

# **A New Farming System for the Sugar Industry**

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## **INTRODUCTION**

In recent years, the Australian sugar industry has embraced a range of new technologies to aid in the management of the farm business. These technologies include yield mapping, soil mapping, EM maps, GPS auto steer on tractors and community GPS base stations.

These technologies, when combined with a move to controlled-traffic, reduced tillage and fallow legumes, form the new farming system.

## **THE NEW FARMING SYSTEM**

The move to this new farming system has been necessary as sugarcane grown on the traditional system is planted 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.

This mis-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.

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 mis-match of wheel spacing and unconstrained traffic often results in 80% of the field being trafficked.

The move to a controlled-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. Many of the machines working in the new system now have GPS guidance to limit the compacted area.

Soil and yield maps are interpreted and used to form the basis of a nutrient management plan. Yield maps are used to schedule the cane harvests.

## **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%.
- Inputs managed based on yield and soil type.

## **SUMMARY**

The use of new technology in the sugar industry is leading to reduced input costs, while maintaining yield leading to increased profitability and sustainability of the industry. The main challenge for the industry going forward is for a great proportion of growers to adopt the farming system/s. There is still work to be done to integrate all of the technologies to make the system complete.