

Mid season conventional canola National Variety Trials (NVT) in New South Wales

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Take Home Messages

- In 2007, the hybrids Hyola® 50, Hyola® 75 and Hyola® 76 and the open pollinated variety ^{AV}Garnet tended to consistently produce the highest yields of conventional varieties grown in the mid maturity trials across the NSW regions.
- The varieties with the highest average oil content in 2007 were Skipton and ^{AV}Jade. Location had a far greater effect on oil content than variety.
- The hybrids Hyola 50® and Hyola® 75, and the open-pollinated variety ^{AV}Garnet were the highest yielding canola varieties/hybrids in the mid season conventional trials from 2000-2007. However, note that not all commercially available varieties are listed.
- Variety choices need to be based on the variety's maturity, potential yield and oil content and blackleg resistance rating.
- Hybrid seed is more expensive than seed of open pollinated varieties.

Introduction

NVT is a national program of comparative crop variety testing with standardised trial management, data generation, collection and dissemination. The program is supported by the Australian Government and growers through the Grains Research and Development Corporation (GRDC) and is managed by the Australian Crop Accreditation System (ACAS) Limited. Further information can be found on the website: www.nvtonline.com.au.

This report provides the yield and oil results for five sites in NSW in 2007 and the long-term yield results for 2000-2007 from the mid maturity non herbicide tolerant (conventional) canola variety trials, constituting part of the NVT.

Methods

Information about methods used at each site can be viewed through the NVT online website www.nvtonline.com.au.

The New South Wales NVT trials were conducted by Agrisearch Services Pty. Ltd. Using small plot equipment.

Data was analysed using multi-environment trial (MET) analysis. The predictive ability of this method increases with the number of trials a variety has been in.

Bellata site:

The trial was sown into a clay soil with good subsoil moisture on 16 May 2007. Fertilisers applied on that date were 120 kg/ha urea and 52.7 kg/ha Starter Z (N:P:K:S:Zn

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10.5:19.2:0:2.2:2.5). The insecticide bifenthrin was applied at 0.10 L/ha as Talstar 100 EC and 1.7 L/ha trifluralin was applied for weed control on the same date. Early growth and plant emergence was very good to excellent. The post-emergent herbicides 80 mL/ha haloxyfop-R 520 g/L (+ Uptake) and 300 mL/ha clopyralid were applied on 2 July. The trial was topdressed with 151.5 kg/ha sulfate of ammonia on 30 July. Aphids were controlled with 1 kg/ha pirimicarb on 8 September. The crop was desiccated with paraquat + diquat at 2 L/ha on 5 October and harvested on 16 October. Rainfall for 2007 was 415 mm, but with only 160 mm (April-September) growing season rainfall (171 mm April-October). Only 35 mm fell between August and the end of October.

Croppa Creek site:

110 kg/ha urea was pre-drilled on 30 May. The site was sprayed 0.10 L/ha bifenthrin as Talstar 100 EC on the sowing date 11 May 2007. The trial was sown with 52.7 kg/ha Starter Z (N:P:K:S:Zn 10.5:19.2:0:2.2:2.5) and trifluralin was applied at 1.70 L/ha. The post-emergent herbicides 80 mL/ha Haloxyfop-R 520 g/L (+ Uptake) and 300 mL/ha clopyralid were applied on 19 July. The trial was topdressed with 152 kg/ha sulphate of ammonia on 30 July. The crop was desiccated with paraquat + diquat at 2 L/ha on 5 October and harvested on 12 October. Rainfall for 2007 was 408 mm (144 mm in December), with only 162 mm (April-September) growing season rainfall (193 mm April-October). 67 mm fell between August and the end of October.

Mullaley site:

120 kg/ha urea was pre-drilled on 2 May. The site was sprayed 0.10 L/ha bifenthrin as Talstar 100 EC on the sowing date 2 May 2007. The trial was sown with 42.7 kg/ha Starter Z (N:P:K:S:Zn 10.5:19.2:0:2.2:2.5) and trifluralin was applied at 1.70 L/ha. The post-emergent herbicides 80 mL/ha Haloxyfop-R 520 g/L (+ Uptake) and 300 mL/ha clopyralid were applied on 20 July. The trial was topdressed with 151 kg/ha sulphate of ammonia on 31 July. Aphids were controlled with 1 kg/ha pirimicarb on 10 September. The crop was desiccated with paraquat + diquat at 2 L/ha on 23 October and harvested on 31 October. Rainfall data for 2007 was not provided.

Harden site:

A knockdown of 1.50 L/ha glyphosate 540 g/L was applied on the sowing date of 9 May 2007. The site was sprayed 0.10 L/ha bifenthrin as Talstar 100 EC on the same day. The trial was sown with 115 kg/ha Granulock 12 (N:P:K:S:Zn 11.9:17:0:5.5:0) and trifluralin was applied at 1.50 L/ha. The herbicides 0.25 L/ha S-Metolachlor 960g/L as Dual Gold was also applied. The trial was harvested on 21 November. Rainfall for 2007 was 452 mm with only 214 mm growing season (April-October) rainfall and 154 mm falling in November and December. Only 40 mm fell between August and the end of October.

Grenfell site:

A knockdown of 1.50 L/ha glyphosate 540 g/L was applied on the sowing date of 8 May 2007. The site was sprayed 0.10 L/ha bifenthrin as Talstar 100 EC on the same day. The trial was sown with 120 kg/ha Granulock 12 (N:P:K:S:Zn 11.9:17:0:5.5:0) and trifluralin was applied at 1.50 L/ha. 300 mL/ha clopyralid and 80 mL/ha Haloxyfop-R 520 g/L were applied post-emergent on 29 June. The trial was topdressed with 120 kg/ha Single Super on the same day. The trial was harvested on 4 December. Rainfall data for 2007 was not provided.

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Results

In 2007, the hybrids Hyola® 50, Hyola® 75 and Hyola® 76 and the open pollinated variety ^{AV}Garnet tended to consistently produce the highest yields of mid-season conventional varieties across the regions at the NVT sites (Table 1).

Table 1:

Yield of conventional canola varieties in the mid maturity in NSW in 2007 expressed as a percentage of ^{AV}Sapphire.

Variety	Maturity	North East			South East	
		Bellata	Croppa Creek	Mullaley	Harden	Grenfell
^{AV} Sapphire (t/ha)		1.09	1.65	1.81	1.50	0.42
		% ^{AV} Sapphire				
Hyola® 50	Early-mid	148	118	131	141	219
Hyola® 75	Mid	126	125	130	147	267
Hyola® 76	Mid-late	119	108	127	121	152
Skipton	Mid	111	111	120	105	93
^{AV} Garnet	Mid	109	124	107	135	231
^{AV} Sapphire	Mid	100	100	100	100	100
^{AG} Spectrum	Early	106	109	93	102	148
^{AV} Jade	Early-mid	114	110	83	121	136
Site Mean (t/ha)		1.22	1.84	1.91	1.79	0.63
CV (%)		6.31	5.94	8.98	7.20	14.97
LSD (%)		11	10	14	13	33

Location had a far greater effect on oil content than variety. The varieties with the highest oil content on average were Skipton and ^{AV}Jade, with similar variability between sites (Table 2).

Table 2:

Oil content (%) of conventional canola varieties/hybrids in the mid maturity trials in NSW in 2007.

Variety	North East			South East	
	Bellata	Croppa Creek	Mullaley	Harden	Grenfell
Skipton	41.2	42.2	36.6	41.5	34.1
^{AV} Jade	40.1	42.2	38.1	39.8	34.0
Hyola® 50	39.5	41.3	37.9	38.3	31.1
^{AV} Garnet	38.7	41.1	35.9	38.2	32.5
Hyola® 76	39.4	40.6	38.0	40.4	31.4
^{AV} Sapphire	38.6	39.6	37.9	39.1	31.5
Hyola® 75	37.1	38.8	39.6	41.1	35.0
^{AG} Spectrum	37.7	38.8	36.3	37.6	32.5

The hybrids Hyola® 50 and Hyola® 75, and the open-pollinated variety ^{AV}Garnet were, the highest yielding varieties/hybrids in the mid season conventional trial in NSW NVT from 2000-2007 (Table 3), as predicted by the MET analysis.

Note that not all currently available varieties are listed in the table and that the prediction has better accuracy with an increased number of trials.

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Table 3:

Long-term predicted yield (t/ha) of conventional canola varieties/hybrids in the mid maturity NSW trials from 2000 to 2007. Number of trials in brackets.

Variety	North East	North West	South East	South West
Hyola® 50	1.98 (7)		2.34 (4)	
^{AV} Garnet	1.91 (7)		2.27 (4)	
Hyola® 75	1.91 (13)	2.08 (2)	2.30 (18)	1.94 (4)
Hyola® 76	1.84 (4)		2.16 (2)	
06H932 (specialty)	1.81 (2)			
Skipton	1.71 (26)	1.81 (7)	1.95 (37)	1.66 (8)
^{AV} Jade	1.70 (13)	1.79 (2)	1.99 (18)	1.69 (4)
Pioneer®46C04	1.69 (30)	1.73 (9)	1.97 (47)	1.69 (13)
^{AG} Spectrum	1.69 (26)	1.76 (7)	1.98 (37)	1.62 (8)
Rivette	1.69 (20)	1.76 (6)	1.93 (31)	1.68 (5)
^{AV} Sapphire	1.62 (29)	1.67 (9)	1.92 (45)	1.59 (10)

Commercial practice

In addition to a variety's track record for yield and oil content, growers should select a variety based on the maturity most suited to the growing season of the crop. Later sowing may require a slightly earlier maturing variety. The choice of variety also needs to match up the risk of blackleg to the variety's blackleg resistance rating, as fungicides alone will not give complete control of the disease when disease pressure is high. The triazine tolerant (TT) varieties are generally inherently lower yielding than conventional varieties. A conventional variety of canola is preferred to a TT if the weed population and herbicide rotation suits it. Hybrid seed is around \$12/kg more expensive than open pollinated varieties and cannot be retained for sowing the following year's crop.

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