

# COMET-Planner

Growers interested in participating in carbon markets need a strategy to quantify potential gains in soil carbon resulting from agricultural conservation practices. COMET Planner is a research-based evaluation tool that estimates potential greenhouse gas mitigation and carbon sequestration resulting from the adoption of NRCS conservation practices on cropland and grazing land.

**Now, users of the Fieldprint Platform can access this powerful tool without leaving the site.**

Although not a standalone offset measurement tool, COMET-Planner provides a snapshot of the on the field conditions and an estimation of the potential amount of carbon that could be sequestered in the soil by adapting and implementing conservation practices.

The COMET-Planner tool is available as an optional feature to provide additional insight into soil carbon. The Soil Carbon metric in the Fieldprint Platform that is used for assessment of continuous improvement and calculated for all users remains the Soil Conditioning Index (SCI), a qualitative, directional measure of whether soil carbon is increasing or decreasing in a field.

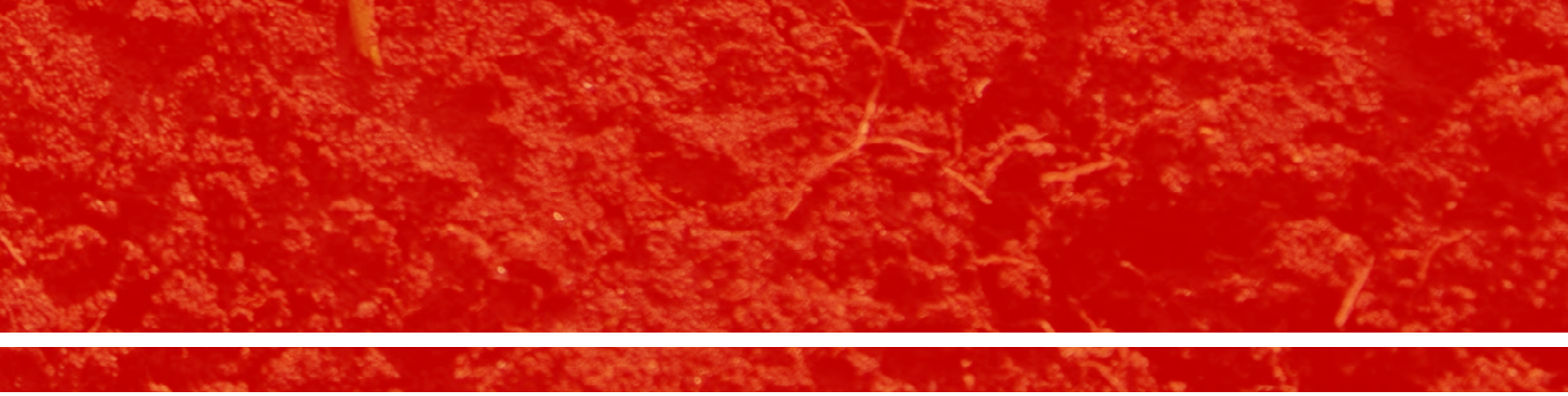
## How COMET-Planner Works

COMET-Planner allows producers to see the gain in soil carbon that can be achieved on their fields by adopting specific practices. Estimates of potential soil carbon sequestration are specific to each of 227 discreet Major Land Resource Areas (MLRA). These MLRA are distinguished from one another by their unique physical geography, climate, soil, biology and land use.

The values produced by COMET Planner are expressed as Mg CO<sub>2</sub>e per acre per year, where 1 Mg (mega gram) = 2,200 pounds and CO<sub>2</sub>e refers to “carbon dioxide equivalents”. In addition to providing soil carbon sequestration, the scenario tool provides estimates of change in nitrous oxide emissions from the soil. The amount of nitrous oxide released from agricultural soils is converted to CO<sub>2</sub>e, based on its global warming potential which is 298 times the global warming potential of carbon dioxide.

COMET-Planner users select the appropriate NRCS Conservation Practice from a menu to evaluate the potential increase in soil carbon that would result from adoption. This practice can be one that was adopted within the last 10 years or one that users are considering adopting:

- **Conservation Crop Rotation (CPS 328)** – Growing crops in a planned sequence on the same field.
- **Cover Crop (CPS 340)** - Crops including grasses, legumes, and forbs for seasonal cover and other conservation purposes.
- **Mulching (CPS 484)** – Applying plant residues or other suitable materials produced off site, to the land surface.
- **Nutrient Management (CPS 590)** – Managing the amount (rate), source, placement (method of application) and timing of plant nutrients and amendments.
- **Residue and Tillage Management - No-Till (CPS 329)** – Managing the amount, orientation and distribution of crop and other plant residue on the soil surface year round, limiting soil-disturbing activities to those necessary to place nutrients, condition residue and plant crops.
- **Stripcropping (CPS 585)** - Growing planned rotations of erosion-resistant and erosion -susceptible crops or fallow in a systematic arrangement of strips across a field.



Each Standard has one or more associated Conservation Practice Implementation. Selecting the appropriate Conservation Practice Implementation is determined by several factors, such as irrigation, use of manure and other soil amendments, tillage intensity and cover crop type. Users can also select multiple conservation practices.

### How To Use COMET-Planner With The Fieldprint® Platform

Fieldprint Platform users can use the COMET Planner scenario tool in two distinct ways to gain greater insight into the potential of their fields to store carbon.

- If a practice has been adopted within the last few years, users can run a scenario and receive an estimate of how much annual soil carbon sequestration is currently resulting from that practice.
- For farmers looking to understand the impact of future practices, a user can run a scenario to evaluate what the potential carbon sequestration would be from adoption of a new practice in a future year.

COMET Planner provides a basic estimate of soil carbon sequestration that can be then used to help make informed decisions about conservation practice adoption, and can be considered a starting point for evaluating potential participation in carbon markets and other programs.

COMET-Planner Carbon and Greenhouse Gas Evaluation for NRCS Conservation Practice Planning, [https://planner-prod-dot-comet-201514.appspot.com/static/media/COMET-Planner\\_Report\\_Final.3de20776.pdf](https://planner-prod-dot-comet-201514.appspot.com/static/media/COMET-Planner_Report_Final.3de20776.pdf)

