

## 2.5 Canola

### 2.5.1 Canola variety trials - Mininera, Vic

#### Location:

Mininera Research Site.

#### Funding:

This was an SFS Streatham Branch funded trial.

#### Researchers:

Jon Midwood, Mark Steele, Gary Sheppard & Sam Cockayne - all SFS.

#### Authors:

Rohan Wardle, Ben O'Connor - SFS.

#### Acknowledgements:

Thanks to Rowley Patterson for providing the land for this trials programme.

#### Background/Aim:

Canola is a commonly used break crop in the cereal rotation. It has the ability to return a highly profitable gross margin when prices and yield allow. A wide selection of variety options are presented when considering canola. These include Triazine Tolerant, Clearfield, Conventional and now Round Up Ready varieties. Key features to consider when selecting canola varieties are yield potential, oil content, black leg resistance, early vigour and suitability of maturity to local season length. The canola variety trial at Mininera compares a number of commercially available Triazine Tolerant, Clearfield and Conventional canola varieties.

#### Paddock history:

2006: Wheat 2007: Wheat

#### Soil type:

Sandy clay

#### Soil nutrients:

N = 30mg/kg (0-10cm) + 7.4mg/kg (10-60cm),  
P = 51mg/kg (Colwell),  
K = 0.49 Meq/100g,  
S = 14mg/kg,  
pH (CaCl<sub>2</sub>) = 4.7

#### Tillage type:

This trial was seeded with the SFS cone seeder using 2.5cm knife points.

#### Diseases:

There was very mild black leg pressure across some susceptible canola varieties at the Mininera trial site for the 2008 season.

#### Take home messages:

- **Conventional** canola at Mininera in 2008 yielded an average 1.4 t/ha. The highest yielding variety was Hyola 50 with 1.45 t/ha. The highest oil percentage was 44.20% achieved by Garnet.
- The average yield for **Clearfield** canola varieties was 1.15 t/ha. The highest yielding variety was 46Y81 with 1.27 t/ha and had the highest oil percentage with 45.38%.
- The average yield for **Triazine Tolerant** varieties was 1.06 t/ha. The highest yielding variety was Rottness with 1.41 t/ha. All TT varieties achieved oil percentages above 42%, the highest of which was Tawriffic with 45.48%. This TT canola showed very poor early vigour in the 2008 season and was badly affected by bird damage.
- The late time of sowing of this trial has significantly impacted on the yields, given the 2008 season. In addition to this, yields were partly affected by a severe frost in late October which damaged many commercial canola crops in the Streatham and surrounding districts.

#### Trial information:

Trial design consisted of a replicated randomised block design using 4 repetitions. Plot lengths were 12 metres long and 1.45m wide. Rainfall was highly variable throughout the season, with a wet winter, then very dry Spring. Late rainfall in mid December did not contribute to the yield result of this trial.

#### Rainfall:

Avg. Annual: 589.7mm, Ararat Prison 1969-2008  
Avg. G.S.R.: 449.4mm, Ararat Prison 1969-2008  
2008 Total: 534.0mm, Mininera Research Site  
2008 G.S.R.: April – November = 330.5mm<sup>1</sup> **110 mm below average.**

<sup>1</sup> 1/3 of Dec (70.5mm), Jan (79mm) & Feb (14.8mm) with monthly totals above 20mm + ½ March (22.5mm) rainfall when total above 20mm + ((April – November rainfall) – 90mm\*) x 20kg/mm/ha. In total December-March adjusted rainfall to stored soil water = 61.0mm, plus April-November = 330.5mm, minus evaporation factor\* =>301.5mm **Therefore, for Mininera, the canola variety trial water limited yield should be 4.52t/ha, or 301.5mm x 15kg/mm/ha.**

**Treatment list:** 12 current varieties of Triazine Tolerant canola, five current varieties of Clearfield canola and four current varieties of Conventional canola were trialled at the Mininera research site.

**Sowing rate:** Seeding rate based on seed size with a desire to establish 80 plants/m<sup>2</sup>.

#### Sowing date:

19<sup>th</sup> June 2008

Note: The late sowing date of this trial has had a significant impact on yields given the season.

**Harvest date:** 21<sup>st</sup> December 2008

#### Fertiliser:

- 19/6/08 100kg/ha MAP
- 8/7/08 50 kg N/ha (urea)
- 26/9/08 110 kg urea/ha (Clearfield and Conventional only)

#### Herbicides:

##### TT Canola

- 18/6/08 Round Up @ 1.5L/ha + Striker @ 0.15L/ha + Trifluralin @ 1.5 L/ha
- 27/6/08 Simazine @ 2.5 L/ha

##### Clearfield and Conventional Canola

- 18/6/08 Round Up @ 1.5L/ha + Striker @ 0.15L/ha + Trifluralin @ 1.5 L/ha
- 27/6/08 Dual Gold @ 0.25 L/ha (Conv only)
- 27/6/08 Intervix @ 0.45 L/ha + Hasten @ 0.5 L/ha (Clearfield only)
- 27/7/08 Select @ 0.25 L/ha + Hasten @ 1.0 L/ha (Conv only)

#### Desiccant:

- 8/12/08 Reglone @ 2.0 L/ha (TT and Clearfield)

**Results and discussion:**

The Triazine Tolerant canola varieties yielded an average of 1.06 t/ha at the Mininera research site. The highest yielding variety was Rottnest with 1.41 t/ha at 133% of the site mean. The late time of sowing severely impacted on the yield potential of the trial in addition to the short and dry finish, although the late sowing also meant that the severe frost of 23<sup>rd</sup> of October was avoided, where complete wipe-out was recorded across many commercial paddocks.

Due to this late sowing, the TT canola varieties demonstrated exceptionally poor early vigour, with bird damage more pronounced throughout this trial. With this said, the early and early-mid maturity varieties out yielded the later maturing varieties, confirming the influence of the dry finish. All TT varieties achieved an oil content above 42%, the variety with the highest oil content was Tawriffic with 45.48% followed by Argyll with 45.12%.

**Conclusion:**

The Conventional canola varieties were the highest yielding with an average of 1.4 t/ha at the Mininera research site. The Clearfield and Triazine Tolerant varieties averaged 1.15 and 1.06 t/ha respectively. The TT varieties will have suffered a yield penalty due more to the reduced nitrogen inputs rather than poor early crop vigour and bird damage as was observed. All but one variety across all treatments achieved oil contents above the 42% threshold, with Clearfield varieties averaging 43.70% and TT varieties averaging 43.62%. The late time of sowing not only affected canola yield potentials but in addition helped miss the severe frost in late October which damaged many of the canola crops in the Streatham and surrounding districts, allowing for an overall acceptable canola trial output.

**Table 1:** Triazine Tolerant (TT) Canola, Mininera 2008.

Variety	Yield (t/ha) <sup>1</sup>	% of Site Mean	Oil (%)	Maturity
Rottnest	1.41 a	133	42.58 d	Early - Mid
Storm TT	1.27 ab	120	42.30 d	Mid
Hurricane TT	1.13 bc	107	43.02 cd	Early - Mid
ATR409	1.11 bcd	105	43.84 bc	Mid
Argyll TT	1.05 cde	99	45.12 a	Mid
Tawriffic	1.04 cde	98	45.48 a	Early-Mid
NL045	1.03 cde	97	44.94 a	Mid (Monola)
Flinders	0.97 c-f	92	44.72 d	Mid - Late
Thunder TT	0.96 c-f	91	42.20 d	Mid - Late
NL042	0.96 def	91	42.42 ab	Mid (Monola)
Marlin	0.89 ef	84	44.62 ab	Mid - Late
NMT310	0.85 f	80	42.18 d	Mid - Late (Monola)
<b>Mean</b>	<b>1.06</b>		<b>43.62</b>	
<b>LSD P=0.05</b>	<b>0.17</b>		<b>0.96</b>	
<b>CV</b>	<b>12.45</b>		<b>1.72</b>	

<sup>1</sup> Means followed by the same letter do not significantly differ (P=0.05, LSD)

The Clearfield and Conventional canola varieties yielded an average of 1.26 t/ha. The conventional varieties were the four highest yielding, the highest of which was Hyola 50 with 1.45 t/ha. These were followed by the Clearfield varieties of which the highest was 46Y81 with 1.27 t/ha.

The Clearfield and Conventional varieties yielded 0.20 t/ha higher than the TT varieties. This may be attributed to more the additional nitrogen and in minor to the increased early vigour in the Clearfield and Conventional varieties when sown late.

The Clearfield varieties averaged an oil content of 43.7% compared to the Conventional varieties with 42.98%. The highest oil contents were 44.20% and 45.38% for Garnet and 46Y81 respectively.

**Table 2:** Clearfield and Conventional Canola, Mininera 2008.

Variety	Yield (t/ha) <sup>1</sup>	% of Site Mean	Oil (%)	Type
Hyola 50	1.45 a	115	43.64	Conventional
NMC130	1.44 a	114	41.68	Conventional
Hyola 76	1.36 ab	108	42.42	Conventional
Garnet	1.33 abc	106	44.20	Conventional
46Y81	1.27 a-d	101	45.38	Clearfield
45Y77	1.22 bcd	97	42.18	Clearfield
44C79	1.16 cde	92	42.74	Clearfield
Hyola 571CL	1.10 de	87	44.10	Clearfield
46Y78	0.99 e	79	44.12	Clearfield
<b>Mean</b>	<b>1.26</b>			
<b>LSD P=0.05</b>	<b>0.19</b>			
<b>CV</b>	<b>11.43</b>			

<sup>1</sup> Means followed by the same letter do not significantly differ (P=.05, LSD)