YOUR INDUSTRY PARTNER

Tel: +27 (12) 804 1462 - 7
Email: enquiries@cottonsa.org.za
www.cottonsa.org.za

RESEARCH REPORT: GROWTH REGULATOR 2020/2021 SEASON

Aim: Evaluating different methods for the application of a growth regulator on irrigated cotton on all available commercial cotton cultivars.

The current registered method, the BASF ruler is compared to two Australian methods, one of which is based on plant growth while the other is two calendar sprays. These methods are compared with the Pixometer, where the recommendation for spraying is based on plant height, the number of internodes and the tempo of growth.

Project	**GROWTH REGULATOR TRIAL**	**Project leader**	**Steyns' Agricultural Services**
Producer	Contractor		
Locality	Makhathini Experimental Farm	Glyphosate	1st: 21/12/2020 @ 2.5 l/ha
Variety	Candia, DP 1531, DP 1541, DP 1240		2nd: 4/12 @ 2.5 l/ha
Layout	Randomized block design with 5 repetitions	Irrigation:	166 mm
Plant date	2020/12/11	Rain	548 mm
Thinning	2020/12/21		
Plot size:	16m2		

Growth regulator treatments

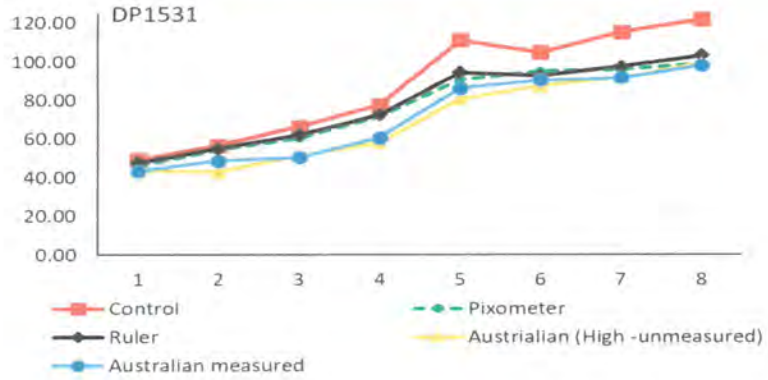
Treatments:

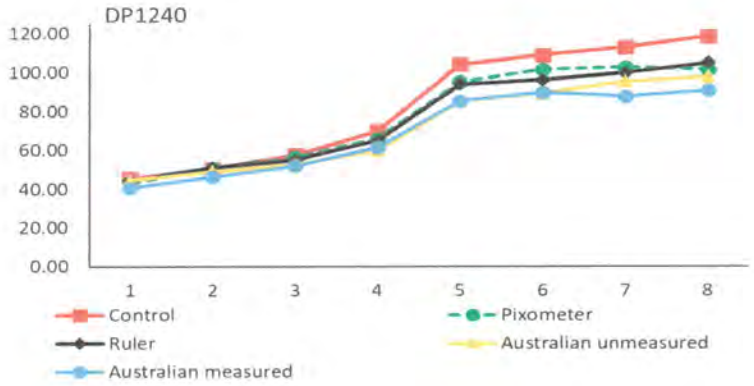
1. Control
2. BASF Ruler based on plant height
3. Australian method - unmeasured: @1st square formation 700 ml/ha;
   2nd @ 6-7 weeks 800 ml/ha
4. Australian method -measured: based on internode lengths 4-5; each internode length in cm = 100ml on nodes; 24 nodes average
   4-5th internode from the top
   i) 1st square formation -4 weeks 250 ml/ha;
   ii) 1st flower on 8 weeks 500-700 ml/ha
   iii) 4 weeks post-flowering = 12 weeks post emergence 500-700 ml/ha
5. Pixometer Mr. Percy Macaskil (similar to BASF ruler, plant height, no. nodes, internode length – 200 ml/ha)

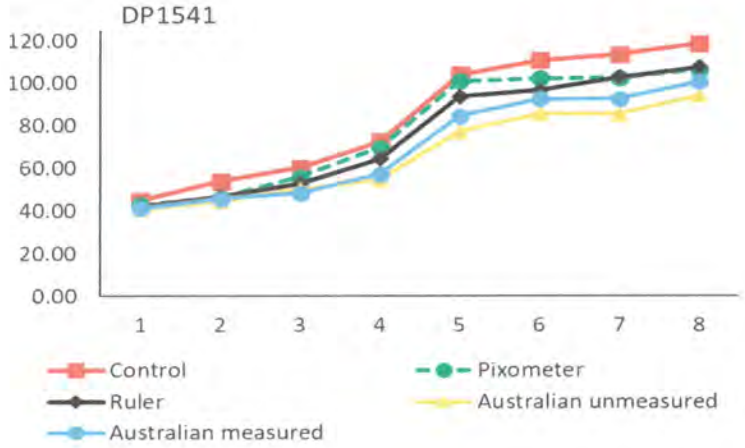
Treatments (mepiquat-chloride - Quat® 50 SL)	Dosages per ha (ml)			
Varieties	**DP1531**	**DP1541**	**DP1240**	**Candia**
Australian measured	250	250	250	250
Australian unmeasured	700	700	700	700
BASF Ruler	160	160	170	0
Pixometer	0	0	0	0
Control	0	0	0	0
Australian measured	600	600	600	600
Australian unmeasured	800	800	800	800
BASF Ruler	200	200	200	200
Pixometer	300	0	0	0
Control	0	0	0	0
Australian measured	580	620	540	540
Australian unmeasured	0	0	0	0
BASF Ruler	195	160	195	160
Pixometer	1200	1200	1200	975
Control	0	0	0	0
Australian measured	1430	1470	1390	1390
Australian unmeasured	1500	1500	1500	1500
BASF Ruler	555	520	565	360
Pixometer	1500	1200	1200	975
Control	0	0	0	0

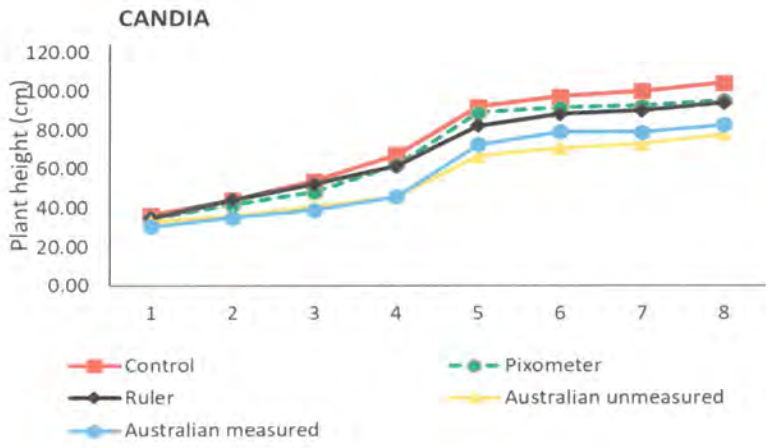
Dates	Post planting
2021/01/12	4 weeks
2021/01/18	5 weeks
2021/02/26	6 weeks
2021/02/01	7 weeks
2021/02/17	8.5 weeks
2021/02/22	9 weeks
2021/03/02	10 weeks
2021/03/09	11 weeks

Results **Plant heights** **Project** **GROWTH REGULATOR TRIAL**









Results:

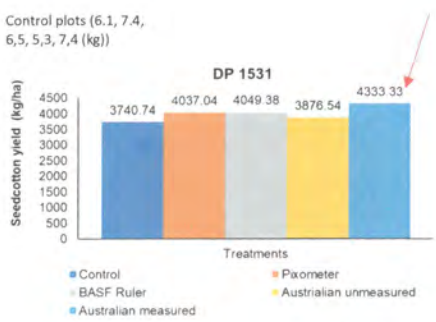
ANOVA showed there is no significant difference with regards to yield between treatments (LSD 298.26; $p < 0.05$)
Comparing height between treatments per cultivar, showed that there was no difference between the Ruler and the Pixometer
No difference between the australian measured and unmeasured methods;
though these methods gave a significant different plant heigt when compared to the control.

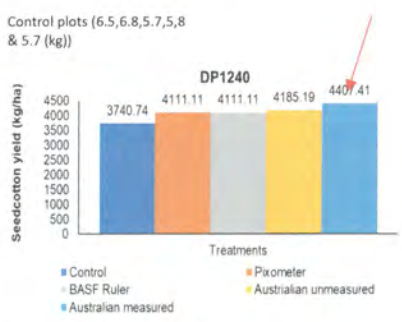
	HEIGHT (cm)	
Control	115.88	a
Ruler	102.36	b
Pixometer	101.00	bc
Australian measured	94.78	cd
Australian unmeasured	92.23	d
(LSD = 6.765)		

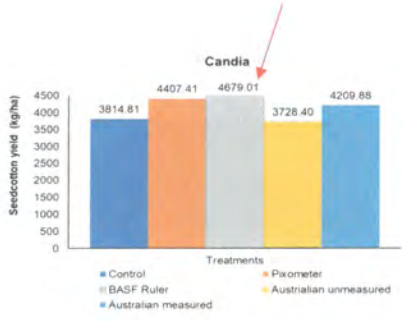
* The graphs of the different treatments reflects the statistical findings

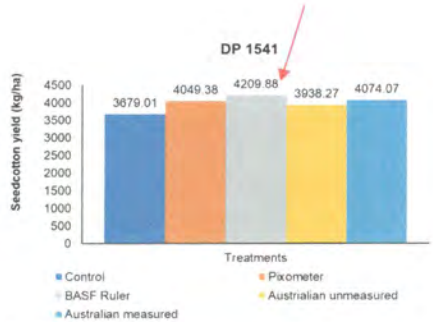
Project GROWTH REGULATOR TRIAL **Project leader** Steyns' Agricultural Services

Seedcotton yields per cultivar

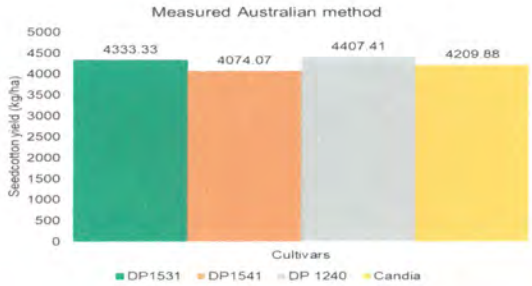


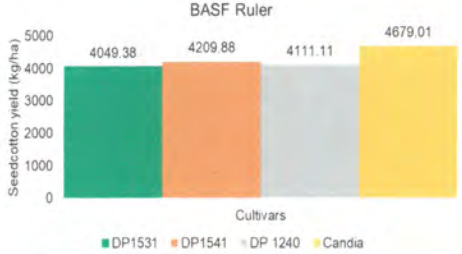






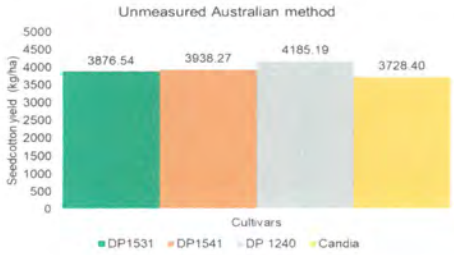
Seedcotton yields between treatments

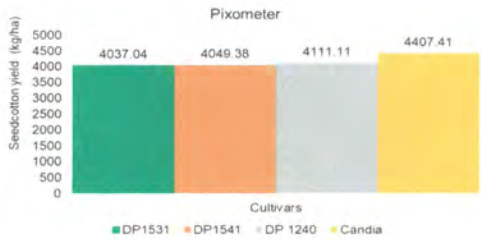




Seeccotton income	Measured Australian method	
DP1531	1 ha (@R8.50/kg)	50 ha (@ R8.50/kg)
Compare with BASF Ruler	R2,413.58	R120,679.01
Compare with Control	R5,037.04	R251,851.85
DP1240	1 ha	50 ha
Compare with BASF Ruler	R2,518.52	R68,209.88
Compare with Control	R5,666.67	R225,617.28

Seeccotton income	BASF Ruler	
CANDIA	1 ha (@R8.50/kg)	50 ha (@ R8.50/kg)
Compare with Pixometer	R2,308.64	R115,432.10
Compare with Control	R7,345.68	R367,283.95
DP1541	1 ha	50 ha
Compare with Pixometer	R1,364.20	R68,209.88
Compare with Control	R4,512.35	R225,617.28



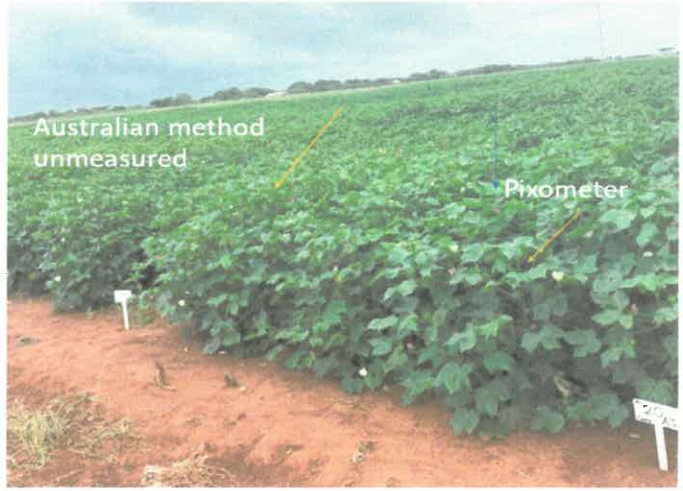


Project	GROWTH REGULATOR TRIAL	Project leader	Steyns' Agricultural Services

Micronaire	Pick 1,2,3,4			
Treatments	**DP1531**	**DP1541**	**DP1240**	**Candia**
Control	4.4	4.6	4.6	4.0
Pixometer	4.3	4.7	4.6	4.1
BASF ruler	4.5	4.7	4.5	4.1
Australian unmeasured	4.4	4.8	4.5	4.0
Australian measured	4.3	4.8	4.6	4.1

Lenghts (HVI-mm)				
Treatments	**DP1531**	**DP1541**	**DP1240**	**Candia**
Control	1.2	1.2	1.2	1.2
Pixometer	1.2	1.2	1.2	1.2
BASF ruler	1.2	1.2	1.2	1.2
Australian unmeasured	1.2	1.2	1.2	1.2
Australian measured	1.2	1.2	1.2	1.2

Strength (g/tex)				
Treatments	**DP1531**	**DP1541**	**DP1240**	**Candia**
Control	31.5	31.4	33.5	31.6
Pixometer	31.1	31.8	32.5	31.3
BASF ruler	31.5	30.9	32.0	31.4
Australian unmeasured	31.9	32.0	33.4	32.1
Australian measured	32.8	32.4	33.1	31.4



Summary:

* DP1531 & DP1240: Australian measured method to spray a growth regulator give better yields
* Candia and DP1541 - BASF ruler is the most preferred method
* All fibre qualities were similar, growthregulator has no effect on quality
* Results confirm a growth regulator is better than no growthregulator with regards to seedcotton yield.
* To measure is a prerequisite to spray any growthregulator according to any method on any cultivar