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SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

Code No.: Rip 4/82/Sw Umb
Cat. No.: 1390

TITLE: Ripping in ratoon cane on a Rondspring series soil

1. Particulars of the project

This crop	:	10th ratoon
Site	:	Umbuluzi Estate Field Q
Region	:	Northern irrigated/ Swaziland
Soil set/series	:	R/Rondspring
Design	:	Randomised blocks 8 replications
Variety	:	NCo 376
Fertilizer	:	N P K
Kg/ha		172 34 172 (900 kg 5.1.5 (42)/ha)

Ripping method: Twin tine Elgin ripper with double wheeled case Agri-king tractor

Depth: 50 - 55 cm (soil depth 50 - 100 cm)

Soil condition: Soil very compact and dry before ripping- shattered after ripping

Age: 11,2 months

Dates: 10/9/1982-17/8/1983

Rainfall: 439 mm

Irrigation: 1049 mm (effective)

Total: 1488 mm

2. Objectives:

To determine the effect of deep ripping the interrow of a 10th ratoon cut in winter and grown in a Rondspring series soil that was last ripped in 1980.

The operation was carried out three weeks after harvesting the previous crop. The site was irrigated three days prior to ripping.

3. Treatments:

- Control
- Ripped

4. Results:

Table 1 Treatment effects on stalk heights (cm to TVD)

	Age (m)			
Treatment	5,0	6,5	7,5	8,5
Control	124	217	243	263
Ripped	108	198	229	253

Table 11 Yield results

Treatment	tc/ha	Suc % cane	ts/ha
Control	111	13,6	15,2
Ripped	96	13,6	13,0
CV %	9,9	4,2	9.9
LSD (0,05)	14,1	0,8	1,9

5. Comments:

- Cane growth measurements commencing at 5 months of age and continuing until the field lodged at ± 9 months indicated that the ripping operation had caused a reduction in stalk height.
- Cane yields in the ripped plots were lower (P= 0,05) than in the control plots while cane quality was unaffected; sucrose yields were also reduced by the ripping treatment (P= 0,05)
- Ripping is not practised on every ratoon on the estate so to comply with the current policy it was decided not to rip after this harvest but to measure the residual effect in the following crop.

NBL/IS
25 October 1983

SOUTH AFRICAN SUGAR INDUSTRY

AGRONOMISTS' ASSOCIATION

CODE : RIP 4/82/Sw.UMB

TITLE : RIPPING IN RATOON CANE ON A RONDSPRING SOIL

1. PARTICULARS OF PROJECT

Cat. No.	: 1390	Ripping method	: Previous ratoon ripped with twin type Elgin ripper pulled by a Case Agri-Ring Tractor.
This crop	: 11th Ratoon		
Site	: Umbuluzi Estate Field Q	Depth	: 50-55 cm (soil depth 50-100 cm)
Region	: Northern Irrigated (Swaziland)	Soil Condition	: Soil very compact and dry before ripping - shattered after ripping.
Soil set/series	: R/Rondspring	Age	: 11,8 months
Desing	: Randomised Blocks 8 replications	Dates	: 17/8/83 - 10/8/84
Variety	: NCo 376	Rainfall	: 836 mm (effective)
Fertilizer	: N P K	Irrigation	: 916 mm (effective)
Kg/ha	186 40 174 (Split dressing)	Total	: 1752 mm

OBJECTIVES

To determine whether deep ripping the interrow of a compacted R set soils benefits yields in subsequent unripped ratoons.

TREATMENTS

- Control
- Ripped (after 1982 harvest)

RESULTS

Table I Treatment effects on stalk height (cm to TVD) and population (x 1000/ha)

TREATMENT	STALK HEIGHTS (cms) (AGE IN MONTHS) 4,8	5,6	7,3	8,6	STALK HEIGHTS (x 1000/ha) (AGE IN MONTHS) 4,8	5,6	7,3	8,6
CONTROL	-	169	203	237	177	-	168	-
RIPPED	-	166	206	239	149	-	156	-

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Table II - Yield Results

TREATMENT	tc/ha	SUCROSE % CANE	ts/ha
CONTROL	122	15,1	18,3
RIPPED	123	15,2	18,7
CV %	4,4	1,4	4,7
LSD (0.05)	6,4	0,3	1,0

5. COMMENTS

- Stalk height measurements indicated that the previously ripped plots had marginally better growth than the non-ripped plots. Populations however were still greater in the controls.
- The reductions in yield due to deep ripping the 10th ratoon had disappeared in the 11th ratoon which produced similar yields from both treatments.
- This trial will only be continued after the 12th ratoon crop if yield differences confirm estate observations that there are yield benefits from deep ripping the interrow of later ratoon crop on an R set soil.

N. LEIBBRANDT

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SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

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Code : RIP 4/82/Sw UMB Rond
Cat. No.: 1390

TERMINAL REPORT

TITLE : RIPPING IN RATOON CANE ON A RONDSPRING SERIES SOIL

1. PARTICULARS OF PROJECT

This crop	: 12th ratoon	Ripping method	: 10th ratoon ripped with twin tine Elgin ripper pulled by Case Agri-King Tractor.
Site	: Umbuluzi Estate Field Q	Depth	: 50 - 55 cm
Region	: Northern Irrigated Swaziland	Soil condition	: Soil compact and dry before ripping. Soil shattered after ripping with visible damage to cane stools by both implement and tractor.
Soil set/series	: 'R'/Rondspring		
Design	: Randomised blocks 8 replications		
Variety	: NCo 376		
Fertilizer	: N P , K	Age	: 11 months
5.1.5 (24) 1750 kg/ha	190 38 190	Dates	: 10/8/84 - 11/10/85
		Irrigation	: 731 mm (Net)
		Rainfall	: 481 mm (Net)
		Total	: 1212 mm

2. OBJECTIVES

To determine the effects of deep ripping the interrow of compacted 'R' set soils in subsequent unripped ratoons.

3. TREATMENTS

* Control
* Ripped (after 1982 harvest)

4. RESULTS

Table I Treatment effects on stalk height (mm to TVD) and populations x 1000/ha at 5,5 months of age

TREATMENT	STALK HEIGHTS (mm TO TVD)	POPULATIONS x 1000/HA
Control	1650	169
Ripped	1650	156

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Table II Yield results (10th, 11th and 12th ratoons)

	TONS CANE/HA			SUC % CANE			TONS SUC/HA		
TREATMENTS	10R	11R	12R	10R	11R	12R	10R	11R	12R
Control	111	122	121	13,6	15,1	10,8	15,2	18,3	13,0
Ripped	96*	123	124	13,6	15,2	11,1	13,0*	18,7	13,7
CV %	9,9	4,4	10,3	4,2	1,4	6,2	9,9	4,7	11,7
LSD (0,05)*	14	6,4	15	0,8	0,3	0,8	1,9	1,0	1,8

5. COMMENTS

* Stool damage during ripping of the 10th ratoon crop in 1982 was responsible for reducing populations for three successive crops. Extensive lodging prevented counts being taken after ± 6 months for the 12th ratoon.

* The loss in population by ripping caused a large yield reduction in the ripped 10th ratoon but the effects had disappeared by the 11th and 12th ratoons. These results discredit the common belief that benefits are gained by the crop a few ratoons after initial ripping as yields for both the 11th and 12th ratoons show no treatment differences.

* This trial has proven beyond doubt that large yield losses can be expected when this technique of ripping is practised and should be excluded in ratoon management.

* This trial has been terminated.

NBL/gj
4.2.1986