

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code : RIP 5/83/Sw BBS Kwz

TITLE : RIPPING IN RATOON CANE ON A KWEZI SERIES SOIL1. PARTICULARS OF PROJECT

Cat. No.	: 1466	Ripping Method	: See Treatment
This crop	: 4th ratoon	Soil Condition	: Dry on the surface with 26% moisture at depth
Site	: Big Bend Sugar Co. Field B4 West	Age	: 13,6 months
Region	: Northern Irrigated (Swaziland)	Dates	: 31/5/83 - 19/7/84
Soil Set/Series	: 'K'/Kwezi	Rainfall	: 509 mm (effective)
Design	: Repeated Latin Square 8 Replications	Irrigation	: 647 mm (effective)
Variety	: NCo 376	Total	: 1156 mm
Fertilizer	: <u>N</u> <u>P</u> <u>K</u>		
Kg/ha	165 24 119		

2. OBJECTIVES

This estate deep rips each field annually after harvesting. The trial was established to determine the effect of the operation to a ratoon crop grown on a Kwezi series soil which comprise a large sector of the estate.

The site was ripped one week after harvesting the 1983 crop.

3. TREATMENTS

- * Control
- * Ripped with twin type ripper fitted with wings to increase lift. Tynes penetrated to 50 cm. There was no indication of crop damage.

Note : The entire trial site was shallow cultivated soon after ripping to comply with normal estate practice.

4. RESULTS

Table I. Treatment effects on stalk height and populations at various ages.

TREATMENT	STALK HEIGHT (cm to TVD)			POPULATION (x1000/ha)	
	(Age in months)			(Age in months)	
	6,0	9,7	11,7	6,0	9,7
Control	62	188	236	154	191
Ripped	62	187	234	156	179

Table II Yield Results

Treatment	tc/ha	Suc % Cane	ts/ha
Control	116	14,6	17,0
Ripped	115	14,7	16,9
CV %	5,8	3,8	7,7
LSD (0,05)	8,0	0,7	1,5

5. COMMENTS

- * Stalk height measurements and population counts commenced at 6 months of age with only minor differences being recorded between the two treatments.
- * Cane yields, cane quality and sucrose yields were almost identical for both treatments.
- * This trial has shown no yield response to deep ripping the inter-row of a young ratoon crop on a Kwezi series soil.
- * The trial has been ripped again and continued into the 5th ratoon as an accumulative effect of compaction may be present in the non-ripped plots.

NBL/gj
28/1/85

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SOUTH AFRICAN SUGAR INDUSTRY
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Code : RIP 5/83/Sw BBS Kwz
Cat. No.: 1466

TERMINAL REPORT

TITLE : RIPPING IN RATOON CANE ON A KWEZI SERIES SOIL

1. PARTICULARS OF PROJECT

This crop	: 5th ratoon	Ripping Method	: Twin tine ripper fitted with flanges to increase lift.
Site	: Big Bend Sugar Estate Field B4 - West	Depth	: 50 cm
Region	: Northern Irrigated Swaziland	Soil Condition	: Dry on the surface with \pm 30% moisture at depth. Slicing action through soil with very slight pruning of wider stools.
Soil set/series	: 'K'/Kwezi	Age	: 12,5 months
Design	: Repeated Latin Square 8 replications	Dates	: 19/7/84 - 2/8/85
Variety	: NCo 376	Irrigation	: 834 mm (effective)
Fertilizer	: N P K	Rainfall	: 204 mm (effective)
Air (Am Sul)	118 - -	Total	: 1038 mm
Hand (Am Sul)	32 - -		
Hand (Am Sul)	74 - -		
Kg/ha	224 - -		

2. OBJECTIVES

To determine the effects of deep ripping ratoons after every harvest as practised by this estate.

3. TREATMENT

- * Control
- * Ripped

4. RESULTS

Table I Treatment effects on stalk heights (mm to TVD) and populations (x 1000/ha) at 6 months of age.

TREATMENT	STALK HEIGHTS (mm TO TVD)	POPULATIONS (x 1000/HA)
Control	1020	131
Ripped	1010	129

Table II Yield results (4th and 5th ratoons)

TREATMENT	TONS CANE/HA		SUC % CANE		TONS SUC/HA	
	4R	5R	4R	5R	4R	5R
Control	116	99	14,6	15,5	17,0	15,4
Ripped	115	104	14,7	15,2	16,9	15,8
CV %	5,8	8,9	3,8	8,5	7,7	9,2
LSD (0,05)	8	14	0,7	2,1	1,5	2,3

5. COMMENTS

- * After ripping the same plots for two seasons, stalk growth measurements and populations have shown no differences between treatments for either ratoon.
- * Cane yields, cane quality and sucrose yields were also similar for ripped and non-ripped cane in both crops tested. The possible accumulative effect of compaction on the non-ripped plots did not influence yields as this effect may have been alleviated by the swelling properties of these soils.
- * Ripping of these soils annually after every harvest does not benefit yields in any way and should be discontinued in ratoon management.
- * The operation of ripping as shown in previous trials, causes excessive soil shatter under dry conditions and root or stool pruning which lowers yields in the current ratoon.
- * If ripping is to be used after harvesting then consideration should be given to increasing the intervals between the operations and to reduce working depths to ± 10 cms.
- * This trial has now been terminated.

NBL/gj
4.2.86