

SOUTH AFRICAN SUGAR INDUSTRY AGRONOMISTS' ASSOCIATION

2010/5 OPEN QUARANTINE DISEASE EVALUATION

Catalogue: 1167

Object: Bulking of 25 Hawaiian introductions in open quarantine, followed closed quarantine restrictions at the Plant Protection Research Institute in Salisbury, coupled with preliminary smut susceptibility evaluation and recording of the incidence of other diseases.

This crop: Plant Age: 10 months (21:9:79 to 22:7:80)

Location: Chiredzi Research Station, open quarantine nursery.

Soil type: P3.1 sandy clay loam derived from gneiss.

Design: Single un-replicated rows of 12m, with all new introductions planted adjacent to infection rows of NCo 376, the seedcane of which was dipped in a smut spore suspension before planting.

RESULTS

Relevant disease records are shown in the attached table.

- (a) Smut incidence. There was relatively little smut development during the summer months, but the crop lodged badly at about 7 months of age and most of the smut whips were recorded thereafter on side-shoots and secondary growth.

The only two varieties to remain free of the disease were H 69-277 and H 71-2489.

- (b) Leaf scald. No symptoms were recorded on any of the varieties during the early growth stages up until March, but the disease developed late in a few varieties. At the time of cut-back in July there were 5 varieties infected, of which only H 63-6192 and H 72-6099 appeared to be highly susceptible.
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KEC/aug. '80.
rw.

2010/5 OPEN QUARANTINE NURSERY

DISEASE RECORDS

VARIETY	SMUT		LEAF SCALD	
	Whips/ha	Rating	Inf. Stalks/ha	% stool Inf.
H 59-5862	556	4	0	0
H 62-1613	71 111	9	0	0
H 63-6192	556	4	5 556	15
H 64-5376	7 773	7	0	0
H 66-2689	18 889	8	0	0
H 66-4421	35 000	9	1 111	4
H 66-4927	3 333	6	0	0
H 67-6724	35 556	9	0	0
H 68-1158	14 444	7	0	0
H 68-2235	1 667	5	0	0
H 68-2775	39 444	9	0	0
H 69-277	0	0	0	0
H 69-3877	14 444	7	0	0
H 69-3971	556	4	0	0
H 69-9092	14 444	7	1 111	4
H 69-9103	60 556	9	0	0
H 70-144	4 444	6	0	0
H 70-2329	556	4	0	0
H 71-1476	2 222	5	0	0
H 71-2489	0	0	0	0
H 71-4992	14 444	7	0	0
H 71-5277	13 333	8	0	0
H 72-1522	13 333	7	0	0
H 72-6089	556	4	3 333	13
H 72-6095	12 222	7	556	2
NCo 376	7 222	7	0	0
Means	15 064	-	449	1,5

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

2010/5 OPEN QUARANTINE DISEASE EVALUATION

TERMINAL REPORT

Catalogue No.: 1167

Object: Bulking of 25 Hawaiian introductions in open quarantine, following closed quarantine restrictions at the Plant Protection Research Institute in Salisbury, coupled with preliminary smut susceptibility evaluation and recording of the incidence of other diseases.

Planted: 21.9.79.

Terminated: 26.3.81.

<u>Harvest dates & ages:</u>	<u>Harvest</u>	<u>Age</u>
P.	22.7.80	10 months
1R.	19.6.81	9,9 months

Location: Chiredzi Research Station, open quarantine nursery

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

Design: Single un-replicated rows of 12m with all new introductions planted next to infection rows of NCo 376, the seedcane of which was dipped in a smut spore suspension before planting.

CONDUCT: Records were confined to disease observations only, and no yield data or growth measurements were recorded. After the plant crop harvest, seedcane was used to establish Smut Susceptibility Trial 3300/51

RESULTS: Relevant disease records are presented in the attached table.

(a) Smut incidence. Smut incidence was considerably higher in the first ratoon than in the plant crop, with ratings of 7 or more being recorded on 14 of the 25 entries. The only 2 varieties to remain free of smut in the plant crop were both infected in the first ratoon, but unaccountably there were 2 others with smut in the plant crop but not in the ratoon.

(b) Leaf scald. Although only 5 varieties showed symptoms of leaf scald disease in the plant crop, there were 19 infected during the first ratoon.

The highest percentages of stool infection appeared in H 62-1613, and only 6 varieties (H 66-2689, H 69-277, H 69-3877, H 69-3971, H 70-144, H 70-2329) escaped the disease in the first ratoon crop.

2./ (c)

2010/5

(c) Rust. The incidence of rust disease was recorded on 4 varieties, all of which may be considered highly susceptible. These varieties were; H 67-6724, H 69-3877, H 71-1476 and H 72-6095.

PSM/June '81.
rw.

2010/5 OPEN QUARANTINE DISEASE EVALUATION

DISEASE RECORDS : PLANT AND FIRST RATOON CROPS

VARIETIES	Smut whips per ha.		Smut rating		Leaf scald % stool infection	
	P	1R	P	1R	P	1R
H 59-5862	556	0	4	0	0	4
H 62-1613	71 111	19 444	9	8	0	27
H 63-6192	556	1 111	4	5	15	2
H 64-5376	7 778	0	7	0	0	2
H 66-2689	18 889	136 665	8	9	0	0
H 66-4421	35 000	20 000	9	8	4	10
H 66-4927	3 333	556	6	4	0	2
H 67-6724	35 556	98 332	9	9	0	8
H 68-1158	14 444	6 667	7	7	0	6
H 68-2235	1 667	1 111	5	5	0	2
H 68-2775	39 444	17 778	9	8	0	4
H 69-277	0	38 889	0	9	0	0
H 69-3877	14 444	25 000	7	8	0	0
H 69-3971	556	556	4	4	0	0
H 69-9092	14 444	3 889	7	6	4	15
H 69-9103	60 556	46 111	9	9	0	17
H 70-144	4 444	22 778	6	8	0	0
H 70-2329	556	5 000	4	6	0	0
H 71-1476	2 222	2 222	6	6	0	8
H 71-2489	0	3 889	0	6	0	6
H 71-4992	14 444	8 889	7	7	0	2
H 71-5277	18 333	60 555	8	9	0	6
H 72-1522	13 333	27 778	7	8	0	4
H 72-6089	556	3 333	4	6	13	15
H 72-6095	12 222	84 999	7	9	2	15
NCo 376	7 222	30 555	7	9	0	0
Means	15 064	25 619	-	-	1,5	6,0

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