

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Code: FL. SUP. 2/81SW. BBS

CHT, 1257

TITLE: FLOWER CONTROL IN VARIETY N52/219

1. Particulars of Trial

<u>This crop</u> : 3rd ratoon	<u>Spray method:</u>
<u>Site</u> : Big Bend Sugar Estate - Field C5	Spray-King overhead boom using 3 TK 1,5 nozzles
<u>Region</u> : Northern Irrigated (Swaziland)	<u>Pressure:</u> 130 kPa
<u>Soil system</u> : Komatipoort	<u>Volume:</u> 56 litres
<u>Soil set</u> : 'K'	<u>Weather at Spraying:</u>
<u>Design</u> : 3 x 3 Latin square	Slight wind Temp 28°C
<u>Plot size</u> : 2 rows x 40 m (nett)	<u>Condition of Cane at Spraying:</u>
<u>Variety</u> : N52/219	Cane height (TVD) 1,7-1,9 m 8-12 green leaves
<u>Date & age at spraying</u> : 2/3/1981 - 5½ months	<u>Sampling technique:</u>
<u>Date & age at harvest</u> : 1/10/1981 - 12 months	6 stalks taken at random from nett rows of each plot (even spacing between sampling)
<u>Sampling</u> : 14/5, 1/7 and 22/9/1981	
<u>Irrigation</u> : 1 128 mm	
<u>Effective rainfall</u> : 678 mm	
<u>Total</u> : 1 816 mm	

2. Objectives:

To determine the effect on flowering of Ehtrel and Diquat applied at the period of flower initiation.

3. Treatments:

1. Control
2. Ethrel @ 1,0 l product/ha
3. Diquat @ 1,5 l product/ha

4. Results:

4.1 Crop growth measurements at 4,5; 14,0; 19,5; 28,0 & 31,0 weeks after spraying

Dates and weeks after spraying	Stalk heights					Stalk populations x10 ⁻³ /ha				
	3/4 4,5	8/6 14	16/7 19,5	16/9 28	1/10 31	3/4 4,5	8/6 14	16/7 19,5	16/9 28	1/10 31
<u>Treatment:</u>										
Control	203	255	249	250	265	75	84	88	84	97
Ethrel	208	251	245	250	251	84	94	84	90	94
Diquat	191	231	220	223	231	86	83	81	97	94
Mean	201	246	238	241	249	82	87	84	90	95

4.2 Sample results

(a) Juice purity %

Dates and weeks after spraying	14/5 10	1/7 17	22/9 29
<u>Treatments:</u>			
Control	75,9	82,3	88,0
Ethrel	77,3	85,2	87,5
Diquat	77,2	81,9	88,6
Mean	76,8	83,1	88,0

(b) Stalk mass (g/stalk)

Dates and weeks after spraying	14/5 10	1/7 17	22/9 29
<u>Treatments:</u>			
Control	1 110	1 017	1 317
Ethrel	1 090	967	1 319
Diquat	937	937	972
Mean	1 046	973	1 203
CV%	9,8	5,0	10,2
LSD (P=0,05)	232,8	109,9	279,5
(P=0,01)	386,6	182,5	464,1

(c) Ers % cane

Dates and weeks after spraying	14/5 10	1/7 17	22/9 29
<u>Treatments:</u>			
Control	8,82	10,39	14,01
Ethrel	9,16	11,52	14,45
Diquat	8,87	10,66	14,54
Mean	8,95	10,86	14,33
CV %	6,0	0,6	2,6
LSD (P=0,05)	1,221	0,1396	0,8290
(P=0,01)	2,027	0,2318	1,376

4.3 Results at harvest (12½ months)

Treatments	Cane t/ha	Ers % cane	Ers t/ha
Control	105	14,01	14,7
Ethrel	99	14,45	14,4
Diquat	80	14,54	11,7
Mean	95	14,33	13,6
CV %	13,0	2,6	11,0
LSD (P=0,05)	28,06	0,8290	3,389
(P=0,01)	46,60	1,376	5,627

5. Comments:

- Flowering - Less than 1% of stalks flowered in the controls whilst cane in the Ethrel and Diquat treated plots produced no flowers.
- Ripening - Ethrel and to a lesser extent Diquat improved cane quality particularly at 17 weeks after spraying.
- Growth - The severe leaf scorch caused by applying Diquat resulted in a substantial reduction in stalk height and mass. The effect of Ethrel was minimal.
- Yield - Despite the increase in ers % c due to spraying, yields of both cane and sucrose were depressed with the effect of Diquat approaching the (P=0,05) level of significance.