SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

6500/2(b) : TRACE ELEMENT INVESTIGATION: ZINC

TERMINAL REPORT

CAT: 1438

Object: Preliminary investigation to evaluate responses to foliar applied zinc oxide on NCo 376 on high pH basalt soil.

Initiation: 25th October, 1982.

Termination: 25th October, 1984, after the fifth ratoon

Harvest dates and ages:

Crop	Harvest	Age
4R	26.10.83	12,1 months
5R	25.10.84	12,0 months

Location: Hippo Valley Estates, Section 18, Field 14C.

Soil type: Basalt clay.

Design: Randomised blocks, 6 replications.

Fertiliser:

	N	P_2O_5	K_2O
Amount kg/ha	180	100	60

Application:
4R: all at 8 weeks
5R: Nitrogen: applied in three equal dressings at 4, 8 and 12 weeks.
Phosphate: all applied at 4 weeks
Potash: applied in two equal dressings at 4 and 12 weeks.

Treatments: Application of zinc oxide at 5 g/l concentration.

0 : Control, no zinc oxide applied
1 : Single spraying of zinc oxide solution
2 : Two sprayings " " " "
3 : Three " " " " "

Rainfall: 4R: 335,5mm **Irrigation:** 801,0mm
5R: 487,7mm 856,0mm

Conduct:

1. 6500/2(b) was superimposed on Rep IV of 4200/9: Furrow Irrigation Trial.
2. Spraying with zinc oxide was conducted at fortnightly intervals. Treatments 1,2 and 3 were sprayed initially; followed by treatments 2 and 3 two weeks later; followed by treatment 3 four weeks after initial application. The first application was at 11 weeks.

2/RESULTS.....

RESULTS

Relevant harvest data are presented in the attached table.

a) Cane yield. No significant responses were obtained.

b) ERC % cane. There were no significant responses.

c) ERC t/ha. No trend was discernible and the differences between treatments were not significant.

CONCLUSIONS

Foliar applications of zinc oxide did not have a beneficial effect on the yield of cane grown on high pH basalt soil.

BM/Jan'85
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6500/2(b) TRACE ELEMENT INVESTIGATION: ZINC

HARVEST DATA

TREATMENTS (No. of Zinc Oxide sprays)	CANE YIELD (t/ha)			ERC % CANE			ERC YIELD (t/ha)		
	4R	5R	MEAN	4R	5R	MEAN	Z 4R	5R	MEAN
Nil	115,41	117,36	116,39	13,52	12,70	13,11	15,56	14,91	15,24
1	115,08	116,96	116,02	13,33	12,64	12,99	15,32	14,79	15,06
2	110,24	118,45	114,35	13,31	12,78	13,05	14,65	15,14	14,90
3	111,03	118,97	115,00	13,60	12,99	13,30	15,08	15,46	15,27
Significance	N.S.	N.S.	-	N.S.	N.S.	-	N.S.	N.S.	-
Trial Mean	112,94	117,93	115,44	13,44	12,78	13,11	15,15	15,07	15,11
S.E. single plot ±	8,66	9,52	-	0,21	0,28	-	1,14	1,24	-
S.E. treatment mean ±	3,54	3,89	-	0,09	0,11	-	0,46	0,51	-
C.V.%	7,67	8,07	-	1,56	2,17	-	7,50	8,23	-

6500/2(b) : TRACE ELEMENT INVESTIGATION : ZINC

Cat. 1438

Object: Preliminary investigation to evaluate responses to foliar applied zinc oxide on fourth ratoon NCo 376 in high pH basalt soil.

This crop: Fourth ratoon **Age:** 12,1 months(25.10.82 to 26.10.83)

Location: Hippo Valley Estates, Section 18, Field 14c.

Soil type: Basalt clay.

Design: Randomised blocks, 6 replications.

Variety/spacing: NCo 376, in 1,5m rows.

Fertiliser	N	P_2O_5	K_2O
Amount kg/ha	180	100	60

Application: all at 8 weeks.

Treatments: Application of zinc oxide at 5,0 g/l concentration.

0 : Control, no zinc oxide applied.
1 : Single spraying of zinc oxide solution.
2 : Two sprayings " " " "
3 : Three " " " " "

Rainfall: 335,5mm **Irrigation:** 801,0mm

Conduct:

1. 6500/2(b) was superimposed on Rep IV of 4200/9: Furrow Irrigation Trial.

2. Spraying with zinc oxide was conducted at fortnightly intervals. Treatments 1, 2 and 3 were sprayed initially, followed by treatments 2 and 3, two weeks later, followed by treatment 3 four weeks after initial application. The first application was at 11 weeks.

2/RESULTS.....

RESULTS

Relevant crop data are presented in the table below.

TREATMENTS (No. OF ZINC OXIDE SPRAYS)	CANE YIELD t/ha	ERC % Cane	TERC/ha
Nil	115,41	13,52	15,56
1	115,08	13,33	15,32
2	110,24	13,31	14,65
3	111,03	13,60	15,00
SIGNIFICANCE	N.S.	N.S.	N.S.
TRIAL MEAN	112,94	13,44	15,15
S.E. single plot ±	0,66	0,21	1,14
S.E. treatment mean ±	3,54	0,09	0,46
C.V.%	7,67	1,56	7,50

a) Cane yield: Plots that were sprayed with zince oxide gave slightly lower yields than those which were not, but, the differences were not significant. The yield depression was marginal after one zinc oxide spray (0,29%) but increased considerably after the second (4,40%) and third sprays (3,80%).

b) ERC % cane: The responses to treatments were variable and non-significant. Spraying once, and spraying twice with zinc oxide resulted in lower ERC % cane values than not spraying, while three zinc oxide sprays gave marginally higher ERC % cane.

c) TERC/ha: Plots that were treated with zinc oxide gave lower ERC yields than those that were not. However, the differences were not significant.

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