Canola and juncea canola for low rainfall areas in 2009

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Variety selection

The choice of most suitable canola variety for any situation will often follow a consideration of maturity, herbicide tolerance, blackleg resistance and early vigour together with relative yield and oil content. In relation to some of these issues, the following points can be made:

- The weed species expected may dictate the need for a herbicide-tolerant production system (eg. triazine-tolerant or Clearfield). Remember that a triazine-tolerant variety will incur a yield and oil penalty when grown in situations where they are not warranted
- Varietal blackleg resistance and/or fungicide use should be considered, particularly when rotations are close, although blackleg is less of a factor in low rainfall systems.
- For yield and oil content data, see www.nvtonline.com.au of the DPI's Victorian Winter Crop Summary.

The following are early, early to mid and mid flowering varieties that may be suitable for lower to medium rainfall areas.

New varieties for 2009

Nine new varieties will be marketed for 2009 sowings in Victoria. Information about new varieties has been provided by the seed companies as in most cases, entries have only come into NVT trials in 2008.

Conventional specialty

V3001 Early to mid maturing specialty hybrid developed by Cargill and Vic. DPI. Good blackleg resistance (R-MR) and yield potential and has performed well in 2007 and 2008 NVT trials. V3001 will be grown under contract production for Cargill and marketed by Pacific Seeds. Tested as 06H932.

V3002 Mid maturing specialty hybrid developed by Cargill and Vic. DPI. Good blackleg (R-MR) and yield potential and has performed well in 2008 NVT trials. V3002 will be grown under contract production for Cargill and marketed by Pacific Seeds. Tested as 06H939

Triazine tolerant (TT) varieties

CB™ Argyle Mid season maturity. CBWA indicate the variety to be high yielding, with high oil and moderate protein content. Blackleg rating MR. Bred by CBWA; marketed by ABB Seeds in eastern Australia. An End Point Royalty (EPR) applies.

Triazine tolerant (TT) specialty varieties

Monola™ 76TT Mid maturing Monola™ variety. Nuseed Crop Network indicates high yielding with moderate-high oil content. Medium high with excellent uniformity. Blackleg resistance R-MR. Developed by Nuseed, grown under contract with a premium to Nuseed Crop Network. Tested as NL042.

Monola™ 77TT. Mid maturing Monola™ variety. Nuseed Crop Network indicates high yielding with moderate-high oil content. Medium high with excellent uniformity. Blackleg resistance MR. Developed by Nuseed, grown under contract with a premium to Nuseed Crop Network. tested as NL045

CLEARFIELD® (imidazolinone tolerant) varieties

43C80 Early maturing variety. Pioneer indicate good early vigour, good yield and moderate oil content. Blackleg rating MS (provisional). Suited to low rainfall areas and potentially as a late sowing option in medium-high rainfall areas. Tested as NS6108BI. Limited seed quantities in 2009. Bred and marketed by Pioneer Hi-Bred.

46Y81 Mid season hybrid, intermediate maturity between 45Y77 and 46Y78. Pioneer indicates exceptional early vigour, with high oil content. Anticipated blackleg resistance R-MR. Will replace 46C76, and possibly 45Y77 and 46Y78. coded NS05N289I. Bred and marketed by Pioneer Hi-Bred.

Hyola 571CL Early-mid maturing hybrid with similar maturity to 45Y77. Pacific Seeds indicate excellent early vigour, with good oil and yield potential. Blackleg resistance R (provisional). tested as K9209. Bred and marketed by Pacific Seeds.

Juncea canola CLEARFIELD® (imidazolinone tolerant) varieties

SaharaCL Early maturing juncea canola, earlier than Oasis CL. Pacific Seeds indicate exceptional vigour. Blackleg resistance R (provisional). An End Point Royalty (EPR) applies. Bred by DPI Victoria and Viterra (Canada). Tested as J05Z-08960. Marketed by Pacific Seeds.

The following varieties are being outclassed with limited seed available in 2009

- Monola™ 75TT, Rivette, Skipton and WarriorCL.

The following varieties will be withdrawn for 2009

- Rocket CL, 44C11, 44C73, 45C75, 46C04, 46C76, AG-Outback, AG-Spectrum, AV-Opal, AV-Sapphire, Rainbow, ATR-Beacon, ATR-Signal, ATR-Stubby, ATR-Summitt.

Blackleg resistance

The blackleg rating system for all canola varieties has been changed from the numerical one to a descriptive scale (Tables 1 and 2), conforming to the systems used for other major winter crops.

Table 1. 2009 Blackleg resistance ratings. Published by the Canola Association of Australia.

Variety	2009 rating	2009 Provisional rating	Reduced resistance
Conventional varieties			
Hyola 50	R		
Hyola 76	R		
AV-Garnet	MR		
AV-Jade	MR		
AV-Opal	MR		
Hyola 61	MR-MS		
Tarcoola	MR-MS		
46C04	MR-MS		
AG-Spectrum	MR-MS		Reduced resistance
ATR-Signal	MR-MS		
AV-Sapphire	MR-MS		
AG-Muster	MS		
Skipton	MS		
Rivette	MS-S		
Triazine-tolerant varieties			
Tornado TT	MR		
ATR-409	MR		
Hurricane TT	MR		
Triumphjardee	MR		
ATR-Marlin	MR		Reduced resistance
CB™ Trilogy	MR		
Storm TT	MR		
Rottnest TTC	MR		
Tawriffic TT	MR		
CB™ Argyle	MR		Reduced resistance
Thunder TT	MR-MS		Reduced resistance
ATR-Barra	MR-MS		
Flinders TTC	MR-MS		Reduced resistance
Bravo TT	MR-MS		Reduced resistance
Triazine-tolerant varieties cont.			
ATR-Summitt	MS		
ATR-Banjo	MS		Reduced resistance
ATR-Cobbler	MS		
CB™ Tanami	MS-S		Reduced resistance
CB™ Boomer	MS-S		Reduced resistance
ATR-Stubby	S		Reduced resistance
CB™ Trigold	S-VS		

Variety	2009 rating	2009 Provisional rating	Reduced resistance
CLEARFIELD® Varieties			
46Y81 (CL) hybrid	R-MR		
46Y78 (CL) hybrid	MR		
45Y77 (CL) hybrid	MR		
Rocket CL	MR		
Warrior CL	MR-MS		
44C79 (CL)	MR-MS	Provisional rating	
43C80 (CL)	MS	Provisional rating	
45C75 (CL)	MS		
46C76 (CL)	MS		Reduced resistance
44C73 (CL)	MS-S		Reduced resistance
CLEARFIELD® juncea canola varieties			
Oasis CL	R	Provisional rating	
Sahara CL	R		
High stability oil varieties			
Monola NMC131	R		
V3001	R-MR		
V3002	R-MR		
Monola NMC130	R-MR		Reduced resistance
Triazine-tolerant high stability oil varieties			
Monola 75TT	R-MR		
Monola 76TT	R-MR		
Monola 66TT	MR		Reduced resistance
Monola 65TT	MR		
Monola 77TT	MR		
Conventional juncea canola varieties			
Dune	R		

Table 2. Standard disease ratings – canola

Uniform rating	For growers: What do I see?	For growers: What do I do?
Resistant (R)	Some lesions on cotyledons and leaves. Some internal infection at the base of the plant when cut near maturity.	Do not sow into canola stubble from the previous year. Separate your crop by 500m from the previous year's stubble. Fungicide use is unlikely to be economic.
Resistant – Moderately Resistant (R-MR)	Lesions on cotyledons and leaves. Some internal infection at the base of the plant when cut near maturity. Some external cankering.	Do not sow into canola stubble from the previous year. Separate your crop by 500m from the previous year's stubble. Fungicide use is unlikely to be economic.
Moderately Resistant (MR)	Lesions on cotyledons and leaves. Internal infection at the base of the plant when cut near maturity. Some external cankering. Some plant death in high disease pressure situations.	Do not sow into canola stubble from the previous year. Separate your crop by 500m from the previous year's stubble. In high disease risk situations fungicide use may be of economic benefit.
Moderately Resistant to Moderately Susceptible (MR-MS)	Lesions on cotyledons and leaves. Internal infection at the base of the plant when cut near maturity. External cankering. Plant death will be easily found in high disease pressure situations.	Do not sow into canola stubble from the previous year. Separate your crop by 500m from the previous year's stubble. In moderate to high disease risk situations fungicide use may be of economic benefit.
Moderately Susceptible (MS)	Lesions on cotyledons and leaves. Internal infection at the base of the plant when cut near maturity. External cankering. Plant death will be easily found in moderate to high disease pressure situations.	Avoid high disease pressure. Do not sow into canola stubble from the previous year. Separate your crop by 500m from the previous year's stubble. In moderate disease risk situations fungicide use is likely to be of economic benefit.
Moderately Susceptible to Susceptible (MS-S)	In low disease pressure situations some lesions on cotyledons and leaves may be found. • Low levels of internal infection. • Low levels of external canker. • Occasional plant death. If sown in moderate disease pressure situations plant death is likely to be severe.	Recommended for low disease pressure regions only (i.e. low rainfall areas). Do not sow into canola stubble from the previous year. Separate your crop by 500m from the previous year's stubble. In moderate disease risk situations fungicide use may be of economic benefit.

Table 2. Standard disease ratings – canola . . . continued

Uniform rating	For growers: What do I see?	For growers: What do I do?
Susceptible (S)	In low disease pressure situations some lesions on cotyledons and leaves may be found. • Low levels of internal infection. • Low levels of external canker. • Occasional plant death. If sown in moderate disease pressure situations plant death is likely to be severe.	Recommended for low disease pressure regions only (i.e. low rainfall areas). Do not sow into canola stubble from the previous year. Separate your crop by 500m from the previous year's stubble. Fungicide use is unlikely to be economic at high or low disease risk situations. If blackleg is causing yield loss consider a more resistant variety in future years.
Susceptible to Very Susceptible (S-VS)	In low disease pressure situations some lesions on cotyledons and leaves may be found. • Low levels of internal infection. • Low levels of external canker. • Occasional plant death. If sown in moderate disease pressure situations plant death is likely to be very severe.	Recommended for low disease pressure regions only (i.e. low rainfall areas). Do not sow into canola stubble from the previous year. Separate your crop by 500m from the previous year's stubble. Fungicide use is unlikely to be economic at high or low disease risk situations. If blackleg is causing yield loss consider a more resistant variety in future years.
Very Susceptible (VS)	In low disease pressure situations some lesions on cotyledons and leaves may be found. • Low levels of internal infection. • Low levels of external canker. • Occasional plant death. If sown in moderate disease pressure situations plant death is likely to be extremely severe.	Recommended for low disease pressure regions only (i.e. low rainfall areas). Do not sow into canola stubble from the previous year. Separate your crop by 500m from the previous year's stubble. Fungicide use is unlikely to be economic at high or low disease risk situations. If blackleg is causing yield loss consider a more resistant variety in future years.

Juncea canola for low rainfall environments

This year, three juncea canola varieties will be available in south-eastern Australia: the conventional variety, Dune (released on a small scale in 2007 and 2008), and new Clearfield varieties called OasisCL and SaharaCL (both cultivars are being marketed by Pacific Seeds under an End Point Royalty system). Due to limitations of seed, commercial production will be limited to NSW and Vic for 2009.

These are Australia's first canola quality *Brassica juncea* varieties, with major changes to both the oil and meal quality from traditional table mustard. The varieties were bred by Victorian DPI and Viterra, in Canada, and partly funded by the GRDC.

Juncea canola has a number of advantages over traditional canola in low rainfall areas, including faster ground-covering ability, better heat and drought tolerance and shatter tolerance – thus it does not need windrowing (saving around $25/ha).

Future breeding priorities include further development of herbicide tolerant varieties with high yield, improved quality, good blackleg resistance and good adaptation. The first triazine-tolerant advanced breeding lines will be in multi-locations trials in 2008, with the first cultivars hopefully available in 2011. Hybrids and other herbicide tolerances are also currently being developed and will continue to be selected in low rainfall systems across Australia.

Juncea canola lines tend to yield the same or more than traditional canola in situations where canola yields are equal to or less than 1.5t/ha. Dune was the first conventional line to meet all the quality criteria and was first tested in multi-site trials in 2004 and 2005 (Table 3).

Table 3. Average yield and quality data of juncea canola conventional variety 'Dune' from multi-location trials in SA and Vic 2004 and 2005*, compared with AG-Outback, a traditional canola variety for low rainfall areas.

Variety	Yield t/ha		Oil content %	Meal protein content %
Year	***2004***	***2005***	***2004***	***2004***
Dune	1.33	0.95	37.5	40.5
AG-Outback (control)	1.33	0.95	36.1	39.1

**Data from Culgoa, Vic. for 2005 removed from dataset due to high level of variability. 2005 sites: Lameroo and Minnipa, SA; Walpeup and Beulah, Vic.*

Limited data was obtained in 2006. OasisCL, SaharaCL (Clearfield varieties) and Dune (conventional variety) were tested in multi-location trials in 2007 with encouraging results obtained (Table 4).

Table 4. Average yield and quality data of juncea canola varieties from multi-location trials in SA, NSW and Vic 2007*, compared with AG-Outback, a traditional canola variety for low rainfall areas

Variety	Yield t/ha	Oil content %
Dune	0.46	39.4
OasisCL	0.63	41.0
SaharaCL	0.58	39.6
AG-Outback (control)	0.38	38.2
Tarcoola (control)	0.37	40.1

**2007 sites: Lameroo and Minnipa, SA; Beulah and Horsham, Vic; Bellata, NSW.*

Commercial crops and demonstration blocks of the new Clearfield juncea canola varieties will also be sown in 2009. Results from some sites comparing canola and juncea canola in 2008 are included in Table 5. At the lower rainfall sites at Lameroo (SA) and Hopetoun (Vic), juncea canola yielded similar to the better canola varieties. In higher yielding sites in NSW, SaharaCL produced higher grain yields than canola at Coonamble and similar grain yields to the best canola varieties at Tamworth.

Table 5. Yield of canola and juncea canola varieties in 2008.

Variety	Lameroo SA t/ha	Hopetoun Vic t/ha	Coonamble NSW t/ha	Tamworth NSW t/ha	Average t/ha
44C79	0.34	0.48	1.73	1.67	1.05
AG-Outback	0.38	0.61	1.84	2.37	1.30
AV-Opal	0.25	0.73	1.65	1.75	1.10
Dune*	0.32	0.56	1.75	2.20	1.21
Hyola50	0.31	0.70	0.81	1.78	0.90
SaharaCL*	0.38	0.72	2.28	2.10	1.37
OasisCL*	0.38	0.71	2.10	1.95	1.28
Tarcoola	0.36	0.80	1.30	1.86	1.08
Site mean	**0.33**	**0.61**	**1.75**	**1.67**	
CV %	**12.90**	**11.10**	**9.64**	**11.97**	
LSD (0.05)	**0.08**	**0.13**	**0.33**	**0.39**	

** juncea canola varieties.*