Canola varieties tested for yield and quality

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Key Outcomes

- Hyola 50 produced high grain yields compared to other conventional varieties.
- Better yielding Clearfield varieties included 46Y83, 46Y78, 45Y82 and Hyola 571CL.
- Better yielding TT varieties were the Monolas (specialty types), plus several new hybrid TT varieties
- Several varieties that have been grown for a while are now becoming more affected by blackleg so check on fungicide options plus isolation distances from last years stubble.

Trial Objectives: To assess the yield of a range of canola varieties
Trial Duration: Continues
Location: Various **Farmer Cooperator:** Bill Hender, Kraig Johnson, Nick Thring, John Cooper
Soil Type: Various.
Paddock History: 2006- 2007
Monthly Rainfall:
Long Term Av Monthly Rainfall

Rain	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Total
Keith, 2009	0	0	19	53	15	49	106	58	58	20	55	19	452
Frances, 2009	2	4	25	30	20	51	110	81	68	32	45	21	489
Bordertown, 2009	1	0	30	37	16	33	86	74	73	25	55	23	452
Struan, 2009	3	0	53	51	16	64	123	115	99	41	53	28	645

Water Use Efficiency:
Yield Limiting Factors: Heat wave in early November
Plot Size: 8 m by 8 rows at 15 cm row spacing
Replicates: 3

Trial Results

Table 1: Yield in 2009 and long term for mid maturing canola varieties

Entry	2009			Long term	
	South East			South East	
	Bool lagoon	Bordertown	Frances	t/ha	# trials
	%	**%**	**%**		
Conventional					
AV-Garnet	102	110	99	2.50	11
Hyola 433	100	109	111	2.50	3
Hyola 50	127	112	123	2.57	14
Hyola 76	118	105	112	2.47	9
Monola 130CC	72	88	74	2.07	5
Tarcoola				2.08	10
Victory 3001	93	92	83	2.30	9
Site Mean (t/ha)	1.85	2.2	1.75		
LSD (%)	20	10	23		
Clearfield					
Hyola 571CL	108	103		2.00	6
43C80				1.71	3
44C79	60	79		1.57	6
45Y77	82	99	waterlogged	1.80	9
45Y82	92	103		2.00	3
46Y78	117	100		2.02	9
46Y83	117	111		2.10	3
Site Mean (t/ha)	1.88	2.01			
LSD (%)	15	9			
Triazine tolerant					
ATR-Barra				1.67	6
ATR-Cobbler	90	90		1.68	8
ATR-Marlin	110	104		1.70	10
ATR409	125	98		1.72	10
Bravo TT	79	95		1.73	13
CB Scaddan	89	86		1.66	5
CB Telfer	25	86			
CB Argyle	74	102		1.71	8
CB Jardee HT	124	108		1.93	3
CB Tanami	62	94	watterlogged		
CB Tumby HT	107	106			
Flinders TTC				1.65	8
Hurricane TT	95	102		1.69	5
Lightning TT	113	103			
Monola 76TT	143	110		1.79	5
Monola 77TT	118	99		1.79	5
Rottnest TTC	94	105		1.69	8
Storm TT				1.68	6
Tawriffic TT	113	103		1.77	8
Hyola 751TT	134	-			
CB Mallee HT	122	113			
Site Mean (t/ha)	1.47	1.93			
LSD (%)	21	13			
Date sown	18-May	19-May	27-May		
Site stresses	pe, htg	htg	wa, htg		
Blackleg	33, 62	69, 99	na, na		

Abbreviations

Blackleg data: Polygenic variety: BravoTT, Sylvestris variety: Surpass 501TT

% average blackleg infection

Table 2: Yield in 2009 and long term for early maturing canola varieties

Entry	2009 Keith	Long term South East	
	%	t/ha	# trials
Conventional and Clearfield			
Hyola 50	94	1.86	4
45Y77			
AV-Garnet	143		
43C80	72		
44C79	79		
Oasis CL	107		
Tarcoola	100	1.61	4
Site Mean (t/ha)	1.57		
LSD (%)	14		
Triazine tolerant			
Bravo TT	112	1.41	3
ATR-Cobbler	101	1.39	3
Hurricane TT	110	1.38	3
CB Tanami	109	1.37	3
Rottnest TTC	97	1.39	3
ATR409			
Tawriffic TT	113	1.42	3
Tornado TT			
Lightning TT	85		
CB Jardee HT	103		
CB Mallee HT	111		
CB Scaddan	96		
CB Telfer	56		
CB Tumby HT	108		
Site Mean (t/ha)	1.67		
LSD (%)	9		
Date sown	13-May		
Soil Type	SL		
A-O Rain (2009)	359		
pHwater	8.4		
Site stresses	htg		
Blackleg	21, na		

Abbreviations

Soil type: S=sand, L=loam, C=clay, Li=light, M=medium, H=heavy, F=fine,

Site stress factors: htg = high temp at grain fill, wa = waterlogging
Blackleg data: Polygenic variety: BravoTT, Sylvestris variety: Surpass 501TT
% average blackleg infection

Table 3. Oil content of mid season TT varieties 2009

Entry	Turretfield %	Riverton %	Arthurton %	Minlaton %	Yeelanna %	Mt Hope %	Bool lagoon %	Bordertown %
ATR Cobbler	44.3	45.8	42.3	43.5	45.8	45.3	39.6	41.4
ATR Marlin	45	45.3	43.7	43.6	48.4	46.3	41.3	40.6
ATR409	45.9	44.4	43.3	44.8	47.2	46.9	41.8	40.5
BravoTT	44.4	43.4	42.2	42.8	46.7	45.1	38.9	40.2
CB Argyle	45.1	46.2	45.7	45.3	48.2	47.1	42.7	42.7
CB Jardee HT	43.3	43.4	42.5	41.8	45.1	44.8	39.8	43.7
CB Mallee HT	43.4	43.5	-	-	45.2	-	39.4	40.8
CB Scaddan	42.6	43.4	40.9	41.8	45	43.2	38.1	40.2
CB Tanami	42.6	43.2	41.6	43	44.5	42.1	38.7	40.9
CB Telfer	45.2	45.9	42.2	43.6	47.3	46	38.6	41.4
CB Tumby HT	44.2	43.5	42.3	41.8	45.8	44.6	40.3	40.8
Hurricane TT	44.9	44.6	43.8	44.4	48.3	46.8	39.8	43.7
Hyola 751TT	40.8	-	39.9	-	-	-	39.8	-
Lightning TT	42.7	43.5	42.1	42.8	45.5	44.2	41.4	42.6
Monola 76TT	46.1	46.5	44.8	44.9	48.9	47.7	43.2	39.4
Monola 77TT	46.4	46.5	44.8	45.4	50.5	48	43.8	43.9
Rottnest TTC	43.6	44.1	41.8	42.1	45.8	44.1	40.3	43.7
Tawriffic TT	46.5	44.4	44.2	44.6	48.9	47.5	41.4	40.9

Table 4. Oil content of mid season conventional varieties 2009

Entry	Riverton %	Spalding %	Turretfield %	Mt Hope %	Yeelanna %	Bool lagoon %	Bordertown %	Frances %
AV Garnet	46.1	48.6	47.1	47.5	48.7	40.6	42.9	44.9
Hyola 433	45.0	47.6	45.7	45.3	47.2	41.9	44.6	41.9
Hyola 50	46.1	46.7	46.0	46.9	47.2	42.0	43.2	42.6
Hyola 76	45.5	47.3	46.0	46.3	48.5	42.7	42.8	43.2
Monola 130CC	-	-	-	-	-	40.0	45.7	41.3
Victory 3001	-	-	-	-	-	41.3	45.0	40.8

Table 5. Oil content of mid season Clearfield varieties 2009

Entry	Spalding %	Turretfield %	Arthurton %	Minlaton %	Yeelanna %	Mt Hope %	Bool lagoon %	Bordertown %
Hyola 571CL	45.2	44.2	42.8	43.4	45.3	44.9	41.8	43.4
Pioneer 44C79	47.4	45.4	44.9	43.4	46.3	46.7	40.5	44.8
Pioneer 45Y77	44.9	44.1	43.2	43.4	44.9	44	41.7	44
Pioneer 45Y82	45.3	43.5	42.9	44.1	45.4	44.4	42.5	45.8
Pioneer 46Y78	45.9	43.8	44.1	43.1	46.6	46	40.7	44.6
Pioneer 46Y83	47.2	45.8	43.7	43.8	46.9	45.3	42.8	43.9

Table 6. Oil content of early season varieties 2009

Entry	Tooligie	Keith	Lameroo	Minlaton	Spalding	Mean
AV Garnet	48.5	46.7	38.6	45.5	48.1	45.5
Hyola 433	47.3	46.8	37.4	45.4	47.7	44.9
Tarcoola	48.8	45.1	37.6	45.1	47.9	44.9
Pioneer 44C79	48.1	43.0	40.3	44.5	48.2	44.8
Pioneer 43C80	49.1	44.5	36.9	44.9	47.9	44.7
Tawriffic TT	47.7	44.8	38.5	44.6	47.0	44.5
Hyola 50	45.0	45.3	37.9	45.4	47.4	44.2
Hurricane TT	47.1	44.4	38.2	44.3	46.3	44.1
CB Telfer	47.6	42.0	38.8	43.6	47.3	43.9
ATR Cobbler	46.5	42.8	37.3	43.2	47.5	43.5
BravoTT	46.4	43.4	38.4	43.5	45.5	43.4
Rottnest TTC	45.7	41.7	37.7	42.4	45.4	42.6
CB Tanami	44.9	42.2	37.2	42.4	44.8	42.3
CB Jardee HT	45.2	41.2	37.6	42.2	45.1	42.2
CB Tumby HT	45.2	40.0	37.6	42.0	44.7	41.9
Lightning TT	45.2	41.1	35.0	44.1	43.3	41.8
CB Scaddan	44.6	40.6	36.3	42.5	44.0	41.6
OasisCL	46.9	42.8	40.4		46.6	
Sahara CL	43.8	38.7	39.2		43.3	

Comments

The season in 2009 started with a reasonable break with most canola trials sown in early May. Good winter and spring rains resulted in good growth and generally high grain yields. The level of blackleg that we detected at all sites was higher than for the past few years, particularly for the *sylvestris* derived resistance. Some varieties with good blackleg resistance showed significant blackleg at some trial sites. However, in a trial conducted at Struan, data showed that these higher levels of blackleg resulted in less yield loss than when we had a hotter drier spring in 2008. Luckily for canola, many crops had been windrowed or harvested before the heat wave conditions that affected other crops. Generally oil contents were high.

Most trials were successfully harvested. However, no significant difference between the conventional varieties at Arthurton and Minlaton meant that NVT did not release the results. Clearfield and triazine tolerant trials at Frances were waterlogged while the Clearfield trial at Riverton was very high yielding but lodged badly resulting in variable yields. All of the early maturity sites produced high grain yields with Spalding and Minlaton averaging over 2.1 t/ha for the conventional varieties. Riverton and Turretfield averaged over 3.1 t/ha for the mid season conventional varieties.

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 (e.g., 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.

Due to the high levels of blackleg in many areas in SA, it is very important that canola crops are grown at least 500 metres away from last years canola paddock. As well, if you have used the same variety for three years or more there is an increased chance of blackleg that can attack that variety.

Therefore it is even more important to keep the same variety at least 500 metres away from stubble of that variety.

There has been a wide range of new varieties available for 2010 sowings. Many of these varieties are hybrids and the likelihood is that in future many more hybrids will be released. When you make your choice about new varieties you should rely on NVT data from the NVT website and any of your own ideas from observing trials in 2009.

Conventional varieties

With the good season at early maturity sites, AV-Garnet and Hyola 50 produced the best yields with Tarcoola being better suited to lower rainfall years. At the mid season trials there was little difference between Hyola 50, Hyola 433 and AV-Garnet. In the South East there was no significant difference between these varieties and Hyola 76 but at most other sites Hyola 76 was lower yielding. Hyola 433 is likely to be a replacement for Hyola 50 in much of the state except the South East. Hyola 433 is anticipated to be R-MR with high oil content.

Other conventional types tested in the South East were Monola 130CC and V3001, both high stability types with high oleic acid and low linolenic acid content. Both are likely to be contracted in the South East and a premium is expected to be paid in 2010. Yields in 2009 were 72-88% and 83-93% of the site mean yield for Monola 130CC and V3001 respectively. Both varieties are R-MR for blackleg, with Monola 130CC being open pollinated and V3001 being a hybrid.

Clearfield varieties

At the early maturity sites, yield of 44C79 ranged from 79-91% of the site mean yield over all sites and yield of 43C80 ranged from 86-99% of the site mean yield at Minlaton, Spalding and Tooligie but only 72% of the site mean yield at Keith. Due to their maturity and lower levels of blackleg resistance, both varieties are only recommended for lower rainfall sites and should be treated with a fungicide. Oil contents of both varieties were high in 2009.

The two juncea canola varieties Oasis CL and Sahara CL were included in early season trials in 2009. Seed quality of Sahara CL was poor and data were not released. Oasis CL produced 82-85% of the sites mean yield at Tooligie and Spalding but 107% at Keith. Generally trials in 2009 produced grain yields above the yield level where Juncea canola would be expected to excel.

There are no open pollinated Clearfield mid season varieties now being marketed but there is a range of hybrid varieties available with two new varieties being released for 2010. Of the newer hybrids, Hyola 571CL produced above the site mean yield at all sites except Spalding and Turretfield in 2009. Long term yields show Hyola 571CL to be a good option in all regions. Hyola 571CL is an early-mid maturing hybrid, flowering slightly earlier than 45Y77. Hyola 571CL has excellent early vigour, with good oil and yield potential. Blackleg resistance is R (provisional).

45Y82 produced grain yields above the site mean at Spalding, Turretfield, Bordertown and Minlaton, but below the site mean at Bool Lagoon, Arthurton and on lower Eyre Peninsula. The blackleg rating of 45Y82 is likely to be R-MR and 45Y82 is an early-mid hybrid with a shorter stem than other Clearfield hybrids and good standability.

46Y83 produced above the site mean yield at all sites in 2009 and in regions with 3 or more sites, 46Y83 produced the highest yield of all Clearfield varieties. The blackleg rating of 46Y83 is likely to be R-MR. 46Y83 is a mid season hybrid with very good early vigour and oil content. 46Y83 will be a replacement for 46Y78.

Triazine tolerant varieties

Several hybrid TT varieties have been released and have shown improved yields over the open pollinated types in some trials. As well, a series of open pollinated varieties have also been released.

In the early season sites CB Telfer produced less than the site mean yield at all sites in 2009. It is a very early variety for low rainfall areas and was not suited to any sites in 2009. Blackleg rating is likely to be MS. CB Scaddan produced less than the site mean yield at Tooligie, Keith, Mount Hope, Riverton, Bool Lagoon and Bordertown in 2009. It is likely to have a blackleg rating of MR. Both of these varieties are marketed by Canola Breeders and have an end point royalty of $5 per tonne.

In the mid season sites, CB Jardee HT produced above the site mean yield at all sites tested in 2008 and 2009. Where there have been enough sites in a region to give long term comparisons, CB Jardee HT has been the highest yielding TT option. Small amounts of seed are also likely to be available for two other TT hybrids from Canola Breeders. CB Tumby HT, an early-mid season hybrid, produced above the site mean yield at all sites except Tooligie and Yeelanna. CB Mallee HT is an early season TT hybrid. Where CB Mallee HT was tested it produced grain yields above the site mean yield. Both are likely to have a blackleg resistance rating of MR-MS.

Another hybrid TT to be released is Hyola 751TT. It is a late flowering variety that would only be suitable to higher rainfall areas. In 2009, it was only tested at 3 sites and produced high grain yields at Bool Lagoon but much less than the site mean at Turretfield and Arthurton. It is likely to be R-MR for blackleg.

Lightning TT is the last new TT variety to be only evaluated in 2009. It is a mid to mid-early TT open pollinated variety, likely to be MR for blackleg. Grain yields were only above the site mean at Yeelanna, Bordertown and Bool Lagoon.

Two high stability TT varieties are also being marketed in the South East and have been tested for several years. They are likely to have a premium on production. Monola 76TT and Monola 77TT have produced above average grain yields in trials in the South East and long term yields are slightly above many of the other TT varieties.

Conclusion and into the paddock

There is a range of canola varieties that fits the South East. Consider the type of herbicide tolerance that fits your farm. Look at blackleg ratings, maturity, yield and quality data when you make the decisions as to what variety to grow. Specialty types are also being contracted in the South East and can be considered now based on yield and the premiums being offered.

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