

POSTER SUMMARY

ESTIMATING TRAFFIC INDUCED SUGARCANE LOSSES FOR VARIOUS INFIELD CANE EXTRACTION SYSTEMS

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Abstract

A range of systems are used in the South African sugarcane industry to harvest and remove the sugarcane crop from the field. Although the long term effects of infield traffic are known to have a negative impact on crop yields, quantification of this impact has been difficult to define.

Field surveys were conducted on a range of harvesting and extraction systems to determine the extent of traffic that occurred infield and the position of the traffic with respect to the crop row and inter-row areas. Information on yield losses associated with traffic position on the crop row and traffic on the crop inter-row, were collated from local and international literature. These yield loss responses to infield traffic patterns were used to estimate field based crop production losses for a range of systems typically found in the South African sugarcane industry.

The estimated yield losses ranged from approximately 1% to 9% depending on the loading system and the associated intensity and extent of traffic through the field. The results from this study provide an indication of the impact that infield traffic is having on yields and crop sustainability for different harvesting and extraction systems, and the benefits that may be available through the adoption of better infield traffic practices and systems. Further, this study provides the basis for quantifying the economic benefit of improved infield traffic practices and in certain cases may provide sufficient incentive for the adoption of better infield traffic equipment strategies and systems.

Keywords: compaction, harvesting and extraction systems, infield traffic, sugarcane, stool damage, yield losses