



Controlled Traffic Farming

CTF

What is Controlled Traffic Farming?

Growers know that driving on soil with heavy machinery causes damage, and particularly in wet conditions. Without traffic, soil behaves differently - it is at once more friable, it requires little or no tillage and its structure gets better year on year.

Controlled traffic farming (CTF) cuts down on compaction by confining wheels or tracks to the least possible area of permanent traffic lanes. Modern satellite guidance systems using RTK make this relatively easy to achieve and guidance adds a lot of other benefits besides.

Controlled traffic "beds" yield about 15% more than randomly trafficked soils and when these beds cover about 80% of a field, there is a great deal to gain in terms of yield. This comes from improved root growth that uses water and fertilizer more efficiently, so it is also good for the environment and forage crops have a similar yield response.

The other good news is that CTF needn't cost a lot and can often be achieved with standard equipment; it just needs some clever thinking and planning! And the more effort that's put into planning, the less the expense.

In fact, other than the guidance system (which often pays for itself anyway), there is likely to be a net reduction in costs because farmers converting to CTF sell a lot of their equipment and invest in lower powered tractors!

Find out more at www.ctfeurope.eu



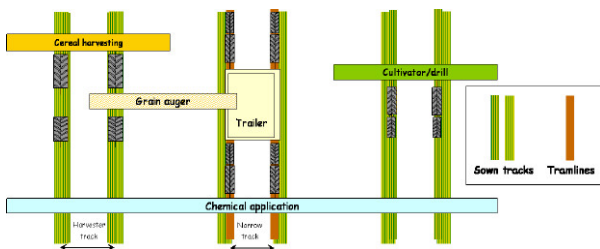
How is CTF adopted?

With careful planning, CTF can be put in place incrementally, on any scale and at low cost. The process is:

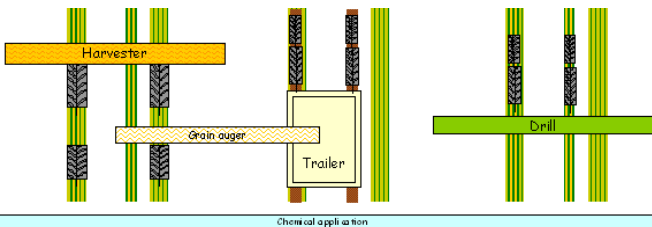
- 1 Carry out a review of your cropping and crop establishment systems
- 2 Decide what machinery you need with CTF
- 3 Measure up these machines to see how they fit together
- 4 Plan an appropriate CTF system that minimises conversion costs. Consider:
 - guidance system to be used (if satellite, needs to be RTK)
 - what machines need to be changed
 - what machines can be sold
 - timescale and rotation entry points
 - field layout and traffic orientation (probably same as tramlines)
 - what you will use for periodic filling of the wheel tracks
- 5 Plan a long term machinery policy that improves on the initial CTF system by minimising the tracked area

CTF system options

OutTrac^{CTF} - two identically centred but overlapping track widths. A wider one for harvesters and a narrower one for all other equipment. A common application width for all implements.



AdTrac^{CTF} - two standard track widths, the narrower using one track of the wider, resulting in an additional track. Implements can be any common width or direct multiple.



TwinTrac^{CTF} - two track widths, one straddling the other, with the width of implements being the addition of the two tracks.

And many other options, including a system with two implement widths.

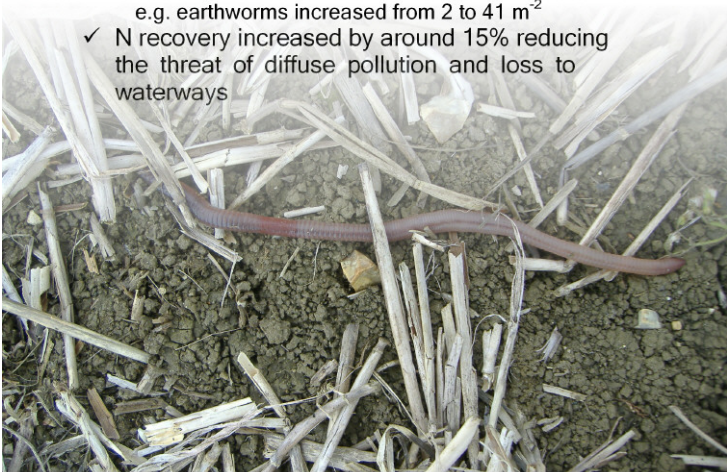
The benefits

Practical:

- ü crop yields and N recovery increased by around 15%
- ü little or no tillage needed to produce well structured friable seed and root beds that retain moisture, are well drained and have around 35% more plant available water; as a result small seeded crops in particular are more reliably established and weed (stale) seedbeds more easily achieved
- ü more reliable spring sowing & direct drilling
- ü fuel use drops by at least 35%
- ü time and energy for crop establishment reduced by around 70%
- ü machinery costs reduced through lighter machines needing less power
- ü no under- or over-lap for all operations

Environmental:

- ü up to 400% better infiltration
 - ü 10% increase in soil porosity
 - ü up to 34% more plant available water
 - ü 4 fold increase in hydraulic conductivity
- All the above changes result in:
- w better drainage, less soil erosion and reduced soil and chemical losses
 - w improved water storage and less likelihood of flash floods from farmed catchments
 - w potentially reduced emissions of harmful gases such as nitrous oxide and methane
- ü More soil-living animals:
 - e.g. macrofauna increased from 15 to 70 m⁻²
 - e.g. earthworms increased from 2 to 41 m⁻²
 - ✓ N recovery increased by around 15% reducing the threat of diffuse pollution and loss to waterways





Controlled Traffic Farming CTF

The Colworth demonstration project

The aim of the UK based project is to show that CTF is a practical option in a commercial environment and that it can deliver the benefits. A number of farmers wanted to see if CTF worked and whether they could adopt it on their own farms.

Sponsored initially by Unilever, John Deere and John Dale Drills, it began with a Focus Group of just 5 farmers in 2004. This has now increased to 26 growers from eleven English counties with additional support from Farmade, Michelin, Soyl, Berthoud, Yara, Masstock, IAgRE & Väderstad.

The project started when just one 8 ha field on a Hanslope clay was converted to CTF within a rotation of wheat, oilseed rape, beans and a spring crop, but in 2006 the area was extended to 73 ha and nine fields. Because little or no cultivation is needed, we usually direct drill. The vehicles are "autosteered" with a GPS guidance system using a ground-based correction signal (RTK) for repeatable positioning and high accuracy (± 2 cm).

CTF has led to measurable improvements in soil conditions compared with surrounding fields, for example, better water infiltration, lower soil resistance and improved topsoil structure. Despite converting to very low input systems under CTF, yields have risen steadily during the course of the project and we have reliably direct drilled spring crops on this heavy soil.

Find out more at www.ctfeurope.eu



JOHN DEERE



Unilever

farmade
MANAGEMENT SYSTEMS



JOHN DALE
ZERO TILL
One-pass Drill Ideal in all conditions

Masstock
SMART FARMING



The need for CTF arises because stresses on the soil due to increasingly heavy machinery have risen sixfold over the past 70 years. CTF is a sustainable solution that confines the compaction caused by stresses to the least possible area of permanent traffic lanes. The benefits of changing to CTF for most field crops are numerous and significant:

CTF is good for soils and crops

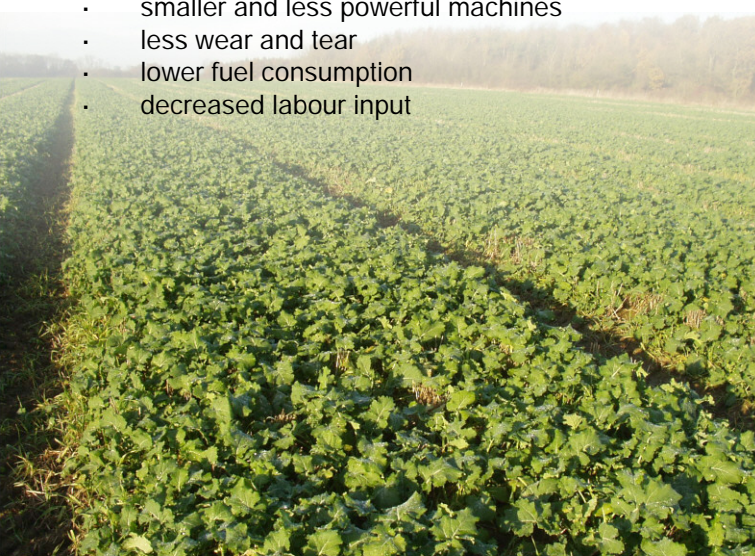
- CTF improves crop health and yields
- CTF allows soils to recover their natural structure
- With CTF soils can be worked without compaction damage

CTF helps the environment by:

- reducing greenhouse gases
- improving water infiltration, storage and drainage
- reducing water run-off, erosion and the risk of flash floods
- reducing chemical losses
- conserving organic matter and soil fauna

CTF reduces production costs through:

- fewer and less intensive cultivations
- smaller and less powerful machines
- less wear and tear
- lower fuel consumption
- decreased labour input





Controlled Traffic Farming CTF

Three easy steps to CTF

- 1 **Join CTF Europe** to meet with others, discover the principles and develop the skills
- 2 **Plan** Which crops you will grow
Which machines you will use
Compatibility of track & implement widths
How to keep tracks in the same place
- 3 **Put your plans into action!**

For more information or to join CTF Europe:

Contact:

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 SK Jana@ctfeurope.eu
 UK Tim@ctfeurope.eu

or visit: www.ctfeurope.eu

As a member of CTF Europe, you will be:

- brought into the network of CTF farmers;
- given access to an electronic information pack which is updated regularly;
- sent a regular newsletter and given access to workshops and to CTF farms;
- given personalized website access to information and resources.

On a contract basis, we can also provide you with personalized advice and the management tools necessary for a smooth and reliable transition to CTF.



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