SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code : R69/79
Cat No. : 1160

Title: Growth regulators on young NCo 376 - Pongola

1. Particulars of project

Site	: Pongola Block 11.31	Spray method:	CO_2 operated overhead boom using TK 1,0 nozzles
Soil	: Makatini series	Pressure	: 200 kPa
Moisture regime	: Irrigated	Volume	: 70 ℓ/ha
Variety	: NCo 376	Weather at spraying	: Warm, some wind
Crop	: 1st ratoon		
Age at spray	: 2-3 months		
Date sprayed	: 23rd July 1979 & 28th August 1979	Condition of cane at spraying	: 5 leaf stage, canopy height 40 cm
Plot size	: 4 rows x 12 m x 1,4 m spacing	Rainfall	: 583 mm
Design	: Randomised blocks Four replicates	L.T.M.	: 641 mm
		Irrigation	: 854 mm

2. Objective

To determine whether Ethrel, Pro-Gibb Plus or Roundup (low concentration) stimulate the growth of a young ratoon crop of NCo 376.

3. Treatment

1.	Control		
2.	Ethrel (48%)	0,75	kg ai/ha
3.	Ethrel	0,75 + 0,75*	kg ai/ha
4.	Ethrel	1,5	kg ai/ha
5.	Pro-Gibb Plus (10%)	0,07	kg ai/ha
6.	Pro-Gibb Plus	0,07 + 0,07*	kg ai/ha
7.	Pro-Gibb Plus	0,14	kg ai/ha
8.	Roundup (41)	0,1	kg ai/ha
9.	Roundup	0,2	kg ai/ha

* applied 5 weeks later

Results (of sampling at 12 months on 26 May)

Treatment (kg ai/ha)	Pol % cane	Juice purity	Cane mass (g)	Mass Pol g/stalk	Mass ers g/stalk	% increase in mass ers
Control	11,7	79,3	1 111	130,3	107,4	-
Ethrel 0,75	12,6	82,9	955	119,4	101,4	- 5,6
Ethrel 0,75 + 0,75	11,8	79,7	849	99,8	82,1	- 23,6
Ethrel 1,5	11,7	80,3	936	110,0	91,1	- 15,2
PGP 0,7	12,0	79,7	1 102	132,0	109,1	+ 1,6
PGP 0,07 + 0,07	11,9	80,3	1 157	136,7	113,1	+ 5,3
PGP 0,14	11,8	79,4	1 148	136,0	112,5	+ 4,7
Rup 0,1	11,7	79,4	1 112	127,9	104,7	- 2,5
Rup 0,2	11,2	77,8	1 072	120,2	96,6	- 10,1
Mean	11,8	79,9	1 049	123,6	102,0	-
C.V.%	4,8	-	9,8	-	9,1	-
L.S.D.(P = 0,05)	0,82	-	150,1	-	13,6	-

GROWTH MEASUREMENTS

Treatment kg ai/ha	Stalk height (m)				Population x 10^{-3} /ha			
	31/7	15/10	28/1	29/4	31/7	15/10	28/1	29/4
Control	0,14	0,58	1,79	3,20	229	178	145	123
Ethrel 0,75	0,13	0,52	1,44	2,99	174	148	127	113
Ethrel 0,75 + 0,75	0,12	0,56	1,56	3,04	206	161	143	124
Ethrel 1,5	0,13	0,60	1,57	2,92	196	156	149	124
Mean	0,13	0,56	1,52	2,98	192	155	140	120
PGP 0,07	0,13	0,50	1,59	3,11	181	140	126	111
PGP 0,07 + 0,07	0,14	0,58	1,71	3,08	204	144	123	107
PGP 0,14	0,15	0,58	1,68	3,12	198	164	120	108
Mean	0,14	0,55	1,66	3,10	194	149	123	109
Rup 0,01	0,14	0,44	1,63	3,02	202	166	130	104
Rup 0,02	0,13	0,33	1,57	3,01	196	167	138	120
Mean	0,13	0,38	1,60	3,01	199	166	134	112

Comments:

- All the Ethrel treatments caused a degree of stunting and tended to decrease stalk population and because cane quality was not improved, a decrease in mass of pol and ERS resulted.
- Gibberelic acid did not affect stalk elongation but tended to have an adverse effect on ultimate stalk population. Stalk mass was slightly higher than that of the unsprayed control resulting in a very slight increase in mass of ERS.
- Roundup caused initial stunting but recovery was almost complete by harvest time. Stalk populations were slightly depressed resulting in a reduction in yield of ERS.

None of the growth regulators applied to young NCo 376 in winter show any promise but other varieties or summer sprays may be worth testing.

PKM/PMO
22.9.80