

Special Report 775

Revised May 1999

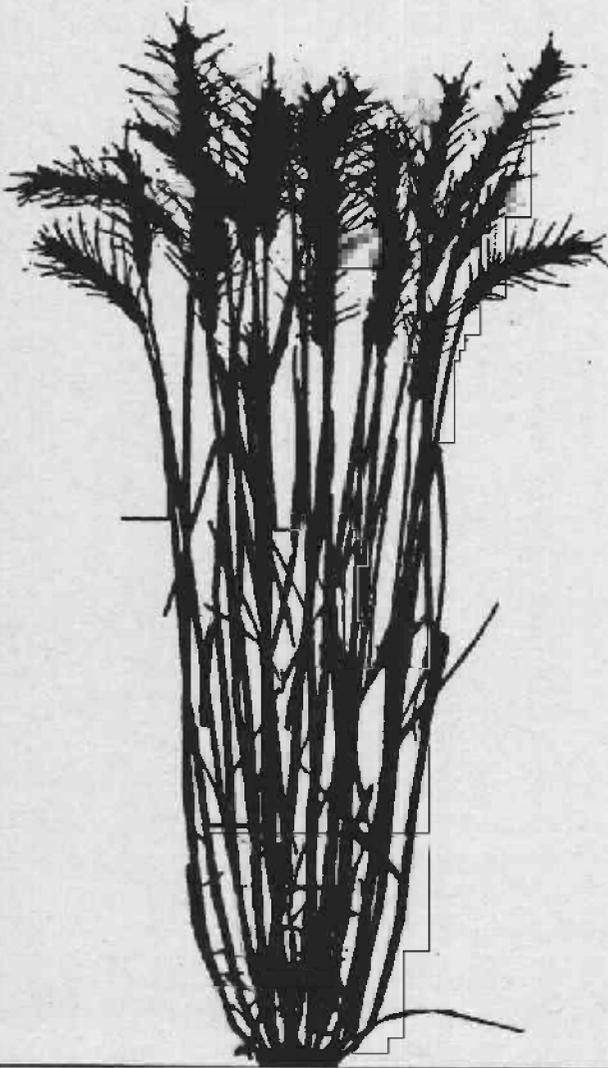
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Winter Cereal Varieties for 1999



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Winter Cereal Varieties for 1999

Russ Karow, Ernie Marx, Karen Morrow, Mylen Bohle, Randy Dovel, Eric Eldredge, Pat Hayes, Steve James, Jim Peterson, Gary Reed, Clint Shock, Dick Smiley¹

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 state-wide 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 is centrally coordinated by Russ Karow and Ernie Marx and involves research cooperators at seven 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	Coordinator/Cooperator
Corvallis	Karow/Marx
Hermiston	Morrow/Reed/Smiley
Klamath	Dovel
LaGrande	Morrow/Smiley
	Grower: John Cuthbert
Madras	James/Bohle
Moro	Morrow/Jacobsen/Smiley
Morrow	Morrow/Smiley
	Grower: Charlie Anderson
North Valley	Karow/Marx
	Grower: Norm Goetze
Ontario	Eldredge/Shock
Pendleton	Morrow/Smiley

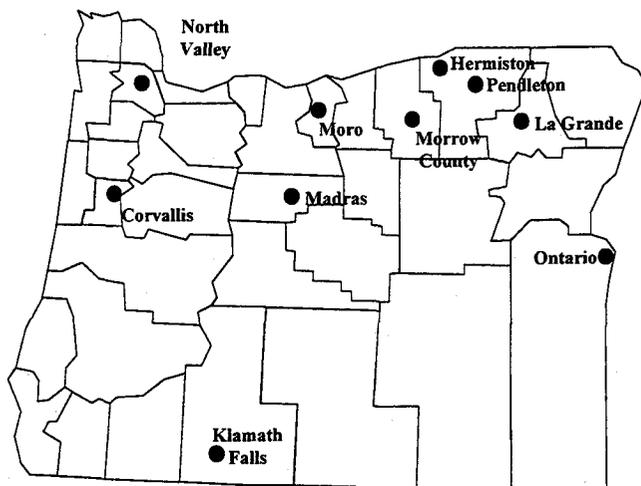
Without the support of the funding organizations and research and grower cooperators, these data would not be available.

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Data presented in Table 11 were obtained from an on-farm winter wheat drill strip testing program. In 1998, drill strip trials were conducted by growers in cooperation with county agents at 13 sites across the state. Seed for the 1998 program was provided by Anderson Seeds (Ione) and Pendleton Grain Growers (Pendleton).

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 cereal variety publications. Without her skills, these publications would not exist.



State-wide cereal variety testing program locations and site information

Location	Elev. (ft)	GDD ¹ (@50°F)	Precip. (in)	Type
Corvallis	230	2052	43	Dryland
Cornelius (NV)	750	2255	44	Dryland
Heppner (Morrow)	1955	2294	14	Dryland
Hermiston	450	2824	9	Irrigated
Klamath Falls	4100	1973	14	Irrigated
La Grande	2770	1830	14	Irrigated
Madras	2230	1917	10	Irrigated
Moro	1870	1988	11	Dryland
Ontario	2230	2868	10	Irrigated
Pendleton	1490	2278	16	Dryland

¹ yearly total using a 50°F base temperature

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Factors to Consider when Selecting Varieties

While 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 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. 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 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 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 were 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 are being developed. Kold and Strider winter barleys have exhibited good levels of resistance. None of the currently grown winter wheats or barleys has resistance to Russian wheat aphid (RWA); however, oats are immune. Gaucho insecticide seed treatment is showing great promise as a means of RWA control. 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 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 cereals. 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. 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. Compact and Walken oats are less winter-hardy than Grey Winter or Crater. Kenoat has not been tested for winter hardiness in Oregon, but in Kentucky, its state of origin, it is reported to have a greater level of winter hardiness than Grey Winter, Walken, and Compact oats.

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/a and a variety yields 103 bu/a, 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 wheats have yet to be grown. 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/>.

New Releases

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.

FOOTE (OR880172) is an awned, common soft white released by OSU in 1998. Foote is slightly later in heading and taller than Madsen. In field testing to date, Foote has shown good resistance to Septoria leaf blotch (*S. tritici*) as well as stripe and leaf rust, foot rot, and common bunt. It is intended to be grown where *S. tritici* limits production. Foundation seed will be available in fall 1999.

HYBRITECH 1017 AND 1019 are hybrid soft white winter wheats developed by HybriTech Seed International. Seed of 1017 is currently available. It is sold under the name Quantum7817. Both varieties have shown above-average performance across environments.

IVORY (OR850513) is a hard white wheat to be released by OSU in 2000. It has a yield potential similar to commonly grown soft wheats. 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 2000.

TEMPLE (OR92CL0054) is a high-yielding, stripe rust- and foot rot-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 seed will be available in fall 1999.

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 foot rot. It has Cephalosporium stripe resistance similar to that of Madsen. Foundation seed will be available in fall 1999.

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:

General agronomic ratings	Table 1
Disease ratings	Table 2
1998 heading, height, and lodging	Table 4
1998 yield data	Table 5
1998 yield as percent of trial average	Table 6
1997 yield data	Table 7
1996-98 yield data	Table 8
1998 test weight data	Table 9
1998 protein data	Table 10
Drill strip yield data (wheat only)	Table 11

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.

GENE (OR8300801) is an awnleted, common soft white wheat released by OSU in 1991. It is an early-maturing, short-statured variety. It had resistance to *Septoria tritici* when released but is now susceptible to both *S. tritici* and *S. nodorum*. Gene has outyielded Stephens and other commonly grown varieties in some environments, but yields are quite variable. Gene was one of the few varieties to show winter injury from the December 1998 cold snap.

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-type 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.

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.



Winter Triticales

Triticales are wheat x rye hybrids 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.

BOGO is a tall, high-yielding, early-heading but later-maturing triticale developed and released in Poland. It has exhibited exceptional yield potential in western and central Oregon trial work. It has been included in variety tests across the state in 1999 and seed increases are underway.

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. Celia test weights are significantly better than those of other winter triticales. 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.

STEPTOE is a medium-height, spring feed grain variety released by WSU in 1973. While 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, semi-compact 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 Barleys

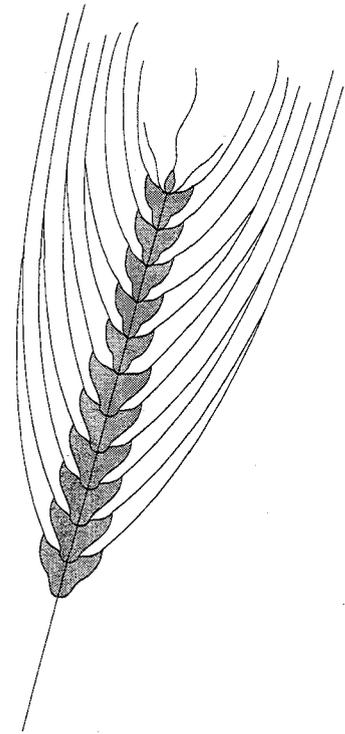
Agronomic characteristics, disease ratings, and yield data for commonly grown winter barleys are presented in written and tabular form below. Table contents are:

General agronomic and disease ratings	Table 3
1998 heading, height, and lodging	Table 12
1998 yield data	Table 13
1998 yield as percent of trial average	Table 14
1996-98 yield data	Table 15
1998 test weight data	Table 16
1998 protein data	Table 17

HOODY is a hooded (almost awnless) barley developed by Mat Kolding, retired OSU cereal breeder. It is intended for use as a cereal 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.



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:

General agronomic ratings	Table 18
Western Oregon data	Table 19
Pendleton, Oregon data	Table 20

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, OR.

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 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.

HANCOCK and **SPOONER** are winter-hardy grain rye 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 and 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.

Variety	Released		Emergence ² index	Winter ² hardiness	Maturity	Height ³	Lodging ⁴ resistance	Test ² weight	Chaff ⁵ color	Head type
	Year	Origin ¹								
Common white										
Banner	1994	WPB	5	--	--	M	MR	6	W	Awned
Basin	1985	CBS	5	10	mid-late	SM	R	8	W	Awned
Cashup	1985	CBS	5	10	midseason	M	R	8	W	Awned
Daws	1976	WA	3	10	midseason	M	MR	8	W	Awned
Dur. Pride	1992	SC	--	--	mid-late	M	R	7	W	Awned
Dusty	1985	WA	5	9	late	M	MR	7	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	midseason	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	midseason	M	R	7	W	Awned
Madsen	1988	WA	5	6	midseason	MT	R	8	W	Awned
Malcolm	1987	OR	5	3	early-mid	M	R	7	W	Awned
Nugaines	1961	WA	5	7	midseason	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	midseason	T	MR	7	W	Awnletted
W301	1992	OR	5	8	early-mid	M	R	7	W	Awned
Club										
Coda	1998	WA	5	6	mid-late	MT	MR	8	W	Awned
Crew	1982	WA	5	--	midseason	MT	MR	6	W-B	Awnless
Edwin	1999	WA	8	6	midseason	M	R	7	W	Awnless
Hiller	1995	WA	5	7	midseason	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	midseason	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	midseason	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	midseason	T	MR	8	B	Awned
Hatton	1979	WA	6	H	mid-late	T	MR	8	W	Awned
Hoff	1991	OR	5	L	early-mid	M	MR	8	W	Awned
ID467	1997	ID	--	M	midseason	M	MR	8	W	Awnless
Meridian	1992	ID	5	M	early-mid	M	MR	--	W	Awned
Survivor	1991	ID	6	M	--	--	--	--	W	Awned
Wanser	1965	WA	6	M	midseason	MT	MS	8	B	Awned
Weston	1978	ID	6	M	early-mid	T	S	8	B	Awned
Hard white										
Ivory	1998	OR	--	1	early	M	MR	8	W	Awned
Triticale										
Bogo	--	Poland	--	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, WPB = Western Plant Breeders, CBS = Columbia Basin Seeds, SC = Sunco 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.

	Rust		Bunt		Flag smut	Cephalo- ¹ sporium	Septoria ²	Foot ³ rot	Take all	Snow mold
	Stripe	Leaf	Common	Dwarf						
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
Dur. Pride	MR	S	--	S	MS	3	S	S	S	S
Dusty	MR	MS	R	S	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										
Coda	R	--	--	--	--	--	--	R	--	--
Crew ⁴	M	MS	R	S	S	--	--	S	S	--
Edwin	R	MS	--	--	--	5	--	MR	--	MR
Hiller	R	MR	MR	MS	--	5	--	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
Hoff	MR	MS	S	S	S	1	MR	S	S	S
ID467	R	R	R	MR	--	--	--	--	--	MR
Wanser	MR	MS	R	S	R	--	MR	--	--	S
Weston	S	MS	R	R	R	--	--	S	--	MR
Hard white										
Ivory	MR	R	--	--	--	--	MR	--	S	--
Triticale										
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*.

³ Ratings are for *Pseudocercospora* foot rot.

⁴ Crew is a multi-line 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 ⁶ Wgt.	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 = midshort, M = medium, MT = midtall, 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.—1998 statewide variety testing program winter wheat and triticale heading dates, heights, and lodging across locations in Oregon.

Variety or line*	Market class**	South			North				Lodging		
		Corvallis	Madras	Ontario	Corvallis	Madras	Valley	Ontario	Corvallis	Madras	Ontario
		Heading date (Day of year)			Plant height (inches)				Lodging (%)		
Brundage (ID14502B)	SW	126	155	132	46	39	40	36	0	7	0
Coda (WA7752)	Club	148	164	150	49	49	48	42	0	73	0
Edwin (WA7834)	Club	—	163	—	—	51	—	—	—	63	—
Eltan	SW	146	163	150	46	44	45	41	0	80	27
Foote (OR880172)	SW	140	158	142	50	47	43	43	3	7	0
Gene	SW	124	159	137	41	37	36	37	0	0	0
Hiller	Club	142	162	148	46	44	44	38	0	70	0
Hybritech 1017	SW	132	159	142	50	47	43	43	0	23	0
Hybritech 1019	SW	135	157	136	47	45	42	41	0	10	0
ID467	HR	142	159	147	49	44	44	40	0	97	0
ID86-10420A	SW	143	162	149	50	50	47	47	0	3	0
Ivory (OR850513)	HW	126	158	134	47	44	43	42	0	7	0
Lambert	SW	137	157	142	49	45	43	41	0	60	0
MacVicar	SW	140	159	144	44	43	42	41	0	3	0
Madsen	SW	139	164	150	45	43	40	39	0	0	0
Madsen+Stephens	SW	140	158	144	46	43	40	39	0	3	0
OR939515	SW	139	160	142	48	44	43	41	0	7	0
PureSeed Durum	Durum	—	161	—	—	42	—	—	—	3	—
Rely	Club	145	161	150	50	47	47	39	2	67	0
Rod	SW	146	163	150	48	45	41	40	0	27	0
Rohde	Club	140	162	144	49	44	43	37	3	50	0
Stephens-Dividend+Gaucho	SW	—	158	142	—	41	—	40	—	20	0
Stephens-Raxil+Gaucho	SW	136	158	142	43	42	40	40	0	13	0
Stephens-Vitavax+Gaucho	SW	137	158	141	43	40	41	37	0	67	0
Stephens-Vitavax, no Gaucho	SW	138	159	139	42	42	39	39	0	43	0
Temple (ORCL0054)	Club	126	159	137	50	45	42	43	57	70	0
Weatherford (OR898120)	SW	141	164	147	48	46	43	42	0	10	0
Binova	Triticale	—	147	—	—	45	—	—	—	57	—
Bogo	Triticale	129	150	—	51	49	49	—	0	13	—
Celia	Triticale	143	159	—	48	43	45	—	0	0	—
Hancock	rye	124	132	—	77	59	—	—	77	78	—
Spooner	rye	119	132	—	83	62	—	—	83	73	—
Yamhill	SW	140	—	—	51	—	47	—	0	—	—
SDM 215-2	—	—	—	140	—	—	—	38	—	—	0
Average		137	158	133	48	45	43	37	6	35	1
PLSD (5%)		1	3	4	2	2	2	4	8	28	NS
PLSD (10%)		1	2	NA	2	2	2	NA	6	24	NA
CV		1	1	NA	3	3	3	NA	72	50	NA
P-value		0.00	0.00	NA	0	0.00	0.00	NA	0.00	0.00	NA

*All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted.

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

Table 5.—1998 statewide variety testing program winter wheat, rye, and triticale yield data across 9 locations in Oregon.

Variety or line*	Market class**	Yield (bu/a; 60 lb bu; 10% moisture)									8-site**** average	8-site**** percent of average
		Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow County	North Valley	Ontario***	Pendleton		
Brundage (ID14502B)	SW	95	90	99	92	80	62	100	57	95	89	101
Coda (WA7752)	Club	58	95	86	96	71	60	92	98	83	80	91
Edwin (WA7834)	Club	—	89	54	67	61	36	—	—	50	—	—
Eltan	SW	55	108	82	103	56	48	81	68	66	75	85
Foote (OR880172)	SW	95	80	58	81	50	47	104	42	97	76	87
Gene	SW	72	117	82	139	66	55	82	67	89	88	100
Hiller	Club	51	106	81	113	75	61	89	76	93	84	95
Hybritech 1017	SW	94	103	82	122	62	61	103	67	100	91	103
Hybritech 1019	SW	100	100	97	104	82	63	108	82	102	94	107
ID467	HR	97	100	80	97	67	64	91	67	74	84	95
ID86-10420A	SW	80	95	85	117	63	50	92	75	96	85	96
Ivory (OR850513)	HW	94	96	77	133	64	66	106	59	104	92	105
Lambert	SW	89	101	92	119	64	49	95	64	105	90	102
MacVicar	SW	49	99	93	147	73	54	107	60	80	88	100
Madsen	SW	77	102	90	147	76	81	87	76	106	96	109
Madsen+Stephens	SW	78	101	95	136	86	65	93	75	103	95	107
OR939515	SW	91	108	88	151	73	62	108	65	112	99	112
PureSeed Durum	Durum	—	67	75	95	55	53	—	—	71	—	—
Rely	Club	69	95	76	99	70	54	94	84	91	81	92
Rod	SW	67	117	78	126	67	55	93	102	80	85	97
Rohde	Club	92	104	70	118	66	65	94	85	85	87	99
Stephens-Dividend+Gaucho	SW	—	118	89	128	86	78	—	73	102	—	—
Stephens-Raxil+Gaucho	SW	66	111	83	143	80	60	105	82	85	92	104
Stephens-Vitavax+Gaucho	SW	68	113	83	132	82	65	105	73	97	93	106
Stephens-Vitavax, no Gaucho	SW	42	105	95	129	83	56	98	63	92	87	99
Temple (ORCL0054)	Club	68	95	85	98	71	68	85	84	92	83	94
Weatherford (OR898120)	SW	78	92	77	140	80	73	103	73	107	94	106
Binova	Triticale	—	—	—	145	—	—	—	—	—	—	—
Bogo	Triticale	135	—	—	151	—	—	127	—	—	—	—
Celia	Triticale	91	—	—	130	—	—	78	—	—	—	—
Hancock	rye	79	—	—	61	—	—	—	—	—	—	—
Spooner	rye	79	—	—	55	—	—	—	—	—	—	—
Yamhill	SW	51	—	—	—	—	—	106	—	—	—	—
SDM 215-2	—	—	—	—	—	—	—	—	78	—	—	—
Average	—	72	100	83	116	71	60	98	73	91	88	—
PLSD (5%)	—	25	15	16	20	14	15	16	19	11	11	—
PLSD (10%)	—	21	12	13	13	11	13	13	16	9	9	—
CV	—	21	9	12	10	12	16	10	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	—

*All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted.

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

***Ontario trials were damaged by hail storms in June.

****Does not include Ontario due to hail damage.

Table 6.—1998 Oregon statewide variety testing program winter wheat, rye, and triticale yields as a percent of trial average.

Variety or line*	Market class**	Yield (percent of trial average)									
		Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow County	North Valley	Ontario***	Pendleton	8-site**** average
Brundage (ID14502B)	SW	132	90	119	79	113	103	102	77	105	102
Coda (WA7752)	Club	81	95	104	83	100	100	94	134	91	98
Edwin (WA7834)	Club	—	89	65	58	86	59	—	—	55	—
Eltan	SW	76	108	99	89	79	80	83	93	73	87
Foote (OR880172)	SW	132	80	70	70	70	78	106	57	107	85
Gene	SW	100	117	99	120	93	91	84	92	99	99
Hiller	Club	71	106	98	97	105	102	91	105	102	98
Hybritech 1017	SW	130	103	98	106	87	101	105	91	111	104
Hybritech 1019	SW	139	100	117	89	116	105	110	112	112	111
ID467	HR	134	100	97	83	95	106	93	92	82	98
ID86-10420A	SW	112	95	103	101	89	83	94	103	106	98
Ivory (OR850513)	HW	131	96	93	115	91	109	108	81	114	104
Lambert	SW	124	101	111	103	91	82	97	87	116	101
MacVicar	SW	68	99	112	126	102	91	109	82	89	98
Madsen	SW	107	101	108	127	106	135	89	105	118	111
Madsen+Stephens	SW	108	101	114	118	121	108	95	103	113	109
OR939515	SW	126	108	106	130	102	104	110	88	123	111
PureSeed Durum	Durum	—	67	90	82	78	88	—	—	78	—
Rely	Club	95	95	92	86	98	89	95	115	100	96
Rod	SW	93	117	94	109	94	92	95	140	89	102
Rohde	Club	128	104	85	102	93	109	96	116	94	103
Stephens-Dividend+Gaucho	SW	—	118	107	110	122	130	—	99	112	108
Stephens-Raxil+Gaucho	SW	62	111	100	123	113	100	107	112	94	102
Stephens-Vitavax+Gaucho	SW	94	113	100	114	116	108	107	101	107	106
Stephens-Vitavax, no Gaucho	SW	59	105	114	111	116	94	100	86	102	98
Temple (ORCL0054)	Club	94	95	103	85	100	113	87	115	101	99
Weatherford (OR898120)	SW	108	92	92	120	113	122	105	100	118	108
Binova	Triticale	—	—	—	125	—	—	—	—	—	—
Bogo	Triticale	188	—	—	130	—	—	130	—	—	—
Celia	Triticale	126	—	—	112	—	—	79	—	—	—
Hancock	rye	110	—	—	53	—	—	—	—	—	—
Spooner	rye	109	—	—	47	—	—	—	—	—	—
Yamhill	SW	71	—	—	—	—	—	108	—	—	—
SDM 215-2	—	—	—	—	—	—	—	—	107	—	—
Trial average yield (bu/a)		72	100	83	116	71	60	98	73	91	85

*All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted.

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

***Ontario trials were damaged by hail storms in June.

****Does not include Ontario due to hail damage.

Table 7.—1997 state-wide variety testing program winter wheat and triticale yield data across 11 locations in Oregon.

Variety or line*	Market class**	Yield (60 lb bu/a; 10% moisture)											11-site average	11-site percent of average	
		Corvallis	Hermiston	Klamath			Madras	Medford	Moro	Morrow County	North Valley	Ontario			Pendleton
				Falls	LaGrande										
Brundage (ID14502B)	SW	93	77	68	—	124	126	94	68	105	119	71	—	—	
Coda (WA7752)	Club	47	93	62	136	109	128	81	74	116	107	94	95	102	
Foote (OR880172)	SW	71	79	65	114	103	139	62	41	138	90	65	88	94	
Gene	SW	68	96	58	103	102	116	81	49	103	124	61	87	93	
Hiller	Club	79	103	33	135	—	122	93	60	113	124	79	94	101	
Hybritech 1017	SW	98	91	84	121	130	160	63	53	131	104	74	101	108	
Hybritech 1019	SW	87	92	62	125	119	149	91	63	139	116	74	101	108	
Hybritech 1020	SW	91	90	66	133	118	156	66	58	120	133	77	101	108	
ID467	HR	59	—	55	—	120	137	—	—	126	111	—	—	—	
ID86-10420A	SW	98	75	47	—	111	138	65	46	118	109	73	88	94	
MacVicar	SW	94	94	56	135	123	130	70	58	112	100	40	92	98	
Madsen	SW	68	88	71	128	104	125	78	61	106	117	76	93	99	
Madsen+Stephens	SW	71	86	71	116	120	111	82	58	110	104	70	91	97	
Malcolm	SW	—	80	—	117	—	107	82	56	—	111	59	—	—	
OR870012	SW	83	95	83	140	119	136	69	33	113	119	64	96	102	
OR870082	SW	74	82	39	106	121	123	80	51	114	83	67	85	91	
ORCL0049	Club	79	98	65	130	111	131	75	57	100	108	54	92	98	
Rely	Club	63	95	37	127	116	130	81	58	122	111	79	93	99	
Rod	SW	78	97	58	125	116	124	81	58	127	117	76	96	103	
Rohde	Club	84	85	53	124	116	141	83	57	116	124	73	96	103	
Stephens-Baytan	SW	88	—	—	—	—	127	—	—	114	—	—	—	—	
Stephens-Dividend	SW	88	83	68	120	123	115	87	62	111	128	64	95	102	
Stephens-Raxil	SW	86	87	71	121	—	119	90	62	114	131	65	95	101	
Stephens-Vit., no Gaucho	SW	81	86	71	126	119	117	71	58	108	106	62	91	98	
Stephens-Vitavax	SW	89	80	41	137	119	120	78	54	114	127	63	93	99	
Temple (ORCL0054)	Club	69	90	53	135	109	116	83	61	122	106	90	94	100	
W301	SW	93	86	65	122	123	113	75	55	113	109	68	93	99	
WA7793	Club	78	93	53	134	108	128	87	65	122	94	79	95	101	
Weatherford (OR898120)	SW	82	91	67	134	108	115	79	64	118	107	67	94	100	
Yamhill	SW	79	—	—	—	109	112	—	—	110	—	—	—	—	
Bogo	Triticale	141	—	83	—	123	—	—	—	126	—	—	—	—	
Celia	Triticale	—	—	—	—	58	—	—	—	—	—	—	—	—	
Trit 6600	Triticale	—	—	—	—	61	—	—	—	—	—	—	—	—	
RS87 123	Triticale	—	—	—	—	—	—	—	—	—	117	—	—	—	
RS87 183	Triticale	—	—	—	—	—	—	—	—	—	102	—	—	—	
RS87 202	Triticale	—	—	—	—	—	—	—	—	—	114	—	—	—	
Trical 102	Triticale	—	—	—	—	—	—	—	—	—	40	—	—	—	
Average		82	89	61	126	112	127	79	57	117	110	70	94	—	
PLSD (5%)		28	12	19	19	17	15	11	11	14	24	16	8	—	
PLSD (10%)		24	10	16	16	14	12	9	9	12	20	13	7	—	
CV		21	8	19	9	9	8	9	12	7	14	14	11	—	
P-value		0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	—	

*All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted.

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

Table 8.—1996-98 state-wide variety testing program winter wheat yield data across 9 locations in Oregon.

Variety	Market class	Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow County	North Valley	Ontario	Pendleton
1996		Yield (bu/a; 10% moisture)								
Brundage (ID8614502B)	SW	127	90	36	142	67	52	87	138	84
Coda (WA7752)	Club	112	97	23	—	63	54	79	—	92
Gene	SW	105	86	11	137	76	37	96	130	86
Hiller	Club	122	93	20	90	75	58	64	113	89
ID467	HR	80	86	36	97	59	49	57	134	84
MacVicar	SW	142	95	34	129	74	38	94	150	72
Madsen	SW	129	93	51	121	70	57	64	143	81
Madsen+Stephens	SW	119	99	34	132	69	49	87	149	76
Rely	Club	86	90	40	112	59	51	102	—	78
Rod	SW	116	108	63	124	79	57	89	137	89
Rohde	Club	98	94	19	111	67	55	91	128	71
Stephens-Dividend	SW	113	89	43	135	73	43	—	—	78
Stephens-Raxil	SW	123	90	35	—	82	43	—	—	76
Stephens-Vitavax+Gaucho	SW	124	97	36	144	77	45	97	157	76
Stephens-Vitavax, no Gaucho	SW	120	100	36	143	76	46	103	152	75
Temple (ORCL0054)	Club	102	68	16	—	61	55	—	—	70
1996 trial average (bu/a)		114	97	36	121	67	53	82	136	80
1997		Yield (bu/a; 10% moisture)								
Brundage (ID8614502B)	SW	93	77	—	124	94	68	105	119	71
Coda (WA7752)	Club	47	93	136	109	81	74	116	107	94
Gene	SW	68	96	103	102	81	49	103	124	61
Hiller	Club	79	103	135	—	93	60	113	124	79
ID467	HR	59	—	—	120	—	—	126	111	—
MacVicar	SW	94	94	135	123	70	58	112	100	40
Madsen	SW	68	88	128	104	78	61	106	117	76
Madsen+Stephens	SW	71	86	116	120	82	58	110	104	70
Rely	Club	63	95	127	116	81	58	122	111	79
Rod	SW	78	97	125	116	81	58	127	117	76
Rohde	Club	84	85	124	116	83	57	116	124	73
Stephens-Dividend	SW	88	83	120	123	87	62	111	128	64
Stephens-Raxil	SW	86	87	121	—	90	62	114	131	65
Stephens-Vitavax+Gaucho	SW	89	80	137	119	78	54	114	127	63
Stephens-Vitavax, no Gaucho	SW	81	86	126	119	71	58	108	106	62
Temple (ORCL0054)	Club	69	90	135	109	83	61	122	106	90
1997 trial average (bu/a)		82	89	126	112	79	57	117	110	70
1998		Yield (bu/a; 10% moisture)								
Brundage (ID8614502B)	SW	95	90	99	92	80	62	100	57	95
Coda (WA7752)	Club	58	95	86	96	71	60	92	98	83
Gene	SW	72	117	82	139	66	55	82	67	89
Hiller	Club	51	106	81	113	75	61	89	76	93
ID467	HR	97	100	80	97	67	64	91	67	74
MacVicar	SW	49	99	93	147	73	54	107	60	80
Madsen	SW	77	102	90	147	76	81	87	76	106
Madsen+Stephens	SW	78	101	95	136	86	65	93	75	103
Rely	Club	69	95	76	99	70	54	94	84	91
Rod	SW	67	117	78	126	67	55	93	102	80
Rohde	Club	92	104	70	118	66	65	94	85	85
Stephens-Dividend	SW	48	118	89	128	86	78	104	73	102
Stephens-Raxil	SW	45	111	83	143	80	60	105	82	85
Stephens-Vitavax+Gaucho	SW	68	113	83	132	82	65	105	73	97
Stephens-Vitavax, no Gaucho	SW	42	105	95	129	83	56	98	63	92
Temple (ORCL0054)	Club	68	95	85	98	71	68	85	84	92
1998 trial average (bu/a)		72	100	83	116	71	60	98	73	91

Table 8. - continued

Variety	Market class*	Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow County	North Valley	Ontario	Pendleton
1996-1998 average		Yield (bu/a; 10% moisture)								
Brundage (ID8614502B)	SW	105	86	—	119	80	60	97	104	83
Coda (WA7752)	Club	73	95	82	—	72	63	96	—	89
Gene	SW	82	100	65	126	74	47	94	107	79
Hiller	Club	84	101	79	—	81	60	89	104	87
ID467	HR	79	—	—	104	—	—	92	104	—
MacVicar	SW	95	96	87	133	72	50	104	103	64
Madsen	SW	91	94	90	124	74	66	86	112	87
Madsen+Stephens	SW	89	95	82	130	79	57	97	109	83
Rely	Club	73	94	81	109	70	54	106	—	83
Rod	SW	87	107	89	122	75	57	103	119	82
Rohde	Club	91	95	71	115	72	59	100	112	76
Stephens-Dividend	SW	83	96	84	129	82	61	—	—	81
Stephens-Raxil	SW	85	96	80	—	84	55	—	—	76
Stephens-Vitavax+Gaucho	SW	94	97	86	132	79	55	105	119	79
Stephens-Vitavax, no Gaucho	SW	81	97	86	130	76	53	103	107	76
Temple (ORCL0054)	Club	80	85	79	—	72	61	—	—	84
Average yield (1996-1998)		89	95	82	116	72	57	99	106	80
1996-1998 percent of trial average		Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow County	North Valley	Ontario	Pendleton
Brundage (ID8614502B)	SW	117	90	—	102	111	107	99	98	104
Coda (WA7752)	Club	81	100	100	—	99	111	97	—	112
Gene	SW	91	105	80	108	103	83	95	101	98
Hiller	Club	94	106	97	—	112	105	90	98	109
ID467	HR	88	—	—	90	—	—	93	98	—
MacVicar	SW	106	101	107	114	100	89	105	97	80
Madsen	SW	102	99	110	107	103	117	87	106	109
Madsen+Stephens	SW	100	100	100	111	109	101	98	103	103
Rely	Club	81	99	99	94	96	96	107	—	103
Rod	SW	97	113	109	105	104	100	104	112	102
Rohde	Club	102	99	87	99	100	105	101	106	95
Stephens-Dividend	SW	93	101	103	111	113	107	—	—	101
Stephens-Raxil	SW	95	101	98	—	116	97	—	—	94
Stephens-Vitavax+Gaucho	SW	105	102	105	113	109	96	106	112	98
Stephens-Vitavax, no Gaucho	SW	91	102	105	112	105	94	104	101	95
Temple (ORCL0054)	Club	89	89	96	—	99	108	—	—	104

*SW=soft white, HR=hard red

Table 9.—1998 state-wide variety testing program winter wheat and triticale test weight data across 9 locations in Oregon.

Variety or line*	Market class**	Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow County	North Valley	Ontario***	Pendleton	8-site**** average
Test weight (lb/bu)											
Brundage (ID14502B)	SW	63.1	64.0	61.2	57.0	62.9	62.8	62.0	62.2	62.1	61.9
Coda (WA7752)	Club	62.6	62.7	60.2	61.0	60.8	62.5	62.3	62.0	62.4	61.8
Edwin (WA7834)	Club	—	63.5	59.3	58.8	61.8	59.2	—	—	59.8	—
Eltan	SW	61.5	61.9	55.8	59.8	59.8	59.1	60.1	58.5	58.7	59.6
Foote (OR880172)	SW	58.7	57.6	58.0	60.3	58.9	59.0	60.5	59.2	59.6	59.1
Gene	SW	55.8	61.1	57.2	60.1	60.1	59.1	54.9	59.3	58.2	58.3
Hiller	Club	57.0	59.2	56.6	58.3	58.2	58.5	59.3	52.6	57.7	58.1
Hybritech 1017	SW	58.6	60.1	56.9	60.6	58.5	59.6	58.7	59.5	59.0	59.0
Hybritech 1019	SW	61.7	65.4	60.0	59.3	62.9	62.2	62.3	62.9	61.8	62.0
ID467	HR	62.6	63.2	60.5	61.9	62.3	60.4	62.2	61.3	61.7	61.9
ID86-10420A	SW	62.2	60.9	59.4	61.4	60.9	60.6	61.6	60.4	61.2	61.0
Ivory (OR850513)	HW	62.1	63.2	61.4	62.4	61.8	62.4	62.6	60.4	63.1	62.4
Lambert	SW	59.3	60.1	59.5	60.9	58.3	58.6	60.4	60.5	58.1	59.4
MacVicar	SW	58.7	60.7	59.3	59.7	61.3	60.1	61.0	58.6	59.6	60.1
Madsen	SW	53.7	63.1	57.7	62.0	60.6	61.1	60.3	59.2	61.3	60.0
Madsen+Stephens	SW	58.1	60.6	59.3	61.1	59.8	61.2	59.6	59.4	59.8	59.9
OR939515	SW	60.6	62.6	59.2	61.7	61.2	61.3	60.8	61.5	61.3	61.1
PureSeed Durum	Durum	—	61.2	58.5	58.9	61.0	62.6	—	—	61.2	—
Rely	Club	60.3	62.3	59.0	59.5	59.2	60.1	61.6	60.2	61.3	60.4
Rod	SW	59.2	60.0	57.8	60.5	60.7	58.7	61.6	57.3	59.9	59.8
Rohde	Club	62.0	61.8	60.2	61.2	61.2	61.2	61.9	58.0	62.1	61.5
Stephens-Dividend+Gaucho	SW	—	61.0	59.0	60.3	59.4	60.5	—	60.3	59.1	—
Stephens-Raxil+Gaucho	SW	54.5	61.2	59.1	60.7	59.9	59.8	59.8	59.2	59.0	59.3
Stephens-Vitavax+Gaucho	SW	55.1	57.6	57.5	60.1	58.9	60.0	60.1	59.4	59.3	58.6
Stephens-Vitavax, no Gaucho	SW	55.3	60.6	58.8	59.8	60.0	59.6	59.9	60.2	59.4	59.2
Temple (ORCL0054)	Club	60.1	63.8	60.0	61.0	59.0	61.0	60.4	59.0	61.4	60.8
Weatherford (OR898120)	SW	59.8	63.5	57.9	62.1	61.0	61.6	61.7	60.5	61.5	61.1
Binova	Triticale	—	—	—	54.9	—	—	—	—	—	—
Bogo	Triticale	54.4	—	—	55.6	—	—	54.3	—	—	—
Celia	Triticale	57.7	—	—	56.1	—	—	57.1	—	—	—
Hancock	rye	57.7	—	—	56.3	—	—	—	—	—	—
Spooner	rye	57.7	—	—	55.3	—	—	—	—	—	—
Yamhill	SW	57.9	—	—	—	—	—	59.4	—	—	—
SDM 215-2	SW	—	—	—	—	—	—	—	63.3	—	—
Average		58.2	61.6	58.9	59.6	60.4	60.5	60.0	59.8	60.4	60.3
PLSD (5%)		3.2	1.9	2.0	1.8	1.1	1.3	1.1	2.7	1.4	1.2
PLSD (10%)		2.7	1.6	1.7	1.5	0.9	1.1	0.9	2.2	1.1	1.0
CV		3	2	2	2	1	1	1	3	1	2
P-value		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted.

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

***Ontario trials were damaged by hail storms in June.

****Does not include Ontario due to hail damage.

Table 10.—1998 state-wide variety testing program winter wheat and triticale protein data across 9 locations in Oregon.

Variety or line*	Market class**	Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow County	North Valley	Ontario***	Pendleton	8-site**** average
Protein percent (12% moisture basis)											
Brundage (ID14502B)	SW	9.0	8.4	9.9	10.5	6.8	7.5	8.2	9.8	8.3	8.6
Coda (WA7752)	Club	9.8	8.2	10.5	11.4	7.0	8.5	8.9	9.8	8.1	9.0
Edwin (WA7834)	Club	—	9.0	12.0	10.9	6.9	9.3	—	—	9.8	—
Eltan	SW	9.4	8.1	10.5	10.5	6.7	7.5	7.9	9.7	8.2	8.6
Foote (OR880172)	SW	9.7	8.8	10.3	11.3	7.1	8.8	8.5	10.9	8.5	9.1
Gene	SW	10.5	8.8	12.1	11.5	7.4	8.5	9.8	10.9	8.4	9.6
Hiller	Club	9.6	7.6	10.6	10.7	6.8	7.5	8.1	10.5	7.4	8.5
Hybritech 1017	SW	8.7	8.3	10.8	10.6	6.8	8.0	7.9	9.5	7.6	8.6
Hybritech 1019	SW	9.4	8.7	11.5	11.0	6.7	8.0	8.5	10.6	8.4	9.0
ID467	HR	9.8	10.0	11.0	11.8	7.4	9.4	8.8	10.8	9.0	9.7
ID86-10420A	SW	8.8	9.4	9.6	10.2	7.4	9.2	8.0	9.7	8.6	8.9
Ivory (OR850513)	HW	9.8	9.7	9.6	10.7	6.7	8.0	8.5	10.9	8.5	8.9
Lambert	SW	8.5	8.6	9.6	10.4	6.9	8.2	7.8	10.0	7.8	8.5
MacVicar	SW	10.3	8.9	9.3	9.5	7.0	7.7	7.7	9.9	7.3	8.5
Madsen	SW	9.1	9.0	10.7	10.3	6.8	7.9	8.2	10.2	8.5	8.8
Madsen+Stephens	SW	9.8	8.7	10.1	10.7	6.7	8.0	8.3	10.1	8.3	8.8
OR939515	SW	9.0	7.4	10.0	10.2	6.8	7.4	7.8	9.0	7.8	8.3
PureSeed Durum	Durum	—	10.2	11.4	11.3	8.5	10.2	—	—	9.4	—
Rely	Club	9.2	8.2	9.8	10.7	6.1	8.0	9.0	9.7	7.2	8.5
Rod	SW	9.6	8.3	9.6	9.8	6.8	8.3	8.2	10.1	7.1	8.4
Rohde	Club	9.2	8.5	10.6	10.8	6.7	8.6	8.6	10.2	7.9	8.9
Stephens-Dividend+Gaucho	SW	—	8.6	10.4	10.8	6.8	8.4	—	9.8	8.5	—
Stephens-Raxil+Gaucho	SW	10.9	8.5	10.0	11.0	7.1	8.2	8.5	10.8	8.0	9.0
Stephens-Vitavax+Gaucho	SW	10.7	7.8	11.1	10.8	6.6	8.1	8.3	10.7	8.2	8.9
Stephens-Vitavax, no Gaucho	SW	10.8	8.3	10.7	10.9	6.6	8.1	8.5	9.9	8.3	9.0
Temple (ORCL0054)	Club	10.4	9.1	10.3	10.8	6.4	8.4	9.3	10.6	7.6	9.0
Weatherford (OR898120)	SW	9.6	8.7	11.1	10.7	7.0	8.1	8.7	10.0	8.7	9.1
Binova	Triticale	—	—	—	9.4	—	—	—	—	—	—
Bogo	Triticale	7.8	—	—	9.4	—	—	7.7	—	—	—
Celia	Triticale	8.3	—	—	9.7	—	—	8.0	—	—	—
Hancock	rye	6.5	—	—	9.0	—	—	—	—	—	—
Spooner	rye	7.4	—	—	9.6	—	—	—	—	—	—
Yamhill	SW	10.2	—	—	—	—	—	8.2	—	—	—
SDM 215-2	SW	—	—	—	—	—	—	—	11.6	—	—
Average		9.6	8.7	10.5	10.5	6.9	8.3	8.4	10.2	8.2	8.9
PLSD (5%)		0.8	1.1	1.5	0.7	0.6	0.6	0.5	1.0	1.0	0.5
PLSD (10%)		0.6	0.9	1.3	0.6	0.5	0.5	0.4	0.9	0.8	0.4
CV		5	8	9	4	5	4	3	6	7	5
P-value		0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00

*All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted.

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

***Ontario trials were damaged by hail storms in June.

****Does not include Ontario due to hail damage.

Table 11. —1998 grower drill strip winter wheat variety tests across Oregon and southeast Washington.
Sites are listed in order of descending average yield.

Yield	Barnes Silverton	Kaseberg Wasco	Newtson S. Reservation	Miller Dufur	Nichols Dayton,WA	Hales Midway	Starvation						Hoeft Spring Hollow	Average
							Farms Morrow	Buether Kent	Reeder Helix	Rietmann Condon	Stonebrink Enterprise	Klages Joseph		
Yield (bu/a, "as is" moisture)														
Gene	91	126	86	94	95	89	75	60	61	61	54	71	42	77
MacVicar	104	96	85	88	92	78	77	60	60	50	47	35	46	71
Madsen	102	105	85	93	82	80	73	65	—	56	46	72	31	74
Madsen/Stephens	107	107	95	84	84	81	67	62	—	66	52	67	40	76
Rod	112	100	89	88	76	73	76	68	53	48	64	43	47	72
Rohde	—	81	87	78	72	66	77	56	63	62	51	35	40	64
Stephens	104	95	98	94	82	78	75	59	64	63	61	50	35	70
7-way mix	—	108	—	—	—	—	—	—	—	—	—	—	—	—
Connie	—	—	—	—	—	64	—	—	—	—	—	—	—	—
Crew/Hyak	—	—	—	79	—	—	—	—	—	—	—	—	—	—
Eltan	—	—	83	—	—	88	—	—	59	—	54	38	38	—
Hiller	—	—	95	87	—	81	73	59	64	—	—	—	42	—
Hybritech 1017	115	—	—	—	—	—	—	—	—	—	—	—	—	—
Hybritech 1019	120	—	—	—	—	—	—	—	—	—	—	—	—	—
Hybritech 1020	112	—	—	—	—	—	—	—	—	—	—	—	—	—
ID 485	—	—	83	—	—	57	61	—	62	64	—	—	42	—
Mac 1	—	—	87	—	—	67	70	—	53	63	—	—	35	—
MacVicar (high seed rate)	—	—	—	—	—	—	—	56	—	—	—	—	—	—
Madsen control	—	—	—	—	—	—	—	—	60	—	—	—	—	—
Madsen w/treatment	—	—	—	—	—	—	—	—	62	—	—	—	—	—
Madsen/Rod	—	—	—	90	—	—	—	—	—	—	—	—	—	—
Rod & Madsen	—	—	89	—	—	—	—	—	—	—	—	—	—	—
WB 470	—	—	95	—	—	66	—	—	—	—	—	—	41	—
WB 471	—	—	—	—	—	—	—	—	62	—	—	—	—	—
WB 472	—	—	—	—	93	—	—	—	—	—	—	—	—	—
Yamhill	107	—	—	—	—	—	—	—	—	—	—	—	—	—
Average	107	102	89	87	85	74	72	60	60	59	53	51	40	72
Test Weight														
Test Weight (lb/bu)														
Gene	55.9	60.4	60.3	—	59.3	58.4	59	59.3	59.6	59	—	—	57.8	58.9
MacVicar	59.2	61.2	61.8	—	60.6	60.8	58	61.0	60.3	60	—	—	60.3	60.3
Madsen	59.3	61.0	61.3	—	59.1	59.7	59	59.0	—	58	—	—	57.7	59.3
Madsen/Stephens	58.5	61.0	61.4	—	56.2	59.1	59	60.1	—	60	—	—	59.4	59.4
Rod	60.7	60.4	61.1	—	59.5	59.0	59	59.0	60.7	60	—	—	59.3	59.9
Rohde	—	61.8	62.0	—	61.2	59.6	60	60.8	60.2	58	—	—	60.5	60.5
Stephens	59.0	60.1	60.8	—	59.7	59.6	59	60.4	60.7	60	—	—	58.3	59.8
7-way mix	—	60.1	—	—	—	—	—	—	—	—	—	—	—	—
Connie	—	—	—	—	—	62.3	—	—	—	—	—	—	—	—
Eltan	—	—	61.0	—	—	59.5	—	—	59.4	—	—	—	58.9	—
Hiller	—	—	60.0	—	—	58.2	58	58.4	59.3	—	—	—	57.0	—
Hybritech 1017	58.2	—	—	—	—	—	—	—	—	—	—	—	—	—
Hybritech 1019	60.9	—	—	—	—	—	—	—	—	—	—	—	—	—
Hybritech 1020	58.3	—	—	—	—	—	—	—	—	—	—	—	—	—
ID 485	—	—	63.5	—	—	60.1	60	—	60.6	61	—	—	59.9	—
Mac 1	—	—	61.5	—	—	59.6	60	—	60.0	60	—	—	58.0	—
MacVicar (high seed rate)	—	—	—	—	—	—	—	61.5	—	—	—	—	—	—
Madsen control	—	—	—	—	—	—	—	—	59.2	—	—	—	—	—
Madsen w/treatment	—	—	—	—	—	—	—	—	59.5	—	—	—	—	—
Rod & Madsen	—	—	60.6	—	—	—	—	—	—	—	—	—	—	—
WB 470	—	—	61.4	—	—	58.0	—	—	—	—	—	—	60.2	—
WB 471	—	—	—	—	—	—	—	—	60.6	—	—	—	—	—
WB 472	—	—	—	—	63.0	—	—	—	—	—	—	—	—	—
Yamhill	57.7	—	—	—	—	—	—	—	—	—	—	—	—	—
Average	58.8	60.8	61.3	—	59.8	59.5	59.1	59.9	60.0	60	—	—	58.9	59.8

Table 11. - continued.

Protein	Barnes Silverton	Kaseberg Wasco	Newtonson S. Reservation	Miller Dufur	Nichols Dayton, WA	Hales Midway	Starvation		Reeder	Rietmann Condon	Stonebrink Enterprise	Klages Joseph	Hoeft Spring Hollow	Average
							Farms Morrow	Buether Kent						
							Protein (at 12% moisture)							
Gene	8.9	8.5	9.9	9.0	10.1	—	—	8.2	—	—	—	—	8.4	9.0
MacVicar	8.3	—	7.6	7.5	9.5	—	—	7.3	—	—	—	—	8.9	8.2
Madsen	8.5	9.0	8.5	8.8	10.2	—	—	6.7	—	—	—	—	8.3	8.6
Madsen/Stephens	8.7	8.6	7.7	9.4	12.7	—	—	7.2	—	—	—	—	9.0	9.0
Rod	8.2	7.3	7.4	8.4	9.0	—	—	6.3	—	—	—	—	9.1	8.0
Rohde	—	7.2	8.3	8.3	10.7	—	—	7.7	—	—	—	—	8.8	8.5
Stephens	8.6	7.9	10.0	8.3	10.8	—	—	7.8	—	—	—	—	9.0	8.9
7-way mix	—	7.3	—	—	—	—	—	—	—	—	—	—	—	—
Crew/Hyak	—	—	—	7.7	—	—	—	—	—	—	—	—	—	—
Eltan	—	—	8.5	—	—	—	—	—	—	—	—	—	8.5	—
Hiller	—	—	8.2	8.0	—	—	—	7.1	—	—	—	—	8.4	—
Hybritech 1017	8.5	—	—	—	—	—	—	—	—	—	—	—	—	—
Hybritech 1019	8.1	—	—	—	—	—	—	—	—	—	—	—	—	—
Hybritech 1020	8.1	—	—	—	—	—	—	—	—	—	—	—	—	—
ID 485	—	—	12.2	—	—	—	—	—	—	—	—	—	12.9	—
Mac 1	—	—	14.4	—	—	—	—	—	—	—	—	—	9.2	—
MacVicar (high seed rate)	—	—	—	—	—	—	—	7.4	—	—	—	—	—	—
Rod & Madsen	—	—	9.1	8.1	—	—	—	—	—	—	—	—	—	—
WB 470	—	—	9.2	—	—	—	—	—	—	—	—	—	8.6	—
WB 472	—	—	—	—	9.6	—	—	—	—	—	—	—	—	—
Yamhill	8.3	—	—	—	—	—	—	—	—	—	—	—	—	—
Average	8.4	8.0	9.3	8.3	10.3			7.3					9.1	8.7

Table 12.—1998 statewide variety testing program winter barley heading dates, heights, and lodging across locations in Oregon.

Variety or line*	Market class**	Corvallis		North			North	
		Corvallis	Madras	Corvallis	Madras	Valley	Madras	Valley
		Heading date (Day of year)		Plant height (inches)			Lodging (%)	
Kold	6RF	127	145	38	39	39	23	3
OR1957369	6RF	125	142	35	42	42	33	0
ORW10	6RF/M	121	132	42	44	41	40	0
ORW11	6RF/M	126	145	44	45	46	50	0
Scio	6RF	124	141	38	41	43	80	0
Steptoe	6RF	125	142	44	53	51	100	57
Strider	6RF	120	140	39	41	43	87	57
Average		124	141	39	44	43	59	19
PLSD (5%)		1	1	5	4	4	NS	NS
PLSD (10%)		1	1	4	3	3	47	43
CV		0	0	7	5	5	55	158
P-value		0.00	0.00	0.01	0.00	0.00	0.08	0.09

*All seed was treated with fungicide and Gaucho insecticidal seed treatment unless otherwise noted.

6RF=6 row feed, 6RF/M = experimental line with malt potential

NS = No statistically significant differences.

Table 13.—1998 state-wide variety testing program winter barley yield data across 8 locations in Oregon.

Variety or line*	Market class**	Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow	North Valley	Pendleton	7-site*** average	7-site*** % of average
Yield (lb/a; 10% moisture)											
Kold	6RF	1948	4754	4841	4073	5904	5807	6352	5972	5386	110
OR1957369	6RF	2722	5148	5106	2951	4450	6870	7067	5416	5287	108
ORW10	6RF/M	3113	3221	4775	1682	4201	5296	6240	4570	4284	87
ORW11	6RF/M	2426	5500	4672	768	5721	6137	7308	5909	5145	105
Scio	6RF	2851	5402	4199	3691	5444	5893	6460	5241	5190	106
Step toe	6RF	2181	4320	4729	1689	4375	4204	3803	2867	3712	76
Strider	6RF	3018	4654	5906	2638	5793	5565	6622	5866	5292	108
Kold - untreated	6RF	1073	—	—	—	—	—	6141	—	—	—
Average		2416	4714	4890	2499	5127	5682	6249	5120	4899	—
PLSD (5%)		989	1312	NS	1582	1105	653	1161	1230	792	—
PLSD (10%)		812	1073	NS	1294	904	534	954	1006	659	—
CV		23	16	13	36	12	6	11	14	15	—
P-value		0.01	0.03	0.14	0.01	0.01	0.00	0.00	0.00	0.00	—

*All seed was treated with Vitavax-Thiram and Gaucho except where noted.

**6RF=6 row feed, 6RF/M = experimental line with malt potential

***Does not include Corvallis, which was damaged by disease.

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Table 14.—1998 state-wide variety testing program winter barley yields as percent of trial average.

Variety or line*	Market class**	Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow	North Valley	Pendleton
Yield (percent of trial average)									
Kold	6RF	81	101	99	163	115	102	102	117
OR1957369	6RF	113	109	104	118	87	121	113	106
ORW10	6RF/M	129	68	98	67	82	93	100	89
ORW11	6RF/M	100	117	96	31	112	108	117	115
Scio	6RF	118	115	86	148	106	104	103	102
Step toe	6RF	90	92	97	68	85	74	61	56
Strider	6RF	125	99	121	106	113	98	106	115
Kold - untreated	6RF	44	—	—	—	—	—	98	—
Trial average yield (lb/a)		2416	4714	4890	2499	5127	5682	6249	5120

*All seed was treated with Vitavax-Thiram and Gaucho except where noted.

**6RF=6 row feed, 6RF/M = experimental line with malt potential

Table 15.—1996-98 state-wide variety testing program barley yield data across 9 locations in Oregon.

Variety	Market class	Corvallis	Hermiston*	LaGrande**	Madras	Moro	Morrow	North Valley	Ontario***	Pendleton	All sites average****
1996											
Yield (lb/a; 10% moisture)											
Kold	6RF	5387	5186	4153	4686	4357	5470	5083	7164	5940	5132
Scio	6RF	4616	4715	2599	4308	4575	5180	4366	7311	5131	4682
Step toe	6RF	3923	3456	2080	2242	3486	5226	4220	7549	4492	4014
Strider	6RF/M	5884	4990	3272	4020	3623	4928	4849	7867	6252	5015
1996 trial average (lb/a)		3809	4088	2881	4167	4186	5350	4196	7560	5417	4536
1997											
Kold	6RF	3525	4052	7564	3941	3683	4271	5456	5154	4067	4624
Scio	6RF	3670	4980	8980	3943	4232	4507	5358	6249	3860	5054
Step toe	6RF	2998	5227	4858	—	3976	2378	2960	4429	3285	3858
Strider	6RF/M	3255	5424	8470	3880	4659	5003	6452	6055	3717	5177
1997 trial average (lb/a)		3146	4518	7138	3630	3942	3961	4548	5565	3802	4511
1998											
Kold	6RF	1948	4754	4841	4073	5904	5807	6352	—	5972	5386
Scio	6RF	2851	5402	4199	3691	5444	5893	6460	—	5241	5190
Step toe	6RF	2181	4320	4729	1689	4375	4204	3803	—	2867	3712
Strider	6RF/M	3018	4654	5906	2638	5793	5565	6622	—	5866	5292
1998 trial average (lb/a)		2416	4714	4890	2499	5127	5682	6249	—	5120	4224
1996-1998 average											
Kold	6RF	3620	4664	5520	4233	4648	5183	5630	6159	5326	5047
Scio	6RF	3712	5032	5260	3981	4751	5193	5395	6780	4744	4975
Step toe	6RF	3034	4335	3889	1966	3946	3936	3661	5989	3548	3861
Strider	6RF/M	4052	5022	5882	3513	4692	5165	5974	6961	5278	5161
Average yield (1996-1998)		3124	4440	4970	3432	4418	4998	4998	6563	4780	4424
1996-1998 percent of trial average											
Kold	6RF	98	93	105	106	98	100	104	91	112	101
Scio	6RF	100	100	100	100	100	100	100	100	100	100
Step toe	6RF	82	86	74	49	83	76	68	88	75	78
Strider	6RF/M	109	100	112	88	99	99	111	103	111	104

* Hermiston had hail damage in 1996.

** La Grande had frost damage in 1996.

*** Ontario had hail damage in 1998.

**** Does not include Corvallis in 1998 due to disease losses.

Table 16.—1998 state-wide variety testing program winter barley test weight data across 8 locations in Oregon.

Variety or line*	Market class**	Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow	North Valley	Pendleton	7-site*** average
Test weight (lb/bu)										
Kold	6RF	44.4	49.3	50.3	45.1	52.0	55.0	52.3	54.4	50.5
OR1957369	6RF	45.3	51.7	50.9	45.5	53.6	53.6	51.6	54.8	51.2
ORW10	6RF/M	46.4	55.8	54.0	48.8	55.1	55.5	54.7	55.3	53.4
ORW11	6RF/M	47.9	54.5	52.4	41.3	52.7	55.8	53.5	54.3	51.7
Scio	6RF	42.5	51.5	49.1	42.7	49.7	52.8	49.2	51.9	48.8
Steptoe	6RF	44.2	54.6	50.2	41.0	50.4	51.9	49.1	54.0	48.0
Strider	6RF	41.8	47.5	50.1	41.7	51.8	51.6	50.1	53.4	48.9
Kold - untreated	6RF	45.4						52.1		
Average		44.7	52.1	51.0	43.7	52.2	53.7	51.6	54.0	51.2
PLSD (5%)		1.8	1.1	0.8	2.6	1.4	0.7	0.9	1.2	1.6
PLSD (10%)		1.5	0.9	0.7	2.1	1.1	0.6	0.7	1.0	1.3
CV		2	1	1	3	1	1	1	1	3
P-value		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

*All seed was treated with Vitavax-Thiram and Gaucho except where noted.

**6RF=6 row feed, 6RF/M = experimental line with malt potential

***Does not include Corvallis, which was damaged by disease.

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Table 17.—1998 state-wide variety testing program winter barley protein data across 8 locations in Oregon.

Variety or line*	Market class**	Corvallis	Hermiston	LaGrande	Madras	Moro	Morrow	North Valley	Pendleton	7-site*** average
Protein percent (12% moisture basis)										
Kold	6RF	10.0	9.0	9.9	10.1	7.3	5.9	9.0	7.8	8.5
OR1957369	6RF	9.2	8.3	9.3	10.5	6.7	5.7	8.9	8.6	8.2
ORW10	6RF/M	9.3	8.6	9.8	10.8	7.3	5.9	9.4	7.7	8.5
ORW11	6RF/M	8.9	7.8	9.1	11.3	6.4	5.3	8.3	7.6	7.9
Scio	6RF	9.1	8.3	9.7	10.2	6.8	6.0	8.9	7.7	8.2
Steptoe	6RF	9.1	8.4	8.8	10.6	6.6	6.1	9.8	8.3	8.3
Strider	6RF	9.7	8.9	9.2	10.2	6.7	5.5	9.1	8.2	8.2
Kold - untreated	6RF	10.6						9.6		
Average		9.5	8.5	9.4	10.5	6.8	5.8	9.1	8.0	8.3
PLSD (5%)		0.3	0.6	NS	NS	0.5	0.4	0.7	NS	NS
PLSD (10%)		0.3	0.5	NS	NS	0.4	0.3	0.6	NS	NS
CV		2	4	8	6	4	4	4	8	5
P-value		0.00	0.01	0.50	0.38	0.01	0.01	0.01	0.48	0.23

*All seed was treated with Vitavax-Thiram and Gaucho except where noted.

**6RF=6 row feed, 6RF/M = experimental line with malt potential

***Does not include Corvallis, which was damaged by disease.

Table 18.—Agronomic characteristics of winter oats.

Variety	Year released	State	Winter ¹ hardiness	Maturity ²	Height ³	Lodging ¹	Test ¹ Wgt	Kernel ⁴ color
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 Maturity; M = midseason, ML = midseason to late; L = late.

³ Height; M = medium; MT = midtall; S = short; T = tall; VT = very tall.

⁴ W = white; R = red; G = grey; Y = yellow.

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

Variety	1967-71	1981	----- 1986 -----			----- 1995 -----		
	lb/a	lb/a	lb/a	lb/bu	Head ¹ date	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 Julian heading date—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 eight winter oat varieties and lines grown in Pendleton, Oregon, for 2 crop years (1964-65).

	Yield (lb/A)	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 Julian heading date—June 1 = 151.

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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This publication was produced and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties.

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Revised May 1998. Revised May 1999.

