

Av

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Cat.No. : 1859
Project No. : 4044
Code No. : HW 418/91/R1

Title : Post-emergence phytotoxicity on ratoon cane.

1. Particulars of project :

This crop : 1st ratoon Site : Pongola Block 304 Region : Northern area Soil System : Komatipoort Soil form / series: Hutton/ Shorrocks Design : Randomised block Variety : N14 Fertilizer (kg/ha): N P K Top-dress 139 28 139 ----- Total 139 28 139	Soil analysis Date : 6/1/1992 <hr/> pH OM% Clay% PDI 6,65 - >40 - <hr/> <p style="text-align: center;">ppm</p> <hr/> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">P</td> <td style="text-align: center;">K</td> <td style="text-align: center;">Ca</td> <td style="text-align: center;">Mg</td> <td style="text-align: center;">Zn</td> <td style="text-align: center;">Al</td> </tr> <tr> <td style="text-align: center;">39</td> <td style="text-align: center;">164</td> <td style="text-align: center;">680</td> <td style="text-align: center;">>260</td> <td style="text-align: center;">-</td> <td style="text-align: center;">-</td> </tr> </table> Age : 11,7 months Dates : 14/11/1991 - 6/10/1992 Rainfall : 311 mm Irrigation : 793 mm Total : 1104 mm	P	K	Ca	Mg	Zn	Al	39	164	680	>260	-	-
P	K	Ca	Mg	Zn	Al								
39	164	680	>260	-	-								

2. Objectives

To assess the phytotoxic effects of new herbicides and mixtures when applied as post-emergence treatments to sugarcane.

3. Treatments

	Rates (1 product/ha)
T1 Control	Handweeded
T2 Sencor + diuron	3 + 2
T3 Classic + Armoblen	0,06 + 0,15%
T4 Classic + Armoblen	0,12 + 0,15%
T5 Spotaxe + MSMA	2 + 3
T6 Spotaxe + MSMA	4 + 6
T7 Falcon + diuron + MCPA	2 + 2,25 + 3,5
T8 Falcon + diuron + MCPA	4 + 4,5 + 7

4. Design

Design : Randomised block
 No replications : 6
 Whole plot size : 6 rows * 8m * 1.4m = 67,2 m²
 Net plot size : 4 rows * 6m * 1.4m = 33,6 m²
 Row spacing : 1.4m

5. Chemical formulations used

<u>Product</u>	<u>Formulation</u>	<u>Active ingredient</u>
Sencor	480 g/l (SC)	metribuzin
Diuron	800 g/l (SC)	diuron
Classic	250 g/kg	chlorimuron-ethyl
Armoblen	500 g/l	alkoxylated-fattyalkylamine
	550 g/l	ethoxylated sorbitan ester
Spotaxe	80 + 240 g/l	dicamba + 2,4-D (APM salts)
MSMA	720 g/l (SOL)	Mono-sodium methane arsenate
Falcon	960 g/l (EC)	metolachlor
MCPA	400 g/l (SOL)	2-methyl-4-chlorophenoxy acetic acid

6. Application details

Treatment date : 3/12/1991
Time : 2.15pm - 4.00pm
Applicator : Battery operated knapsack
Nozzle : APM (green)
Pressure : 150 kpa.
Output : 44 ml/sec
Output : 31,5 ml/m²
Method : Over the row

7. Weather conditions

Treatment date : 3/12/1991
General : 80% overcast
Dew : Nil
Soil surface : Dry
Wind : Nil
Sunshine hours : 7,2
Temperature (°C)
 08h00 : 23,6
 14h00 : 32,8
Relative humidity (%)
 08h00 : 74
 14h00 : 43
Rainfall (mm)
 On day of spray : Nil
 No. days to first rain : 1
 At first rain : 19,5
 In first 14 days : 55,5
 Total for duration of trial : 310,8

9. Comments

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

Sencor + diuron

The standard treatment stunted growth slightly (Table 1) which caused a cane yield reduction that approached significance. Cane quality and sucrose yield was reduced for this treatment (NS).

Classic + Armoblen 650

Neither rate of this mixture resulted in significant effects on cane growth or yield.

Spotaxe + MSMA

Although the lower rate of this mixture appeared to cause a greater yield loss than the higher rate, differences compared to control were non-significant and were probably attributed to soil variability or weed competition.

Falcon + diuron + MCPA

Certain growth measurements showed suppression from this treatment but the reduction in cane yield was significant at the lower level only (Table 2). This result should be treated with scepticism as the effect from the higher rate was only slight when compared to that of the control.

10. Conclusion

None of the mixtures tested appeared to be highly phytotoxic on ratoon N14. The recorded reduction in yields were almost certainly caused by other factors as in all cases losses were greater at the lower rates.

19/11/1992

Table 1 : Treatment effects on stalk heights (cm to TVD) and populations at 84 and 112 days after spraying and at harvest.

— Treatment —	Rate (l product/ha)	Stalk heights (cm to TVD)			Populations (* 1000/ha)		
		84	112	Har	84	112	Har
T1 Control	Handweeded	183	268	282	324	196	101
T2 Sencor + diuron	3 + 2	172	269	278	327	195	109
T3 Classic + Armoblen	0,06 + 0,15%	181	277	279	318	198	109
T4 Classic + Armoblen	0,12 + 0,15%	181	279	277	324	190	114
T5 Spotaxe + MSMA	2 + 3	180	283	275	314	194	99
T6 Spotaxe + MSMA	4 + 6	181	284	276	319	199	109
T7 Falcon + diuron + MCPA	2 + 2,25 + 3,5	165	278	277	337	190	104
T8 Falcon + diuron + MCPA	4 + 4,5 + 7	172	272	270	324	193	107

Table 2 : 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	Handweeded	138	14,1	19,4
T2 Sencor + diuron	3 + 2	129	13,4	17,3
T3 Classic + Armoblen	0,06 + 0,15%	135	14,0	19,0
T4 Classic + Armoblen	0,12 + 0,15%	139	13,7	19,1
T5 Spotaxe + MSMA	2 + 3	128	13,9	17,9
T6 Spotaxe + MSMA	4 + 6	137	14,6	20,0
T7 Falcon + diuron + MCPA	2 + 2,25 + 3,5	125	14,1	17,6
T8 Falcon + diuron + MCPA	4 + 4,5 + 7	135	14,3	19,3
CV %		6,8	6,2	10,1
Standard error - Treatment means +/-		3,7	0,4	0,8
LSD (0,05)		11	1,0	2,2
LSD (0,01)		14	1,4	3,0