

**SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION**

Cat. No. : 1700
Project No. : 3756
Code No. : HW381/89

Title: Pre-emergence weed control trial.

Objectives: To test new herbicides for pre-emergence weed control efficacy.

1. PARTICULARS OF PROJECT :

This crop : Weeds only
Site : La Mercy, Field 709A
Region : North Coast-Coastal
Soil System : Umzinto Coast Lowlands
Soil form/ Series : Longlands/Waldene
Variety : No cane
Dates : 20/9/89 - 10/1/90
Rainfall (mm) : 601,6 mm
Irrigation (mm) : Nil
Total (mm) : 601,6 mm

Soil analysis Date: 14/9/89

pH (water)	Clay (%)	OM (%)
5,5	9	0,8

P ppm	K ppm	Ca ppm	Mg ppm
39	63	298	73

Fertilizer

N	P	K
	Nil	

2. DESIGN :

Design : Randomised blocks
Replication : 4
Plot size : 8 m x 2,5 m = 20m²
Guard area : 1 m around each plot.

3. EXPERIMENTAL :

The trial site was harrowed to provide a fine tilth before the treatments were applied. Some patches of *Cyperus* spp. were present at spraying but the site was generally weed free at this stage.

A 1 m strip was left between plots for comparisons. Ratings were based on the percent scale where 100% is complete control.

4. TREATMENTS : See Results

5. CHEMICAL FORMULATIONS USED :

Product	Formulation	Active ingredient
Sencor	480 g/l (sc)	metribuzin
Diuron	800 g/l (sc)	diuron
Farm Ag III	334 + 286 g/l	alachlor + ametryne
Extrazine	167 + 333 g/l (sc)	cyanazine + atrazine
Lasso	384 g/l (ec)	alachlor
Scepter	150 g/l	imazaquin
Pursuit (Hammer)	100 g/l	imazathapyr
Harness	900 g/l (ec)	acetochlor
Atrazine	500 g/l (sc)	atrazine
Falcon	960 g/l (ec)	metolachlor
MCPA	400 g/l (soln)	MCPA
ICIA0051 (with atrazine)	125 + 300 g/l	-
ICIA0051 + diuron	300 + 800 g/l	-
ICIA0179	500 g/l	-

6. APPLICATION DETAILS :

Treatment date	:	20/9/1989
Time	:	07h00 - 10h22
Applicator	:	CP3
Nozzle	:	APM green
Pressure	:	150 Kpa
Output	:	28 ml/m ²
Output	:	35 ml/sec
Method	:	2 swaths over the plot.

7. WEATHER CONDITIONS AT SPRAYING :

General	:	Dry
Dew	:	Nil
Soil surface	:	Initially damp turning dry
Wind	:	Initially calm then extremely gusty
Sunshine hours	:	10,6
Temp (C) 08h00	:	18,2
14h00	:	23,5
Rel. humidity (%) 08h00	:	58
14h00	:	55
Rainfall (mm)	:	
On day of spray	:	Nil
No. of days to first rain	:	2
Amount of first rain	:	8,2 mm
Total in first 14 days	:	52,0 mm
Total for duration of trial	:	601,6 mm

7. RESULTS

Table 1 : Visual ratings of percent weed control taken at 16, 29, 41, 72 and 112 days after spraying

Treatment	Rates l or ly product/ha	Cyperus spp.				Broadleaf spp.			Grass spp.*		
		16	29	41	72	41	72	112	41	72	112
T1 Control - unsprayed	-	0	0	0	0	0	0	0	0	0	0
T2 Sencor + diuron	3 + 2	75	50	70	75	99	86	100	100	85	85
T3 Sencor + diuron	6 + 4	80	74	95	97	100	100	100	100	100	99
T4 Farm Ag III	6	85	90	80	65	95	75	-	99	91	90
T5 Extrazine + alachlor	3 + 5	93	97	94	75	99	84	-	100	68	46
T6 Extrazine + alachlor	4 + 6	60	80	65	64	100	99	100	100	91	74
T7 Scepter	1,33	35	60	26	60	53	80	-	45	33	14
T8 Scepter + Harness + atrazine	1,33 + 3 + 2	85	99	98	96	100	100	99	100	98	93
T9 Pursuit (Hammer)	1,5	75	75	69	76	96	73	-	100	90	94
T10 Pursuit + Harness + atrazine	1,5 + 3 + 2	96	99	99	97	100	100	-	100	100	99
T11 Falcon + Sencor + MCPA	1,15 + 1,79 + 3,5	95	85	71	95	100	97	100	100	99	87
T12 Falcon + diuron + MCPA	1,15 + 2 + 3,5	95	93	94	88	100	83	95	100	94	85
T13 ICIA0051 (with atrazine)	4	98	30	71	66	99	98	100	98	88	61
T14 ICIA0051 (with atrazine)	8	98	60	76	75	100	100	100	100	99	89
T15 ICIA0051 + diuron	1,67 + 1,25	93	40	39	38	96	72	-	94	75	49
T16 ICIA0051 + diuron	1,67 + 1,88	85	38	33	55	96	94	100	96	89	44
T17 ICIA0179	1	99	75	81	90	100	99	-	100	100	100
T18 ICIA0179	1,2	99	93	90	97	100	100	98	100	100	100

* Predominantly Digitaria spp.

8. COMMENTS :

Conditions at spraying were extremely unfavourable as a strong wind dried the soil surface during application. 8,2 mm of rain was recorded two days after spraying.

For ease of comparison, Figures 1a, 1b and 1c rank the treatments according to percentage control where the Sencor + diuron standard is zero. Digitaria spp. were the predominant grasses at this site.

Sencor + diuron

This mixture provided good control of broadleaf and grass and at the higher rate controlled Cyperus spp. adequately. Only partial control of Eleusine indica was achieved at the standard rate of this mixture.

Farm Ag III

This product gave similar grass control to the standard while the initial control of Cyperus spp. was better (Table 1). Broadleaf control was shortlived as unacceptable levels were reached at ± 72 days after spraying.

Extrazine + alachlor

The high rate of this mixture provided good grass and broadleaf control but only temporary control of grasses at the low rate. The higher rate provided very good control of Richardia braziliensis, Sonchus oleraceus and Ageratum conyzoides. The lower rate did not control Fimbristylis hispida.

Scepter and Scepter + Harness + atrazine

Scepter on its own resulted in only a slight set-back of Cyperus spp., poor control of broadleaf weeds and minimal effect on grasses. Herbicide efficacy of all weeds was significantly enhanced with the addition of Harness and atrazine.

Pursuit and Pursuit + Harness + atrazine

Apart from broadleaf spp., weed efficacy of Pursuit (Imazathapyr) was greater than Scepter (Imazaquin). The weed spectrum controlled was again far greater when Harness and atrazine were added to Pursuit. Control of broadleaf weeds was particularly poor with Pursuit on its own, and although grasses were controlled to a greater extent, Eleusine indica was not affected. This species was also present when Harness + atrazine were used in conjunction with Pursuit.

Falcon + Sencor + MCPA and Falcon + diuron + MCPA

These mixtures on the whole provided greater weed control than the standard. The mixture containing Sencor was superior to that with diuron for all three weed categories.

ICIA0051

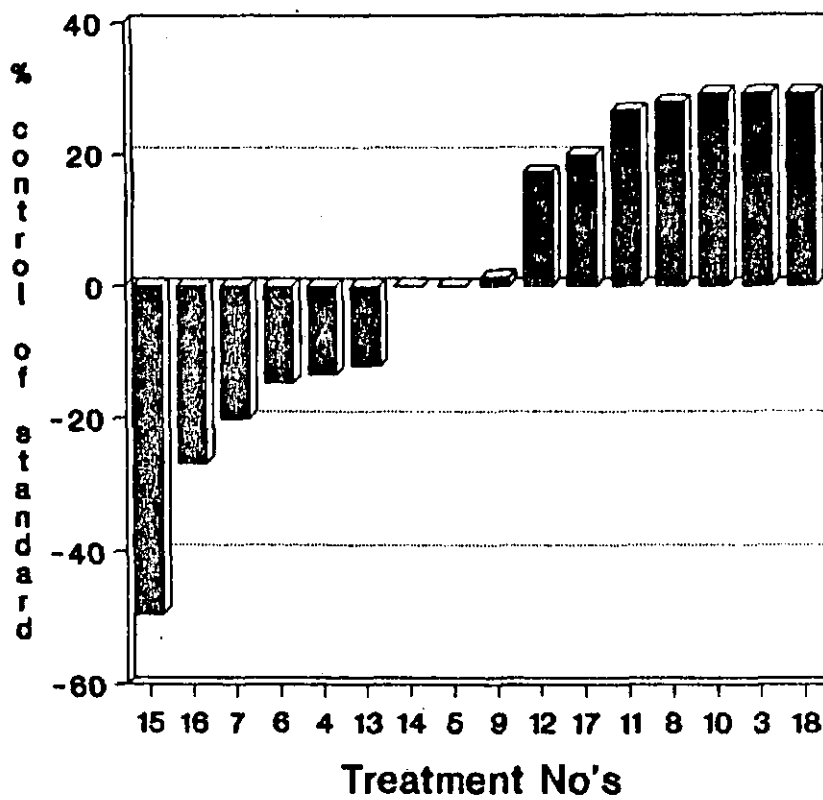
Greater weed control was achieved where this product was used with atrazine, the higher rate being the more effective particularly on Richardia braziliensis and Xanthium spp. This rate however failed to eradicate Eleusine indica, Paspalum paspaloides and Panicum maximum. The formulation with diuron was very weak on Cyperus spp. and variable on other weeds. Both rates did not suppress Argemone mexicana and Eleusine indica.

ICIA0179

Excellent weed control was achieved with both rates of this product. Cyperus spp. were severely reduced or stunted and although broadleaf weeds were sufficiently controlled, there appeared to be less efficacy on Commelina benghalensis. At the higher rate Cynodon dactylon infestation appeared to be reduced but further work would be required to confirm this observation. Both rates of this product provided exceptional weed control for up to 4 months after application, which was comparable to that at double the standard rate of Sencor + diuron.

FIGURE 1a

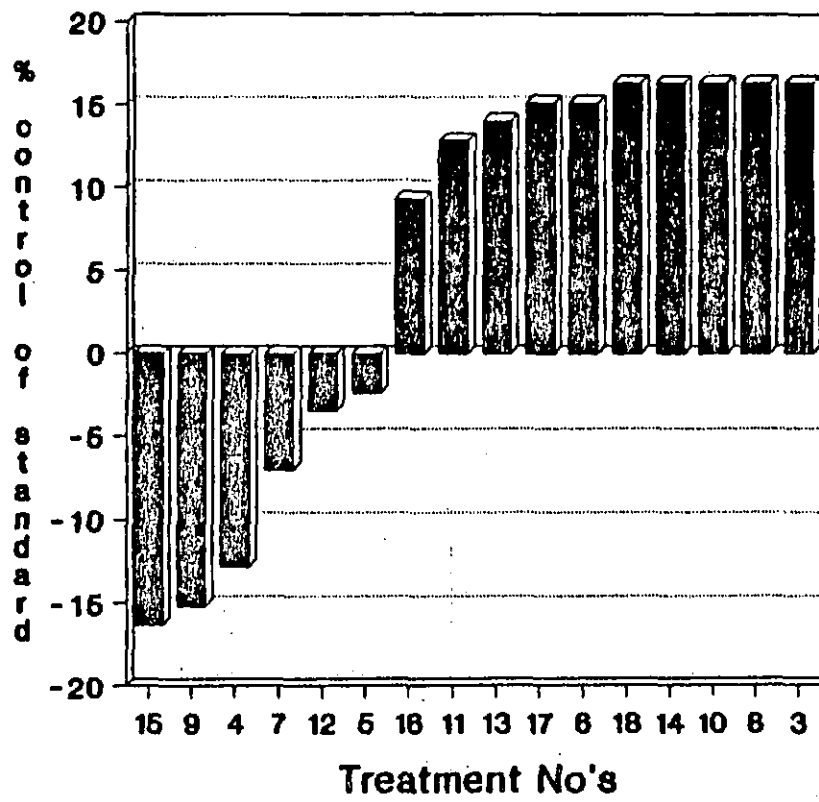
% Cyperus spp. control 72 days after spraying



Series 1

FIGURE 1b

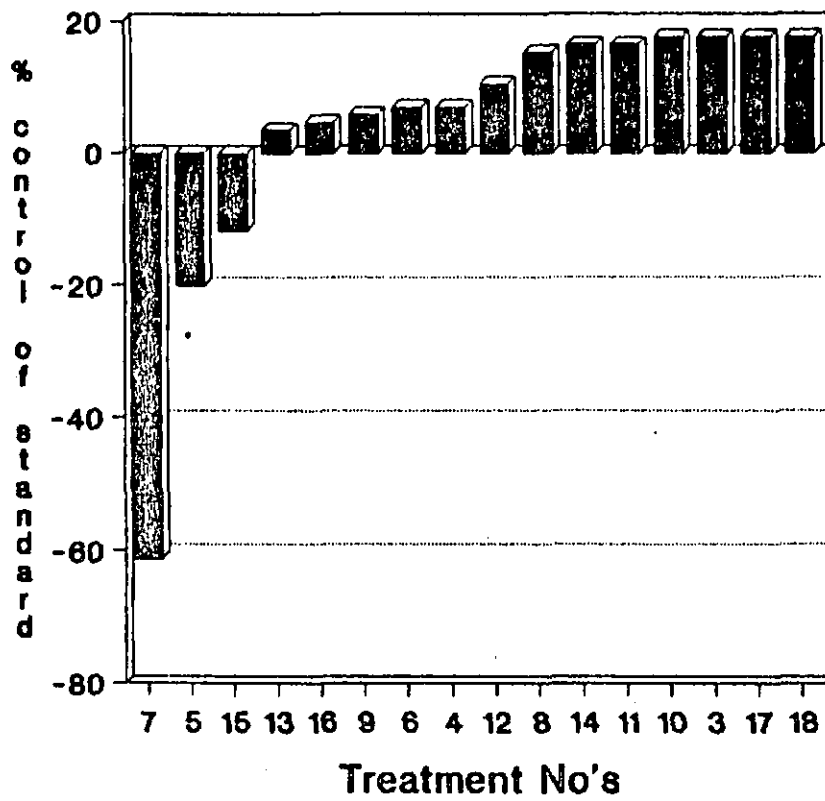
%Broadleaf spp.control 72 days after spraying



Series 1

FIGURE 1c

% Grass spp. control 72 days after spraying



Series 1