RIVERSDAL BOEREDAG

SEPTEMBER 2021

Wes-Kaapse Regering
Landbou

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CROP ROTATION RIVERSDALE: SUMMARY OF RESULTS AND OUTPUTS IN 2020

Dr Johann Strauss

2020 was the 9th year of production in the new trial. Six cash crop systems are tested including shortened canola rotations and cover crops. A total of 60 plots were planted. The 6 systems tested are replicated 3 times and all crops within each system are represented on the field each year.

Riversdale received little summer rainfall which resulted in a very dry start to the 2020 production season. Only 64 mm fell from January to the end of April. In 2017 a new weather station was installed at the research site which is managed by the Western Cape Department of Agriculture. A total of 260 mm was received from April to the end of September (Figure 1). Although planted late in April in dry soil, favourable showers following planting resulted in excellent germination at the site. The rest of the season was conducive to excellent yields.

The farmers' day associated with the trial was converted to online presentations and was well viewed.

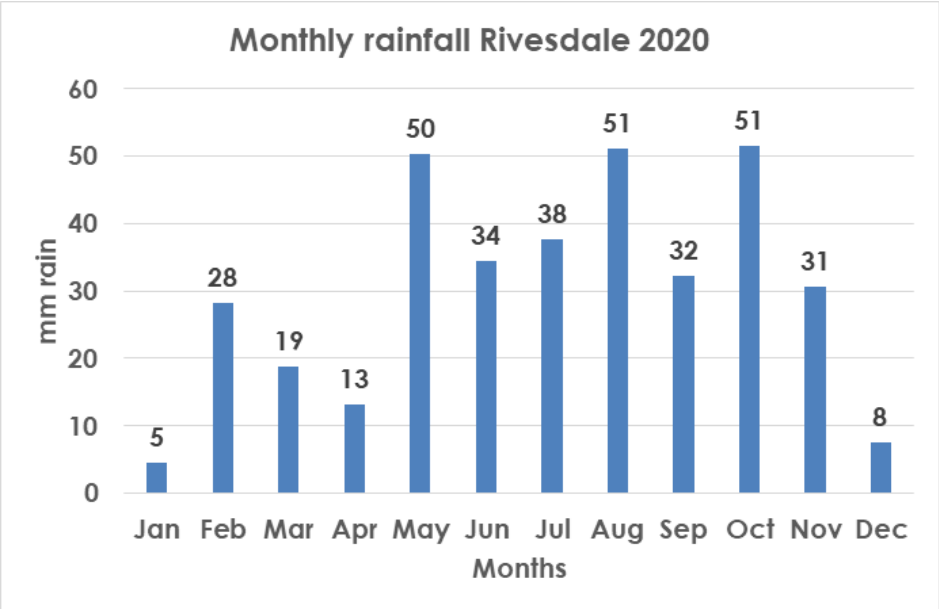

Figure 1. Monthly rainfall on the Farm Uitkyk at Riversdale

Canola production – Alpha TT was planted at Riversdale at 3 kg/ha. A total of 38 kg N/ha was applied to each plot. Nitrogen at plant was 8 kg/ha and a topdressing of 30 kg/ha was applied at the end of July. Canola yields at Riversdale averaged 2150 kg/ha which was 253 kg/ha more than the 2019 average. All plots yielded an oil yield above 40%, with an average of 46.9%. Yields ranged between 1569 kg/ha and 2647 kg/ha (figure 2).

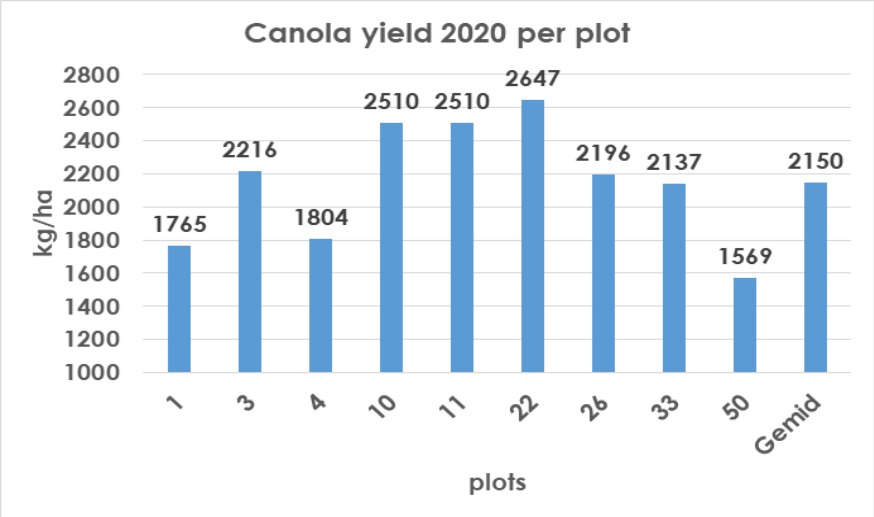

Figure 2. Snapshot of the production of canola in the 2020 season on all plots harvested.

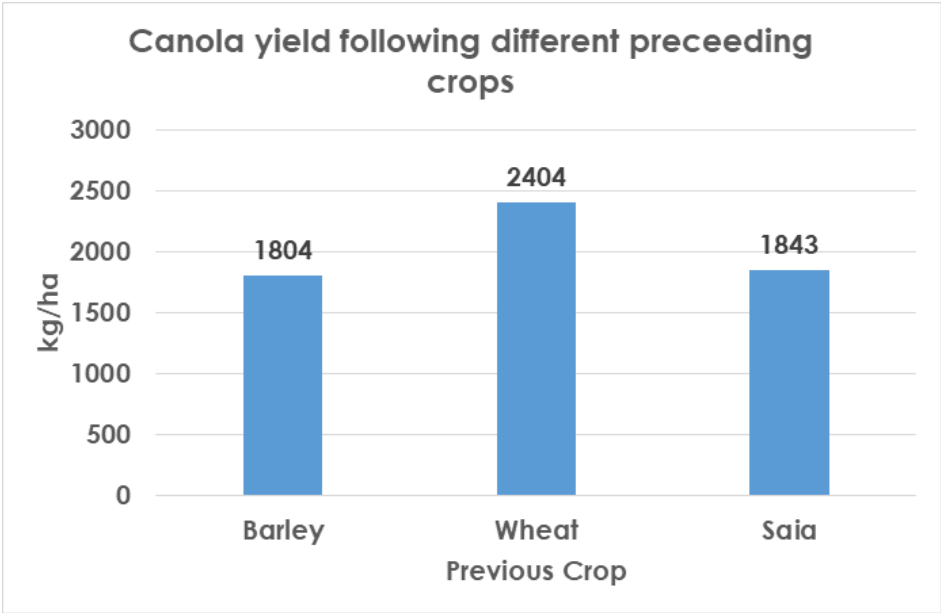

Figure 3. Canola yields in 2020 following different preceding crops in 2019

The average canola yield following the legume cover crop in the system cover crop/canola/ wheat was 2 tons per ha over the first five years of the trial and outperformed the canola in other systems. Following the changes to the system, with saia oats preceding the canola in the cover crop/canola/wheat system the average yield has come down from the 2 t/ha average, but is still 200 kg/ha more than the nearest other system, as can be seen in Table 1.

Table 1. Summary of canola production in different cropping systems over the period of 2013 to 2018. (W = wheat, C = canola, c = cover crop, L = lupin, B = barley)

System	2013	2014	2015	2016	2017	2018	2019	Ave
WC	2,81	1,29	1,35	2,28	1,13	1,72	1,81	1,77
WLWC	2,16	1,46	1,52		0,96	1.79	2.02	1,53
WcC	2,77	1,51	1,74	2,79	1,19	1,73	2,01	1.96
WBC	2,29	1,51	1,16	1,86	1,00	1,63	1,84	1,61
BLWWC	2,14	1,37	1,36	2,17	1,42	1,41	1,77	1,66

Note that the cover crops in the systems Wheat/cover crop/canola and the wheat/wheat/cover crop was switched during the 2016 production year. This was done to evaluate canola performance following a grass cover crop (saia oats) and wheat following a legume cover crop. So the WcC system did not have the benefit of extra nitrogen in the system from a legume cover crop.

Wheat production – SST0117 was planted at Riversdale at 60 kg/ha. A total of 38 kg N/ha was applied to each plot (8 kg N/ha at planting and 30 kg N/ha top-dressing). Wheat yields at Riversdale averaged 4505 kg/ha. This was 1773 kg/ha more than in 2019. The yield ranged from 3961 kg/ha to 5216 kg/ha during the 2020 production year, as can be seen in figure 4, while figure 5 illustrates the system differences in wheat production.

As noted in the canola that the cover crop was switched during 2016 and where wheat in the system followed saia oats in the previous seasons' it followed legume since 2017 (pea crop in 2020).

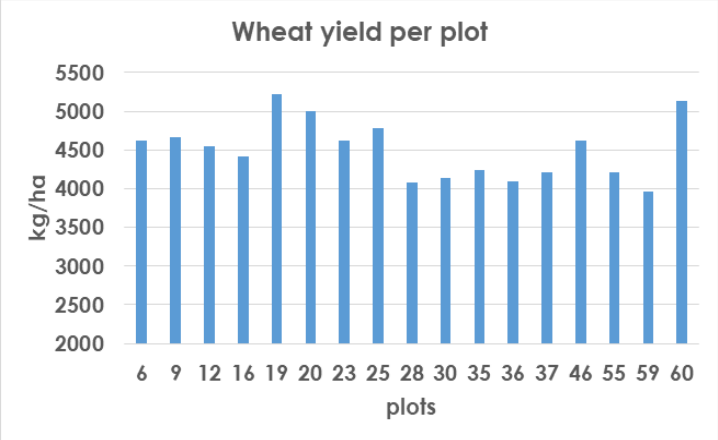

Figure 3. Wheat yield on different plots in the 2020 season.

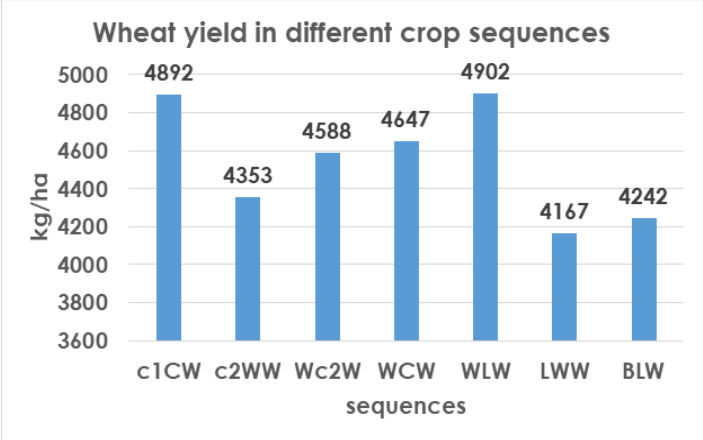

Figure 4. Wheat yields in different crop sequences (W =wheat, B = barley, C = canola, c1 = Saia cover, c2 = Pea cover, L = lupine)

The effect of cropping sequence (previous crop effect) can be seen in figure 4. The effect that the preceding crop has on wheat production in previous seasons can be seen in table 2. Note the effect of legumes on yield increases as well as the effect of a consecutive wheat. The effect of the swap in the cover crops in the two systems have had a drastic effect on the increase of the first year wheat yield following the cover in the crop crop/wheat/wheat system.

Table 2. Wheat yields in different crop sequences over a six year period (W = wheat, C = canola, L= lupin, c = cover crop).

	2013	2014	2015	2016	2017	2018	2019	Ave
WCBLW	3493	3095	3944	5039	1500	1340	2510	2989
CWLW	3879	2706	4258	4928	1562	2267	2492	3156
CW	3314	3046	3824	4647	1564	2085	2877	3051
LWCW	2958	2212	3693	4388	1176	2015	2723	2738
BCW	3565	2660	3748	3954	1100	1766	2711	2786
cCW	3520	2637	3853	4778	1326	1651	3412	3025
CBLWW	3412	2944	2905	3729	1475	1851	2606	2703
cWW	3866	1908	2846	3408	1241	1688	2902	2551
WcW	3680	2703	3310	4618	1863	2249	2906	3047

Barley production – Hessekwa, Kadie and Elim was planted at Riversdale at 53 kg/ha. Barley yields at Riversdale averaged 4131 kg/ha. This average yield was 844 kg/ha more than in 2019. Yields varied between 3196 kg/ha and 4647 kg/ha. Figure 5 summarises the 2020 year. All plots were classified as feed grade due to high percentage of slits, although both plumpness and protein was within malting grade parameters.

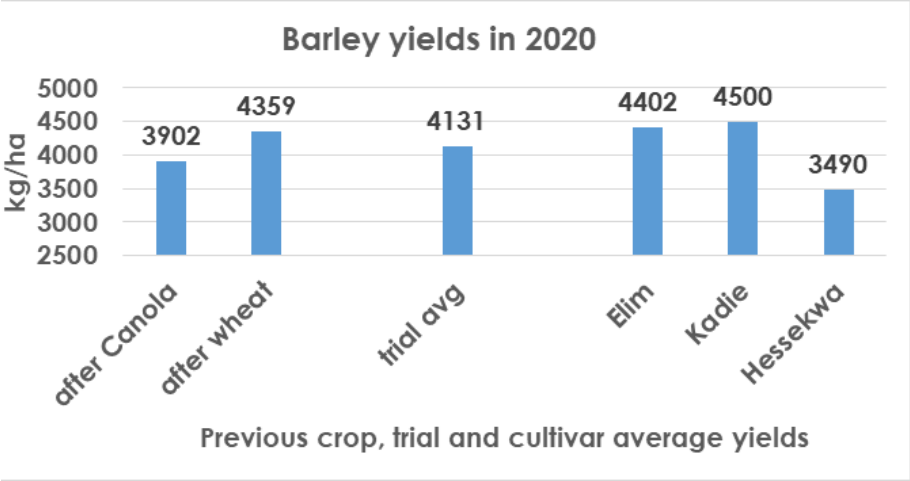

Figure 5. Barley yields per plot in the 2020 season.

Lupine production – Lupine plots were replaced with peas, planted at a rate of 80 kg/ha. No plots were harvested.

Cover crops – Saia oats and field peas were planted during 2020 at seeding rates of 30 kg/ha and 80kg/ha, respectively. No other input cost was incurred during the season except the herbicide cost to kill the cover crop following the information day.

Economics – Although it proved to be a very poor production year in 2018, all systems tested show a positive gross margin above direct allocated production costs as can be seen in table 3. The 2016 and 2017 results are also shown for the same systems.

Table 3. Average gross margin for different systems tested at Riversdale in the past two seasons (W = wheat, B = barley, C = canola, L= lupin, c = cover crop).

Table 3. Average gross margin for different systems tested at Riversdale in the past two seasons (W = wheat, B = barley, C = canola, L= lupin, c = cover crop).

S	2020	2019	2018	2017	2016
WC	11841	6410	5002	2318	8050
WLWC	9227	3860	3413	599	6919
cWW	8090	3788	2071	685	4324
cCW	6683	4231	2555	832	5800
WBC	9881	5330	5296	1968	7038
CBLWW	8658	3609	2640	1112	7156

As can be seen from the gross margin summary in the table, the short rotation system of wheat and canola is performing well. The danger with the system is disease occurrence. The build-up of sclerotinia that has been seen did not have a major impact on the 2019, 2018 and 2017 seasons due to the extremely dry conditions. The sub-set of factors necessary for the disease to develop did not occur and added to that a preventative spray was applied to help with side stepping the disease during these two seasons.

A summary of the average input cost and gross margin per crop planted at the research site is given in table 4. Please note that the cover crops and lupin were terminated before the end of the season and therefore have a negative gross margin. Single cover crops might not be the answer when viewing the economics of these two systems. Mixed cover crops with grazing will change the whole picture of the two systems that include cover crops.

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Crop	Avg Input Cost	Avg Gross Margin
Wheat	3636	13317
Canola	3782	10996
Barley	3900	5776
Lupine	2693	-2693
Pea cover	1791	-2018
Saia cover	1028	-1028

Table 4. Input cost and average gross margin for different crops tested at Riversdale in 2020.

CANOLA KULTIVAREVALUASIE: SUID-KAAP 2020

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Wes-Kaapse Regering
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Inleiding

In die 2020 seisoen was totaal van 14 kultivars in die kultivarevaluasieprogram getoets en het bestaan uit vier konvensionele, vier CI (Clearfield, Imasamoks-tolerant) en vyf van die TT-groep (Triasien-tolerant). Daar word vanjaar drie nuwe kultivars getoets, een uit elk van die groep.

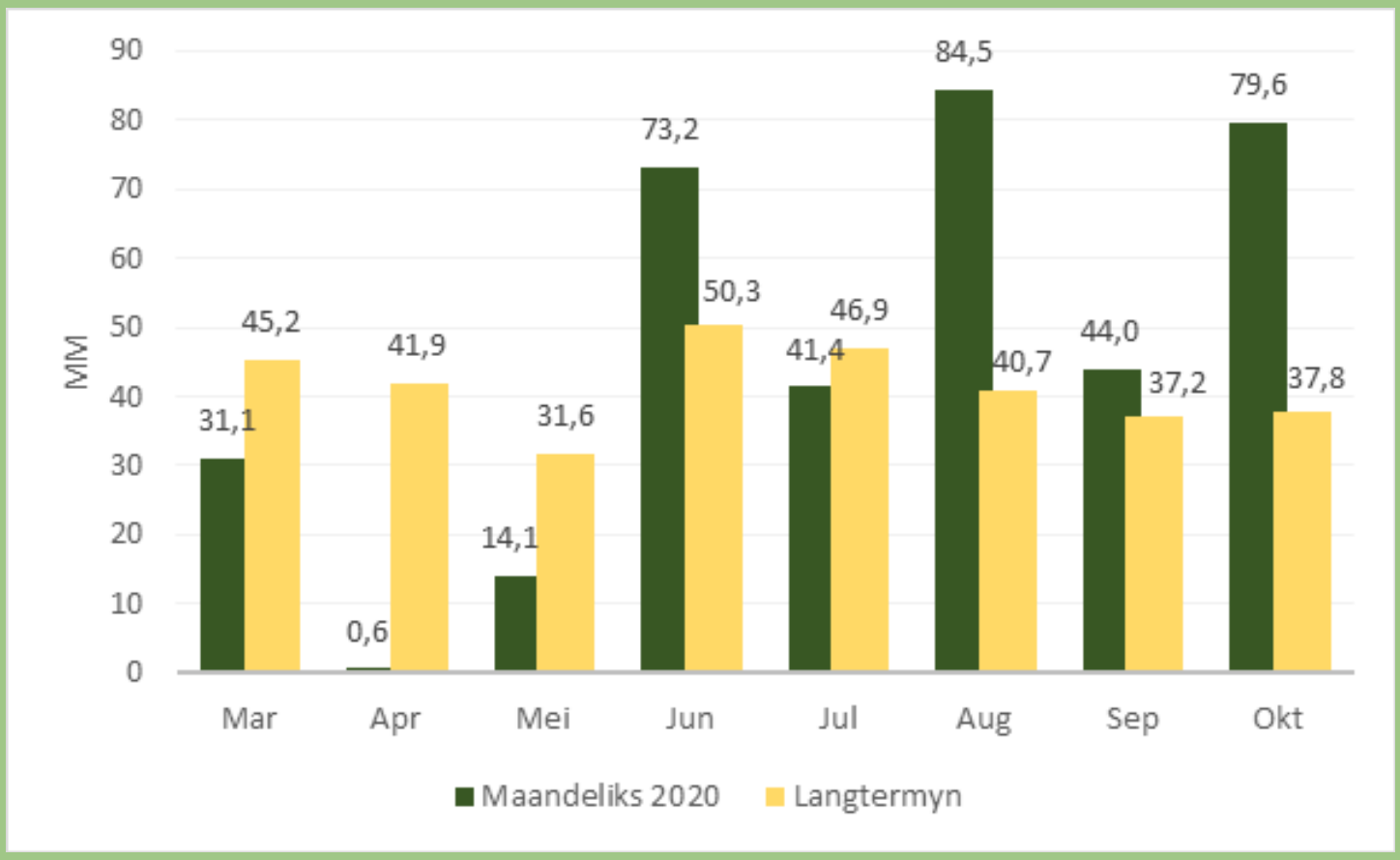
Klimaat:

Tygerhoek in die Suid-Kaap het droër herfs gehad as wat die langtermyn gemiddelde aandui (figuur 1). Die gemiddelde reënval vir die groeiseisoen was egter 92 mm meer as die langtermyn groeiseisoen gemiddeld van 244 mm.

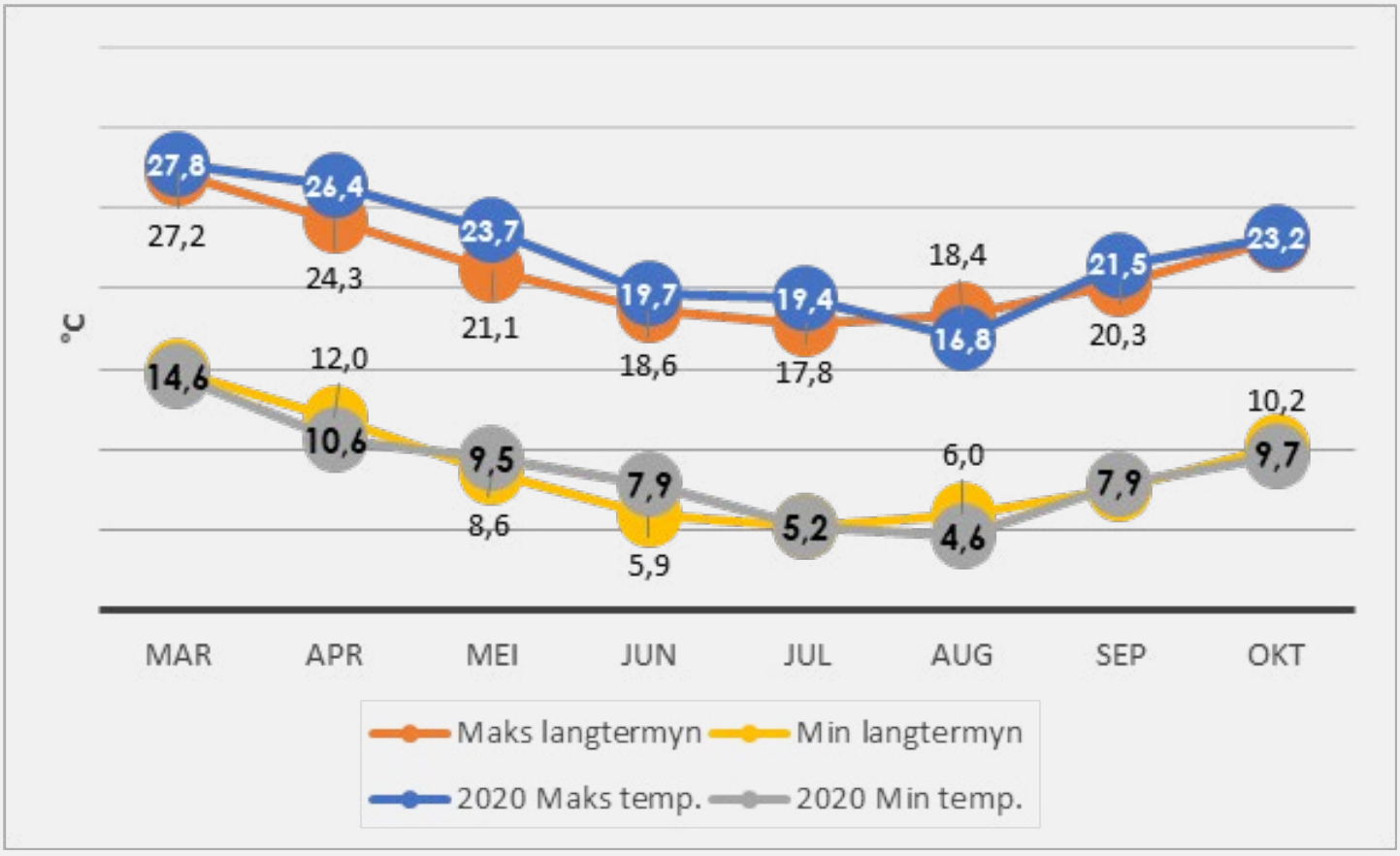
Gemiddelde temperatuur gedurende Augustus was 1.6°C (maksimum temperatuur) en 1.4°C (minimum temperatuur) laer as die langtermyn gemiddeld. Die tendens het oor die hele streek voorgekom. Die temperature tesame met die reënval was waarskynlik ideaal vir gewasverbouing tot Julie.

Canolaplante is baie gevoelig vir hoë temperature tydens die periode vanaf blom tot met die einde van saadvul. Die periode van blom is egter baie langer (40-60 dae) as in die Swartland (>30 dae).

Die minimum temperatuur gedurende September by Tygerhoek was laer as by Langgewens. Beide die maksimum en minimum temperature was ook laer gedurende Oktober, wat beteken dat die canola in die Overberg/Suid-Kaap gunstige temperature gehad het tydens die saadvulperiode.



Figuur 1: Maandelikse reënval vir 2020 sowel as langtermyn by Tygerhoek.



Figuur 2: Maandelikse minimum en maksimum temperatuur by Tygerhoek vir 2020 en oor die langtermyn.

RESULTATE

Die opbrengsresultate word opgesom in Tabel 1 vir die onderskeie gebiede. Die "Clearfield (Cl)" en "Triasien tolerante (TT)" – kultivars se data is geskei van die konvensionele kultivars. Die nuwe kombinasie-tipe kultivar (Hyola 580CT) is by die TT-groep ingesluit.

In die Swartland het die gemiddelde opbrengste per proef gewissel tussen 3324kg ha-1 (Langgewens 1ste aanplanting) tot 2269kg ha-1 by Hopefield. In die Rûens het die proefgemiddeldes gewissel tussen 4045 kg ha-1 op Riversdal en 3015 kg ha-1 op Tygerhoek 1ste saaidatum. Die opbrengs van die eerste saaidatum is nadelig beïnvloed deur onegalige ontkieming. Die gemiddelde opbrengs was 3704 kg ha-1 teenoor 1678 kg ha-1 in 2019.

Weens die lang groeiseisoen het die Cl-kultivar met die langer groeiseisoen die hoogste opbrengs in die proewe gegee. Die gemiddelde opbrengs van 45Y93 was 4549 kg ha-1. Die kultivar met die tweede hoogste opbrengs in 2020 was ook Cl-kultivar nl. 44Y90.

Die konvensionele kultivar Quartz (4072 kg ha-1) het die hoogste gemiddelde opbrengs in die konvensionele groep en in die Suid-Kaap soos in 2019 gelewer. Dit is gevolg deur Diamond (3824 kg ha-1) wat in 2017 die hoogste opbrengs gelewer het. In die TT-groep het Alpha TT (3659 kg ha-1) die hoogste opbrengs gelewer gevolg deur Hyola 650TT (3552 kg ha-1) en die kombinasiekultivar Hyola 580CT (3373 kg ha-1) in die 3de plek.

Tabel 3: Swartland en Suid-Kaap saadopbrengste vir 2020 (kg ha-1)

Kultivars 2020	Langge-wens 1	Langgewens 2	Hopefield	Tygerhoek 1	Tygerhoek 2	Riversdal	Napier	Gemiddeld
Plantdatum	11 Mei 2020 (reën 25Mei)	2 Junie 2020	18 Mei 2020 (reën 25Mei)	7 Mei 2020	22 Mei 2020	20 Mei 2020	9 Junie 2020	
	kg ha-1	kg ha-1	kg ha-1	kg ha-1	kg ha-1	kg ha-1	kg ha-1	kg ha-1
Hyola 50	2826d	3430abcd	2343abcd	3111defgh	3575def	3819def	3142defg	3166de
Diamond	3579ab	3513abc	3009ab	3427cdef	3891abcde	4202bcd	3380bcdef	3572bc
Tango	2712d	2874e	2035bcde	3030efgh	3316ef	3729def	2881fg	2940ef
Quarts	3668a	3203abcde	3084a	3613bcd	4291ab	4649ab	3275cdef	3683ab
Konv. gem.	3196	3255	2618	3295	3768	4100	3170	3340
43Y92	3934a	3570a	2650abc	3489cde	3595cdef	4626ab	3783bc	3664ab
45Y93	3756a	3513ab	2111bcde	4062ab	4396a	4710a	4542a	3870a
45Y91	3773a	3335abcde	2777ab	4159a	3955abcd	4459ab	3968ab	3775ab
44Y90	4072a	3550ab	2681ab	3754abc	4181abc	4414abc	3973ab	3804ab
Cl gem.	3884	3492	2555	3866	4032	4552	4067	3778
Alpha TT	3497abc	3015bcde	2078bcde	3541bcde	3496def	3957cde	3525bcde	3301cd
Hyola 555 TT	2789d	2938de	1686de	2588h	3149f	3409f	2848fg	2772f
Hyola 559 TT	2832d	3129abcde	2366abcd	3043efgh	3675bcdef	3514ef	2640g	3028def
Hyola 350	2956cd	3327abcde	1487e	2857gh	3112f	3718ef	2978efg	2919ef
Hyola 650	3079bcd	2977cde	1634de	3135defg	3217f	3838def	3601bcd	3069de
Hyola 580CT	3069bcd	2928de	1826cde	2927fgh	3263f	3592ef	3264cdef	2981ef
TT gem.	3037	3052	1846	3015	3319	3671	3143	3012
Proefgem.	3324	3236	2269	3338	3651	4045	3414	3325

Kultivars gemerk met dieselfde letter verskil nie betekenisvol van mekaar nie.

Die gemiddelde opbrengs van TT-kultivars was 8% en 23% laer as die konvensionele- en Cl-kultivars onderskeidelik. In 2019 was die verskil in die Suid-Kaap 20% en 12% met konvensioneel wat 20% verskil het.

Gevolgtrekking

Die impak van die klimaat in die 2020-seisoen op produksie was baie goed. Die koel Augustus en September het tot gevolg gehad dat die groeiseisoen langer as normaal was. Die 2019 seisoen, wat buitengewoon droog was met rekord warm temperature in September, het baie nadelige gevolge op opbrengs gehad. Die opbrengs op ooreenstemmende lokaliteite was in 2020, 67% en 133% hoër in onderskeidelik die Swartland en Suid-Kaap. Die 2019 en 2020 seisoene beklemtoon die geweldige negatiewe impak wat klimaatsverandering op produksie in die Wes-Kaap kan hê.

KULTIVARKEUSE 2022: WAAROM IS MY KEUSE BELANGRIK?

Wes-Kaapse Regering
Landbou

PJA Lombard, L Smorenburg en Dr J Strauss

Belangrik: Die afgelope seisoen het ons gesien watter positiewe invloed klimaat op produksie kan hê. Dit staan in skrille kontras met die 2019 seisoen wat droog en baie warm in die lente was. Dit is onmoontlik om voorsiening te maak vir sulke klimaatuiterstes. Nogtans is goed aangepaste kultivars noodsaaklik vir sukses.

1. **Saadopbrengs** is ten alle tye belangrik, daar is egter 'n paar faktore wat in berekening gebring moet word alvorens ons besluit (tabel 1). Dit is die ideaal om na meer as een jaar se data te kyk. Die 2020 groeiseisoen was in vele opsigte die teenoorgestelde van 2019, dit gee ons die geleendtheid om 'n kultivar onder die beste en moeilikste omstandighede te meet. Dit is ook belangrik om te kyk hoe die kultivar in die Swartland en Suid-Kaap presteer het, dit dui op aanpasbaarheid en kan bestuursbesluite beïnvloed. TT-kultivars het as groep 'n laer saadopbrengspotensiaal as konvensionele en CI-kultivars.
2. **Fisiologiese ontwikkelingstempo** en veral die aantal dae tot blom en tydperk van blom is belangrik. Die 2020 seisoen het die kultivar 45Y93 bevoordeel, wat langer groeier is, en daarom kon die kultivar voordeel trek uit die langer as normale groeiseisoen. In areas waar die reën normaalweg vroeg afsny, moet verkieslik kort groeiseisoen kultivars geplant word (Tabel 1).
3. **Onkruidbestuur**
   Die chemiese onkruiddoder-program vir die jaar word bepaal deur die tipe kultivar (konvensioneel, TT en CI). Die moontlikheid van groep 2 onkruiddoder (SU's) oordrag kan ook die keuse van kultivar beïnvloed. CI-saailinge is minder gevoelig (nie bestand nie) vir SU's oordrag in die grond.

4. Saaidigtheid

Die ideale saaidigtheid kan wissel van plaas tot plaas. Klimaatsomstandighede en planters speel belangrike rol, wanner die grondvog ongunstig is, moet verkieslik meer saad per oppervlak geplant word.

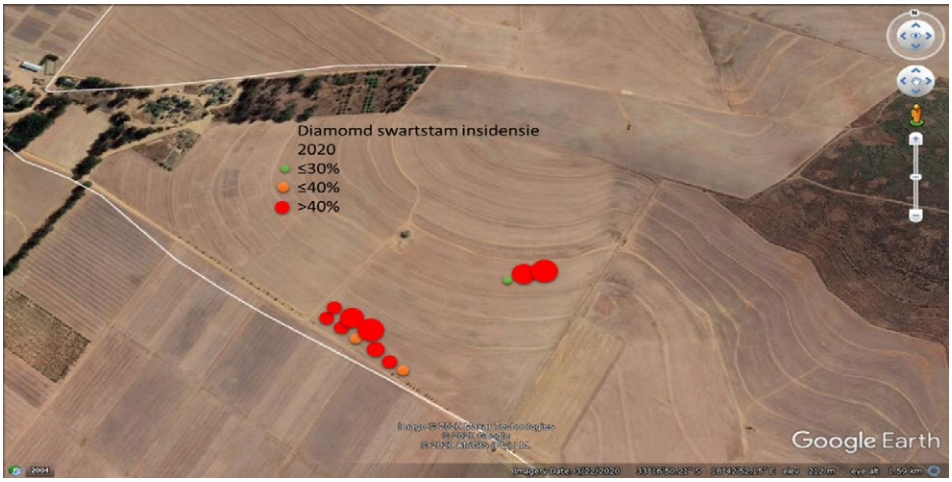
Die konvensionele- en Cl-kultivars is baie groeikragtig en waar die stand goed genoeg is, help dit baie met die onderdrukking van onkruid. Onthou TT-kultivars vorm minder biomassa as die ander groepe, gevolglik is digter stand vir die oorskadu-effek baie belangrik by die groep.

5. Swartstam

Dit word aanbeveel dat produsente in gebiede met hoë swartstamrisiko kultivars aanplant met goeie swartstamweerstand. In tabel 2 word die plaaslike swartstam resultate in 2020 aangedui. Die wisselvalligheid t.o.v. die verspreiding van swartstam in die Swartland en by Riversdal word beklemtoon (tabel 3).

Hopefield se persentasie infeksie was 1.3% teenoor die eerste saaidatum by Langgewens wat gemiddeld 38.8% was. In figuur 1 word aangedui hoe die verspreiding van swartstam op Langgewens kan wissel binne klein area op enkele kultivar in 2020. Swambespuiting tydens 4-6 blaarstadium word vir twee redes aanbeveel:

- wanneer kultivar minder goeie tot swak weerstand het (in 'n area met redelike hoë swamdruk),
- en tweedens as daar in omgewing aangeplant word met hoë swartstamdruk (Sien asb Canolafokus 93 en 94).



Figuur 1: Die wisselvalligheid van swartstaminfeksie by Diamond op Langgewens in 2020.

Tabel 1: Rûens saadopbrengste uitgedruk as persentasie vir 2017 tot 2019

	2018	2019	2020	2018-2020		2019 & 2020	
Quartz	117	129	110	116	1	115	1
Diamond	105	122	103	108	2	108	2
CB Tango	90	102	89	92	4	93	3
Hyola 50	99	90	95	95	3	93	4
Konv. gem.	103	111	99	103		102	
44Y90	115	112	113	113	1	112	1
45Y91	101	96	111	105	3	106	4
43Y92	110	117	108	111	2	110	3
45Y93		86	123			110	2
Cl Gem.	109	103	114	110		109	
Alpha TT	107	104	99	102	1	99	1
Hyola 350	95	96	88	92	3	90	3
Hyola 650 TT	90	89	96	92	2	93	2
Hyola 559 TT	88	83	88	87	4	86	5
Hyola 555 TT	83	88	85	85	5	85	6
Hyola 580 CT		85	91			89	4
TT Gem.	92	91	91	92		90	

Tabel 2: Kultivar eienskappe van die kultivars in 2018 tot 2020 getoets

Kultivar	Tipe		Jaar 1ste toets	Groei-periode Dae tot blom 2019 & 20	Dae tot eindblom (Lang.) 2018 & 19	Op-brengs (% van proef-gem) Rûens 2019-20	Op-brengs (% van proef-gem) Rûens 2019-20	Swart-stam indeks	Swartst. Indeks + Jockeyj / Saltros /Ilivoi	Swart-st. Weer-stands-groep #
Hyola 50	Konv	K2 Seed	2009	laat	laat	99	93	w2016	w2016(j)	AD
CB Tango	Konv	Agricol	2013	vroeg*	vroeg*	93	93	mv2014	mw2014(j)	B
Diamond	Konv	Agricol	2015	vroeg	vroeg	119	108	mw2020	w2020(jsi)	ABF
Quartz	Konv	Agricol	2018	med. vroeg	med.vr.	117	115	W2020	w2019(j)	ABD
44Y90	CL	Pioneer	2016	med.	med. vr.	110	112	w2020	w2020(jsi)	B
45Y91	CL	Pioneer	2016	laat	laat	106	106	w-mw2020	w2020(jsi)	B
43Y92	CL	Pioneer	2017	med. vroeg	med. vr.	115	110	w2020	w2020(i)	B
45Y93	CL	Pioneer	2019	laat2019	laat2019	102	110	w2020	w2020(si)	BC
Hyola 555 TT	TT	K2 Seed	2011	med. vroeg	med. vr.	84	85	mw2014	w2014(j)	D
Hyola 559 TT	TT	Barenbr.	2014	med. vroeg	med.	93	86	w2020	w2020(s)	ABD
Hyola 650 TT	TT	Barenbr.	2017	med.	med.	86	93	w2017	-	ABD
Alpha TT	TT	Agricol	2017	med. vroeg	med. vr.	99	99	mv-mw2018	w2018(j)	BF
Hyola 350 TT	TT	K2 Seed	2018	vroeg	vroeg	92	90	w2020	w2020(jsi)	ABDF
Hyola 580 CT	Cl &TT	Barenbr.	2019	med. vroeg2019	med.2019	85	89	w2020	w2020(jsi)	BC

w = weerstand; mw = matige weerstand; mv = matig vatbaar; v = vatbaar.
* Stadig ontkiem (datums aangepas).
Saadbehandeling: Jockey = j ,Saltro = s en Ilivo = i.
Data verkry vanuit Australië in “Blackleg Management Guide Fact Sheet (2014- 2020).

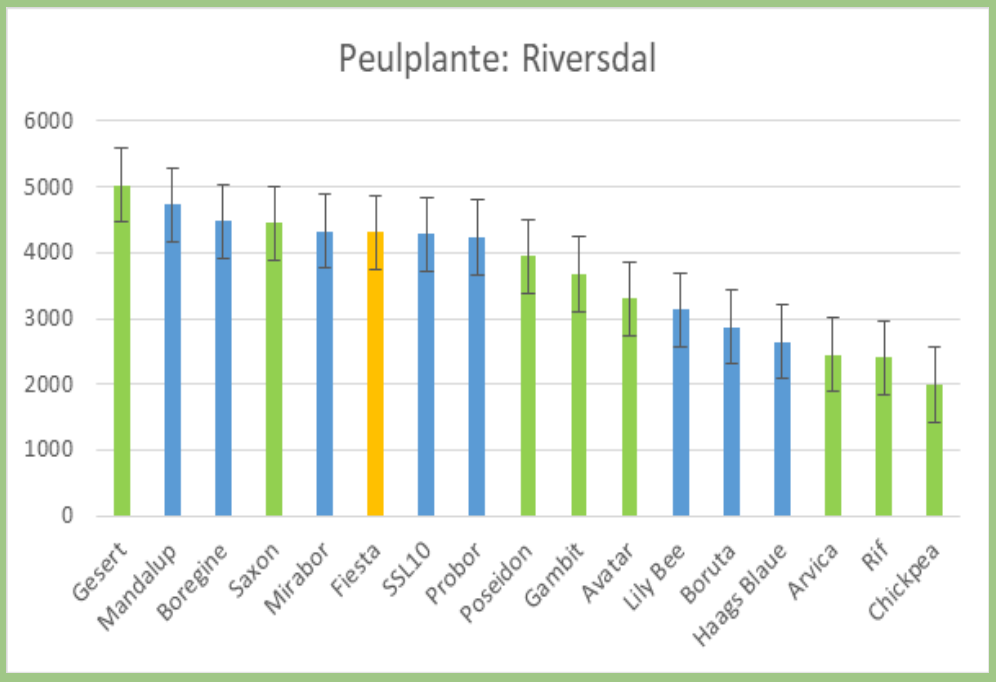
In Tabel 3 word die wisselvalligheid tussen kultivars en lokaliteite aangedui in die Swartland en op Riversdal, onderskeidelik. Hopefield het baie min infeksie gehad, hoewel geen swartstambespuiting gedoen is nie. Hyola 650 TT en 44Y90 het die beste gevaar gedurende 2020 op die betrokke lokaliteite. Wat kan ons leer uit onderstaande tabel? Daar is baie swartstamrasse in die Wes-Kaap wat verspreid voorkom. Wanneer kultivar te lank aangeplant word in area, selekteer ons vir die swartstamrasse waarteen die kultivar nie weerstand kan bied nie. Ons moet ons kultivars dus afwissel.

Kultivar	Langg. 1	Langg. 2	Hopefield	Riversdal	Gemiddeld
Hyola 50	51.2	20.6	0.2	9.4	20.3
Hyola 580CT	21.5	30.3	0.3	8.7	15.2
Diamond	45.5	48.2	0.7	36.7	32.8
43Y92	36.8	36.6	4.7	24.7	25.7
45Y93	14.0	17.5	0.0	10.2	10.4
Tango	51.0	40.7	3.2	26.3	30.3
Alpha TT	67.2	20.0	1.2	22.7	27.8
Quartz	28.1	41.5	3.2	27.3	25.0
45Y91	32.0	32.7	0.7	22.3	21.9
Hyola 555TT	49.0	48.1	1.7	13.7	28.1
Hyola 559TT	60.0	32.0	0.0	24.9	29.2
44Y90	26.1	18.7	1.8	12.0	14.6
Hyola 350TT	35.4	19.5	0.0	6.7	15.4
Hyola 650TT	26.2	10.5	0.0	2.6	9.8
Gemiddeld	**38.8**	**29.8**	**1.3**	**17.7**	**21.9**

PEULPLANTE: RIVERSDAL 2020

PJA Lombard, L Smorenburg en Dr J Strauss

In 2020 was drie peuplantproewe in die Wes-Kaap aangeplant. In figuur 1 word die opbrengs by Riversdal aangedui. Die erte word in groen, lupiene blou, chickpea oranje en fababoon rooi aangedui. Op Riversdal was die kultivar met die hoogste opbrengs die ertjie Gesert gevolg deur die lupien Mandalup. Die bitterlupien SSL10 se opbrengs was nie betekenisvol laer as die van Mandalupe nie. Die ander kommersiële lupien kultivar, Lily Bee se opbrengs was betekenisvol laer as die van Mandalup en SSL 10. Fiesta die fababoon het goed presteer in Riversdal, dit moet in gedagte gehou word dat die lang en laat groeiseisoen die kultivar bevoordeel het. Die twee erte Rif en Arvica is egter nie ideaal vir opbrengs nie, hulle is ideaal aangepas vir beweiding en insluiting in dekgewasse. Die chickpea het deurgans lae opbrengs gegee, hoewel dit hoë waarde produk is.



Figuur 1: Peulplantopbrengs by Riversdal in 2020

'n Wenresep vir **kanolasukses...**

ALPHA TT

- Tipe: TT-baster
- Groeiseisoenlengte: Medium - vroeg
- Opbrengspotensiaal: Hoog
- Olie %: Hoog
- Groeikragtigheid: Uitstekend
- Planthoogte: Medium
- Swartstamweerstand: Weerstandbiedend
- Weerstand teen omval: Uitstekend

DIAMOND

- Tipe: Konvensioneel (baster)
- Groeiseisoenlengte: Kort - medium
- Opbrengspotensiaal: Hoog
- Olie %: Hoog
- Groeikragtigheid: Uitstekend
- Planthoogte: Medium
- Swartstamweerstand: Weerstandbiedend
- Weerstand teen omval: Baie goed

QUARTZ

- Tipe: Konvensioneel (baster)
- Groeiseisoenlengte: Medium
- Opbrengspotensiaal: Uitstekend
- Olie %: Hoog
- Groeikragtigheid: Uitstekend
- Planthoogte: Medium
- Swartstamweerstand: Weerstandbiedend
- Weerstand teen omval: Uitstekend

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aan die groei

Limagrain Zaad South Africa
Riversdale 2021 - Canola

Limagrain Zaad South Africa beproef vanjaar heelwat nuwe basters wat reeds baie potensiaal in Australië toon. Dit sluit TT-, CL-, CT- en konvensionele basters in. Hyola 350 TT is tans die enigste kommersieel beskikbare baster, maar dit sal binnekort verander:

Kultivars	**Volwassenheid**	**Tegnologie**	**Olie-potensiaal**	**Verdraagsaamteen swartstam-groepe**	**Omval-Weerstand** (1 - swak 9 - goed)	**Pitvastheid** (1 - swak 9 - goed)
Hyola 350 TT* (kommersieel)	Vroeg	Triazine	Medium-hoog	ABDF	8	8
Hyola Blazer TT* (eksperimenteel)	Medium-vroeg	Triazine	Hoog	ADF	9	8
Hyola Equinox CL* (eksperimenteel)	Medium	Clearfield	Hoog	ADF	8	8
Hyola Enforcer CT* (eksperimenteel)	Medium-vroeg	Triazine en Clearfield	Hoog	ADF	7	8
Konvensionele basters (eksperimenteel)	Daar is drie nuwe opwindende konvensionele basters wat beproef word: een vroeg, een medium en een medium-laat tot volwassenheid. Al drie beskik ook goeie swartstam verdraagsaamheid, olie- en opbrengspotensiaal.					

***Eksperimenteel - Variëteit ingedien vir registrasie op Nasionale Variëteitslys.**

Hyola 350 TT* in 2020.

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Limagrain Zaad South Africa
Riversdale 2021 - Hawerkultivars

Simonsberg: Lente-tipe hawerkultivar (115-120 dae tot 10% aarverskyning). Veeldoelige kultivar – weiding, hooi, kuilvoer en graan. Gewilde, beproefde kultivar in die goedkoper hawersaad mark.

Saddle*: Lente-tipe hawerkultivar (115-120 dae tot 10% aarverskyning). Geskik vir beweiding, kuilvoer- en hooi-produksie. Beskik oor minstens 'n 10-15% hoër opbrengspotensiaal as Simonsberg (gebasseer op 2020 proewe). Sterk vestiging en vinnige produksie. Goeie swamsiekte-weerstand.

Horsepower: Lente-tipe hawerkultivar. Raak ongeveer 10-14 dae later reproduktief as Simonsberg en Saddle. Baie goeie wei-, kuilvoer- en hooi-kultivar. Goeie opbrengspotensiaal danksy die effens langer vegetatiewe groeitydperk en goeie swamsiekte-weerstand.

Rushmore*: Eksperimenteel. Uit dieselfde stal as Horsepower en Saddle. Soortgelyke groeilengte as Horsepower. Baie belowende kultivar! Hou hierdie spasie dop!

***Eksperimenteel - Variëteit ingedien vir registrasie op Nasionale Variëteitslys.**

Daar is ongeveer 10-14 dae verskil tussen die aarverskyning van Horsepower (links) en Saddle* (regs).

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Limagrain Zaad South Africa
Riversdale 2021 - Dekgewasse

Boere het nie almal dieselfde behoefte as dit by dekgewasaanplantings kom nie. Voorskrifmengsels moet op grond van elke boer se individuele behoefte gemaak word. Limagrain Zaad South Africa beskik oor die regte produkte en kennis oor hoe hierdie produkte mekaar in 'n mengsel kan komplimenteer om 'n spesifieke doelwit te bereik.

SKOG Dekgewasmengsel 1

Demonstrasie doelwit - Diversiteit, algemene grondgesondheid en opbrengs:

- Horsepower withawer (15kg/ha)
- NCD Grazer stoelrog (15kg/ha)
- Saia swarthawer (10kg/ha)
- Namoi wieke (8kg/ha)
- Nooitgedacht Japannese radys (1kg/ha)
- Sub Zero voerradys (0.5kg/ha)

SKOG Dekgewasmengsel 2

Demonstrasie doelwit - Breëblaar diversiteit wat 'n opsie bied om gras-onkruid uit te spuit:

- Magnus* voererte (20kg/ha)
- Mandelup soetlupiene (12kg/ha)
- Namoi wieke (8kg/ha)
- Nooitgedacht Japannese radys (2kg/ha)
- Sub Zero voerradys (1kg/ha)

***Eksperimenteel - Variëteit ingedien vir registrasie op Nasionale Variëteitslys.**

Dekgewas demonstrasies het in 2020 die daargestelde doelwitte bereik.

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BARENBRUG CANOLA

Hyola 559TT

- Triazien Tolerante baster
- Medium groeiseisoen kultivar
- Dae tot fisiologiese rypheid: 160-164
- Swartstam indeks: Weerstand
- % Olie inhoud: Baie hoog
- Saailing groeikrag: 7.5/10
- Plant hoogte: Medium
- Hoë omval toleransie

Hyola 650TT

- Onkruiddoder toleransie:Triasien verdraagsaam
- % Olie inhoud: Hoog
- Plantbiomassa: 7
- Planthoogte: medium
- Dae tot 50% blom: 100-110
- Hoë toleransie teen omval
- Hoë spring toleransie
- Hoë opbrengs potensiaal
- Swartstam indeks: Weerstandig

Hyola 559 TT regs vs. kontrole TT kultivar – gemiddeld 20% meer gestroop op plaasvlak.

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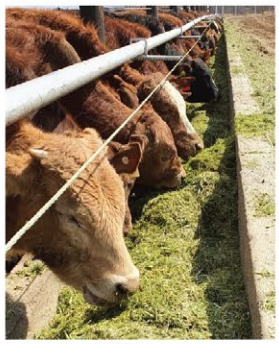				

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CAN PLANT DENSITY AND NITROGEN FERTILISATION BE INSTRUMENTAL IN DEVELOPING MANAGEMENT STRATEGIES TO OPTIMISE WHEAT PRODUCTIVITY AND DISEASE CONTROL?

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1. Introduction

Yield potential of wheat is, amongst others, determined by the number of spikes reach maturity per unit area. The number of kernels per spike and the mass of each kernel further contribute to final yield. Nitrogen is a very important contributor to the number of spikes as it regulates tiller initiation and survival. Insufficient N supply will increase tiller mortality, resulting in fewer tillers per unit area and vice versa.

Lower seeding rates lead to lower plant densities (more light in the canopy) and a higher number of tillers per plant. Within limits however, the number of spikes per unit area should be similar to that of areas with higher seeding densities. The ability of the wheat crop to compensate for low N supply and plant density is, however, limited and cannot be used indefinitely to manipulate tiller numbers per unit area. The combination effect of plant density and fertiliser N rate may, however, be used to aim at the optimum number of tillers per unit area. Wheat producers can use different plant density and N application rate strategies to manipulate the final number of tillers that matures. Finding the balance is challenging. However, if found, this balance may lead to higher yields and improved nitrogen use efficiency.

Wheat diseases can destroy entire harvests if not treated. Wheat diseases are best managed with an integrated management system. These systems use precautionary measures like remote sensing and disease pressure estimations from environmental conditions, as well as disease control methods like fungicides, host resistance and agronomical practices aimed at reducing disease levels. Studies have shown that higher plant densities correlate to higher plant disease pressure. If combined with higher nitrogen application rates, the risk of disease multiplies with more vigorous growth and more spikes per m . This could have an influence on the optimal planting density and nitrogen rate strategy used by wheat growers.

There are many studies on wheat plant densities and nitrogen application rates as separate agronomical factors, but only a few studies showing these two interacting factors as having a combined effect on grain yield. In addition, information on the influence of these two factors on disease pressure on wheat is not available. Environmental factors will influence crop response and disease intensity. A study covering plant density, N rate and disease management at Riversdale could prove to be of great importance for the wheat industry in the Western Cape.

The aim of the study is to examine the combined effect of different wheat plant densities, N-application rates and disease management (fungicide application) on various growth and yield parameters of wheat. Data on the influence of seeding density and N-rates combined with disease intensity (disease incidence, severity and index), can be used to develop agronomical strategies for wheat growers in the Riversdale area to improve the yield and quality of their wheat crop.

2. Materials and methods

A factorial arranged randomised plot design (plot size 10 x 4.2 of which 10 x 2.1 m was allocated for the no-fungicide treatment) was used for five plant density treatments at 80, 120, 160, 200 and 240 plants per m and three N rates at 3.5 (as control treatment), 50 and 80 kg N ha-1. Wheat followed canola in the cropping system. Each treatment was replicated four times. The study will run over two growing seasons, 2020 and 2021.

3. Results and discussion

No interactions between N rate and seeding density for biomass production or grain yield were observed during the 2020 growing season. We can therefore focus on the effect of fertiliser N and seeding density as separate main factors.

It is however, of practical value to mention that the highest yield of 5396 kg ha-1 was recorded at 200 plants m-2, 80 kg N ha-1 with application of fungicides. Abovementioned yield was however not significantly higher than the 4687 kg ha-1 produced at 120 plants m-2, 50 kg N ha-1 with fungicide applications.

Plant density

Figure 1 shows that, except for the no fungicide at the 80 plants m-2 treatment that produced significantly lower biomass than most treatments, final biomass was not influenced by any plant population, whether sprayed or not, in 2020.

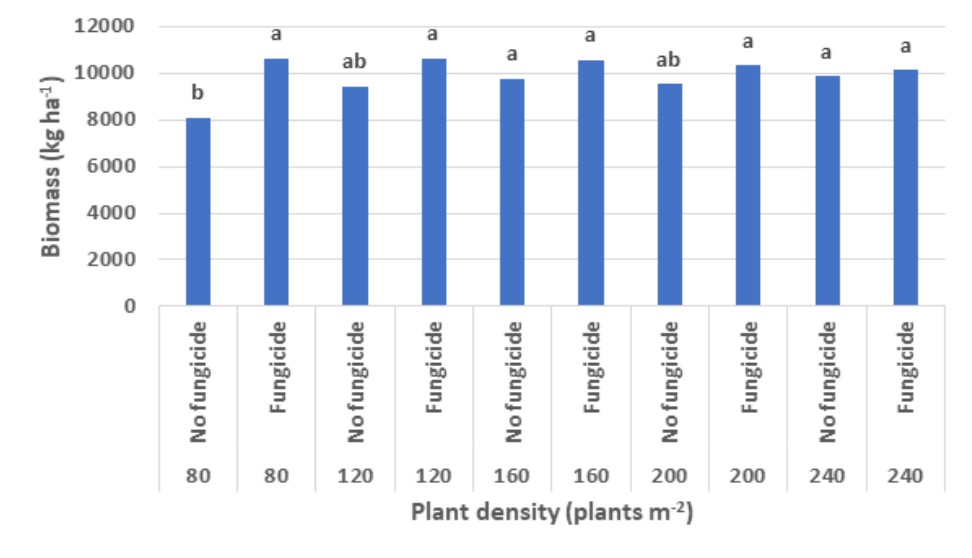

Figure 1 Influence of plant density and fungicide management on the final biomass production of wheat after canola at Riversdale (2020).

The fungicide treatment (fungicide or no fungicide application) did not influence grain yield within any of the plant populations included in the study (Figure 2). Comparing the grain yield at 80 plants m^{-2} (fungicide or no fungicide) with the other plant density treatments, shows that the treatments where fungicides were applied resulted in higher ($p < 0.05$) yields for all treatments except for the 200 plants m^{-2} treatment where the no fungicide treatment also resulted in higher yields that at 80 plants m^{-2}.

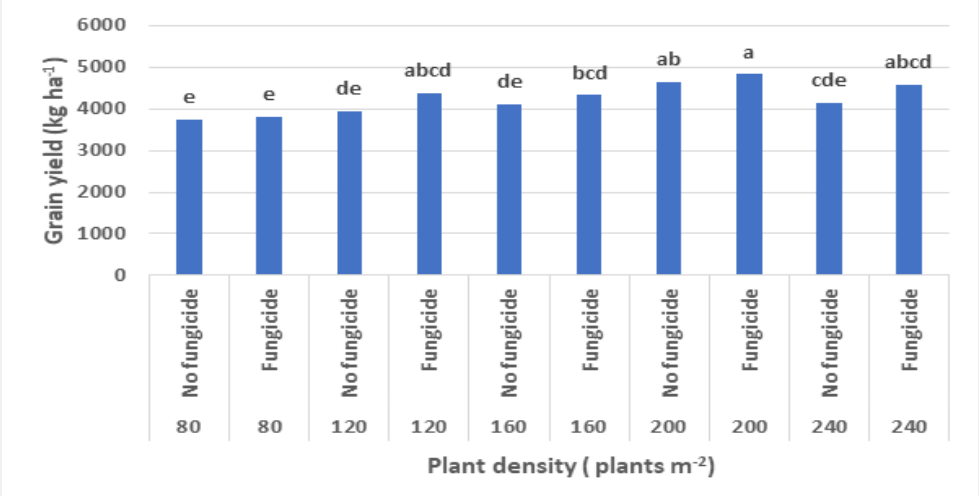

Figure 2 Influence of plant density and fungicide management on the grain yield of wheat after canola at Riversdale (2020).

Nitrogen rate

Biomass production was significantly higher where fungicides were applied to the 50 and 80 kg N ha-1 treatments compared to the 3.5 kg N ha-1 (for both fungicide and no fungicide treatments; Figure 3). Interestingly however, where no fungicides were applied, no differences in biomass production were recorded between the three N rates included in the study.

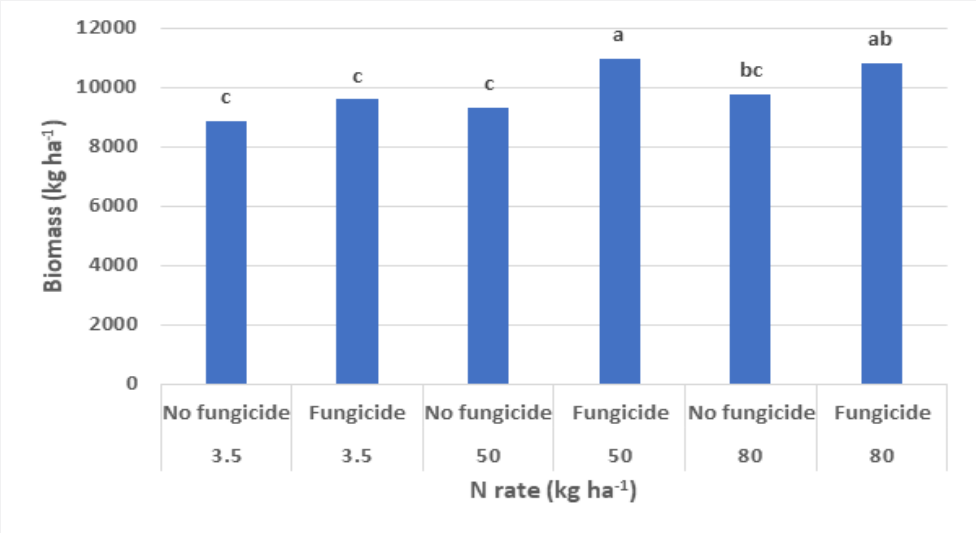

Figure 3 Influence of fertiliser N application rate and fungicide management on the final biomass production of wheat after canola at Riversdale (2020).

Except for the 3.5 kg N ha-1 treatment, application of fungicides increased grain yield compared to the no fungicide treatment at a specific N rate (Figure 4). Increasing the N rate from 50 to 80 kg N ha-1 did not influence grain yield.

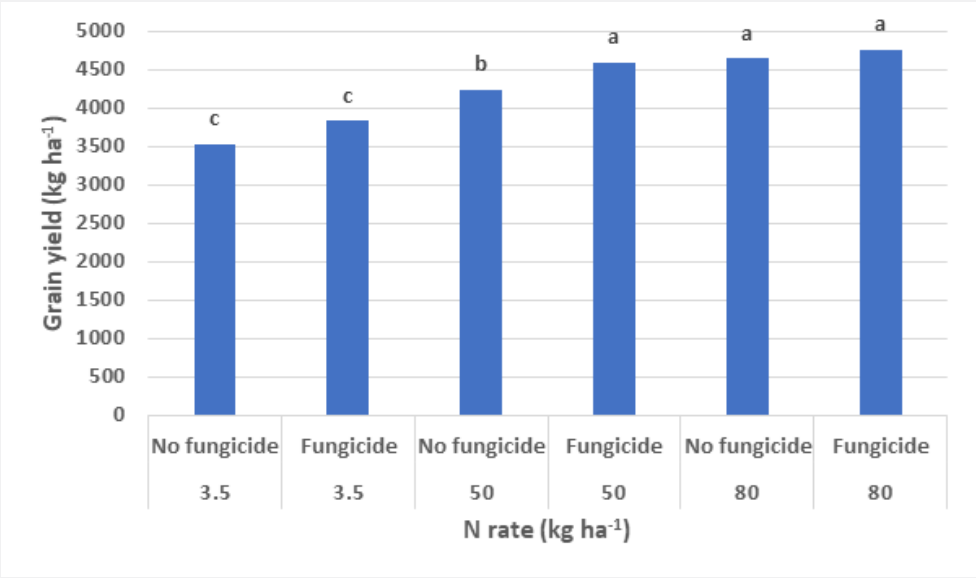

Figure 4 Influence of fertiliser application rate and fungicide management on the grain yield of wheat after canola at Riversdale (2020).

Figure 5 shows that mean grain yield and mean biomass production were significantly higher with fungicide applications when compared to the no fungicide plots during the season.

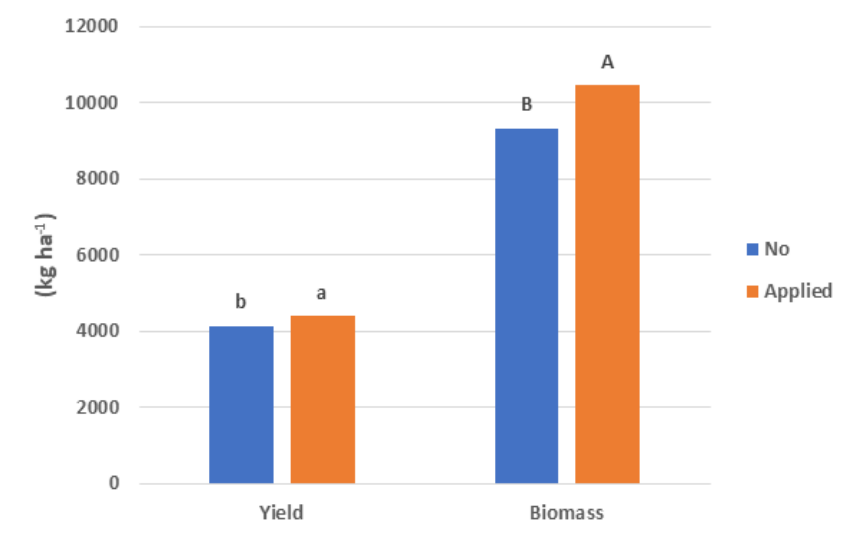

Figure 5 Influence of fungicide management on the grain yield and final biomass production of wheat after canola at Riversdale (2020).

4. Summary

Conclusions and recommendations will only be finalised after completion of the study after at least 2 years of data capturing.

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KORINGPROEWE TE RIVERSDAL 2021 SEISOEN

Daar was 3 behandelings gewees.

1. Kontrole waar geen Mos toegedien was nie. Twee herhalings.
2. Mos Energ behandeling. Daar is in totaal 4 l/ha Mos Energ op die blare uitgespuit.
3. Mos pH is as grond toediening teen 5 l/ha na plant op grond uitgespuit net voor reen. Daar is ook Mos Energ op die blare gespuit in totaal 4 l/ha.

BEMESTING

Met plant N 7 kg/ha
P 13 kg/ha
K 0 kg/ha

Kopbemesting 300 kg/ha chloorvy met 1:4:7(mengsel van Agriman)
N 6 kg/ha
P 18 kg/ha
K 42 kg/ha

Dit was 'n verrykte organiese mengsel verskaf deur Agriman wat 'n chloorvrye mengsel was.

Kopbemesting: N 30 kg/ha
Totale bemesting: N 43 kg/ha
P 31 kg/ha
K 42 kg/ha

WAARNEMINGS

1. Fotos is geneem 2 weke na eerste Mos EnerG blaarbespuiting op 4 blaar stadium. Plante is ook uitgetrek om wortelontwikkeling waar te neem.

Heel links: Kontrole. Middel: Mos EnerG Regs: Mos pH plus Mos EnerG

2. Fotos weer geneem 2 weke na tweede blaarbespuiting, asook blaarmonsters vir sap analises

Kontrole behandeling

Mos EnerG

Blaarsap analises gedoen

	Kontrole	Mos EnerG	Mos pH + EnerG
Zn	0.67	0.56	0.38
Ca	163	275	277
Mg	72	110	83
Na	19	29	42
K	1095	1808	934
P	83	135	68
S	76	90	81
Nitraat	1400	1600	1400
Ec	7.50	7.90	6.90
pH	6.40	6.60	6.40
Brix	5.50	8.00	8.00
Vitality(punt uit 1000)	650	800	

3. Fotos geneem 2 weke na laaste blaarbespuiting op vlagblaar stadium.

Kontrole geen Mos behandelings nie

Mos EnerG behandeling