

A major upgrade to the Cool Farm Tool carbon emission calculation

A journey of change and growth

In February 2022 the implementation of CFT 1.0 delivered the first major upgrade of the Cool Farm Tool calculation since the tool was converted from a very popular Excel spreadsheet to a web application in 2013.

This release fixed a set of bugs that had been pain points for some time and brought key functions within the tool up to date with IPCC 2019 refinement to the 2006 guidelines.

Since then, the Cool Farm Tool has added water calculations to the API service, verification to the crop pathway and foundation work to support two future developments: improvement to the biodiversity pathway and the new API license included as part of the new Business Model.

New changes coming

The delivery of CFT 2.0 will bring with it another set of critical updates. This release will bring the tool to deliver further alignment with the IPCC 2019 Refinement. This means delivering updates for:

- Soil Organic Carbon,
- A new N₂O model
- Updates for Dairy & Beef carbon footprint calculations
- Once CFT 2.0 is delivered, the only remaining gap with IPCC 2019 Refinement will be Other Livestock, which will be closed out as part of the CFT 3.0 delivery in April 2024.

This release will include updated factors for Electricity (EIA), transport and energy factors (DEFRA).

Finally, as with most releases, this will include fixes for a small number of emission calculation bugs.

The headline changes for the delivery of CFT 2.0

Soil organic carbon

- Track land use changes up to 60 years in the past if required
- Track up to four different land use changes over time
- Record land use, tillage and/or inputs update per change
- Apply IPCC default SOC or calculate based on own field level measurement

N₂O Model

- Full rewrite of the N₂O model, implementing the IPCC 2019 model in place of Bouwman
- Apply a wet/dry decision tree for fertiliser inputs based on application timing weather in temperate climates
- Calculating direct and Indirect emissions using a modified Tier 1 approach, with one Tier 2 equation for volatilisation
- Including below ground emissions in residue management, modified handling of 'burnt' and updating compost/ removed emission factors.

Dairy & Beef Updates

- Factor update for direct and indirect N₂O emissions from grazing
- Factor update for N₂O emissions from volatilisation and manure management type
- Update to meat allocation in dairy pathway following IDF 2022 guidelines
- Updating methane conversion table for manure management

Electricity Grid Factors

- Sourced from IEA under license
- Allows an emission factor to be specific to the year and country of the assessment

Transport and Energy Factors

- Sourced from DEFRA 2021

Keep your eyes out for the monthly Cool Farm Alliance Development News where we will keep you up to date with the delivery plan for CFT 2.0, including summary of new data points required, notice of breaking changes, schedule for member testing and functional summary for the coming changes.

