

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code: GR3/81/P

Cat. No.: 1244

TITLE: GROWTH STIMULATION - NCo 376 (SHAKASKRAAL)

1. Particulars of the crop:

| | |
|---|--|
| <u>This crop:</u> Plant | <u>Spray method:</u> CO ₂ overhead boom sprayer using two TK 1,0 nozzles |
| <u>Site:</u> Shakaskraal, Field 33 | <u>Pressure:</u> 200 kPa |
| <u>Region:</u> North coast | <u>Volume/ha:</u> 70 ℓ |
| <u>Soil form/series:</u> Longlands:Waldene | <u>Weather at spraying:</u> Partly cloudy, warm no wind |
| <u>Design:</u> Randomised block - 4 reps. | <u>Conditions of cane at spraying:</u> c 2 m stalk c 9-10 green leaves c 21-25 internodes. |
| <u>Plot size:</u> 16 m x 4 rows at 1,4 m spacing | <u>Well grown and green. Av. juice purity % :</u> 76 |
| <u>Variety:</u> NCo 376 | <u>Sampling technique:</u> 4 stalks taken at random from each of 4 points (2 m apart) in net rows of each plot. Points of sampling varied by advancing starting point by 1 m at each sampling. At harvest 16 stalks drawn at random from stacks of each plot. |
| <u>Age at spraying:</u> 14,3 mths (12.3.81) | |
| <u>Age at harvest:</u> 16,8 mths (25.5.81) | |
| <u>Sampled:</u> 0,3 and 10,5 weeks after spraying | |
| <u>Moisture regime:</u> | |
| <u>Rainfall:</u> 572 mm LTM 647 mm | |
| <u>Irrigation:</u> 840 mm | |
| <u>Total :</u> 1 412 mm | |

2. Objectives: To determine whether Pro-Gibb (2,88% gibberellic acid formulation) or Ethrel will stimulate growth of irrigated 15 month old NCo 376 when applied in summer at Shakaskraal.

3. Treatments:

1. Control - not sprayed
 2. Pro-Gibb (2,88% GA₃) 0,07 kg a.i./ha = 2,4 ℓ product/ha
 3. Pro-Gibb (2,88% GA₃) 0,035 + 0,035* kg a.i./ha = 1,2 + 1,2 ℓ prod/ha
 4. Pro-Gibb (2,88% GA₃) 0,14 kg a.i./ha = 4,8 ℓ product/ha
 5. Ethrel (48%) 0,50 kg a.i./ha = 1 ℓ product/ha
- * Applied 3 weeks later (1-4-81)

4. Results

4.1 Sample results

| Date and weeks after spray | Stalk mass as % of mass at 0 weeks. Actual mass in brackets. (g/stalk) | | | Ers % cane | | | Mass ers (g/stalk) as % of mass ers at 0 weeks | | |
|----------------------------|--|------|-------|------------|------|------|--|------|-------|
| | 12/3 | *1/4 | 25/5 | 12/3 | *1/4 | 25/5 | 12/3 | *1/4 | 25/5 |
| Treatments | 0 | 3 | 10,5 | 0 | 3 | 10,5 | 0 | 3 | 10/5 |
| Control | (848) 100 | 104 | 120 | 7,8 | 10,9 | 12,8 | (66,4) 100 | 146 | 196 |
| Pro-Gibb 0,07 | (848) 100 | 108 | 125 | 6,3 | 9,5 | 12,7 | (54,2) 100 | 161 | 246 |
| Pro-Gibb 0,035 + 0,035 | (900) 100 | 104 | 118 | 8,1 | 10,5 | 13,1 | (73,4) 100 | 134 | 182 |
| Pro-Gibb 0,14 | (930) 100 | 99 | 113 | 8,2 | 10,5 | 12,7 | (76,2) 100 | 126 | 182 |
| Ethrel | (892) 100 | 99 | 105 | 8,3 | 10,5 | 13,8 | (73,1) 100 | 126 | 177 |
| MEAN | (884) | 102 | 134 | 7,7 | 10,4 | 13,0 | (67,5) | 93,2 | 133,1 |
| C.V.% | 10,7 | 6,1 | 7,3 | 22,6 | 4,3 | 4,2 | 26,7 | 7,4 | 6,2 |
| L.S.D. (P = 0,05) | 145,9 | 85,7 | 115,0 | 2,7 | 0,68 | 0,84 | 28,2 | 10,8 | 12,7 |

* Date of 2nd application: 1.4.81

Crop growth measurements at 1 and 5 weeks after spraying

| Dates and weeks after spray | Stalk height (cm) | | | Stalk Population x 1000 ⁻³ /ha | | |
|-----------------------------|-------------------|------|------|---|------|------|
| | 18/3 | 21/4 | 25/5 | 18/3 | 21/4 | 25/5 |
| Treatments | 1 | 5 | 10,5 | 1 | 5 | 10,5 |
| Control | (215) 100 | 105 | 94 | 109 | 115 | 104 |
| Pro-Gibb 0,07 | (221) 100 | 106 | 98 | 121 | 123 | 110 |
| Pro-Gibb 0,035 + 0,035 | (220) 100 | 107 | 98 | 118 | 116 | 107 |
| Pro-Gibb 0,14 | (218) 100 | 107 | 98 | 111 | 123 | 103 |
| Ethrel | (209) 100 | 109 | 95 | 108 | 124 | 102 |
| MEAN | (217) | | | 113 | 120 | 105 |

4.2 Harvest results (16,8 months old - sprayed at 14,3 months).

| Treatments | Cane t/ha | Ers % cane | Ers t/ha |
|------------------------|-----------|------------|----------|
| Control | 119 | 12,8 | 15,2 |
| Pro-Gibb 0,07 | 134 | 12,7 | 17,0 |
| Pro-Gibb 0,035 + 0,035 | 127 | 13,1 | 16,7 |
| Pro-Gibb 0,14 | 125 | 12,7 | 15,7 |
| Ethrel | 116 | 13,8 | 15,9 |
| Mean | 124 | 13,0 | 16,1 |
| C.V.% | 7,4 | 4,2 | 8,5 |
| L.S.D. (P = 0,05) | 14,2 | 0,84 | 2,1 |

Comments

Ethrel

The slight increase in stalk length from spraying Ethrel at 1 l product per hectare 5 weeks after spraying was not evident at harvest (10½ weeks after spraying). This low rate of Ethrel however, did improve cane quality (P = 0,05).

Pro-Gibb

No appreciable differences between the Pro-Gibb treatments were measured, but the mean yields of the three treatments indicate that some growth stimulation may have occurred.

RD/SN
15 September, 1981