SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

Code: HW228/81
Cat No: 1301

Title: C. rotundus competition trial

1. Particulars of the project:

This crop	: Plant cane			
Site	: SASA Expt. Station Tray site			
Region	: N. Coast Coastal			
Soil system	: Hutton/Clansthal & Shorrocks			
Design	: Randomised blocks			
Variety	: NCo 376			
Fertilizer	: N	P	K	
(kg/ha) clay	124	25	124	
sand	248	50	248	

Age: 7 weeks Dates 28.10.81 - 17.12.81

Irrigation: Drip irrigation

2. Objectives:

To test whether the presence of Cyperus rotundus tubers in the soil has any adverse effect on cane growth.

3. Treatments:

1. No C. rotundus tubers.
2. 10 C. rotundus tubers per pot.
3. 20 C. rotundus tubers per pot.

4. Experimental procedure

One eyed setts of NCo 376 were dipped in Benlate fungicide at a rate of 0,75 g/ℓ and planted at 500 mm depth in trays. Fertilizer was applied in the form of 5.1.5(42) at 6 g/tray in heavy and 12 g/tray in light soil. Nematicide (aldicarb) was applied to sand pots only. Nutrient solution was applied to cane foliage after emergence.

C. rotundus tubers were placed at the same depth as cane setts and emerging leaf material of C. rotundus was cut back twice weekly to ground level.

Stalk height measurements, population count and tiller populations were recorded at intervals. Mass of foliage was recorded seven weeks after planting.

5. Results

1. Table 1 presents counts of C. rotundus plants, cane shoot counts and height measurements taken 23, 27 and 30 days after planting.

2. Table 2 presents yield results at harvest.

(See Tables 1 and 2 attached)

6. Comments:

1. Statistically significant differences in fresh mass and shoot height were produced by treatments in the sand pots; however, this reduction did not show a linear relationship with tuber numbers.

2. Tiller numbers were stimulated in clay pots by the high rate of C. rotundus tubers. Reasons for this are not known.

3. Only shoot heights were affected at an early stage and this was only to a very slight extent.

4. No interaction was evident between soil type and treatment for tiller numbers or fresh mass.

Conclusions:

1. Although not linear and only occurring to a slight extent, there was a trend towards lower cane yields in sandy soils infested with Cyperus rotundus tubers.

2. No such trend existed in clay soils and on the contrary tillering of cane shoots appeared to be stimulated by high C. rotundus tuber numbers.

PETT/PMO
24.8.82

Table 1 C. rotundus shoot counts and cane shoot heights and counts taken 23, 27 and 30 days after planting

Treatments Tuber No. per pot	C. rotundus shoot counts Days after planting						Cane shoot counts						Cane shoot height (cm)	
	sand			clay			sand			clay			sand	clay
	23	27	30	23	27	30	23	27	30	23	27	30	30	
0	0	0	0	0	0	0	7,7	7,7	7,7	7,5	7,5	7,5	9,3	6
10	25	26	21	5,2	7,3	5,6	7,8	7,8	7,6	7,3	7,4	7,3	8,0	5,7
20	39	39	41	18	19,1	19,3	7,9	7,7	7,8	7,1	6,7	7,4	8,2	5,8

Table 2 Mean yield (fresh mass g/pot) and crop characteristics at harvest

Treatment Tuber No. per pot	Shoot and tiller counts				Shoot height (cm)		Fresh mass (g)	
	Sand		Clay					
	*1 Sh. cts	*2 T. cts	Sh. cts.	T. cts	Sand	Clay	Sand	Clay
0	7,7	14,3	7,3	8,8	12,1	10,0	126,5	70,0
10	7,3	12,7	7,5	9,2	10,9**	10,0	109,8*	73,8
20	7,7	15,2	7,2	14,0**	11,1*	10,0	116,2	66,7
CV %	7,9	23	11,4	23,8	5,5	9,7	9,3	16,2
LSD (0,05)	0,7672	4,160	1,076	3,263	0,8018	1,248	14,03	14,58
LSD (0,01)	1,092	5,917	1,531	4,641	1,140	1,776	19,96	20,74

* Sh. cts. = shoot counts per pot
T. cts. = tiller counts per pot