**Special Report 775**
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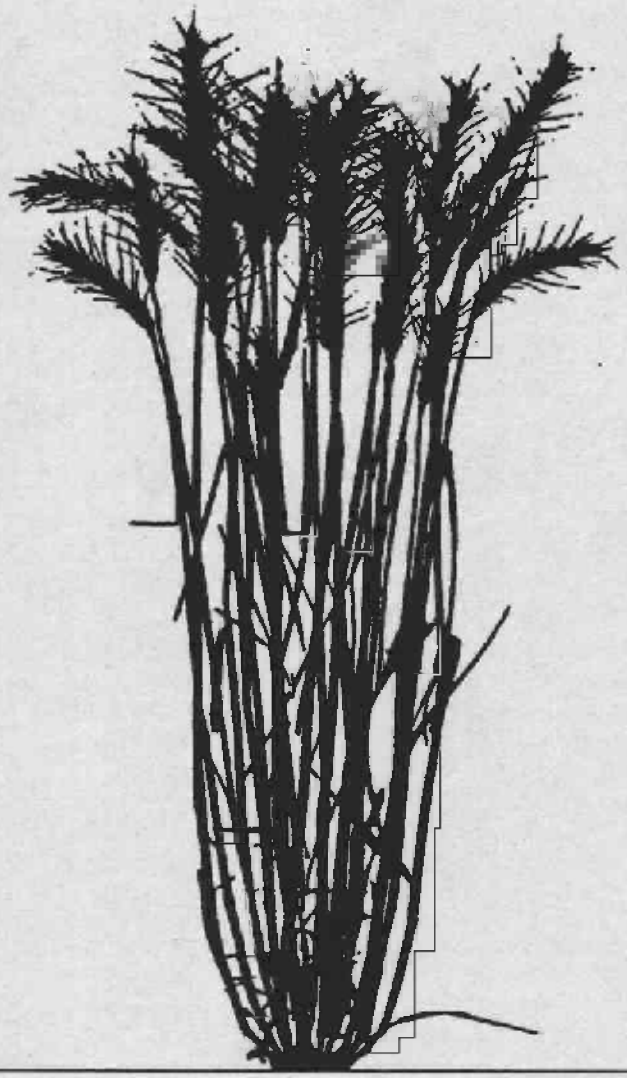
# Winter Cereal Varieties for 1998



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# Winter Cereal Varieties for 1998

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This publication describes winter wheats, barleys, oats, triticales, and ryes commonly grown in Oregon and provides, when available, yield and agronomic data to aid in variety selection. The wheat, barley, and triticale data presented in this publication were generated through a statewide variety testing program. This program was initiated in 1992 with funding and support dollars provided by the Oregon 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.

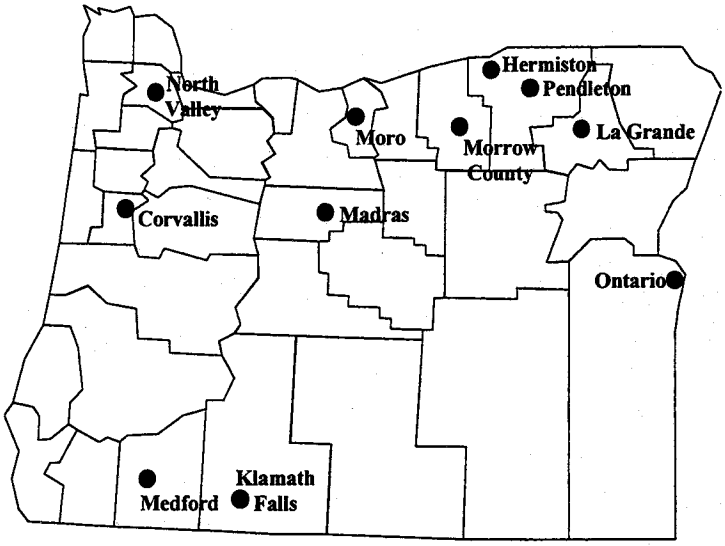
| Site | Coordinator/Cooperator |
|---|---|
| Corvallis | Karow/Marx |
| Hermiston | Morrow/Reed/Smiley |
| Klamath | Dovel |
| LaGrande | Morrow/Smiley |
| | Grower: John Cuthbert |
| Madras | James/Bohle |
| Medford | Roseberg |
| Moro | Morrow/Jacobsen/Smiley |
| Morrow | Morrow/Smiley |
| | Grower: 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, this data would not be available.

Data presented in Table 11 were obtained from an on-farm winter wheat drill strip testing program coordinated by Russ Karow and funded by STEEPII. In 1997, drill strip trials were conducted by growers in cooperation with county agents at 11 sites across the state. Seed for the 1997 program was provided by Anderson Seeds (Ione), Corvallis Feed and Seed, 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

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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 was present at economically significant levels in western Oregon and the Klamath Basin in 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 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, 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 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 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. Hard white wheats have yet to be 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/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/.

## 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 |
| 1997 heading, height, and lodging | Table 4 |
| 1997 yield data | Table 5 |
| 1997 yield as percent of trial average | Table 6 |
| 1996 yield data | Table 7 |
| 1995-97 yield data | Table 8 |
| 1997 test weight data | Table 9 |
| 1997 protein data | Table 10 |
| Drill strip yield data (wheat only) | Table 11 |


## Soft White Common and Club Winter Wheats

**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.

**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.

**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 *Septoria tritici* limits production. Foundation seed will be available in 1999.

**GENE** (OR8300801) is an awnletted, 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 now appears to be 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. It has only fair winter hardiness.

**HILLER** (WA7729) is a club wheat released by WSU in 1997. Hiller has exhibited excellent yield potential across environments and has above-average quality. There initially was concern about its ability to consistently grade as club wheat, but recent experience would indicate this is not a problem. Foundation seed is available.

**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 the 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 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 soft white 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.

**TEMPLE** (OR92CL0054) is a high-yielding, stripe rust - and foot rot-resistant club wheat with above-average milling and baking quality. It was released by OSU in 1998. Temple was bred by Dr. Pam Zwer. Temple has shown above-average yield performance across traditional club wheat producing areas. Foundation seed will be available in 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 appears to have Cephalosporium stripe resistance similar to that of Madsen, but has yet to be field verified. Foundation seed will be available in 1999.

**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.

## Hard White Wheats

**IVORY** (OR850513) is a hard white wheat released by OSU in 1998. It has a yield potential similar to commonly grown soft wheats. Ivory is earlier heading and similar in height to Stephens, but weaker strawed. Winterhardiness is similar to Gene. Ivory has acceptable quality for several types of oriental noodles. Foundation seed will be available in 2000.

## 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. If it continues to perform well in Oregon trials, contacts will need to be made to develop licensing agreements for seed production in the Pacific Northwest.

**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 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.

**RS87** is a set of triticale lines 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:


| | |
|---|---|
| General agronomic and disease ratings | Table 3 |
| 1997 heading, height, and lodging | Table 12 |
| 1997 yield data | Table 13 |
| 1997 yield as percent of trial average | Table 14 |
| 1995-97 yield data | Table 15 |
| 1997 test weight data | Table 16 |
| 1997 protein data | Table 17 |

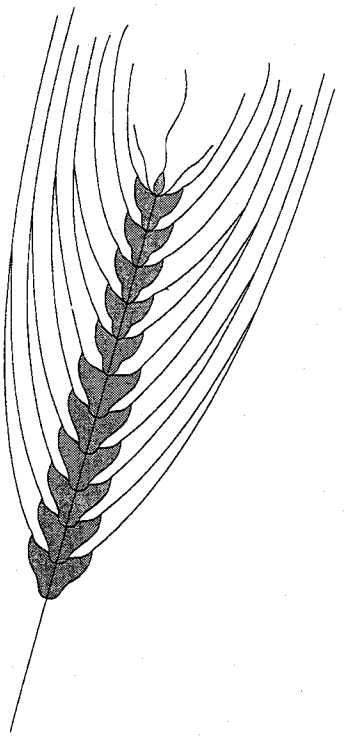

**HOODY** is a hooded (awnless) barley developed by Mat Kolding, retired OSU cereal breeder. It is intended for use as a cereal hay. Seed yields and threshability are poor. Hoody is susceptible to barley stripe rust.

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

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

**STEPTOE** is a medium-height, spring feed grain variety released by WSU in 1973. 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.

**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 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 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. 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. Because breeder seed stocks are not known, only common seed is available.

**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 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 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 has been available locally only occasionally. Contact Michigan Crop Improvement (517-355-7438) in Michigan for possible 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 Year | Released Origin[1] | Emergence[2] index | Winter-[2] hardiness | Maturity | Height[3] | Lodging[4] resistance | Test[2] weight | Chaff[5] color | Head type |
|---|---|---|---|---|---|---|---|---|---|---|
| Common white | | | | | | | | | | |
| 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 | 1997? | WA | 5 | 6 | mid-late | MT | MR | 8 | W | Awned |
| Crew | 1982 | WA | 5 | - | midseason | MT | MR | 6 | W-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 |
| 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 |
| 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 |
| 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 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 | Cephalo-[1] | | Foot[3] | Take | Snow |
|---|---|---|---|---|---|---|---|---|---|---|
| | Stripe | Leaf | Common | Dwarf | smut | sporium | Septoria[2] | rot | all | mold |
| Common white | | | | | | | | | | |
| Basin | MR | MS | R | MR | MS | 6 | -- | -- | -- | S |
| Cashup | MR | MS | R | S | MS | 6 | -- | S | -- | S |
| Daws | MR | MS | R | S | MS | 3 | MS | S | S | S |
| 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 | -- |
| Hiller | R | MR | MR | MS | -- | S | -- | S | S | |
| Hyak | MS | MR | MS | MS | S | 4 | S | R | -- | S |
| Moro | S | S | R | MR | MR | 4 | -- | S | S | MS |
| Rely | MR | MR | MS | S | VS | 4 | -- | S | S | S |
| Rohde | MR | MS | MR | S | VS | 4 | S | VS | -- | S |
| Temple | R | MR | -- | -- | -- | -- | -- | MR | -- | -- |
| Tres | S | M | MS | S | VS | 4 | -- | S | S | S |
| Hard red | | | | | | | | | | |
| Andrews | MR | S | R | MR | R | 2 | -- | S | -- | MR |
| Batum | MR | S | R | MS | R | -- | MS | S | S | S |
| Blizzard | MS | MR | R | R | R | -- | -- | S | S | MR |
| Bonneville | MR | MR | -- | R | -- | -- | -- | -- | -- | MR |
| Buchanan | MR | MS | MR | S | R | -- | -- | S | S | MR |
| 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 Pseudocercosporella 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 |
| 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 |
| 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. — 1997 state-wide variety testing program winter wheat and triticale Julian heading dates, heights, and lodging across locations in Oregon.**

| Variety or line | Market class | Julian heading date | | | Plant height (inches) | | | | | Lodging (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Corvallis | Madras | Ontario | Corvallis | Madras | Medford | North Valley | Ontario | Medford |
| Coda | Club | 139 | 158 | 141 | 42 | 36 | 44 | 45 | 37 | 29 |
| Foote | SW | 133 | 162 | 140 | 40 | 30 | 46 | 44 | 39 | 3 |
| Gene | SW | 127 | 151 | 137 | 36 | 29 | 37 | 36 | 34 | 0 |
| Hiller | Club | 137 | — | 141 | 40 | — | 45 | 40 | 38 | 0 |
| Hybritech 1017 | SW | 132 | 151 | 142 | 43 | 35 | 46 | 43 | 39 | 0 |
| Hybritech 1019 | SW | 135 | 151 | 133 | 39 | 31 | 44 | 41 | 35 | 0 |
| Hybritech 1020 | SW | 132 | 151 | 139 | 43 | 33 | 46 | 44 | 37 | 0 |
| ID14502B | SW | 129 | 151 | 131 | 41 | 36 | 41 | 38 | 32 | 0 |
| ID467 | HR | 136 | 147 | 137 | 43 | 28 | 46 | 44 | 37 | 0 |
| ID86-10420A | SW | 137 | 152 | 139 | 47 | 33 | 48 | 47 | 41 | 4 |
| MacVicar | SW | 135 | 151 | 131 | 40 | 32 | 42 | 40 | 35 | 1 |
| Madsen | SW | 136 | 152 | 139 | 38 | 31 | 42 | 40 | 35 | 0 |
| Madsen+Stephens | SW | 135 | 158 | 131 | 38 | 32 | 40 | 40 | 34 | 0 |
| Malcolm | SW | — | — | 139 | — | — | 40 | — | 35 | 0 |
| OR870012 | SW | 136 | 152 | 131 | 40 | 35 | 43 | 40 | 35 | 0 |
| OR870082 | SW | 130 | 157 | 139 | 35 | 35 | 41 | 36 | 33 | 9 |
| ORCL0049 | Club | 138 | 157 | 140 | 38 | 33 | 41 | 38 | 32 | 0 |
| Rely | Club | 138 | 160 | 139 | 43 | 37 | 46 | 46 | 37 | 20 |
| Rod | SW | 138 | 159 | 140 | 39 | 34 | 41 | 40 | 34 | 0 |
| Rohde | Club | 136 | 156 | 139 | 42 | 32 | 44 | 42 | 33 | 19 |
| Stephens-Baytan | SW | 134 | — | — | 39 | — | 42 | 39 | — | 0 |
| Stephens-Dividend | SW | 134 | 150 | 131 | 40 | 31 | 41 | 39 | 37 | 0 |
| Stephens-Raxil | SW | 134 | — | 131 | 39 | — | 41 | 40 | 36 | 0 |
| Stephens-Vit., no Gaucho | SW | 134 | 150 | 131 | 41 | 30 | 42 | 40 | 35 | 0 |
| Stephens-Vitavax | SW | 134 | 150 | 131 | 40 | 30 | 40 | 39 | 35 | 0 |
| Temple | Club | 130 | 154 | 131 | 42 | 32 | 47 | 41 | 34 | 31 |
| W301 | SW | 135 | 151 | 131 | 40 | 31 | 41 | 40 | 35 | 0 |
| WA7793 | Club | 137 | 159 | 141 | 42 | 34 | 46 | 44 | 36 | 0 |
| Weatherford | SW | 136 | 151 | 141 | 41 | 32 | 43 | 43 | 36 | 0 |
| Yamhill | SW | 135 | 159 | — | 46 | 39 | 49 | 46 | — | 1 |
| Bogo | Triticale | 132 | 143 | — | 48 | 36 | — | 45 | — | — |
| Celia | Triticale | — | 151 | — | — | 32 | — | — | — | — |
| Trit 6600 | Triticale | — | 149 | — | — | 39 | — | — | — | — |
| RS87 123 | Triticale | — | — | 130 | — | — | — | — | 46 | — |
| RS87 183 | Triticale | — | — | 131 | — | — | — | — | 43 | — |
| RS87 202 | Triticale | — | — | 131 | — | — | — | — | 42 | — |
| Trical 102 | Triticale | — | — | 130 | — | — | — | — | 54 | — |
| Average | | 134 | 153 | 136 | 41 | 33 | 43 | 41 | 37 | 4 |
| PLSD (5%) | | 1 | 2 | — | 3 | 2 | 3 | 2 | — | 11 |
| PLSD (10%) | | 1 | 2 | — | 3 | 2 | 2 | 2 | — | 9 |
| CV | | 0 | 1 | — | 5 | 4 | 4 | 3 | — | 196 |
| P-value | | 0.00 | 0.00 | — | 0.00 | 0.00 | 0.00 | 0.00 | — | 0.00 |

**Table 5.—1997 state-wide variety testing program winter wheat and triticale yield data across 11 locations in Oregon.**

| Variety or line | Market class | Corvallis | Hermiston | Klamath Falls | LaGrande | Madras | Medford | Moro | Morrow County | North Valley | Ontario | Pendleton | 11-site average | 11-site percent of average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Yield (60 lb bu/a; 10% moisture) | | | | | | | | |
| Coda | Club | 47 | 93 | 62 | 136 | 109 | 128 | 81 | 74 | 116 | 107 | 94 | 95 | 102 |
| Foote | 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 |
| ID14502B | SW | 93 | 77 | 68 | — | 124 | 126 | 94 | 68 | 105 | 119 | 71 | — | — |
| 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 | 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 | 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 | — |

**Table 6.—1997 Oregon state-wide variety testing program winter wheat and triticale yields as a percent of trial average.**

| Variety or line | Market class | Corvallis | Hermiston | Klamath Falls | LaGrande | Madras | Medford | Moro | Morrow County | North Valley | Ontario | Pendleton |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Yield (percent of trial average) | | | | | | |
| Gene | SW | 83 | 108 | 94 | 82 | 91 | 91 | 102 | 85 | 88 | 112 | 88 |
| Hiller | Club | 97 | 116 | 54 | 107 | — | 96 | 118 | 104 | 97 | 113 | 113 |
| Hybritech 1017 | SW | 119 | 103 | 137 | 96 | 116 | 126 | 79 | 94 | 112 | 94 | 106 |
| Hybritech 1019 | SW | 106 | 104 | 101 | 99 | 106 | 117 | 115 | 110 | 119 | 105 | 106 |
| Hybritech 1020 | SW | 111 | 102 | 109 | 106 | 105 | 123 | 84 | 102 | 103 | 121 | 110 |
| ID14502B | SW | 114 | 87 | 112 | — | 111 | 99 | 119 | 119 | 90 | 108 | 101 |
| ID467 | HR | 72 | — | 89 | — | 107 | 108 | — | — | 108 | 101 | — |
| ID86-10420A | SW | 119 | 85 | 77 | — | 99 | 109 | 82 | 81 | 101 | 99 | 105 |
| MacVicar | SW | 114 | 106 | 91 | 107 | 110 | 103 | 89 | 101 | 96 | 91 | 58 |
| Madsen | SW | 83 | 99 | 117 | 102 | 93 | 98 | 98 | 107 | 91 | 106 | 108 |
| Madsen+Stephens | SW | 86 | 97 | 117 | 92 | 108 | 87 | 104 | 101 | 94 | 94 | 100 |
| Malcolm | SW | — | 90 | — | 93 | — | 84 | 103 | 98 | — | 101 | 84 |
| OR870012 | SW | 102 | 107 | 136 | 111 | 106 | 107 | 88 | 58 | 97 | 108 | 92 |
| OR870082 | SW | 90 | 93 | 63 | 84 | 108 | 97 | 101 | 90 | 98 | 75 | 96 |
| Foote | SW | 87 | 90 | 107 | 90 | 92 | 109 | 78 | 72 | 118 | 82 | 93 |
| Weatherford | SW | 100 | 103 | 110 | 107 | 97 | 91 | 100 | 112 | 101 | 97 | 97 |
| ORCL0049 | Club | 96 | 110 | 106 | 103 | 99 | 103 | 95 | 100 | 86 | 98 | 78 |
| Temple | Club | 84 | 101 | 86 | 107 | 97 | 91 | 105 | 107 | 105 | 96 | 129 |
| Rely | Club | 77 | 108 | 61 | 101 | 104 | 102 | 102 | 102 | 105 | 101 | 114 |
| Rod | SW | 95 | 110 | 96 | 99 | 103 | 97 | 102 | 102 | 109 | 106 | 110 |
| Rohde | Club | 102 | 96 | 87 | 98 | 103 | 111 | 105 | 100 | 99 | 112 | 105 |
| Stephens-Baytan | SW | 107 | — | — | — | — | 100 | — | — | 98 | — | — |
| Stephens-Dividend | SW | 108 | 94 | 111 | 95 | 110 | 90 | 110 | 109 | 95 | 116 | 92 |
| Stephens-Raxil | SW | 105 | 98 | 116 | 96 | — | 94 | 114 | 109 | 98 | 119 | 94 |
| Stephens-Vitavax | SW | 109 | 90 | 67 | 109 | 106 | 94 | 99 | 95 | 98 | 116 | 91 |
| Stephens-Vit., no Gaucho | SW | 99 | 97 | 116 | 100 | 106 | 92 | 89 | 101 | 92 | 97 | 89 |
| W301 | SW | 114 | 97 | 106 | 97 | 110 | 89 | 95 | 96 | 97 | 99 | 97 |
| Coda | Club | 58 | 104 | 101 | 108 | 97 | 101 | 103 | 131 | 100 | 97 | 134 |
| WA7793 | Club | 95 | 105 | 88 | 107 | 97 | 100 | 109 | 114 | 105 | 86 | 113 |
| Yamhill | SW | 97 | — | — | — | 97 | 88 | — | — | 94 | — | — |
| Bogo | Triticale | 172 | — | 137 | — | 110 | — | — | — | 108 | — | — |
| Celia | Triticale | — | — | — | — | 52 | — | — | — | — | — | — |
| Trit 6600 | Triticale | — | — | — | — | 54 | — | — | — | — | — | — |
| RS87 123 | Triticale | — | — | — | — | — | — | — | — | — | 106 | — |
| RS87 183 | Triticale | — | — | — | — | — | — | — | — | — | 93 | — |
| RS87 202 | Triticale | — | — | — | — | — | — | — | — | — | 104 | — |
| Trical 102 | Triticale | — | — | — | — | — | — | — | — | — | 36 | — |
| Average yield (bu/a) | | 82 | 89 | 61 | 126 | 112 | 127 | 79 | 57 | 117 | 110 | 70 |

**Table 7.—1996 state-wide variety testing program winter wheat and triticale yield data across 11 locations in Oregon.**

| Variety or line | Market class | Corvallis | Hermiston | Klamath Falls | LaGrande | Madras | Medford | Moro | Morrow County | North Valley* | Ontario | Pendleton | 9-site** average | 9-site** percent of average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Yield (bu/a; 60 lb bu; 10% moisture) | | | | | | | | |
| Daws | SW | 125 | 97 | 58 | 33 | 136 | 77 | 64 | 46 | 74 | 127 | 79 | 87 | 100 |
| Gene | SW | 105 | 86 | 30 | 11 | 137 | 81 | 76 | 37 | 96 | 130 | 86 | 86 | 99 |
| Hill 81 | SW | 125 | 104 | 48 | 79 | 119 | 86 | 65 | 54 | 75 | 135 | 86 | 88 | 100 |
| Hiller | Club | 122 | 93 | 44 | 20 | 90 | 82 | 75 | 58 | 64 | 113 | 89 | 82 | 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 | 105 |
| Madsen | SW | 129 | 93 | 52 | 51 | 121 | 96 | 70 | 57 | 64 | 143 | 81 | 90 | 103 |
| Madsen+Stephens | SW | 119 | 99 | 48 | 34 | 132 | 79 | 69 | 49 | 87 | 149 | 76 | 90 | 102 |
| Malcolm | SW | 120 | 93 | 60 | 39 | 115 | 80 | 67 | 33 | 78 | 148 | 66 | 85 | 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 | 106 |
| Rohde | Club | 98 | 94 | 56 | 19 | 111 | 90 | 67 | 55 | 91 | 128 | 71 | 85 | 97 |
| Stephens - Vitavax | SW | 120 | 100 | 58 | 36 | 143 | 86 | 76 | 46 | 103 | 152 | 75 | 95 | 109 |
| Stn-Vit+Gaucho | SW | 124 | 97 | 62 | 36 | 144 | 95 | 77 | 45 | 97 | 157 | 76 | 97 | 111 |
| 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 | 104 |
| Yamhill | SW | 105 | — | — | — | 92 | 79 | — | — | 97 | — | — | — | — |
| ID467 | HR | 80 | 86 | 42 | 36 | 97 | 88 | 59 | 49 | 57 | 134 | 84 | 77 | 87 |
| ID8614502b | SW | 127 | 90 | 54 | 36 | 142 | 80 | 67 | 52 | 87 | 138 | 84 | 92 | 105 |
| ORCL0049 | Club | 123 | 92 | — | 24 | — | — | 61 | 43 | — | — | 82 | — | — |
| ORCL0054 | 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 | 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 (bu/a) | | 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 | — |
| PLSD (10%) | | 16 | 15 | 15 | 8 | 22 | NS | 10 | 9 | NS | 9 | 8 | 8 | — |
| CV | | 10 | 12 | 22 | 17 | 13 | 15 | 11 | 12 | 26 | 5 | 8 | 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 | — |

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

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

**Table 8.—1995-97 state-wide variety testing program winter wheat yield data across 11 locations in Oregon.**

| Variety | Market class | Corvallis | Hermiston* | Klamath Falls | LaGrande** | Madras | Medford | Moro | Morrow | North Valley*** | Ontario | Pendleton | All sites average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***1995*** | | | | | Yield (bu/a; 60 lb bu; 10% moisture) | | | | | | | | |
| Gene | SW | 109 | — | — | 96 | 89 | 114 | 56 | 50 | 105 | 143 | 93 | 95 |
| MacVicar | SW | 81 | — | — | 79 | 104 | 124 | 49 | 34 | 96 | 150 | 85 | 89 |
| Madsen | SW | 86 | — | — | 75 | 98 | 105 | 53 | 56 | 103 | 137 | 94 | 90 |
| Malcolm | SW | 90 | — | — | 105 | 113 | 129 | 57 | 53 | 117 | 150 | 80 | 99 |
| Rely | Club | 56 | — | — | 85 | 93 | 123 | 56 | 41 | 84 | — | 74 | 76 |
| Rod | SW | 79 | — | — | 88 | 115 | 115 | 58 | 48 | 99 | — | 76 | 85 |
| Rohde | Club | 70 | — | — | 84 | 105 | 133 | 54 | 47 | 123 | 131 | 70 | 91 |
| Stephens | SW | 88 | — | — | 77 | 105 | 106 | 56 | 47 | 102 | 128 | 96 | 89 |
| W301 | SW | 84 | — | — | 89 | 97 | 97 | 55 | 49 | 76 | 146 | 88 | 87 |
| 1995 trial average (bu/a) | | 78 | — | — | 85 | 103 | 114 | 52 | 44 | 105 | 142 | 84 | 90 |
| ***1996*** | | | | | | | | | | | | | |
| Gene | SW | 105 | 86 | 30 | 11 | 137 | 81 | 76 | 37 | 96 | 130 | 86 | 80 |
| MacVicar | SW | 142 | 95 | 46 | 34 | 129 | 87 | 74 | 38 | 94 | 150 | 72 | 87 |
| Madsen | SW | 129 | 93 | 52 | 51 | 121 | 96 | 70 | 57 | 64 | 143 | 81 | 87 |
| Malcolm | SW | 120 | 93 | 60 | 39 | 115 | 80 | 67 | 33 | 78 | 148 | 66 | 82 |
| Rely | Club | 86 | 90 | 34 | 40 | 112 | 91 | 59 | 51 | 102 | — | 78 | 74 |
| Rod | SW | 116 | 108 | 57 | 63 | 124 | 90 | 79 | 57 | 89 | 137 | 89 | 92 |
| Rohde | Club | 98 | 94 | 56 | 19 | 111 | 90 | 67 | 55 | 91 | 128 | 71 | 80 |
| Stephens | SW | 120 | 100 | 58 | 36 | 143 | 86 | 76 | 46 | 103 | 152 | 75 | 90 |
| W301 | SW | 116 | 91 | 68 | 38 | 133 | 84 | 69 | 42 | 85 | 151 | 75 | 86 |
| 1996 trial average (bu/a) | | 114 | 97 | 52 | 36 | 121 | 84 | 67 | 53 | 82 | 136 | 80 | 84 |
| ***1997*** | | | | | | | | | | | | | |
| Gene | SW | 68 | 96 | 58 | 103 | 102 | 116 | 81 | 49 | 103 | 124 | 61 | 87 |
| MacVicar | SW | 94 | 94 | 56 | 135 | 123 | 130 | 70 | 58 | 112 | 100 | 40 | 92 |
| Madsen | SW | 68 | 88 | 71 | 128 | 104 | 125 | 78 | 61 | 106 | 117 | 76 | 93 |
| Malcolm | SW | — | 80 | — | 117 | — | 107 | 82 | 56 | — | 111 | 59 | 87 |
| Rely | Club | 63 | 95 | 37 | 127 | 116 | 130 | 81 | 58 | 122 | 111 | 79 | 93 |
| Rod | SW | 78 | 97 | 58 | 125 | 116 | 124 | 81 | 58 | 127 | 117 | 76 | 96 |
| Rohde | Club | 84 | 85 | 53 | 124 | 116 | 141 | 83 | 57 | 116 | 124 | 73 | 96 |
| Stephens | SW | 89 | 80 | 41 | 137 | 119 | 120 | 78 | 54 | 114 | 127 | 63 | 93 |
| W301 | SW | 93 | 86 | 65 | 122 | 123 | 113 | 75 | 55 | 113 | 109 | 68 | 93 |
| 1997 trial average (bu/a) | | 82 | 89 | 61 | 126 | 112 | 127 | 79 | 57 | 117 | 110 | 70 | 94 |
| ***1995-1997 average*** | | | | | | | | | | | | | |
| Gene | | 94 | 91 | 44 | 70 | 109 | 104 | 71 | 45 | 101 | 132 | 80 | 87 |
| MacVicar | | 106 | 94 | 51 | 83 | 119 | 114 | 64 | 43 | 101 | 134 | 66 | 89 |
| Madsen | | 94 | 90 | 61 | 85 | 108 | 109 | 67 | 58 | 91 | 132 | 83 | 90 |
| Malcolm | | — | 86 | — | 87 | — | 105 | 69 | 47 | — | 136 | 68 | 89 |
| Rely | | 68 | 93 | 35 | 84 | 107 | 115 | 65 | 50 | 103 | — | 77 | 81 |
| Rod | | 91 | 103 | 58 | 92 | 118 | 110 | 73 | 54 | 105 | — | 81 | 91 |
| Rohde | | 84 | 90 | 54 | 76 | 110 | 121 | 68 | 53 | 110 | 128 | 71 | 89 |
| Stephens | | 99 | 90 | 50 | 83 | 122 | 104 | 70 | 49 | 106 | 136 | 78 | 91 |
| W301 | | 98 | 88 | 66 | 83 | 118 | 98 | 66 | 48 | 91 | 135 | 77 | 89 |
| Average yield (1995-97) | | 91 | 93 | 56 | 82 | 112 | 108 | 66 | 51 | 101 | 129 | 78 | 89 |
| ***1995-1997 percent of trial average*** | | | | | | | | | | | | | |
| Gene | | 103 | 98 | 78 | 85 | 97 | 96 | 107 | 88 | 100 | 102 | 102 | 98 |
| MacVicar | | 115 | 102 | 90 | 101 | 106 | 105 | 97 | 85 | 99 | 103 | 84 | 101 |
| Madsen | | 103 | 98 | 109 | 103 | 96 | 100 | 101 | 113 | 90 | 102 | 107 | 101 |
| Malcolm | | — | 93 | — | 106 | — | 97 | 104 | 92 | — | 106 | 87 | 101 |
| Rely | | 75 | 100 | 63 | 102 | 96 | 106 | 99 | 98 | 102 | — | 99 | 91 |
| Rod | | 99 | 111 | 102 | 112 | 106 | 101 | 110 | 106 | 104 | — | 103 | 102 |
| Rohde | | 92 | 97 | 97 | 92 | 99 | 112 | 103 | 104 | 109 | 99 | 91 | 100 |
| Stephens | | 108 | 97 | 88 | 101 | 109 | 96 | 106 | 96 | 105 | 105 | 100 | 102 |
| W301 | | 107 | 95 | 118 | 101 | 105 | 90 | 100 | 94 | 90 | 105 | 99 | 100 |

* Hermiston had hail damage in 1996

** La Grande had frost damage in 1996

***North Valley yields in some plots were affected by heavy infestions of Hoelon-resistant ryegrass in 1996.

**Table 9.—1997 state-wide variety testing program winter wheat and triticale test weight data across 11 locations in Oregon.**

| Variety or line | Market class | Corvallis | Hermiston | Klamath Falls | LaGrande | Madras | Medford | Moro | Morrow County | North Valley | Ontario | Pendleton | 10-site* average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Test weight (lb/bu) | | | | | | | |
| Coda | Club | 56.4 | 60.9 | 59.3 | 64.0 | 61.4 | 58.0 | 59.4 | 62.5 | 61.0 | 59.5 | 60.2 | 60.6 |
| Foote | SW | 57.3 | 59.1 | 57.3 | 62.1 | 58.1 | 60.5 | 58.1 | 60.8 | 59.5 | 59.2 | 58.2 | 59.3 |
| Gene | SW | 52.4 | 59.7 | 57.3 | 61.1 | 59.9 | 57.0 | 58.0 | 58.5 | 55.2 | 61.4 | 57.0 | 58.5 |
| Hiller | Club | 53.8 | 58.2 | 54.8 | 61.8 | — | 55.3 | 57.3 | 59.3 | 55.7 | 58.3 | 57.8 | 57.6 |
| Hybri 1017 | SW | 58.4 | 59.1 | 57.5 | 62.2 | 59.8 | 59.6 | 57.5 | 59.5 | 59.9 | 59.4 | 57.9 | 59.2 |
| Hybri 1019 | SW | 59.9 | 62.8 | 61.1 | 63.5 | 61.0 | 61.6 | 61.5 | 62.6 | 62.3 | 62.0 | 60.9 | 61.9 |
| Hybri 1020 | SW | 58.1 | 59.4 | 57.3 | 62.2 | 60.5 | 59.0 | 58.6 | 59.8 | 60.5 | 59.4 | 57.6 | 59.4 |
| ID14502B | SW | 58.1 | 59.7 | 58.7 | — | 60.1 | 59.8 | 61.5 | 62.2 | 60.0 | 60.0 | 62.2 | 60.5 |
| ID467 | HR | 55.7 | — | 59.5 | — | 60.4 | 60.2 | — | — | 62.0 | 62.1 | — | — |
| ID86-10420A | SW | 60.6 | 60.3 | 59.2 | — | 61.7 | 60.8 | 59.9 | 59.2 | 61.2 | 59.3 | 59.8 | 60.2 |
| MacVicar | SW | 59.1 | 60.3 | 57.2 | 63.2 | 61.3 | 57.9 | 57.7 | 60.8 | 59.6 | 60.6 | 57.3 | 59.6 |
| Madsen | SW | 57.4 | 60.6 | 57.9 | 62.9 | 60.8 | 58.6 | 59.7 | 61.3 | 59.7 | 60.8 | 59.0 | 60.1 |
| Madsen+Stephens | SW | 58.2 | 59.7 | 57.9 | 61.9 | 60.8 | 57.9 | 59.2 | 59.8 | 59.4 | 58.8 | 58.6 | 59.4 |
| Malcolm | SW | — | 58.8 | — | 61.9 | — | 57.9 | 59.2 | 60.5 | — | 60.4 | 59.2 | — |
| OR870012 | SW | 58.1 | 60.7 | 58.8 | 63.1 | 60.4 | 56.3 | 58.5 | 60.6 | 59.2 | 59.7 | 58.4 | 59.6 |
| OR870082 | SW | 57.9 | 61.1 | 58.2 | 63.3 | 62.2 | 59.4 | 61.0 | 62.3 | 60.5 | 59.8 | 60.9 | 60.9 |
| ORCL0049 | Club | 55.1 | 57.7 | 53.8 | 60.8 | 61.1 | 58.2 | 57.8 | 59.9 | 58.9 | 57.0 | 58.5 | 58.4 |
| Rely | Club | 54.4 | 58.3 | 56.3 | 62.6 | 59.1 | 59.7 | 58.8 | 60.1 | 60.0 | 61.1 | 58.8 | 59.5 |
| Rod | SW | 57.7 | 60.8 | 56.5 | 61.7 | 60.7 | 56.2 | 59.1 | 61.2 | 60.4 | 60.7 | 60.4 | 59.8 |
| Rohde | Club | 57.9 | 60.0 | 58.6 | 64.0 | 60.8 | 56.8 | 59.0 | 61.6 | 60.6 | 61.3 | 60.0 | 60.3 |
| Stephens-Baytan | SW | 58.1 | — | — | — | — | 60.7 | — | — | 59.0 | — | — | — |
| Stephens-Dividend | SW | 59.3 | 58.2 | 56.4 | 61.5 | 60.5 | 58.6 | 57.6 | 60.3 | 58.2 | 60.1 | 58.6 | 59.0 |
| Stephens-Raxil | SW | 58.6 | 59.6 | 57.5 | 62.1 | — | 58.2 | 58.3 | 59.0 | 58.6 | 58.9 | 59.1 | 59.0 |
| Stephens-Vit., no Gaucho | SW | 58.1 | 58.0 | 57.9 | 62.0 | 60.1 | 58.0 | 58.7 | 59.8 | 57.7 | 58.0 | 59.4 | 59.0 |
| Stephens-Vitavax | SW | 58.0 | 58.3 | 57.3 | 62.3 | 60.3 | 58.3 | 58.0 | 60.4 | 58.6 | 58.6 | 58.9 | 59.1 |
| Temple | Club | 54.8 | 60.7 | 55.9 | 62.8 | 61.7 | 56.6 | 59.0 | 60.7 | 58.5 | 60.1 | 59.6 | 59.6 |
| W301 | SW | 58.7 | 59.4 | 57.9 | 62.0 | 60.3 | 58.7 | 58.8 | 60.6 | 59.1 | 59.5 | 59.5 | 59.6 |
| WA7793 | Club | 54.7 | 58.0 | 56.2 | 60.8 | 58.6 | 58.8 | 56.8 | 59.5 | 58.6 | 57.1 | 57.1 | 58.2 |
| Weatherford | SW | 59.0 | 60.3 | 59.1 | 63.8 | 60.1 | 59.6 | 60.1 | 62.4 | 60.5 | 61.3 | 59.8 | 60.7 |
| Yamhill | SW | 57.6 | — | — | — | 58.6 | 56.3 | — | — | 57.8 | — | — | — |
| Bogo | Triticale | 55.0 | — | 53.3 | — | 55.5 | — | — | — | 55.9 | — | — | — |
| Celia | Triticale | — | — | — | — | 59.1 | — | — | — | — | — | — | — |
| Trit 6600 | Triticale | — | — | — | — | 54.9 | — | — | — | — | — | — | — |
| RS87 123 | Triticale | — | — | — | — | — | — | — | — | — | 57.6 | — | — |
| RS87 183 | Triticale | — | — | — | — | — | — | — | — | — | 58.1 | — | — |
| RS87 202 | Triticale | — | — | — | — | — | — | — | — | — | 57.8 | — | — |
| Trical 102 | Triticale | — | — | — | — | — | — | — | — | — | 55.7 | — | — |
| Average | | 57.3 | 59.6 | 57.5 | 62.4 | 60.0 | 58.5 | 58.9 | 60.6 | 59.3 | 59.5 | 59.1 | 59.5 |
| PLSD (5%) | | 2.0 | 1.9 | 1.3 | 1.0 | 1.0 | 1.0 | 1.6 | 1.8 | 1.1 | 2.2 | 2.0 | 0.8 |
| PLSD (10%) | | 1.6 | 1.6 | 1.1 | 0.8 | 0.9 | 0.8 | 1.3 | 1.5 | 0.9 | 1.8 | 1.1 | 0.7 |
| CV | | 2 | 2 | 1 | 1 | 1 | 1 | 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 | 0.00 |

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

**Table 10.—1997 state-wide variety testing program winter wheat and triticale protein data across 11 locations in Oregon.**

| Variety or line | Market class | Corvallis | Hermiston | Klamath Falls | LaGrande | Madras | Medford | Moro | Morrow County | North Valley | Ontario | Pendleton | 11-site average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Protein percent (12% moisture basis) | | | | | | | |
| Coda | Club | 10.1 | 8.9 | 9.3 | 11.6 | 9.8 | 10.0 | 7.7 | 8.2 | 8.3 | 9.0 | 8.5 | 9.2 |
| Foote | SW | 10.2 | 10.8 | 10.1 | 11.6 | 9.2 | 9.6 | 7.9 | 8.4 | 8.8 | 11.5 | 10.4 | 9.9 |
| Gene | SW | 11.8 | 9.7 | 10.6 | 12.2 | 10.6 | 10.8 | 8.2 | 9.2 | 9.6 | 11.5 | 9.6 | 10.3 |
| Hiller | Club | 9.3 | 9.3 | 10.1 | 10.6 | | 8.9 | 8.1 | 8.4 | 7.8 | 9.6 | 9.2 | 9.1 |
| Hybri 1017 | SW | 9.3 | 9.7 | 9.1 | 10.7 | 9.3 | 9.6 | 7.8 | 8.9 | 8.3 | 10.1 | 9.4 | 9.3 |
| Hybri 1019 | SW | 9.6 | 10.6 | 9.6 | 10.9 | 9.7 | 10.3 | 7.3 | 8.4 | 8.5 | 10.7 | 9.7 | 9.6 |
| Hybri 1020 | SW | 9.5 | 9.6 | 9.5 | 10.8 | 10.1 | 9.3 | 7.7 | 8.8 | 8.2 | 10.1 | 9.0 | 9.3 |
| ID14502B | SW | 9.7 | 9.1 | 8.9 | — | 8.8 | 9.3 | 7.5 | 7.8 | 8.8 | 9.9 | 9.9 | 9.0 |
| ID467 | HR | 9.9 | — | 9.2 | — | 9.5 | 9.4 | — | — | 8.6 | 10.0 | — | — |
| ID86-10420A | SW | 8.6 | 10.5 | 9.6 | — | 9.5 | 8.8 | 8.3 | 8.9 | 8.0 | 10.3 | 10.0 | 9.2 |
| MacVicar | SW | 9.1 | 9.5 | 9.2 | 10.8 | 9.1 | 9.5 | 8.3 | 9.2 | 8.2 | 10.0 | 10.3 | 9.4 |
| Madsen | SW | 10.1 | 9.7 | 9.5 | 11.2 | 9.6 | 9.3 | 9.2 | 8.4 | 8.4 | 10.0 | 9.4 | 9.5 |
| Madsen+Stephens | SW | 10.1 | 10.1 | 9.3 | 11.1 | 9.3 | 9.8 | 8.9 | 8.7 | 8.4 | 10.2 | 9.7 | 9.6 |
| Malcolm | SW | — | 10.0 | — | 10.6 | — | 9.7 | 8.8 | 7.8 | — | 9.2 | 10.3 | — |
| OR870012 | SW | 9.5 | 9.8 | 10.0 | 11.2 | 9.9 | 9.4 | 8.1 | 8.7 | 8.7 | 10.8 | 10.2 | 9.7 |
| OR870082 | SW | 10.5 | 11.1 | 11.0 | 11.3 | 9.8 | 9.8 | 7.3 | 8.1 | 8.7 | 10.5 | 9.9 | 9.8 |
| ORCL0049 | Club | 8.7 | 9.0 | 9.6 | 10.7 | 9.6 | 10.1 | 7.9 | 8.1 | 8.8 | 9.2 | 9.4 | 9.2 |
| Rely | Club | 10.1 | 9.4 | 9.8 | 10.9 | 9.1 | 9.0 | 6.5 | 7.9 | 8.4 | 10.7 | 8.7 | 9.1 |
| Rod | SW | 9.2 | 9.3 | 9.2 | 10.0 | 8.2 | 9.0 | 6.8 | 8.8 | 8.3 | 9.6 | 9.1 | 8.9 |
| Rohde | Club | 9.0 | 10.1 | 9.5 | 11.3 | 9.2 | 9.5 | 6.8 | 8.1 | 8.9 | 10.3 | 9.3 | 9.3 |
| Stephens-Baytan | SW | 9.7 | — | — | — | — | 9.0 | — | — | 8.3 | — | — | — |
| Stephens-Dividend | SW | 9.7 | 9.8 | 9.3 | 10.5 | 9.8 | 9.5 | 8.5 | 8.5 | 8.6 | 10.6 | 9.8 | 9.5 |
| Stephens-Raxil | SW | 9.5 | 10.1 | 9.4 | 10.7 | | 9.6 | 8.4 | 8.8 | 8.6 | 9.9 | 9.9 | 9.5 |
| Stephens-Vit., no Gaucho | SW | 9.8 | 9.8 | 9.2 | 10.8 | 9.6 | 9.6 | 8.2 | 8.7 | 9.1 | 9.8 | 9.9 | 9.5 |
| Stephens-Vitavax | SW | 9.6 | 9.2 | 9.3 | 10.8 | 9.6 | 9.6 | 7.8 | 8.7 | 8.3 | 10.6 | 9.7 | 9.4 |
| Temple | Club | 9.5 | 9.2 | 9.7 | 11.0 | 9.8 | 8.6 | 7.7 | 7.7 | 7.7 | 11.0 | 9.3 | 9.2 |
| W301 | SW | 9.6 | 9.9 | 9.2 | 10.7 | 9.5 | 9.9 | 7.7 | 8.3 | 8.3 | 10.1 | 9.8 | 9.4 |
| WA7793 | Club | 8.5 | 9.8 | 9.6 | 11.1 | 9.3 | 9.1 | 7.3 | 7.6 | 8.2 | 10.1 | 9.0 | 9.0 |
| Weatherford | SW | 9.5 | 9.6 | 10.0 | 11.2 | 9.6 | 10.2 | 8.3 | 9.0 | 8.5 | 10.6 | 9.9 | 9.7 |
| Yamhill | SW | 9.9 | — | — | — | 9.3 | 9.4 | — | — | 7.6 | — | — | — |
| Bogo | Triticale | 7.9 | — | 8.9 | — | 8.5 | — | — | — | 8.2 | — | — | — |
| Celia | Triticale | — | — | — | — | 8.5 | — | — | — | — | — | — | — |
| Trit 6600 | Triticale | — | — | — | — | 8.6 | — | — | — | — | — | — | — |
| Trical 102 | Triticale | — | — | — | — | — | — | — | — | — | 10.6 | — | — |
| RS87 123 | Triticale | — | — | — | — | — | — | — | — | — | 9.3 | — | — |
| RS87 183 | Triticale | — | — | — | — | — | — | — | — | — | 9.0 | — | — |
| RS87 202 | Triticale | — | — | — | — | — | — | — | — | — | 9.6 | — | — |
| Average | | 9.6 | 9.8 | 9.6 | 11.0 | 9.4 | 9.5 | 7.9 | 8.4 | 8.4 | 10.1 | 9.6 | 9.4 |
| PLSD (5%) | | 0.8 | 0.9 | 0.7 | 0.7 | 0.6 | 0.8 | NS | 1.5 | 0.6 | 1.2 | 0.7 | 0.4 |
| PLSD (10%) | | 0.6 | 0.8 | 0.6 | 0.6 | 0.5 | 0.7 | NS | 0.5 | 0.5 | 1.0 | 0.6 | 0.3 |
| CV | | 5 | 6 | 4 | 4 | 4 | 6 | 12 | 4 | 5 | 8 | 5 | 5 |
| P-value | | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |

**Table 11. —1997 grower drill strip winter wheat variety tests across Oregon and southeast Washington. Sites are listed in order of descending average yield.**

**Yield**

| Variety | Rudden-klau Amity | Hales Midway | Klages Joseph | Nichols Dayton,WA | Miller Dufur | Macnab Moro | Stonebrink Enterprise | Starvation Farms Morrow | Buether Kent | Weimar Clem | Rietmann Condon | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Yield (bu/a; "as is" grain moisture) | | | | | | |
| Gene | 103 | 90 | 80 | 90 | 80 | 60 | 55 | 61 | 59 | 61 | 48 | 60 |
| MacVicar | 105 | 86 | 74 | 81 | 71 | 73 | 72 | 59 | 64 | 57 | 41 | 60 |
| Madsen | 118 | 81 | 83 | 78 | 75 | 82 | 70 | 62 | 55 | 58 | 44 | 58 |
| Rod | 108 | 99 | 87 | 93 | 95 | 82 | 62* | 69 | 66 | 62 | 38 | 66 |
| Rohde | 84 | 83 | 97 | 75 | 83 | — | 40* | 53 | 59 | 53 | 37 | 55 |
| Stephens | 97 | 88 | 93 | 83 | 81 | 74 | 72 | 61 | 63 | 56 | 45 | 60 |
| Crew/Hyak | — | — | — | — | 89 | — | — | — | — | — | — | — |
| Hiller | — | 101 | — | 85 | 89 | — | 64 | 71 | 64 | 60 | — | — |
| Hybritech 1017 | 122 | 90 | — | — | 80 | — | — | — | — | — | — | — |
| Hybritech 1019 | 133 | 102 | — | — | 90 | — | — | 71 | — | — | — | — |
| Hybritech 1020 | 114 | — | — | — | — | — | 69 | — | — | — | — | — |
| Lewjain | — | — | — | — | — | — | 70 | — | — | — | — | — |
| Mac 1 | — | 79 | — | — | — | — | — | 60 | — | — | — | — |
| Mixture** | — | — | 106 | — | — | — | — | — | — | — | — | — |
| Rely | — | — | — | — | 89 | — | — | — | 62 | — | — | — |
| Rod/MacVicar | — | — | — | 93 | — | 75 | — | — | — | — | — | — |
| Rod/Madsen | — | — | — | — | 85 | 71 | — | — | — | — | — | — |
| W301 | — | 91 | — | — | — | — | 68 | — | — | — | — | — |
| WestBred | — | — | — | 85 | — | — | — | — | — | — | — | — |
| Average | 109 | 90 | 89 | 85 | 84 | 74 | 64 | 63 | 62 | 58 | 42 | 60 |

*At Stonebrink's, Rod and Rohde plots were heavily infested with wild oats
**Klages' mixture was equal amounts of Rod, Madsen, Stephens, and MacVicar

**Test Weight**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Test Weight (lb/bu) | | | | | | |
| Gene | 55.6 | 57.6 | — | 60.5 | 57.3 | 59.6 | 53.3 | 60 | 57.6 | 59.1 | 56.0 | 53.8 |
| MacVicar | 57.6 | 60.4 | 47.2 | 62.2 | 57.0 | 62.7 | 54.0 | 61 | 60.1 | 62.0 | 54.8 | 58.7 |
| Madsen | 58.8 | 59.3 | 55.1 | 60.8 | 59.5 | 61.2 | 55.9 | 60 | 58.7 | 60.7 | 56.5 | 59.0 |
| Rod | 56.5 | 58.2 | 50.7 | 61.5 | 58.2 | 60.1 | 52.7 | 59 | — | 60.4 | 53.1 | 49.4 |
| Rohde | 60.4 | 59.6 | 53.0 | 62.0 | 59.8 | — | 53.1 | 61 | 60.1 | 60.9 | 53.0 | 50.3 |
| Stephens | 55.3 | 58.1 | 53.4 | 62.3 | 58.4 | 61.5 | 56.1 | 60 | 59.3 | 59.5 | 56.8 | 58.9 |
| Crew/Hyak | — | — | — | — | 57.6 | — | — | — | — | — | — | — |
| Hiller | — | 56.9 | — | 59.0 | 57.0 | — | 53.3 | 58 | 56.7 | 57.6 | — | — |
| Hybritech 1017 | 58.6 | 57.2 | — | — | 58.1 | — | — | — | — | — | — | — |
| Hybritech 1019 | 61.4 | 59.5 | — | — | 59.3 | — | — | 61 | — | — | — | — |
| Hybritech 1020 | 59.1 | — | — | — | — | — | 55.8 | — | — | — | — | — |
| Lewjain | — | — | — | — | — | — | 55.3 | — | — | — | — | — |
| Mac 1 | — | 59.7 | — | — | — | — | — | 61 | — | — | — | — |
| Mixture | — | — | 55.2 | — | — | — | — | — | — | — | — | — |
| Rely | — | — | — | — | 59.6 | — | — | — | 58.4 | — | — | — |
| Rod/MacVicar | — | — | — | 61.0 | — | 61.2 | — | — | — | — | — | — |
| Rod/Madsen | — | — | — | — | 58.4 | 61.2 | — | — | — | — | — | — |
| W301 | — | 58.5 | — | — | — | — | — | — | — | — | — | — |
| WestBred | — | — | — | 64.4 | — | — | — | — | — | — | — | — |
| Average | 58.1 | 58.6 | 52.4 | 61.5 | 58.4 | 61.1 | 54.4 | 60.0 | 58.7 | 60.0 | 55.0 | 56.7 |

**Protein**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Protein (at 12% moisture) | | | | | | |
| Gene | 10.9 | — | — | 10.6 | — | — | 11.6 | — | — | 7.5 | 9.6 | |
| MacVicar | 9.4 | — | 11.0 | 8.9 | — | — | 10.7 | — | — | 7.8 | 11.1 | |
| Madsen | 9.1 | — | 12.3 | 9.7 | — | — | 10.5 | — | — | 7.5 | 10.4 | |
| Rod | 9.4 | — | 10.9 | 9.7 | — | — | 10.1 | — | — | 6.7 | 10.3 | |
| Rohde | 10.0 | — | 11.2 | 9.0 | — | — | 10.8 | — | — | 6.7 | 10.4 | |
| Stephens | 9.9 | — | 11.5 | 10.2 | — | — | 10.8 | — | — | 7.4 | 9.2 | |
| Hiller | — | — | — | 8.5 | — | — | 10.6 | — | — | 6.5 | — | |
| Hybritech 1017 | 9.6 | — | — | — | — | — | — | — | — | — | — | |
| Hybritech 1019 | 9.7 | — | — | — | — | — | — | — | — | — | — | |
| Hybritech 1020 | 9.4 | — | — | — | — | — | 10.7 | — | — | — | — | |
| Lewjain | — | — | — | — | — | — | 10.3 | — | — | — | — | |
| Mixture | — | — | 11.8 | — | — | — | — | — | — | — | — | |
| Rod/MacVicar | — | — | — | 8.8 | — | — | — | — | — | — | — | |
| W301 | — | — | — | — | — | — | 10.7 | — | — | — | — | |
| WestBred | — | — | — | 10.1 | — | — | — | — | — | — | — | |
| Average | 9.7 | — | 11.5 | 9.5 | — | — | 10.7 | — | — | 7.2 | 10.1 | |

**Table 12. — 1997 state-wide variety testing program winter barley Julian heading dates, heights, and lodging across locations in Oregon.**

| Variety or line | Market class | Julian heading date | | | Plant height (inches) | | | | | Lodging (%) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Corvallis | Madras | Ontario | Corvallis | Madras | Medford | North Valley | Ontario | Corvallis | Medford |
| Gwen | 6RF | 126 | 135 | 129 | 38 | 25 | 46 | 44 | 40 | 17 | 28 |
| Kold | 6RF | 130 | 142 | 131 | 38 | 22 | 42 | 42 | 36 | 20 | 59 |
| ORW10 | 6RF | 125 | 138 | 129 | 41 | 24 | 42 | 42 | 35 | 13 | 13 |
| ORW11 | 6RF | 131 | 143 | 130 | 37 | 26 | 45 | 43 | 37 | 0 | 30 |
| Scio | 6RF | 126 | 142 | 130 | 39 | 21 | 39 | 43 | 35 | 0 | 3 |
| Step+Baytan | 6RF | 127 | — | 131 | 49 | — | 48 | 47 | 43 | 20 | 44 |
| Steptoe+Vit. | 6RF | 127 | — | 131 | 49 | — | 45 | 41 | 43 | 40 | 19 |
| Strider | 6RF | 125 | 142 | 130 | 38 | 23 | 41 | 43 | 40 | 10 | 63 |
| Average | | 127 | 140 | 130 | 41 | 23 | 44 | 43 | 37 | 16 | 32 |
| PLSD (5%) | | 2 | 1 | — | 3 | 3 | NS | NS | — | NS | NS |
| PLSD (10%) | | 2 | 1 | — | 3 | 2 | 5 | NS | — | NS | 35 |
| CV | | 1 | 0 | — | 5 | 7 | 9 | 10 | — | 117 | 89 |
| P-value | | 0.00 | 0.00 | — | 0.00 | 0.05 | 0.08 | 0.72 | — | 0.23 | 0.06 |

NS = No statistically significant differences.

**Table 13.—1997 state-wide variety testing program winter barley yield data across 10 locations in Oregon.**

| Variety or line | Market class | Corvallis | Hermiston | LaGrande | Madras | Medford | Moro | Morrow | North Valley | Ontario | Pendelton | 9-site* average | 9-site* % of average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Yield (lb/a; 10% moisture) | | | | | | | |
| Gwen | 6RF | 1865 | 3763 | 7384 | 3657 | 3752 | 3742 | 4042 | 1929 | 5567 | 3553 | 4154 | 90 |
| Kold | 6RF | 3525 | 4052 | 7564 | 3941 | 4525 | 3683 | 4271 | 5456 | 5154 | 4067 | 4746 | 102 |
| ORW10 | 6RF | 3950 | 3204 | 5894 | 2940 | 6259 | 3328 | 4345 | 4970 | 5776 | 3895 | 4512 | 97 |
| ORW11 | 6RF | 2883 | 4165 | 8675 | 3421 | 5481 | 3619 | 5147 | 6736 | 4208 | 4330 | 5087 | 110 |
| Scio | 6RF | 3670 | 4980 | 8980 | 3943 | 4759 | 4232 | 4507 | 5358 | 6249 | 3860 | 5208 | 112 |
| Steptoe | 6RF | 2998 | 5227 | 4858 | — | 4607 | 3976 | 2378 | 2960 | 4429 | 3285 | 3965 | 86 |
| Steptoe+Baytan | 6RF | 3022 | 5329 | 5278 | — | 4627 | 4297 | 1998 | 2520 | 5161 | 3709 | 4115 | 89 |
| Strider | 6RF | 3255 | 5424 | 8470 | 3880 | 4854 | 4659 | 5003 | 6452 | 6055 | 3717 | 5390 | 116 |
| Average | | 3146 | 4518 | 7138 | 3630 | 4858 | 3942 | 3961 | 4548 | 5565 | 3802 | 4636 | — |
| PLSD (5%) | | 733 | 662 | 1229 | NS | 804 | 683 | 1094 | 1351 | 1386 | NS | 860 | — |
| PLSD (10%) | | 602 | 544 | 1009 | NS | 666 | 561 | 898 | 1109 | 1146 | NS | 718 | — |
| CV | | 13 | 8 | 10 | 20 | 11 | 10 | 16 | 17 | 15 | 10 | 20 | — |
| P-value | | 0.00 | 0.00 | 0.00 | 0.53 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.12 | 0.00 | — |

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

**Table 14.—1997 state-wide variety testing program winter barley yields as percent of trial average.**

| Variety or line | Market class | Corvallis | Hermiston | LaGrande | Madras | Medford | Moro | Morrow | North Valley | Ontario | Pendelton |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Yield (percent of trial average) | | | | | |
| Gwen | 6RF | 59 | 83 | 103 | 101 | 77 | 95 | 102 | 42 | 100 | 93 |
| Kold | 6RF | 112 | 90 | 106 | 109 | 93 | 93 | 108 | 120 | 93 | 107 |
| ORW10 | 6RF | 126 | 71 | 83 | 81 | 129 | 84 | 110 | 109 | 104 | 102 |
| ORW11 | 6RF | 92 | 92 | 122 | 94 | 113 | 92 | 130 | 148 | 76 | 114 |
| Scio | 6RF | 117 | 110 | 126 | 109 | 98 | 107 | 114 | 118 | 112 | 102 |
| Steptoe | 6RF | 95 | 116 | 68 | — | 95 | 101 | 60 | 65 | 80 | 86 |
| Steptoe+Baytan | 6RF | 96 | 118 | 74 | — | 95 | 109 | 50 | 55 | 93 | 98 |
| Strider | 6RF | 103 | 120 | 119 | 107 | 100 | 118 | 126 | 142 | 109 | 98 |
| Average yield (lb/a) | | 3146 | 4518 | 7138 | 3630 | 4858 | 3942 | 3961 | 4548 | 5565 | 3802 |

**Table 15.—1995-97 state-wide variety testing program barley yield data across 10 locations in Oregon.**

| Variety | Market class | Corvallis | Hermiston* | LaGrande** | Madras | Medford | Moro | Morrow | North Valley | Ontario | Pendleton | All sites average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***1995*** | | | | | Yield (lb/a; 10% moisture) | | | | | | | |
| Gwen | 6RF | 2845 | — | 4182 | 2889 | 3994 | — | 3373 | 4290 | — | 3463 | 3577 |
| Kold | 6RF | 3106 | — | 5204 | 4215 | 5497 | — | 3470 | 5998 | 6637 | 5416 | 4701 |
| Scio | 6RF | 3188 | — | 3025 | 3650 | 5269 | — | 4226 | 5196 | — | 4531 | 4155 |
| Steptoe | 6RF | 3743 | — | 5659 | 3932 | 3239 | — | 3132 | 5404 | 7454 | 4104 | 4173 |
| Strider | 6RF | 3966 | — | 5187 | 4984 | 5407 | — | 3868 | 5928 | 8535 | 5331 | 4953 |
| 1995 trial average (lb/a) | | 3080 | — | 4667 | 4067 | 4408 | — | 3316 | 4943 | 7489 | 3939 | 4060 |
| ***1996*** | | | | | | | | | | | | |
| Gwen | 6RF | 489 | 1478 | 3386 | 4953 | 2183 | 2994 | 5125 | 2445 | 6899 | 4185 | 3414 |
| Kold | 6RF | 5387 | 5186 | 4153 | 4686 | 3894 | 4357 | 5470 | 5083 | 7164 | 5940 | 5132 |
| Scio | 6RF | 4616 | 4715 | 2599 | 4308 | 4016 | 4575 | 5180 | 4366 | 7311 | 5131 | 4682 |
| Steptoe | 6RF | 3923 | 3456 | 2080 | 2242 | 3462 | 3486 | 5226 | 4220 | 7549 | 4492 | 4014 |
| Strider | 6RF | 5884 | 4990 | 3272 | 4020 | 4461 | 3623 | 4928 | 4849 | 7867 | 6252 | 5015 |
| 1996 trial average (lb/a) | | 3809 | 4088 | 2881 | 4167 | 3711 | 4186 | 5350 | 4196 | 7560 | 5417 | 4536 |
| ***1997*** | | | | | | | | | | | | |
| Gwen | 6RF | 1865 | 3763 | 7384 | 3657 | 3752 | 3742 | 4042 | 1929 | 5567 | 3553 | 3925 |
| Kold | 6RF | 3525 | 4052 | 7564 | 3941 | 4525 | 3683 | 4271 | 5456 | 5154 | 4067 | 4624 |
| Scio | 6RF | 3670 | 4980 | 8980 | 3943 | 4759 | 4232 | 4507 | 5358 | 6249 | 3860 | 5054 |
| Steptoe | 6RF | 2998 | 5227 | 4858 | — | 4607 | 3976 | 2378 | 2960 | 4429 | 3285 | 3858 |
| Strider | 6RF | 3255 | 5424 | 8470 | 3880 | 4854 | 4659 | 5003 | 6452 | 6055 | 3717 | 5177 |
| 1997 trial average (lb/a) | | 3146 | 4518 | 7138 | 3630 | 4858 | 3942 | 3961 | 4548 | 5565 | 3802 | 4511 |
| ***1995-1997 average*** | | | | | | | | | | | | |
| Gwen | 6RF | 1733 | 2620 | 4984 | 3833 | 3310 | 3368 | 4180 | 2888 | — | 3733 | 3638 |
| Kold | 6RF | 4006 | 4619 | 5640 | 4281 | 4639 | 4020 | 4404 | 5512 | 6318 | 5141 | 4819 |
| Scio | 6RF | 3825 | 4848 | 4868 | 3967 | 4681 | 4404 | 4638 | 4973 | — | 4507 | 4630 |
| Steptoe | 6RF | 3555 | 4342 | 4199 | — | 3770 | 3731 | 3579 | 4195 | 6477 | 3960 | 4015 |
| Strider | 6RF | 4368 | 5207 | 5643 | 4295 | 4907 | 4141 | 4600 | 5743 | 7486 | 5100 | 5048 |
| Average yield (1995-97) | | 3345 | 4303 | 4895 | 3955 | 4326 | 4064 | 4209 | 4562 | 6871 | 4386 | 4369 |
| ***1995-1997 percent of trial average*** | | | | | | | | | | | | |
| Gwen | 6RF | 52 | 61 | 102 | 97 | 77 | 83 | 99 | 63 | — | 85 | 83 |
| Kold | 6RF | 120 | 107 | 115 | 108 | 107 | 99 | 105 | 121 | 92 | 117 | 110 |
| Scio | 6RF | 114 | 113 | 99 | 100 | 108 | 108 | 110 | 109 | — | 103 | 106 |
| Steptoe | 6RF | 106 | 101 | 86 | — | 87 | 92 | 85 | 92 | 94 | 90 | 92 |
| Strider | 6RF | 131 | 121 | 115 | 109 | 113 | 102 | 109 | 126 | 109 | 116 | 116 |

* Hermiston had hail damage in 1996

** La Grande had frost damage in 1996

**Table 16.—1997 state-wide variety testing program winter barley test weight data across 10 locations in Oregon.**

| Variety or line | Market class | Corvallis | Hermiston | LaGrande | Madras | Medford | Moro | Morrow | North Valley | Ontario | Pendelton | 9-site* average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Test weight (lb/bu) | | | | | | |
| Gwen | 6RF | 36.5 | 51.9 | 51.1 | 51.5 | 47.5 | 53.0 | 53.8 | 39.3 | 53.0 | 49.4 | 50.1 |
| Kold | 6RF | 37.6 | 53.5 | 51.3 | 48.6 | 45.2 | 52.5 | 52.7 | 48.2 | 52.5 | 48.3 | 50.3 |
| ORW10 | 6RF | 39.2 | 53.3 | 53.9 | 49.2 | 49.3 | 54.7 | 55.1 | 51.1 | 53.4 | 50.2 | 52.2 |
| ORW11 | 6RF | 38.1 | 53.1 | 53.6 | 50.7 | 48.2 | 53.9 | 53.9 | 48.9 | 52.0 | 49.6 | 51.5 |
| Scio | 6RF | 37.5 | 51.9 | 51.1 | 49.6 | 47.4 | 48.1 | 48.2 | 45.3 | 51.4 | 47.7 | 49.0 |
| Steptoe | 6RF | 38.7 | 52.3 | 50.3 | — | 47.7 | 51.1 | 51.1 | 39.3 | 50.1 | 48.1 | 48.8 |
| Steptoe+Baytan | 6RF | 39.4 | 52.2 | 50.7 | — | 46.8 | 50.8 | 52.5 | 35.7 | 50.6 | 47.6 | 48.4 |
| Strider | 6RF | 36.6 | 52.2 | 52.6 | 49.7 | 42.8 | 50.6 | 51.6 | 44.9 | 50.8 | 45.0 | 48.9 |
| Average | | 37.9 | 52.6 | 51.8 | 49.9 | 46.8 | 51.8 | 52.4 | 44.1 | 51.6 | 48.2 | 49.9 |
| PLSD (5%) | | NS | 1.0 | 0.7 | 1.5 | 1.3 | 1.0 | 2.3 | 4.5 | 0.8 | 1.7 | 1.9 |
| PLSD (10%) | | 1.7 | 0.8 | 0.6 | 1.2 | 1.0 | 0.8 | 1.9 | 3.7 | 0.6 | 1.4 | 1.6 |
| CV | | 3 | 1 | 1 | 2 | 2 | 1 | 3 | 6 | 1 | 2 | 4 |
| P-value | | 0.06 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

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

**Table 17.—1997 state-wide variety testing program winter barley protein data across 10 locations in Oregon.**

| Variety or line | Market class | Corvallis | Hermiston | LaGrande | Madras | Medford | Moro | Morrow | North Valley | Ontario | Pendelton | 9-site* average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Protein percent (12% moisture basis) | | | | | | |
| Gwen | 6RF | 10.5 | 9.5 | 11.6 | 9.5 | 8.8 | 7.7 | 10.2 | 10.5 | 9.2 | 9.3 | 9.6 |
| Kold | 6RF | 10.2 | 8.3 | 11.3 | 8.9 | 9.2 | 7.5 | 10.0 | 10.5 | 9.9 | 9.8 | 9.5 |
| ORW10 | 6RF | 10.1 | 8.8 | 11.8 | 9.4 | 8.7 | 7.0 | 9.8 | 10.0 | 10.1 | 9.4 | 9.4 |
| ORW11 | 6RF | 10.3 | 7.7 | 10.4 | 8.3 | 8.5 | 6.0 | 9.2 | 8.9 | 9.8 | 8.9 | 8.6 |
| Scio | 6RF | 10.1 | 7.9 | 10.4 | 8.8 | 8.8 | 7.0 | 9.7 | 9.9 | 9.1 | 9.4 | 9.0 |
| Steptoe | 6RF | 10.2 | 8.2 | 11.2 | — | 8.6 | 7.3 | 10.1 | 10.5 | 8.7 | 9.3 | 9.2 |
| Steptoe+Baytan | 6RF | 10.2 | 8.2 | 10.6 | — | 8.8 | 6.8 | 10.0 | 10.7 | 9.1 | 9.2 | 9.2 |
| Strider | 6RF | 10.5 | 8.3 | 11.3 | 9.0 | 9.2 | 6.3 | 10.0 | 9.7 | 9.9 | 8.8 | 9.2 |
| Average | | 10.3 | 8.4 | 11.1 | 8.9 | 8.8 | 6.9 | 9.9 | 10.1 | 9.7 | 9.3 | 9.2 |
| PLSD (5%) | | NS | 0.5 | 0.7 | NS | NS | NS | 0.3 | 0.1 | NS | 0.3 | 0.4 |
| PLSD (10%) | | NS | 0.4 | 0.5 | NS | 0.4 | NS | 0.3 | 0.1 | NS | 0.2 | 0.3 |
| CV | | 2 | 3 | 3 | 5 | 4 | 12 | 2 | 4 | 8 | 2 | 4 |
| P-value | | 0.22 | 0.00 | 0.00 | 0.13 | 0.09 | 0.21 | 0.00 | 0.00 | 0.13 | 0.00 | 0.00 |

*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.

**Plant Variety Protection (PVP) — What is it and what might it mean to Oregon growers?**

By Ernie Marx (summarized from a PVP Teleconference sponsored by the Oregon State University Extension Service)

Currently, Oregon State University researchers and administrators are involved in discussions about whether plant breeding programs should apply for Plant Variety Protection (PVP) for future releases. Included in the discussions are industry groups, universities in Idaho and Washington, and USDA-ARS. Below are some frequently asked questions regarding PVP.

**What is PVP?** PVP is a patent on a sexually propagated plant variety. It protects rights of ownership for 20 years for the people who develop and release a cultivar. At the same time, a full disclosure of how the variety was developed is made available to anyone who wants it so that additional genetic advances can be made.

**What does PVP give the breeder?** PVP gives the breeder property rights and exclusive ownership of the plant variety. PVP covers all harvested plant material, not just seed. The law covers "intent," preventing release of other varieties intentionally similar to a protected variety. Breeders may not make even a single backcross in an attempt to breed back to a variety protected by PVP.

**How does a breeder obtain PVP? What is the application process?** To obtain PVP, the breeder must:

- Describe the development processes.
- Prove the cultivar is unique, uniform, and stable.
- Submit an ownership statement describing who owns the variety.
- Pay an examination and certificate fee of $2,750 to the PVP office. Owners will have additional data gathering and administrative costs. Total cost for OSU to obtain PVP for a wheat variety is predicted to be about $5,000 to $10,000.

**Does PVP have additional costs beyond the application process?** A patent is only as strong as the willingness to defend it. If infringement occurs, considerable legal costs can be incurred pursuing the case.

**Why would a public institution such as Oregon State University want to get PVP for plant varieties?**

- Royalties can generate research funds for breeding or other programs.
- Protection. Some people are concerned that private companies will take publicly developed varieties, insert certain genes (for example, herbicide resistance), then sell the modified variety at a high price. With PVP, the private company must pay the university for the right to use and modify the variety. While this could generate income for the university, it is likely the private seed companies will pass the cost on to growers by charging higher seed prices.

**Can we get PVP for previously released varieties?** No. Once a variety has been released on the open market, it cannot be protected.

**Would OSU patent all released varieties or just some? Based on what criteria? Who will decide?** It has been suggested that the Variety Release Committee will recommend public or protected release on a case-by-case basis. This issue is still being discussed.

**If OSU does patent cultivars, will royalties be charged for the seed?** The PVP holder *may* charge royalties, but is not required to do so. The decision regarding royalties could be made on a case-by-case basis. For example, Idaho has PVP for several recent soft white and hard red wheat releases, but does not charge royalties for the seed. Idaho also has PVP for IDO377S hard white wheat, and has licensed exclusive rights to the grower cooperative Pro-Mar. Other options include charging royalties without licensing exclusive rights, or charging royalties only for seed sales in other states.

**If a royalty is charged, how much will it be?** The royalty amount would be determined on a case-by-case basis, but would probably range from 1 to 5 cents per pound of seed.

**Who gets royalties from the sale of PVP seed?** For the first $50,000 of royalties, Oregon law requires that 30 percent goes to the OSU Technology Transfer Office, 30 percent to the department that developed the variety, and 40 percent to the breeder. For amounts over $50,000 the percentages shift slightly. It would be up to the breeder who holds the PVP to decide whether to donate his/her share to the university.

**If a variety is protected by PVP, will growers be required to buy certified seed?** Title V of the PVP code states that only certified seed can be sold. *Title V is an optional code*, to be decided by the people applying for the PVP. If Title V is included in a PVP, then growers must buy certified seed when they initially grow the variety. Under Title V, growers may save their own seed for subsequent seasons.

**Can growers save their own seed if they are growing a PVP-protected variety?** Farmers can save seed from a PVP variety, but only enough to plant back an acreage equal to that for which the seed was initially purchased. Farmers may not sell PVP seed, nor may they increase seed to expand acreage.

**Can breeders use other people's PVP-protected varieties to breed improved varieties?** Breeders can use a protected variety as an initial source of genetic material. However, any new varieties resulting from crosses with a PVP variety must be distinct and different from the PVP source.

**How would PVP affect cooperation among breeding programs in Oregon, Washington, and Idaho?** This is an issue of concern. Currently, there is a great deal of cooperation among programs in the tri-states, with free exchange of genetic material. If programs become dependent on PVP royalties for funding, there may be reluctance to exchange unprotected germplasm during cultivar development. This would be a loss for both breeders and growers. A possible solution might be to share royalties among the states, but this issue has not been resolved.

**Do other states with public breeding programs get PVP for their varieties?** Yes, many states protect their varieties. Policies regarding royalties and reasons for obtaining PVP vary among states.

**Does PVP protection extend outside the Unites States?** No. PVP only protects within U.S. borders. A breeder would have to apply separately for protection in other countries if desired.

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