

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code: HW 265

Cat.No.: 1405

Title: Cane killing.

1. Particulars of the project:

This crop: 1st ratoon
Site: Shakaskraal
Region: N. Coast Coastal
Soil system: Umzinto/Coast lowlands
Soil form/series: Longlands/Waldene
Design: Randomised blocks
Variety: NCo 376
Fertilizer: N P K
 Top-dressing 82 - 82

Soil analysis: Date: 15.6.81

pH	CEC	OM%	Clay%	Silt%	Sand%		
					Fine	Med	Coarse
5,9	8,1	1,65	13	11	60	13	3

Rainfall	mm	% of LTM
July 1983	67	239
Aug.	58	117
Sept	7	8
Oct	99	108
Nov	194	190
Dec	142	146

2. Objectives:

1. To test low volume applications with conventional floodjets for cane killing with Roundup.
2. To re-test Frigate and Rev 9 as additives to improve the kill achieved with low rates of Roundup.

3. Treatments:

Chemicals	Rate ℓ/ha and % by vol.	Output ℓ/ha	Nozzle	% Efficiency
1. Roundup	10	300	TK5	92
2. Roundup	8	300	TK5	97
3. Roundup	6	300	TK5	95
4. Roundup + Frigate	6 + 0,5%	300	TK5	96
5. Roundup + Rev 9	6 + 20	300	TK5	94
6. Roundup	<6	108	VLV200	89
7. Roundup	6	54	VLV100	102
8. Roundup	>6	26	VLV50	121
9. Roundup + Frigate	6 + 0,5%	54	VLV100	107
10. Roundup + Frigate	6 + 1%	54	VLV100	103
11. Roundup + Rev 9	6 + 2	54	VLV100	100

4. Experimental

A plant cane crop harvested in June (2nd) 1983 was allowed to ratoon and was top-dressed on 26 August. This was then sprayed on 19th September when the cane had reached 5-7 leaves unfurled per shoot and was about 45 cm in leaf height and 14 cm in stalk height. The cane had not reached a stage of maximum tillering. (Shoot populations were 142000/ha at spraying and three months later populations in adjacent cane fields cut at the same time were 285000/ha).

Treatments were applied by means of a lever-operated knapsack sprayer fitted with the nozzles indicated under treatments. These were all brass floodjet nozzles, the VLV type (very low volume) being produced by ICI and Delavan.

Filters were used with the VLV 200 and VLV 100 nozzles but some blockages occurred with Rev 9 in the VLV 100.

Weather conditions at spraying and subsequently are indicated below:

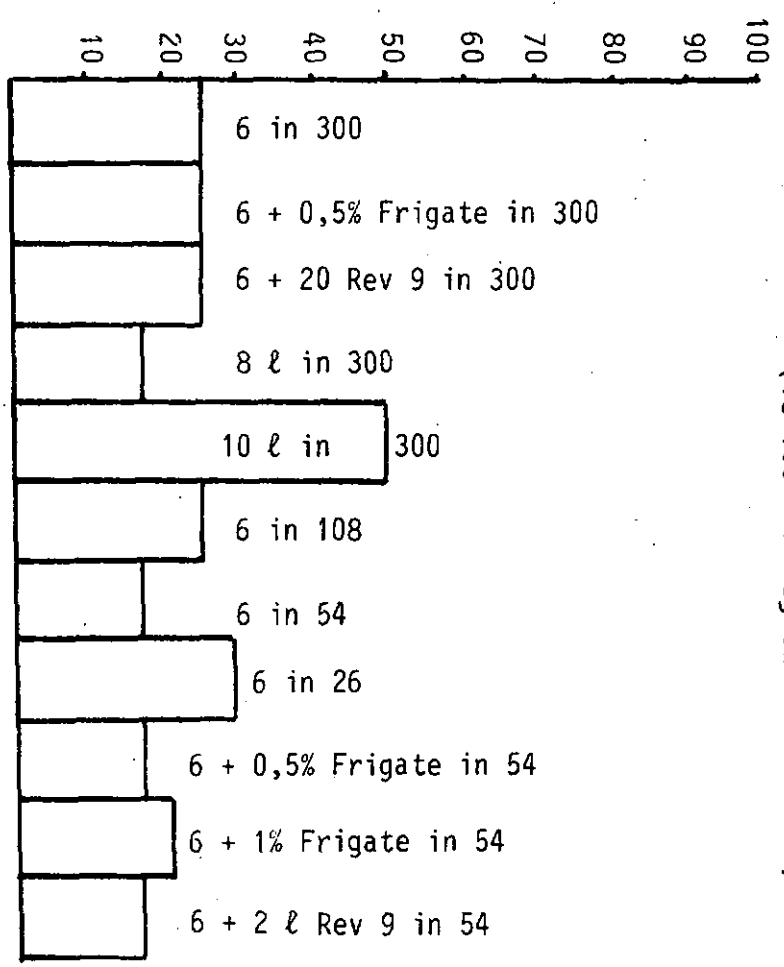
Date : 21.9.83
 General : Clear, warm, calm
 Temperature °C 8 am : 20,5
 2 pm : 23,7
 Rel. humidity % 8 am : 77
 2 pm : 61
 Sunshine hours : 8,9
 Rainfall (mm) : 0
 Days to first rain : 2 (amount = 1,6 mm)

5. Results

Treatments	Chemical rates ℓ/ha(prod)	Volume ℓ/ha	% Kill			% Regrowth (Rating)		Hoe units 10 Jan	
			5 Oct	26 Oct	21 Nov	21 Nov	5 Jan	No.	% Regrowth
Roundup	10	300	26	81	96	4,5	21	12	50
Roundup	8	300	16	73	92	3,8	44	20	83
Roundup	6	300	16	68	89	2	39	18	75
Roundup + Frigate	6 + 0,5 %	300	18	73	93	2,5	43	18	75
Roundup + Rev 9	6 + 20 ℓ	300	15	68	90	4	38	18	75
Roundup	6	108	19	73	90	3,8	43	18	75
Roundup	6	54	18	70	89	4,8	43	20	83
Roundup	6	26	23	74	90	3,5	36	17	71
Roundup + Frigate	6 + 0,5 %	54	21	69	90	3,8	38	20	83
Roundup + Frigate	6 + 1 %	54	19	70	90	3,3	31	19	79
Roundup + Rev 9	6 + 2	54	18	65	87	3,8	55	20	83

NB Hoe units : 1 hoe unit is rated if any green (alive) cane material occurs in any one of the twenty four 25 cm lengths of cane row sampled.

% Kill based on hoe unit count 111 days after spray
(ie 100 - % regrowth hoe units)



Comments

Degree of visual kill was similar for most treatments. 10 ℓ/ha was however better than all others and the addition of Frigate in 300 ℓ/ha of water gave a very slight improvement, which made the treatments equal to 8 ℓ/ha alone. All treatments appeared acceptable 8 weeks after spraying.

Ratings of percent regrowth and hoe unit counts taken sixteen weeks after spraying show that a completely unsatisfactory kill had been achieved by all treatments. The only differences between treatments was the obviously better kill from 10 ℓ/ha. No benefit could be attributed to either lower volume, or the addition of Frigate or Reverseal 9 in high or low volumes.

Reasons for the unexpectedly poor kill could be:-

1. The previous crop was harvested in winter (June 2nd) and had not reached maximum tillering in September when it was sprayed.
2. The crop was 1st ratoon and therefore probably had a healthy or vigorous stool/root system.
3. The crop had been top-dressed on 26th August three weeks before spraying as it was not originally scheduled to be used for a cane killing experiment.

Conclusions

1. Under sub maximum tillering conditions of crop growth low volumes and additives of Frigate or Reverseal 9 did not improve the kill achieved by Roundup.
2. 10 ℓ/ha of Roundup is distinctly better than 6 or 8 ℓ/ha under these conditions but was still not satisfactory.

PETT/SN
20 March 1984