
Special Report 775

Revised May 1997

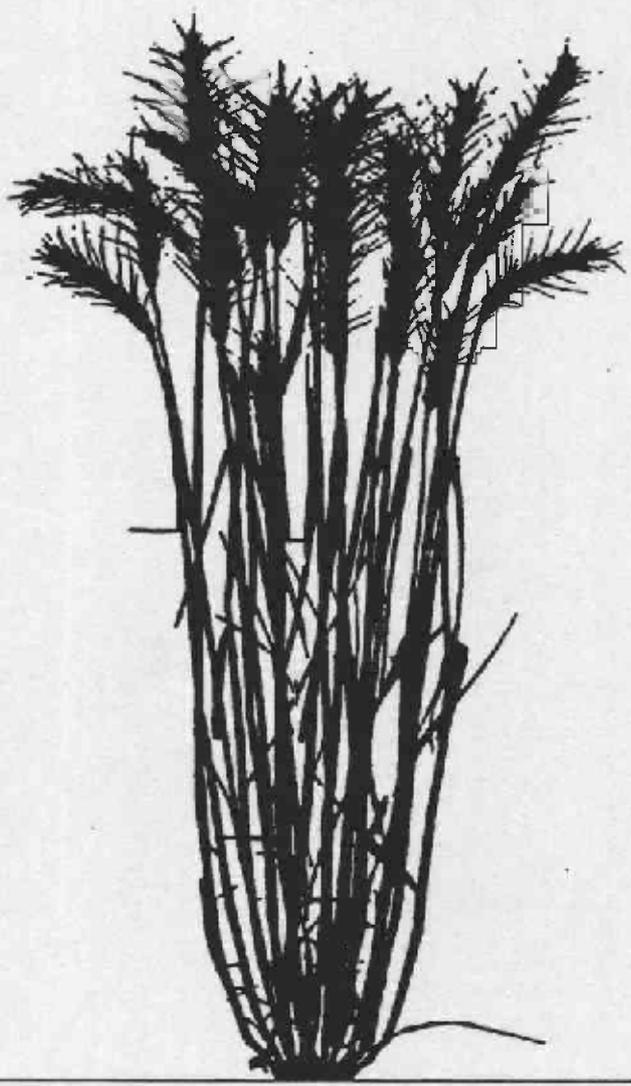
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Winter Cereal Varieties for 1997



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**Russ Karow
Extension Agronomist (cereals)
Department of Crop and Soil Science
Oregon State University
Corvallis, OR 97331-3002**

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Winter Cereal Varieties for 1997

Russ Karow, Ernie Marx, Helle Ruddenklau, Mike Moore, Mike Barnum, Mylen Bohle, Randy Dovel, Steve James, Gary Reed, Rich Roseberg, Clint Shock and 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 State University 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 experiment stations across Oregon. Grower cooperators make small plot testing possible at three sites. Research sites, site coordinators, and grower cooperators are listed below.

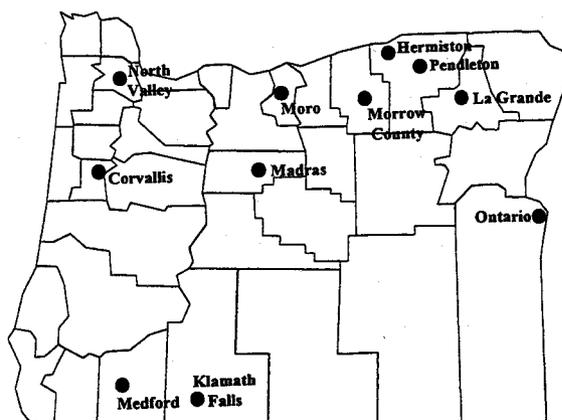
Site	Coordinator/Cooperator
Corvallis	Karow/Ruddenklau/Marx
Hermiston	Moore/Reed/Smiley
Klamath	Dovel
LaGrande	Moore/Smiley
	Grower: John Cuthbert
Madras	James/Bohle
Medford	Roseberg
Moro	Moore/Jacobsen/Smiley
Morrow	Moore/Smiley
	Grower: Charlie Anderson
North Valley	Karow/Ruddenklau
	Grower: Norm Goetze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

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

Data presented in Table 8 were obtained from an on-farm winter wheat drill strip testing program coordinated by Russ Karow and funded by STEEP. In 1996, drill strip trials were conducted by growers in cooperation with county agents at 15 sites across the state. Seed for the 1996 program was provided by Anderson Seeds (Ione), Corvallis Feed and Seed, and Pendleton Grain Growers (Pendleton).

If you have comments about or suggestions for improvement of this publication, please contact Russ Karow, Extension cereals specialist, Crop Science Bldg., Room 131, Oregon State University, Corvallis, OR, 97331-3002 (phone: 541-737-5857; e-mail karowr@css.orst.edu). This information is also available on the World Wide Web at <http://www.css.orst.edu/crops/cereals/home.htm>.

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

¹Prepared by: Russell S. Karow, Extension agronomist (cereals), Oregon State University
Contributors: Ernie Marx, faculty research assistant in crop and soil science, Oregon State University, Corvallis; Helle Ruddenklau, former faculty research assistant in crop and soil science, Oregon State University, Corvallis; Mike Moore, senior research assistant, Columbia Basin Ag Research Center, Pendleton; Mike Barnum, research assistant, Malheur Experiment Station, Ontario; Mylen Bohle, Extension agent, Crook County, Prineville; Randy Dovel, assistant professor of agronomy, Klamath Experiment Station, Klamath Falls; Steve James, senior research assistant, Central Oregon Agricultural Research Center, Madras; Gary Reed, superintendent, Hermiston Agricultural Research and Extension Center, Hermiston; Rich Roseberg, assistant professor of soil science, Southern Oregon Experiment Station, Medford; Clint Shock, superintendent, Malheur Experiment Station, Ontario; and Dick Smiley, superintendent, Columbia Basin Ag Research Center, Pendleton.

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. The following criteria should be considered 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 varies 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 shown good resistance. 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 was present at economically significant levels in western Oregon and at trace levels across Oregon in 1996. An infestation was found on March 4, 1997, near Corvallis, OR. This disease can be devastating, but its economic significance in the Pacific Northwest is an 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 do not necessarily have poorer lodging resistance. Lodging reduces both grain yield and grain quality. As soil fertility levels increase, stiffer-strawed varieties should be used. You also should pay careful attention to both timing and rate of fertilizer applications and irrigation, when used.

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 mid-summer; however, stem rust and other diseases favored by warm weather may become a problem. Choose varieties with a maturity that matches your environment and cropping needs.

Winter Hardiness. As a group, winter barleys are less winter-tolerant than wheats; however, winter varieties such as Gwen have better hardiness than most wheats. 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, varieties that 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 variety, from one area and from one year to another. Yield potential is a genetic trait but is moderated by other factors such as disease and stress tolerance. To evaluate the yield potential of a variety, review data from test sites with an environment similar to that in your area. Where possible, compare performance over several years, as a single year's data can be misleading. Yield data in Tables 6-7 are presented in a different format – 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 1.03. Use of this format simplifies combining of data over years and locations.

Intended Use. Barley varieties are classified either as feed or malting types. Feed types are generally 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. Triticales have been grown for feed use, but there is some interest in Celia triticale as a milled food grain. 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 titled "A Wheat Quality Primer" at <http://www.css.orst.edu>

</crops/cereals/Wheat/quality/whtqual.htm> or in the February 1994 *Oregon Wheat Magazine*.

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 as follows:

General agronomic ratings	Table 1
Disease ratings	Table 2
1996 heading, height and lodging	Table 4
1996 yield data	Table 5
1994-96 yield data	Table 6
1995-96 yield data	Table 7
Drill strip yield data (wheat only)	Table 8
1996 test weight data	Table 9
1996 grain protein data	Table 10

Soft White Winter Wheats

ELTAN is a later maturing, mid-tall common soft white wheat released by Washington State University 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 considered in Washington.

GENE (OR8300801) is an awnletted, common soft white winter wheat released by OSU in 1991. It is an early-maturing, short-statured variety. It had resistance to *Septoria tritici* when released but now appears to be susceptible to both *S. tritici* and *S. nodorum*. It is also susceptible to common bunt. Gene has outyielded Stephens and other commonly grown varieties in some environments, but yields are quite variable. It has only fair winter hardiness.

MacVICAR (OR75336) is a mid-height, medium-maturity common soft white wheat released by OSU in 1992. It is an awned semidwarf with good lodging resistance. It appears to have tolerance to many wheat diseases. MacVicar grain protein levels are consistently lower than those of other commonly grown soft whites.

MADSEN (WA7163) is an awned, common soft white winter 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 the variety of choice in situations where disease levels are expected to be high.

ROD (WA7662) is an awned, common-type soft white winter 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.

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 needs to be treated with fungicide or 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 semi-dwarf released by OSU in 1977. It occupies approximately 55 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.

W301 is an early-maturing, stiff-strawed, snow mold tolerant, common soft white wheat released by OSU in 1992. It is specifically intended for use in high-elevation, heavy-snow-cover regions of the Pacific Northwest. It is similar in maturity and height to Stephens but has a lower yield potential. It is earlier, stiffer-strawed, and has greater yield potential than Lewjain, John, Luke, or Eltan – varieties commonly grown in cold, snowy areas.

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.

CELIA (FT91062) is a medium-height, early to medium-maturing, awned, stiff-strawed triticale released by OSU in 1993. It is a replacement for the variety Flora. Like Flora, Celia has prostrate early growth and an excellent disease-resistance profile. Celia is facultative and can be early spring planted. 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.

RS87 lines are triticales bred by Resource Seeds in California.

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 as follows:

General agronomic and disease ratings	Table 3
1996 heading, height and lodging	Table 11
1996 yield data	Table 12
1994-96 yield data	Table 6
1995-96 yield data	Table 7
1996 test weight data	Table 13
1996 grain protein data	Table 14

GWEN is a six-row feed barley released by OSU in 1991. It is a small-headed, rough-awned variety with early maturity and excellent winter hardiness. It was released for use in the low-rainfall, shallow-soil areas of the Columbia Basin but has performed well in other areas. Gwen is extremely susceptible to barley stripe rust.

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

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.

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.

SCIO is a medium-short, mid-season, feed grain variety released by OSU in 1981. It is similar to Boyer in maturity and about 3 inches shorter than Boyer. It is very stiff-strawed and well-adapted to the Columbia Basin.

STEPTOE is a medium-height, early, spring feed grain variety released by WSU in 1973. Grain test weight is typically above average. Yield potential is high and is stable across environments. It is tolerant of cold and may be fall-seeded in areas where winter killing is not a serious problem. Spikes are lax and mid-long; kernels are white.

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 as follows:

General agronomic ratings	Table 15
Western Oregon data	Table 16
Eastern Oregon data	Table 17

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 grey 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. The variety has been resurrected. Small amounts of foundation are available through IMS Seeds Inc.

GREY WINTER is a common grey 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. Only common seed is available as breeder seed stocks are not known.

WALKEN. 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 be either winter or spring 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 re-selected 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 is a winter-hardy grain rye developed by the University of Wisconsin. It is a short-statured, lodging-resistant, high-grain-yielding variety. Certified seed is available in Wisconsin.

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. Certified seed is available through Woodburn Fertilizer in Woodburn, Oregon. Wheeler has allelopathic properties and is being evaluated for use in Oregon as a cover crop to suppress weeds and several soil-borne pests.

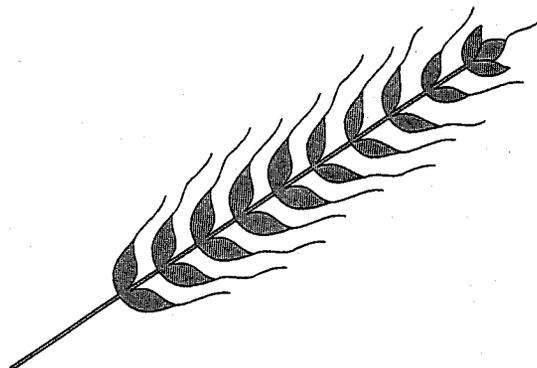


Table 1.—Agronomic characteristics of commonly grown winter wheats.

Variety	Released		Emergence ² index	Winter- ² hardness	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
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
Yamhill	1969	OR	7	3	midseason	T	MR	7	W	Awnletted
W301	1992	OR	5	8	early-mid	M	R	7	W	Awned
Club										
Crew	1982	WA	5	-	midseason	MT	MR	6	W-B	Awnless
Faro	1976	OR	6	-	early-mid	MT	R	5	B	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
OR92CL0054	1997?	OR	--	--	early-mid	M	MR	7	W	Awnletted
Rely	1990	WA	4	5	midseason	M	MR	6	W	Awnless
Rohde	1992	OR	6	4	early-mid	MT	R	7	B	Awned
Tres	1984	WA	5	7	midseason	M	R	7	W	Awnless
WA7752	1997?	WA	5	6	mid-late	MT	MR	8	W	Bearded
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
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	-	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
Triticale										
Bob	--	OR	5	H	late	MT	MR	2	W	Awned
Celia	1993	OR	5	H	early-mid	SM	R	4	W	Awned
Flora	1986	OR	6	H	early-mid	SM	R	2	B	Awned
Whitman	1988	WA	5	L	midseason	MT	MR	2	B	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 rating - L = low, M = moderate, H = high. Winter-hardiness ratings of 2-3 are generally 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 ⁴	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
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
Oveson	MR	MS	MR	S	MS	--	--	S	S	S
Rod	MR	MS	R	S	MS	6	S	S	--	S
Stephens	R	MS	S	S	MS	1	S	S	S	S
Yamhill	S	MR	S	S	MS	--	MR	MS	S	--
W301	MR	MR	MS	S	MS	--	S	S	--	MS
Club										
Crew ⁵	M	MS	R	S	S	--	--	S	S	--
Faro	S	S	MR	S	S	--	MS	MS	S	--
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
OR92CL0054	R	MR	--	--	--	--	--	MR	--	--
Rely	MR	MR	MS	S	VS	4	--	S	S	S
Rohde	MR	MS	MR	S	VS	4	S	VS	--	S
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
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
Triticale										
Bob	R	MR	--	--	--	--	R	--	--	--
Celia	R	R	--	--	--	--	R	MR	MS	MR
Flora	R	R	R	MR	R	--	R	MR	MS	MR
Whitman	R	R	R	--	R	--	R	--	MS	--

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

⁵ Crew is a multiline variety composed of 10 separate lines, some of which are rust-susceptible.

Table 3.—Agronomic characteristics for winter barleys.

Released			Agronomic Characteristics							Disease Reaction ⁵		
Year	State	Type ¹	Winter ² hardiness	Heading ³ date	Height ⁴	Lodging ⁵	Test ⁶		Disease Reaction ⁵			
							Wgt.	Awn ⁷	Scald	Smut	Stripe rust	
AB 812	1988	ID	6F	G	M	M	I	5	R	--	--	S
Boyer	1975	WA	6F	F	M	M	MR	4	R	MS	MR	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
Stephoe 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 MS = moderately susceptible, I = intermediate, MR = moderately resistant, R = resistant, -- = reaction unknown.

⁶ Scale of 1 to 10 with 5 being average.

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

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

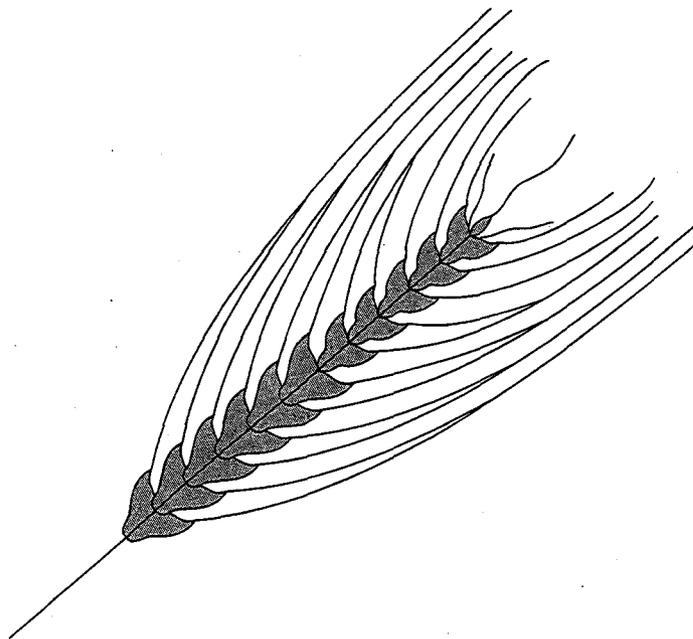


Table 4.—1996 state-wide variety testing program winter wheat and triticale Julian heading dates, heights, and lodging across locations in Oregon.

Variety/ line	Market class	Corvallis				Madras				North Valley				Ontario			
		Corvallis	Madras	Ontario	Pendleton	Corvallis	Madras	Medford	Moro	Corvallis	Madras	Medford	Moro	Corvallis	Madras	North Valley	Ontario
		Julian heading date				Plant height (inches)								Lodging (percent)*			
Daws	SW	150	167	148	147	47	42	43	41	44	36	38	0	10	17	0	
Gene	SW	135	162	141	136	40	34	37	37	37	34	35	11	0	0	0	
Hill 81	SW	148	169	148	147	50	43	44	44	46	39	41	0	7	0	0	
Hiller	Club	149	164	145	146	47	39	41	39	45	37	44	1	93	0	13	
Hyak	Club	138	166	—	140	48	42	46	45	48	—	41	25	83	0	—	
Lewjain	SW	154	174	—	151	44	41	41	36	39	—	36	75	83	33	—	
MacVicar	SW	147	165	145	144	45	40	40	40	41	36	42	0	7	0	0	
Madsen	SW	147	168	147	144	46	37	39	38	41	36	44	0	0	25	0	
Madsen+Stephens	SW	147	163	142	142	44	37	37	33	41	36	38	0	3	0	0	
Malcolm	SW	147	164	143	143	46	40	42	39	43	38	36	8	10	0	13	
Rely	Club	151	169	—	144	51	44	50	41	47	—	38	93	53	0	—	
Rod	SW	151	167	149	145	46	40	43	37	44	37	38	42	53	0	11	
Rohde	Club	146	165	145	141	48	40	42	42	46	37	39	92	73	0	30	
Stephens - Vitavax	SW	146	161	142	141	44	40	40	37	42	36	37	0	0	0	3	
Stn-Vit+Gaucho	SW	145	162	142	141	44	39	40	38	42	36	37	0	0	0	0	
Stn-Baytan	SW	144	162	—	—	43	38	—	—	41	—	—	0	0	0	—	
Stn-Dividend	SW	144	161	—	140	45	37	—	37	—	—	38	2	3	—	—	
Stn-Raxil	SW	145	—	—	141	44	—	—	39	—	—	35	0	—	—	—	
W301	SW	147	163	143	142	45	40	40	31	44	38	38	8	0	0	43	
Yamhill	SW	147	168	—	—	50	47	46	—	47	—	—	58	30	0	—	
ID467	HR	149	165	143	142	47	39	43	36	46	36	44	80	73	67	2	
ID8614502b	SW	134	157	140	139	44	36	39	34	38	34	36	0	10	0	3	
OR929049-CLB	Club	152	—	—	148	44	—	—	34	—	—	37	1	—	—	—	
OR92054-CLB	Club	138	—	—	139	46	—	—	35	—	—	42	78	—	—	—	
WA7752	Club	149	—	—	147	51	—	—	36	47	—	44	82	—	0	—	
Celia	Triticale	149	161	144	141	45	38	41	37	41	36	42	0	0	0	0	
RS87-123	Triticale	—	—	136	—	—	—	—	—	—	46	—	—	—	—	0	
RS87-183	Triticale	—	—	136	—	—	—	—	—	—	46	—	—	—	—	0	
RS87-202	Triticale	—	—	135	—	—	—	—	—	—	47	—	—	—	—	0	
Trial average		146	165	143	143	46	40	42	38	43	38	39	24	27	6	6	
PLSD (5%)		1	2	2	—	1	2	3	—	2	2	—	23	25	33	22	
PLSD (10%)		1	2	2	—	1	2	3	—	1	2	—	19	21	28	18	
CV		1	1	1	—	2	4	4	—	2	3	—	57	57	313	229	
P-value		0.00	0.00	—	—	0.00	0.00	0.00	—	0.00	—	—	0.00	0.00	0.03	—	

*Grain did not lodge at other sites.

Table 5.—1996 state-wide variety testing program winter wheat and triticale yield data across 11 locations in Oregon.

Variety/ line	Market class	Klamath											9-site** average	9-site** percent of average
		Corvallis	Hermiston	Falls	LaGrande	Madras	Medford	Moro	County	North Valley*	Ontario	Pendleton		
Yield (bu/a; 60 lb bu; 10% moisture)														
Daws	SW	125	97	58	33	136	77	64	46	74	127	79	87	1.00
Gene	SW	105	86	30	11	137	81	76	37	96	130	86	86	0.99
Hill 81	SW	125	104	48	79	119	86	65	54	75	135	86	88	1.00
Hiller	Club	122	93	44	20	90	82	75	58	64	113	89	82	0.93
Hyak	Club	123	69	39	24	105	87	74	54	69	—	88	—	—
Lewjain	SW	84	103	62	62	98	81	65	56	55	—	80	—	—
MacVicar	SW	142	95	46	34	129	87	74	38	94	150	72	92	1.05
Madsen	SW	129	93	52	51	121	96	70	57	64	143	81	90	1.03
Madsen+Stephens	SW	119	99	48	34	132	79	69	49	87	149	76	90	1.02
Malcolm	SW	120	93	60	39	115	80	67	33	78	148	66	85	0.97
Rely	Club	86	90	34	40	112	91	59	51	102	—	78	—	—
Rod	SW	116	108	57	63	124	90	79	57	89	137	89	93	1.06
Rohde	Club	98	94	56	19	111	90	67	55	91	128	71	85	0.97
Stephens - Vitavax	SW	120	100	58	36	143	86	76	46	103	152	75	95	1.09
Stn-Vit+Gaucho	SW	124	97	62	36	144	95	77	45	97	157	76	97	1.11
Stn-Baytan	SW	119	—	—	—	138	—	—	—	72	—	—	—	—
Stn-Dividend	SW	113	89	—	43	135	—	73	43	—	—	78	—	—
Stn-Raxil	SW	123	90	—	35	—	—	82	43	—	—	76	—	—
W301	SW	116	91	68	38	133	84	69	42	85	151	75	91	1.04
Yamhill	SW	105	—	—	—	92	79	—	—	97	—	—	—	—
ID467	HR	80	86	42	36	97	88	59	49	57	134	84	77	0.87
ID8614502b	SW	127	90	54	36	142	80	67	52	87	138	84	92	1.05
OR929049-CLB	Club	123	92	—	24	—	—	61	43	—	—	82	—	—
OR92054-CLB	Club	102	68	—	16	—	—	61	55	—	—	70	—	—
WA7752	Club	112	97	—	23	—	—	63	54	79	—	92	—	—
Celia	Triticale	118	93	58	27	114	68	58	51	89	96	92	83	0.94
RS87-123	Triticale	—	131	—	—	—	—	54	87	—	131	85	—	—
RS87-183	Triticale	—	123	—	—	—	—	56	80	—	126	71	—	—
RS87-202	Triticale	—	137	—	—	—	—	51	91	—	131	78	—	—
Trial average		114	97	52	36	121	84	67	53	82	136	80	88	88
PLSD (5%)		19	18	18	10	26	NS	12	10	NS	11	10	10	0.12
PLSD (10%)		16	15	15	8	22	NS	10	9	NS	9	8	8	0.10
CV		10	12	22	17	13	15	11	12	26	5	8	12	12
P-VALUE		0.00	0.00	0.01	0.00	0.00	0.40	0.00	0.00	0.18	—	0.00	0.01	0.03

*Yields in some plots were affected by heavy infestations of Hoelon-resistant ryegrass.

**Does not include Hermiston and LaGrande due to hail and frost damage, respectively.

Table 6.—1994-96 winter grain yields across eight Oregon locations expressed as a percent of trial average.

Variety	Market class	Corvallis	Madras	Medford	Moro	Morrow County	North Valley	Ontario	Pendleton	8-site average
<i>Winter wheats and triticales</i>		Yield as a percent of trial average								
Celia	Triticale	1.07	0.98	0.80	1.08	1.00	1.01	0.90	1.22	1.01
Daws	SW	1.07	1.02	0.94	1.01	0.93	1.01	0.98	0.99	1.00
Gene	SW	1.12	0.98	1.05	1.09	1.01	1.08	0.99	1.10	1.05
Hill 81	SW	1.10	1.03	0.95	0.97	1.01	1.02	0.99	1.05	1.01
Hyak	Club	0.96	0.84	1.00	1.06	0.96	0.66	—	1.06	—
Lewjain	SW	0.81	0.89	0.91	1.00	0.92	0.56	—	0.99	—
MacVicar	SW	1.12	1.04	1.04	1.00	0.88	1.04	1.11	1.00	1.03
Madsen	SW	1.14	0.95	1.01	1.01	1.14	0.85	1.01	1.05	1.02
Malcolm	SW	1.10	1.05	1.01	1.02	1.03	1.00	1.09	0.96	1.03
Rely	Club	0.75	0.92	1.02	0.99	0.92	0.68	—	0.95	—
Rod	SW	0.93	1.04	1.01	1.17	1.06	0.99	—	0.98	—
Rohde	Club	0.79	0.98	1.12	1.11	1.02	1.12	0.96	0.91	1.00
Stephens	SW	1.07	1.09	0.98	1.08	1.08	1.09	1.06	1.08	1.06
W301	SW	1.01	1.03	0.90	1.05	1.05	0.94	1.11	1.05	1.02
PLSD (5%)										NS
PLSD (10%)										NS
1994-96 average yield (bu/a)		96	112	96	52	54	106	140	80	92
<i>Winter barleys</i>		Yield as a percent of trial average								
Gwen	6RF	0.67	0.99	0.79	—	0.97	0.48	0.63	0.86	0.77
Hesk	6RF	0.92	1.01	1.06	—	1.10	0.71	1.06	1.07	0.99
Hundred	6RF	0.93	1.03	1.15	—	1.03	0.66	1.03	1.15	1.00
Kold	6RF	1.27	1.08	1.21	—	1.06	0.81	0.93	1.18	1.08
Step toe	6RF	1.10	0.79	0.75	—	0.95	0.70	0.99	0.94	0.89
PLSD (5%)										0.12
PLSD (10%)										0.10
1994-96 average yield (lb/a)		4133	4080	3975	—	4222	3046	7504	4763	4532

Table 7.—1995-96 winter grain yields across nine Oregon locations expressed as a percent of trial average.

Variety	Market class	Corvallis	LaGrande	Madras	Medford	Moro	Morrow County	North Valley	Ontario	Pendleton	8-site average*
<i>Winter wheats and triticales</i>		Yield as a percent of trial average									
Celia	Triticale	1.00	0.87	0.95	0.82	0.95	0.94	1.04	0.82	1.22	0.97
Daws	SW	1.03	1.07	1.12	0.95	1.01	0.96	1.01	0.96	0.97	1.01
Gene	SW	1.16	0.72	1.00	0.98	1.10	0.92	1.08	0.98	1.09	1.01
Hill 81	SW	1.02	1.64	1.04	0.95	0.95	0.98	1.01	0.97	1.05	1.08
Hyak	Club	0.99	0.81	0.79	1.03	1.05	0.92	0.99	—	1.03	0.95
Lewjain	SW	0.84	1.24	0.86	0.96	0.96	0.91	0.85	—	1.00	0.95
MacVicar	SW	1.14	0.94	1.04	1.06	1.02	0.75	1.03	1.08	0.95	0.99
Madsen	SW	1.11	1.16	0.98	1.03	1.03	1.18	0.88	1.01	1.06	1.05
Malcolm	SW	1.10	1.16	1.02	1.04	1.05	0.92	1.03	1.08	0.89	1.03
Rely	Club	0.73	1.05	0.91	1.08	0.98	0.95	1.02	—	0.93	0.96
Rod	SW	1.01	1.40	1.07	1.04	1.14	1.09	1.02	0.51	1.01	1.10
Rohde	Club	0.87	0.76	0.97	1.11	1.02	1.06	1.14	0.93	0.86	0.97
Stephens	SW	1.09	0.95	1.10	0.98	1.10	0.98	1.11	1.01	1.04	1.04
W301	SW	1.04	1.05	1.02	0.92	1.04	0.95	0.88	1.07	0.99	0.99
Yamhill	SW	0.96	0.40	0.74	0.86	0.51	0.51	1.13	—	0.37	0.68
PLSD (5%)											0.14
PLSD (10%)											0.12
1995-96 average yield (bu/a)		96	60	112	99	60	48	94	139	82	81
<i>Winter barleys</i>		Yield as a percent of trial average									
Gwen	6RF	0.50	1.04	0.95	0.75	—	0.99	0.73	0.46	0.83	0.78
Hesk	6RF	0.93	1.05	0.96	0.94	—	1.03	1.07	1.04	0.96	1.00
Hundred	6RF	0.89	0.89	0.92	1.02	—	0.92	0.99	0.98	1.09	0.96
Kold	6RF	1.31	1.28	1.08	1.15	—	1.03	1.21	0.92	1.24	1.15
Scio	6RF	1.12	0.78	0.97	1.14	—	1.12	1.05	0.48	1.05	0.96
Steptoe	6RF	1.10	0.97	0.72	0.83	—	0.96	1.05	1.00	0.94	0.94
Strider	6RF	1.59	1.12	1.10	1.21	—	1.04	1.18	1.09	1.25	1.20
PLSD (5%)											0.15
PLSD (10%)											0.13
1995-96 average yield (lb/a)		3184	3774	4117	4059	—	4333	4570	7525	4678	4530

*does not include Ontario

Table 8. —1996 winter wheat variety drill strip trials across Oregon.

Variety	Rudden-	Barnes	Hill	Nichols	Hales	Macnab	Brown	Miller	Kaseberg	Rietmann	Holdman	Weimar	Buether	Ericksen	Average
	kla Amity	Salem	Pendleton	Dayton,WA	Midway	Moro	Wasco	Dufur	Wasco	Condon	Pendleton	Clem	Kent	Condon	
Yield (bu/a; as-is grain moisture)															
Gene	128	139	123	123	107	95	86	92	78	73	67	69	52	15	89
MacVicar	148	129	117	105	104	83	91	79	70	—	65	63	63	—	—
Madsen	150	120	108	118	102	82	75	95	67	68	61	65	52	35	86
Rod	134	135	128	130	97	93	91	68	102	75	74	65	60	20	91
Rohde	115	111	104	100	94	—	64	63	61	63	70	56	58	20	—
Stephens	131	124	115	116	107	86	85	68	67	72	59	61	56	16	83
Eltan	—	—	—	103	—	—	—	—	—	—	—	—	—	—	—
Lambert	—	—	—	117	—	—	—	—	—	—	—	—	—	—	—
Mac1	—	—	114	110	99	—	—	—	—	—	63	—	—	—	—
Mixtures*	139	133	—	—	—	—	—	92	—	—	—	63	—	—	—
W301	—	—	116	—	103	—	73	—	95	72	64	63	—	—	—
Average	135	127	116	114	102	88	81	80	77	70	65	63	57	18	—

Peck site lost to hail damage.

*Mixture compositions

Both the Ruddenklau and Barnes mixes were a composite of the other six varieties tested.

The Macnab mixture data shown is for a Madsen/Gene mix. Nine other mixtures were evaluated.

The Miller mix data shown is for a Madsen/Rod mix. A Crew/Hyak mix in the same plot area yielded 95 bu/a.

The Weimar mix data shown is for a W301/MacVicar mix.

This research is funded by the OSU Extension Service, OSU Ag Experiment Station, Oregon Wheat and Oregon Grains Commissions, and STEEP II. Seed for these trials was donated by Anderson Seeds of Ione, Corvallis Feed and Seed, and Pendleton Grain Growers.

Table 9.—1996 state-wide variety testing program winter wheat and triticale test weight data across 11 locations in Oregon.

Variety/ line	Market class	Corvallis	Hermiston	Klamath Falls	LaGrande	Madras	Medford	Moro	Morrow County	North Valley	Ontario	Pendleton	9-site* average
Test weight (lb/bu)													
Daws	SW	59.5	63.5	56.6	60.7	60.5	59.3	59.1	60.1	62.2	59.7	60.1	59.7
Gene	SW	57.6	62.0	52.5	57.4	58.8	57.1	57.1	55.1	61.4	56.8	56.7	57.0
Hill 81	SW	60.6	63.7	56.8	62.2	60.4	59.8	58.1	59.4	61.6	59.3	59.9	59.5
Hiller	Club	58.9	61.2	54.4	58.0	59.6	57.0	56.4	58.2	59.6	55.8	56.8	57.4
Hyak	Club	59.5	62.0	53.7	58.6	57.0	57.1	56.5	58.1	62.4	—	58.7	—
Lewjain	SW	54.8	63.2	57.9	60.2	59.0	57.7	58.5	60.6	60.4	—	60.5	—
MacVicar	SW	60.5	63.1	52.4	59.5	58.8	59.6	58.7	57.8	62.1	60.2	58.6	58.7
Madsen	SW	60.9	63.0	55.1	60.9	60.5	60.4	57.8	59.7	60.7	59.1	60.3	59.4
Madsen+Stephens	SW	60.7	62.6	56.0	58.9	59.9	58.4	56.4	60.3	61.9	59.4	58.9	59.1
Malcolm	SW	59.4	62.9	56.4	60.1	59.7	59.7	59.4	58.9	62.0	58.8	59.3	59.3
Rely	Club	57.5	62.0	54.4	60.2	58.3	57.8	56.3	58.9	61.5	—	58.7	—
Rod	SW	58.1	61.2	55.8	60.5	58.6	59.1	58.4	59.9	61.3	58.7	59.7	58.8
Rohde	Club	58.9	63.2	57.0	58.0	60.3	58.7	56.7	60.5	63.4	60.3	60.0	59.5
Stephens- Vitavax	SW	60.6	62.4	55.2	59.7	59.9	57.4	57.9	58.9	62.6	59.7	58.6	59.0
Stn-Vit+Gaucho	SW	61.1	62.9	56.3	58.8	59.8	58.9	57.8	59.1	63.0	59.5	58.2	59.3
Stn-Baytan	SW	60.5	—	—	—	59.7	—	—	—	62.0	—	—	—
Stn-Dividend	SW	60.6	61.7	—	59.0	59.4	—	57.9	58.0	—	—	58.6	—
Stn-Raxil	SW	61.0	62.4	—	59.2	—	—	58.2	57.7	—	—	58.4	—
W301	SW	61.0	63.2	55.9	59.4	59.9	57.6	57.7	59.5	62.6	59.6	58.5	59.1
Yamhill	SW	58.2	—	—	—	57.8	57.5	—	—	61.0	—	—	—
ID467	HR	59.4	63.0	58.5	60.3	60.8	61.3	58.8	60.7	62.5	61.0	60.2	60.4
ID8614502b	SW	61.9	63.4	56.7	59.6	62.7	61.4	57.4	59.7	64.6	61.2	60.1	60.6
OR929049-CLB	Club	58.2	60.8	—	58.4	—	—	56.9	59.3	—	—	57.5	—
OR92054-CLB	Club	58.2	62.9	—	60.6	—	—	56.4	60.0	—	—	59.1	—
WA7752	Club	59.8	63.0	—	61.1	—	—	57.0	60.1	62.9	—	61.1	—
Celia	Triticale	57.5	59.7	53.2	57.0	57.0	58.9	58.5	56.3	59.3	53.1	57.9	56.9
RS87-123	Triticale	—	59.2	—	—	—	—	53.7	56.5	—	52.8	57.0	—
RS87-183	Triticale	—	58.8	—	—	—	—	54.5	55.9	—	54.1	56.9	—
RS87-202	Triticale	—	58.5	—	—	—	—	54.2	56.9	—	52.1	56.4	—
Trial average		59.4	62.1	55.7	59.5	59.5	58.7	57.3	58.8	61.9	58.0	58.8	58.7
PLSD (5%)		1.6	1.0	2.7	1.4	1.6	2.1	2.0	1.5	1.0	1.6	1.1	0.9
PLSD (10%)		1.3	0.9	2.2	1.2	1.3	1.8	1.7	1.3	0.9	1.3	0.9	0.8
CV		2	1	3	1	2	3	2	2	1	2	1	2
P-VALUE		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00

*Does not include Hermiston and LaGrande due to hail and frost damage, respectively.

Table 10.—1996 state-wide variety testing program winter wheat and triticale protein percents across 11 locations in Oregon.

Variety/ line	Market class	Corvallis	Hermiston	Klamath Falls	LaGrande	Madras	Medford	Moro	Morrow County	North Valley*	Ontario	Pendleton	9-site* average
Protein percent (12% moisture basis)													
Daws	SW	7.9	11.3	11.1	14.3	10.5	9.0	6.1	8.2	8.0	9.0	7.6	8.6
Gene	SW	10.0	12.0	12.6	14.8	11.5	10.8	6.7	8.5	9.5	10.6	8.6	9.9
Hill 81	SW	8.2	11.6	11.7	13.5	10.5	9.0	6.7	8.7	8.1	9.6	8.0	8.9
Hiller	Club	8.2	11.1	11.8	14.6	10.9	10.2	6.1	9.9	8.1	9.5	7.3	9.1
Hyak	Club	8.3	12.0	12.0	15.0	11.2	9.7	6.5	11.2	8.0	—	7.2	—
Lewjain	SW	8.8	11.1	10.6	13.1	10.8	9.5	5.6	6.9	7.9	—	7.9	—
MacVicar	SW	7.9	11.2	11.5	13.1	10.5	9.4	6.3	8.6	7.8	8.9	8.2	8.8
Madsen	SW	8.7	12.1	12.1	14.5	10.7	9.6	6.1	10.1	8.4	9.7	8.7	9.3
Madsen+Stephe	SW	8.8	11.3	12.1	13.9	10.2	9.7	5.9	11.2	8.7	8.9	8.2	9.3
Malcolm	SW	8.1	11.4	11.6	13.2	9.4	9.6	6.2	8.6	7.8	9.6	7.6	8.7
Rely	Club	8.5	11.0	11.8	14.4	9.6	9.4	6.0	7.5	7.7	—	7.0	—
Rod	SW	8.3	10.6	11.1	13.1	9.8	9.0	6.0	7.9	7.9	9.0	7.4	8.5
Rohde	Club	8.8	11.8	11.2	14.3	10.6	9.7	6.5	7.7	8.2	9.5	7.5	8.8
Stephens	SW	8.9	11.5	12.1	14.2	10.3	10.2	7.1	8.3	8.3	9.7	8.0	9.2
Stn-Vit+Gaucho	SW	8.7	11.1	11.6	14.0	10.8	9.8	7.1	8.9	8.5	10.1	8.0	9.3
Stn-Baytan	SW	9.1	—	—	—	10.6	—	—	—	8.7	—	—	—
Stn-Dividend	SW	8.9	11.2	—	13.6	10.3	—	7.1	11.2	—	—	8.1	—
Stn-Raxil	SW	8.6	11.5	—	13.9	—	—	7.7	12.1	—	—	8.5	—
W301	SW	8.8	11.4	11.8	13.8	10.2	10.0	6.3	9.9	8.2	10.3	8.7	9.3
Yamhill	SW	8.7	—	—	—	10.8	10.0	—	—	8.1	—	—	—
ID467	HR	9.0	11.4	11.8	14.1	10.3	9.0	6.4	10.7	8.2	9.2	7.8	9.1
ID8614502b	SW	9.1	12.1	11.2	13.9	9.8	9.8	5.7	9.3	9.0	9.4	8.0	9.0
OR929049-CLB	Club	8.2	10.2	—	12.7	—	—	5.1	10.5	—	—	7.7	—
OR92054-CLB	Club	9.7	12.7	—	15.0	—	—	5.8	7.7	—	—	7.6	—
WA7752	Club	9.1	11.9	—	15.3	—	—	5.8	11.9	8.5	—	8.1	—
Celia	Triticale	8.6	10.6	11.3	13.3	9.2	9.2	4.9	9.0	8.3	10.2	7.3	8.7
RS87-123	Triticale	—	11.0	—	—	—	—	7.3	8.2	—	9.3	8.3	—
RS87-183	Triticale	—	11.1	—	—	—	—	7.4	8.3	—	9.0	8.4	—
RS87-202	Triticale	—	11.3	—	—	—	—	6.9	8.8	—	9.9	8.2	—
Trial average		8.7	11.4	11.6	14.0	10.4	9.6	6.3	9.2	8.3	9.5	7.9	9.1
PLSD (5%)		0.4	0.8	0.1	0.4	1.1	0.5	1.3	NS	0.6	1.0	0.8	0.5
PLSD (10%)		0.4	0.7	0.1	0.3	0.9	0.4	1.1	2.6	0.5	0.8	0.6	0.4
CV		3	4	3	2	6	4	13	21	4	6	6	5
P-VALUE		0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.06	0.00	0.01	0.00	0.00

*Does not include Hermiston and LaGrande due to hail and frost damage, respectively.

Table 11.—1996 state-wide variety testing program winter barley Julian heading dates, heights, and lodging across locations in Oregon.

Variety/ line	Market class	Corvallis					North Valley					Lodging (percent)*							
		Corvallis sprayed**	Corvallis unsprayed	Madras	Ontario	Pendleton	Corvallis sprayed**	Corvallis unsprayed	Madras	Medford	Ontario	Pendleton	Corvallis sprayed**	Corvallis unsprayed	Madras	Medford	North Valley	Ontario	
		Julian heading date					Plant height (inches)												
Gwen	6RF	130	130	143	129	127	46	43	43	44	41	30	46	0	0	77	0	67	0
Hesk	6RF	135	135	156	136	133	45	44	42	39	47	29	41	0	0	100	8	33	0
Hesk-Bay	6RF	136	136	155	134	133	45	43	44	39	46	28	44	3	3	100	0	33	0
Hundred	6RF	135	135	156	134	134	44	46	43	38	43	31	41	3	3	90	0	0	0
Kold	6RF	136	136	155	134	133	41	44	41	37	42	28	39	0	0	97	0	25	2
Scio	6RF	132	132	152	133	131	45	46	44	42	45	30	37	0	0	68	0	17	0
SDM204	6RF	148	148	160	139		38	38	43	40	41	34		0	0	28	0	17	0
Step toe	6RF	134	134	152	133	133	52	54	43	47	47	37	51	17	20	42	45	25	0
Strider	6RF	132	132	149	132	131	46	46	42	41	46	29	43	0	0	98	13	17	0
Trial average		135	135	153	134	132	45	45	43	41	44	31	43	3	3	78	7	26	0
PLSD (5%)		1	1	3	3	—	3	2	NS	NS	2	3	—	8	7	40	NS	NS	NS
PLSD (10%)		1	1	3	3	—	2.1	1	NS	NS	2	3	—	6.5	6	33	NS	NS	—
CV		1	1	1	1	—	3	2	5	8	3	6	—	172	141	30	273	97	—
P-VALUE		0.00	0.00	0.00	—	—	0.00	0.00	0.65	0.16	0.00	—	—	0.00	0.00	0.01	0.35	0.20	—

Table 12.—1996 state-wide variety testing program winter barley yield data across 11 locations in Oregon.

Variety/ line	Market class	Corvallis					North Valley					9-site** percent of average			
		Corvallis sprayed***	Corvallis unsprayed	Hemiston	Klamath Falls	LaGrande	Madras	Medford	Moro	Morrow County	Ontario	Pendleton	9-site** average	9-site** percent of average	
Yield (lb/a; 10% moisture)															
Gwen	6RF	489	280	1478	2267	3386	4953	2183	2994	5125	2445	6899	4185	3479	0.75
Hesk	6RF	3955	3353	4498	4971	2605	3805	4153	4403	5849	4425	7603	5757	4913	1.06
Hesk-Bay	6RF	4648	3712	4649	4543	2842	4174	4649	5389	6011	3956	7479	5851	5085	1.09
Hundred	6RF	4014	2525	3730	3809	2112	3699	3630	4663	5007	4111	7016	5731	4468	0.98
Kold	6RF	5387	5318	5186	6456	4153	4686	3894	4357	5470	5083	7164	5940	5374	1.16
Scio	6RF	4616	3951	4715	3551	2599	4308	4016	4575	5180	4366	7311	5131	4710	1.01
SDM204	6RF	2443	1856	—	—	—	5619	2613	—	—	4307	9445	—	—	—
Step toe	6RF	3923	3219	3456	2657	2080	2242	3462	3486	5226	4220	7549	4492	4062	0.87
Strider	6RF	5884	6230	4990	3910	3272	4020	4481	3623	4928	4849	7887	6252	5127	1.10
Average		3609	3288	4088	3976	2881	4167	3711	4186	5350	4196	7560	5417	4650	4650
PLSD (5%)		1199	1043	1012	1116	930	1496	562	1042	NS	1004	1071	502	723	0.19
PLSD (10%)		989	861	631	921	764	1232	467	855	NS	827	899	412	603	0.15
CV		18	19	14	16	18	21	10	14	11	14	9	5	16	17
P-value		0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.28	0.00	—	0.00	0.00	0.00

**Does not include Hemiston and LaGrande due to hail and frost damage, respectively.

***Gwen, Sunstar, Hesk, Scio sprayed with Tilt (4 oz/a) at Feekes 5; Hesk+Baytan, Hundred, Kold, Strider, SDM, Step toe sprayed with Tilt at Feekes 9

Table 13.—1996 state-wide variety testing program winter barley test weight data across 11 locations in Oregon.

Variety/ line	Market class	Corvallis sprayed**	Corvallis unsprayed	Hermiston	Klamath			Morrow	North	Ontario	Pendleton	9-site*		
					Falls	LaGrande	Madras	Medford	Moro	County	Valley	average		
<i>Winter barleys</i>		Test weight (lb/bu)												
Gwen	6RF	25.4	—	41.2	43.4	38.3	48.7	42.6	53.2	54.4	46.5	48.4	53.4	—
Hesk	6RF	40.8	40.8	47.5	43.0	37.4	43.7	44.7	51.2	49.5	50.6	44.8	51.3	46.6
Hesk-Bay	6RF	47.2	43.5	47.2	43.6	35.3	43.6	46.2	51.2	48.3	50.0	45.3	51.1	47.0
Hundred	6RF	37.0	33.1	45.1	40.7	34.4	44.3	42.7	50.6	49.1	48.7	44.4	50.3	44.9
Kold	6RF	46.2	47.6	50.5	46.9	44.0	46.6	48.0	53.0	50.8	52.3	46.1	51.7	49.2
Scio	6RF	43.5	41.6	46.6	42.3	29.7	46.1	46.8	51.1	49.7	49.5	45.1	51.6	47.1
SDM204	6RF	34.3	34.0	—	—	—	49.1	34.4	—	—	46.5	45.3	—	—
Steptoe	6RF	41.6	41.6	46.5	45.6	30.1	47.4	47.3	52.7	50.4	51.4	48.2	52.7	48.6
Strider	6RF	48.2	48.9	48.3	45.2	42.5	44.5	51.1	51.9	48.8	51.8	46.7	52.4	49.0
Average		40.4	41.5	46.6	43.8	36.5	45.0	45.4	51.9	50.1	49.7	46.1	51.8	47.3
PLSD (5%)		3.4	5.5	2.1	1.7	3.0	3.1	2.7	0.6	2.8	2.4	1.4	0.6	1.7
PLSD (10%)		2.8	4.5	1.7	1.4	2.4	2.5	2.3	0.5	2.3	1.9	1.2	0.5	1.37
CV		5	8	3	2	5	4	4	1	3	3	2	1	4
P-value		0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	—	0.00	0.00

Table 14.—1996 state-wide variety testing program winter barley protein percents across 11 locations in Oregon.

Variety/ line	Market class	Corvallis sprayed**	Corvallis unsprayed	Hermiston	Klamath			Morrow	North	Ontario	Pendleton	9-site*		
					Falls	LaGrande	Madras	Medford	Moro	County	Valley	average		
<i>Winter barleys</i>		Protein percent (12% moisture basis)												
Gwen	6RF	—	—	10.7	11.6	12.4	10.5	9.8	7.0	8.8	8.7	9.2	9.3	—
Hesk	6RF	9.0	9.0	11.4	10.9	13.2	11.0	9.2	5.1	7.3	7.7	8.3	7.2	8.4
Hesk-Bay	6RF	8.3	8.3	11.3	10.5	12.9	11.2	10.2	5.5	8.4	8.0	8.4	8.1	8.7
Hundred	6RF	9.8	10.3	12.3	10.6	13.0	11.4	9.7	5.5	9.1	8.0	8.8	8.0	9.0
Kold	6RF	8.8	9.0	12.4	10.6	13.3	11.2	9.8	4.8	8.2	9.0	8.8	7.9	8.8
Scio	6RF	9.7	10.0	11.3	10.9	12.2	11.1	11.2	5.5	7.9	9.4	8.9	8.3	9.3
SDM204	6RF	9.7	9.5	—	—	—	7.6	10.8	—	—	7.8	7.4	—	—
Steptoe	6RF	9.8	10.0	10.8	10.4	11.1	9.3	10.3	5.2	7.6	8.8	9.0	7.6	8.7
Strider	6RF	9.0	8.9	11.3	11.7	12.6	10.4	9.8	5.4	7.6	8.8	8.7	8.1	8.8
Average		9.4	9.6	11.4	10.9	12.6	10.4	10.0	5.5	8.1	8.5	8.7	8.1	8.9
PLSD (5%)		0.7	0.8	1.1	0.6	0.6	2.1	1.1	0.7	NS	0.8	0.3	0.6	0.5
PLSD (10%)		0.6	0.7	0.9	0.5	0.5	1.8	0.9	0.5	NS	0.7	0.3	0.5	0.4
CV		4	5	5	3	3	12	8	7	12	5	2	4	6
P-value		0.00	0.00	0.03	0.00	0.00	0.03	0.00	0.00	0.36	0.00	0.00	0.00	0.04

*Does not include Hermiston and LaGrande due to hail and frost damage, respectively.

**Gwen, Sunstar, Hesk, Scio sprayed with Tilt (4 oz/a) at Feekes 5; Hesk+Baytan, Hundred, Kold, Strider, SDM, Steptoe sprayed with Tilt at Feekes 9

Table 15.—Agronomic data for 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 16.—Yields and agronomic data for winter oats grown in western Oregon.

Variety	1967-71	1981	1986	1986	1986	1995	1995	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 17.—Yield, test weight, heading date, plant height, and protein ranges and averages for eight winter oat varieties and lines grown in Pendleton, OR, 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

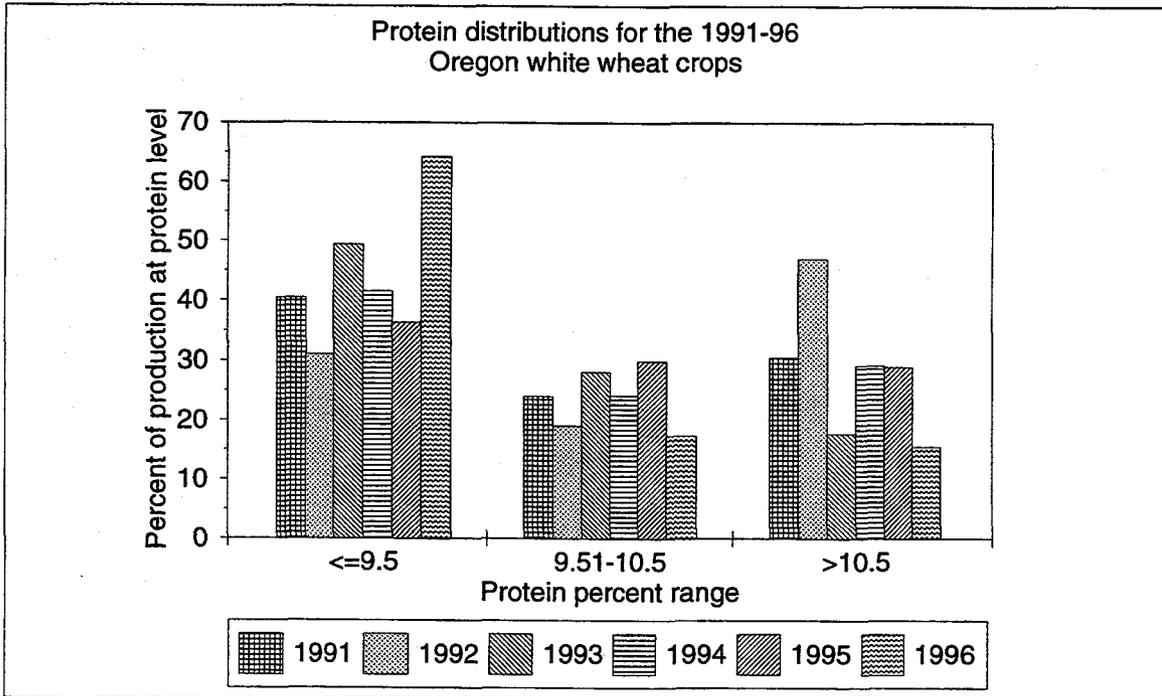
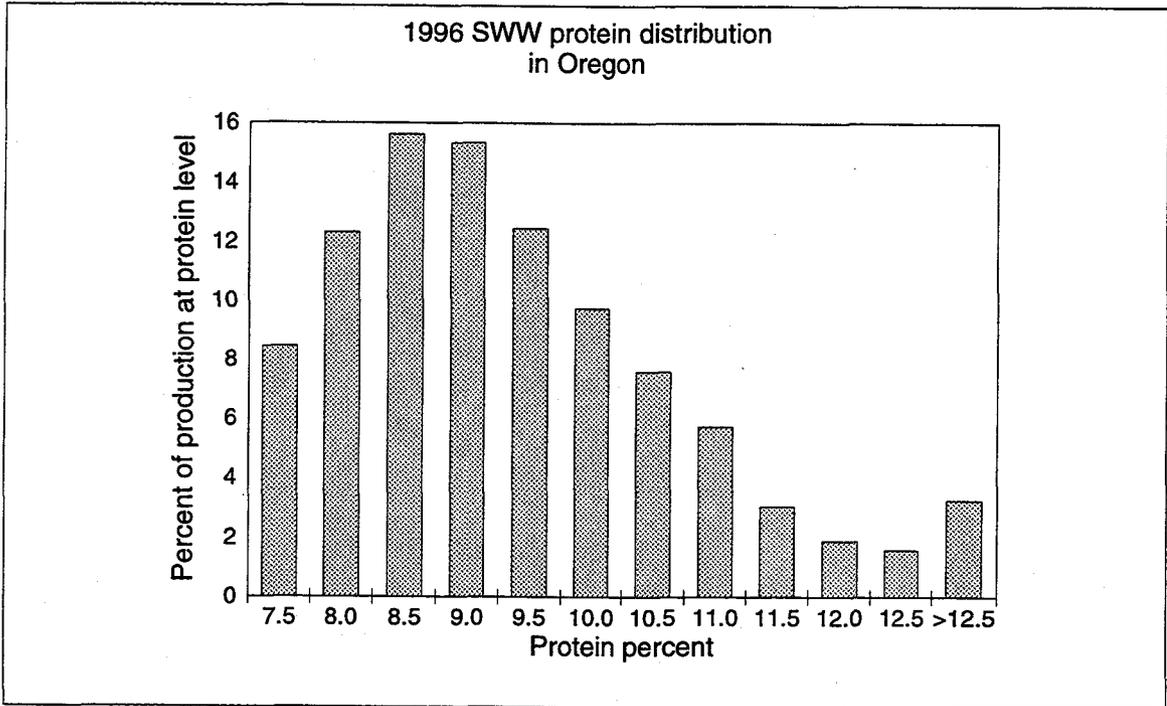
across state lines. For the seed to be properly labeled, the date of test and germination percentage both must be stated. If you buy seed with a low germination, you are paying for dead seed. There are a number of seed labs in Oregon that do seed testing. Most only accept untreated seed for full seed 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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