Controlled Traffic Part of the System

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We are a family farming operation in the mallee region of Esperance Western Australia. The farm is in partnership with parents Neil and Mary Wandel, brother Scott and myself. We farm two properties of 14800Ha, 10400Ha at Mt Ridley 350-400mm rainfall and 4400Ha at Scaddan 425-450mm Rainfall. All farms are continuously cropped. We also have a grain handling business in Esperance Esperance Quality Grains with 3500T of elevated storage with drying and cleaning facilities.

I manage the Scaddan operation with my wife Hayley and our 3 children. The soil types are mainly loams through to grey clays with pH of 5.5-8.0 to a depth of 10-30cm over clay. Cropping rotation consists of a standard rotation for our region of;

- Legume , Faba Beans , Feild Peas and vetch
- Wheat
- Canola
- Wheat
- Barley

CONTROLLED TRAFFIC

What started me thinking about controlled traffic was:

- Soil structure- I could see damage from traffic especially in dry starts and clay soil types with poor crop establishment on traffic areas and good establishment on low traffic areas.
- I was noticing the good soil structure on the first 15ft of paddock where there was no traffic due to the fence and it getting worse with traffic, particularly the boom spray wheel marks that were obvious.
- Reading articles from eastern states on what they were achieving with the improved soil structure from controlled traffic.

This got me thinking that there was a more efficient way than driving everywhere over the paddock and this system could give us improved agronomic opportunities knowing where every operation had occurred.

I made the decision in 2003 that we had to start working towards a controlled traffic system because, I could see the long-term benefits that it would bring to our operation. We have been 100% no-till seeding since 1994 and could see that controlled traffic as the next step to make the farm more productive and sustainable.

PLANNING

Our first step to adopting controlled traffic was to write down what machinery we had now and what we wanted to get in the future and worked from there. In 2003 I decided to go on a controlled traffic tour to QLD with DAFWA supported by GRDC which was excellent. The tour showed me that controlled traffic had to be implemented straight away because it works. We had a look at many different systems and gained lots of ideas

So out came the graph paper and I was into it. In the end we came out with a 9 metre system on 3m wheel centres with 300mm row spacings. I practically started with the header and worked my way back from there. Our system that we have and are working towards is this;

- 18m seeders 300mm row spacings
- 27 and 36m boom sprays

- 9m Header
- 9m SP swather deck shift double up to 18m rows
- 9m wide row seeder and shielded sprayer want to go to 18meter
- 9, 18m spreading width
- All on 3mwheel centres

I think at the end of it all we had a choice of either 9meter or 12meter width system. We came to the conclusion that 9m was the best for us because;

- We wanted to run 18m seeders due to their efficiency
- We had self propelled sprayers on 3m and 27m boom widths already and wanted to go to 36m in the future
- Swathing, had a 9m SP swather and was concerned about making a neat swath with a 12m front
- Spread gypsum and lime and was concerned about getting an even spread at 12m and 24m for super.
- Can unload into chaser bin with both machines remaining on the tramlines
- Can increase the speed of the header 80-90% of the time to compensate for the reduction in width, plan on growing more grain to keep them full.
- Had 9m flex fronts and 10.3meter draper fronts
- Concerned about the even distribution of straw across the paddock at a width of 12m thought 9 m was more manageable
- Higher percentage of our machinery fitted the 9m system would have cost more to go to the 12 m system in the short term.

IMPLEMENTATION

To implement the system we:

- Purchased a John Deere RTK base station and upgraded receivers to RTK
- Purchased 18m airseeder and bin on 3 meter centres
- Cotton Reels on JD 8520 and wound rear axels out
- Built 9m three point linkage toolbar for seeding and shielded spraying beans on wide rows
- Put 3m axel on spreader

FARM PLANNING

We were very lucky that all the blocks are north south in length and so we came up with the plan of having one set of run lines for the whole 4400ha at Scaddan on 180 degrees. This keeps it simple for operators, as there is no changing run lines between blocks and stuffing it up. Most of our laneways are east west through the farms which work out well for access and we drive over these during operations. We have realigned some of these to go directly east west.

RESULTS

We have been very happy with the results and improvements have occurred quicker than first thought. Some benefits are:

- The soil has become softer more even and easier to work
- Less horsepower and fuel is used to pull implements
- Increased soil water holding capacity
- Improved traffic-ability when wet
- Improved trash handling and crop establishment with inter row seeding
- Increased opportunities to control weeds
- Burn 18meter header trails tramlines help as fire breaks

Controlled traffic has opened up many more opportunities in our system and I think there is a lot more to find. Controlled traffic has given us the opportunity to establish crops on less rainfall, given us the ability to do operations exactly were we want to do them to improve overall efficiencies.

PROBLEMS

As with everything, everything has its problems, such as;

- Getting the old man's head around it so it can all happen,
- Ryegrass in tramlines,
- Rutting and water pooling on heavy clay wet areas,
- Head land management,
- Trying to get everything to fit on tramlines with minimal expenditure,
- Swathing barley with the direction of seeding trying to stop it from collapsing in between the rows (used to go at 45degrees to seeding direction),
- Educating casual staff on what we are trying to achieve (don't drive everywhere).

We have tried to overcome some of these problems by:

- Ryegrass in tramlines- fitting shields on to front of sprayer to knock out tramlines while spraying rest of paddock.
- Headlands- in the process of setting up run lines on the headlands to have tramlines on headlands in every block.
- Swathing barley using inter row seeding to seed in between the previous years wheat stubble leaving that standing and undisturbed to use as a support to hold up the swaths.
- Rutting – keep driving straight through them (still working on this one).
- Educating casual staff – code of conduct explaining what happens.

CONCLUSION

Implementing controlled traffic has been interesting but rewarding transition in our farming system. I believe that it has improved our overall profability in the short and long term. It has created many opportunities not present before to improve our farming operation and production. Looking back on were we have gone in the last three years the key things that I believe are essential to making controlled traffic work are;

- Planning – right down to the row spacings and the guess row, think were you want to be in the future not were you are now. (Before you get the oxy out);
- RTK – Repeatability is the key word of controlled traffic;
- Applying – doing everything possible with what you have to get were you want to be in the shortest period of time.