

A14

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code: HW 296/85/P

Cat. No: 1524

Title: Pre-emergence phytotoxicity in trays

1. Particulars of the project

This crop: Plant cane

Site: Mt. Edgecombe

Region: N. Coast Coastal

Soil system: Umzinto/Coast
Lowlands

Soil form/series: Hutton/Shorrocks
and Clansthal

Design: Random blocks

Variety: NCo376

Fertilizer: N P K

Light soil (a) 127 25 127

Heavy soil (b) 254 50 254

Temik in light soil: 20 kg/ha

Soil analysis: Date: 29.1.86

	pH	O.M.%	Clay%	Silt%	Sand%
(a)	8,5	0,20	8	4	88
(b)	7,8	0,50	35	13	52

	ppm				
	P	K	Ca	Mg	Zn
(a)	80	49	>1800	43	1,5
(b)	51	80	>1800	> 220	0,8

Age: 2,4 months Dates: 18.2.86-29.4.86

Irrigation: Fully irrigated with
drip system

Application details

Applicator: Gas-operated knap-
sack sprayer

Nozzle : 8004-E

Pressure: 1,7 Bars

Output: 746 l/ha

Date of spraying: 18.2.86

Time of spraying: 12:15-14:00

Weather conditions at spraying

General: Hot

Rainfall (m.m.) : 0

No. of days to 1st rain: 4

No. of m.m. at 1st rain: 2,4

Dew: Nil

Wind: Slight

Soil surface: Dry

Relative humidity(%) 8 am: 74

2 pm: 73

Temperature (°C) 8 am: 25,9

2 pm: 27,4

2. Objectives: Standard phytotoxicity programme.

3. Treatments

3.1 Rates

Treatments	Rate in kg or ℓ product ha ⁻¹
1. Control (unsprayed)	-
2. Lasso	6
3. Fusilade	0,25
4. Harness EC	3
5. Pree (light)*	2
(heavy)	3
6. Dual	2,75
7. Lasso	12
8. Fusilade	0,75
9. Harness EC	6
10. Pree (light)	4
(heavy)	6
11. Dual	5,5

* Light soil and heavy soil

3.2 Chemical Formulation of Products used

Product	Active ingredient	Active ingredient content	Type of formulation
Lasso	Alachlor	384 g/ℓ	ec
Fusilade	Fluazifop-butyl	125 g/ℓ	ec
Harness EC	Acetochlor	960 g/ℓ	ec
Pree	Metazachlor	400 g/ℓ	sc
Dual	Metolachlor	720 g/ℓ	ec

4. Experimental

Single-eyed setts of cane were chopped and dipped in Benlate fungicide, and then planted in trays (10 per tray) at a depth of 25 mm.

Pre-emergence treatments were applied on the same day.

5. Results:

Table 1. Crop measurements in clay soils taken 11, 55 and 70 days after treatment

Treatments	Rate in kg or ℓ product ha ⁻¹	Crop measurements								
		T + 11			T + 55			T + 70		
		Shoot length (cm)	Counts		Shoot length (cm)	Counts		Shoot length (cm)	Counts	
		Shoots	Tillers		Shoots	Tillers		Shoots	Tillers	
1. Control (unsprayed)	-	6	7	-	15	7	12	18	7	13
2. Lasso	6	7	8	-	16	8	13	19	8	13
3. Fusilade	0,25	6	7	-	15	8	10	17	8	11
4. Harness EC	3	6	8	-	14	8	8	17	8	9
5. Pree	3	6	7	-	14	7	8	16	7	6
6. Dual	2,75	6	8	-	13	9	9	17	9	11
7. Lasso	12	7	8	-	15	9	10	17	9	11
8. Fusilade	0,75	7	8	-	16	8	12	18	8	13
9. Harness EC	6	6	8	-	15	9	12	18	9	13
10. Pree	6	7	8	-	14	9	11	17	9	13
11. Dual	5,5	6	7	-	14	7	8	18	7	10

Comments on Table 1

1. No treatments appeared to cause a decrease in shoot length.
2. Surprisingly, Pree, at the low rate, appeared to cause a reduction in tillering, while this effect was not apparent at the high rate.

Table 2. Crop measurements in sandy soils taken 11, 55 and 70 days after treatments

Treatments	Rate in kg or l product ha ⁻¹	Crop measurements								
		T + 11			T + 55			T + 70		
		Shoot length (cm)	Counts		Shoot length (cm)	Counts		Shoot length (cm)	Counts	
Shoots	Tillers		Shoots	Tillers		Shoots	Tillers			
1. Control (unsprayed)	-	6	9	-	13	9	10	16	9	11
2. Lasso	6	6	8	-	14	8	10	17	8	11
3. Fusilade	0,25	6	8	-	13	8	13	16	8	14
4. Harness EC	3	6	9	-	13	9	10	16	9	10
5. Pree	2	6	9	-	13	9	12	16	9	14
5. Dual	2,75	6	8	-	13	8	13	16	8	13
7. Lasso	12	6	8	-	13	8	13	16	8	14
8. Fusilade	0,75	6	9	-	13	9	10	17	8	12
9. Harness EC	6	5	8	-	13	9	12	15	9	13
0. Pree	3	6	9	-	12	10	9	15	9	11
1. Dual	5,5	6	9	-	13	9	12	16	9	14

Comments on Table 2

1. No treatments appeared to cause a reduction in shoot length or tiller number.

Table 3. Dry mass of above ground parts expressed in grams and as a percent of that in unsprayed control pots

Treatments	Rate in kg or l product ha ⁻¹	CLAY		SAND	
		Dry mass (g)	% control	Dry mass (g)	% control
1. Control (unsprayed)	-	41	100	31	100
2. Lasso	6	43	105	33	106
3. Fusilade	0,25	41	100	37	119
4. Harness EC	3	39	95	37	119
5. Pree	2 (light) 3 (heavy)	34	83	35	113
6. Dual	2,75	37	90	33	106
7. Lasso	12	42	102	31	100
8. Fusilade	0,75	43	105	35	113
9. Harness EC	6	42	102	30	97
10. Pree	4 (light) 6 (heavy)	38	93	32	103
11. Dual	5,5	37	90	32	103
C.V.%		16,1	-	16,1	-
S.E. of treatment mean		2,6	-	2,2	-
L.S.D. (0,05)		7,4	-	6,1	-

Comments

1. The depressed yield obtained from the low Pree rate is not apparent at the high Pree rate. There is a slight indication of depressive effects of Pree and Dual in heavy soils only.
2. There is however, no clear statistical evidence of any herbicide effect.

Conclusions:

In spite of the lack of significant statistical evidence, the tendency of Pree (metazachlor) to depress growth in clay soil appears real since this effect has been observed in previous trials (HW 235 and 284).

GW/SN
4 September 1986