

SOUTH AFRICAN SUGAR INDUSTRY  
AGRONOMISTS' ASSOCIATION

Code: HW 263/83  
Cat. No: 1418

Title: Post-emergence weed control trial

1. Particulars of the project

This crop : Ratoon cane  
Site : Umhlali  
Region : N. Coast Coastal  
Soil system : Umzinto/Coast Lowlands  
Soil form/series : Dwyka  
Design : Random blocks  
Variety : N55/805  
Fertilizer :     N     P     K  
1982.           128   25   128  
1983           131     131

Soil analysis: 2. 3. 82

	pH	Clay %			
	5,1	>30			
	ppm				
	P	K	Ca	Mg	Al
	45	149	703	237	5

2. Objectives

To test new herbicides and herbicide mixtures for their post-emergence weed control efficacy.

3. Treatments

See results

4. Experimental

The experiment was conducted in a field of burnt ratoon cane in which some tops had been left in the field. Application details were:

Date of application : 26. 10. 83  
 Applicator : Gas operated knapsack sprayer  
 Nozzle : APM Green floodjet  
 Pressure : 1,5 bars  
 Output : 325 l/ha  
 Plots size : 4 interrows x 4 m x 1,4 m spacing  
 Control strip : 1,5 m wide at end of each plot

Weather conditions were:

General : Clear and warm

Temperature % 8 am : 19,2  
 2 pm : 22,7

Rel. humidity % 8 am : 53  
 2 pm : 54

Sunshine hours : 10,8

Rainfall (mm) Day of spray : 0

Days to first rain : 5

Amount of first rain : 2,6

Weed growth stages : C. esculentus : 10-15 cm high 4-6 leaf stage  
P. maximum : 1-4 leaf - some well tillered  
D. sanguinalis : 1-4 leaf - many just tillered

Weed populations : C. esculentus + 24%  
P. maximum + 10%  
D. sanguinalis + 4%

Note on treatments

Low volume application was made using the same apparatus but with new brass floodjets manufactured by ICI. These were VLV50 floodjets and output was 42 l/ha.

## 5. Results

## Weed control

Table 1 Weed control ratings using two rating systems done 28 and 41 days after spraying (28 day assessment - EWRC 1-9 scale) (41 day assessment % control) stunting ratings 1-5 where 1 = very poor; 5 = very good. (Bracketed values are ratings of percent ground cover)

Treatments	Rate kg or ℓ prod/ha	<u>C. esculentus</u>		<u>P. maximum</u>		Stunting T+41
		T+28 EWRC	T+41 % control	T+28 EWRC	T+41 % control	
1. Diuron + Actril DS	2,5+1,25	4,5	74	6	68	4,5
2. Diuron + Sencor	2+2	2,5	93	4	86	4,3
3. Butisan S+diuron+paraquat	1,5+3,4+1,5	2	97	2	97	2,3
4. Butisan S+Certrol DS	1,5+1	3,5	77	4,5	78	4,5
5. Modown	7,5	5,3	31	8	28	4,3
6. Modown+Actril DS	5+1	6	44	5,8	49	4,5
7. Mon 097	3	5,5	50	8	45	4,3
8. Mon 097+ametryne+paraquat	3+3+1,5	1,8	97	2	96	2,5
9. Mon 097+paraquat	3+1,5	2,5	92	2	95	3
10. Mon 097+diuron+Actril DS	3+3+1,25	1,8	97	3	87	4
11. Mon 097+ametryne	3+6	2,8	88	2,5	92	3,8
12. UC77179	2,8	3,3	94	3,5	88	3,5
13. Diuron+Actril DS (low vol.)	2,5+1,25	6	75	5,5	80	5
14. Diuron+Sencor (low vol.)	2+2	3,8	96	5,3	88	4,5
15. Diuron+Actril DS+Rev 9 (low vol.)	2,5+1,25+2	6,3	70	5,5	70	5
16. Unsprayed control plots	-	9	(50)	9	(35)	4,8

1 = percent ground cover

Comments:

1. Diuron + Actril DS was unable to control existing weeds satisfactorily probably due to the range in size at spraying.
2. Diuron + Sencor provided very good C. esculentus control and good P. maximum control but this did not last for seven weeks.
3. New products, Butisan, Modown and Mon 097 were generally weaker than diuron + Actril DS when used alone or with Actril DS or Certrol DS. However, with ametryne or diuron + Actril DS or with paraquat excellent results were achieved with Mon 097 and Butisan. Modown was not included in such mixtures.
4. UC77179 alone provided fair control of both weed species.
5. Severe effects were produced on sugarcane in terms of leaf scorch and crop stunting after treatment with paraquat combinations and to a lesser extent UC77179 alone or Mon 097 + ametryne.
6. Low volume applications were similar to high volume applications.
7. Rev 9 did not improve the effects of diuron + Actril DS applied at low volume.

Table 2 Crop measurements taken 3 and 5 months after spray application

Treatments	Rate in kg or ℓ prod/ha	Stalk length (cm)		Stalk population (1000/ha)	
		3 m	5 m	3 m	5 m
1. Diuron+Actril DS	2,5 + 1,25	78	155	186	125
2. Diuron + Sencor	2+2	80	157	196	129
3. Butisan+diuron+paraquat	1,5+3,4+1,5	71	149	204	134
4. Butisan S + Certrol DS	1,5+1	76	152	168	123
5. Modown	5	81	154	220	127
6. Modown+Actril DS	5+1,0	79	154	212	121
7. Mon 097	3	76	149	204	137
8. Mon 097+ametryne+paraquat	3+3+1,5	70	144	177	132
9. Mon 097+paraquat	3+1,5	76	143	189	121
10. Mon 097+diuron+Actril DS	3+3+1,25	78	152	220	136
11. Mon 097+ametryne	3+6	74	150	186	121
12. UC77179	2,8	81	149	205	123
13. Unsprayed	-	80	152	214	127

## Comments:

1. Paraquat treatments caused stunting of cane but this was limited to a maximum of 8% at five months

## Conclusions

In spite of obvious stunting being caused by some treatments (particularly paraquat based) the ultimate effect on yield is expected to be small.