A1v

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS: ASSOCIATION

Code : HW261/84
Cat. No. : 1488

Title : Cane killing in pots

1. Particulars of the project

This crop : 1st Ratoon
Site : Mt. Edgecombe
Region : N. Coast Coastal
Soil system : Berea
Soil form/series : Hutton/Clansthal and Shorrocks
Design : Randomised blocks
Variety : NCo376
Fertilizer/Ameliorants : N - P - K - -

Application details

Date : 1.5.84
Applicator : Gas operated knapsack
Nozzle : VLV 200/VLV 50
Pressure : 2.5 bars
Output : 293/80 ℓ/ha

Soil analysis : Date : 11.12.84

pH	O.M.%	Clay %	Siet %	Sand %	
5.0	0.6	4	3	93	sand
7.65	1.6	32	14	54	clay

ppm

P	K	Ca	Mg	Na	Al	
10	28	70	13		4	sand
55	103	>1800	>220	102		clay

Dates : 1.5.84 - 15.8.84

Irrigation : Drip irrigation

Weather conditions :

Day of spray :

Rainfall (mm) : 0
Sunshine hours : 8.6
Temperature °C 8 am : 17,3
2 pm : 25,2
Rel. humidity % 8 am : 93
2 pm : 69

2. Objectives

To assess the effectiveness of chemicals and additives to Roundup for cane killing.

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3. Treatments.

	Chemicals	Rate (ℓ prod/ha)	Volume	Efficiency %
1.	Roundup	4	293	108
2.	Roundup	6	293	105
3.	Roundup	8	293	109
4.	Roundup	10	293	106
5.	Roundup	4	80	122
6.	Roundup	6	80	119
7.	Roundup + Frigate	4 + 0,5%	80	111
8.	Roundup + Frigate	4 + 0,5%	293	93
9.	Roundup + Frigate	6 + 0,5%	293	99
10.	Sunset A+B+C		80	Very poor application
11.	Sunset A+B+C		293	low
12.	Sunset A+B+C + Roundup	6	293	171
13.	Roundup	6	293	88
14.	Roundup + Frigate	6 + 0,5%	293	102
15.	Roundup + Frigate	6 + 0,5%	293	102
16.	Fusilade	3	293	90
17.	Fusilade	6	293	90
18.	Unsprayed control			

NB. T15 was sprayed 2 hours after treatment with water at the rate of 7000 ℓ/ha which is approximately equivalent to 0,7 mm of rainfall.

T13 and T14 were sprayed 3,5 hours after treatment with water at a rate of 17000ℓ/ha (≙ 1,7 mm of rainfall).

4. Experimental

NCo376 plant cane which had been growing in pots and had been used for a phytotoxicity experiment was allowed to regrow after harvesting. Growth was fairly uniform at spraying and each treatment was applied to six pots each of sand and clay.

Ratings of visual kill were taken at intervals after spraying, and after 5 weeks the whole trial was cut back to allow subsequent assessment of regrowth.

The cane was irrigated by the drip system until it was cut back after which rainfall only provided the moisture. Precipitation during these months was May 65 mm, June 32,6, July 107,1 August 12,3.

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5. Results

Treatment				
Chemical	Rate (prod/ha)	Volume (ℓ/ha)	% kill 35 days after spray	Number of pots with regrowth 70 days after cut back
1. R/up	4	293	97	1
2. R/up	6	293	100	0
3. R/up	8	293	100	0
4. R/up	10	293	100	0
5. R/up	4	80	96	1
6. R/up	6	80	98	0
7. R/up + Frigate	4 + 0,5%	80	96	0
8. R/up + Frigate	4 + 0,5%	293	96	0
9. R/up + Frigate	6 + 0,5%	293	97	0
10. Sunset A+B+C		80	5	12
11. Sunset A+B+C		293	5	12
12. Sunset A+B+C + R/up	6	203	96	1
13. R/up	6	203	95	4 *1
14. R/up + Frigate	6 + 0,5%	293	94	2 *1
15. R/up + Frigate	6 + 0,5%	203	95	0 *2
16. Fusilade	3	293	93	2
17. Fusilade	6	293	97	0
18. Unsprayed			0	12

*1 Pots oversprayed with 1,7 mm of water 3,5 hours after spraying
*2 Pots oversprayed with 0,7 mm of water 2 hours after spraying

6. Comments

1. An excellent visual kill was achieved from all rates of Roundup with only very slightly less effect from 4 and 6 ℓ/ha rates. Differences in regrowth were even less obvious.

2. Additions of Frigate gave a very slight benefit in terms of regrowth at 4 and 6 ℓ/ha rates of Roundup

3. There was no advantage to the use of lower volumes.

4. Sunset mixtures were ineffective on their own. Noticeable reaction occurred during mixing and this may have been responsible.

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5. Fusilade at 3 ℓ/ha was slightly inferior to all rates of Roundup in terms of visual kill and regrowth. At 6 ℓ/ha however, no regrowth was apparent.

6. Simulated rainfall after spraying adversely affected the cane kill when 1,7 mm of rain was applied 3,5 hours after treatment. However, 0,7 mm of rain applied 2 hours after treatment showed no detrimental effect.

7. The addition of Frigate improved the kill slightly when rain was applied after treatment but did not totally eliminate the effects of rain.

Conclusions

1. Under the conditions of this trial (early winter spray) an excellent kill was achieved from all rates of Roundup and consequently differences between volume rates and additives were very slight.

2. This tends to confirm previous results which suggest that conditions in terms of cane growth and weather appear to be more important than rates and additions for cane killing with Roundup.

3. Rain after application is likely to decrease the effects of Roundup but his will depend on the rain-free period and the quantity of rain.

PETT/lb
24th April 1986