SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Cat. No. :1679
Code No. :HW362/88/R3
Project No. :3678

Title: Phytotoxicity of new products with Velpar applied early post emergence on ratoon cane.

Objectives : To assess the phytotoxicity of Oxytril, Classic and Dual in combinations with Velpar.

1. **Particulars of the project:**

This crop	:Third ratoon
Site	:Shakaskraal 37c
Region	:North Coast - Coastal
Soil System	:Umzinto Coastal Lowlands
Soil form/series	:Longlands/Waldene
Variety	:NCo376
Age (mths)	:11,2
Dates	:18.8.88 - 25.7.89
Rainfall (mm)	:910
Irrigation (mm)	:Nil
Total (mm)	:910
LTM rainfall (mm)	:951

Soil analysis Date: 04.07.88

pH (water)	Clay (%)	OM (%)
5,65	17	2,20

ppm

P	K	Ca	Mg
26	58	434	132

Fertilizer (Kg/ha)

N	P	K
153	31	153

2. **Design**

Design	: Randomised block
Replication	: 6
Whole plot size	: 8m x 6 rows x 1,4 m = 67,2 m^2
Net plot size	: 6m x 4 rows x 1,4 m = 33,6 m^2
Row spacing	: 1,4 m

3. **Treatments**

(See results)

4. Chemical formulations used

	Product	Formulation	Active Ingredient
P1	Actril DS	600g + 100g/ ℓ ec	2,4-D + Ioxynil
P2	Addit	-	-
P3	Classic	250g/kg Df	Clorimuron - ethyl
P4	Diuron	800g/ ℓ sc	Diuron
P5	Dual	930g/ ℓ ec	Metalochlor
P6	Oxytril	200g + 200g/ ℓ ec	Ioxynil + Bromoxynil
P7	Velpar	240g/ ℓ sc	Hexazinone

5. Application details

Treatment date	: 29.9.88
Time of application	: 06h40 - 08h50
Applicator	: CP3
Nozzle	: APM Green
Height of cane	: 50 cm (to leaf bend)
Method	: Over the row
Output	: 36,6 mℓ /Sec
Output	: 26,14 mℓ /m^2

6. Weather conditions

Treatment date	:29.09.88
General	:Cloudy and mild
Dew	:Nil
Soil surface	:Dry with trash
Wind	:Slight
Sunshine hours	:6,7
Temp (°C) 08h00	:18,9
14h00	:27,2
Rainfall on day of spray	:Nil
No. of days to first rain (mm)	:2
At first rain (mm)	:2,2
In first 14 days (mm)	:26,4
Relative humidity (%) 08h00	:74
14h00	:56

7. Results

Table 1: Post emergence herbicide effects on percentage leaf scorch, stunting, and growth measurements

Treatments	Rate (l or kg) Product/ha	Leaf scorch %		Stunting rating *			Populations (x 1000/ha)			Stalk heights (cm to Tvd)		
		17.10.88	11.11.88	17.10.88	11.11.88	25.7.89	27.9.88	10.2.89	25.7.89	27.9.88	10.2.89	25.7.89
Oxytril + Velpar + Diuron	1,25 + 2,5 + 20	11,7	3,3	4,2	3,7	3,5	156	161	150	16	112	213
Oxytril + Velpar + Diuron	2,5 + 5,0 + 4,0	16,7	5,8	4,0	3,4	3,7	156	161	149	17	110	210
Classic + Velpar + Addit	0,12 + 2,5 + 0,5%	6,0	4,7	4,3	3,8	3,2	152	158	149	17	111	209
Classic + Velpar + Addit	0,24 + 5,0 + 0,5%	7,8	6,3	3,7	3,6	2,8	157	168	153	17	113	213
Dual + Velpar	1,5 + 2,0	3,0	1,5	4,6	3,8	3,3	132	163	148	17	110	209
Dual + Velpar	3,0 + 4,0	10,5	2,7	4,4	4,1	3,3	149	162	156	17	111	212
Velpar + Diuron + Actril	5,0 + 4,0 + 2,5	12,3	3,2	4,0	3,8	3,7	154	167	147	17	109	212
Control	-	0	1	5,0	5,0	5,0	154	152	149	17	112	220

* Stunting rating 5 = No visual stunting
1 = severe stunting

Table 2 : Post emergent herbicide effects on cane yield (tons/ha) sucrose % cane and sucrose yield (tons/ha)

Treatment	Rate (or kg) product/ha)	Cane (t/ha)	Sucrose % cane	Sucrose (t/ha)
Oxytril + Velpar + Diuron	1,25 + 2,5 + 2,0	83	14,0	11,5
Oxytril + Velpar + Diuron	2,5 + 5,0 + 4,0	82	13,8	11,2
Classic + Velpar + Addit	0,12 + 2,5 + 0,5%	81	14,1	11,4
Classic + Velpar + Addit	0,24 + 5,0 + 0,5%	88	13,4	11,8
Dual + Velpar	1,5 + 2,0	80	14,3	11,5
Dual + Velpar	3,0 + 4,0	84	14,3	12,0
Velpar + Diuron + Actril	5,0 + 4,0 + 2,5	81	14,0	11,3
Control	-	92	14,1	13,0
CV %		8,3	4,0	10,3
SE Treatment means	±	2,9	0,2	0,5
LSD (0,05)		8	0,7	1,3
(0,01)		11	0,9	1,8

8. Comments

All mixtures were tested at standard and double the standard rates.

Velpar + Diuron + Actril OS

Double the standard rates resulted in scorch and stunting which adversely affected stalk heights and led to a significant cane and sucrose yield suppression at harvest.

Oxytril + Velpar + Diuron

Doubling the standard rate of this mixture increased the percentage leaf scorch but caused little additional stunting. Cane and sucrose yield differences were minimal between rates but were significantly below that of the control.

Classic + Velpar + Addit

Initial leaf scorch for both rates of this mixture were generally less severe compared to Oxytril + Velpar.+ Diuron. Stunting was greatest at double the standard rate but this did not result in a corresponding cane or sucrose yield reduction.

Dual + Velpar

Leaf scorch symptoms were minimal for the standard rate of this mixture but increased significantly at double this rate. Despite these differences, cane growth did not follow this trend and yield reductions were similar at both levels.

NBL/pw/dlz
6 September 1989