

2.3 Canola

2.3.1 Canola variety trial - Inverleigh, Vic

Location:

Inverleigh Research Site.

Funding:

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Researchers:

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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 Round Up 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 Inverleigh compares a number of commercially available varieties representing the different herbicide systems.

Paddock History:

2007: Wheat 2008: Barley

Soil Type:

Sandy clay loam

Soil Nutrients:

N = 16mg/kg (0-10cm) + 4.1mg/kg (10-60cm)
P = 43mg/kg (Colwell)
K = 0.5 Meq/100g
S = 11mg/kg
pH (CaCl₂) = 5.8.

Tillage type:

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

Take home messages:

- Comparing the herbicide systems, TT varieties had the lowest average yield of 2.07 t/ha and Conventional varieties yielded the highest at an average of 2.69 t/ha.
- The highest yielding variety was Hyola 76 with 2.79 t/ha; the lowest yielding variety was Argyll TT with 1.67 t/ha.
- Overall oil levels were well below normal with only the Clearfield varieties having an average of 40.5%.
- 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 12 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: 483.9mm, Sheoaks 1991-2009
Avg. G.S.R.: 386.5mm, Sheoaks 1991-2009
2009 Total: 502.0mm, Inverleigh Research Site
2009 G.S.R.: April – October = 317.0mm¹

(Inverleigh Research Site; 73mm below average)

¹ Yield Potential: 1/3 of Dec (77mm), Jan (2mm) & Feb (4mm) with monthly totals above 20mm + ½ March (36mm) rainfall when total above 20mm + ((April – October rainfall) – 117mm*) x 20kg/mm/ha. In total December-March adjusted rainfall to stored soil water = 43.6mm, plus April-October = 317.0mm, minus evaporation factor of 117mm* => 243.6. **Therefore, for Inverleigh, the Canola Variety Trial water limited yield should be 4.87t/ha, or 243.6mm x 20kg/mm/ha.**

Treatment list:

Nine current varieties of Triazine Tolerant canola, five Clearfield canolas and four current varieties of Conventional and Roundup Ready varieties were trialled at the Inverleigh research site.

Sowing rate:

Seeding rate based on seed size with a desire to establish 50 plants/m².

Sowing date:

11/5/09

Fertiliser:

11 May 100kg/ha MAP
31 June 50 kg/ha (urea)
1 Sept 50 kg/ha (urea)

Harvest:

18 Nov - Direct Head

Insecticide:

18 May Axe @ 0.2L/ha

Herbicides:

- 11 May Sprayseed @ 1.5L/ha + Trifluralin @ 1.5 L/ha
- 18 May Dual Gold @ 0.25L/ha
- 9 July Lontrel @ 0.15L/ha (not RR)
- 9 July Atrazine @ 1.7L/ha (only TT)
- 9 July Roundup Ready @ 0.9Kg/ha (only RR)
- 9 July Intervix @ 0.6L/ha (only CF)
- 9 July Select @ 0.25 L/ha + Hasten @ 1.0 L/ha (not RR)

Desiccant:

13 Nov Reglone @ 2.0 L/ha

Diseases:

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

Results and discussion:

Lightning topped the Triazine Tolerant (TT) canola variety trial at Inverleigh with a yield of 2.33 t/ha. This was 113% of the 2009 site mean. Argyll TT was the lowest performer of 2009 recording 1.67 t/ha, after topping the yields in 2008. Marlin and Rottnest recorded a yield slightly above the site average and they have demonstrated a reliable performance, at 102% of site mean, over a three year period. It's interesting to note that although the canola stopped ripening properly due to the hot November weather, the longer season length varieties performed better than anything less than a mid season length.

Oil percentages were severely affected by the rapid finish to the season prior to windrowing time.

A mean yield of 2.52t/ha was observed in this trial and 46Y83 was the highest with 2.72t/ha. Early - Mid maturity variety 46Y81 achieved the highest oil percentage with 41.4%. The longer season length varieties performed better than anything less than a mid season length.

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.

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

Variety	Type	Yield (t/ha)	% of Site Mean	3 Yr Mean (2 Yr)	Oil (%)	Maturity
Lightning	Op	2.33	113	-	37.1	Mid
Monola 77	Op	2.23	108	-	39.6	Mid - Late
CB Jardee	Hy	2.15	104	-	35.1	Mid
Marlin	Op	2.14	103	102	37.3	Mid - Late
Rottnest	Op	2.09	101	102	36.7	Early - Mid
CB Tumby	Hy	2.08	100	-	36.7	Early - Mid
Hurricane TT	Op	1.97	95	85	38.4	Early - Mid
Tawriffic	Op	1.94	94	(102)	38.3	Early - Mid
Argyll TT	Op	1.67	81	(107)	35.0	Early - Mid
Mean		2.07				
LSD (0.05)		0.30				
CV		10.15				

Table 2: Clearfield Canola, Inverleigh 2009.

Variety	Type	Yield (t/ha)	% of Site Mean	3 Yr Mean (2 Yr)	Oil (%)	Maturity
46Y83	Hy	2.72	108	-	41.0	Mid
46Y78	Hy	2.60	103	105	40.8	Mid
45Y77	Hy	2.49	99	102	40.1	Early - Mid
Hyola 571	Hy	2.39	95	(96)	39.5	Early - Mid
45Y82	Hy	2.38	94	-	41.4	Early - Mid
Mean		2.52				
LSD (0.05)		0.22				
CV		5.62				

Table 3: Conventional Canola, Inverleigh 2009.

Variety	Type	Yield (t/ha)	% of Site Mean	3 Yr Mean (2 Yr)	Oil (%)	Maturity
Hyola 76	Hy	2.79	104	-	36.6	Mid - Late
Hyola 50	Hy	2.73	101	(104)	38.9	Mid
Victory 3001	OP	2.62	97	-	40.1	Mid
Garnet	OP	2.62	97	(92)	38.6	Mid
Mean		2.69				
LSD (0.05)		0.16				
CV		3.42				

Summary:

The top yielding canola varieties, as a group, were the conventional varieties with an average yield of 2.69t/ha, nearly 0.6t/ha more than the mean of the TT varieties. This group also included the highest yielding variety Hyola 76 at 2.79t/ha.

Even with the tight finish to the season the Clearfield varieties had the highest oil percentages as a system, with them all above 40%, except for Hyola 571. There was a trend for the longer season varieties to yield better than the shorter season varieties. This may well be due to the impact of the unusually high temperatures during the first two weeks of November and the shorter season varieties being at a more critical stage.

Table 4: Roundup Ready Canola, Inverleigh 2009.

Variety	Type	Yield (t/ha)	% of Site Mean	3 Yr Mean (2 Yr)	Oil (%)	Maturity
46Y20	Hy	2.74	114	-	40.1	Mid
Hyola 502	Hy	2.37	98	-	37.3	Early - Mid
Hyola 601	Hy	2.29	95	-	39.7	Mid
CHYB - 166	Hy	2.25	93	-	37.1	Early - Mid
Mean		2.41				
LSD (0.05)		0.23				
CV		5.18				