

## 2007 CANOLA & JUNCEA CANOLA TRIALS

# Mid maturity triazine tolerant canola National Variety Trials (NVT) in Victoria

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### Take Home Messages

- Canola yields in NVT trials in SW Victoria averaged 2.6 t/ha. In NE Victorian and the Wimmera, they were very low (0.6 t/ha).
- In 2007, the highest yielding mid-season varieties in SW Victoria were Tawriffic TT, Rottnest TTC and <sup>ATR</sup>Marlin. For the Wimmera, they were Bravo TT, Tawriffic TT, and <sup>ATR</sup>Cobbler. For NE Victoria, <sup>ATR</sup>Cobbler, Rottnest TTC, Tornado TT, Storm TT and Bravo TT produced more consistently high yields.
- Location had an important impact on oil content, and varieties had a small effect. The varieties with the highest oil content in 2007 tended to be Tawriffic TT, <sup>ATR</sup>Marlin, Tornado TT and <sup>ATR</sup>Barra.
- Long-term predicted yields for a number of varieties are presented for four regions in Victoria.
- Variety choices need to be based on the variety's maturity, potential yield and oil content and blackleg resistance rating as well as the weed population in the paddock.

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### 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](http://www.nvtonline.com.au).

This report provides the yield and oil results for seven sites in 2007 and the long-term yield results for 2000-2007 from the mid maturity triazine tolerant canola variety trials, constituting part of the NVT.

### Methods

The 2007 Hamilton, Streatham and Minyip trials were conducted by the Victorian Department of Primary Industries and the Katamatite trial was conducted by Agrisearch Services Pty. Ltd. These were undertaken 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.

For the long-term data analysis, note that the triazine tolerant varieties were sown in the same trials as the conventional canola varieties before 2004. They were treated as conventional varieties (ie no triazine herbicides applied) between 2000-2003.

#### **Hamilton site:**

Weeds in the trial plots were sprayed with a knockdown of glyphosate as 2 L/ha Roundup Powermax on 24 April 2007, with a pre-sowing spray of clopyralid at 0.3 L/ha on 24 April. 2 L/ha atrazine and 2 L/ha simazine were sprayed on the sowing date. The Hamilton site was sown into good moisture and subsoil moisture with 10 kg/ha MAP (with 2% S) on 2 May 2007 into sandy-loam/loam. 0.1 L/ha S-metolachlor 960g/L as Dual Gold was also applied. An additional application of clopyralid at 0.3 L/ha was used with a grass spray of Haloxypop-R 130 g/L at 0.4 L/ha on 23 July. Rainfall for 2007 was 680 mm, with 470 mm GSR (Apr-Nov). The trial was windrowed on 20 November and harvested 10 Dec 2007. Further details of paddock history, plant establishment etc. can be found on the ACAS website.

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### **Streatham site:**

Weeds in the trial plots were sprayed with a knockdown of 2 L/ha glyphosate 450 g/L plus clopyralid at 0.15 L/ha on 7 May. The Streatham site was sown into good moisture and subsoil moisture with 100 kg/ha DAP (2% S) on 8 May 2007 into sandy loam. It was sprayed with 0.15 L/ha bifenthrin 100g/L as Talstar 100 EC and 0.25 L/ha S-metolachlor 960g/L as Dual Gold. 2 L/ha each of atrazine and simazine were also applied. Insects were controlled with 0.1 L/ha omethoate on 23 May. A post-emergent spray of clethodim at 0.25 L/ha for grass weeds and clopyralid at 0.35 L/ha were applied on 6 August. Early growth measured on 31 July was generally very good. Rainfall for 2007 was 654 mm, with 478 mm GSR (Apr-Nov). The trial was windrowed on 26 November and harvested 11 December 2007. Further details of paddock history, plant establishment etc. can be found on the ACAS website.

### **Teesdale site:**

Trial plots were sprayed for weeds with 0.25 L/ha S-metolachlor 960g/L as Dual Gold, and 2 L/ha each of atrazine and simazine; and insects were controlled with 0.1 L/ha bifenthrin 100g/L as Talstar 100 EC on the sowing date, 9 May 2007. The Teesdale site was sown into good moisture and subsoil moisture with 100 kg/ha DAP (2% S) on 8 May 2007 into sandy loam/loam. Insects were controlled with 0.1 L/ha each of omethoate and alpha-cypermethrin on 25 June. Metaldheyde was also used on 25 June and A post-emergent spray of clethodim at 0.25 L/ha for grass weeds was applied. 0.4 L/ha haloxyfop-R and 0.35 L/ha clopyralid were applied on 6 August. Early growth measured on 31 July was generally very good. Rainfall for 2007 was 551 mm, with 415 mm GSR (Apr-Nov). The trial was windrowed on 20 November and harvested 5 December 2007. Further details of paddock history, plant establishment etc. can be found on the ACAS website.

The results of the trial were very variable as indicated by the relatively high coefficient of variation (14.3%), where 15% is at the upper limit for acceptability for NVT. Therefore, interpret variety performance with caution for this site.

### **Minyip site:**

A knockdown of 1 L/ha glyphosate 450 g/L was applied with chlorpyrifos 500 g/L immediately before sowing into good moisture on 25 May 2007. The trial was sown with 100kg/ha Granulock SupremeZ (N:P:K:S 12:21:0:4). 1.5 L/ha trifluralin (480 g/l) was also applied post-sowing. 0.10 L/ha bifenthrin 100g/L as Talstar 100 EC was applied on

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26 June. Atrazine was applied post-emergence on 7 August 2007. Rainfall for 2007 was 341 mm, with 154 mm GSR (Apr-Oct), and only 15 mm falling between August and October. Early growth measured on 31 July was poor to very good, depending on variety. The trial was harvested 20 November 2007. Further details of paddock history, plant establishment etc. can be found on the ACAS website.

### **Katamatite:**

A knockdown of 1.5 L/ha of glyphosate 540 g/L was applied immediately before sowing on 2 May 2007. The trial was sown with 100kg/ha Granulock 15 (N:P:K:S 14:12:0:10). 1.5 L/ha trifluralin (480 g/l) was also applied. 0.1 L/ha bifenthrin 100g/L as Talstar 100 EC was applied post-emergent on 17 May. 0.12 L/ha clopyralid was sprayed post-emergent on 7 July and 100 kg/ha urea was topdressed on 20 July. On the same day, 1.7 L/ha was applied. The trial was harvested on 15 November 2007. Rainfall for 2007 was 460 mm, with 248 mm GSR (Apr-Oct), and only 40 mm falling between August and October. Early growth measured on 15 June was generally excellent. Further details of paddock history, plant establishment etc. can be found on the ACAS website.

### **Results**

In 2007, the varieties Tawriffic TT, Rottnest TTC and <sup>ATR</sup>Marlin produced the most consistently high yields in South West Victoria (Table 1).

For the Wimmera yields were low and only one site was included in the NVT dataset presented. The varieties Bravo TT, Tawriffic TT, and <sup>ATR</sup>Cobbler produced the higher yields relative to other varieties.

In northeast Victoria, yields were low in 2007 like the Wimmera. The varieties <sup>ATR</sup>Cobbler, Rottnest TTC, Tornado TT, Storm TT and Bravo TT produced the more consistently high yields, relative to other varieties.

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**Table 1:**

Yield of mid maturity triazine tolerant canola varieties in 2007 Victorian trials expressed as a percentage of <sup>ATR</sup>Summitt.

		South West			Wimmera	North East	
	Maturity	Teesdale	Streatham	Hamilton	Minyip	Katamatite	Yarrawonga
<sup>ATR</sup> Summitt (t/ha)		2.19	2.74	2.68	0.58	0.61	0.61
		% <sup>ATR</sup> Summitt					
Storm TT	Mid	-	-	-	-	105	115
<sup>ATR</sup> Marlin	Mid-late	126	135	117	105	130	87
Tawriffic TT	Mid	155	116	103	119	92	111
Rottnest TTC	Early-mid	133	113	101	98	131	123
<sup>ATR</sup> Summitt	Mid-late	100	100	100	100	100	100
Flinders TTC	Mid-late	108	95	97	97	90	75
<sup>ATR</sup> Cobbler	Early-mid	121	95	93	110	149	164
Tornado TT	Mid	124	94	85	98	118	111
<sup>ATR</sup> Barra	Mid-late	119	93	112	105	89	89
Thunder TT	Mid-late	99	89	106	93	107	105
Bravo TT	Early-mid	96	84	113	129	107	113
<sup>ATR</sup> Beacon	Early-mid	75	84	98	107	102	85
<sup>ATR</sup> Banjo	Early	87	73	83	107	102	85
Site Mean (t/ha)		2.56	2.67	2.65	0.61	0.65	0.61
CV (%)		14.29	7.34	7.74	12.49	9.69	12.61
LSD (%)		27	11	13	22	16	20

In 2007, the average oil content was excellent for southwest Victoria with its long growing season in 2007, but low for the Wimmera and northeast Victoria where there was an early finish to the season (Table 2).

Variety had far less effect on oil content than location.

The varieties with the highest oil content in 2007 tended to be Tawriffic TT, <sup>ATR</sup>Marlin, Tornado TT and <sup>ATR</sup>Barra (Table 2). However, the oil content of <sup>ATR</sup>Marlin was less consistent across sites.

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**Table 2:**

Oil content (%) of mid maturity conventional canola varieties in 2007 Victorian trials.

Variety/hybrid	South West			Wimmera	North East	
	Teesdale	Streatham	Hamilton	Minyip	Katamatite	Yarrowonga
<sup>ATR</sup> Marlin	46.8	45.7	48.0	39.4	39.4	33.0
Tawriffic TT	46.8	45.5	47.8	39.3	39.8	37.2
Tornado TT	45.5	44.1	45.5	39.5	39.4	35.3
Storm TT	-	-	-	-	36.9	33.4
<sup>ATR</sup> Cobbler	45.3	43.8	44.9	38.0	36.6	33.7
<sup>ATR</sup> Summitt	44.8	43.4	47.1	38.4	34.1	32.9
<sup>ATR</sup> Banjo	43.7	43.1	46.5	39.7	38.4	34.2
<sup>ATR</sup> Barra	45.1	43	46.2	39.3	38.0	35.1
Flinders TTC	44.3	42.8	46.3	39.6	35.9	33.6
Bravo TT	44.4	42.2	46.1	38.7	35.5	33.1
Thunder TT	44.6	42.1	45.6	39.5	36.0	34.2
Rottnest TTC	43.9	41.9	44.0	37.3	36.5	33.5
<sup>ATR</sup> Beacon	44.2	40.6	45.8	37.9	33.8	31.7

<sup>ATR</sup>Marlin, Tarwiffic TT, ATR409 and CB<sup>TM</sup>Argyle were the highest yielding mid season TT varieties in southwest Victoria tested and analysed for long-term predicted yield in NVT from 2000-2007 (Table 3). In NE Victoria, <sup>ATR</sup>Cobbler, CB<sup>TM</sup>Argyle, Bravo TT and Tarwiffic TT were the highest yielding varieties. For the Wimmera and north central Victoria, less data were available for predicting yields. Of the varieties analysed, Bravo TT, <sup>ATR</sup>Marlin, <sup>ATR</sup>Summitt and ATR409 were the highest yielding in the Wimmera.

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 average yield (t/ha) and number of trials (brackets) of mid season triazine tolerant canola varieties from 2000 to 2007 Victorian trials. Note: not all new varieties are shown in analysis.

Variety	South West	Wimmera	North East	North Central
<sup>ATR</sup> Marlin	2.31 (5)	1.29 (2)	1.40 (2)	
Tawriffic TT	2.29 (3)		1.41 (2)	
ATR409	2.29 (5)	1.25 (2)	1.38 (2)	
CB <sup>TM</sup> Argyle	2.29 (3)		1.44 (2)	
<sup>ATR</sup> Barra	2.23 (5)	1.23 (2)	1.34 (2)	
Bravo TT	2.22 (12)	1.31 (5)	1.43 (6)	1.17 (3)
ThunderTT	2.20 (9)	1.23 (4)	1.38 (5)	1.12 (2)
BLN3850TT	2.19 (3)		1.36 (2)	
<sup>ATR</sup> Cobbler	2.18 (3)		1.44 (2)	
Rottnest TTC	2.17 (3)		1.37 (2)	
<sup>ATR</sup> Summitt	2.14 (16)	1.26 (6)	1.34 (7)	1.07 (3)
Flinders TTC	2.11 (5)	1.21 (2)	1.30 (2)	
TornadoTT	2.06 (17)	1.13 (7)	1.29 (9)	1.02 (4)
<sup>ATR</sup> Beacon	2.02 (20)	1.17 (8)	1.23 (9)	1.07 (4)
NMT320	2.01 (3)		1.21 (2)	
<sup>ATR</sup> Banjo	1.96 (3)		1.24 (2)	
CB <sup>TM</sup> Boomer	1.95 (3)		1.26 (2)	
CB <sup>TM</sup> IT6601	1.94 (3)		1.24 (2)	
NMT370	1.66 (5)	0.92 (2)	0.95 (2)	
Storm TT			1.34 (2)	

### Commercial practice

In addition to its 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 and the weed population in the paddock. The triazine tolerant varieties are inherently lower yielding by 13-15%. In commercial crops, this is often compensated by the fact that the TT varieties can often be sown earlier than conventional varieties. 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.