wheat varieties for Queensland 2007

Key points

- EGA Burke was released by EGA and Pacific Seeds for planting this season.
- A new pathotype of stripe rust designated 134E16A+Yr17+ has evolved from the WA pathotype (134E16A+) that has been prevalent in eastern Australia for the past three wheat growing seasons.
- Germination and/or vigour may be affected by rainfall at harvest and conditions under which the seed is stored. Prior to planting the seed should be tested for germination and vigour by an approved laboratory.
- Although weather conditions have not been conducive for yellow spot in recent years, the disease is still present and will multiply rapidly when wet conditions return.
- Crown Rot continues to be a concern for wheat growers in the northern region. Assessment of levels of crown rot and the use of partially resistant varieties are important aspects to reducing the impact of Crown Rot.
- The DPI&F web page is in the process of being updated with detailed information regarding wheat production and disease identification and management. To access this information visit: www.dpi.qld.gov.au/fieldcrops and click on the link to broad-acre field crops then wheat.

Disease characteristics

Leaf and stem diseases are more likely to cause problems in wetter seasons or high rainfall areas. Losses from rusts are potentially great but resistance to stem and leaf rusts in most varieties provides protection.

A new pathotype of stripe rust designated 134E16A+Yr17+ has evolved from the WA pathotype (134E16A+) which has been prevalent in eastern Australia for the past three wheat growing seasons. Isolates of the new pathotype were recovered in low frequency from southern New South Wales and Victoria in 2006. Confirmed varietal responses to the new pathotype were not available at the time of printing this publication. The response of varieties carrying Yr17 resistance (VPM) may be different to responses to the WA pathotype. For further information growers can access the cereal rust reports or their local farm advisors. If varieties with inadequate resistance to the WA pathotype or the new pathotype of stripe rust are sown growers may need to consider preplant or foliar fungicide applications.

Yellow spot can be a problem when wheat is planted into infested wheat stubble and rainfall occurs regularly during the season.

Soil-borne diseases cause losses in most seasons.

Crown rot and common root rot are widely distributed and are more noticeable where crops become moisture stressed during spring. Root-lesion nematodes (RLN) are also widely distributed and can significantly reduce wheat yields. There are two species of RLN in the northern region, Pratylenchus thornei and Pratylenchus neglectus. A RLN soil testing service is available through DPI&F and should be considered prior to planting. If wheat is to be sown in nematode-infested soil, the very tolerant varieties (listed with a score of 7 or better, in the disease table) should be considered.

All listed varieties except QAL2000, QALBis, and Sunsoft 98 are resistant to flag smut.

To avoid bunt, wheat seed should be treated with a fungicidal dressing if it has been saved from a crop grown from untreated seed.

Only varieties that have been deemed suitable for conditions in the northern region (Queensland and northern New South Wales) have been included in this guide. If a variety is not mentioned, there is either no commercial seed available or there is concern that the variety may not carry robust rust resistances and may therefore compromise the Queensland wheat industry. If you purchase varieties not mentioned in this guide then please ensure the vendor provides you with current reliable rust information.

The contribution of PlantTech Pty Ltd and Pacific Seeds, towards the distribution of this publication is gratefully acknowledged.
### Table 1 Planting time suggestions

<table>
<thead>
<tr>
<th>District</th>
<th>Varieties in order of maturity, slow to quick, within each broad maturity group</th>
<th>Planting times by weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>April</td>
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<td></td>
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<td>1 2</td>
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<tr>
<td>Central Highlands</td>
<td><strong>E</strong> = Early: Early planted crops face the risk of frost damage from pre-flowering to grain fill. Therefore, plant early in areas of low frost risk, such as higher slopes, and reduce the risk of frost damage by planting more than one variety and by varying planting times. In central Queensland, warm weather encourages rapid early plant development. Where possible, plant shallow into moisture and use press-wheels to aid establishment. Increase the plant population for all varieties to compensate for reduced tillering in warm growing conditions. Maturity groupings may differ from district to district, particularly from central to southern Queensland.</td>
<td></td>
</tr>
<tr>
<td>Dawson Callide</td>
<td><em>(higher slopes)</em></td>
<td></td>
</tr>
<tr>
<td>- low frost risk</td>
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<td></td>
<td><strong>C</strong> = Conventional: Varieties sown at their most appropriate planting times flower after the main frost period, although late frosts may still cause damage.</td>
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<tr>
<td></td>
<td><strong>L</strong> = Late: The reliability of yield can be low following a very late planting due to high temperatures during flowering and grain filling. Detailed wheat planting information is available in the DPI&amp;F Crop Management Notes for each region, from the DPI&amp;F computer software package WHEATMAN and on the DPI&amp;F web site (<a href="http://www.dpi.qld.gov.au/fieldcrops">www.dpi.qld.gov.au/fieldcrops</a>).</td>
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<td>Note: Frost damage may be minimised by planting varieties within the range of dates recommended. This table was compiled from presently available data.</td>
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**Table 2a  Bread and noodle wheats – disease and agronomy ratings**

<table>
<thead>
<tr>
<th>Variety</th>
<th>AWBI Ltd. Maximum Classification &amp; Quality Preferences</th>
<th>Disease ratings</th>
<th>Agronomy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Root lesion nematode</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P. thornei tolerance</td>
<td>P. thornei resistance</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUNBRI</td>
<td>Acceptable APH</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>STRZELECKI</td>
<td>Marginal APH</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>EGA GREGORY</td>
<td>Preferred APH</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>PETRIE</td>
<td>Acceptable APH</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SUNLIN</td>
<td>Acceptable APH</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>EGA BURKE</td>
<td>APH</td>
<td>4 - 5</td>
<td>3</td>
</tr>
<tr>
<td>GILES</td>
<td>APH</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>SUNVALE</td>
<td>Preferred APH</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>EGA WYLIE</td>
<td>Acceptable AH</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>BAXTER</td>
<td>Acceptable APH</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>REES</td>
<td>Acceptable AH</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>GBA SAPPHIRE</td>
<td>Acceptable APH</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>ELLISON</td>
<td>Acceptable APH</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>SUNCO</td>
<td>Preferred APH - Premium</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>EGA HUME</td>
<td>Preferred APH (Qld) - Premium</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>LANG</td>
<td>Preferred APH - Premium</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>EGA WENTWORTH</td>
<td>AH</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>KENNEDY</td>
<td>Acceptable APH</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>VENTURA</td>
<td>Acceptable AH</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>HARTOG</td>
<td>Marginal APH</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>SUNSTATE</td>
<td>Marginal APH</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>LEICHHARDT</td>
<td>AH</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

**LEGEND: Disease and Agronomy Tables (refers to tables 2A & 3A)**

A numerical scale is used to indicate levels of resistance to diseases and other conditions.

- **9-8 (High)** indicates a high level of resistance and grain yield is unlikely to be reduced.
- **7-6 (Medium)** indicates disease may develop in favourable conditions, some yield loss may occur. Areas where high levels of disease may occur with substantial yield losses.
- **3-1 (Very low)** indicates high levels of disease may occur with substantial yield losses.
- **-** indicates that a rating is not available.

(eg. Sunlin is the variety least likely to shatter – rating 9; Sunco is the variety most susceptible to lodging (poor straw strength) – rating 3.)

- **AWBI Ltd maximum classification and Quality preferences describe suitability for export markets, and do not always reflect the varietal preference of domestic millers. (Note: APH-Australian Prime Hard, AH-Australian Hard, APDR-Australian Premium Durum). Please refer to the AWB National Pool Wheat Variety Guide 2007-08 season for more information.**

- **V** indicates assessment based on visual symptoms not grain yield, for RLN tolerance.

- **#** Black point will not cause a reduction in yield but may result in grain receiving a different classification. (The bread wheat standard is 5% affected grains and the durum standard for APDR is 3% affected grains. Therefore the potential for economic loss in some durum crops may be greater than in comparable bread wheats.)

- ***** The response of varieties that carry Yr17 resistance (VPM) may change when tested against the new pathotype (134E16A + Yr17 +)

- These varieties are protected by a single gene only and may be more vulnerable to breakdown of resistance.

For information on wheat disease go to www.dpi.qld.gov.au/fieldcrops
### Table 2b  Bread and noodle wheats - varietal details

<table>
<thead>
<tr>
<th>Variety</th>
<th>Varietal information</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>BREAD AND NOODLE WHEATS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUNBRI</td>
<td>Cook<em>2/VPM1//3</em>Cook</td>
<td>SU 1990 Very slow variety, it can be difficult to establish in unfavourable soil conditions.</td>
</tr>
<tr>
<td>STRZELECKI</td>
<td>Vicam/4*Batavia</td>
<td>PlantTech DPI&amp;F 2000 A replacement variety for Batavia 2.</td>
</tr>
<tr>
<td>EGA GREGORY</td>
<td>Pelsart/2*Batavia DH</td>
<td>Pacific Seeds DPI&amp;F 2004 A good early season variety for paddocks with a history of root lesion nematodes</td>
</tr>
<tr>
<td>PETRIE</td>
<td>Vasco/Batavia</td>
<td>AWB Seeds DPI&amp;F 2000 Petrie has similar agronomic characteristics to Batavia 2.</td>
</tr>
<tr>
<td>SUNLIN</td>
<td>Sunelg/2/Suneca*3/VPM1</td>
<td>SU 1996 A dual-purpose wheat (hay or grain), with moderate resistance to weathering. Awnless.</td>
</tr>
<tr>
<td>EGA BURKE</td>
<td>Sunco/2*Hartog</td>
<td>Pacific Seeds DPI&amp;F 2006 A new slow variety with excellent yield potential. Disease resistance is provided via a different genetic background to other slow varieties thereby reducing genetic risks.</td>
</tr>
<tr>
<td>GILES</td>
<td>Janz/Vulcan</td>
<td>PlantTech DPI&amp;F 1999 Similar maturity to Sunvale in southern Queensland and slightly slower than Cunningham in central Queensland.</td>
</tr>
<tr>
<td>SUNVALE</td>
<td>Cook<em>2/VPM1//3</em>Cook</td>
<td>SunPrime Seeds SU 1993 A variety suitable for early planting with high tolerance to root lesion nematodes and good resistance to black point.</td>
</tr>
<tr>
<td>BAXTER</td>
<td>QT2327/Cook//QT2804</td>
<td>PlantTech DPI&amp;F 1998 A well-adapted variety as its maturity can vary according to location and environmental conditions. Baxter is equivalent to Sunvale in terms of tolerance to root lesion nematodes.</td>
</tr>
<tr>
<td>GBA SAPPHIRE</td>
<td>GBA008/Janz</td>
<td>GBA 2004 Similar maturity to Janz. Widely adapted with consistent yields.</td>
</tr>
<tr>
<td>ELLISON</td>
<td>Vicam71/3<em>Suneca</em>/ SUN231A</td>
<td>SunPrime Seeds SU 2003 Prime Hard quality wheat to replace Suneca. It has improved grain yield, quality, yellow spot tolerance and rust resistance characteristics.</td>
</tr>
<tr>
<td>SUNCO</td>
<td>Cook*3/WW15/4SUN9E-27/3Ag14</td>
<td>SU 1986 Older established variety</td>
</tr>
<tr>
<td>LANG</td>
<td>QT3765/Sunco</td>
<td>AWB Seeds DPI&amp;F 2000 Similar to Sunco but generally achieves higher yields and has stronger straw.</td>
</tr>
<tr>
<td>KENNEDY</td>
<td>Hartog/Veryey#5</td>
<td>PlantTech DPI&amp;F 1998 Widely grown quick maturing variety. The short coleoptile length, compared to other varieties, does not adversely affect establishment in average conditions.</td>
</tr>
<tr>
<td>HARTOG</td>
<td>Pavan ‘S’</td>
<td>DPI&amp;F 1982 Older established variety</td>
</tr>
<tr>
<td>VENTURA</td>
<td>Sunvale/Rowan</td>
<td>SunPrime Seeds SU 2004 A new high yielding quick variety with good rust resistance.</td>
</tr>
</tbody>
</table>

*SU - Sydney University Plant Breeding Institute; DPI&F - Department of Primary Industries & Fisheries, Queensland; GG – Graingene, EGA - Enterprise Grains Australia; GBA – Grain Biotech Australia, NSW DPI - New South Wales Department of Primary Industries, VAWCR – Value Added Wheat Cooperative Research Centre & CSIRO – Commonwealth Scientific & Industrial Research Organisation.*

Varieties displaying this symbol are protected under the *Plant Breeders Rights Act 1994*. Unauthorised sale of seed of these varieties is an infringement under this Act.
### Table 3a  Specialty wheats – disease and agronomy ratings

<table>
<thead>
<tr>
<th>Variety (In maturity order, slow to quick)</th>
<th>AWBI Ltd, Maximum Classification &amp; Quality Preferences</th>
<th>Disease ratings</th>
<th>Agronomy</th>
</tr>
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<tbody>
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<td></td>
<td>Root lesion nematode</td>
<td></td>
</tr>
<tr>
<td></td>
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<td>P. thornei tolerance</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Stem rust</td>
<td>Leaf rust</td>
</tr>
<tr>
<td>EGA BELLAROI</td>
<td>Preferred APDR</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>YALLAROI</td>
<td>APDR</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>WOLLAROI</td>
<td>APDR</td>
<td>7</td>
<td>1</td>
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#### Durum wheats

<table>
<thead>
<tr>
<th>Variety (In maturity order, slow to quick)</th>
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</tr>
<tr>
<td></td>
<td></td>
<td>Stem rust</td>
<td>Leaf rust</td>
</tr>
<tr>
<td>SUNSOFT 98</td>
<td>ASWN</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>QAL2000</td>
<td>ASF1</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>QALBis</td>
<td>ASF1</td>
<td>-</td>
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#### Soft wheats

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<thead>
<tr>
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<td></td>
<td></td>
<td>Stem rust</td>
<td>Leaf rust</td>
</tr>
<tr>
<td>GBA HUNTER</td>
<td>FEED</td>
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</tbody>
</table>

#### Feed wheats

<table>
<thead>
<tr>
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<td>Stem rust</td>
<td>Leaf rust</td>
</tr>
<tr>
<td>GBA HUNTER</td>
<td>FEED</td>
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#### Forage wheats

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<tr>
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<td>P. thornei tolerance</td>
<td>P. thornei resistance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stem rust</td>
<td>Leaf rust</td>
</tr>
<tr>
<td>BRENNAN</td>
<td>AWW/FEED</td>
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### Table 3b  Specialty wheats – varietal details

<table>
<thead>
<tr>
<th>Variety (In maturity order, slow to quick)</th>
<th>Pedigree</th>
<th>Varietal information</th>
<th>Released by</th>
<th>Year of release</th>
<th>Comments</th>
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</tbody>
</table>
| EGA BELLAROI                           |          | Graintrust           | EGA         | 2002            | Preferred durum wheat variety by domestic millers as it has excellent semolina colour and good dough strength.
| YALLAROI                               |          | Guillemont Seln No.3  | NSWDPI      | 1988            | Partial resistance to root lesion nematodes. Maturity is similar to Hartog in SQ and Cunningham in CQ.
| WOLLAROI                               |          | Durati Sib/Leeds     | NSWDPI      | 1993            | Preferred durum wheat variety by domestic millers as it has excellent semolina colour and good dough strength.
| SUNSOFT 98                             |          |                      | SU          | 1998            | A soft winter wheat suitable for grazing under appropriate conditions. Well-adapted variety similar in maturity to Sunvale in southern Queensland.
| QALBis                                 |          | Austgrains Pty Ltd   | VAWCRC      | 2002            | A good yield performer best suited to irrigation. Similar maturity to Sunvale. QALBis has added stripe rust resistance compared to QAL2000.
| QAL2000                                |          | Austgrains Pty Ltd   | VAWCRC      | 2000            | A good yield performer best suited to irrigation, quicker maturity than QALBis.
| GBA HUNTER                             |          | Graintrust           | GBA         | 2005            | Prolific tillering awned variety. High yield potential.
| BRENNAN                                |          |                      | CSIRO       | 1998            | An awnless winter wheat suitable for grazing and grain production. May not come to head in central Queensland conditions. White grained.
| PETREL                                 |          |                      | NSWDPI      | 1996            | An awnless hay wheat (taller spring type) with dry matter yields similar to Ford but has stronger straw and is later maturing.
Bread and noodle wheats
(*Triticum aestivum*)

Bread and noodle wheats are the dominant types of wheats planted throughout Queensland and Australia. They fall into a number of classifications that have different receival standards. From APH with high quality requirements through to FEED that has limited quality requirements. Queensland conditions are conducive to the production of high quality grain. The breeding and development of varieties reflects this. Flour milled from Australian Prime Hard wheat is used to produce high protein Chinese style yellow alkaline noodles and Japanese Ramen noodles of superior brightness, colour and eating quality. Australian Prime Hard flour is also suitable for the production of high protein, high volume breads and wanton dumpling skins. Australian Prime Hard can be blended with lower protein wheats to produce flours suitable for a wide range of baked products.

**Durum wheats (*Triticum durum*)**

Durum wheats are used in the production of pasta products, where the main requirement is grain of high protein, preferably above 13% and a minimum of 11.5%. Grain appearance is also important, downgrading can occur due to black point, weather damage and mottling. Acceptable levels of black point are as follows, ADR1 – 3%, ADR2 – 5% & ADR3 – 20%.

**Soft wheats**

Soft wheats represent two distinct types. The **Soft Biscuit** type (9 – 10% protein), suitable for use in the biscuit industry; and the **Soft Noodle** type (9 – 11.5% protein), suitable for the manufacture of cakes, pastry and white salted noodles.

Soft Biscuit types are best grown using irrigation and suitable crop management to achieve target protein levels.

Capped domestic market volumes exist and growers are therefore urged to seek pre-plant contracts.

**Forage wheats**

Forage wheats are commonly of the winter type and have the major advantage of adaptability to a wide range of sowing times. The winter habit delays maturity in early sowings, thus extending the period of vegetative growth. Maturity varies once vernalisation requirements have been met. Winter wheats are commonly sown in late March or early April.

**Feed wheats**

Feed wheats are generally high yielding varieties that have quality limitations for use in flour and noodle production.

**General notes**

**Varieties deleted since the 2006 publication**

**Kamilaroi**

An outdated variety with limited uptake in Queensland, expected to be replaced by TD97E.

**Marombi**

Now susceptible to the Lr37 pathotype of leaf rust.

**Varieties under evaluation**

**QAL1064**

This variety is classified as FEED by the AWB Classification Committee and is suitable at the protein levels of ≤ 9.5% for inclusion at moderate levels into a Prime Soft Wheat Blend. Because of its FEED classification the domestic milling industry will require individual contracts with growers wishing to sell into this market and grain will need to be stored separately to Soft Grades. QAL1064 is a Soft Club headed wheat resistant to current strains of leaf, stem and stripe rusts. It is most suited to growing on irrigation to optimise yield and minimise protein. As a FEED wheat, the market for QAL1064 is envisaged as being Lot Feeds, Ethanol and contracts with Domestic end users.
The Queensland miller’s table of preferred varieties includes a column that enables growers to target particular “Bin Grades” in line with current receival practices. This is due to the End Product in which the various “Bin Grades” are destined. Varieties are listed in order of preference within their maturity grouping.

Eg. APH2 – Yellow Alkaline Noodles and bread; H2 – Plant Bakeries; APW2 – Retail products and pastry.

* Growers are urged to seek pre-plant contracts on varieties marked with an asterisk.

# The Quality Rating is determined on a scale of 0 to 9. The higher the rating the better the variety for particular varietal end uses. 6-9 Preferred, 4-5 Suitable, 0-3 Unsuitable (avoided)

** YAN – Yellow Alkaline Noodles.

Reference: Allied Mills and Weston Milling.

<table>
<thead>
<tr>
<th>End Product</th>
<th>Maturity Variety</th>
<th>Bin Grade</th>
<th>Quality Rating</th>
<th>Quality</th>
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<td>BREAD YAN**</td>
<td>VERY SLOW</td>
<td>APH2, H2</td>
<td>4</td>
<td>Excessive dough strength, long mixing time, average baking quality</td>
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<td>APW1</td>
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<td>Performs satisfactorily at lower protein levels.</td>
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<td>SLOW</td>
<td>APH2, H2</td>
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<td>APW1</td>
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<td>Weak dough strength at low protein levels.</td>
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<td>6</td>
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<td>EGA GREGORY</td>
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<td>GILES</td>
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<td>Poor extensibility, high dough strength, average baking quality</td>
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<tr>
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<td>Average baking quality but concerns with poor extensibility and high dough strength</td>
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<td>QAL2000*</td>
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<td>INTERMEDIATE</td>
<td>7</td>
<td>Superior colour</td>
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Table 5. Wheat varieties response to herbicides.

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<tr>
<th>Variety (In maturity order, slow to quick)</th>
<th>Achieve tralkoxydim</th>
<th>Ally metsulfuron</th>
<th>Ally + MCPA LVE metsulfuron + MCPA</th>
<th>Amicide 500/625 24D amine</th>
<th>Atlantis mesosulfuron</th>
<th>Axial 100EC pinoxaden</th>
<th>Bromicide 200 bromoxynil</th>
<th>Bromicide MA bromoxynil + MCPA</th>
<th>Cadence dicamba</th>
<th>Glean chlorsulfuron</th>
<th>Glean chlorsulfuron</th>
<th>Hotshot aminopyralid + fluroxypyr</th>
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<td>380-430 &amp; 760-860g/</td>
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<tr>
<td>38 &amp; 70 &amp; 7 &amp; 14g MCPA 0.75 &amp; 1.5L</td>
<td>0.85 &amp; 1.7L/0.65 &amp; 1.3L</td>
<td>330 &amp; 660 mL</td>
<td>150-200 &amp; 300-400mL</td>
<td>1.4 &amp; 2.8L</td>
<td>1.4 &amp; 2.8L</td>
<td>200 &amp; 400g</td>
<td>20 &amp; 40g</td>
<td>20 &amp; 40g</td>
<td>0.75 &amp; 1.5L</td>
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<td>Crop stage at spraying</td>
<td>3-5 leaf + 1-2 tiller</td>
<td>3-7 leaf + 2-6 tiller</td>
<td>4-7 leaf + 2-5 tiller</td>
<td>3-9 leaf + 1-2 tiller</td>
<td>2-4 leaf + 1-2 tiller</td>
<td>3-5 leaf + 1 tiller</td>
<td>4-7 leaf + 3-7 tiller</td>
<td>6-7 leaf + 3-5 tiller</td>
<td>3-6 leaf + 1-5 tiller</td>
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<td>Pre-plant</td>
<td>3-7 leaf + 1-6 tiller</td>
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Table 5 (continued). Wheat varieties response to herbicides.

<table>
<thead>
<tr>
<th>Variety (In maturity order, slow to quick)</th>
<th>Hussar</th>
<th>Logran</th>
<th>Mataven 90</th>
<th>Mataven 90 as SST</th>
<th>MCPA amine</th>
<th>MCPA LVE</th>
<th>Starane 200</th>
<th>Topik 240EC</th>
<th>Tordon 75D+24D</th>
<th>Tordon 242</th>
<th>Wildcat</th>
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<tbody>
<tr>
<td>Bread &amp; noodle wheats</td>
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Rates (product/ha)  
- 200 & 400g  
- 35 & 70g  
- 2.5 & 5.0 L  
- 1.85 & 3.75L  
- 0.75 & 1.5L  
- 0.75 & 1.5L  
- 1.0 & 2.0L  
- 85 & 170mL  
- 300+470 & 600+940mL  
- 1.0 & 2.0L  
- 0.5 & 1.0L  

Crop stage at spraying  
- 2-5 leaf + 1-2 tiller  
- Pre-plant  
- 5-7 leaf + 3-6 tiller  
- 1-9 node  
- 3-6 leaf + 1-5 tiller  
- 3-6 leaf + 1-5 tiller  
- 3-6 leaf + 3-6 tiller  
- 3-5 leaf + 1-2 tiller  
- 3-9 leaf + 2-5 tiller  
- 4-6 leaf + 1-6 tiller  
- 3-5 leaf + 1-2 tiller  

These ratings are a guide only, based on results from trials held in 1998 to 2005 and are based on a minimum of 2 seasons results. Information on the DPI&F web site is to be updated with results from trials conducted in 2006. For more information, contact John Churchett on john.churchett@dpi.qld.gov.au or 07 4639 8847. The research is funded by GRDC and various chemical companies.
Research in southern Queensland over 7 years has shown that herbicide tolerance differed among the wheat varieties grown in the Northern Region.

Field experiments were at weed-free sites, where yields were compared between those sprayed with registered herbicides at the recommended rate and at double the recommended rate with untreated controls for each variety. Herbicide rates and crop stages at spraying are presented in Table 5.

The sensitivity of the varieties is summarised using the following symbols based on the yield responses across all trials:

- S (safe) no significant yield reductions at recommended and double rates
- N (narrow margin) significant yield reductions at double rate in 1 or more trials (but not the at recommended rate)
- % yield reduction (warning) significant yield reductions at recommended rate in 1 trial only
- % yield reduction (warning) significant yield reductions at recommended rate in 2 or more trials

The exceptions are tall LMA genotypes or cultivars only expressed if plants receive a cool temperature shock during the middle stages of grain development. For the majority of LMA-prone cultivars, the defect is inversely proportional to temperature i.e. less at higher temperatures. In Queensland generally represents a low risk area for LMA and frost and heat stress damage. During the 2002 harvest it was observed that a number of samples tested with high screenings had poor baking quality. This was attributed to heat stress damage during grain filling, which was also believed to be responsible for the high screenings.

**Wheat varieties**

The response of wheat varieties to herbicides is summarised in Table 5 and is based on data collected from 1998 - 2005. Significant yield reductions at the recommended rate were recorded for the following herbicides and varieties:

- Ally – Rees 11% in 1 of 2 trials, QALBis 12-14% in 2 of 3 trials, Ellison 8% and Yallaroi 18% in 1 of 4 trials, Ventura 6-10% in 2 of 4 trials, Lang 8% and Sunco 17% in 1 of 5 trials, , Giles 18-21% and Petrie 7-11% in 2 of 5 trials.
- Ally + MCPA LVE – EGA Bellaroi 9% in 1 of 2 trials.
- Amicide - Hartog 9% in 1 of 5 trials.
- Bromicide 200 - Baxter 28% and Yallaroi 29% in 1 (very dry season) of 4 trials.
- Cadence - Ventura 13% in 1 of 3 trials. Also Hartog 37%, Leichhardt 36%, Strzelecki 38%, Sunstate 38%, and Yallaroi 23% in 1 (very dry season) of 3 to 5 trials.
- Glean post-emergence - Petrie 19% and Rees 16% in 1 of 2 trials and Ventura 15-19% in 2 of 4 trials.
- Hussar resulted in an overall significant yield reduction of 5% in all cultivars in 1 of 3 trials, with greater yield reductions for Baxter, Hartog, Leichhardt, Strzelecki, Sunco, Sunlin, and Sunstate. Also Wollaroi 15% in 1 of 4 trials and Lang 14% in 1 of 5 trials.
- Mataven 90 applied mid-tillering – Hartog 7% and Sunlin 9% in 1 of 3 trials.
- Mataven 90 applied at the late stage for selective spray topping resulted in yield reductions in EGA Wylie 9% in 1 of 1 trials, Sunbri 35% in 1 of 2 trials, Leichhardt 11% and Rees 7% in 1 of 3 trials, Ellison 14-21% in 2 of 3 trials, Wollaroi 14 - 18% in 3 of 4, trials, Yallaroi 14% in 1 of 5 trials and Sunlin 14-65% in 5 of 6 trials
- MCPA LVE – EGA Wylie 22% and GBA Hunter 17% in 1 of 1 trials.
- Topik - Sunvale 13% in 1 of 4 trials.
- Tordon 242 - Petrie 16% in 1 of 6 trials, and substantial but not significant losses in 2 other trials.

**Sensitivity of wheat varieties to herbicides (Table 5 on previous page)**

Research in southern Queensland over 7 years has shown that herbicide tolerance differed among the wheat varieties grown in the Northern Region.

Field experiments were at weed-free sites, where yields were compared between those sprayed with registered herbicides at the recommended rate and at double the recommended rate with untreated controls for each variety. Herbicide rates and crop stages at spraying are presented in Table 5.

The sensitivity of the varieties is summarised using the following symbols based on the yield responses across all trials:

- S (safe) no significant yield reductions at recommended and double rates
- N (narrow margin) significant yield reductions at double rate in 1 or more trials (but not the at recommended rate)
- % yield reduction (warning) significant yield reductions at recommended rate in 1 trial only
- % yield reduction (warning) significant yield reductions at recommended rate in 2 or more trials

The exceptions are tall LMA genotypes or cultivars only expressed if plants receive a cool temperature shock during the middle stages of grain development. For the majority of LMA-prone cultivars, the defect is inversely proportional to temperature i.e. less at higher temperatures. In Queensland generally represents a low risk area for LMA and frost and heat stress damage. During the 2002 harvest it was observed that a number of samples tested with high screenings had poor baking quality. This was attributed to heat stress damage during grain filling, which was also believed to be responsible for the high screenings.

**Wheat varieties**

The response of wheat varieties to herbicides is summarised in Table 5 and is based on data collected from 1998 - 2005. Significant yield reductions at the recommended rate were recorded for the following herbicides and varieties:

- Ally – Rees 11% in 1 of 2 trials, QALBis 12-14% in 2 of 3 trials, Ellison 8% and Yallaroi 18% in 1 of 4 trials, Ventura 6-10% in 2 of 4 trials, Lang 8% and Sunco 17% in 1 of 5 trials, , Giles 18-21% and Petrie 7-11% in 2 of 5 trials.
- Ally + MCPA LVE – EGA Bellaroi 9% in 1 of 2 trials.
- Amicide - Hartog 9% in 1 of 5 trials.
- Bromicide 200 - Baxter 28% and Yallaroi 29% in 1 (very dry season) of 4 trials.
- Cadence - Ventura 13% in 1 of 3 trials. Also Hartog 37%, Leichhardt 36%, Strzelecki 38%, Sunstate 38%, and Yallaroi 23% in 1 (very dry season) of 3 to 5 trials.
- Glean post-emergence - Petrie 19% and Rees 16% in 1 of 2 trials and Ventura 15-19% in 2 of 4 trials.
- Hussar resulted in an overall significant yield reduction of 5% in all cultivars in 1 of 3 trials, with greater yield reductions for Baxter, Hartog, Leichhardt, Strzelecki, Sunco, Sunlin, and Sunstate. Also Wollaroi 15% in 1 of 4 trials and Lang 14% in 1 of 5 trials.
- Mataven 90 applied mid-tillering – Hartog 7% and Sunlin 9% in 1 of 3 trials.
- Mataven 90 applied at the late stage for selective spray topping resulted in yield reductions in EGA Wylie 9% in 1 of 1 trials, Sunbri 35% in 1 of 2 trials, Leichhardt 11% and Rees 7% in 1 of 3 trials, Ellison 14-21% in 2 of 3 trials, Wollaroi 14 - 18% in 3 of 4, trials, Yallaroi 14% in 1 of 5 trials and Sunlin 14-65% in 5 of 6 trials
- MCPA LVE – EGA Wylie 22% and GBA Hunter 17% in 1 of 1 trials.
- Topik - Sunvale 13% in 1 of 4 trials.
- Tordon 242 - Petrie 16% in 1 of 6 trials, and substantial but not significant losses in 2 other trials.

**EFFECT OF GRAIN DEFECTS ON END PRODUCT QUALITY**

**BLACK POINT** – Excessive levels may result in specky semolina or discoloured bran, wheat germ and divide flours (pastry flour). End products are often visually unattractive; this is particularly the case with durum products such as pasta.

**SPROUTING** – (low falling number) – Finished product is affected by high levels of alpha amylase present in the flour, which causes key-holing in bread, fragile noodles, dark discoloured biscuits and cakes.

**FROST DAMAGE** – Can cause low falling number, reduced flour yield, increased grain hardness and very poor baking performance – bread, biscuits and breakfast cereals.

**EXCESS SCREENINGS** – Reduced grain and flour yield (loss of profitability) but has little effect on end product quality (excluding excess screenings due to frost and heat stress damage). During the 2002 harvest it was observed that a number of samples tested with high screenings had poor baking quality. This was attributed to heat stress damage during grain filling, which was also believed to be responsible for the high screenings.

**LOW DENSITY** (Test weight, kg/hl) – Reduced grain and flour yield (loss of profitability), has little effect on end product quality (excluding low density due to frost and heat stress damage).

**HEAT DAMAGE** – (due to drying at temperatures above 60°C) – Flour produced from this grain is of poor baking quality and baked products are often unsaleable. Research in southern Queensland over 6 years has shown that herbicide tolerance differed among the wheat varieties grown in the Northern Region.

**LATE MATURITY ALPHA-AMYLASE**

Late maturity alpha - amylase (LMA) is a genetic defect in some cultivars that may result in high grain alpha-amylase, low falling number, at maturity in the absence of preharvest sprouting.

For the majority of LMA-prone cultivars, the defect is only expressed if plants receive a cool temperature shock during the middle stages of grain development. The exceptions are tall LMA genotypes or cultivars such as Seri that contain 1B/1R in combination with the LMA genes - these do not require a cool temperature shock but the level of LMA expression appears to be inversely proportional to temperature i.e. less at higher temperatures. Queensland generally represents a low risk area for LMA owing to the warmer temperatures during grain filling. However this status will only apply whilst all LMA-prone cultivars contain either Rht1 or Rht2. Tall lines, 1B/1R genotypes and semi-dwarfs based on alternate dwarfing genes, eg Rht8, that contain LMA genes would represent a higher level of risk.
Yield data for each variety is derived using robust yield predictions, based on trials conducted over several seasons, rather than direct yield comparisons. This publication includes information from trials conducted in 2002 to 2006. Comparisons are not included for new varieties until they have been in DPI&F trials for a minimum of two years with at least 12 site year combinations. No yield comparisons are presented for specialty wheats, as there are too few comparisons.

The yield of the variety in the left column is expressed as a percentage of the variety in the top row.

- Green cells indicate that the variety in the left column has a yield advantage over the variety in the top row.
- Yellow cells indicate that the variety in the left column has a yield disadvantage compared to the variety in the top row.

**Example:** In the intermediate maturity series for central Queensland, the yield of Lang is 8% greater than Sunvale.

Comparisons for the slower maturing varieties include only trials planted before 16 June on the Darling Downs, 1 June at other southern Queensland locations and before 28 May in central Queensland.

* Yield comparisons for Ellison have been derived from trials of slow maturing varieties and therefore comparisons are not available for all intermediate varieties.

**Table 6   Comparative yields in DPI&F wheat variety trials**

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**SOUTHERN QUEENSLAND (SLOW)**

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<table>
<thead>
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<th>Variety</th>
<th>Baxter</th>
<th>Rees</th>
<th>Ellison *</th>
<th>Sunco</th>
<th>EGA Hume</th>
<th>Lang</th>
<th>EGA Wentworth</th>
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<tbody>
<tr>
<td>EGA WENTWORTH</td>
<td>98</td>
<td>97</td>
<td>-</td>
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<td>102</td>
<td>100</td>
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<tr>
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<td>EGA HUME</td>
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<td>ELLISON *</td>
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<td>-</td>
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<tr>
<td>BAXTER</td>
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</table>

**SOUTHERN QUEENSLAND (INTERMEDIATE)**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Kennedy</th>
<th>Ventura</th>
<th>Hartog</th>
<th>Leichhardt</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEICHHARDT</td>
<td>101</td>
<td>99</td>
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<td>HARTOG</td>
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<td>VENTURA</td>
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<tr>
<td>KENNEDY</td>
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Golden rewards
The philosophy of Golden Rewards is to reward growers for the quality of grain they deliver whilst delivering accurate market signals through the payment process. Pool distributions are fundamental to crop shaping. Historically the Golden Rewards payment system has included variety based pools de-linked from the binning of grain and active payment scales for protein, screenings and moisture. Golden Rewards - Premium Choice Varieties extends this system to include payments of premiums for selected preferred varieties. This principle is an expansion of our “Crop Shaping” initiatives and Premium Choice Varieties will reward growers who grow superior quality varieties that improve the overall marketability of a grade and therefore increase the Pool value for all growers. Premium Choice Varieties for Queensland and northern NSW are summarised in Table 7 (below).

Table 7 Golden Rewards Premium Choice Varieties 2007-08.

<table>
<thead>
<tr>
<th>Classification Region</th>
<th>Premium Choice Varieties</th>
<th>Premium*</th>
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<tbody>
<tr>
<td>QLD</td>
<td>Lang, Sunco, EGA Hume</td>
<td>$5/mt</td>
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<tr>
<td>NNSW</td>
<td>Lang, Sunco</td>
<td>$5/mt</td>
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* Subject to the relevant pool (APH) being offered by AWBI in that season.

Growers’ Notes ▼

The Department of Primary Industries and Fisheries (DPI&F) seeks to maximise the economic potential of Queensland’s primary industries on a sustainable basis.

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained in this report.

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PR07–2651

This information is based on data obtained from Queensland’s Department of Primary Industries & Fisheries, University of Sydney, University of Adelaide, Allied Mills Australia Pty. Ltd., Austgrains Pty Ltd, AWB Limited, AWB Seeds Ltd., PlantTech Pty Ltd., Sunprime Seeds Pty. Ltd, Pacific Seeds and edited by D.J. Lush.
This product has been subject to quality assurance producers for technical and aesthetic integrity. If you would like to comment on this product, please contact: DPI&F, PO Box 2282, Toowoomba Q. 4350 - Ph: (07) 4639 8888 Fax: (07) 4639 8800