Canola cultivar evaluation:
Western and Southern Cape 2018

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During the 2018 season, a total of 18 canola cultivars were tested in the cultivar evaluation programme. The programme included six conventional, six CL (ClearfieldR, Imazamox tolerant) and six of the TT (Triazine tolerant) group.

These 18 cultivars are the same hybrid cultivars used during the past few seasons. One new conventional cultivar (Quartz) and one new TT cultivar (Hyola 350TT) were tested. The name of the AG4510 TT cultivar was changed to Alpha TT.

National cultivar trials

The Western Cape Department of Agriculture planted eight trials in the Southern Cape during the 2018 season. Data was collected from six of the trials.

The Heidelberg flats trial suffered damage due to low soil moisture, porcupines and wild geese, while weed problems led to poor establishment in the Caledon trial. In the Swartland, eight trials were planted at seven localities, one of which was not harvested due to WP grain worm damage at Darling.

Climate of localities

The past season in the Swartland was characterised by mostly average conditions during April and May. Plantings in soil with sufficient moisture were done earlier than the previous two seasons. The Swartland's rainfall is summarised in *Table 1* and *Figure 1*.

The Pools area had an extremely dry season and although the data did not indicate the extent, the area north of the weather station was very dry. The yield data of the area was very low. Low average temperatures during August and September had a positive effect on yields (*Figure 1*).

Figure 1: Monthly and annual rainfall at Langgewens for 2018 and long term.

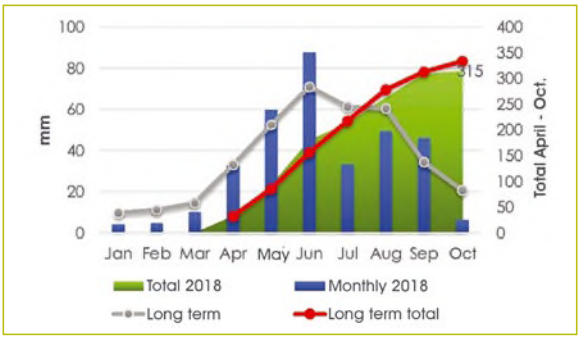


Figure 2: Minimum and maximum temperatures at Langgewens for 2018 and long term.

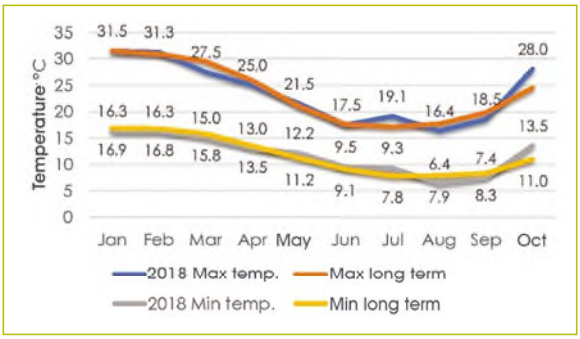


Table 1: Rainfall in the Swartland and Rûens (2018).

	Bredasd.	Caledon	Caledon	Heidelb.	Riversdal	Swellend.	Riviersd.	Piketb.	Malmesb.	Hopef.	Malmesb.	Porterv.
	Prinskraal	Dunghye P.	Protem	Voorstekop	Uitkyk	Napky	Tygerhoek	Pools	Langgew.	Koperf.	Schaapkraal	
Jan	1,5	23,3	28,7	52,1	25,4	18,8	22,9	0	4,2	2,4	6,4	0,25
Feb	6,4	12,7	2,79	9,91	11	3,8	14,7	0,3	4,6	4,6	5,3	9,65
Mar	8,9	16,7	15,5	37,3	28,8	9,4	33,3	10,9	10	10,2	6,9	33,5
Apr	6,9	21,6	11,4	22,4	6,8	6,4	18,1	19,8	32,6	21,4	35,3	21,8
May	21,1	38,4	18	18,8	12,6	12	21,8	27,7	59,8	55,6	88,9	89,2
Jun	32	70,1	22,9	31	18,2	20,3	37,6	38,9	87,6	63,8	60,2	85,3
Jul	40,4	87,4	29	38,4	14,8	23,6	52,6	40,6	33,2	39,4	43,2	64,8
Aug	67,6	74,4	42,7	47,8	30,6	24,4	42,4	27,4	49,4	42,6	56,4	58,7
Sep	95	51,3	63,5	86,8	68,6	48	72,4	34,1	46	44,4	47,5	94,5
Oct	8,1	29,5	6,9	16	12,4	6,4	14,8	7,6	6,2	7,2	7,37	8,1
Apr-Oct	271	373	194	261	164	141	260	196	315	274	339	422

The Southern Cape received very little summer rain. Total rainfall during the growing season decreased from the western to eastern regions (*Table 1* and *Figure 1*). The Southern Cape area received very good rains during September. The average temperature during August and September was below average (*Figure 4*). The yield in most areas benefited from favourable temperatures and late rain.

The average maximum temperature at Tygerhoek was above average during the growing season, except during August and September. Above-average temperatures occurred during July at Langgewens in the Swartland. This resulted in earlier flowering of certain plantings than in 2017 (two days earlier for Langgewens and ten for Eendekuil), while others took longer to flower (21 days for Porterville and 14 for Philadelphia and Grasrug).

Figure 3: Annual and monthly rainfall at Tygerhoek for 2018.

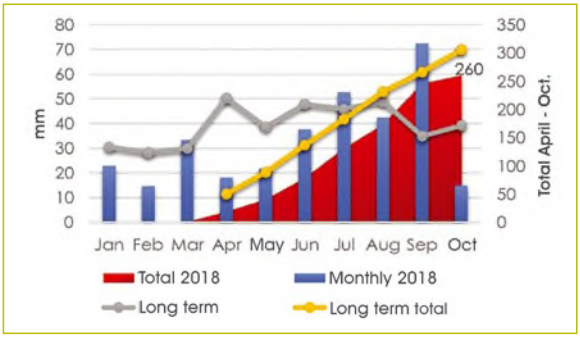
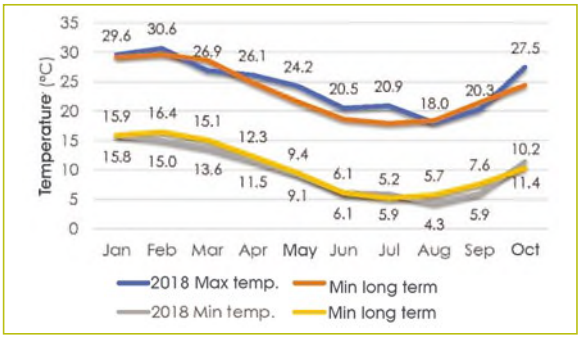


Figure 4: Monthly minimum and maximum temperatures at Tygerhoek for 2018 and long term.



Trial results

The yield results for the respective areas are summarised in *Tables 2* and *3*. Data from the Clearfield (CL) and Triazine tolerant (TT) cultivars is indicated separately from the conventional cultivars.

Table 2: Swartland seed yields for 2018 (kg/ha).

	Langgewens 1		Langgewens 2		Eendekuil		Grasrug		Philadelphia		Pools		Porterville		Swartland	
	9 May		28 May		3 May		15 May		11 May		3 May		4 May			
Diamond	4 018	a	2 903	ab	1 839	a	2 607	a	2 578	bcdef	915	a	2 357	ab	2 505	a
Quartz	3 789	abc	2 728	abcd	1 706	abc	2 066	bcdef	2 196	fg	937	a	2 157	ab	2 309	b
CB Agamax	3 497	bcdef	2 698	abcde	1 249	defg	2 603	a	2 732	abcde	468	efg	1 903	ab	2 142	cd
CB Tango	3 421	bcdef	2 730	abcd	1 712	abc	2 332	abcde	1 851	g	677	c	1 777	b	2 126	cd
Hyola 50	3 646	abcd	2 539	cdef	1 298	cdefg	1 854	efg	2 452	def	495	defg	1 897	ab	2 104	cd
Belinda	3 285	def	2 582	bcde	1 226	efg	2 087	bcdef	2 589	bcdef	582	cdef	1 914	ab	2 025	de
Conv. ave.	**3 609**		**2 697**		**1 505**		**2 258**		**2 400**		**679**		**2 001**		**2 202**	
44Y89	3 822	ab	2 896	ab	1 656	abcde	2 438	abc	2 997	ab	831	ab	2 345	ab	2 360	ab
43Y92	3 657	abcd	2 665	abcde	1 670	abcd	2 414	abcd	3 076	a	683	a	2 474	a	2 356	ab
44Y90	3 776	abc	2 953	a	1 597	abcdef	2 512	ab	2 926	abc	630	ab	2 359	ab	2 326	b
45Y91	3 634	abcde	2 628	abcde	1 211	fg	2 286	abcdef	2 894	abcd	430	ab	2 178	ab	2 135	cd
Hyola 575CL	3 336	cdef	2 631	abcde	1 531	abcdef	2 171	abcdef	2 298	efg	707	ab	2 067	ab	2 111	cd
Hyola 577CL	3 294	def	2 625	abcde	1 176	fg	1 543	g	2 233	fg	385	ab	1 900	ab	2 000	de
CL ave.	**3 586**		**2 733**		**1 473**		**2 227**		**2 738**		**611**		**2 220**		**2 214**	
Hyola 350TT	3 442	bcdef	2 863	abc	1 747	ab	2 065	bcdef	2 521	cdef	712	ab	2 087	ab	2 200	bc
Alpha TT	3 343	cdef	2 369	efg	1 446	abcdef	1 933	defg	2 712	abcde	631	ab	2 188	ab	2 037	de
Hyola 559TT	3 159	efg	2 235	fg	1 382	bcdefg	1 925	efg	2 347	ef	605	ab	1 951	ab	1 924	e
Hyola 555TT	3 147	fg	2 079	g	1 245	defg	1 835	fg	2 441	def	587	b	1 811	b	1 888	e
Hyola 650TT	3 026	fg	2 421	def	970	g	1 976	cdefg	2 210	fg	458	ab	2 132	ab	1 883	e
Atomic HT	2 805	g	2 044	g	1 173	fg	1 823	fg	2 704	abcde	385	c	1 112	c	1 599	f
TT ave.	**3 154**		**2 335**		**1 327**		**1 926**		**2 489**		**563**		**1 880**		**1 922**	
Average	3 450		2 588		1 435		2 137		2 542		618		2 034		2 113	
kv	8,32		7,57		17,77		13,3		10,77		14,97		17,7		12,35	
kbv	477		334		431		486		461		153		614		160	

Cultivars marked with the same letter do not differ significantly.

Table 3: Rûens seed yields for 2018 (kg/ha).

	Klipdale		Napier		Riversdale		Swellendam		Tygerhoek		Southern Cape	
	19 Apr		19 Apr		24 Apr		20 Apr		16 May			
Quartz	3 284	ab	2 901	a	2 714	a	2 643	a	1 934	bcd	2 733	a
Diamond	3 197	bcd	2 472	abc	2 424	ab	2 102	bcdefg	1 944	bc	2 452	cde
Hyola 50	2 832	cde	2 512	abc	2 046	cdefg	2 544	ab	1 628	cdef	2 316	defg
CB Agamax	2 949	bcde	2 551	ab	2 096	bcdefg	2 053	cdefg	1 657	bcde	2 265	efgh
Belinda	2 954	bcde	2 575	ab	1 866	fg	1 894	defgh	1 938	bcd	2 206	fghi
CB Tango	2 810	de	2 044	c	2 111	bcdef	1 662	gh	1 781	bcd	2 102	hijk
Conv. ave.	**3 004**		**2 509**		**2 209**		**2 150**		**1 814**		**2 346**	
44Y90	3 674	a	2 642	ab	2 320	bcde	2 453	abc	2 487	a	2 688	ab
43Y92	3 108	bcd	2 946	a	2 399	abc	2 227	abcde	2 173	ab	2 557	abc
45Y91	2 975	bcde	2 356	bc	2 291	bcde	2 329	abcd	1 718	bcde	2 367	cdef
44Y89	3 204	bcd	2 445	abc	2 337	bcd	2 040	cdefg	1 574	cdef	2 359	def
Hyola 577CL	2 762	de	2 356	bc	1 770	fg	2 257	abcde	1 588	cdef	2 130	ghij
Hyola 575CL	2 793	de	2 272	bc	1 919	fg	1 858	efgh	1 427	cdef	2 066	ijk
CL ave.	**3 086**		**2 503**		**2 172**		**2 194**		**1 828**		**2 361**	
Alpha TT	3 303	ab	2 609	ab	2 426	ab	2 173	bcdef	1 855	bcd	2 497	bcd
Hyola 350TT	3 263	abc	2 482	abc	1 870	fg	1 775	fgh	1 778	bcd	2 208	fghi
Hyola 650TT	2 837	cde	2 293	bc	2 020	defg	1 938	defg	1 194	ef	2 092	hijk
Hyola 559TT	2 625	e	2 384	bc	1 963	efg	2 035	cdefg	1 108	f	2 054	ijk
Atomic HT	2 634	e	2 030	c	1 799	fg	1 993	defg	1 409	def	1 985	jk
Hyola 555TT	2 939	bcde	2 031	c	1 743	g	1 450	h	1 486	cdef	1 929	k
TT ave.	**2 933**		**2 305**		**1 970**		**1 894**		**1 472**		**2 128**	
Average	3 008		2 439		2 117		2 079		1 704		2 270	
kv	8,91		12,48		10,19		12,78		18,75		0,04	
kbv	444,9		505,1		358,1		446,5		530,5		105,4	

Cultivars marked with the same letter do not differ significantly.

During the past season, moisture conditions in the Swartland trials varied from average to very dry in the Pools area. Little *Sclerotinia* occurred in 2018. Black stem infection was evident in all the Swartland trials, showing a 51% decrease compared to the 2017 season. As with the past few seasons, white leaf spot occurred at Grasrug, although its incidence was much higher than in 2016 and 2017. Average yields in the Swartland were 2 113kg/ha compared to 1 777kg/ha and 2 746kg/ha in 2017 and 2016, respectively.

All trials, except the second planting at Langgewens (28 May), were planted between 2 and 11 May. The trials at Pools, Eendekuil and Porterville only germinated at the end of May after adequate rain was received. The trial averages for the Swartland ranged between 618kg/ha for Pools and 3 450kg/ha for Langgewens.

The conventional cultivar Diamond (2 505kg/ha) was the cultivar with the highest yield in the Swartland. Diamond's yield was significantly higher than that of the new cultivar, Quartz (2 309kg/ha), which had the second highest yield. The yields of CB Agamax (2 142kg/ha) and CB Tango (2 126kg/ha) were significantly lower than that of Diamond and Quartz.

The CL cultivar with the highest yield in its group was 44Y89 (2 360kg/ha) followed by 43Y92 (2 356kg/ha) and 44Y90 (2 326kg/ha). The yields of the three cultivars did not differ significantly. The remaining CL cultivars' yields were significantly lower than those of 44Y89, 43Y92 and 44Y90.

Hyola 350TT (2 200kg/ha) and Hyola

650TT (1 883kg/ha) were the two new TT cultivars tested this season. Hyola 350TT was also the TT cultivar with the highest average yield in the Swartland. The yield was significantly better than the second-placed Alpha TT (2 037 kg/ha). Alpha TT (AG4510 TT) had the highest yield in 2017. Alpha TT was followed by new cultivars Hyola 559TT (1 924kg/ha), Hyola 555TT (1 888kg/ha) and Hyola 650TT (1 883kg/ha).

The average yield of the TT cultivars in 2018 was 12,7% lower than that of conventional cultivars. The yield was 9,8% and 13% lower in the 2017 and 2016 seasons. The yield of the CL cultivars was on average 12kg/ha higher than the yield of the conventional cultivar group.

In Rûens (*Table 3*), the trial averages varied between 3 008kg/ha at Klipdale and 1 704kg/ha measured on Tygerhoek's second planting date. The average yield was 2 270kg/ha compared to 2 240kg/ha in 2017 and 2 885kg/ha in 2016.

The conventional cultivar Quartz (2 733kg/ha) had the highest average yield in the conventional group and in the Southern Cape as a whole. This was followed by Diamond (2 452kg/ha), which had the highest yield in 2017. Diamond's yield was significantly lower than that of Quartz. Diamond was followed by Hyola 50 and CB Agamax, although the yields were not significantly lower.

The CL cultivar with the highest yield in the Southern Cape was 44Y90 (2 688kg/ha). The cultivar 43Y92 (2 557kg/ha) was second in the CL group and the yield was not significantly lower. The cultivar 45Y91 (2 367kg/ha) was third, followed by 44Y89 (2 359kg/ha) – these cultivars did not differ significantly from 43Y92.

In the TT group, Alpha TT (2 497kg/ha) had significantly higher yields than the other TT cultivars. Alpha TT was followed by Hyola 350TT (2 208kg/ha), with Hyola 650TT (2 070kg/ha) in third place.

The average yield of the TT cultivars was 9,3% lower than the yields of the conventional cultivars. In 2017, the difference was 9% compared to 14,2% in 2016. The average yield of TT cultivars was 9,9% lower than the CL cultivars. The CL and conventional cultivars differed on average by only 15kg/ha. As in the Swartland, the CL cultivars also performed somewhat better in this instance.



