

ALW

**SOUTH AFRICAN SUGAR INDUSTRY  
AGRONOMISTS' ASSOCIATION**

Cat No: 1596  
Project No: 3398  
Code No: HW319/86/R1

**Title: POST-EMERGENT PHYTOTOXICITY OF N17**

**Objectives**

To assess the effects of post-emergent herbicide treatments on N17 ratoon cane at Pongola.

**Particulars of project**

<p>This crop : 1st ratoon Site : Pongola Fld Stn Region : Northern area Soil system : Komatipoort Soil form/series: Hutton/Shorrocks Variety : N17 Age (mths) : 10,6 Dates : 20/9/86-19/8/87 Rainfall (mm) : 521 LTM: Irrigation (mm) : 610 Total (mm) : 1 131</p>	<table border="1"> <tr> <th colspan="2">Soil analysis</th> <th colspan="2">Date: 15/11/85</th> </tr> <tr> <td>pH (water)</td> <td>Clay (%)</td> <td>OM (%)</td> <td></td> </tr> <tr> <td>6,4</td> <td>&gt;30</td> <td>-</td> <td></td> </tr> <tr> <td colspan="4" style="text-align: center;">ppm</td> </tr> <tr> <td>P</td> <td>K</td> <td>Ca</td> <td>Mg</td> </tr> <tr> <td>13</td> <td>140</td> <td>770</td> <td>&gt;220</td> </tr> <tr> <td colspan="4" style="text-align: center;">Fertilizer</td> </tr> <tr> <td colspan="2">Topdressed (kg/ha)</td> <td>N</td> <td>P K</td> </tr> <tr> <td colspan="2"></td> <td>152</td> <td>- -</td> </tr> </table>	Soil analysis		Date: 15/11/85		pH (water)	Clay (%)	OM (%)		6,4	>30	-		ppm				P	K	Ca	Mg	13	140	770	>220	Fertilizer				Topdressed (kg/ha)		N	P K			152	- -
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**Design**

Design : Randomised blocks  
Replication : 6  
Whole plot size: 8 m x 6 rows x 1,4 m = 67,2 m<sup>2</sup>  
Net plot size : 6 m x 4 rows x 1,4 m = 33,6 m<sup>2</sup>  
Row spacing : 1,4 m

**Treatments**

Treatments	Rates (l or kg) product/ha	Time of application	Method
T1 Control (unsprayed)	-	-	-
T2 Diuron(80) + MSMA(72)	3 + 3	Post	Interrow
T3 Diuron + Actril DS(70)	2,5 + 1.25	Post	Interrow
T4 Sencor(70) + diuron	2 + 2	Post	Interrow

**Chemical formulations used**

Product	Formulation	Active ingredient
P1 Diuron(80)	800 g/l sc	diuron
P2 MSMA(72)	720 g/l soln	MSMA
P3 Actril DS(70)	600/100 g/l ec	2,4-D/ioxynil
P4 Sencor(70)	700 g/kg wp	metribuzin

**Application details**

Treatment dates : 11/11/86  
 Time of application : 09h15-09h55  
 Applicator : CP3  
 Nozzle : APM Green  
 Height of cane : 4-6 leaf stage  
 Method : Directed interrow  
 Output : 32 ml/s  
 Output : 23 ml/m<sup>2</sup>

**Weather conditions at time of spraying**

Treatment dates : 11/11/86  
 General : Cloudy & cool  
 Dew : Nil  
 Soil surface : Moist  
 Wind : Nil  
 Sunshine hours : 8,4  
 Temperature (°C) 08h00 : 19,7  
 14h00 : 25,4  
 Relative humidity (%) 08h00 : 70  
 14h00 : 48  
 Rainfall: On day of spray (mm): 0  
 No days to 1st rain : 4  
 At 1st rain (mm) : 2,8  
 In 1st 14 days (mm) : 6

**Results**

**Table 1: The effects of post-emergent herbicide treatments on percent leaf scorch and stunting of N17**

Treatment	Rate (l or kg) product/ha	Leaf scorch (%)		Stunting*	
		24/11/86	17/12/86	24/11/86	17/12/86
Control	-	3,0	0	5,0	4,8
Diuron + MSMA	3 + 3	6,5	0	4,7	4,5
Diuron + Actril DS	2,5 + 1,25	4,5	0	4,8	4,0
Sencor + diuron	2 + 7	4,7	0	5,0	5,0

\* Rating for stunting: 5 = no visual stunting; 1 = severe stunting

**Table 2: The effects of post-emergent herbicide treatments on certain yield measurements of N17 ratoon cane**

Treatment	Rate (l or kg) product/ha	Cane (t/ha)	Sucrose (t/ha)	Popu- lation (1000/ha)	Height (cm)
Control	-	110	14,8	113	281
Diuron + MSMA	3 + 3	121	15,9	106	271
Diuron + Actril DS	2,5 + 1,25	115	14,1	107	280
Sencor + diuron	2 + 7	119	14,5	125	283
CV %		8,7	9,7	26	7,2
SE of treatment means		4,1	0,6	12	8,2
LSD (0,05)		12,0	1,8	36	25,0
(0,01)		17,0	2,4	50	34,0

### Discussion and conclusion

The diuron treatments had a slight stunting effect in the early stages of cane growth. The MSMA treatment caused more leaf scorch, but six weeks after spraying there were no differences in percent leaf scorch between treatments.

There were no real differences between treatments for cane t/ha, population or height.

Diuron + MSMA had a higher value for sucrose t/ha than the other treatments and was just significantly greater (5%) than the diuron and Actril DS treatment, which had the lowest sucrose yield.

In conclusion, there did not appear any phytotoxicity differences between treatments.

MW/HDN  
11 September 1987