Canola Variety Development

Laura Maher and Wayne Burton
Department of Primary Industries – Horsham

Summary

Limited results will be available from 2004 due to the dry season.
Review long term data, and try new varieties in conjunction with proven varieties.
Six new varieties will be marketed in Victoria in 2005.
2004 was a difficult season for most. The hot dry weather during flowering and pod filling periods reduced yields and oil contents.
Frost was also an issue to farmers in the Wimmera. Given the season there will be limited results available, and as always we recommend that new varieties are chosen in conjunction with proven varieties.

New Varieties for 2005

Six new varieties will be marketed in Victoria in 2005.

Early-Maturing Varieties

Dovuro seeds will market an early-mid maturing variety called [AG]Comet (Breeders code: AGC103), developed by Ag-Seed Research. [AG]Comet is suited to the medium to low rainfall areas and has good early vigour. The oil content of [AG]Comet is slightly higher than [AG]Outback, and it has a provisional blackleg rating of 7.5.

Pacific Seeds will market an early-mid maturing variety called Kimberley (Breeders code: RGAS0205), developed by Canola Breeders International. Kimberley has high yield potential with moderate oil and high protein, and has a provisional blackleg rating of 6.5.

PlantTech Pty Ltd and Graintrust will market an early maturing triazine tolerant variety called Trilogy (Breeders code: CBWA003), developed by CBWA. Trilogy is widely adapted to lower rainfall regions (200-400mm) or later planting in medium rainfall regions. Trilogy has a provisional blackleg rating of 7.0 but is derived from a cross between Surpass400 and Karoo and may contain *sylvestris* resistance.

Mid-Maturing Varieties

PlantTech Pty Ltd will market a mid-maturing variety called Skipton (Breeders code: BLN2677), developed by NSW DPI. Skipton is similar to [AV]Sapphire and has very good early vigour, high yield, high oil and high protein. The provisional blackleg rating is 6.5.

Pacific Seeds will release and market a mid-late maturing triazine tolerant variety called ThunderTT (Breeders code:T2062). ThunderTT is suited to medium to high rainfall zones. The provisional blackleg rating will not be available until the release of 2005 ratings in March this year.

Pacific Seeds will also release and market a mid-late maturing Clearfield variety called RocketCL (Breeders code: J9747). RocketCL is suited to the higher rainfall zones in Victoria and has been tested against both conventional and *sylvestris*

attacking blackleg strains and appears to show good resistance against both. The official provisional blackleg rating will not be available until the release of 2005 ratings in March this year.

The provisional ratings for all these varieties may change and the official 2005 ratings for all canola varieties will be released in March 2005. Given the difficulty of the season, the performance of these varieties is hard to judge, and they will all be re-evaluated during 2005.

In 2005 there will be a total of 30 varieties marketed in Victoria (Table 1). Remember to match your variety with maturity and average rainfall for your region, and the production system required.

Issues for 2004

Breakdown of Blackleg resistance

Not many crops with *sylvestris* resistance were grown this year, and the overall incidence of blackleg across the state was low. The breakdown of the resistance in varieties with resistance derived from *Brassica sylvestris* will remain an issue. Most varieties marketed this year have polygenic blackleg resistance and so grower retained seed from varieties with *sylvestris* resistance will create the greatest risk of heavy losses.

Farmers in Victoria are advised to:

- Be extremely cautious when growing canola varieties with the *Brassica sylvestris* single major gene resistance. Varieties containing this major gene resistance include: Tribune, Hyola60, Hyola43, Surpass400, Surpass501TT, Surpass603CL, Surpass402CL and Surpass404CL. Trilogy is also derived from a cross between Surpass400 and Karoo and may contain sylvestris resistance.
- The risk of large yield losses are very high when growing *sylvestris* based varieties. The destruction of canola crops on the Eyre Peninsula in 2003 should be seen as a warning for the rest of Australia.
- The speed of the resistance breakdown on the Eyre Peninsula suggests that farmers will NOT get a warning in the year before the breakdown occurs.
- Fungicides will reduce disease severity in *sylvestris* based varieties but severe yield losses will still occur.
- All other canola varieties can still be grown as they appear to be resistant to these strains of the fungus and their blackleg ratings have not changed.

Table 1. Canola varieties being marketed in Victoria 2005

Variety	Year of release	Type	Maturity	Blackleg resist'n Type[1]	Blackleg resist'n Rating[2]	Oil[3]	Protein
Pioneer®44C11	2004	Conventional	Early	Poly	6.5	Moderate	Moderate
Kimberly	2004	Conventional	Early	Poly	6.5 P	Moderate to High	Moderate
AGEmblem	1999	Conventional	Early	Poly	7.0	Moderate	Moderate
AGOutback	2001	Conventional	Early	Poly	5.5	Moderate	Moderate
AGSpectrum	2004	Conventional	Early-mid	Poly	7.0	High	High
Pioneer®45C05	2003	Conventional	Early-mid	Poly	7.0	Moderate	Moderate
AGComet	2005	Conventional	Early-mid	Poly	7.5	Moderate	Moderate
Rivette	2002	Conventional	Early-mid	Poly	5.5	High	High
AVSapphire	2003	Conventional	Mid	Poly	7.0	Very High	High
Rainbow	1993	Conventional	Mid	Poly	5.5	Moderate	Moderate
Pioneer®46C04	2003	Conventional	Mid	Poly	7.0	Moderate	Moderate
Hyola 61	2004	Conventional Hybrid	Mid	Poly	7.5 P	High	High
Skipton	2004	Conventional	Mid	Poly	6.5 P	Very High	High
Lantern	2002	Conventional	Mid	Poly	6.0	Very High	High
Pioneer®44C73(CL)	2001	Clearfield	Early-mid	Poly	5.0	Moderate	Moderate
Pioneer®45C75(CL)	2001	Clearfield	Early-mid	Poly	6.0	Moderate	High
Pioneer® 46C76(CL)	2004	Clearfield	Mid-late	Poly	7.0 p	Moderate	Moderate
Rocket (CL)	2005	Clearfield	Mid-late	Poly/Syl	NA	NA	NA
ATREyre	2002	Triazine Tolerant	Early	Poly	4.5	High	High
ATRStubby	2004	Triazine Tolerant	Early	Poly	6.5	Moderate	Moderate
Trilogy	2005	Triazine Tolerant	Early	Unknown	7.0 P	Moderate	Moderate
Trigold	2005	Triazine Tolerant	Early	Poly	4.0 P	High	High
ATRHyden	2001	Triazine Tolerant	Early-mid	Poly	6.5	Moderate	Moderate
ATRBeacon	2002	Triazine Tolerant	Early-mid	Poly	6.0	High	High
Tornado TT	2004	Triazine Tolerant	Mid	Poly	7.5	High	Moderate
Thunder TT	2005	Triazine Tolerant	Mid-late	Poly	NA	NA	NA
TI1-Pinnacle	1997	Triazine Tolerant	Mid-late	Poly	5.5	Moderate	Moderate to High
ATRGrace	2001	Triazine Tolerant	Mid-late	Poly	6.5	High	High
MC201	2004	Specialty	Mid-late	Poly	6.0 P	Moderate	Moderate
MC202	2004	Specialty	Mid-late	Poly	6.5 P	Moderate	Moderate

1. Poly = polygenic resistance, Syl = has major gene resistance derived from *Brassica sylvestris*

2. 2004 blackleg ratings. The official ratings for 2005 will be published by the Canola Association of Australia (CAA), and will be available in March 2005. Check the CAA website http://www.canolaaustralia.com for the latest information on ratings. The ratings are determined from nurseries conducted around Australia by Departments of Agriculture and private breeding companies. Results statistically analysed. Varieties with insufficient data are marked P for provisional.

3. Oil content of varieties can vary considerably due to environmental conditions, from year to year and from site to site within a year.

Table 2. Canola variety grain yields by region over three years in Victoria

	Mallee			***Wimmera***			**Central**			***North East***			**Western District**		
Variety	2001	2003	2004	2001	2003	2004	2001	2003	2004	2001	2003	2004	2001	2003	2004
Early	**Percentage of [AG]Outback**														
[AG]Outback Yield(t/ha)	***1.10***	***1.34***	***0.50***	***2.20***	***1.69***	***2.23***	***0.58***	***1.32***	***0.61***	***2.59***	***2.52***				
[AG]Emblem	99	84		98	98		140	71		98	92				
[AG]Outback	100	100	100	100	100	100	100	100	100	100	100				
[AG]Comet			73			103			109						
Kimberley			95			73			89						
Pioneer®44C73 (CL)	93	83	83	103	120	79	138	94	100	99	100				
Pioneer®44C11		102	99		114	76			134						
Rivette	98	93	94	99	109	95	120	78	137	104	96				
*Sites**	*4*	*4*	*1*	*2*	*2*	*1*	*1*	*3*	*1*	*3*	*2*				
Mid	**Percentage of [AV]Sapphire**														
[AV]Sapphire Yield(t/ha)				***1.86***	***1.91***	***1.58***	***0.79***	*Results too variable for inclusion*	***0.85***	***2.36***	***2.37***	***1.82***	***3.56***	***3.66***	*Results too variable for inclusion*
[AV]Sapphire				100	100	100	100		100	100	100	100	100	100	
[AG]Spectrum					117	107			113		106	101		98	
Hyola 61					105	103			114		101	104		97	
Lantern				90	100	109	109		91	99	105	111	92	99	
MC201 (HOLL)					88	71			66		89	84		97	
MC202 (HOLL)					95	84			82		97	108		94	
Pioneer®45C05				104	116	80	111		61	101	98	84	98	94	
Pioneer®45C75 (CL)					110	85			131		103	128		88	
Pioneer®46C76 (CL)				101	90	108	109		97	102		126			
Pioneer®46C04				101	112	102	109		91	102	106	117		110	
Rainbow				89	106	100	110		100	104	96	113	95	97	
Rocket CL															
Skipton						109			100			127			
*Sites**				*2*	*3*	*2*	*1*		*1*	*3*	*3*	*1*	*2*	*2*	

	Mallee			*Wimmera*			Central			*North East*			Western District		
Variety	2001	2003	2004	2001	2003	2004	2001	2003	2004	2001	2003	2004	2001	2003	2004
TT Mid	**Percentage of ^{ATR}Grace**														
^{ATR}Grace Yield(t/ha)	***1.27***			***2.29***	***1.68***	***1.34***		***1.77***	***0.81***	***2.72***	***2.39***	***1.38***	***3.22***	***3.12***	***1.05***
^{ATR}Beacon	99			97	100	96		96	112	89	97	118	94	105	98
^{ATR}Grace	100			100	100	100		100	100	100	100	100	100	100	100
^{ATR}Hyden	99			86	94	91		80	101	94	94	128	91	105	96
TI1 Pinnacle	92			78	93			104		78	90		90	100	
Tornado TT						74			83			117			97
Thunder TT												116			
*Sites**	*3*			*2*	*2*	*2*		*1*	*1*	*2*	*2*	*1*	*1*	*3*	*1*
TT Early	**Percentage of ^{ATR}Eyre**														
^{ATR}Eyre Yield (t/ha)	***1.15***	***1.01***		***1.55***		***1.42***				***2.27***			***2.72***		
^{ATR}Eyre	100	100		100		100				100			100		
^{ATR}Stubby		121				145									
Trigold						113									
Trilogy						128									
*Sites**	*3*	*4*		*2*		*1*				*2*			*3*		

Results too variable

* Number of Victorian Stage 4 trials run by the DPI Crop Evaluation Unit
(CL) – Clearfield (Imidazalinone tolerant)
(HOLL) – High Oleic, Low Linolenic specialty oil