

## CTF – the Proven Solution

*Don Yule*

*Dr Don Yule trained in agricultural science and soil physics, and was a R&D leader for the Queensland Government for many years. Don led the LWA funded project in 1993-98 that developed Controlled Traffic Farming. Don formed CTF Solutions with Stew Cannon and Tim Neale in 2002 and led a GRDC funded project on managing variability in 2002-07. This project identified the value of spatial information and the synergies between CTF and Information Rich Agriculture (IRA). Don has been an Executive Member of the Australian Controlled Traffic Farming Association since its founding in 2006, and a member of the CRC for Spatial Information since 2007.*

Julian Cribb has defined the mountain in front of us from a global perspective; it is a daunting prospect. My aim is to overview the contributions that cropping can make, as the CTF story. It is a short story, about 13 years. The first half deals with resource management issues, the second half with interactions with spatial technologies.

CTF is a farming system solution, and systems are driven by interactions. Systems performance indicators are efficiency, effectiveness, flexibility and common sense. Farming systems for cropping are driven by machinery and people – machinery does the work, people make the decisions. All farmers grow crops in soils within landscapes and CTF is developed on farms with farmers. It is a simple five point story. With those five points, CTF is the FOUNDATION for all cropping systems.

All cropping is mechanised. Controlled traffic is the solution for all mechanised cropping systems. Controlled traffic is specified wheel spacings and wheel track, and matched implements. Very many farmers grow a range of crops and standard wheel spacing across all crops would be a common sense solution.

Controlled traffic defines the spatial footprint. Implements do a perfect job every time, simply by staying on track. The footprint allows us to measure performance easily.

Controlled traffic builds soil health by managing soil compaction – compacted wheel tracks for machinery, non-compacted zones for optimum soil structure, crop establishment, and root growth.

Together, controlled traffic and no-till are efficient and effective for soil surface management, and further build soil health - improving soil structure and biology, and optimising the water balance.

The CTF solution for landscape health is designed CTF layouts to manage surface runoff and control both erosion and waterlogging. Layouts also ensure efficient farm operations, access and roads.

This has defined CTF - controlled traffic, no-till and designed layouts – a farming system solution. CTF achieves higher yields, better timeliness, lower costs and less chemicals, for all crops, for all seasons. CTF yield benefits have been 2 ½ times more and resilient across many seasons. Bowman (2008) reported large reductions in erosion, diesel use, N pollution of streams and GHG emissions; large reductions in labour requirement with benefits for labour availability, family life and community contributions; and large economic benefits from CTF adoption.

To summarise resource management, CTF is the proven FOUNDATION system for cropping. CTF and Spatial Technologies are a perfect match. I contend that spatial technologies will contribute much more to cropping productivity than all other technologies combined. Five technologies are examined. GNSS Guidance creates the spatial footprint and CTF uses it. Satellite imagery identifies that most paddock variability is caused by the farmers. Reducing variability is a new strategy for PA. For yield monitoring, CTF ensures quality data and easy processing. 2 cm RTK GNSS technology also provides topography data for designed layouts on CTF farms. CTF and automation provide auto-steer (where only CTF growers get the full benefits) and automated measurement and record keeping. The data are digital and spatial – computer ready, and ready for GIS analysis to identify causes. These support on-farm R&D and continuous improvement. Everything works better with CTF. CTF benefits the farm family and rural communities; it offers a future, and a clear path for change and progress.

In conclusion, I have shown that Controlled Traffic Farming is the proven solution for resource management, productivity, applicability to all crops, resilience to climate variability and change, use of spatial technology, and social benefits. Our frustration, and I speak for many growers too, is why then are 88% of crop growers using no CTF and why is CTF not recognised as the foundation of cropping by governments, agencies, Universities and most of our support services?