Canola cultivar evaluation:

Western and Southern Cape 2017

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During the 2017 season, a total of 18 canola cultivars were tested in the cultivar evaluation programme. Four conventional, eight CL (ClearfieldR, Imasamox tolerant) and six of the TT (Triazyne tolerant) group were included in the programme.

All 18 cultivars are hybrids, the same as in 2016. One new CL (43Y92) and three new TT cultivars were tested (Hyola 650 TT, AG4510 TT and CHTB2112 TT).

National cultivar trials

The Western Cape Department of Agriculture planted eight trials in the Southern Cape in the 2017 season. The data of only seven was collected, as the trials at Riversdal and Heidelberg were poorly established due to insufficient soil moisture. In the Swartland, eight trials were planted in seven localities, of which three were not harvested (also due to insufficient soil moisture at Darling, Pools and Eendekuil).

Climate of localities

The 2017 season in the Swartland was characterised by extremely dry conditions in April and May. The region, however, received a fair amount of rain on 6 and 7 June. Trials that were planted from late April up to the first week in June only germinated after 7 June. The Swartland's rainfall is summarised in *Table 1*. The Pools and Eendekuil areas experienced an extremely dry season. High average temperatures in September coupled with insufficient soil moisture affected yields negatively (*Figure 1*).

Little rain fell in the Southern Cape during the summer, with rainfall ranging between 52 and 82% of the long-term average (*Table 1*) in the growth season. As in the Swartland region, May was a dry month. Most plantings took place in April, except in the western parts, where it took place until the beginning of May.

At Langgewens, the rainfall received from April to October was 1,4mm more than in 2015 (the 2015 season had been the driest since 1978). Tygerhoek received 24% less rain over the corresponding period than the long-term average (*Figure 2*). It was very dry at both localities in May.

Figure 1: Monthly and annual rainfall at Langgewens for 2017 and long term.

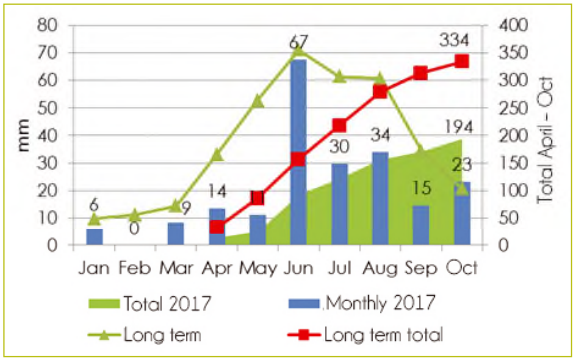


Figure 2: Monthly and annual rainfall at Tygerhoek for 2017 and long term.



Table 1: Rainfall in the Swartland and Rûens area, 2017.

	Bredasdorp	Caledon	Caledon	Heidelb.	Mossel Bay	Riversdal	Swellend.	Riviersd.	Piketb.	Malmesb.
	Prinskraal	Dunghye P.	Protem	Voorstekop	Patrysfontein	Uitkyk	Napky	Tygerhoek	Pools	Langgew.
Jan	55,9	75,2	27,7	70,9	62,5	0,4	29	37	5,1	6
Feb	19,1	28,2	16,8	23,4	25,4	12,8	2,3	10	0,5	0
Mar	2,5	5,8	4,8	15,5	16,8	12	4,6	7	2,5	9
Apr	29,2	36,6	15,8	25,2	14,5	10,4	16,3	17	8,4	14
May	9,1	4,6	6,6	16,5	17	16,4	7,4	15	3,8	11
Jun	51,6	66,6	26,2	46	13,7	26,6	120,4	39	51,1	67
Jul	37,9	52,6	25,4	43,9	17	25,4	32,5	43	20,1	30
Aug	61,5	62,7	38,1	72,9	61,5	53,2	32	63	18,3	34
Sep	21,8	21,8	25,2	22,1	47,8	17,0	17,0	26	4,3	15
Oct	24,1	26,7	9,9	22,6	44,5	23,8	4,3	6	11,9	23
Apr-Oct	235,2	271,6	147,2	249,2	216	172,8	229,9	209,2	117,9	194

Rainfall received in June was near average at Langgewens and below average at Tygerhoek. The remainder of the growth season was below average at Langgewens, which resulted in 46,4% less rainfall in the growth season than the long-term average. Rainfall in August was above average at Tygerhoek.

The minimum and maximum temperatures at Langgewens were near the long-term average, with the exception of September – the month was on average 1,5°C hotter (*Figure 3*). The high temperature experienced in September during the seed-filling period affected seed yield negatively. The average maximum temperature in the Southern Cape was 1,5°C higher in the growth season than the long-term average (*Figure 4*). The monthly maximum temperature for September at Langgewens was 0,9°C higher than the long-term average.

Results of trials

The yield results for the respective areas are summarised in *Table 2* and *3*. The data of the Clearfield (CL) and Triazyne tolerant (TT) cultivars were separated from the conventional cultivars.

Figure 3: Monthly minimum and maximum temperature at Langgewens for 2017 and long term.

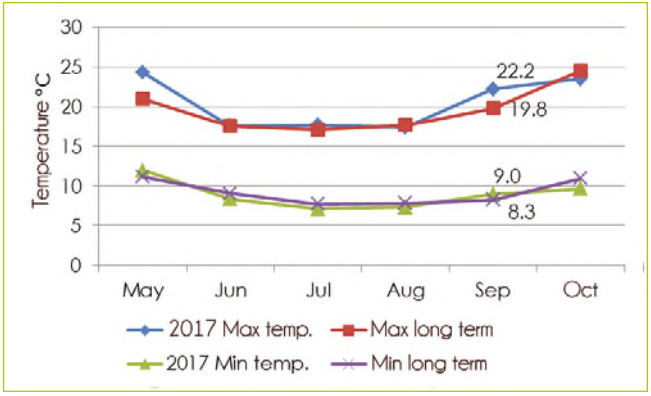
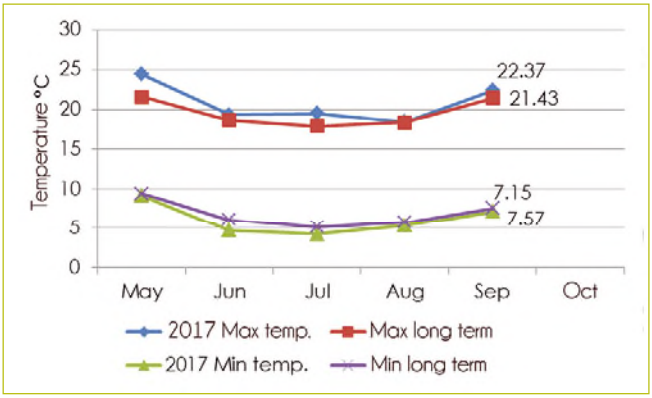


Figure 4: Monthly minimum and maximum temperature at Tygerhoek for 2017 and long term.



In the 2017 season, the Swartland trials were exposed to below normal moisture conditions and disaster drought in the northern and western areas. Little sclerotinia occurred in 2017. Black stem infection was found on all trials in the Swartland, with an increase of 10% compared to the 2016 season.

As with previous seasons, white leaf spot occurred at Grasrug. In the Swartland, average yields were 1 777kg/ha as opposed to the 2 746kg/ha and 1 320kg/ha harvested in 2016 and 2015, respectively. In 2015, the trials at Pools, Eendekuil and Darling were in fact harvested compared to no yield in 2017.

Table 2: Swartland seed yields for 2017 (kg/ha).

	Langg. 1		Langg. 2		Grasrug		Philadelphia		Porterville		Swartland	
Diamond	1 896	abcdef	1 966	abcd	1 920	a	2 092	bcde	1 820	a	1 928	ab
CB Tango	1 954	abcde	2 013	abc	1 692	cde	2 391	abc	1 786	ab	1 874	bcd
Belinda	2 035	abc	1 987	abc	1 681	cde	2 456	ab	1 431	cde	1 829	bcd
Hyola 50	2 018	abc	1 802	bcd	1 590	de	2 386	abc	1 596	abc	1 776	cde
CB Agamax	1 870	bcdef	2 024	ab	1 584	de	2 206	abcde	1 469	bcd	1 746	de
Conv. ave.	1 955		1 958		1 693		2 306		1 620		1 831	
44Y90	2 244	a	2 216	a	1 898	ab	2 590	a	1 652	abc	2 038	a
44Y89	2 146	ab	1 935	abcd	1 839	abc	2 293	abcd	1 497	abcd	1 897	bc
43Y92	2 062	abc	2 048	ab	1 702	bcde	2 585	a	1 416	cde	1 864	bcd
45Y91	2 137	abc	2 233	a	1 642	cde	2 447	ab	1 375	cde	1 854	bcd
Hyola 575 Cl	1 906	abcdef	1 796	bcd	1 781	abcd	2 275	abcd	1 344	cde	1 791	cde
45Y88	2 044	abc	1 674	cd	1 739	abcd	2 429	ab	1 330	cde	1 789	cde
Hyola 577CL	1 784	cdef	1 722	bcd	1 669	cde	2 262	abcd	1 175	de	1 686	ef
Cl ave.	2 046		1 946		1 753		2 412		1 398		1 846	
AG4510 TT	1 974	abcd	2 029	ab	1 614	de	1 941	de	1 125	e	1 691	ef
CHYB2112TT	1 641	def	1 773	bcd	1 700	bcde	1 859	e	1 407	cde	1 676	ef
Hyola 555TT	1 873	bcdef	1 709	bcd	1 668	cde	2 022	cde	1 222	de	1 675	ef
Hyola 650 TT	1 615	ef	1 767	bcd	1 640	cde	2 121	bcde	1 332	cde	1 664	ef
Hyola 559 TT	1 822	bcdef	1 641	d	1 510	e	2 068	bcde	1 319	cde	1 610	f
CB Atomic HT	1 587	f	1 867	bcd	1 597	de	1 830	e	1 162	de	1 595	f
TT ave.	1 752		1 798		1 622		1 974		1 261		1 652	
Average	1 923		1 900		1 693		2 236		1 414		1 777	
kbv	355,75		342,11		202,92		3 92,9		340,27		129,98	
kv	11,15		10,85		7,2		10,58		14,49			

** Cultivars marked with the same letter do not differ significantly.*

Table 3: Rûens seed yields for 2017 (kg/ha).

	Tyg. 1		Tyg. 2		Klipdale		Napier		Roodebl.		Swell.		S Cape	
Diamond	2 753	a	2 009	abc	2 818	a	3 092	abc	2 843	abc	2 410	a	2 601	a
CB Tango	2 103	cdef	1 505	f	2 260	bcd	3 075	abc	2 904	a	2 185	abc	2 277	def
CB Agamax	1 972	def	1 849	abcde	2 064	cde	3 006	abcd	2 333	defg	2 021	abcdef	2 200	efg
Belinda	1 813	f	1 906	abcde	2 526	ab	2 842	bcdef	2 096	efgh	1 899	bcdef	2 189	efg
Hyola 50	2 378	abcde	1 698	def	2 243	bcd	2 908	bcde	2 297	defgh	1 768	def	2 185	efg
Conv. ave.	2 204		1 793		2 382		2 985		2 495		2 057		2 290	
44Y90	2 404	abcd	1 923	abcde	2 500	ab	3 132	ab	2 482	bcde	2 361	a	2 501	ab
43Y92	2 484	abc	1 883	abcde	2 508	ab	3 285	a	2 952	a	2 216	abc	2 434	bc
44Y89	2 279	bcde	1 932	abcde	2 571	ab	2 986	abcd	2 426	def	2 171	abcd	2 379	bcd
45Y91	2 143	cdef	2 058	ab	2 368	bc	3 044	abc	2 863	ab	1 715	ef	2 366	bcd
45Y88	2 674	ab	2 090	a	1 742	efg	2 980	abcd	2 665	abcd	1 818	cdef	2 315	cde
Hyola 575 Cl	2 203	cdef	1 705	def	2 018	cde	2 767	cdef	2 044	fgh	2 263	ab	2 133	fgh
Hyola 577CL	1 954	ef	1 748	cdef	1 939	def	2 943	abcd	2 202	efgh	1 723	ef	2 082	gh
Cl ave.	2 306		1 906		2 235		3 020		2 519		2 038		2 316	
AG4510 TT	2 286	bcde	1 696	def	2 277	bcd	3 041	abc	2 460	cde	2 086	abcde	2 268	def
Hyola 559 TT	1 976	def	1 637	ef	2 041	cde	2 501	f	2 306	defgh	2 155	abcd	2 066	gh
Hyola 650 TT	2 244	bcdef	1 779	bcdef	1 994	cde	2 510	f	1 943	gh	2 095	abcde	2 070	gh
Hyola 555TT	2 135	cdef	1 976	abcd	1 613	fg	2 681	def	1 932	h	1 699	ef	2 022	h
CB Atomic HT	2 018	def	1 758	cdef	1 935	def	2 662	def	1 913	h	1 670	f	1 993	h
CHTB2112TT			1 532	f	1 471	g	2 561	ef	2 398	def				
TT ave.	2 132		1 730		1 889		2 659		2 159		1 941		2 084	
Average	2 225		1 832		2 201		2 909		2 392		2 015		2 240	
kbv	438,27		299,89		379,92		357,24		399,58		404,83		148,61	
kv	11,84		9,95		10,59		7,45		10,07		12,08			

** Cultivars marked with the same letter do not differ significantly.*

All the trials (except the second planting at Langgewens, which was sown at a later stage) germinated after the first rainfall on 6 and 7 June 2017. The trial averages for the Swartland ranged between 1 414kg/ha for Portervillle and 2 236kg/ha for Philadelphia (Darling, Pools and Eendekuil had no yield).

Diamond (1 928 kg/ha), a conventional cultivar, gave the highest yield in its group and second highest average yield in the Swartland after the CL cultivar 44Y90. However, Diamond's yield was not significantly lower than 44Y90. The yields of CB Tango (1 874kg/ha) and Belinda (1 829kg/ha) were not significantly lower than that of Diamond.

The yield of the CL cultivar 44Y90 (2 038kg/ha) was significantly higher than the other cultivars in the group and the highest in the Swartland. The CL cultivar with the second highest yield was 44Y89 (1 897kg/ha), followed by 43Y92 (1 864kg/ha) and 44Y91 (1 854kg/ha).

Three new TT cultivars tested

Three new TT cultivars were tested the past season. The TT cultivar with the highest average yield in the Swartland was AG4510 TT (1 691kg/ha), followed by a new cultivar CHYB2112TT (1 676kg/ha), Hyola 555 TT (1 675kg/ha) and another new cultivar, Hyola 650 TT (1 664kg/ha). The difference between the four TT cultivars with the highest yields was only 27kg/ha.

The average yield of the TT cultivars in 2017 was 9,8% lower than the conventional cultivars. In the 2016 season, the yield was 13% lower. The average yield of the CL cultivars was 15kg/ha higher than the yield of the conventional cultivar group.

In Rûens (*Table 3*) the trial average ranged between 2 659kg/ha at Napier and 1 730kg/ha at Tygerhoek's second planting date. The average yield was 2 240kg/ha compared to 2 885kg/ha in 2016 and 1 320kg/ha in 2015.

The conventional cultivar Diamond (2 061kg/ha) produced the highest average yield in the conventional group and the trial as a whole. It was followed by CB Tango, CB Agamax, Belinda and Hyola 50, although the yields were significantly lower than that of Diamond.

The new CL cultivar 44Y90 (2 501kg/ha) produced the highest yield in the CL group. The (new) cultivar 43Y92 (2 434kg/ha) was second in the CL group, followed by 44Y89 (2 379kg/ha) and 45Y91 (2 366kg/ha). There was no significant difference between these cultivars and 44Y90.

In the TT group, AG4510 TT (2 268kg/ha) had a significantly higher yield than the other cultivars. This cultivar was followed by Hyola 650 TT (2 070kg/ha), Hyola 559 TT (2 066kg/ha) and Hyola 55 TT (2 022kg/ha).

The average yield of the TT cultivars was 9% lower than the conventional cultivars. In 2016, the difference was 14,2% compared to 18,1% in 2015 and 8,1% in 2014. The average yield of the TT cultivars was 10% lower than the CL cultivars. On average, the yield of the CL and conventional cultivars differed by only 26kg/ha. As in the Swartland, the CL cultivars also performed a little better.

Source acknowledgement:
Canola Focus 80: December 2017