



Australian Controlled Traffic Farming Association

ctf news

Issue 4, June 2009

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7-8 September
Canberra, ACT

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Chairman's report

It has been an exciting 9 months since the annual conference in Dubbo in 2008 and the committee has been busy planning our next conference and developing means to advance CTF across Australia. CTF 09 is planned for 7-8 September in Canberra.

The committee chose Canberra with the aim of targeting a number of government senior policy officials in an effort to inform them about CTF and the associated benefits which will assist farmers adapt to climate change.

Whether one accepts the science on climate change or not, it is clearly a topical subject and we as farmers cannot afford to be left behind in the debate. We must make every effort to inform key decision makers across government and the public sector of its potential impacts on farmers across Australia. I encourage all our members and other farmers to attend this year's conference to find out more about how this policy could impact your farm and also to meet with government decision-makers giving them of your thoughts on the subject.

We have seen good opening rains across some of the cropping belt and I hope we also get a spring this year to finish the crops, particularly in the

many areas of south-east Australia who missed out last year.

Nuffield Scholarship

I have been fortunate enough to have been awarded a Nuffield Scholarship this year. I encourage ACTFA members to apply for a scholarship or encourage other young farmers to apply. The Nuffield Scholarship program is excellent and opens so many doors to opportunities worldwide to advance your business and agriculture across Australia. Applications close on 30 June 2009 and more details can be found at www.nuffield.com.au

I hope to see you all in Canberra

Bruce Watson

ACTFA Chairman

Rain highlights benefits for CTF in vegetables

John McPhee, Tasmanian Institute of Agricultural Research

Development and application of CTF in the Tasmanian vegetable industry has been under way in small paddock demonstrations since August 2007. A CTF onion crop was grown on the farm of John McKenna, Gawler, from August 2007–April 2008. Unlike conventional harvest, the crop was recovered with a direct loading harvester with

track width set to match the tractor. Remedial bed tillage and a green manure crop followed.

Potatoes were planted in November 2008, and harvested in March 2009. Harvest was attempted with a twin-row direct loading harvester and box trailer. Equipment mismatches and problems achieving digging depth, meant going back to a conventional single row machine, complete with mismatched track widths and random traffic. Digging depth issues were partly related to the digging web frame riding on the compacted traffic tracks, as the track width at this site is 1.6 m. So, after about 18 months of CTF, this area became a seasonal CTF site, with random harvest traffic. Heavy rain in April highlighted some key advantages of CTF (Figure 1). These photos were taken while it was still raining. The site had received about 45 mm 10 days before, and another 45 mm on the day the photos were taken.

Another potato crop was grown on the Tasmanian Institute of Agricultural Research farm at Forth, this time using 2 m track width CTF. Part of the paddock was conventionally cultivated and harvested. The twin-row harvester



Figure 1. The result of heavy rainfall in April following potato harvest in a conventional (left) and seasonally CTF (right) production system.

Conventional potato production



CTF potato production



Figure 2 These photos were taken in April following potato harvest at the Tasmanian Institute of Agricultural Research farm, Forth. They were taken shortly after a rainfall event of 30 mm in half a day, making a total of 40 mm over 3 days.

and chaser bin was better suited to maintaining a CTF harvest at this site, although without implement

steering guidance, some of the wheel tracks were a bit wider than desired.

This site also received heavy rain in April (Figure 2). These photos were taken just after rainfall of 30 mm in half a day, following 40 mm over 3 days. There had been no significant rainfall since harvest, so the soil was reasonably dry.

CTF team:

John McPhee (Tasmanian Institute of Agricultural Research)

Peter Aird (Serve-Ag Pty Ltd)

Jason McNeill (Tasmanian Department of Primary Industries and Water)



Figure 3 CTF potato harvest in progress at the TIAR farm at Forth.



7th Australian Controlled Traffic Farming Conference

7–8 September

Rydges Lakeside, Canberra ACT

Hi-Tech, Low Emissions Cropping Systems

Economical. Energy Efficient. Environmentally Sound

In response to member suggestions for some specialised meetings, the 7th Australian CTF Conference aims to explain the benefits and lift the profile of CTF among politicians, policy and decision makers, and lobby groups, with focus on Climate Change and the new technologies.

The Conference will be of interest and value to all ACTFA members and you are encouraged to present your knowledge and ideas to the Workshops, discussions and the Networking Session over drinks.

As all CTF people know so well, new technologies are the perfect match with CTF. One outcome we are aiming for is recognition that there are other new technologies beside genetic modification!

We have invited a Federal Minister to open the Conference and Professor Garnaut to deliver the keynote address. Other speakers include Dr Don

Yule, Dr Jeff Tullberg, Dr Peter Woodgate (CRC for Spatial Information), Hugh Ball (grain and sugar farmer), Rob Ruwoldt (grain farmer), and a representative of the R&D Corporations. Peter Lewis from Landline will lead an open discussion on "Pathways to the future" followed by networking over drinks.

Day 2 addresses the role and future of new technologies with CTF and has 4 themes: machinery, transport, logistics and cropping equipment; GNSS and CORS; proximal and remote sensor technologies; and integrated technologies—GIS and data management.

Each Theme will be introduced by an overview presentation, discussed in Workshops and Workshop Summaries reported back at the final session. Our aim is to prepare a Conference Report of these Summaries for wide circulation.

Proposed industry standard for CTF equipment

Chris Bluett, DPI Victoria

Your ACTFA Committee believes that the lack of an Industry Standard for the dimensions and working widths of CTF machines and equipment is a major barrier to CTF adoption.

A Working Group of engineers and agronomists, drawn from John Deere Ltd, Case IH and ACTFA, has been formed to work on the problem. A Business Case has been prepared, and work has commenced on a Draft Standard and an adoption strategy.

The Working Group started from the premise that ***farmers can find it difficult to design and adopt CTF Systems because tractors and machines use many different wheel track and operating dimensions, including metric and imperial units.***

These different sizes and systems increase the cost of new machines by creating difficulties for machinery manufacturers.

The Working Group believes that the adoption of an Industry Standard based on sound engineering will increase the availability and sales of ready-made, off-the-shelf CTF equipment, thereby accelerating the adoption of CTF and the attainment of its benefits across Australia.

The Business Case sets out those benefits compared to conventional random traffic.

- Environmental benefits include: improved soil health and structure; reduced run-off of water, nutrients and pesticides; reduced fuel use; and lower carbon dioxide and

nitrous oxide greenhouse gas emissions.

- Productivity benefits arise from: better timeliness of operations; reduced input costs; improved soil water holding capacity; increased crop water-use efficiency; and better, faster plant emergence, growth and root development.

For further information contact Chris Bluett of DPI Victoria, the convenor of the Working Group, on 03 5336 6625 or 0409 336 113

The impact of CTF on greenhouse gases

Jeff Tullberg

CTF reduces the fuel usage for all cropping operations by avoiding driving over soft soil. By improving spraying timeliness and management flexibility CTF can reduce herbicide use significantly, but the really big impact is via fertiliser and soil emissions.

When the experts look at energy use in cropping (i.e. carbon dioxide emissions) the big one is nearly always nitrogen fertiliser—but less than half the nitrogen we apply is used by crops. The rest ends up as pollutants in creeks, ground-water or as greenhouse gas. That gas, nitrous oxide, is often the biggest single emission from cropping. Improving nitrogen efficiency goes hand-in-hand with better soil health, reduced compaction and CTF.

It is not a simple subject. We know there is an association between soil compaction, poor nitrogen efficiency and nitrous oxide emissions. It's all to do with avoiding significant periods of high water-filled porosity when nitrate and organic matter

are present. Where CTF has been implemented for a short-term emissions from the non-wheeled beds have been reduced by 20-50%. But what happens in the permanent traffic lanes? The only published measurements relate to annually ploughed potato fields, where 40-70% of all emissions come from the non-permanent compacted inter-rows.

What would happen in permanent zero-till controlled traffic?

It is reasonable to expect that emissions from beds would be substantially reduced, particularly since internal drainage would be much better. We also have to consider the permanent traffic lanes. Large emissions would be expected if significant amounts of water and nitrate infiltrated the permanent lanes and found some organic matter. However permanent traffic lanes have a very low infiltration rate and drain quickly if well laid out, but the nitrous oxide impact has not been tested yet.

CTF should improve nitrogen efficiency regardless of this, by facilitating more timely, precise application of nitrogen post-planting, and not allowing the fertiliser to sit unused for several weeks after planting. This is the period when very large peaks in nitrous oxide emissions occur with post-planting rainfall, particularly when heavier soils are zero-tilled.

The whole story has been put together in presentations to World Congress Conservation Agriculture, and has been summarised in Figure 4, comparing emissions from stubble mulching (Mulch Till), random traffic zero tillage (Zero Till) and CTF. If emissions were calculated

on a per tonne of grain basis rather than and area basis, CTF would look even better. And if we take into account the greater biomass return to the soil, CTF would look better still.

There is an urgency to quantify these reductions in emissions in Australia, rather than trying to infer outcomes from tests conducted under very different conditions in Europe and the USA.

Is anyone interested?!

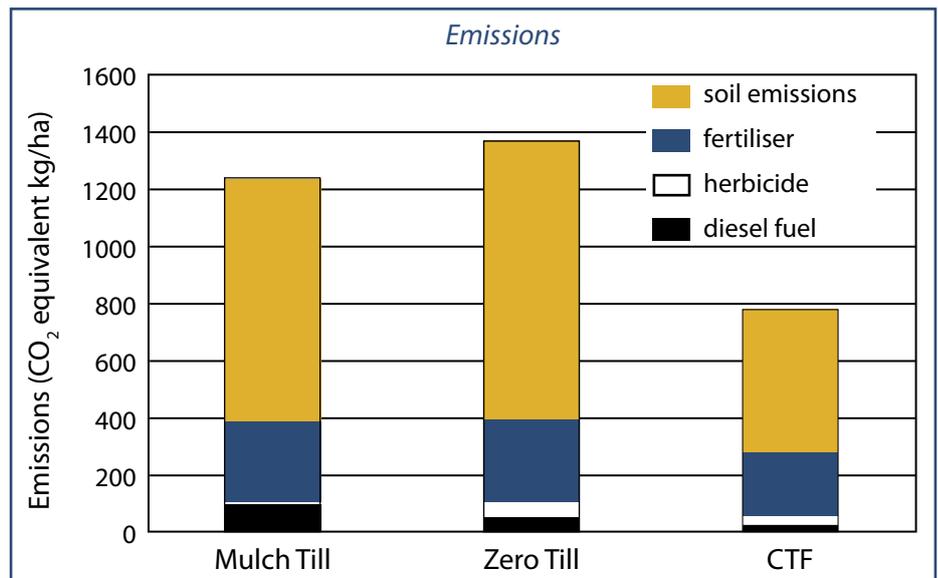


Figure 4. Emissions (carbon dioxide equivalents per hectare) from major crop inputs in three tillage systems.

Improving the profitability and sustainability of Australian agriculture through the promotion and support of controlled traffic farming systems

ACTFA aims to:

- Support and enhance nationwide communication, providing a medium for innovation and the development and exchange of knowledge
- Coordinate industry standards
- Provide direction for the development of advanced CTF techniques
- Provide on-ground support to assist growers adopting CTF Systems

ACTFA membership will link you to a wide network of farmers and professionals who share your interests and enthusiasm for Controlled Traffic Farming.

For further information or to join ACTFA please go to the website:

www.actfa.net

