

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code : R75/80  
Cat.No : 1205

1. Title: Growth regulators on young NCo 376 - Shakaskraal

<p><u>Project</u> : 2278 <u>Site</u> : Shakaskraal Field 33 Block II <u>Region</u> : North Coast coastal <u>Soil system</u> : Berea series : Waldene <u>Moisture regime</u> : Irrigated (standard) <u>Variety</u> : NCo 376 <u>Crop</u> : 6th ratoon <u>Age at spraying</u> : 5 months old <u>Spray date</u> : 28 January 1980 21 February 1980 <u>Design</u> : Randomised blocks</p>	<p><u>Spray method:</u> CO<sub>2</sub> operated overhead boom using TK 1,0 nozzles <u>Pressure:</u> 200 kPa <u>Volume</u> : 70 l/ha <u>Weather at spraying:</u> Warm, no breeze <u>Condition of cane at spraying:</u> 7-8 green leaves 6-8 nodes below breaking point <u>Rainfall:</u> 863 mm (1/9/79 - 11/9/80) <u>L.T.M.</u> : 988 mm <u>Irrigation:</u> 330 mm</p>
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2. Objective: To determine whether Ethrel, Pro-Gibb Plus or Roundup (low concentration) stimulates growth of a young ratoon crop of NCo 376.

3. Treatments :

1. Control	Not sprayed	
2. Ethrel (48%)	0,75	kg ai/ha
3. Ethrel (48%)	0,75 + 0,75*	kg ai/ha
4. Ethrel (48%)	1,5	kg ai/ha
5. Pro-Gibb Plus (10% GA <sub>3</sub> )	0,07	kg ai/ha
6. Pro-Gibb Plus (10% GA <sub>3</sub> )	0,07 + 0,07*	kg ai/ha
7. Pro-Gibb Plus (10% GA <sub>3</sub> )	0,14	kg ai/ha
8. Roundup (41%)	0,05	kg ai/ha
9. Roundup (41%)	0,01	kg ai/ha

\* applied 3,5 weeks later

4. Results: 13 weeks after spraying (8 month crop)

Treatment (kg ai/ha)	Pol % cane	Juice purity	Ers % cane	Stalk mass (g)	Mass pol (g/stalk)	Mass ers % (g/stalk)	increase in mass ers
Control	12,4	86,9	10,9	464	57,8	50,6	-
Ethrel 0,75	13,5	89,8	12,1	425	57,2	51,3	+ 1
Ethrel 0,75 + 0,75	13,5	88,8	12,0	485	65,6	58,6	+ 16
Ethrel 1,50	13,9	89,3	12,5	465	64,7	58,0	+ 15
PGP 0,07	12,9	87,0	11,3	477	61,4	54,0	+ 7
PGP 0,07 + 0,07	12,9	86,8	11,3	490	63,2	55,4	+ 9
PGP 0,14	12,8	87,9	11,3	448	57,5	50,7	0
Rup 0,05	12,5	86,3	10,9	462	57,7	50,3	- 1
Rup 0,1	13,2	88,0	11,6	448	58,9	52,0	+ 3
Mean	13,0	87,8	11,5	463	60,2	53,1	-
CV%	3,6	-	4,4	8,2	-	9,0	-
L.S.D. (P = 0,05)	0,81	-	0,87	64,7	-	8,17	-

Yield and cane quality at harvest: 32 weeks after spraying (13 month crop)

Treatment (kg ai/ha)	Pol % cane	Juice purity	Ers % cane	Tons cane ha <sup>-1</sup>	Tons ers ha <sup>-1</sup>	Stalk popn ha <sup>-1</sup> x 10 <sup>-3</sup>	Stalk mass kg/stalk
Control	14,6	93,6	13,4	64	8,6	120	0,54
Ethrel 0,75	14,8	94,1	13,6	54	7,3	110	0,49
Ethrel 0,75 + 0,75	15,0	94,1	13,8	54	7,4	113	0,48
Ethrel 1,5	14,8	93,9	13,5	55	7,4	108	0,51
PGP 0,07	14,9	94,2	13,7	60	8,2	118	0,51
PGP 0,07 + 0,07	14,5	93,5	13,3	63	8,3	114	0,55
PGP 0,14	14,3	93,0	13,0	59	7,7	120	0,49
Rup 0,05	14,7	93,7	13,5	56	7,5	118	0,48
Rup 0,1	14,5	93,6	13,2	53	7,0	117	0,45
Mean	14,7	93,7	13,4	58	7,8	11,6	0,50
CV %	2,9	-	3,5	7,7	9,0	3,7	-
L.S.D. (P = 0,05)	0,73	-	0,80	7,70	1,21	7,41	-

5. Growth measurements

Treatment (kg ai/ha)	Stalk height (m)					Population x 10 <sup>-3</sup> /ha				
	7/2	21/3	21/4	23/5	11/9	7/2	21/3	21/4	23/5	11/9
Control	1,06	1,20	1,38	1,56	1,61	150	140	146	125	120
Ethrel 0,75	1,05	1,16	1,29	1,45	1,55	135	135	141	119	110
Ethrel 0,75 + 0,75	1,02	1,17	1,36	1,46	1,56	151	130	152	123	113
Ethrel 1,5	1,05	1,19	1,36	1,50	1,54	137	136	133	118	108
Mean	1,04	1,17	1,34	1,47	1,55	141	134	142	120	110
PGP 0,07	1,07	1,20	1,36	1,54	1,60	137	137	135	123	118
PGP 0,07 + 0,07	1,08	1,28	1,47	1,60	1,68	140	133	141	120	114
PGP 0,14	1,08	1,19	1,33	1,48	1,54	157	134	142	123	120
Mean	1,08	1,22	1,39	1,54	1,61	145	135	139	122	117
Rup 0,05	1,06	1,17	1,30	1,44	1,51	136	145	123	118	
Rup 0,1	1,00	1,05	1,20	1,37	1,44	153	138	145	122	117
Mean	1,30	1,11	1,25	1,40	1,49	142	137	145	122	118

COMMENTS:

- Ethrel: at thirteen weeks after spraying Ethrel had ripened the crop quite substantially (P > 0,05) without apparently reducing stalk mass. Stalk elongation however, was not stimulated and all three levels of Ethrel had a slight stunting effect and also seemed to marginally reduce stalk population resulting in a statistically significant (P > 0,05) reduction in both tons cane and recoverable sugar at harvest (eight months after spraying).

2. PGP : the only product that caused slight stalk elongation when two applications of 0,07 kg ai/ha were made, but neither tons cane or tons ers were improved.
3. Roundup : the higher rate of Roundup 0,1 kg ai/ha ripened the cane 13 weeks after spraying but it caused stunting and a final reduction in tons cane and ERS at harvest. The effect of the lower rate was less severe but significantly ( $P > 0,05$ ) depressed cane yield at harvest.

PKM/PMO  
11.11.80