

Controlled Traffic Farming (CTF)



The need for CTF arises because farm profit is being reduced by the compaction caused by heavy machinery running over a large proportion of field areas every year

CTF is a sustainable solution that confines compaction 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 more easily

CTF helps the environment

- reduced greenhouse gas emissions
- improved water infiltration, storage and drainage
- reduced water run-off, erosion and flash flood risk
- reduced chemical losses
- conserves organic matter and soil fauna

CTF reduces production costs

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



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 after year.

CTF cuts down on compaction by confining wheels or tracks to the least possible area of permanent traffic lanes. Satellite guidance systems using RTK make this relatively easy to achieve and they add a lot of other benefits besides.

Controlled traffic "beds" yield about 15% more (averaged across 15 crops) 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.

The other good news is that changing to CTF can often be achieved with standard equipment; it just needs some clever thinking and planning! The more effort that's put into planning, the lower the costs. Other than the guidance system (which often pays for itself anyway), there is likely to be a negative cost because farmers converting to CTF sell a lot of their equipment and invest in lower powered tractors! 15% more profit and 20% reduction in machinery costs have been recorded.

Find out more at www.ctfeurope.eu

The benefits



Economic and 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 big savings in fuel use
- ü more reliable spring sowing & direct drilling
- ü fuel use for crop establishment 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 more reliable field access on firm traffic lanes
- ü no under- or over-lap for all operations

Environmental:

- ü up to 4 times better rainfall infiltration
- ü 10% increase in topsoil porosity
- ü up to 34% more plant available water
- ü Up to 4 fold increase in hydraulic conductivity (drainage)
- 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
- ü Lower carbon emissions due to reduced fuel use
- ü N recovery increased by around 15% so reducing the threat of diffuse pollution and loss to waterways

How is CTF adopted?

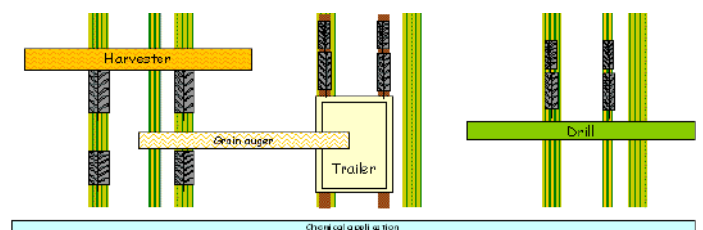
With careful planning, CTF can be put in place incrementally, on any scale and at low cost. The process is:

- 1 Carry out a review of your cropping
- 2 Decide what machinery you need to grow these crops 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 infilling of the wheel tracks
- 5 Employ CTF Europe to give you help during any part of the process, including selection of an appropriate satellite guidance system.

Some CTF 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 width for all implements.

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



TwinTrac^{CTF} - two track gauges, one straddling the other, with the width of implements being the addition of the two gauges or a direct multiple of them.