

# Mid maturity Clearfield® canola National Variety Trials (NVT) in Victoria

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## Take Home Messages

- In 2007, the hybrids Pioneer®46Y78 and Pioneer®46Y77 tended to consistently produce the highest yields of varieties grown in the mid-season Clearfield® trials across the Victorian regions. Warrior CL also performed comparatively well in regions with an early finish to the season.
- Oil content varied considerably between sites in 2007. The varieties with the highest oil content in 2007 tended to be Warrior CL and Pioneer®46Y78.
- The hybrid Pioneer®46Y78 and the open-pollinated variety Pioneer®46C76, were on average, the highest yielding mid season Clearfield® canola varieties/hybrids in Victoria from 2000-2007. However, note that not all current 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](http://www.nvtonline.com.au).

This report provides the yield and oil results for six sites in 2007 and the long-term yield results for 2000-2007 from the mid maturity imidazolinone tolerant (Clearfield®) 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, as part of the National Variety Trials program.

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 Clearfield® varieties and hybrids were sown in the same trials as the conventional canola varieties before 2007. They were

## 2007 CANOLA & JUNCEA CANOLA TRIALS

treated as conventional varieties (ie no group B herbicides applied) between 2000-2006.

### **Hamilton site:**

Weeds in the trial plots were sprayed with a knockdown of 2 L/ha glyphosphate 540 g/L as Roundup Powermax plus clopyralid at 0.15 L/ha on 24 April. The Hamilton site was sown into good moisture and subsoil moisture with 100 kg/ha MAP (with 2% S) on 2 May 2007 into sandy-loam/loam. A post-emergent spray of imazapic/imazapyr as OnDuty® at 55 g/ha was applied on 6 June. An additional applications of clopyralid at 0.3 L/ha was used with a grass spray of Haloxyfop-R 130 g/L at 0.4 L/ha on 23 July. Establishment was high with plant densities of 82-118 plants/m<sup>2</sup>. 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.

### **Streatham site:**

Weeds in the trial plots were sprayed with a knockdown of 2 L/ha glyphosphate 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 0.10 L/ha omethoate on 23 May. A post-emergent spray of imazapic/imazapyr as OnDuty® at 55 g/ha (+ 0.5 L/ha Hasten) was applied on 6 August. Establishment was high with plant densities of 93-120 plants/m<sup>2</sup>. Early growth measured on 31 July was generally good to very good. Rainfall for 2007 was 654 mm, with 478 mm GSR (Apr-Nov). The trial was windrowed on 22 November and harvested 11 December 2007. Further details of paddock history, plant establishment etc. can be found on the ACAS website.

### **Minyip site:**

A knockdown of 1 L/ha glyphosate 450 g/L was applied with 0.3 L/ha 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 26 June. A post-emergent spray of imazapic/imazapyr as OnDuty® at 30 g/ha (+ 0.3 L/ha Hasten) was applied on 7 August. Early growth was acceptable. Rainfall for 2007 was 341 mm, with 154 mm GSR (Apr-Oct), and only 15 mm falling between August and October. The trial was windrowed on 7 November and harvested 20 November 2007. Further details of paddock history, plant establishment etc. can be found on the ACAS website.

### **Gerang Gerung site:**

On 2 May 2007, 120 kg/ha urea was pre-drilled into a loam soil and 2 L/ha trifluralin applied with 1.4 L/ha chlorpyrifos 250 g/L. The trial was sown into ideal soil moisture on 24 May 2007 with 100 kg/ha Granulock Supreme Z. Early establishment was excellent. On 12 July a grass spray of Haloxyfop-R 130 g/L at 80 mL/ha (+Uptake at 0.3 L/ha). A post-emergent spray of imazapic/imazapyr as OnDuty® at 30 g/ha (+ 0.3 L/ha Hasten) was applied on 26 July with 0.1 L/ha bifenthrin 100g/L as Talstar 100 EC. Rainfall for 2007 was 368 mm, with 201 mm GSR (Apr-Oct), and 50 mm falling between August and the end of October. The trial was windrowed on 15 November and harvested 19 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 post-sowing. 0.1 L/ha bifenthrin 100g/L as Talstar 100 EC was applied post-emergent on 17 May.

## 2007 CANOLA & JUNCEA CANOLA TRIALS

0.12 L/ha clethodim was sprayed post-emergent on 6 July and 100 kg/ha urea was topdressed on 20 July. A post-emergent spray of imazapic/imazapyr as OnDuty® at 20 g/ha was also applied on 20 July. Rainfall for 2007 was 460 mm, with 248 mm GSR (Apr-Oct), and 40 mm falling between August and the end of October. The trial was harvested on 15 November 2007. The trials was windrowed on and harvested on 15 November 2007. Further details of paddock history, plant establishment etc. can be found on the ACAS website.

### Yarrawonga:

A knockdown of 1.5 L/ha of glyphosate 540 g/L was applied immediately before sowing on 4 May 2007. 0.1 L/ha bifenthrin 100g/L as Talstar 100 EC was also applied. The trial was sown with 100kg/ha Granulock 15 (N:P:K:S 14:12:0:10) into clay soil. 1.7 L/ha trifluralin (480 g/l) was also applied post-sowing. Early establishment was very good to excellent. 100 kg/ha urea was topdressed on 20 July. No "imi" herbicides were applied. Rainfall for 2007 was 330 mm, with 159 mm GSR (Apr-Oct), and only 17 mm falling between August and the end of October. The trial was harvested on 15 November 2007. Further details of paddock history, plant establishment etc. can be found on the ACAS website.

### Results

In 2007, the hybrids Pioneer®46Y78 and Pioneer®46Y77 tended to consistently produce the highest yields of mid-season Clearfield® varieties across the Victorian regions at the NVT sites (Table 1). The early-mid maturing open-pollinated variety, Warrior CL performed comparatively well in North East Victoria and the Wimmera with the early finish to the season in 2007.

**Table 1:**

Yield of mid maturity Clearfield® canola varieties in 2007 Victorian trials expressed as a percentage of Pioneer®46C76.

	South West		Wimmera		North East	
	Hamilton	Streatham	Minyip	Gerang Gerung	Katamatite	Yarrawonga
Pioneer®46C76 (t/ha)	2.06	2.98	1.04	0.36	0.37	0.58
Pioneer®46Y78	126	115	115	161	227	119
Pioneer®45Y77	128	103	116	147	189	114
Pioneer®46C76	100	100	100	100	100	100
Warrior CL	96	97	114	119	200	91
Pioneer®44C73	83	73	100	133	227	98
Site Mean (t/ha)	2.33	3.02	1.18	0.56	0.65	0.62
CV (%)	10.47	6.51	7.78	7.2	9.36	11.88
LSD (%)	18	11	13	17	27	21

Oil content varied considerably between sites in 2007, while the effect of variety was relatively small (Table 2).

The CLEARFIELD® varieties with the highest oil content tended to be Warrior CL and Pioneer®46Y78.

## 2007 CANOLA & JUNCEA CANOLA TRIALS

**Table 2:**

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

	South West		Wimmera		North East	
	Hamilton	Streatham	Minyip	Gerang Gerung	Katamatite	Yarrowonga
Warrior CL	47.6	44.0	39.6	34.9	36.7	33.5
Pioneer®46Y78	47.5	45.1	39.7	35.4	37.8	34.6
Pioneer®46C76	47.3	43.5	39.4	34.8	34.3	33.1
Pioneer®45Y77	47.1	44.0	38.2	34.7	35.9	33.9
Pioneer®44C73	46.4	43.6	37.8	34.1	37.1	34.7

Of the six currently-available (2008) mid season CLEARFIELD® varieties/hybrids, only four are presented with a long term (2000-2007) analysis of yield data (Table 3). Of these, the hybrid Pioneer®46Y78 and the open-pollinated variety Pioneer®46C76 are on average, the highest yielding for the four Victorian mid-season regions.

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

**Table 3:**

Long-term average yield (t/ha) of mid maturity Clearfield® canola varieties from 2000 to 2007 Victorian trials, with number of trials in brackets.

Genotype	North Central	North East	Wimmera	South West
Pioneer®46Y78	1.24 (3)	1.93 (3)	1.72 (3)	2.70 (3)
Pioneer®46C76	1.22 (6)	1.80 (9)	1.61 (10)	2.51 (10)
Warrior CL	1.09 (4)	1.65 (5)	1.44 (6)	2.25 (6)
Pioneer®45Y77	1.05 (3)	1.62 (3)	1.45 (3)	2.29 (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. 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, whereas Clearfield® varieties/hybrids do not have such a yield penalty. Growers need to consider the use of group B herbicides as part of a herbicide resistance management plan, and also be aware of plantback periods following the use of these herbicides. Clearfield® varieties/hybrids can be grown without the use of any "imi" herbicide to allow for the break down of herbicide residues for subsequent crops. Note that hybrid seed is around \$12/kg more expensive than open pollinated varieties and cannot be retained for sowing the following year's crop.