

Adopting Controlled Traffic Farming

Warwick Holding, NSW

FARM PROFILE

Name: Warwick (and Di) Holding
Location: Yerong Creek, eastern Riverina, NSW
Rainfall: Median annual 507 mm; median GSR (Apr-Oct) 334 mm
Soil types: Clay loam to clay (low pH and associated high exchangeable aluminium)
Sodic clays
Area farmed: 1260 ha
Crops: Wheat, canola, faba beans.

BACKGROUND

The important factors of our cropping system include: soils (structure and fertility); weed management; sowing time; timely and effective application of pesticides; and no livestock on cropping areas.

We have moved to a CTF system in a series of steps. Along the way we were happy with the direction and pace at which we were changing. However looking back over the past four years we can clearly see the lost potential. With hindsight, we wish we had moved to CTF in 2003, as opposed to doing it this year.

Even though we have changed to CTF this year and there have been benefits already, the first year is the setting up year. Year 2 will be more interesting and rewarding with opportunities including full stubble retention, inter-row sowing, not sowing into old tramlines.

Year 1 – 2003 – moving toward CTF

We purchased a new airseeder and started sowing up and back, on 9” row spacing, with disc marker arms. We removed a tine four in from the right hand side of the cultivator. Two sowing passes (11.3 m) established tramlines to suit 1 boom width (23 m) with 0.4 m overlap as a safety margin for manual steering.

Year 2 – 2004 – moving toward CTF

We added a guidance system, subscription 10 cm differential GPS. This enabled recording of operations and mapping different treatments (of on farm trials) and improved the accuracy of operations.

Year 3 - 2005 – moving toward CTF

We added tines to the airseeder (seed 11.75 m, spraying 24 m) giving a half metre spray overlap for manual steering prior to autosteer. The additional tines (extra width) lead to a change in the position of the tramlines.

Observations: In 2005 we saw big clods and poor germination on the old tramlines. It was obvious we needed to have permanent tracks. Once we started to concentrate our in crop traffic to dedicated tracks we started to notice two things:

1. The area between the tracks was improving – soil structure, seedbed.
2. When the position of the tracks changed and we sowed old tramlines, they were hard and compacted, and we got poor establishment.

Compaction from the airseeder cart in wet conditions also resulted in poor crop emergence (sometimes no crop at all).

Year 4 – 2006 – adopting CTF

Sowing tractor: duals left on for this year while establishing the system. Outer wheels are on 3 m, so next year we will remove inner wheels and run outer wheels only on the tracks.

Cultivator: Flexicoil, effective width 12 m. Rearranged tines from 228 mm to 308 mm spacing. We also replaced the air-kit to improve uniformity of product delivery across the width of the cultivator. The prickle chain was replaced with individual press wheels.

Airseeder cart: Simplicity, trailing quad, already on 3 m wheel centres. This was a conscious decision made when it was purchased.

Spray/spreader tractor: cotton reels used on front axle to spread wheels to 3 m spacing. Rear wheels moved out on axles to 3 m centres.

Boomspray: Goldacre (24 m). We made a new axle to spread the wheels to 3 m which simply bolted on.

Spreader: three point linkage spreader uses the permanent tracks and spreads to 24 m.

Guidance: Both the sowing and spraying tractors have been wired and hydraulics plumbed to take an A5 Autosteer RTK 2 cm system by GPS Ag. We currently have one screen and receiver which stayed in the sowing tractor as the priority. Spraying was done using manual steering on the tracks, or auto-steer when the sowing tractor was idle. Once sowing was complete the auto-steer stayed in the spray tractor.

Windrower (self propelled): a reasonably light machine. We plan to windrow up and back putting the windrows out one side, placing two rows together, side-by-side. The two windrows can then be harvested in one operation. This keeps the header on the tracks while harvesting canola and other windrowed crops, such as faba beans and lupins.

Header: the draper front is only 10.7 m (36 feet) offset. We believe the header must be on the system but are unlikely to achieve this in the current season. Instead we will harvest cereal crops at an angle to help trash flow at sowing next year (wheel tracks for and against the direction of sowing can cause problems). Other growers harvesting on the angle significantly reduce these hassles. We plan to put auto steer into the header for this season's harvest.

Chaser bin: The chaser bin can be modified to 3 m wheel spacing by simply changing to narrower tyres. A catching bin will need to be added on the side of the chaser bin to suit 12 m track spacing. The spray tractor (already on 3 m) also goes on the chaser bin.

Observations: In recent years we have progressively sown more and more of our crop by the calendar. This year all crop was sown by the calendar, well before 10 June, the first significant rain event.

This year we created very little dust when dry sowing. Small rainfall events (5-6 mm) are marginal for germination and historically sowing under these conditions produced an unacceptable cloddy seedbed. This year we kept sowing in dry and marginal conditions and produced fewer clods and a better seedbed than previously experienced under similar conditions. The only exception was where we

sowed into old tramlines. This highlighted the importance of having permanent tracks and the need for all traffic to follow the permanent tracks year after year.

BENEFITS OF CTF

I see the following benefits of adopting CTF:

- Plants grow better in well structured soils that are not compacted
- Wheels work better on hard, compacted soil
- Reduced implement draft (fuel savings)
- Reduced driver fatigue
- Reduced inputs (removed boomspray overlap, 2% reduction compared to tramline system)
- Inter-row sowing (with 2 cm autosteer) will:
 - Allow us to retain more stubble which in turn reduces soil moisture losses due to evaporation (particularly in autumn), measured by WUE records.
 - Reduce the impact of root diseases as seen in recent Australian research trials.

CTF is a complete farming system – so much more than straight rows and permanent wheel tracks. CTF is opening up a whole new and improved way of farming that is very exciting. We are very confident of increased yield potential and significant economic benefits with the system.

AUSTRALIAN CONTROLLED TRAFFIC FARMING ASSOCIATION (ACTFA)

Diane and I have been involved with ACTFA since CTF05. We hope ACTFA will give growers a voice to guide the direction of future funding for CTF systems research. ACTFA has the potential to put a vast number of resources and experiences at your fingertips.

Don't try and reinvent the wheel – someone has already done that. Learn from others. Take the fast track to the next level and fine tune the experiences of others and adapt them into your system. Let others help you overcome challenges as they present themselves.