

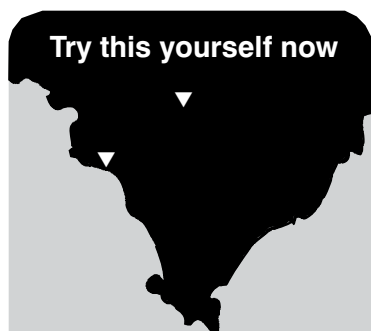
# District canola variety trial at Witera and time of sowing trials at Minnipa

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RESEARCH

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### Location:

Witera  
Port Kenny  
Craig Welsh  
Port Kenny Ag Bureau

### Rainfall

Av. Annual: 400 mm  
Av. GSR: 300 mm  
2011 Total: 447 mm  
2011 GSR: 257 mm

### Yield

Potential: Canola 3.0 t/ha  
Actual: 1.8 t/ha

### Paddock History

2010: Medic Pasture  
2009: Keel Barley  
2008: Wheat

### Soil Type

Clay loam over red brown earth

### Plot size

10 m x 1.5 m x 3 reps

### Yield Limiting Factors

Chemical damage and some mice damage

### Location:

Minnipa Agricultural Centre

### Rainfall

Av. Annual: 325 mm  
Av. GSR: 241 mm  
2011 Total: 404 mm  
2011 GSR: 252 mm

### Yield

Potential: Canola 2.72 t/ha  
Actual: 2.41 t/ha

### Paddock History

2010: Barley  
2009: Wheat  
2008: Wheat

### Soil Type

Brown loam

### Plot size

10 m x 1.5 m x 3 reps

### Yield Limiting Factors

Mice damage in TOS 1, not very bad in TOS 2

## Key messages

- Early break to the season triggers a very early canola sowing time (22 March) in a time of sowing trial at Minnipa.
- Disappointing yields and no stand out varieties in time of sowing 1 (TOS1) at Minnipa missing the full potential for early sowing due to shattering and mice damage.
- Exceptional yields in TOS2 Clearfield trial at Minnipa where Hyola 571 CL, Pioneer 44Y84 CL and Pioneer 43C80 CL all exceeded 2.5 t/ha.
- ATR Stingray, CB Junee HT and ATR Snapper are the highest yielding TOS2 TT lines at Minnipa.
- Hybrids Hyola 571 CL, Pioneer 45Y82 CL and Pioneer 44Y84 CL shine in the Clearfield trial at Witera yielding above 2 t/ha.
- ATR Cobbler, ATR Stingray and Tanami are the best performing TT lines at Witera.
- Oil content in canola is above 42% across all trials.

## Why do the trial?

There is limited ongoing released canola variety yield data available for low rainfall areas such as Minnipa and none for the Mount Cooper area. These trials compare current released varieties at two locations on Eyre Peninsula.

The very early break to the season and good subsoil moisture provided an opportunity to plant a TOS trial to see how early canola can successfully be grown and what yields are possible.

## How was it done?

### Minnipa

The time of sowing (TOS) 1 trial was sown 22 March, with 6 Triazine Tolerant (TT) and 5 Clearfield canola lines (CL). The TOS2 was sown 3 May with 9 TT and 6 Clearfield canola lines, 3 conventional canola lines were evaluated at both times of sowing. The management details of this trial are shown in Table 1.

### Witera

The trial was sown on 3 May with 9 TT canola, 6 Clearfield canola and 3 conventional canola lines. The management details are shown in Table 2.

## What happened?

### Minnipa

The TOS1 trial at Minnipa germinated well after 67 mm of rain the week before sowing, but these conditions didn't last long with only 9 mm of rain falling in April. The canola did struggle through this period, turning all shades of purple until 10 mm of rain fell on the 1 and 2 May which allowed the canola to recover and the second TOS treatment to be sown. The trials enjoyed good rainfall events for the next 4 months allowing multiple applications of nitrogen and successful weed control. Mice started to show up in the TOS1 trial in early podding varieties, trimming and eating every fresh pod, which had a negative effect on yield. Baiting did reduce mice numbers but never totally controlled the problem. The canola was very adaptable given favourable conditions, as it branched out and continued to produce flowers and pods. TOS1 had massive growth and cabbage for a low rainfall environment; in contrast TOS2 reached half the height of TOS1.

**Table 1 Trial management of canola TOS and variety evaluation at Minnipa, 2011**

|                           | <b>MAC Distict TOS 1<br/>Canola (Conventional<br/>TT &amp; Clearfield)</b> | <b>MAC District TOS 2 TT</b>   | <b>MAC District TOS 2 CL</b>   | <b>MAC District TOS 2<br/>Conventional</b>                                 |
|---------------------------|--|--|--|--|
| Seeding Date              | 22 March   | 3 May  | 3 May  | 3 May  |
| Fertiliser                | 19:13:0:9.4 @ 79 kg/ha & 46:0:0:0 @ 92 kg/ha                               | 19:13:0:9.4 @ 63 kg/ha & 46:0:0:0 @ 92 kg/ha                               | 19:13:0:9.4 @ 63 kg/ha & 46:0:0:0 @ 92 kg/ha                               | 19:13:0:9.4 @ 63 kg/ha & 46:0:0:0 @ 92 kg/ha                               |
| Date and chemical applied | 22 March<br>1 L/ha Gramoxone + 1 L/ha TreflurX + 1 L/ha Lorsban            | 22 March<br>1 L/ha PowerMax + 70 ml/ha Hammer + 1 L/100 LI700              | 22 March<br>1 L/ha PowerMax + 70 ml/ha Hammer + 1 L/100 LI700              | 22 March<br>1 L/ha PowerMax + 70 ml/ha Hammer + 1 L/100 LI700              |
|                           | 6 May<br>400 ml/ha Select + 200 ml/ha Astound Duo + 1 L/100Lwater Hasten   | 17 June<br>350 ml/ha Select + 300 ml/ha Astound Duo + 1 L/100Lwater Hasten | 17 June<br>350 ml/ha Select + 300 ml/ha Astound Duo + 1 L/100Lwater Hasten | 17 June<br>350 ml/ha Select + 300 ml/ha Astound Duo + 1 L/100Lwater Hasten |
|                           | 6 June<br>400 ml/ha Astound Duo  | 1 July<br>Sulphate of Ammonia @ 75 kg/ha                                   | 1 July<br>Sulphate of Ammonia @ 75 kg/ha                                   | 1 July<br>Sulphate of Ammonia @ 75 kg/ha                                   |
|                           | 8 June<br>250 ml/ha Dimethoate   | 2 July<br>Sulphate of Ammonia @ 75 kg/ha                                   | 2 July<br>Sulphate of Ammonia @ 75 kg/ha                                   | 2 July<br>Sulphate of Ammonia @ 75 kg/ha                                   |
|                           | 1 July<br>Sulphate of Ammonia @ 150 kg/ha                                  | 8 June<br>250 ml/ha Dimethoate   | 8 June<br>250 ml/ha Dimethoate   | 8 June<br>250 ml/ha Dimethoate   |
|                           |  | 7 July<br>1 L/ha Gesaprim 600 Sc + 1 L/100L Hasten + 400 ml/ha Astound Duo | 7 July<br>550 ml/ha Intervix + 1 L/100L Hasten + 400 ml/ha Astound Duo     |  |
|                           |  | 12 July<br>Urea @ 90 kg/ha   | 12 July<br>Urea @ 90 kg/ha   | 12 July<br>Urea @ 90 kg/ha   |
|                           |  | 19 October<br>1.5 L/ha Gramoxone   | 19 October<br>1.5 L/ha Gramoxone   | 19 October<br>1.5 L/ha Gramoxone   |
| Harvest Date              | 17 October   | 31 October   | 31 October   | 31 October   |

**Table 2 Trial management of canola variety evaluation at Witera, 2011**

|                         | <b>Witera Distict TT</b>  | <b>Witera District CL</b>   | <b>Witera District Conventional</b>   |
|-------------------------|---|---|---|
| Seeding Date            | 3 May   | 3 May   | 3 May   |
| Fertiliser              | 19:13:0:9.4 @ 94 kg/ha & 46:0:0:0 @ 39 kg/ha  | 19:13:0:9.4 @ 94 kg/ha & 46:0:0:0 @ 39 kg/ha  | 19:13:0:9.4 @ 94 kg/ha & 46:0:0:0 @ 39 kg/ha  |
| Date & Chemical Applied | 3 May<br>1 L/ha PowerMax + 1.5 L/ha TriflurX + 60 ml/ha Hammer + 1 L/100L LI 700 + 1 L/ha Lorsban | 3 May<br>1 L/ha PowerMax + 1.5 L/ha TriflurX + 60 ml/ha Hammer + 1 L/100L LI 700 + 1 L/ha Lorsban | 3 May<br>1 L/ha PowerMax + 1.5 L/ha TriflurX + 60 ml/ha Hammer + 1 L/100L LI 700 + 1 L/ha Lorsban |
|                         | 7 June<br>250 ml/ha Dimethoate  | 7 June<br>250 ml/ha Dimethoate  | 7 June<br>250 ml/ha Dimethoate  |
|                         | 8 July<br>Urea @ 90 kg/ha   | 8 July<br>Urea @ 90 kg/ha   | 8 July<br>Urea @ 90 kg/ha   |
|                         | 8 July<br>1.2 L/ha Gesaprim 600 Sc + 1 L/100L Hasten  | 8 July<br>600 ml/ha Intervix + 1 L/100L Hasten  |   |
|                         |   | 12 July<br>150 ml/ha Lontrel  |   |
|                         | 24 October<br>1.5 L/ha Paraquat   | 24 October<br>1.5 L/ha Paraquat   | 24 October<br>1.5 L/ha Paraquat   |
| Harvest Date            | 8 November  | 8 November  | 8 November  |

**Table 3 Canola variety evaluation at Minnipa and Witera, 2011**

| Variety             | Minnipa TOS 1 2011 |         | Minnipa TOS 2 2011 |         | Witera 2011  |         |                |
|---------------------|--------------------|---------|--------------------|---------|--------------|---------|----------------|
| Triazine Tolerant   | Yield (t/ha)       | Oil (%) | Yield (t/ha)       | Oil (%) | Yield (t/ha) | Oil (%) | Average (t/ha) |
| ATR Stingray        | na                 | na      | 2.53               | 47.5    | 1.87         | 47.5    | 2.20           |
| CB Junee HT         | na                 | na      | 2.52               | 47.7    | 1.67         | 47.4    | 2.10           |
| ATR Snapper         | na                 | na      | 2.40               | 43.1    | 1.73         | 43.6    | 2.07           |
| Hurrican TT         | 1.31               | 44.9    | 2.33               | 43.3    | 1.70         | 47.3    | 1.78           |
| ATR Cobbler         | 1.32               | 45.7    | 2.31               | 48.3    | 1.91         | 45.6    | 1.85           |
| CB Tanami           | 1.43               | 46.6    | 2.29               | 48.5    | 1.87         | 48.0    | 1.86           |
| Tawriffic TT        | 1.30               | 45.2    | 2.07               | 42.3    | 1.79         | 46.1    | 1.72           |
| CB Telfer           | 0.84               | 42.1    | 2.05               | 44.4    | 1.38         | 43.0    | 1.42           |
| Tornado TT          | 1.37               | 44.2    | 1.83               | 45.0    | 1.53         | 44.6    | 1.58           |
| <b>Mean</b>         | <b>1.26</b>        |         | <b>2.26</b>        |         | <b>1.72</b>  |         | <b>1.84</b>    |
| CV                  | 11.25              |         | 5.60               |         | 6.50         |         |                |
| LSD ( $P=0.05$ )    | 0.37               |         | 0.30               |         | 0.19         |         |                |
| <b>Clearfield</b>   |                    |         |                    |         |              |         |                |
| Hyola 571 CL        | 1.38               | 49.4    | 2.67               | 46.4    | 2.27         | 47.1    | 2.11           |
| Pioneer 44Y80 CL    | 1.40               | 48.4    | 2.66               | 50.2    | 2.03         | 46.0    | 2.03           |
| Pioneer 43C80 CL    | 1.23               | 42.9    | 2.54               | 45.4    | 1.66         | 44.2    | 1.81           |
| Pioneer 45Y82 CL    | 1.57               | 47.9    | 2.47               | 45.4    | 2.09         | 47.7    | 2.04           |
| Pioneer 44C79 CL    | 1.31               | 43.2    | 2.31               | 41.8    | 1.50         | 43.3    | 1.71           |
| Xceed Oasis CL      | na                 |         | 1.79               |         | 1.40         |         | 1.60           |
| <b>Mean</b>         | <b>1.38</b>        |         | <b>2.41</b>        |         | <b>1.83</b>  |         | <b>1.88</b>    |
| CV                  | 4.12               |         | 8.50               |         | 10.89        |         |                |
| LSD ( $P=0.05$ )    | 0.16               |         | 0.54               |         | 0.51         |         |                |
| <b>Conventional</b> |                    |         |                    |         |              |         |                |
| Hyola 50            | 1.57               | 45.5    | 2.59               | 47.5    | 1.99         | 49.8    | 2.05           |
| AV Garnet           | 1.82               | 50.5    | 2.46               | 48.4    | 1.86         | 49.5    | 2.05           |
| Tarcoola            | 1.33               | 46.7    | 2.16               | 46.8    | 1.50         | 44.1    | 1.66           |
| <b>Mean</b>         | <b>1.57</b>        |         | <b>2.40</b>        |         | <b>1.78</b>  |         | <b>1.92</b>    |
| CV                  | 3.56%              |         | 2.72%              |         | 3.12%        |         |                |
| LSD ( $P=0.05$ )    | 0.21               |         | 0.25               |         | 0.21         |         |                |

Unfortunately when the TOS1 canola was ready for harvest it became very windy and wet which shattered the trial and the full yield potential of early sowing was lost. Across the trial, TTs averaged 1.26 t/ha (Table 3), Clearfield 1.38 t/ha and conventional 1.57 t/ha which was disappointing considering the growth. TOS2 on the other hand produced fantastic yields with the Clearfields Hyola 571 CL, Pioneer 44Y84 CL and Pioneer 43C80 CL exceeding 2.5 t/ha. Two of the best TT lines, ATR Stingray and CB Junee HT, yielded over 2.5 t/ha

also. See Table 3 for full yield and oil content details.

### Witera

The trial site at Witera had abundant subsoil moisture due to good rains in February, March and April, receiving 205 mm in those 3 months. The canola trials were sown on 3 May with confident moisture levels and continued to receive good rainfall events through to the end of September. This produced healthy bulky, canola crops. The only set back

was some drift of MCPA LVE which knocked the trial around at early flowering, which may explain the lower than expected yields. Hybrid Clearfield canolas Hyola 571 CL, Pioneer 45Y82 CL and Pioneer 44Y84 CL performed well, producing yields above 2 t/ha where the trial averaged 1.83 t/ha (Table 3). In the TT lines ATR Cobbler (1.91 t/ha), ATR Stingray (1.87 t/ha) and Tanami (1.87 t/ha) were the highest yielding lines with the trial averaging 1.72 t/ha. Table 3 provides full yield and oil content details.

## What does this mean?

The best performing lines across all three trials for TTs were ATR Stingray, CB Junee HT (Hybrid) and ATR Snapper. For the Clearfields, Hyola 571 CL (hybrid), Pioneer 45Y82 CL (hybrid) and Pioneer 44Y84 CL (hybrid), and the best non hybrid was Pioneer 43C80 CL. Hyola 50 and AV Garnet averaged the same with 2.05 t/ha in the conventional lines across all 3 trials, out-yielding Tarcoola which averaged 1.66 t/ha. Oil content this year across the trials was excellent with all varieties above 42%.

Very early sowing like TOS1 on the 22 March is possible if an early break occurs and canola can be established. However some problems with early establishment may be early mice damage, dry periods after establishment and shattering when growing season rainfall is still occurring. One option to avoid shattering problems is to wind row the mature lines. Minnipa does not have wind rowing capability with small plot trials to counteract this problem.

Hybrid seed production is where there is cross pollination of two distinctly different pure lines which will produce a hybrid (F1 seed) that exhibits a marked improvement in performance over either parent. Performance traits such as grain yield, disease resistance, herbicide resistance, relative maturities, lodging resistance, oil content and meal quality are the result of hybrid vigour. However, seed from the next generation (F2 or retained seed) and subsequent ones is not hybrid and it will not have the heterosis of the original purchased hybrid canola seed and may have lost some useful agronomic and physiological traits. <http://www.pacificseeds.com.au/images/stories/canola/information/agronomy/2010HyolaGenerationTrialResults.pdf>

Hybrid seed is expensive to produce therefore attracts a premium for the purchase of the seed in the range of \$25 per kilogram. This is very expensive and risky in low yielding environments.

For further yield evaluation see the NVT tables for canola in this section or, browse the NVT web site [www.nvtonline.com.au](http://www.nvtonline.com.au) for varietal characteristics, yield and quality data.

## Acknowledgements

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