SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Code : HW217/81
Cat. No: 1346

Title: CANE ERADICATION

1. Particulars of the project:

This crop : 3rd ratoon

Site : Shakaskraal

Region : N Coast Coastal

Soil system : Umzinto/C lowlands

Soil set/series : Longlands/Waldene

Design : Random blocks

Variety : NCo 376

Soil analysis: **Date:** 15.6.81

pH	OM%	CEC	CLAY%	SILT%	SAND %		
					Fine	Med	Coarse
5,9	1,65	8,1	13	11	60	13	3

ppm

P	K	Ca	Mg
23	34	416	98

Dates: : 2 Nov 1981 - 4 Feb 1982

2. Objectives:

To assess the differences in regrowth after spraying with three rates of Roundup and to compare this with rope wick application of Roundup.

3. Treatments:

1. Roundup 10 ℓ/ha) CP_3 knapsack +
2. Roundup 8 ℓ/ha) floodjet over
3. Roundup 6 ℓ/ha) the row
4. Roundup 6 ℓ/ha - applied with a rope wick (Weed Wiper) applicator

Notes on treatments

T1-3: Plot sizes consisted of 6 rows x 32 m with three replications. As dew was present on cane foliage at the start of spraying the replications were treated at different times with heavy, medium or no dew visible on the leaves. Rates applied varied slightly and are indicated below.

T4: No dew was present on cane foliage during rope wick application.

Treatment	Replication	Dew	Actual Rate (ℓ/ha)	Intended Rate (ℓ/ha)
1	1	Heavy	11,4	10
1	2	Medium	10,3	10
1	3	Nil	8,7	10
2	1	Heavy	7,9	8
2	2	Medium	7,2	8
2	3	Nil	6,7	8
3	1	Heavy	5,6	6
3	2	Medium	5,4	6
3	3	Nil	5,3	6
4	1	Nil	4,2	-
4	2	Nil	4,2	-
4	3	Nil	4,2	-

4. **Experimental:**

Treatments were applied on 2 November 1981 but treatment 4 was completed on 9 November. Application details and weather conditions were:

T1-T3: Applicator : CP_3 knapsack
Nozzle : TK5 Spraying System floodjet
Output : 333 ℓ/ha
Pressure : 2 bars

T4 : Applicator : Rope wick applicator (Hectaspan Weed Wiper 1 m tube length) carried by hand

Method of application:

CP_3 knapsack : Nozzle held directly over cane rows

Weed wiper : Tube held as low as possible (± 5 cm above ground) so as to contact as many cane shoots as possible

Plot 4 - 4 lines had one pass only
1 line had two passes
Plots 6 & 11 - 5 lines had one pass only
1 line had two passes

Cane growth stage: Leaf height 30-40 cm) 2 Nov 1981
5-6 leaves unfurled per shoot)
Leaf height 35-45 cm) 9 Nov 1981
6-7 leaves unfurled per shoot)

Weather conditions:

	2 Nov 1981 (T1-3, T4 rep 1)	9 Nov 1981 (T4 reps 2 & 3)
Rainfall (mm):-		
On the day of spray	0	7,8
Within 2 weeks of spray	32,3	104,3
Days to first rain	6	0
Amount of first rain	1,3	7,8
Temperature °C 8 am	22,0	18,6
2 pm	26,2	16,8
Relative humidity % 8 am	68	80
2 pm	65	91
Sunshine hours	11,7	1,8
General conditions	Clear	Overcast

5. Results:

Table 1: Ratings of sugarcane kill based on EWRC 1-9 scale where 1 = no effect and 9 = dead

Treatment	Rate ℓ/ha	Dew	Days after treatment/ratings			
			7	14	28	42
1	11,4	Heavy	4,5	6	6,5	8
1	10,3	Medium	4	5	6,5	8,5
1	8,7	Nil	5,5	7	8	8,5
Mean			4,7	6	7	8,3
2	7,9	Heavy	4,0	5,5	7	7,5
2	7,2	Medium	5	6	7,5	7,5
2	6,7	Nil	5,5	5,5	7,5	7,5
Mean			4,8	5,7	7,3	7,5
3	5,6	Heavy	3,5	5,5	6	7
3	5,4	Medium	4	5	5,5	6,5
3	5,3	Nil	4,5	6,5	6,5	7
Mean			4	5,7	6	6,8
Rep 1 4	4,2	Nil	3	4	5	5,5
2 4	4,2	Nil	-	2,5(3)*	3,5(4)	3,5(5,5)
3 4	4,2	Nil	-	3 (3)	4,5(6)	4 (3,5)
Mean	-	-	3	3	4,3	4

* Figures in brackets indicate ratings on lines with 2 passes

Table 2: Ratings of regrowth as a percent of cane prior to spraying and of vigour of new growth using a 1-5 scale where 1=very poor and 5=very good. Ratings taken 94 days after spraying

Treatments / Dew	10 ℓ/ha		8 ℓ/ha		6 ℓ/ha	
	Regrowth	Vigour	Regrowth	Vigour	Regrowth	Vigour
Heavy	44	1,6	66	1,9	71	3,9
Medium	60	1,9	51	2,7	67	3,0
Nil	18	1,5	49	2,1	49	2,5
Mean	41	1,7	55	2,2	62	3,1

Comments

Ratings show unacceptable kills from 6 or 8 ℓ/ha of Roundup at all stages of rating. 10 ℓ/ha approached an acceptable degree of kill.

A trend is apparent towards reduced efficacy when application is made to dew covered foliage although differences became progressively less marked.

Rope wick applications at no stage approached an acceptable degree of kill and there appeared to be only a slight difference between a single pass and a double pass (both directions). The rate of Roundup applied in this manner was too low to expect an adequate result. However, 7,8 mm of rain fell after application to the last two replicates (on 9 November 1981) and this is considered responsible for the generlly poorer kill achieved compared with that in the first replicate sprayed on 2 November 1981.

6. **Conclusions:**

Under the conditions of this experiment even 10 ℓ/ha of Roundup did not produce an adequate kill of NCo 376.

There was nevertheless a strong trend towards better control from higher Roundup rates particularly in regard to the vigour of regrowth.

Of more importance however, was the trend towards a better kill and less regrowth from application onto dry foliage (free from dew).

Rope wick application could not be compared reasonably with conventional applications as different rates of chemical were applied. However, it is apparent that any improvement in kill from this method was not sufficient to even compare with a 6 ℓ/ha rate applied conventionally.

PETT/HDN
4/7/83