Controlled Traffic Farming (CTF)

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Controlled Traffic Farming (CTF) is based on the use of permanent traffic lanes in fields. Agricultural machinery only travels on these predefined lanes, which limits soil compaction to specific areas generally representing between 10 and 20% of the farm's surface area, far from the 50 to 85% affected in conventional farming[1] .

This technique preserves the soil structure in crop areas by limiting compaction, which promotes water infiltration and good root development.

Implementation and management

The first step in switching to CTF farming is to define the working width that will minimise conversion costs: ideally, the widths of the various pieces of equipment required for farming should be multiples of each other in order to minimise the number of traffic lanes to be established.

To do this, equipment may need to be adapted. For example, the front and rear axles of a tractor can be modified so that the tractor's wheels are spaced like those of other equipment, such as a combine harvester. The loading arm of a combine harvester can also be extended to reach a grain box located in another traffic lane.

Once the working width has been identified and the machinery adapted, a guidance system must be chosen. The most commonly used precision guidance system is based on Real Time Kinematic (RTK), which is a satellite positioning technique corrected in real time by a reference station and achieving accuracy to within a centimetre. This technology enables precision guidance of machinery during operations on farms, ensuring that it stays within predetermined traffic lanes.

Scale of implementation

CTF can be applied to a single agricultural plot, but it is important to design it on a farm-wide scale to optimise its effectiveness across all plots and realise its full potential.

It is also possible to imagine implementing it on different farms within a watershed to promote the benefits of this practice on a larger scale.

Information on implementation costs

Implementation costs can be significant, as they generally include modifying machinery and installing a precision guidance system. Alongside these expenses, these practices preserve the agronomic potential of the soil by preventing compaction.

[1] This fact sheet focuses on the movement of agricultural machinery, but low-impact farming encompasses other complementary practices.

However, it remains difficult to estimate the maintenance or improvement of yields directly linked to these practices, which are highly dependent on crop rotation, soil and climate conditions, etc.

Key players

Institutional stakeholders: government departments responsible for agriculture (Regional Directorates for Food, Agriculture and Forestry - DRAAF) and the environment (Departmental Directorates for Territories (and the Sea) - DDT(M), Regional Directorates for the Environment, Planning and Housing - DREAL), local authorities

Professional and technical stakeholders: Chambers of Agriculture, Water Agencies, agricultural advisory associations (e.g. Departmental Associations for the Development of Agricultural Structures and Farms - ADASEA)

Local stakeholders and civil society: farmers, agricultural cooperatives, agricultural equipment cooperatives (CUMA), landowners, local associations

Some bibliographical references for further information

- Controlled Traffic Farming. Développement Agricole des Basques, Bas-Saint-Laurent, Quebec, Canada. 5 pages. (2018) *[in French]*
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- Controlled Traffic Farming (for potato production). ResearchGate. 39 pages. (2020)