

**SOUTH AFRICAN SUGAR INDUSTRY  
AGRONOMISTS' ASSOCIATION**

Cat.No. : 1787  
Project No. :  
Code No. : HW 398/90/R3

**Title :** Phytotoxicity of new products on ratoon cane, applied post-emergence.

**1. Particulars of project :**

This crop : 3rd ratoon	Soil analysis Date : 19/10/90
Site : Pongola Block 306	pH : 6.66    OM% : -    Clay% : >30    PDI : -
Region : Northern area	
Soil System : Komatipoort	ppm
Soil form / series: Hutton/ Shorrocks	P : 32    K : 223    Ca : 745    Mg : 307    Zn : -    Al : -
Design : Randomised block	Age : 11,7 months
Variety : NCo376	Dates : 25/9/90 - 17/9/91
Fertilizer (kg/ha):    N    P    K 140    28    140	Rainfall : 794 mm
	Irrigation : 854 mm
	Total : 1 648 mm

**2. Objectives**

To assess the phytotoxicity of unregistered products on ratoon sugarcane.

**3. Treatments**

	Rates (l product/ha)
T1 Control	Handweeded
T2 Actril DS + diuron	1.25 +2.5
T3 Spotaxe	2
T4 Spotaxe	4
T5 Duplosan DP	3
T6 Duplosan DP	6
T7 Impi	3.33
T8 Impi	6.67

4. Design

Design : Randomised block  
No. replications : 6  
Whole plot size : 6 rows \* 8 m \* 1.4 m = 67,2 m  
Net plot size : 4 rows \* 6 m \* 1.4 m = 33,6 m  
Row spacing : 1.4 m

5. Chemical formulations used

Product	Formulation	Active ingredient
Actril DS	600 + 100 g/l (EC)	2,4-D + ioxynil
Diuron	800 g/l (SC)	diuron
Spotaxe	80 + 240 g/l	dicamba + 2,4-D
Duplosan DP	600 g/l	dichlorprop - P
Impi	150 + 300 g/l	sulcotrione + diuron

6. Application details

Treatment date : 22/10/90  
Time : 1.30 - 3.45pm  
Applicator : CP3  
Nozzle : APM (green)  
Pressure : 150 kpa  
Output : 40.1 ml/sec  
Output : 28,64 ml/m  
Method : Over the row

7. Weather conditions

Treatment date : 22/10/90  
General : Clear and hot  
Dew : Nil  
Soil surface : Very dry  
Wind : Nil  
Sunshine hours : 11.5  
Temperature (°C)  
    08h00 : 17.6  
    14h00 : (no record)  
Relative humidity (%)  
    08h00 : 78  
    14h00 : (no record)  
Rainfall (mm)  
    On day of spray : Nil  
    No. days to first rain : 2  
    At first rain : 1.7  
    In first 14 days : 2.5  
    Total for duration of trial : 794

8. Results

**Table 1 : Visual ratings of percentage leaf scorch and stunting where 1 = very poor and 5 = no stunting) recorded at 29 days after spraying**

— Treatment —	Rate (l product/ha)	% leaf scorch	Stunting
T1 Control	-	1.5	4.6
T2 Actril DS + diuron	1.25 + 2.5	3.5	4.1
T3 Spotaxe	2	2.2	4.7
T4 Spotaxe	4	2.5	4.5
T5 Duplosan DP	3	10.5	2.5
T6 Duplosan DP	6	14.2	2.2
T7 Impi	3.33	5.0	4.2
T8 Impi	6.67	5.0	3.9

**Table 2 : Treatment effects on stalk heights (cm to TVD) and populations at 50, 120 and 150 days after spraying**

— Treatment —	Rate (l product/ha)	Stalk heights (cm to TVD)			Populations (* 1000/ha)		
		50	120	150	50	120	150
T1 Control	-	108	193	258	526	162	160
T2 Actril DS + diuron	1.25 + 2.5	102	193	253	495	162	158
T3 Spotaxe	2	106	188	259	481	149	146
T4 Spotaxe	4	106	183	257	515	167	164
T5 Duplosan DP	3	92	173	234	502	162	160
T6 Duplosan DP	6	89	173	225	543	139	136
T7 Impi	3.33	106	190	251	412	158	156
T8 Impi	6.67	108	190	246	535	154	150

**Table 3 : Treatment effects on cane yield (tons/ha) sucrose % cane and sucrose yield (tons/ha)**

— Treatment —	Rate (l product/ha)	Cane yield (tons/ha)	Sucrose% cane	Sucrose (tons/ha)
T1 Control	-	144	12.7	18.3
T2 Actril DS + diuron	1.25 + 2.5	149	13.0	19.4
T3 Spotaxe	2	147	13.4	19.6
T4 Spotaxe	4	150	12.9	19.2
T5 Duplosan DP	3	145	12.8	18.6
T6 Duplosan DP	6	138	12.6	17.3
T7 Impi	3.33	142	13.2	18.7
T8 Impi	6.67	144	12.8	18.4
CV %		5.1	5.4	7.1
Standard error - Treatment means +/-		3	0.3	0.5
LSD (0,05)		9	0.8	1.6
LSD (0,01)		12	1.0	2.1

**9. Comments**

All new products were tested at the recommended and twice the recommended rate.

**Actril DS + diuron**

The standard treatment caused slight leaf scorch in the early stages but had no further effect on the crop.

**Spotaxe**

Both rates of this product proved to be safe on cane when applied on it's own.

**Duplosan DP**

Scorch and stunting was noted soon after spraying both rates of this product ( Table 1). This resulted in reduced stalk heights for both rates and a suppression in populations at the higher rate. The cane treated with the lower rate recovered sufficiently and yields at harvest were similar to that of the unsprayed control and the standard treatment. The higher rate had a greater phytotoxic effect on cane but reductions in yield were not statistically significant.

**Impi**

Although stalk heights and populations appeared to be slightly reduced at the higher rate of this product, yields at harvest were not adversely effected (Table 3).