

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Code : R92/84/R
Cat. No.: 1427

Title: RIPENER SCREENING - SHAKASKRAAL

1. Particulars of the project:

This crop	: 9th ratoon	Spray method:	CO ₂ operated overhead boom with two TK1,0 floodjets
Site	: Shakaskraal Block III	Pressure :	200 kPa
Region	: N Coast Coastal	Volume/ha:	75 l/ha
Soil system	: Umzinto Coastal	Weather at spraying:	
Soil form/series:	Longlands/Waldene		Calm, sunny and cool
Design	: Incomplete Latin Square x 7 reps	Condition of cane at spraying:	
Variety	: NCo 376		7 to 8 green leaves; 9 to 13 internodes; dew on leaves
Date & age at spraying	: 17/4/84 10,3 mths	Sampling technique:	
Date & age at harvest	: 21/6/84 12,5 mths		Four stalks taken from 4 predetermined points in the two net rows. Starting point advanced by 1 m at each sampling occasion
Sampling dates	: 17/4/84 0 weeks 9/5/84 3 weeks 30/5/84 6 weeks 21/6/84 9 weeks		
Irrigation	:)) See treatments		
Rainfall	:)		

2. Objectives:

- To continue assessing Fusilade as a ripener.
- To continue assessing HOE 2501 as a ripener.
- To compare responses from the coded products with those from Polado.
- To assess the effects of residues on the growth of the following crop.

3. Treatments:

1. Control (not sprayed with ripener).
2. Polado 500 g product/ha.
3. Fusilade (PP005) 350 ml product/ha = 45 g ai/ha.
4. Fusilade (PP005) 700 ml product/ha = 90 g ai/ha.
5. HOE 2501 3000 ml product/ha = 150 g ai/ha.
6. HOE 2501 6000 ml product/ha = 300 g ai/ha.

Soil moisture:

Months	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Irrigation(mm)	25			25								25	25
Rainfall (mm)	14	67	57	7	99	194	142	270	237	103	106	43	33
Total	32	67	57	32	99	194	142	270	237	103	106	68	58
No. of days when *ASM = 0	8	0	0	0	0	0	0	6	0	5	7	6	

* ASM = available soil moisture

4. Results:

Results from samples

Treatments	Ers % cane - differences from control				Purity %			
	Dates and weeks after spraying							
	17/4	9/5	30/5	21/6	17/4	9/5	30/5	21/6
Control	8,9	9,7	10,6	11,0	86	88	93	89
Polado	-0,2	+1,0**	+1,8**	+1,6**	86	90*	93	93**
Fusilade 350 ml	-0,5**	+0,6*	+1,8**	+1,8**	85	89	96*	93**
Fusilade 700 ml	-0,4	+0,7**	+1,8**	+1,7**	84	89	95	94**
HOE 2501 3 l	-0,4	+0,3	+1,1**	+0,9**	85	89	95	91
HOE 2501 6 l	-0,6**	+0,3	+0,9**	+0,5	84	89	95	91
Mean	8,6	10,2	11,8	12,1	85	89	95	92
CV %	5,6	4,6	5,2	4,4	1,5	1,6	2,5	2,3
LSD (P = 0,05)	0,5	0,5	0,7	0,6	1,4	1,6	2,6	2,3
LSD (P = 0,01)	0,7	0,7	0,9	0,8	1,9	2,1	3,5	3,2

* = P = 0,05

** = P = 0,01

Results from samples - contd

Treatments	Stalk mass (g) - differences from control				Mass ers - differences from control in g/stalk			
	Dates and weeks after spraying							
	17/4	9/5	30/5	21/6	17/4	9/5	30/5	21/6
Control_	608	595	574	495	54	58	61	54
Polado	+ 6	+ 17	+ 43	+ 22	- 1	+ 7	+15**	+11*
Fusilade 350 ml	- 37	- 61	- 34	- 42	- 6*	- 3	+ 6	+ 4
Fusilade 700 ml	+ 28	+ 27	+ 69	+ 30	0	+ 7	+19**	+13**
HOE 2501 3 l	- 26	- 26	+ 9	- 12	- 5	- 2	+ 7	+ 3
HOE 2501 6 l	+ 6	+ 5	+ 38	- 41	- 3	+ 2	+ 9	- 2
Mean	604	589	595	488	52	60	70	59
CV %	11,6	11,6	10,6	12,9	10,6	12,5	12,6	14,4
LSD (P = 0,05)	77	75	69	70	6,0	8,2	9,8	9,3
LSD (P = 0,01)	105	102	94	94	8,1	11,1	13,2	12,7

* = P = 0,05
 ** = P = 0,01

Results at harvest (9 weeks after spraying)

Treatments	Cane t-ha	Ers % cane	Ers t-ha	Suc t-ha	Stalk popn. x10 ³ -ha	Stalk height (cm)	Sample height (cm)
Control	68	10,9	7,4	8,4	112	194	162
Polado	65	12,6**	8,2	9,1	120	185*	160
Fusilade 350 ml	63	12,8**	8,1	8,8	116	178**	146**
Fusilade 700 ml	65	12,8**	8,3	9,0	111	187	150*
HOE 2501 3 l	69	11,9**	8,2	9,1	122*	186*	154
HOE 2501 6 l	56	11,6	6,5	7,2	111	180**	144**
Mean	64	12,1	7,8	8,6	115	185	153
CV %	13,3	5,0	15,9	15,0	7,2	3,6	6,2
LSD (P = 0,05)	9,6	0,7	1,4	1,5	9,4	7,6	10,7
LSD (P = 0,01)	13,2	0,9	1,9	2,0	12,9	10,4	14,7

* = P = 0,05
 ** = P = 0,01

5. Comments:

• Fusilade

The lower rate (350 ml) effectively ripened cane by increasing cane quality significantly (P = 0,01). There was no greater response to the higher rate (700 ml) applied. The slight (ns) depression in cane yields due to stunting of growth and desiccation of the stalks reduced

the ripening response in terms of tons sucrose/ha to a level which did not attain statistical significance, but was nevertheless superior in yield to untreated cane by nearly one ton ers/ha.

The optimum response in terms of mass ers appears to be at about 6 weeks after spraying.

The chemical caused a severe constriction in the internode which was elongating at the time of spraying and also in the internodes which were formed after spraying. Constrictions were more prominent in better grown stalks and the tops broke off while removing trash from the stalks or during the loading operation.

- **HOE 2501**

The visual symptoms from this chemical were similar to those caused by Fusilade. Leaves were however more severely scorched and internodes above the constriction were occasionally hollow. Cane quality was improved significantly ($P = 0.01$) 6 and 9 weeks after spraying, but responses in terms of mass ers were small (ns) due to depression in stalk mass. The effect that the lower rate (3 l/ha) may have on cane yields may have been masked by the substantially higher stalk populations in plots treated at this rate. These effects need to be confirmed.

- **Polado**

The responses to Polado were very similar to those from Fusilade. The evidence is that Fusilade affects stalk growth no more severely than does Polado when treated cane is harvested within 9 weeks of spraying.

- **General**

According to P&L accounts soil moisture was limiting on only two occasions for short periods between spraying and harvesting.

RAD/HDN
15 August 1984