

**SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION**

Cat No. : 1619
Project No: 3402
Code No. : HW 314/86/R2

Title: Phytotoxicity on ratoon cane

Objectives: To assess herbicide treatments for their effects on ratoon cane.

1. Particulars of the project:

		<u>Soil analysis</u>			
This crop	: 2nd ratoon	pH (water)	Clay %		
Site	: Pongola Field Station	6,6	>30		
Region	: Northern Area	=====			
Soil System	: Komatipoort				
Soil form/series:	Hutton/Shorrocks	P ppm	K ppm	Ca ppm	Mg ppm
Variety	: NCo376	39	222	794	>220
Age	: 12,9 months	=====			
Dates	: 21/10/86-17/11/87	Fertiliser: (kg/ha) N P K			
Rainfall (mm)	: 812	850 kg/ha 147 29 147			
Irrigation (mm)	: 671	5:1:5 (38)			
Total (mm)	: 1483				
LTM (mm)	: 660				

2. Design

Design : Randomised blocks
Replication : 6
Whole plot size : 8 m x 6 rows x 1,4 m = 67,2m²
Net plot size : 6 m x 4 rows x 1,4 m = 33,6m²

3. Treatments

Treatments	Rates ℓ or kg product /ha	Time of application	Method
Unsprayed Control	-	Post	-
Unsprayed Control	-	Post	-
Asulox (40) + Actril DS (70)	9 + 1,25	Post	Interrow
Asulox (40)	12	Post	Interrow
Garlon (48)	1,5	Post	Interrow
Garlon (48)	2,5	Post	Interrow
Diuron (80) + Actril DS (70)	2,5 + 1,25	Post	Interrow
Lasso (38) + Atrazine (50)	6 + 3	Post	Interrow

4. Chemical Formulations Used

Product	Formulation	Active ingredient
P1 Asulox	400 g/l ac	asulam
P2 Garlon	480 g/l ec	triclopyr
P3 Actril DS	600/100g/l ec	2,4-D / ioxynil
P4 Diuron	800 g/l sc	diuron
P5 Lasso	384 g/l ec	alachor
P6 Atrazine	500 g/l sc	atrazine

5. Application detail

Treatment dates	25/11/86
Time of application	06h30
Applicator	CP3
Nozzle	APM Green
Pressure	130 kpa
Height of cane	3-4 leaf
Method	Directed interrow
Output	243 l/ha

6. Weather Conditions at time of spraying

Treatment dates	25/11/86
General	Warm
Dew	Nil
Soil surface	Dry
Wind	Slight
Sunshine hours	6,1
Temperature (°C)	
08h00	20,4
14h00	24,0
Relative humidity (%)	
08h00	58
14h00	38
Rainfall	
mm On day of spray	0
No of days to 1st rain	2
mm At 1st rain	0,8
mm In 1st 14 days	59

7. Results

Table 1 : Visual phytotoxicity ratings of different herbicide treatments on NCo376, 22 days after treatment

Treatment	l or kg prod/ha	% scorch	Stunt *
Control	unsprayed	2,3	4,8
Control	unsprayed	2,3	5
Asulox + Actril	9 + 1,25	2	5
Asulox	12	2,7	5
Garlon	1,5	2,7	5
Garlon	2,5	2	5
Diuron + Actril	2,5 + 1,25	2	5
Lasso + atrazine	6 + 3	2,3	5

* 1 = Very poor. 5 = No effect

Comment

None of the treatments showed any visible phytotoxic effects at 22 days after spraying.

Table 2: Stalk length and counts at 24 and 54 days after spraying and at harvest

Treatment	Rates l or kg product ha ⁻¹	Stalk length (cm)			Counts (x 1000 ha ⁻¹)		
		Days after treatment					
		24	54	Harvest	24	54	Harvest
Control	-	67	124	291	365	400	-
Control	-	65	123	287	371	392	-
Asulox + Actril	9 + 1,25	66	120	298	354	371	-
Asulox	12	63	123	293	348	370	-
Garlon	1,5	63	120	298	344	367	-
Garlon	2,5	60	118	298	337	358	-
Diuron + Actril	2,5 + 1,25	68	122	295	349	368	-
Lasso + atrazine	6 + 3	67	123	290	355	373	-

Comment:

There appeared to be no significant reduction in stalk length for the different treatments. However, all treated plots had reduced stalk counts at both 24 and 54 days after spraying. However, this difference was not apparent at 105 days after spraying. Counts were not carried out at harvest.

Table 3 : Yield data from NCo376 after treatment with different herbicides

Treatment	Rate l or kg product ha ⁻¹	Cane t ha ⁻¹	Sucrose t ha ⁻¹	Pol % Cane
Control	unsprayed	137	18,3	13,4
Control	unsprayed	134	17,8	13,3
Asulox + Actril	9 + 1,25	137	18,2	13,3
Asulox	12	135	18,0	13,3
Garlon	1,5	133	17,7	13,3
Garlon	2,5	137	17,8	13,0
Diuron + Actril	2,5 + 1,25	135	17,6	13,1
Lasso + atrazine	6 + 3	132	17,1	13,0
CV		6,7	8,2	4,4
SE Mean		3,7	0,6	0,2
LSD (0,05)		11	1,7	0,7
(0,01)		14	2,3	0,9

Comment

No significant differences were observed between treatments.

Discussion and Conclusion

At no time during the growth of this crop were phytotoxic symptoms evident which would be cause for concern. The use of Asulox and Garlon at these rates is therefore unlikely to cause any phytotoxicity on NCo376.

HW313/86/R4 Cat No. 1604 and HW309/86/R2 Cat No. 1592 both showed that Garlon at rates between 1,0 and 2,5 l/ha had no phytotoxic effect on NCo376.

Asulox was tested in other trials and found to cause no serious phytotoxicity, eg. HW76/72/R1.

MW/dlz
28 April 1988