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SOUTH AFRICAN SUGAR INDUSTRY
AGRONOMISTS' ASSOCIATION

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Code : RIP 6/84/Sw SIM

Cat. No.: 1484

TITLE : RIPPING AND/OR CULTIVATING THE INTERROW OF RATOON CANE ON A
TAMBANKULU SERIES SOIL

1. PARTICULARS OF PROJECT

This crop	: 5th Ratoon	Ripping Method	: See treatments
Site	: Simunye Sugar Estate. Field - Flood 7	Soil Condition	: 0-200mm - 14,6% moisture
Region	: Northern Irrigated (Swaziland)		200-400mm - 17,0% moisture
Soil Set/Series	: T/Tambankulu	Age	: 11,5 months
Design	: Randomised Blocks 6 Replications	Dates	: 12/6/84 - 28/5/85
Variety	: NCo 376	Rainfall	: 921 mm (Gross)
Fertilizer (kg/ha)	: N P K S 111,5 40 - 30	Irrigation	: 1040 mm (Gross)
		Total	: 1961 mm

2. OBJECTIVES

- * Ripping on this estate is followed by a tine cultivation to reform furrows for surface irrigation and to mound up cane lines to increase mechanical harvesting performance. The exercise was conducted to assess the response in yield by ripping and cultivating, or cultivating alone on compacted 'T' set soils following mechanical harvesting in wet conditions.
- * Any yield responses would be attributed to shattering of the compacted top soil horizon and therefore improving water percolation and soil aeration.

3. TREATMENTS

- * Control
- * Ripping with twin tine ripper (one tine per interrow) down to 450 mm followed by a six tine cultivator (three tines per interrow) operating at 250 mm.
- * Cultivating alone down to 250 mm.

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Notes on Treatments

- * The tine cultivating operation worked satisfactory at 250 mm but tractor wheel slip resulted at greater depths.
- * The cultivating operation alone gave a better formed furrow as clods were brought to the surface when ripping was included.
- * A.M.F. 185 tractor was used for both operations.

4. RESULTS

Table 1 Treatment effects on stalk heights and populations at 7 and 8,5 months of age.

TREATMENT	Stalk Heights (mm to TVD)		Populations x 1000/ha	
	7,0	8,5	7,0	8,5
Control	1530	2430	174	158
Rip & Cultivation	1530	2440	160	156
Cultivation	1490	1350	164	155

Table 2 Yield Results

TREATMENT	TC/HA	SUC % CANE	TS/HA
Control	151	11,6	17,6
Rip & Cultivation	149	11,6	17,2
Cultivation	139*	12,4	17,3
CV %	6,0	7,8	7,7
LSD (0.05)*	11	1,2	1,7

5. COMMENTS

- * Stalk height measurements and population counts taken at 7 and 8,5 months of age showed a slight stunting effect on cane that received the single cultivation treatment. The implement caused root pruning and in some cases stool eradication which was reduced where the ripper preceded the cultivator.
- * The stalk height reduction in the cultivated plots was manifested in cane yields that were reduced significantly (P = 0,05) compared to the undisturbed controls. These reponses indicate the importance of correctly adjusted equipment especially when operating in older ratoons with wide cane stools. Yields from plots that were ripped and cultivated were similar to that of the controls.

- * None of the treatments had significant effects on cane quality.
- * The reduction in cane yield by cultivation was not sufficient to reduce sucrose yields significantly.
- * Tine cultivating or ripping and cultivating were equally effective in reshaping furrows and mounding soil onto cane lines on compacted 'T' set soils. Both operations however failed to increase yields by reducing detrimental effects caused by compaction.
- * This trial has been terminated.

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