

BUREAU OF SUGAR EXPERIMENT STATIONS

QUEENSLAND, AUSTRALIA

**THE EFFECT OF COULTER RIPPING
ON GCTB RATOONS AT HAWKINS CREEK**

by

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NOTE

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ABSTRACT

In some parts of north Queensland coulters ripping is a standard operation carried out in green cane trash blanketed ratoons. Very little ripping is carried out in the Herbert Valley, even though the soil in old ratoons appears to be highly compacted. These strip trials were set out to test whether ripping to alleviate this compaction was necessary. The results of this demonstration suggest that coulters ripping will not increase growth and that by stimulating weed competition it may have actually reduced cane growth.

BACKGROUND

Throughout much of north Queensland, coulters ripping of the inter-row of green cane trash blanketed (GCTB) ratoons soon after harvest is carried out as a routine operation. The aim is to alleviate any compaction and/or puddling associated with harvest operations and to speed water percolation and reduce ponding. Some trials have detected a yield improvement which could be linked to the ripping treatment while most have measured no change. In the occasional trial, yield depressions were detected (Hurney and Beattie pers comm). Cultivation of the interspace also increases the chance of rutting and bogging during wet weather harvesting.

Coulters ripping is usually carried out with a single tine in each interspace operating at a depth of 25-40 cm. A coulters in front of the tine cutting the trash allows the tine to pass with minimal disturbance of the trash blanket. Disturbance of the trash blanket must be avoided to maximise its weed control benefits.

Crop cycles in the Herbert Valley can be lengthy and under GCTB very hard soil conditions can be found in older ratoons. These observations were carried out to determine whether coulters ripping could increase yields on the heavier soils of the Hawkins Creek district of the Macknade Mill area.

METHODS

Demonstration strips were laid out in a block of ratoon Q119 located on the north side of the main road on the farm of Mr Tony Palmas. Even though the block had been bedded, very slight slope and heavy soils combined to give poorly drained conditions. A total of three beds were included in the trial. Half of each bed (between 8 and 15 rows) was ripped with the other half used as an untreated control.

Conditions were dry when the treatments were imposed on 7 November 1990 and a large amount (60 HP per tine) of power was required to pull the tine at about 25 cm depth.

RESULTS

By 1 March 1991 there were noticeable differences in growth and some simple measurements were taken. Weed growth was noticeably greater in the ripped plots. Height to the top visible dewlap was slightly greater (5% level of significance) in the control plots (98 cm) than the ripped plots (101 cm). Shoot populations were higher in the control plots (72 000/ha) than in the ripped plots (53 000/ha). Soil shear strength measurements taken at the same time under wet conditions showed that soil strength had been reduced by ripping.

No yield measurements were taken, but the growth measurements suggest that yield may have been reduced by ripping. This may have been a response to the stimulated weed growth found in the ripped plots. Further work is continuing to obtain a clearer understanding of the response to ripping.