6RF	7563	4220	—	2346	—	6485	3409	4672	4783
ORW10	6RF/M	7713	1699	—	2476	—	6369	2333	4448	4173
ORW11	6RF/M	7743	1367	—	2752	—	6401	3990	5307	4593
Scio	6RF	7287	3940	—	3430	—	7407	4437	5628	5355
Strider	6RF	7710	3793	—	2687	—	3556	2015	5564	4221
1999 trial average (lb/a)		7099	3004	—	2795	—	6320	3093	5277	4598
1997-1999 average										
Kold	6RF	4346	4342	—	3978	—	6098	—	4904	4931
ORW10	6RF	4925	2708	—	3335	—	5860	—	4304	4244
ORW11	6RF	4350	3677	—	4031	—	6815	—	5182	4790
Scio	6RF	4603	4774	—	4369	—	6408	—	4910	5200
Strider	6RF/M	4661	4624	—	4379	—	5543	—	5049	4897
Average yield (1997-1999)		4220	4079	—	3955	—	5706	—	4733	4863
1997-1999 percent of trial average										
Kold	6RF	103	106	—	101	—	107	—	104	101
ORW10	6RF	117	66	—	84	—	103	—	91	87
ORW11	6RF	103	90	—	102	—	119	—	109	98
Scio	6RF	109	117	—	110	—	112	—	104	107
Strider	6RF/M	110	113	—	111	—	97	—	107	101

Table 16.—1999 statewide variety testing program winter barley test weight data across 6 locations in Oregon.

Variety or line[1]	Market class[2]	Corvallis	Hermiston[3]	Moro	North Valley	Ontario	Pendelton	5-site[3] average
					Test weight (lb/bu)			
Kold	6RF	52.9	50.9	49.9	52.0	53.4	46.9	51.0
OR1957369	6RF	53.0	50.3	52.3	51.3	53.3	51.2	52.2
ORW10	6RF/M	55.4	52.6	53.6	52.8	53.2	51.4	53.3
ORW11	6RF/M	54.3	52.3	51.9	54.7	53.9	48.2	52.6
Scio	6RF	53.1	49.7	48.2	53.5	51.9	48.9	51.1
Strider	6RF	52.3	48.9	50.2	53.2	53.2	48.6	51.5
Kold (untreated)	6RF	52.6	—	—	52.1	—	—	—
Orca[3]	2RF	52.5	—	—	52.0	—	—	—
Average		53.2	50.8	51.0	52.7	53.2	49.2	52.0
PLSD (5%)		0.8	0.9	1.2	1.0	NS	2.9	1.6
PLSD (10%)		0.7	0.7	1.0	0.8	NS	2.4	1.3
CV		1	1	1	1	2	3	2
P-value		0.00	0.00	0.00	0.00	0.16	0.04	0.05

Table 17.—1999 statewide variety testing program winter barley protein data across 6 locations in Oregon.

Variety or line[1]	Market class[2]	Corvallis	Hermiston[3]	Moro	North Valley	Ontario	Pendelton	5-site[3] average
					Protein percent (12% moisture basis)			
Kold	6RF	9.1	10.4	13.6	11.0	13.1	12.4	11.9
OR1957369	6RF	9.1	10.0	13.0	10.5	12.0	10.1	10.9
ORW10	6RF/M	8.9	11.3	13.4	10.8	14.5	11.1	11.7
ORW11	6RF/M	8.4	9.3	13.0	10.5	12.1	12.1	11.2
Scio	6RF	9.2	9.8	12.4	11.2	11.8	10.9	11.1
Strider	6RF	9.0	9.9	13.3	10.6	11.3	11.5	11.1
Kold (untreated)	6RF	8.9	—	—	9.8	—	—	—
Orca[3]	2RF	13.1	—	—	14.2	—	—	—
Average		9.5	10.1	13.1	11.1	12.5	11.4	11.3
PLSD (5%)		0.3	0.5	NS	0.8	1.0	1.3	NS
PLSD (10%)		0.3	0.4	NS	0.6	0.8	1.0	NS
CV		2	3	5	4	4	6	6
P-value		0.00	0.00	0.32	0.00	0.00	0.03	0.21

[1] All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted. Seeding rate was 20 seeds per square foot for low rainfall dryland sites and 30 seeds per square foot for irrigated and high rainfall sites.

[2] 6RF=six-row feed; 6RF/M=barley being assessed for malting use; 2RF=two-row feed.

[3] Hermiston trial was damaged by hail storms on June 24, 1999, and is not included in 5-site averages.

[4] Orca is a spring barley grown as a winter barley in the Willamette Valley trials.

Table 18.—Agronomic characteristics of winter oats.

Variety	Year released	State	Winter hardiness[1]	Maturity[2]	Height[3]	Lodging[1]	Test weight[1]	Kernel color[4]
Amity	1972	OR	4	L	MT	6	5	W
Compact	1968	KY	4	ML	S	6	6	RG
Crater	1956	OR	5	ML	T	5	5	G
Grey Winter	1900	—	5	L	VT	4	7	G
Kenoat	1981	KY	6	M	M	5	6	RG
Walken	1970	KY	4	L	M	6	7	YR

[1] Scale of 1 to 10; 1 = poor, 10 = excellent
[2] M = mid-season, ML = mid- to late-season; L = late
[3] M = medium, MT = mid-tall, S = short, T = tall, VT = very tall
[4] W = white, R = red, G = grey, Y = yellow

Table 19.—Yield and agronomic data for winter oats grown in western Oregon.

Variety	1967-71	1981	----------1986----------			------- 1995 -----		
	lb/a	lb/a	lb/a	lb/bu	Heading date[1]	lb/a[2]	lb/bu	Head date
Amity	3619	3423	4745	38.4	155	3019	37.2	160
Compact	—	—	4610	39.8	149	—	—	—
Crater	3568	—	—	—	—	1796	35.7	155
Grey Winter	2768	—	3968	37.9	153	780	32.3	159
Kenoat	—	—	4269	40.3	149	—	—	—
Walken	—	3558	4692	41.1	154	679	34.7	157
Average	3318	3490	4457	—	—	1568	35.0	158
PLSD (5%)	—	—	499	—	—	533	1.4	1
CV	—	—	7	—	—	32	18	10

[1] date of year - June 1 = 151
[2] There was extensive bird damage on Grey Winter and Walken plots.

Table 20.—Yield, test weight, heading date, plant height, and protein ranges and averages for 8 winter oat varieties and lines grown in Pendleton, Oregon, for 2 crop years (1964-65).

	Yield (lb/acre)	Test weight (lb/bu)	Heading date[1]	Height (in)	Protein (%)
Range	1782-3000	38.2-42.2	148-154	27-38	13.9-19.1
Average	2484	40.1	151	32	16.6

The varieties and lines tested are no longer available, hence the use of ranges and averages. The lines tested were similar to Amity and Crater.

[1] date of year - June 1 = 151

Plant Variety Protection (PVP) Notice for the Wheat Variety 'Weatherford' (Patent Pending)

Oregon State University has filed for protection for the wheat variety Weatherford under the U.S. Plant Variety Protection Act. PVP law grants OSU a number of ownership rights and restricts certain uses of this variety. OSU has chosen to exercise its legal options to ensure identity and ownership of this variety, but has extended to all interested parties the right to increase and sell seed of Weatherford. Please be aware that varieties protected by other institutions and private companies may carry additional legal restrictions on seed sales.

PVP Restrictions on the Wheat Variety 'Weatherford'

Oregon State University is legally recognized as both the developer and owner of the winter wheat variety Weatherford.

Seed of Weatherford may be sold by variety name only. 'Variety not stated' or 'brown bag' sales of seed are not allowed.

OSU has chosen to make Weatherford available by extending to all growers and seed dealers the right to produce and sell seed while retaining other rights and restricting other uses as defined by the PVP Act. Growers may freely produce seed for commercial sales and save seed for replanting. OSU will not collect a royalty on seed sales. There are no seed certification or dealer licensing requirements.

The PVP Research Exemption allows for use of Weatherford in crossing with other genetic stocks for research and cultivar development efforts. However, under PVP law, Weatherford may not be used as a parent of a commercial hybrid cultivar without permission of the owner. Developing a new variety essentially derived from Weatherford also is prohibited without permission. That means the variety may not be used as a recurrent parent in backcrossing, or used as a recipient for mutagenesis or other molecular genetic modification, without permission of the owner.

Varieties registered under the Plant Variety Protection Act carry the restrictions listed below. In practice, these restrictions are not uniform among PVP varieties, as owners choose to define 'authorized seed dealer' differently. Regarding Weatherford, OSU has chosen to extend to all interested growers the right to produce and sell seed while retaining other rights and restricting other uses as defined in the PVP Act.

General Provisions of Plant Variety Protection (PVP) Law

PVP establishes ownership of a plant variety.

Seed of a variety licensed under PVP may be sold by variety name only. 'Variety not stated' or 'brown bag' seed sales are prohibited.

Seed may be sold only by authorized dealers; i.e. those authorized by the owner of the plant variety.

Seed may be sold only as a certified class of seed when the Title 5 protection option is specified for a PVP variety.

Under the 'PVP Grower Saved Seed Exemption,'growers may save seed for replanting on their own farm, but may not sell or give seed to any other party.

Under the 'PVP Research Exemption,' a variety may be used in crosses with other genetic stocks for research and cultivar development efforts. The variety may not be used as a parent of a commercial hybrid cultivar without permission of the owner. Developing a new variety essentially derived from the original variety also is prohibited without permission. That means the variety may not be used as a recurrent parent in backcrossing, or used as a recipient for mutagenesis or other molecular genetic modification, without permission of the owner.

Violators may be prosecuted in court.

Questions of Seed Quality

Seed quality includes such factors as varietal identity, freedom from weed and other crop contaminants, and the ability of the seed to germinate. State and Federal seed laws require that seed offered for sale be tested and truthfully labeled for these and other quality factors. When evaluating grain for seeding or when buying seed from off-farm sources, ask the following questions:

What is the identity of this seed? Varieties are developed to improve yields through disease resistance and improved agronomic characteristics. Seed certification is one method of ensuring varietal identity. Is the seed certified? Look for the "blue tag," bulk shipping certificate, or Transfer Certificate for Seed Pending Final Certification (be aware that the latter means the seed lot is not yet fully certified). These verify varietal identity. If the seed is uncertified, ask for information on how the seed was produced, what type of seed was used as seed stock, and what guarantee of varietal identity you can expect.

What is the pure seed percentage? Pure seed is the percentage of seed in the bag that is of the crop you are buying. A high percentage of pure seed will give best results. For example, if a seed lot has a 99 pure seed percentage, then from a 100-pound bag of seed you can expect 99 pounds of pure seed of the specified crop.

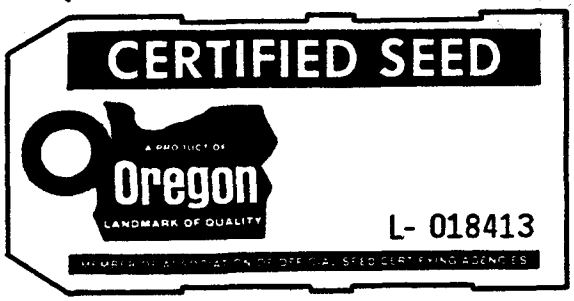
What is the percentage of other crop seeds? Barley, oats, vetch, and other crop seed can be found in seed lots. The percentage of other crop seed tells you how much of the seed you are buying is of these other crops.

What is the inert matter content of this seed? Sand, stones, dirt, sticks, pods, chaff, ergot bodies, and some broken seeds are all inert matter. These materials do not increase yield. A very low percentage of inert matter is preferable.

What is the weed seed percentage, and what types of weeds are present in this seed lot? This percentage indicates the presence of seeds of plants recognized as weeds present in the seed lot. A zero percentage is best; however, in many states there are allowances for certain types of weeds. There are also weed seeds that are strictly prohibited from being in seed. Remember that many weed seeds are very small, and a low percentage may still mean a high number of weed seeds are present.

What is the germination percentage of this seed? Percentage of germination is a measure of the number of pure seeds in a lot that produce normal plants under favorable conditions. To be valid, the germination test for a seed lot must have been performed in the past 18 months for seed grown and sold in Oregon. Federal laws require germination tests within 5 months of sale for seed shipped across state lines. For the seed to be properly labeled, the date of test and germination percentage both must be stated. If you buy seed with a low germination, you are paying for dead seed. There are a number of seed labs in Oregon that do seed testing. Most only accept untreated seed for full seed analyses but will take treated seed for germination testing. Seed-borne fungal diseases can result in low germination in untreated seed. Seed treatment may correct this problem.

These are the major questions to ask yourself or to ask a supplier when buying seed. If you have questions about seed laws, contact your local county Extension office, your seed dealer, or the Oregon Department of Agriculture Commodity Inspection Division, Salem, Oregon.



Certified seed is your assurance of varietal purity, high germination, uniform quality, and freedom from noxious weeds. Look for the blue tag or the seed-certification shipping certificate, your guarantee of these qualities. Certified seed does not cost—it pays.

Preliminary lists of current producers of certified seed are available in early summer at local offices of the OSU Extension Service. This information can also be obtained through the Oregon Seed Certification Service home page at http:/www.oscs.orst.edu. Your local Extension office also has information on seed certification procedures and foundation seed stocks.

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