NBL/cvp
25 February 1991

SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS' ASSOCIATION

Cat.No. : 1802
Project No. :
Code No. : HW 416/91

Title : Post - emergence herbicides for Cyperus rotundus control.

1. Particulars of project:

This crop	: Fallow	Soil analysis	Date : 28/10/91
			Moisture : 9,1%
Site	: Mount Edgecombe Field 31		
Region	: North coast - coastal	Dates	: 28/10/1991 - 5/12/1992
Soil System	: Umzinto coast lowlands	Rainfall	: 270 mm
Soil form / series	: Rensburg	Irrigation	: Nil
Design	: Randomised block	Total	: 270 mm
Variety	: N/A		
Fertiliser (kg/ha)	: N/A		

2. Objectives: To continue testing treatments for control of C. rotundus.

3. Treatments

		Rates (l or kg product/ha)
T1	MSMA (repeated)	4 + 4
T2	Duplosan DP	2
T3	Duplosan DP	4
T4	Atrazine + diesel	3 + 1
T5	Fortrol + ammonium nitrate	1,5 + 1% (sol)
T6	Classic + Armoblen	0,6 + 0,15%
T7	Roundup	6
T8	Roundup + Armoblen 650	6 + 0,3
T9	Gramoxone + MCPA	3 + 4
T10	Gramoxone	3
T11	MCPA	10

4. Design

Design : Randomised
No replications : 3
Net plot size : 2 rows x 8 m x 1,4 m = 22,4 m
Row spacing : 1,4 m
Breaks : 1 m between each plot

5. Chemical formulations used

Product	Formulation	Active ingredient
MSMA	720g/l (SOL)	mono - sodium methane arsenate
Duplosan DP	600g/l	dichlorprop - P
Atrazine	500g/l (SC)	atrazine
Fortrol	500g/l	cyanazine
Classic	250g/kg	clorimuron - ethyl
Armoblen 650	500g/l	alkoxylated - fattyalkylamine
	550g/l	ethoxylated sorbitan ester
Roundup	359g/l (SOL)	glyphosate
Gramoxone	200g/l (SOL)	paraquat

6. Application details

Treatment date : 28/10/1991
Time : 7.15am - 9.00am
Applicator : CP3 knapsack
Nozzle : APM (green)
Pressure : 150 kpa
Output : 37,65 ml/sec
Output : 26,89 ml/m
Method : Full cover

7. Weather conditions

Treatment date : 28/10/1991
General : Clear and warm
Dew : Very slight
Soil surface : Very slightly damp to dry
Wind : Nil
Sunshine hours : 4,8
Temperature (°C)
- 08h00 : 24,4
- 14h00 : 25,5

Relative humidity (%)
- 08h00 : 79
- 14h00 : 81

Rainfall (mm)
- On day of spray : 3
- No days to first rain : 1
- At first rain : 0,2
- In first 14 days : 11
- Total for duration of trial : 270

8. Results

Table 1: Treatment effects (percentage kill) on maturing Cyperus rotundus when sprayed in spring

Treatment		Rate (l or kg product/ha)	Days after spraying		
			11	23	38
T1	MSMA (repeated)	4 + 4	14	75	68
T2	Duplosan DP	2	2	0	0
T3	Duplosan DP	4	3	2	0
T4	Atrazine + diesel	3 + 1	0	0	0
T5	Fortrol + ammonium nitrate	1,5 + 1%(sol)	5	3	0
T6	Classic + Armoblen 650	0,6 + 0,15%	4	8	25
T7	Roundup	6	22	50	78
T8	Roundup + Armoblen 650	6 + 0,3	18	45	89
T9	Gramoxone + MCPA	3 + 4	45	58	63
T10	Gramoxone	3	35	22	32
T11	MCPA	10	6	23	13

9. Comments

There was no late assessment done for C. rotundus control due to excessive growth of other species in the plots.

MSMA

Moderate control was recorded at 23 days after the initial spraying, but efficacy declined thereafter.

Duplosan DP

No control was recorded on this weed species at the recommended or twice the recommended rate of this product.

Atrazine + diesel

This mixture had no effect on C. rotundus whatsoever.

Fortrol + ammonium nitrate

Minimal control of this species was recorded with this mixture.

Classic + Armoblen 650

Efficacy improved with time but was still very poor 5 weeks after spraying.

Roundup and Roundup + Armoblen 650

This was the only product of those tested to provide acceptable control of this species. Efficacy improved with time and is likely to have continued had ratings been repeated for longer. It appeared that the addition of Armoblen 650 to this product improved the control of C. rotundus slightly.

Gramoxone, MCPA and Gramoxone + MCPA

High rates of Gramoxone and MCPA failed to control this weed species when applied on their own. Efficacy was improved when the two products were used in combination but control was still unacceptable at 5 weeks after spraying.

10. Conclusions

It is unlikely that weed control efficacy from the MSMA, Classic + Armoblen 650 or Gramoxone + MCPA treatments would have further improved had the assessments been continued for longer. 6l/ha of Roundup resulted in the greatest control which seemed to be further enhanced with the addition of 300ml/ha of Armoblen 650.