3.4 Canola

3.4.1 Canola variety trial - Inverleigh, Vic

Location: SFS Inverleigh Research Site

Funding:

This was an SFS Geelong Branch Funded Trial

Researcher(s): Southern Farming Systems

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Acknowledgements:

Thanks to John Hamilton for providing the land for this trial

Background/Aim:

Summary of findings:

- 2011 proved to be a high yielding year for Canola. The site mean from this trial was 2.99 t/ha.
- The Roundup Ready varieties yielded the highest at a mean of 3.09t/ha followed by both Clearfield and TT varieties at 2.93 t/ha.
- As was the case at Lake Bolac, 45Y21 RR was the highest yielding cultivar at Inverleigh producing 3.48 t/ha or 116% of the site mean
- Crusher TT and Hyola 575 CF were the top performers in their categories, yielding at 109% and 111% of the site mean.
- Oil content was more variable than at Lake Bolac. The mean value from Inverleigh was 43.7% across all varieties.

To evaluate a range of commercially available varieties. These reflect the most widely grown varieties in the area and include others that may be considered in the future. They include a number of different grades, reflecting market options in Southern Victoria.

Rainfall:

 2011 Total:
 595 mm

 Avg. Annual:
 548 mm

 2011 G.S.R.:
 377 mm

 Avg. G.S.R.:
 407 mm

Paddock History:

2009: Wheat 2010: Barley

Soil Characteristics:

Soil Type:	Sandy loam
pH (1:5 CaCl):	6.2
Deep N (kg N/ha):	33.6
P (Colwell) (mg/kg):	91
K (Colwell) (mg/kg):	300
Organic Carbon %:	1.2

Yield Potential: The Water Limited Yield Potential (WLYP) for this trial was 3.10 t/ha.

*WLYP: Calculated using WUE values of 15kg/ha per mm rainfall for Wheat/Barley and 7kg/ha per mm rainfall for Canola, 130mm assumed evaporation and GSR of 30% Jan & Feb + 50% Mar (only if >20mm) + April to November. This calculation makes an allowance for a % of stored moisture from the summer

Variety:	Various
Sowing rate:	Aiming to establish 60 plants/m ²
Sowing date:	15-May-11
Harvest date:	2-Dec-11
Plot size:	10m x 1.45m x 4 reps.
Plot type:	Flat
Measurements:	Cultivar yield is the primary component to be measured in this trial; however oil and test weight have also been measured in line with commercial practices.
Tillage type:	The trial was sown with the SFS cone seeder on 20cm row spacing's using 2.5cm knifepoints. Stubble burnt prior to sowing.
Diseases:	Blackleg was seen early on in the season during the wet conditions. Effective control methods and the season drying out resulted in the disease being kept at low levels. Slugs provided a challenge to establishment across the region and this was no different at the trial site. Populations were monitored and controlled through two applications of slug pellets during the early phases of crop development.

Table 1. Chemical applications to canola varieties at Inverleigh

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	Triazine Tolerant	Clearfield	Roundup Ready
	15-May-11 MAP 100kg/ha	15-May-11 MAP 100kg/ha	15-May-11 MAP 100kg/ha
Fertiliser			
	18-Aug-11 Urea 150kg/ha	18-Aug-11 Urea 150kg/ha	18-Aug-11 Urea 150kg/ha
Herbicide	15-May-11 Trifluralin 3L/ha,	15-May-11 Trifluralin 3L/ha,	15-May-11 Trifluralin 3L/ha,
	Roundup DST 2.3L/ha	Roundup DST 2.3L/ha	Roundup DST 2.3L/ha
	17-May-11 Dual Gold/	17-May-11 Dual Gold/	17-May-11 Dual Gold/Metolachlor
	Metolachlor 400ml/ha, Lorsban	Metolachlor 400ml/ha, Lorsban	400ml/ha, Lorsban 700ml/ha
	700ml/ha	700ml/ha	
			6-Jun-11 Lorsban 2L/ha, Talstar
	6-Jun-11 Lorsban 2L/ha, Talstar	6-Jun-11 Lorsban 2L/ha, Talstar	40ml/ha
	40ml/ha	40ml/ha	
			23-Aug-11 Liase 1L/ha, Select 240
	23-Aug-11 Liase 1L/ha, Atrazine	23-Aug-11 Liase 1L/ha, Intervix	0.5L/ha, Hasten 1L/ha
	2kg/ha, Verdict 520 0.075L.ha,	0.7L/ha, Verdict 530 0.075L/ha,	
	Uptake 0.5L/ha	Uptake 0.5L/ha	
	6-Jun-11 Lorsban 2L/ha, Talstar	6-Jun-11 Lorsban 2L/ha, Talstar	6-Jun-11 Lorsban 2L/ha, Talstar
Insecticide	40ml/ha	40ml/ha	40ml/ha
	15-Jun-11 Metarex 4kg/ha	15-Jun-11 Metarex 4kg/ha	15-Jun-11 Metarex 4kg/ha

Results and discussion:

2011 proved to be a high yielding year for Canola. The site mean from this trial was 2.99 t/ha (see table 1 below). The Roundup Ready varieties yielded the highest at a mean of 3.09t/ha followed by both Clearfield and Triazine Tolerant varieties at 2.93 t/ha.

Oil content was more variable than at Lake Bolac. The mean value from Inverleigh was 43.7% across all varieties. This is 1.7% above the base level level of 42% and so there would have been no deductions or rejections at receival. Given this season's market price of approximately \$500/t non-GM canola, this equates to an oil premium of \$12.75 (\$7.5 per percentage over the base level).

Across the region, broadacre growers, generally speaking, experienced high oil contents for the 2011 canola crop.

Generally speaking the mid to earlier maturing varieties in each category performed the best in this season, in this trial.



Image 1. Canola variety trial at Inverleigh

Table 1.	Yield and	quality	/ of canola	varieties
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Variety	Yield (t/ha)		% Site Mean	Oil Content (%)		Maturity
Triazine Tolerant						
Crusher TT	3.26	а	109%	42.8	С	Mid
Thumper TT	3.19	а	107%	44.6	b	Mid Late
Hyola 751 TT	2.99	ab	100%	42.9	С	Mid Late
Jackpot TT	2.86	bc	96%	45.9	а	Mid Early
Jardee TT	2.83	bc	95%	42.7	С	Mid
Hyola 555 TT	2.75	bc	92%	43.6	bc	Mid Early
Monola 605 TT	2.62	С	88%	43.5	bc	Early Mid
LSD 5%	0.31			1.27		
CV	7.12					
Mean	2.93			43.7		
Clearfield						
Hyola 575CF	3.31	а	111%	43.5	а	Mid
07N406I CF	2.97	ab	99%	44.5	а	
Hyola 474 CF	2.94	ab	98%	44.8	а	Mid Early
45Y82 CF	2.81	b	94%	43.0	а	Early Mid
46Y83 CF	2.61	b	87%	45.3	а	Mid Early
LSD 5%	0.38			1.7		
CV	8.28					
Mean	2.93			44.2		
Roundup Ready						
45Y21 RR	3.48	а	116%	43.7	b	Mid Early
Hyola 404 RR	3.32	ab	111%	45.9	а	Early Mid
45Y22 RR	3.28	ab	110%	43.5	b	Mid Early
Hyola 505 RR	3.19	ab	107%	43.3	b	Mid Early
104 RR	3.03	bc	101%	37.3	С	
46Y20 RR	2.70	С	90%	44.5	b	Mid
Mustang RR	2.67	с	89%	44.4	b	Mid Late
LSD 5%	0.39			1.3		
CV	8.36					
Mean	3.09			43.3		
Site mean	2.99			43.7		

Means followed by same letter do not significantly differ (P=.05, LSD).

Pioneer's hybrid Roundup Ready variety, 45Y21, was the top yielding cultivar in the trial at 3.48t/ha (table 1). All RR varieties yielded above the site mean, with the hybrids outperforming the one open pollinated variety, GT Mustang. The early vigour of hybrids allows stronger plants to develop which leads to faster canopy closure. This aids emergence and leads to quicker growth out against pests whilst also providing in crop weed suppression. This would have ultimately been beneficial in achieving the higher yields from these varieties.

Across the trial, the Clearfield varieties had the highest mean oil content at 44.2%. Jackpot TT achieved the highest individual content of 45.9%.

Within the TT lines of canola Thumper and Crusher did not vary significantly in terms of yield. However, as was the case at Lake Bolac, Thumper had significantly higher oil content than Crusher at 1.8% more. This would make Thumper the more profitable variety in this trial.

Increased oil content can make up for any decreases in yield and is worth considering alongside seed yield alone when choosing between two relatively similar varieties. This is true for all varieties across the trial.



Graph 1. Yield performance of Canola varieties, complete with site mean.