

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS ASSOCIATION

3300/49 BAYLETON DIP vs SPRAY

Catalogue No.: 1240

Object: To compare the effectiveness of Bayleton (triadimefon) for smut control when applied either as a pre-plant cold water dip or as a directed spray over the furrow after planting.

This crop: Plant . . . . . Age: 12,1 months (4.10.79 to 7.10.80)

Location: ZSA Experiment Station, Sable Block N3

Soil type: PE.1 sandy clay loam derived from gneiss

Design: Randomised blocks, split plots, 5 replications

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

Fertiliser (kg/ha):

	<u>N</u>	<u>P<sub>2</sub>O<sub>5</sub></u>	<u>K<sub>2</sub>O</u>
	140	100	60

Rainfall: 835mm                      Irrigation: 735mm

Treatments: Main plots :

1. Un-infected soil
2. Infected soil, i.e. sprayed with a smut spore suspension before planting.

Sub-plots :

- A. Control - no fungicide
- B. Bayleton dip
- C. Bayleton spray
- D. Bayleton dip plus spray

Conduct:

1. For the Bayleton dip, a 25% E.C. formulation was used at 0,05% a.i. (500 ppm) in cold water with setts dipped for one minute.
2. For the spray treatment, the same formulation was used at a rate of 500ml a.i. per ha in 225 litres of water, sprayed over the planted setts.
3. The smut spray concentration was based on one fresh whip per litre of water.
4. Nett plot size was four rows each of 6m, separated by a single row of N 52/219 to act as a smut-free barrier between plots.
5. Whips were counted and regued fortnightly from 2 months of age until lodging at 6 months prevented further access to the plots.

2./ RESULTS .....

Relevant data from the plant crop are presented in the attached table.

(a) Smut incidence. Cumulative whip counts in the different treatments were as follows :

Treatment	SMUT WHIPS PER HA		
	Uninfected soil	Infected soil	Means
Control - no fungicide	333	1 444	889
Bayleton dip	56	0	28
Bayleton spray	278	1 389	834
Bayleton dip plus spray	278	111	195
Means	236	736	486

Spraying the open furrow with a smut spore suspension before planting caused a smaller increase in smut incidence than was expected, probably because of reduced viability of spores after wetting.

Results showed that the Bayleton dip was effective in reducing smut incidence, but that spraying Bayleton over the planted setts was ineffective.

(b) Yield and quality effects. There were no significant differences between treatments in terms of cane yields, ERC% cane, or TERC/ha. This was not surprising in view of the relatively small differences in smut incidence levels.

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KEC/Nov '80.

rw.

3300/49 BAYLETON DIP vs SPRAY -PLANT CROP DATA

Treatment	Cane t/ha	ERC % Cane	TERC per ha
Control - no fungicide	137,59	12,94	17,83
Bayleton dip	141,56	13,31	18,84
Bayleton spray	139,37	13,65	19,03
Bayleton dip + spray	131,41	13,56	17,79
Significance	N11	N11	N11
Un-treated soil	139,75	12,94	18,11
Infected soil	135,21	13,80	18,63
Significance	N11	N11	N11
Interactions	N11	N11	N11
Trial mean	137,48	13,36	18,37
S.E. mean $\pm$	4,37	0,33	0,80
C.V. %	8,98	6,94	12,37

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Title: BAYLETON DIP vs SPRAY 3300/49

TERMINAL REPORT

Cat: 1240

Object : To compare the effectiveness of Bayleton (triadimefon) for smut control when applied either as a pre-plant cold-water dip, or as a directed spray over the furrow after planting.

Planted : 4th October, 1979.

Terminated : 1st October 1981, after the first ratoon crop.

<u>Harvest dates and ages :</u>	<u>Harvest</u>	<u>Age</u>
P	7.10.80	12,1 months
1R	1.10.81	11,8 "

Location : ZSA Experiment Station, Sable Block N3.

Soil type : PE.1 sandy clay loam derived from gneiss.

Design : Randomised blocks, split plots, 5 replications.

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

<u>Fertiliser (kg/ha) :</u>	<u>N</u>	<u>P<sub>2</sub>O<sub>5</sub></u>	<u>K<sub>2</sub>O</u>
P	140	100	60
1R	180	100	60

<u>Irrigation &amp; rainfall :</u>	<u>Irrig. (mm)</u>	<u>Rain (mm)</u>
P	735	835
1R	675	846

Treatments : Main plots :

1. Uninfected soil
2. Infected soil, i.e. sprayed with a smut spore suspension before planting.

Sub-plots :

- A. Control - no fungicide
- B. Bayleton dip
- C. Bayleton spray
- D. Bayleton dip plus spray

Conduct :

1. For the Bayleton dip, a 25% E.C. formulation was used at 0,05% a.i. (500 ppm) in cold water with setts dipped for one minute.
2. For the spray treatment, the same formulation was used at the rate of 500 ml a.i. per ha in 225 litres of water, sprayed over the planted setts.
3. The smut spray concentration was based on one fresh whip per litre of water.
4. Nett plot size was 4 rows each of 6m, separated by a

single row of N 52/219 to act as a smut-free barrier between plots.

5. Whips were counted and rogued fortnightly from approximately 2 months of age until lodging at 6 months prevented further access to the plots.

## RESULTS

### (a) Smut incidence

Treatments	SMUT WHIPS PER HA		
	Uninfected soil	Infected soil	Means
<u>Plant crop</u>			
A. Control - no fungicide	333	1 444	889
B. Bayleton dip	56	0	28
C. Bayleton spray	278	1 389	834
D. Bayleton dip + spray	278	111	195
Means	236	736	486
<u>First Ratoon</u>			
A. Control - no fungicide	11 445	25 280	18 363
B. Bayleton dip	7 167	4 778	5 973
C. Bayleton spray	9 001	10 779	9 890
D. Bayleton dip + spray	3 723	5 389	4 556
Means	7 834	11 557	9 695

Spraying the open furrow with a smut spore suspension before planting caused a smaller increase in smut incidence than was expected. In the ratoon crop the increase was most pronounced in the untreated control.

Plant crop results indicated that the Bayleton dip was effective in reducing smut incidence but that spraying Bayleton over the planted setts was ineffective. First ratoon records, however, showed that the Bayleton spray had reduced smut incidence, but not as effectively as the Bayleton dip.

(b) Yield and quality effects. Relevant yield data from the plant and first ratoon harvests are shown in the attached table.

There were no significant differences between treatments in terms of cane yields, ERC% cane, or TERC/ha, in either the plant or the first ratoon crops. This was not surprising in the plant crop in view of the relatively small differences in smut incidence levels, but in the ratoon crop whip counts ranging from 5 000/ha to 25 000/ha did not induce yield differences.

CONCLUSIONS

Bayleton successfully reduced smut infection levels, and it was most effective when used as a cold-water sett dip. Spraying Bayleton over the planted setts was helpful, but was less effective than the sett dip.

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KEC/Nov. '81.

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HARVEST DATA - PLANT AND FIRST RATOON CROPS

Treatments	CANE YIELD t/ha.			ERC % CANE			TERC/ha			STALKS/ha x 10 <sup>-3</sup>	
	P	1R	Mean	P	1R	Mean	P	1R	Mean	P	1R
Control - no fungicide	137,59	125,73	131,66	12,94	12,45	12,70	17,83	15,66	16,75	133,5	133,2
Bayleton dip	141,56	132,03	136,80	13,31	11,97	12,64	18,84	15,80	17,32	132,3	140,7
Bayleton spray	139,37	128,83	134,10	13,65	11,93	12,79	19,03	15,42	17,23	133,6	139,5
Bayleton dip + spray	131,41	124,56	127,99	13,56	12,36	12,96	17,79	15,39	16,59	125,7	131,3
Significance	N.S.	N.S.	-	N.S.	N.S.	-	N.S.	N.S.	-	-	-
Uninfected soil	139,75	128,72	134,24	12,94	12,16	12,55	18,11	15,66	16,89	130,5	138,9
Infected soil	135,21	126,86	131,04	13,80	12,20	13,00	18,63	15,47	17,05	131,9	133,5
Significance	N.S.	N.S.	-	N.S.	N.S.	-	N.S.	N.S.	-	-	-
Interactions	N.S.	N.S.	-	N.S.	N.S.	-	N.S.	N.S.	-	-	-
Trial mean	137,48	127,79	132,64	13,36	12,18	12,77	18,37	15,56	16,97	131,2	136,2
S.E. mean $\pm$	4,37	2,67	-	0,33	0,05	-	0,80	0,37	-	-	-
C.V.%	8,98	9,36	-	6,94	1,95	-	12,37	10,75	-	-	-