

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

9000/58 . POST EMERGENT HERBICIDE TRIAL

CAT. NO.: 1845

TERMINAL REPORT

Object: To compare efficacy of a range of herbicide treatments for the control of Shamva grass (Rottboellia cochinensis) in sugarcane.

Location: Hippo Valley Estates, Section 19, Field 1954.

Soil type: Basalt clay

Harvest month: September 1991

Variety / Spacing: NCo376, 1.5m between rows.

Herbicide sprayed: 8th November, 1991

Irrigation / Fertilizer: Applied by Section Manager in accordance with normal estate practice.

Treatment:

<u>Trade Name</u>	<u>Chemical Name</u>	<u>Rate of Application/ha</u>
1. MSMA	Daconate	3l
2. MSMA + Diuron	Daconate + Diuron	3l + 2kg
3. MSMA + Gesapax	Daconate + Ametryne	3l + 3kg
4. MSMA + MCPA	Daconate + MCPA	3l + 4l
5. MSMA + Dimepax	Daconate + Dimethoitrin	3l + 4,5l
6. Diuron	Diuron	2kg
7. Gesapax	Ametryne	3kg
8. MCPA	MCPA	4l
9. MCPA + Gesapax	MCPA + Ametryne	4l + 3kg
10. Dimepax	Dimethoitrin	4,5l
11. MCPA + Diuron	MCPA + Diuron	4l + 2kg
12. Control	-	-

Conduct:

1. This trial was a follow up of promising chemicals from 9000/51.
2. Shamva grass had emerged in large numbers and the site had received one irrigation after harvest.
3. A full cover spray was done and the weather was calm with gust of wind.
4. Weed counts and assessments were done at spraying and repeated at 2, 4, 6 and 8 weeks after spraying.
5. The following European Weed Research Council (EWRC) ratings were used;

Category Number	% kill of weeds	Herbicidal Effectiveness on Weeds
1	100	Complete kill
2	97,5 99,9	Excellent
3	95-97,5	Good
4	90-95	Adequate
5	85-90	Just inadequate
6	75-85	Poor
7	65-75	Very poor
8	33-65	Useless
9	0-33	Almost no effect

6. A lever operated knapsack sprayer with a pressure gauge attached to the lance was used.
7. De ionised water was used for dilutions.
8. Soil analysis gave the following:

Ph = 6.74	Na = 0.90 meq
P ₂ O ₅ = 12.00 ppm resin extract	Soil was a dark brown.
K ² S = 0.35 m.e. ‡	Sandy clay derived
Ca = 10.00 m.e. ‡	from Basalt
Mg = 2.50 m.e. ‡	
9. All plots were hand weeded after the last assesment.

RESULTS AND DISCUSSIONS:

Relevant weed control data are presented in the table below. Herbicide treatment had varying effects on Shamva grass, the most effective being MSMA and Dimepax. The mixture of the two and MSMA + MCPA gave excellent control and better than each applied alone.

MCPA, Diuron and Gesapax did well in mixture with MSMA, but applied alone gave poor control. The least effective herbicides were MCPA, Gesapax and Diuron applied alone.

Effects of herbicides on the crop were not determined due to the small number of cane plants at the trial site. Most cane had succumbed to severe soil moisture deficit at spraying. An irrigation after cutting and another which followed herbicide application did not affect regrowth of cane plants. Shamva grass however emerged and was actively growing with 5 - 7 leaves at spraying.

A very small spectrum of weeds was evident dominated by Euphorbia heterophylla, Portulaca oleracea, Corconus spp and Borhavia erecta.

Further testing of MSMA and Dimepax should include a detailed study of size of Shamva grass at spraying, rates of application and phytotoxicity on both NCo376 and N14. Shamva grass has a tendency to grow in cane lines, and this makes it difficult to control particularly with chemicals which affect cane plants.

Number of Shamva grass plants in 50 x 50 cm quadrants and the mean EWRC ratings.

TREATMENT	WEEKS AFTER SPRAYING					EWRC RATINGS
	0	2	4	6	8	
1. MSMA	21	0	0	0	1	3
2. MSMA + DIURON	12	0	1	1	1	3
3. MSMA + GESAPAX	18	2	2	1	1	3
4. MSMA + MCPA	29	0	0	5	0	2
5. MSMA + DIMEPAX	23	0	0	0	0	2
6. DIURON	36	22	23	12	15	8
7. GESAPAX	24	4	29	4	5	6
8. MCPA	11	11	9	7	4	6
9. MCPA + GESAPAX	17	5	6	7	4	4
10. DIMEPAX	10	0	0	0	0	3
11. MCPA + DIURON	13	8	3	4	2	6
12. CONTROL	16	15	15	13	10	8
MEAN	19	6	7	5	4	

CONCLUSION:

Results have shown that MSMA and Dimepax were very effective in killing Shamva grass and that their mixture increased their efficacy. Further detailed study of MSMA and Dimepax is recommended.