

### 2.3.2 Canola variety trial - Dunkeld, Vic

**Location:**

Dunkeld Research Site.

**Funding:**

This was an SFS Hamilton Branch funded trial.

**Researchers:**

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**Acknowledgements:**

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**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 more recently Roundup Ready varieties. Key features to consider when considering 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 Dunkeld compares a number of commercially available varieties representing the different herbicide systems.

**Paddock History:**

2007: Wheat 2008: Lupins

**Soil Type:** Sandy clay

**Soil Nutrients:**

N = 42.1mg/kg (0-10cm) + 13.6mg/kg (10-60cm)  
 P = 32mg/kg (Colwell)  
 K = 0.28 Meq/100g  
 S = 29.4mg/kg  
 pH (CaCl<sub>2</sub>) = 5.0.

**Take home messages:**

- Comparing the herbicide systems, TT varieties had the lowest average yield of 2.05 t/ha and Conventional varieties yielded the highest at an average of 2.59 t/ha.
- The highest yielding variety was Hyola 502 with 2.66 t/ha; the lowest yielding variety was Argyll TT with 1.67 t/ha.
- Overall oil levels were well below normal. TT varieties averaged 39.3%, Clearfield varieties 41.1% and Conventional and Roundup Ready varieties averaged 41.7%.
- The Hybrid varieties demonstrated much greater early vigour compared to the OP varieties.

**Trial information:**

Trial design consisted of a replicated randomised block design using 4 repetitions. Plot lengths were 14 metres long and 1.45m wide. Rainfall was highly variable throughout the season, with an average winter, then a wet August and September with a dry October. Late rainfall in November did not contribute to the yield result of this trial. There was also a significant period of weather early in November with average temperatures over 4°C warmer than average, which coincided with grain fill.

**Rainfall:**

Avg. Annual: 597.8mm, Hamilton Airport 1991-2009  
 Avg. G.S.R. 466.5mm, Hamilton Airport 1991-2009  
 2009 Total: 562.4mm, Hamilton Airport 2009  
 2009 G.S.R. April – October = 447.2mm<sup>1</sup>  
**(Hamilton Airport; 41.6mm below average)**

<sup>1</sup> Yield Potential: 1/3 of Dec 2008(109mm), Jan 2009 (4.6mm) & Feb (0.4mm) with monthly totals above 20mm + ½ March (29mm) rainfall when total above 20mm + ((April – November 20th rainfall) – 124mm\*) x 20kg/mm/ha. In total December-March adjusted rainfall to stored soil water = 50.8mm, plus April-November 20th = 447.2mm, minus evaporation factor of 124mm\* => 374mm. Therefore, for Dunkeld, the Canola Variety Trial water limited yield should be 7.48t/ha, or 374mm x 20kg/mm/ha.

\*Kirkagaard 2009, Evaporation intercept adjustment for a clay loam.

**Treatment list:**

Nine current varieties of Triazine Tolerant canola, five Clearfield canolas and three current varieties of Conventional canola were trialled at the Dunkeld research site.

**Sowing rate:**

Seeding rate based on seed size with a desire to establish 50 plants/m<sup>2</sup>.

**Sowing date:** 20/5/09

**Harvest:** 14 Dec - Direct Head

**Insecticide:** 28 May Axe @ 0.2L/ha

**Desiccant:** 2 Dec Reglone @ 2.0 L/ha

**Fertiliser:**

- 20 May 100kg/ha MAP
- 1 Sept 90 kg/ha (Urea)

**Herbicides:**

- 20 May Roundup @ 2.0L/ha + Trifluralin @1.2 L/ha
- 20 May Striker @ 0.2L/ha
- 28 May Dual Gold @ 0.25L/ha
- 10 July Lontrel @ 0.2L/ha
- 10 July Select @ 0.25 L/ha + Hasten @ 1.0 L/ha

**Tillage type:**

This trial was seeded with the SFS cone seeder on 17.125 cm (6 ¾ inch) row spacing using 2.5cm knifepoints and Janke high V press wheels.

**Diseases:**

There was mild black leg development in susceptible canola varieties at the Dunkeld trial site for the 2009 season.

**Results and discussion:**

Thunder topped the Triazine Tolerant (TT) canola variety trial at Dunkeld with a yield of 2.37 t/ha. This was 116% of the 2009 site mean. Argyll TT was the lowest performer of 2009 recording 1.67 t/ha, as it did at the Inverleigh site. Monola 77 performed well at Dunkeld as it did in the NVT trials.

Oil percentages were severely affected by the rapid finish to the season prior to windrowing time, especially the TT varieties which averaged 39.3%.

A mean yield of 2.43t/ha was observed in this trial and 45Y82 was the highest with 2.56t/ha. Early - Mid maturity variety 45Y82 achieved the highest oil percentage with 42%.

Through the early stages of the growing season the hybrids, in all systems, demonstrated much greater vigour compared to the Open pollinated varieties. This can be a useful tool against predation and getting your crop through those early stages of growth, when they are so susceptible.

**Summary:**

The top yielding canola varieties, as a group, were the conventional varieties with an average yield of 2.59t/ha, nearly 0.6t/ha more than the mean of the TT varieties. The highest yielding variety was a Roundup Ready variety Hyola 502 at 2.66t/ha.

The Conventional and Roundup Ready varieties had the highest oil percentages, with an average of 41.7%. These levels are lower than we are used to getting and may well be due to the impact of the unusually high temperatures during the first two weeks of November which effectively shortened grain fill.

**Table 1:** Triazine Tolerant (TT) Canola, Dunkeld 2009.

Variety	Type	Yield (t/ha)	% of Site Mean	3 Yr Mean (2 Yr)	Oil (%)	Maturity
Thunder	Op	2.37	116	-	40.4	Mid - Late
Monola 77	Op	2.32	113	-	42.7	Mid - Late
ATR409	Op	2.15	105	-	39.4	Mid
CB Tumby	Hy	2.09	102	-	37.3	Early - Mid
Lightning	Op	2.07	101	-	39.6	Mid
Marlin	Op	2.01	98	-	40.9	Mid - Late
CB Scaddan	Op	2.00	98	-	38.1	Mid
CB Jardee	Hy	1.79	87	-	38.0	Mid
Argyll TT	Op	1.67	81	-	37.4	Early - Mid
Mean		2.05				
LSD (0.05)		0.33				
CV		10.98				

**Table 2:** Clearfield Canola, Dunkeld 2009.

Variety	Type	Yield (t/ha)	% of Site Mean	3 Yr Mean (2 Yr)	Oil (%)	Maturity
45Y82	Hy	2.56	105	-	42.0	Early - Mid
46Y78	Hy	2.51	103	-	41.2	Mid
46Y83	Hy	2.49	102	-	41.0	Mid
Hyola 571	Hy	2.35	97	-	39.7	Early - Mid
45Y77	Hy	2.26	93	-	41.7	Early - Mid
Mean		2.43				
LSD (0.05)		0.22				
CV		5.84				

**Table 3:** Conventional Canola, Dunkeld 2009.

Variety	Type	Yield (t/ha)	% of Site Mean	3 Yr Mean (2 Yr)	Oil (%)	Maturity
Hyola 50	Hy	2.64	102	-	40.7	Mid
Hyola 76	Hy	2.61	101	-	42.8	Mid - Late
Garnet	Op	2.52	97	-	41.6	Mid
Mean		2.59				
LSD (0.05)		0.3				
CV		6.62				

**Table 4:** Roundup Ready Canola, Dunkeld 2009.

Variety	Type	Yield (t/ha)	% of Site Mean	3 Yr Mean (2 Yr)	Oil (%)	Maturity
Hyola 502	Hy	2.66	104	-	39.4	Early - Mid
46Y20	Hy	2.61	102	-	43.6	Mid
CHYB-166	Hy	2.57	100	-	40.0	Early - Mid
Hyola 601	Hy	2.41	94	-	43.9	Mid
Mean		2.56				
LSD (0.05)		0.16				
CV		3.84				