

## 6. DEPARTMENT OF PRIMARY INDUSTRIES VARIETY TRIALS

### 6.1 CROP EVALUATION TRIALS IN SOUTHWEST VICTORIA

#### Abstract:

Crop evaluation field trials were conducted throughout Southwest Victoria to assess the suitability of current and potential varieties to the local environment. Most trials produced results useful to farmers, crop advisers and researchers. Particularly heavy rainfalls adversely affected some trials, especially in the Hamilton district. Several new varieties have been released and grain yield information is presented in this paper. Comprehensive data for the whole state and new variety descriptions are available in the Victorian Winter Crop Summary 2005 Edition.

#### Researchers:

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#### Acknowledgements:

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#### Funding Organization:

GRDC and the Victorian Government

#### Location:

Sites were at Lake Bolac (aka Streatham), Inverleigh (aka Gnarwarre), Dunkeld and Tarrington (aka Hamilton)



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#### Growing Season Rainfall (April-Nov):

|            |       |
|------------|-------|
| Streatham  | 406mm |
| Inverleigh | 388mm |
| Hamilton   | 430mm |

#### Background/Objectives:

Crop evaluation experiments are conducted by Department of Primary Industries every year with the aim of identifying high yielding varieties that meet specific grain quality requirements and are suitable for the regions long cool season conditions. Information from the experiments is used to select material for commercial release and provide current information to crop advisers and farmers.

#### Methodology:

Trials are arranged in a complete randomised block design with 3 replicates for each entry. All trials were sown on 1.7m raised beds except Canola at Tarrington and Inverleigh which was sown on the flat. Seed was sown and harvested with plot equipment. All grain yields are calculated for a 1.7m plot width.

#### Weed/Pest/Disease Control:

Grass and broadleaf weeds were controlled with registered chemicals. No fungicides or aphid controls were applied.



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**6.1.1 DPI LONG SEASON BARLEY VARIETY TRIALS (VIC)**

|            | Sowing Dates | Fertilizer | Rate      | Harvest Dates |
|------------|--------------|------------|-----------|---------------|
| Streatham  | 27/05/2004   | 13-16-07   | 100 KG/HA | 09/01/2005    |
| Inverleigh | 26/05/2004   | D.A.P      | 100 KG/HA | 17/12/2005    |
| Hamilton   | 01/06/2004   | D.A.P      | 100 KG/HA | 10/01/2005    |

**Results and Discussion:****Summary Discussion:**

Gairdner is the reference variety for these trials. For a variety to be statistically better yielding than Gairdner it must have a value greater than 114 at Inverleigh and 121 at Streatham and Hamilton. This is only one year's result subsequently, results must be viewed along with earlier year's results when selecting varieties for the coming season. In 2004 season, Franklin produced significantly higher yields than Gairdner only at Inverleigh. The newly released malting variety, Quasar, out-yielded Gairdner.

**Table of Results:**

| Name                    | Inverleigh  | Hamilton    | Streatham   |
|-------------------------|-------------|-------------|-------------|
| Franklin                | 119         | 111         | 106         |
| Gairdner                | 100         | 100         | 100         |
| Quasar                  | *           | *           | 128         |
| Sherwood <sup>8</sup>   | 130         | 114         | 185         |
| <b>Gairdner (t/ha)</b>  | <b>2.46</b> | <b>2.41</b> | <b>2.80</b> |
| <b>CV%</b>              | <b>7.0</b>  | <b>11.5</b> | <b>11.2</b> |
| <b>LSD%</b>             | <b>14</b>   | <b>21</b>   | <b>21</b>   |
| <b>Site mean (t/ha)</b> | <b>2.85</b> | <b>2.53</b> | <b>3.18</b> |

**Conclusions:**

Despite susceptibility to scald, Gairdner is still a good choice of variety for barley growers who aim to produce a malting barley in high rainfall environments

**Key Outcomes:**

Quasar was released as a malting variety barley.

<sup>8</sup> Note : Sherwood is for grain quality comparative purpose and is not available in Australia

**6.1.2 DPI LONG SEASON WHEAT VARIETY TRIALS (VIC)**

|            | Sowing Dates | Fertilizer | Rate      | Harvest Dates |
|------------|--------------|------------|-----------|---------------|
| Streatham  | 27/05/2004   | 13-16-07   | 100 KG/HA | 15/01/2005    |
| Inverleigh | 26/05/2004   | D.A.P      | 100 KG/HA | 17/12/2005    |
| Hamilton   | 01/06/2004   | D.A.P      | 100 KG/HA | 12/01/2005    |

**Results and Discussion:****Summary Discussion:**

The wet year at Hamilton resulted in waterlogging which affected trials at the site. Kellalac is the reference variety. For a variety to be statistically better yielding than Kellalac it must have a value greater than 114 for Inveleigh and 117 for Streatham. This is only one year's result subsequently, results must be viewed along with earlier year's results when selecting varieties for the coming season. In 2004 season, Chara, Mackellar and Rudd produced higher yields than Kellalac at Inverleigh and Streatham. Screenings were adequate for most varieties.

**Table of Results:**

| Name                    | Inverleigh  | Hamilton    | Streatham   |
|-------------------------|-------------|-------------|-------------|
| Chara                   | 115         |             | 117         |
| Ega Gregory             | 84          | too         | 115         |
| EGA Wedgetail           | 108         | variable    | 120         |
| EGA Wylie               | 85          | for         | 109         |
| Kellalac                | 100         | inclusion   | 100         |
| Mackellar               | 149         |             | 150         |
| PegasusII               |             |             |             |
| Rudd                    | 147         |             | 143         |
| Tennant                 | 127         |             | 109         |
| Torlesse                |             |             |             |
| Whistler                | 113         |             | 98          |
| Wylah                   | 126         |             | 111         |
| <b>Kellalac (t/ha)</b>  | <b>1.96</b> | <b>2.06</b> | <b>3.39</b> |
| <b>CV%</b>              | <b>7.0</b>  | <b>16.9</b> | <b>7.8</b>  |
| <b>LSD</b>              | <b>14</b>   | <b>35</b>   | <b>17</b>   |
| <b>Site Mean (t/ha)</b> | <b>2.32</b> | <b>2.55</b> | <b>4.31</b> |

| Name          | Inverleigh |           | Hamilton |           | Streatham |           |
|---------------|------------|-----------|----------|-----------|-----------|-----------|
|               | 1000gw     | % < 2.0mm | 1000gw   | % < 2.0mm | 1000gw    | % < 2.0mm |
| Chara         | 46.0       | 0.5       | 41.4     | 4.8       | 40.4      | 2.8       |
| EGA Gregory   | 46.2       | 1.7       |          |           |           |           |
| EGA Wylie     | 43.0       | 1.8       |          |           |           |           |
| EGA Wedgetail | 44.0       | 0.9       | 40.6     | 4.5       | 42.0      | 1.9       |
| Kellalac      | 42.0       | 0.9       | 37.2     | 4.4       | 39.0      | 1.9       |
| Mackellar     | 43.4       | 1.7       | 41.8     | 7.8       | 43.0      | 5.1       |
| PegasusII     |            |           | 42.0     | 2.8       |           |           |
| Rudd          | 47.4       | 0.6       | 42.8     | 2.2       | 44.0      | 0.5       |
| Tennant       | 53.4       | 1.3       | 49.4     | 5.0       | 52.2      | 5.8       |
| Torlesse      |            |           | 40.4     | 27.7      |           |           |
| Whistler      | 40.6       | 1.5       | 39.4     | 7.4       | 38.8      | 3.4       |
| Wylah         | 42.2       | 0.4       | 40.8     | 5.2       | 40.4      | 2.3       |

Note : PegasusII and Torlesse are New Zealand varieties that are not available in Australia.

**Conclusions:**

Chara and Mackellar are still suitable varieties for growing in high rainfall environments despite increased susceptibility to some diseases.

**Key Outcomes:**

Two new varieties were released; EGA Gregory and EGA Wylie.



### 6.1.3 DPI MID AND LONG SEASON TRITICALE VARIETY TRIALS (VIC)

|            | Sowing Dates | Fertilizer | Rate     | Harvest Dates |
|------------|--------------|------------|----------|---------------|
| Streatham  | 18/05/2004   | 13.16.0.7  | 100KG/HA | 15/01/2005    |
| Inverleigh | 26/05/2004   | D.A.P      | 100KG/HA | 26/05/2004    |
| Hamilton   | 12/05/2004   | D.A.P      | 100KG/HA | 12/01/2005    |

#### Results and Discussion:

##### Summary Discussion:

The wet year at Hamilton resulted in waterlogging which affected trials. No named variety yielded higher than Abacus at the Streatham long season trial. This result fits 5 year trends. No named variety yielded higher than Tahara at the mid season trials. Yukuri, Tickit and Treat yielded equally as well at Tahara at both mid season trials. Trial results over the last 5 years show that Kosciusko, Treat, Tickit and Tahara give similar yield in Southwest Victoria.

##### Table of Results:

| Name                    | Hamilton      | Streatham |
|-------------------------|---------------|-----------|
| Abacus                  |               | 100       |
| Breakwell               | too variable  | 83        |
| Jackie                  | for inclusion | 82        |
| Maiden                  |               | 65        |
|                         |               |           |
|                         |               |           |
|                         |               |           |
|                         |               |           |
| <b>Abacus (t/ha)</b>    | 2.99          | 4.06      |
| <b>CV%</b>              | 22.0          | 6.7       |
| <b>LSD</b>              | 34            | 9         |
| <b>Site mean (t/ha)</b> | 2.60          | 3.53      |

| Name                    | Inverleigh | Streatham |
|-------------------------|------------|-----------|
| Abacus                  | 101        | 109       |
| Credit                  | 91         | 101       |
| Kosciusko               | 91         | 92        |
| Prime322                | 93         | 109       |
| Yukuri                  | 97         | 98        |
| Tahara                  | 100        | 100       |
| Tickit                  | 100        | 114       |
| Treat                   | 96         | 112       |
| <b>Tahara (t/ha)</b>    | 2.79       | 3.58      |
| <b>CV%</b>              | 2.3        | 8.8       |
| <b>LSD</b>              | 4          | 16        |
| <b>Site mean (t/ha)</b> | 2.70       | 3.80      |

##### Conclusions:

Abacus, Tickit, Treat and Tahara are suitable grain producing triticales varieties for production in the high rainfall zone.

##### Key Outcomes:

A new variety free from PBR, Yukuri, was released.

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### 6.1.4 DPI TT AND MID CONVENTIONAL CANOLA VARIETY TRIALS (VIC)

|           | Sowing Dates | Fertilizer | Rate      | Harvest Dates |
|-----------|--------------|------------|-----------|---------------|
| Streatham | 28/05/2004   | 13.16.0.7  | 100 KG/HA | 20/12/2004    |
| Hamilton  | 03/06/2004   | D.A.P      | 100 KG/HA | 17/12/2004    |

#### Results and Discussion:

##### Summary Discussion:

Only the TT canola trial at Streatham produced results with a suitably low cv (<15%) for drawing conclusions about variety performance. In all 3 trials, no named variety produced grain yields significantly higher to the controls (AV Sapphire and ATR Grace). Surpass501TT produced significantly lower yields than ATR Grace at Hamilton. Average oil contents for each trial were 41.7% for Streatham TT canola, 42.9% at Hamilton TT canola, 44% at Streatham conventional canola.

##### Table of Results:

| Name                      | Streatham | Name                    | Hamilton | Streatham |
|---------------------------|-----------|-------------------------|----------|-----------|
| 45C05                     | 110       | ATR-BEACON              | 98       | 100       |
| 45C75                     | 111       | ATR-GRACE               | 100      | 100       |
| 46C04                     | 121       | ATR-HYDEN               | 96       | 94        |
| 46C76                     | 123       | BRAVO_TT                | 111      | 114       |
| AG-SPECTRUM               | *         | SURPASS501TT            | 70       | 94        |
| AV-SAPPHIRE               | 100       | TORNADO_TT              | 97       | 115       |
| HYOLA61                   | 116       |                         |          |           |
| LANTERN                   | 105       |                         |          |           |
| MC201                     | 111       |                         |          |           |
| MC202                     | 106       |                         |          |           |
| RAINBOW                   | 122       |                         |          |           |
| SKIPTON                   | 106       |                         |          |           |
| SURPASS603CL              | 109       |                         |          |           |
| <b>AV Sapphire (t/ha)</b> | 1.85      | <b>ATR Grace (t/ha)</b> | 1.05     | 2.17      |
| <b>CV%</b>                | 12.0      | <b>CV%</b>              | 8.0      | 8.6       |
| <b>LSD%</b>               | 25        | <b>LSD%</b>             | 14       | 15        |
| <b>Site mean (t/ha)</b>   | 2.16      | <b>Site Mean (t/ha)</b> | 1.05     | 2.25      |

##### Conclusions:

Most named varieties gave similar grain yields to other TT or conventional varieties. Canola varieties known to have the Sylvesteris gene for blackleg (Surpass 603CL and Surpass 501TT) did not suffer grain yield losses due to breakdown of the resistance gene. However, these varieties still should not be grown. The 2 speciality oilseeds (MC201 and MC202) produced comparable grain yields to conventional canola varieties.

##### Key Outcomes:

Several new varieties were released; Skipton, Hyola 61 and Bravo TT. 2005 Blackleg ratings guide should be used to assess blackleg rating of all varieties.