

SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

3010/1 PRE-PLANT FUNGICIDE TRIAL

TERMINAL REPORT

Cat. No.: 1468
Object: A preliminary investigation to determine the efficacy of a number of fungicides as pre-plant treatments against smut in sugarcane.

Planted: 21st October, 1983.
Terminated: 22nd October, 1984.
Harvest date: 22nd October, 1984. Age: 12,0 months (21.10.83 to 22.10.84)
Location: ZSA Experiment Station, N3.
Soil type: PE.1 sandy clay loam derived from gneiss.
Design: Randomised blocks, five replications.
Spacing/variety: 1,5m between rows, NCo 376.

<u>Fertiliser</u> (kg/ha)	N	P ₂ O ₅	K ₂ O
	120	100	60

Irrigation & rainfall: Irrigation: 1 191,0mm Rainfall: 464,1mm

Treatments: Eight different fungicides at 2 rates (A & B) used as pre-plant seedcane treatments with ordinary water as control.

No.	Trade Name	Chemical Name	Formulation*	Rates ml(g)/lit of product	
				A**	B
1	Aretan	Organo-mercury(Hg)	6% W.P.	2,5	5,0
2	Bayleton	Triadimefon	250 EC.	1,0	2,0
3	Baytan (Bayfidan)	Triadimenol	250 EC.	1,0	2,0
4	Daconil	Chlorothalonil	75% WP.	0,5	1,0
5	Panactine 35	Guazatine	35% AS.	0,5	1,0
6	Panactine plus	Guazatine & Imazalil	32% AS.	0,5	1,0
7	Panactine super	Guazatine & Fenfuran	40% AS.	0,5	1,0
8	Tilt	Halacrinat	250 EC.	1,0	2,0
0	Water (no fungicide)	-	-	-	-

*AS = Aqueous Solution, EC = Emulsifiable Concentrate,
 WP = Wettable powder. ** Suggested rates

Conduct: Seedcane was prepared as 3-budded setts and dipped for 5 minutes in each treatment before planting in the field. Monthly records were taken of tiller counts and number of rogued smut whips per plot, and quality analysis at harvest.

RESULTS

Relevant data on tiller counts, yield and smut whip production are shown in the attached table.

a) Bud germination and tiller count. The initial recording of germinated buds at 15 weeks after planting showed that highly significant differences existed among treatments.

Two of the fungicides, viz. Panocrine 35 and Aretan, adversely affected bud sprouting, but Bayleton tended to promote bud growth at early stages.

This effect was diminished during the profuse tillering stage and tiller counts did not differ significantly at 18 weeks after planting, indicating that the fungicides did not have a great influence on tiller production. However, the initial germination effect was persistent in some treatments, and consequently plots with lower bud germination continued to produce marginally less tillers at later stages.

b) Yield and quality. Eight tested fungicides showed no significant differences on evaluated yield components. However treated plots produced marginally greater cane yields than the controls.

c) Smut incidence. There were highly significant differences between treatments in respect of smut whip production. The highest number of 6 800 whips/ha was produced by the control plots. In contrast plots receiving both concentrations of Tilt produced no whips at all during the same period.

Both concentrations of Tilt and Bayleton followed by Baytan (Bayfidan) were found to be significantly superior to the other 5 fungicides tested in this trial.

CONCLUSIONS

Sugarcane smut in NCo 376 can be best controlled by pre-plant fungicide treatments of setts using Tilt at 0,5ml 250 EC/l of water, Bayleton, at 1,0ml 250 EC/l of water and Bayfidan at 2,0ml 250 EC/l of water for 5 minutes.

It is desirable to determine the efficacy of lower concentration of the above fungicides on control of smut in NCo 376.

The trial was terminated after the plant crop results.

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YIELD AND DISEASE RECORDS

Fungicide	Rate	Bud germination per plot (+5 weeks)	Max. tiller count/plot (+ 18 weeks)	Cane yield t/ha	ERC % cane	Stalks per ha x 10 ³	Whips* per ha
TILT	1,0ml/l	197	1 228	148,6	11,61	132,6	0
	2,0ml/l	183	1 236	150,7	11,93	136,7	0
BAYLETON	1,0ml/l	210	1 245	140,4	12,47	133,0	0
	2,0ml/l	200	1 267	137,8	11,14	133,4	33
BAYTAN (Bayfidan)	1,0ml/l	152	1 151	150,9	10,85	141,6	367
	2,0ml/l	174	1 176	145,4	11,15	133,4	0
ARETAN	2,5g/l	163	1 189	137,2	11,34	135,1	367
	5,0g/l	151	1 156	139,8	12,12	133,7	1 133
PANOCTINE SUPER	0,5ml/l	189	1 214	159,1	11,58	150,5	933
	1,0ml/l	197	1 231	148,6	11,90	145,1	1 333
DACONIL	0,5g/l	173	1 264	143,4	11,22	136,6	1 800
	1,0g/l	208	1 302	149,5	11,48	148,1	967
PANOCTINE 35	0,5ml/l	183	1 261	142,6	10,98	139,9	1 533
	1,0ml/l	143	1 200	148,3	11,21	148,1	2 500
PANOCTINE PIJS	0,5ml/l	191	1 300	141,1	11,52	145,2	2 800
	1,0ml/l	205	1 264	146,3	11,43	143,0	1 467
No fungicide		187	1 249	135,3	11,22	133,0	6 800
Significance		**	N.S.	N.S.	N.S.	N.S.	**
L.S.D. P=0,010		39	-	-	-	-	293
P=0,001		51	-	-	-	-	381
Trial mean		183	1 230	144,5	11,46	139,0	1 296
S.E. (plot) †		23,3	78,1	13,5	0,95	12,6	174,6
S.E. (treatment) †		10,4	34,9	6,0	0,43	5,6	78,1
C.V.%		12,7	6,3	9,3	3,73	4,0	14,92

* Data are transformed to $\sqrt{X + 1}$ before analysis