

SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS' ASSOCIATION

9000/39 PRE-EMERGENT HERBICIDE TRIAL

(SINGLE HERBICIDES)

TERMINAL REPORT

Cat.: 1444
Object: To determine the efficacy and phytotoxicity of a range of pre-emergent single herbicides, using a logarithmic sprayer.
Location: ZSAES Sable block N4.
Soil type: Loamy sand, 9% clay.
Design: Randomised blocks with 3 replications. Single row plots 20m long x 1m swath width, each 3rd row unsprayed for comparison purposes.
Variety/ Spacing: NCo 376 in 1,5m rows.
Planting date: 3rd February 1983.
Treatment date: 7th February 1983.
Irrigation: 280mm Rainfall: 177mm

<u>Treatments:</u>	<u>Herbicide</u> (trade name and formulation)	<u>Standard rate</u> (kg or l/ha)
	1. Ametryn 50% s.c.	3,2 l
	2. Atrazine 50% s.c.	3,2 l
	3. Bladex 50% s.c.	3,0 l
	4. Butisan S 50% s.c.	1,25 l
	5. CME 127 01 60% s.c.	4,5 l
	6. Destun 4S 48% s.c.	4,0 l
	7. Diuron 80% w.p.	2,0 kg
	8. Dual 72% e.c.	2,5 l
	9. Goal 24% e.c.	1,5 l
	10. Igran 50% s.c.	2,5 l
	11. Lasso 48% e.c.	4,0 l
	12. Modown 40% e.c.	4,0 l
	13. Ronstar 25% s.c.	2,5 l
	14. Sencor 70% w.p.	1,5 kg
	15. Stomp 50% e.c.	3,2 l
	16. Velpar 24% e.c.	2,5 l

Conduct: The treatments were applied with a Chesterford miniature logarithmic sprayer delivering 29 ml/sec at a logarithmically reducing chemical dosage rate from 4 x standard rate to 1/4 x standard rate. Herbicides were applied over the cane row.

2/Results.....

RESULTS

Assessments of the effects of the herbicides were made 5 and 12 weeks after application. Weeds were sparse making realistic assessment difficult. There was no weed germination between the first and second assessment and the results differed little and have been combined. They are presented in the attached table in terms of the minimum rate required to obtain complete weed control.

Principal weeds present in the trial site were Portulaca oleracea, Amaranthus deflexus, Cesuaia africana, Convolvulus species, Euphorbia hirta and Tragus berteronianus. Assessments of application for the first three named weeds have been combined as very similar dosage rates were observed for their control.

The only herbicide that produced symptoms of cane damage was Velpar at rates greater than 2 x standard. This herbicide is not normally recommended in a plant cane situation because of this effect.

Broadleaf weed control was obtained from all herbicides at less than the standard rate with the exception of the control of Convolvulus sp. by Modown where 12,0 l/ha of product was required. Particularly low rates, in relation to the standard, were required of Atrazine, Goal, Ronstar, Sencor and Velpar. Effective broadleaf weed control was observed by recognised grass herbicides between $\frac{1}{2}$ x standard and standard rates.

All herbicides controlled the limited grass weed spectrum at rates less than standard. Particularly successful chemicals were Butisan, Goal, Lasso, Modown, Ronstar, Sencor, Stomp and Velpar which controlled grasses at $\frac{1}{4}$ x standard rate.

CONCLUSIONS

The low dosage rates required and the satisfactory broadleaf weed control exhibited by grass herbicides is probably attributable to the sparse weed population and the low clay content of the trial site. With greater weed pressure and on heavier soils higher application rates are likely to be required.

RDE/July'83
arg.

9000/39 PRE-EMERGENT HERBICIDE TRIAL (SINGLE HERBICIDES)

Table 1 COMBINED ASSESSMENT

TREAT- MENT	HERBICIDE TRADE NAME AND FORMULATION	HERBICIDE CHEMICAL NAME	STANDARD RATE kg or l/ha	PHYTO- TOXICITY DAMAGE OBSERVED AT RATE SHOWN kg or l/ha	WEEDS LISTED BELOW CONTROLLED AT RATE SHOWN			
					Broadleaf incl. <u>Portulaca</u> <u>oleracea</u> <u>Amaranthus</u> <u>deflexus</u> <u>Cesenia</u> <u>africana</u>	<u>Convol-</u> <u>vulus sp.</u>	<u>Euphorbia</u> <u>hirta</u>	Grasses esp. <u>Tragus ber-</u> <u>teronianus</u>
1	AMETRYN 50% s.c.	AMETRYN	3,2 l	0	1,2	1,2	1,6	3,2
2	ATRAZINE 50% s.c.	ATRAZINE	3,2 l	0	1,0	0,8	0,8	1,8
3	BLADEX 50% s.c.	CYANAZINE	3,0 l	0	1,5	0,8	0,75	2,3
4	BUTISAN S 50% s.c.	METAZACHLOR	1,25 l	0	0,7	1,2	0,3	0,3
5	CME 127 J1 60% s.c.	CME 127	4,5 l	0	2,2	1,7	1,1	1,7
6	DESTUN 4S 48% s.c.	PERFLUIDONE	4,0 l	0	3,0	2,0	4,0	1,5
7	DIURON 80% w.p.	DIURON	2,0 kg	0	1,5	1,0	1,0	1,0
8	DUAL 72% e.c.	METOLOCHLOR	2,5 l	0	1,2	1,5	1,8	1,5
9	GOAL 24% e.c.	OXYFLUORFEN	1,5 l	0	0,4	0,8	0,4	0,4
10	IGRAN 50% s.c.	TERBUTRYN	2,5 l	0	0,6	0,9	0,6	1,5
11	LASSO 48% e.c.	ALACHLOR	4,0 l	0	2,0	3,0	2,0	1,0
12	MODOWN 40% e.c.	BIFENOX	4,0 l	0	1,5	12,0	1,5	1,0
13	RONSTAR 25% s.c.	OXADIAZON	2,5 l	0	0,9	0,9	0,9	0,6
14	SENCOR 70% w.p.	METRIBUZIN	1,5 kg	0	0,4	0,6	0,4	0,4
15	STOMP 50% e.c.	PENDIMETHALIN	3,2 l	0	1,2	2,4	0,8	0,8
16	VELPAR 24% e.c.	HEXAZINONE	2,5 l	5,0	0,9	0,7	0,6	0,6

Rates/ha quoted above refer to a 1m swath width

e.c. = emulsifiable concentrate

s.c. = suspension concentrate

w.p. = wettable powder