



**UKCCC SOIL CARBON MINIMUM STANDARDS FOR MEASURE REPORTING AND VERIFICATION (MRV)**

**Version: 1.X**

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## **UKCCC VISION & MISSION**

**OUR VISION:** Climate change reversal through Greenhouse Gas Reduction and Removal + and sustainable development for all.

**OUR MISSION:** To ensure UK Green House Gas Reduction and Removal (GRR+) Credits are effectively measured, reported and verified to give surety to those wishing to offset residual Carbon Dioxide Equivalent (CO<sub>2</sub>e) units.

### **1. IMPACT QUANTIFICATION METHODOLOGIES**

All UKCCC MRV protocols have been developed with a view to future approval to ISO 14064-2 and to align with the Voluntary Council for the Scaling of Voluntary Offset Markets (ICVCM) Core Carbon Principles. Only UKCCC approved MRV protocols may be used to determine the outcome of UKCCC approved projects.

The UKCCC Validation and Verification Body (VVB) function is verified by UKAS to ISO 17065. All Greenhouse Gas Removal (GGR+) credits can be bought and retired by companies to count towards net zero claims provided they have followed all UKCCC claims guidelines.

### **2. LEARNING BY DOING**

The methodologies will be subject to change as the UKCCC Commissioner and the UKCCC technical panel update the UKCCC. Refinement over time is particularly relevant to emerging categories of carbon removal innovations which many of the UKCCC standard methodologies cover. The methodologies are based on the best available science and quantification methods and revised as the scientific understanding evolves through the Version approval cycle.

Project developers help farmers and landowners through the issuance of UKCCC approved GGR+ credits to develop practices that are known to sequester and store CO<sub>2</sub>e into timber, increased soil carbon and other natural products and processes, these practices will be verified by the UKCCC through an initial project approval process followed by an annual light touch verification and 5 yearly full verification process, conducted by a UKCCC commissioner and or appointed VVB.

### **3. THE 4 PILLARS OF UKCCC PROJECTS:**

- **Assured additionality**
- **Assured permanence**
- **Avoidance of leakage**
- **Avoidance of negative outcomes**

These 4 Pillars are ensured through the UKCCC approval and verification process and only after the UKCCC commission has been satisfied of a projects protection of these pillars will UKCCC GGR+ credits be issued.

The first tranche of credits issued must be used to ensure the project host is at net zero emissions before any excess are traded.

Issuance is no guarantee of ongoing acceptance in the scheme, as such the UKCCC Commissioner reserves the right to de list any projects that do not adhere to the standards of the code.

This set of protocols is to be used alongside the UKCCC GGR+ Credit requirements.

All projects must quantify their full natural capital sequestration and full emissions to establish their current net position.

### **4. SOIL, REGENERATIVE AGRICULTURE PROJECTS**

Soil and regenerative agriculture projects are viewed by the UKCCC as a highly important project type that can be rapidly deployed to draw down atmospheric CO<sub>2</sub>e into soils on a continual basis. Just 2 tonnes of CO<sub>2</sub>e per hectare drawdown across all UK agricultural land can help reduce overall atmospheric CO<sub>2</sub>e by over 34 million tonnes per year in the UK. Although some critics feel that soil organic matter increases can only be seen as a temporary measure as it can be reversed, a widescale adoption of regenerative agriculture can reduce atmospheric CO<sub>2</sub>e concentration whilst the rest of the economy de-carbonises. In climate change mitigation there is no substitute for reducing emissions.

The continuation of regenerative agricultural production will lead to continued atmospheric CO<sub>2</sub>e sequestration and storage and deliver a range of co-benefits including cleaner air, water, more climate resilient soils which able to withstand drought shocks and lead to the production of healthier crops, less reliant on artificial inputs.

An ongoing move towards regenerative practices will continue to sequester and store significant levels of atmospheric CO<sub>2</sub>e over the life of the project thus ensuring permanence.

The aim of a regenerative agriculture project is to help farmers finance the transition to practices that may in the short term reduce their income.

## 5. THE ESTABLISHMENT OF A BASELINE

A baseline is essential to ensure that it can be demonstrated that the change in management practices has led to an increase in soil carbon levels. Before the start of any project that leads to UKCCC approval, soil carbon levels will be established, determined by the UN Standard operating procedure for total soil carbon using the DUMAS dry combustion method.

At the start of the project the project proponent shall establish the current soil testing regime of the project host. The project proponent shall attempt to use current data where it exists and discuss with the host to add SOC testing to this regime to save cost.

## 6. UKCCC SOIL SAMPLING METHODOLOGY

|   | <b>UKCCC minimum standard</b>   | <b>Best practice</b>   |
|---|---|--|
| <b>Land covers</b>                            | All fields classified as Arable Land, Permanent Crops and Permanent Grassland.  |  |
| <b>Sampling zones</b>                         | Minimum 18 metres from field boundary to mitigate the potential effect of boundary features such as leaf-fall from hedges and trees, soil compaction near gateways, and nutrient concentration from middens etc.  |  |
|   | Small fields, where the sampling zone allocation does not allow for sampling due to small (<2 hectares) and narrow fields (<36 metres wide) in each instant a minimum of 2 samples shall be taken from the field, from as close to a centre quadrant as possible.                                   |  |
|   | Where a sampling zone has been allocated prior to sampling and an obstacle is in the allocated location, the sampler shall use common sense and take the sample a minimum of 9 metres away from the obstacle in any direction and report the changed location.                                      |  |
| <b>Sampling strategy</b>                      | Random sampling.  | Stratified random sampling.  |
| <b>Less favourable and inaccessible areas</b> | Use W soil sampling methodology for fields which are difficult to access/dangerous conditions, e.g. for fields classified by RPA in England as Less Favourable Areas, or for fields which are generally inaccessible for machinery.   |  |
| <b>Timing</b>                                 | Soil samples should be collected before any artificial fertiliser or manures/composts or at least 3 months after application. Soil testing in future years should be carried out at the same time of year for consistency.  |  |
| <b>Sampling intensity</b>                     | 2 cores per hectare. Minimum 2 cores per field.   |  |
| <b>Core spacing</b>                           | Minimum 9 metre spacing between cores.  |  |
| <b>Core depth</b>                             | 50 cm.  | 30 cm, 60 cm and 60+ cm (up to 1 metre) if possible.   |
| <b>Soil samples</b>                           | Soil samples from fields are mixed together to create composite samples per field for each depth tested. Samples should be mixed in a clean container with 300 gms selected and placed in a labelled bag to be sent to an appropriately accredited soil lab (UKAS 17075 or equivalent) for testing. | No compositing. Average calculated to produce one overall field level result for each depth. |
| <b>Lab test methodology</b>                   | Dumas dry combustion.   |  |

|                      |  |  |
|----------------------|--|--|
| <b>Results</b>       | Results should provide unique field ID, sample depth, SOC% and bulk density as a minimum.  |  |
|                      | For UK farms the RPA's field number should be used as the unique field ID, e.g. TQ1618/5086.   |  |
| <b>Reporting</b>     | Shapefile of farm's results containing one record per field referenced by the field's unique ID.   |  |
|                      | Shapefile of random sampling locations referenced by the field's unique ID.  |  |
| <b>Historic data</b> | Where historic soil carbon measurements are available, these can be used to form a baseline but the efficacy shall be assessed by the UKCCC Commissioner's Office and a higher buffer discount maybe applied until verification results are available. |  |
|                      | Where historic Loss on Ignition results are available, these can be used to form a baseline but shall be altered by a factor determined by the UKCCC Commissioner's Office.  |  |

The total CO<sub>2</sub>e sequestration shall be calculated by multiplying the carbon stock per hectare by 3.67.

The average total carbon stock per hectare shall be established and used as the baseline figure. It is recognised that organic matter levels vary from year to year and crop to crop but that with a move to regenerative farming practices the trend in soil carbon stocks should always be increasing.

Loss on ignition (LOI) tests shall be permitted for use with historic calculations, but the UN SOP Dumas method must be adopted in all future tests. A higher discount factor shall be applied where LOI are to be used as the baseline, typically applying a further 20% discount.

Soil analysis tests shall be conducted in labs operating to UKAS 17025 or international equivalent using the UN Food and Agriculture Organisation (UNFAO) Dumas soil organic matter methodology.

The UKCCC reserves the right to change the required testing regime as new techniques are developed. The aim is to establish a remote monitoring system to increase verification frequency and accuracy. All real data is to be made available to approved remote modelling systems to help enhance the accuracy of models.

For tree planting or carbon cropping projects the same soil baseline tests are taken PRIOR to planting.

## **7. ONGOING PROJECT MONITORING**

Each year before the anniversary of the project start date the project proponent shall visit the project host to complete a light touch Annual Monitoring Report as per the Annual Monitoring Plan, as laid out in the Project Plan Document (PDD).

This shall include the completion of an audit of the project hosts activities that may influence the status and validity of the project. The findings will be recorded on the Annual Monitoring Report. Ongoing regenerative agriculture practices will be discussed, and the project plan updated to reflect any changes that have been identified as current best practice.

Every 5<sup>th</sup> year a verification soil test will be conducted to determine the carbon stocks at that point. The test will be conducted by the Dumas method, unless the UKCCC deem a different methodology is required due to technological advances.

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