

Controlled Traffic Farming Systems in the Mackay Sugar Industry

Brad Hussey

INTRODUCTION

In recent years growers in the sugar industry have been making a move to controlled traffic farming. This move has been necessary as traditionally sugarcane has been grown on 1.5 m row spacing. Cane is harvested one row at a time with all harvesting equipment passing over each row. Harvesting equipment has a wheel or track spacing of 1.83 m to 1.88 m which is not matched to the row spacing.

THE NEED FOR CHANGE

This miss-match of wheel to row spacing leads to a large area of the field being compacted during the harvesting operation by heavy harvesting equipment. Due to the high summer rainfall fields are often wet when harvested leading to perfect conditions for soil compaction.

Mackay is warm and wet compared to the south with 1600 mm of rain falling mostly in the summer months. The soils used for sugarcane production vary widely from sands to clays but the most common soils are sandy duplex soil.

Sugarcane yields are also considerably higher than many other crops with district average yields in the 80 to 100 t/ha range. Individual blocks can have yields in excess of 150 t/ha. To remove these high yields from the field requires a large amount of infield traffic.

This traffic is mostly unconstrained and almost never guided with GPS guidance. This miss-match of wheel spacing and unconstrained traffic often results in 80% of the field being trafficked.

THE NEW FARMING SYSTEM

The move to a control traffic farming system has been a part of a larger change to a New Farming System. The new system is based on controlled-traffic system at 1.8 m with permanent beds. Soybeans are grown in the beds to break the sugarcane monoculture and cane is then direct drilled into the beds using dual-row double-disc-opener planters to reduce the amount of tillage required. These planters plant 2 rows of cane at 500 mm apart into the bed which is about 1 m wide.

BENEFIT OF THE NEW SYSTEM

- The sugarcane monoculture has been broken by the fallow legume
- The amount of tillage required has been significantly reduced
- The amount for fuel used has been reduced
- The compacted area has been reduced from 80% to 30%

PROGRESS TO DATE

To date over 1000 ha of sugarcane has been planted to the new farming system in the Mackay district and this area is increasing each year. To allow the new system to develop new equipment has been developed and tractors have been fitted with GPS steering systems. While all of the components of the new farming system are sound, the new system has not resulted in yield increases to date but savings have been made in time and fuel usage.

CONCLUSIONS

The area of sugarcane farmed using a controlled-traffic farming system is increasing. Cane growers are not just adopting controlled-traffic but a whole new farming system. By adopting these systems growers have been able to reduce input cost and reduce the area of the field compacted. But to date these changes have not lead to significant yield improvements