



Canola variety development

Wayne Burton
Department of Primary Industries, VIDA – Horsham

Summary

- Limited results available from 2002 due to the drought
- Review long term data and try new varieties in conjunction with proven varieties
- Five new varieties will be marketed in 2003

New Varieties for 2003

The DPI breeding program will release one new mid season variety called AV-Sapphire (Breeders code: RO 011). AV-Sapphire was released by Agriculture Victoria Services in association with the GRDC, and will be marketed by Dovuro Seeds from 2003. AV-Sapphire has consistently high yields, 2 to 3 % higher oil than Rainbow or Oscar and a high multigenic blackleg resistance. AV-Sapphire also has excellent early seedling vigour and is very even to flower and mature.

Pioneer Hi-Bred will release two new conventional varieties in 2003. Pioneer[®]45C05 (Breeders code: NSO4377) is an early-mid season variety and Pioneer[®]46C04 (Breeders code: NSO4376) is a mid season variety. Both new varieties have shown good yield potential and blackleg resistance in interstate trials.

Pacific Seeds will release an early season conventional Hybrid called Hyola 43 (Breeders code: PacH1012) and an early maturing imidazolinone tolerant, Clearfield variety called Surpass404CL (Breeders code: PacJ1318) which have both shown high yield potential and excellent blackleg resistance in interstate trials.

Only limited information and results on these new varieties for 2003 are available and they will all be re-evaluated during 2003.

New Varieties grown in 2002

Ag-Seed Research released one variety last year, a mid-late season conventional variety called ^{AG}Castle. Dovuro Seeds will continue to market ^{AG}Castle under an end point royalty system.

The NRE/Ag-Seed Research triazine tolerant joint venture released one early season TT variety called ^{ATR}Eyre (Breeders code: TO003) and one early-mid season TT variety called ^{ATR}Beacon (Breeders code: TN 4) last year. Dovuro Seeds have the seed production and marketing rights to both varieties.

NSWAg released one early-mid season conventional variety called Rivette (Breeders code: BLN1999) and one mid-late season conventional variety called Lantern (Breeders code: BLN1981). PlantTech have marketed both varieties.

The performance of these varieties is hard to judge given the 2002 season. They have all performed reasonably well under the drought conditions and will be re-evaluated during 2003.

In 2003, there are 31 varieties that will be marketed in Victoria (Table 1). Many have similar attributes, particularly in the mid and mid-late season categories. Generally the higher oil, mid/mid-late season varieties tend to have slightly lower yields compared with Rainbow or Oscar.

Issues for 2003:

Variety Selection

The main features to look at when selecting a canola variety are maturity, yield, oil content, blackleg resistance, agronomic characters (early vigour and height), economics and the weed spectrum of the paddock where you are aiming to grow the variety. The maturity of varieties relative to each other can vary between locations, years and sowing times.

Choosing a new variety:

- Match rainfall and growing season length to maturity of variety required (ie early or mid)
- Determine weed spectrum to make a decision on conventional compared with TT or IT varieties
- Determine the level of blackleg resistance required - a high level of resistance is preferred in mid to long season areas
- Consider the economics of different packages (especially after the 2002 season!)

‘Try new varieties in conjunction with proven varieties on smaller areas.’

Table 1: *Canola varieties being marketed in Victoria 2003*

Variety	Year of release	Type	Maturity	Blackleg rating*	Oil**	Protein
Surpass 400	1999	Conventional	Early	9	High	Very high
Hyola 43	2003	Conventional Hybrid	Early	9 P	High	High
Pioneer® 45C05	2003	Conventional	Early-mid	7.5 P	Moderate	Moderate
Mystic	1998	Conventional	Early-mid	6	Moderate	Moderate
^{AG} Emblem	1999	Conventional	Early-mid	7.5	Moderate	Moderate
^{AG} Outback	2001	Conventional	Early-mid	6.5	Moderate	Moderate
Rivette	2002	Conventional	Early-mid	6.5	High	High
^{AV} Sapphire	2003	Conventional	Mid	8 P	Very High	High
Oscar	1992	Conventional	Mid	6	Moderate	Moderate
Rainbow	1993	Conventional	Mid	6.5	Moderate	Moderate
Pioneer® 46C03	1999	Conventional	Mid	6	Moderate	Moderate
Pioneer® 46C04	2003	Conventional	Mid		Moderate	Moderate
Ripper	1999	Conventional	Mid	6.5	Very high	Very high
Lantern	2002	Conventional	Mid	7.0	Very high	High
Pioneer® 47C02	1998	Conventional	Mid-late	5.5	Moderate	Moderate
Charlton	1998	Conventional	Mid-late	6	Very high	High
Purler	1999	Conventional	Mid-late	6.5	Highest	Highest
^{AG} Castle	2002	Conventional	Mid-late	8.0 P	Very high	High
Hyola 60	2001	Conventional Hybrid	Mid	9	High	Very high
Surpass 402CL	2001	Clearfield	Early	7.5	Moderate	Moderate
Surpass 404CL	2003	Clearfield	Early	9 P	Moderate	Moderate
Pioneer® 44C73	2001	Clearfield	Early-mid	5.5	Moderate	Moderate
Pioneer® 45C75	2001	Clearfield	Early-mid	6.5	Moderate	High
Pioneer® 46C74	2001	Clearfield	Mid	6.0	Moderate	High
Surpass 603CL	2001	Clearfield	Mid	8.0	Very high	Very high
Surpass 300TT	2001	Triazine Tolerant	Very early	3.5	Moderate	Moderate
^{ATR} Eyre	2002	Triazine Tolerant	Early	5.0 P	High	High
Karoo	1996	Triazine Tolerant	Early-mid	3.5	Moderate	Moderate
Surpass 501TT	2001	Triazine Tolerant	Early-mid	8.5 P	High	Moderate
^{ATR} Hyden	2001	Triazine Tolerant	Early-mid	6.5	Moderate	Moderate
^{ATR} Beacon	2002	Triazine Tolerant	Early-mid	6	High	High
Pinnacle	1997	Triazine Tolerant	Mid-late	6.0	Moderate	Moderate to high
Surpass 600TT	1999	Triazine Tolerant	Mid-late	5.5	Medium to high	High
^{ATR} Grace	2001	Triazine Tolerant	Mid-late	6.5	High	High

* 2002 blackleg survival ratings published by the Canola Association of Australia, from nurseries conducted around Australia by Departments of Agriculture and private breeding companies. Results statistically analysed. Varieties not tested over 6 sites and two years are marked P for provisional.

** Oil content of varieties can vary considerably from year to year and from site to site within a year.

Oil content of a variety varies little relative to other varieties of similar maturity when grown under the same conditions.

Table 2: Canola variety yields by region over three years

	Mallee			Wimmera			Central			North East			Western District		
Variety	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001	1999	2000	2001
EARLY	Percentage of Mystic														
AG EMBLEM	122	93	103	102	124	120	107	140	108	101	101	110			
AG OUTBACK		104	104		147	123		139	77		116	112			
MYSTIC	100	100	100	100	100	100	100	100	100	100	100	100			
PIONEER 44C73(CL)			97			127			107			111			
RAINBOW	97	93	96	109	130	116	110	125	73	105	111	110			
RIVETTE		102	102		148	122		105	93		107	117			
SURPASS400	76	88	84	110	137	143	93	141	102	111	101	105			
SURPASS402CL(CL)		89	92		71	111			110			99			
Sites*	4	5	4	2	1	2	1	2	1	3	3	3			
Mystic Yield (t/ha)	0.93	1.58	1.06	2.08	1.75	1.79	2.01	1.40	0.75	2.10	2.43	2.31			
MID	Percentage of Charlton														
AG CASTLE					109			135			105			121	
AV SAPHIRE					120	120		104	131		96	113		161	119
CHARLTON				100	100	100	100	100	100	100	100	100	100	100	100
DUNKELD				101	109	97	89	98	118	91	103	100	96	95	91
HYOLA 60					136	152	110	87	122		114	116		201	131
LANTERN					138	108	88	100	143		108	112		140	110
OSCAR				107	126	94	91	84	124	102	97	107	102	122	111
PIONEER45C04					125			146			114				117
PIONEER45C75(CL)					92			93			104				105
PIONEER46C03				118	112	95	79	79	109	97	102	104	100	110	96
PIONEER46C04					121			143			115				
PIONEER46C74(CL)					88			94			100				89
PIONEER47C02				105	85	81	108	86	114	105	106	96	99	112	115
RAINBOW				111	122	107	89	105	145	97	99	118	105	145	113
RIPPER				102	113	87	96	95	96	92	96	101	98	115	103
SURPASS603CL(CL)					137	131		73	108		89	96		202	118
Sites*				2	2	2	1	1	1	3	2	3	2	1	2
Charlton Yield (t/ha)				1.98	0.57	1.55	1.76	1.21	0.60	2.23	2.51	2.09	2.33	1.47	2.99
TT	Percentage of Pinnacle														
ATR-BEACON	110	133	107	137	120	126	98			117	108	112	101	127	107
ATR EYRE		117	98		84	86					103	106		101	94
ATR-GRACE	112	115	98		114	104	104			107	119	113	102	116	106
ATR-HYDEN		127	105		96	109					112	105		120	96
KAROO	85	120	107	74			70			81			71		
SURPASS300TT	88	93	75	73			70			73			64		
SURPASS600TT	101	105	95	100	78	91	95			99	105	103	91	89	86
PINNACLE	100	100	100	100	100	100	100			100	100	100	100	100	100
Sites*	2	3	3	2	2	2	1	0	0	2	2	2	3	2	3
Pinnacle yield (t/ha)	1.25	0.92	1.17	1.68	1.33	1.80	1.98			2.43	2.30	2.14	2.35	1.82	2.89