

**SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION**

Code : HW366/88
Project No : 3663
Cat. No. : 1662

Title: Late post-emergence herbicide application in the Tala Valley area

Objectives: To compare alternative treatments to Actril DS on large weeds.

1. PARTICULARS OF THE PROJECT:

Soil analysis Date: 24.10.88

This crop : Ratoon cane

pH (water) Clay %

Site : Stoney Hill Section

5,15 30

Region : CG Smith, Illovo
Eston

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P K Ca Mg
ppm ppm ppm ppm

Soil System : Mistbelt

24 96 609 163

Soil form : Nottingham/
Glenrosa

Dates : 12/10/88-12/12/88

Rainfall : 1 852 mm

2. **DESIGN**

Design : Randomised block

Replication : 4

Whole plot size : 5 rows x 6 m x 1,2 m

Row spacing : 1,2 m

4. **TREATMENTS - See results.**

4. CHEMICAL FORMULATIONS USED

Product	Formulation	Active ingredient
Classic	250g/kg df	chlorimuron ethyl
Diuron	800 g/l sc	diuron
Gesapax	500 g/l sc	ametryne
Gramoxone	200 g/l sc	paraquat
Oxytril	400 g/l ec	ioxynil + bromoxynil
Velpar	240 g/l sc	hexazinone

5. APPLICATION DETAILS

Treatment dates	13/10/88
Time of application	07h30 - 09h35
Applicator	CP3 Knapsack
Nozzle	APM Green
Pressure	± 180 kpa
Method	Directed interrow
Cane growth stage	Leaf bend height - 250 mm Leaves per shoot - 2-3 Young ratoon - uneven stool population

6. WEATHER CONDITIONS

General	Overcast & Mild
Dew	Present
Soil surface	Wet
Wind	Nil
Sunshine hours	0,1
Temperature (°C)	
08h00	10,2
14h00	11,6
Relative humidity (%)	
08h00	95
14h00	81
Rainfall (mm)	0,8
On day of spray	0,8
Total in 1st 14 days	43,1
Throughout trial	Favourable for soil acting chemicals

8. WEEDS AT SPRAY

These consisted of :	Comments	Av. % ground cover
<u>C. esculentus</u>	Patchy distribution	12
<u>*Cyperus spp</u>	Patchy	8
<u>Panicum schinzii</u>	Reasonably uniform	4,7
<u>Panicum maximum</u>	Sparse	2,4
<u>Digitaria sanguinalis</u>	Very sparse	1
<u>Digitaria abyssinica</u>	Severe in some plots	50 - 80 in some plots
<u>Solanum Nigrum</u>	Fairly well distributed	3%
<u>*Mariscus Sumatrensis</u>) Patchy infestation	
<u>Cyperus distans</u>)

9. RESULTS

Table 1 : Visual ratings of percent leaf scorch and stunting (1-5 where 1 = very poor 5 = no stunting)

	Treatments	Rates or kg product /ha	% Leaf scorch			Stunting
			12*	33	55	55
T1	Classic + ametryne	120g + 4	2	2,8	6,3	3,6
T2	Oxytril + ametryne	1,25 + 4	2,3	3,8	4,5	4,5
T3	Velpar + diuron	2,5 + 1,5	2	2,8	3,8	4,1
T4	Velpar + surfactant	1 + 0,5%	1,8	2,8	6,3	4,3
T5	Ametryne + surfactant	4 + 0,5%	2,8	3	4,5	4,3
T6	Paraquat + diuron	1 + 2,5	26	23	10,3	3,8
T7	Paraquat + ametryne	1 + 1,5	23	23	8,3	3,4
T8	Paraquat	1,5	25	23	9	4,3
T9	Oxytril + Classic	1,25 + 120g	1,3	3,3	10	3,5
T10	Ametryne	8	2,5	1	4,3	4,4

* Days after treatment

COMMENTS

1. Severe scorch was caused by paraquat treatments initially but after 55 days the effects were growing out.
2. Ratings suggest that slight leaf effects were associated with other treatments eg. ametryne and Classic and these were more noticeable at later ratings.
3. Stunting ratings also suggest that Classic treatments and paraquat treatments were more severe than others.

Table 2 : Visual ratings of percent weed control at intervals after spraying

Treatment	Rate kg or l/product	Visual ratings of weed control (% control)							
		Cyperus spp		P. maximum		P. schinzii		B/1	
		33*	55	33	55	33	55	33	55
1. Classic + ametryne	120 + 4	53	78	27	55	40	75		
2. Oxytril + ametryne	1,25 + 4	53	55	20	60	88	88	100	100
3. Velpar + diuron	2,5 + 1,5	88	94	95	100	90	100	100	100
4. Velpar + surfactant	1 + 0,5%	39	72	50	35	20	35	100	100
5. Ametryne + surfactant	4 + 0,5%	50	57	25	50		75	100	
6. Paraquat + diuron	1 + 2,5	50	76	83	65	93	95	100	100
7. Paraquat + ametryne	1 + 1,5	37	48	60	70	75	73	100	
8. Paraquat	1,5	10	27			60	67	100	100
9. Oxytril + Classic	1,25 + 120g	33	86	30	60	10	16	100	
10. Ametryne	8	53	60	83	100	88	92	100	

* days after spraying

Comments :

1. Broadleaf weed control was excellent from all treatments in which an adequate population occurred for rating.
2. Classic and Oxytril in combination with ametryne provided fair control of grasses and C. esculentus. However, the Classic mixture was superior for C. esculentus control while the opposite appeared to be true for grasses.
3. The mixture of Classic + Oxytril was effective for broadleaf and C. esculentus control but weak on grasses.
4. Velpar + diuron provided the most effective control of the range of weeds but ametryne alone at 8 l/ha and particularly paraquat + diuron also provided good control of the range of weeds.

Summary of trials HW365 and HW366

General conclusions from these two trials could be:

1. Classic or Oxytril in mixture with ametryne or diuron are able to provide adequate short term control of a range of broadleaf, grasses and C. esculentus. Moisture conditions were favourable for activity from Classic and earlier treatment under drier conditions is expected to have favoured Oxytril at the expense of Classic.
2. Neither product on its own or in combination with the other would be satisfactory where any grass weeds are present.
3. Other short term alternatives to the hormones such as paraquat + diuron or ametryne at high rates were also able to provide very good control of the range of weeds. Paraquat + diuron was superior to Classic or Oxytril mixtures but caused severe scorch of cane foliage. Stunting was however not markedly worse than that caused by Classic + ametryne.

4. The long term treatments Sencor + diuron and Velpar + diuron were generally far superior to all other treatments except for control of Panicum maximum by Sencor + diuron. The extra cost of about R50/ha for Velpar + Diuron as opposed to Oxytril + diuron would appear to be warranted particularly if a second application of Oxytril + diuron may be needed.

PETT/dlz
21 June 1989