Regenerating soils for climate and farmers

[September 2022]

AgriCaptureCO_2 methodology documentation

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V2	OCW/GILAB	28.09.2022	First Draft Review
FINAL	OCW	29.09.2022	Final Draft

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List of abbreviations

AFOLU	Agriculture, Forestry and Other Land Use
CDM	Clean Development Mechanism
COP	Conference of Parties
ENMX	Environmetrix
GBSF	Great British Sustainable Farming
GHG	Greenhouse Gas
GWCT	Game and Wildlife Conservation Trust
ITMO	Internationally Transferred Mitigation Outcomes
LEAF	Linking Environment and Farming
MRV	Monitoring, Reporting and Verification
NDCs	Nationally Determined Contributions
OCW	One Carbon World
SOC	Soil Organic Carbon
UNCNNow	United Nations Climate Neutral Now
VALID	Verifiable, Additional, Leakage, Irreversible, Double counted.
VCS	Verified Carbon Standard
VVB	Validator and Verification Body

Executive summary

The AgriCaptureCO2 project seeks to make it easier and more profitable for farmers to adopt regenerative farming practices. We bring together pioneering farmers, agronomists, soil scientists, public bodies, and technology experts working in 6 pilot sites across Europe and Africa to co-develop a suite of valuable services powered by satellite data. At the same time, we are developing and promoting a European Regenerative Agriculture Community to facilitate engagement and knowledge transfer. WP4 aims to support the project's goal uptake through certification of projects, reductions and potential generation of carbon credits that will create financial incentivization.

Within this report we present the results of dedicated tasks within the project that assessed available schemes (voluntary and those on a legal basis) as well as and their approaches for measuring, reporting and verification of carbon removals (in Soil Organic Carbon) and emissions reductions in greenhouse gases (GHGs). At the beginning of the project, it was envisioned that a new methodology would be defined making use of remote sensing technologies to simplify procedures, cut costs, and enable scaling. Nonetheless, our assessment found that the existing VERRA[1] methodology VM0042 "Methodology for Improved Agricultural Land Management, v1.0"[2] is permissive with regards to use of remote sensing technologies to meet our goals, and complies with the majority of the requirements we recognised for an AgricaptureCO2 methodology. As such, instead of developing our own AgriCaptureCO2 methodology, we set out to improve an existing methodology that met our needs, and have submitted formal commentary to VERRA as part of the methodology evaluation process (towards defining a second version of VM0042).

During the working process it has also been identified the need of a simplified method to account and verify the carbon stocks and GHG removals in low-scale projects or projects that does not need to generate carbon credits but need to compensate its own emissions. For example, in the use case in Greece, the farm size is small (0.5 ha and less) and the potential for carbon sequestration in soil is equally low due to the arid climate. This insetting methodology and calculations method has been created and named as "green

[1] Verra was founded in 2007 by environmental and business leaders who saw the need for greater quality assurance in voluntary carbon markets. The Verified Carbon Standard Programme (VCS) allows certified projects to turn their GHG emission reductions and removals into tradable carbon credits. Since its launch in 2006, the VCS Programme has grown into the world's largest voluntary GHG program. VCS projects include dozens of technologies and measures which result in GHG emission reductions and removals, including forest and wetland conservation and restoration, and agricultural land management. There are currently almost 1,600 registered projects in over 82 countries that have generated more than 450 million carbon credits (VERRA, 2022).
[2] https://verra.org/methodology/vm0042-methodology-for-improved-agricultural-land-management-v1-0/

assets", which can be used for insetting, i.e. accounting for carbon removals within a value chain for low-emission certification of outputs from that value chain (e.g. low emission olive oil in the case of the Greek use case).

1 Introduction

Methodologies set out detailed procedures for quantifying the greenhouse gas (GHG) benefits of a project. They also provide guidance to help project developers determine several concepts, such as project boundaries, set baselines, assess additionality, and ultimately quantify the GHG emissions that were reduced or removed. Lastly, methodologies also serve to align project activities with the Standard under which the activity is being implemented. These issues were described in detail in D4.1 Suitability assessment for legal & voluntary schemes.

Methodologies for quantifying and certifying carbon removals from regenerative agriculture were up till recently inexistent. This has changed as multiple instances have emerged in recent years – however, complexity is the common denominator for practical aspects relating to their application, resulting in a very limited number of registered projects to date. Based on empirical evidence, there are significant challenges with regards to their consistent and robust application.

The value of carbon removals of a carbon removal (or avoidance) project is always compared to a hypothetical situation in which the carbon reducing activities were not conducted. This is called a baseline scenario representing "business-as-usual" up against which the proposed project and its mitigation activities are compared to. It is important that this hypothetical situation is realistic, and evidence based.

We recognise that the methodology that we require must be checked against conciseness, accuracy and integrity. It has been found that VM0042 complies with all these requirements but needed certain technical modifications. Instead of proposing a new methodology, which could end up being similar to existing ones, WP4 has decided to use VM0042 but also request formal modifications to permit the use of novel AgriCaptureCO2 remote sensing assets. In parallel, a new innovative method has been created to account for the green assets in agricultural projects where carbon credit projects to generate tradable offsets are not feasible.

2 Using existing methodologies

At the beginning of the project the consortium assessed that the competitive landscape relating to agricultural carbon credits had significantly advanced from the proposal stage (e.g. with a handful companies in Europe and United States issuing carbon credits for carbon sequestration in agricultural soils), and that activities should kick-off as soon as possible to ensure a favourable market position for exploitation of AgriCaptureCO2 results.

Firstly, OCW have assessed legal and voluntary schemes against a set of assessment criteria. In line with a greater ambition to create a carbon credit pipeline, it has shortlisted the frameworks that require a 'VALID' approach to validation and verification of carbon credits to ensure maximised trust and price will be generated from AgriCaptureCO2 carbon credit projects (see D4.1). That is, we consider that schemes that satisfy these criteria are more robust, requiring third party validation, and thus are more likely to be trusted and less vulnerable to malign intent – thus likely to encounter pitfalls/scandals in the future. The main output was an internal document, 'VCS Overview and Assessment Part 1', which shortlisted VERRA's Verified Carbon Standard and the Gold Standard. After further analysis, it was concluded that VERRA is the best option for the development of the project.

Secondly, OCW formed an internal methodology team to ensure that the carbon credit pipeline is created. The identification of existing methodologies included a key risk assessment, which includes (but is not limited to):

- Lack of scientific integrity when creating the baseline,
- Potential perverse incentives not considered in determining the baseline, where applicable,
- Lack of consideration of how existing government policies and legal requirements may impact the baseline;
- Lack of consideration of how new government policies and legal requirements, may impact the baseline;
- No consideration of the potential for rapidly changing circumstances over time;
- Whether mitigation targets and actions in nationally determined contributions (NDCs) are considered in determining the emissions baseline;
- Lack of transparency about information related to the determination of the baseline scenario.

Furthermore, knowing that soil organic content (SOC) content of soils cannot be easily measured and is a key barrier to implement programmes to increase SOC at large scale, the methodologies assessment included:

- Use of models and its high uncertainty levels in soil carbon prediction.
- Soil carbon measurements proposal method. It can vary significantly across a parcel and across depth levels.
- How the potential reversibility of soil carbon sequestration (intentional and unintentional) is managed, which increases uncertainty in the time frames needed to monitor SOC enhancement activities (Rumpel et al., 2019).
- How the large background stocks are considered, inherent spatial and temporal variability and slow soil C gains make the detection of short-term changes (e.g. 3–5 years) in SOC stocks challenging (Smith et. Al. 2019).
- Monitoring, Reporting and Verification (MRV) of soil carbon sequestration is costly and can add significant administrative burden.

Based on the selection of the Standard (VERRA), OCW assessed the currently approved VM0042 methodology for issuing carbon credits from sequestration of carbon in soils under this standard.

The assessment was done on a technical level, i.e. assessment of the methodology documentation itself, and on a practical level, i.e. reviewing the number of projects submitted with this methodology and the publicly available documents related to it. There are significant complexities of the methodology (it has only been used for 3 projects globally, none of which are in Europe) that AgriCaptureCO2 results can directly address. The methodology team recommended that the project make use of the robust existing methodology and propose a new version that integrates the services as the AgriCaptureCO2 methodology. It is also considered that this would increase the chances of success given that the overall technical approach has already been accepted by Verra.

It should also be mentioned that VM0042 provides a widely permissive framework for accounting for SOC changes. For example, it allows modelled approaches (i.e. using mathematical models to estimate changes in SOC) as well as measurement-based approaches (i.e. measuring actual results in SOC changes), and hybrid approaches in-between.

The following activities were implemented by methodology team:

- Definition of which regenerative practices would be acceptable under the methodology, OCW with support from partners (GWCT/LEAF/Farrington Oils) have developed the 'AgricaptureCO2 Master List of Practices', identifying specific practices that the project considers "regenerative" to be included under the VERRA methodology.

- OCW methodology team have reviewed measurement protocols that will be applied within the methodology to quantify baseline and projected impact of the practices, for example the Roth-C Model.
- OCW methodology team reviewed the additionality requirements of the VM0042 methodology (a key criteria for successfully registering projects), developed approaches to apply within the methodology and engaged with partners (ENMX/GILAB/SATAGRO) and Validation and Verification Bodies (VVBs) to test these approaches.
- OCW with support from partners (GILab/SATAGRO/PLANET/ENMX) have assessed how Earth Observation can be applied to confirm the eligibility and provide evidence of each practice in the 'AgricaptureCO2 Master List of Practices'.

2.1 Measurement and Uncertainty: Baselines, Monitoring, Reporting and Verification (MRV)

Under AgriCaptureCO_2 we will apply the VERRA methodology for Improved Agricultural Land Management (VM0042). This methodology was published in November 2020. Making use of AgriCaptureCO_2 project results, OCW is developing a UK-based carbon credit project with the aim of testing the robustness of its approaches to MRV.

It is useful to note that the geographic scope of a group of projects for carbon certification is usually defined up to the extent of national borders, and international group of projects for carbon certification is not permitted. Therefore, potential carbon credit projects in other use cases (where desirable and feasible) will require a new group of projects to be registered by submitting new documentation to VERRA for this purpose.

We recognise the challenge of MRV related to the certification of carbon removals. AgriCaptureCO_2 is working on an advanced data-driven monitoring infrastructure in the agricultural sector that can contribute to this end.

Together with the collection and analysis of soil samples and use of Earth Observation spatial data, AgriCaptureCO_2 aims to map and monitor the quality of the soil over time through detecting and monitoring the application of regenerative agricultural management which promote SOC and soil health in general (Arthurs Legal, 2021).

The digital measurement infrastructure enables stakeholders to monitor, measure and evaluate soil quality and SOC over time and on different scales supported by ground truth data (particularly soil samples). This also offers the opportunity to provide evidence for the additionality of carbon removals. For example, it allows users to demonstrate the difference compared to the situation in which the additional carbon removals were not applied. This could potentially offer a solution for upscaling carbon removals whilst building capacity of accurate measurement and monitoring. In this respect, Earth Observation data are a robust and objective source of information allowing continuous and consistent monitoring over time and over large areas. Once validated with in-situ measurements, this technology can be used to reduce the efforts for the costly verification on the ground and hence allows covering bigger areas. Copernicus data must be at the centre of these efforts but need to be complemented by commercial datasets which are essential to enhance the frequency (temporal resolution) and detail (spatial and spectral resolution) of these datasets (Arthurs Legal, 2021).

As implied above, a remote sensing approach can contribute to both "practice-based" and "results-based" projects. For a practice-based approach, validation ensures that certain regenerative agriculture practices were implemented as planned and estimates effects on SOC based on mathematical models. For results-based approach, validation confirms that certain practices were implemented as well as directly aims to measure their results. The spatial dimension that Earth Observation can offer is a significant advance beyond the state of the art with results-based approaches: e.g. extrapolation from soil sample point data together with intra-field stratification, or using uncertainty-based mapping to identify optimal sampling locations and recalibrate the mapping algorithm for the local area.

AgriCaptureCO_2 is working together with farmers, landowners, farmer groups, agri-businesses and other stakeholders in the agricultural value chain to enrich available datasets and improve service accuracy/value. Based on our experience in technical development, this holistic approach to engaging and including stakeholders as a key element of the process is required to ensure a high-quality MRV system. In turn, this approach requires "buy-in", benefits and effective data governance systems to ensure fair play and the required level of stakeholder contributions (Arthurs Legal, 2021).

To this end we fully leverage data from the EU's Copernicus programme combined synergistically with higher resolution data from our consortium partner, Planet. It should be mentioned that the overall approach is to use Sentinel data as a default and selectively complement it with Planet data where Sentinel data proves insufficient (e.g. cloud cover during extended periods for some climates, requirement for higher spatial resolution for certain validation algorithms, etc.). Indeed, Sentinel data has proven to be appropriate for a majority of the algorithms developed in the project, e.g. validation of cover crops, crop rotation, reduced tillage, leaving crop residues in the field, intra-field zoning, etc. Primary use of Copernicus data is key to ensure the financial feasibility of using Earth Observation data for carbon credit projects.

There is the need to evaluate MRV costs against the value of soil C sequestered (Mäkipää et al., 2008; Smith, 2004b) and be aware of the trade-offs between costs involved and alternative SOC estimation methods including different modelling approaches while remaining in line with framework protocols. Grouping together multiple farm-scale projects, known as aggregation, will help reduce transaction costs associated with MRV.

2.2 Risk of Reversal

The risks of reversal (i.e. that carbon sequestration in soil is "released" by subsequent actions, natural hazards, or change in practices) are dealt with under the VM0042: Improved Agricultural Land Management methodology and refers specifically to the requirement of following the 'VCS Registration and Issuance Process for loss or reversal events.

This requires that a certain percentage of credits go into buffer pools to account for the risk of both unavoidable and avoidable reversal. If an avoidable reversal occurs, the project owner must relinquish a quantity of credits equal to the size of the avoidable reversal, or payments cease until the loss of SOC is accounted for.

Further research could include the assessment of the appropriate scale of aggregation and level of buffer accounting (e.g., is it based on agro-ecological and biophysically defined regions and socio-economic attributes). We believe that our approach using Earth Observation can minimise the percentage required for buffering, but will have to demonstrate this in practice overtime to make a credible claim in project documentation. As such, we will use established parameters in the medium-term.

2.3 Lack of Permanence of Storage

Assessing the significance of non-permanence risk is dealt with under the VM0042: Improved Agricultural Land Management methodology using the VCS AFOLU Non-Permanence Risk Tool. Further inclusions could include 'Guarantee of Permanence' (within Land Manager's Control) and buffers for natural variation in carbon fluxes.

Earth Observation has a significant potential to cost-effectively monitor the state of fields included under carbon credit projects, and we will fully leverage this (beyond the need of the VM0042 methodology to provide evidence of permanence overtime.

2.4 Risk of Leakage

Risks of leakage are dealt with under the VM0042: Improved Agricultural Land Management methodology which accounts for application of manure from outside project area, sustained reductions in crop yields and livestock displacement.

2.5 Demonstrating Additionality

Requirements for demonstrating additionality are dealt with under the VM0042: Improved Agricultural Land Management methodology which presents an objective metric for demonstrating additionality that is transparent and unambiguous. The project proponent must demonstrate regulatory surplus in accordance with the rules and requirements regarding regulatory surplus set out in the latest version of the VCS Methodology Requirements.

In addition to the demonstration of regulatory surplus, projects must:

1. Identify barriers that would prevent implementation of a change in pre-existing agricultural practices; and,
2. Demonstrate that the adoption of the suite of proposed project activities is not common practice (VM0042).

This requires project activities to show that practices impacting SOC storage are not already being implemented on a defined percentage of land area containing a project >20% for Verra compared with >5% for Gold Standard).

Encouraging early adopters to continue beneficial practices while also ensuring any credits are truly additional is a challenge. VERRA allows for back payments, so farmers can accumulate credits for practices undertaken over the past five years.

Less-stringent additionality requirements could help ensure that these early adopters do not abandon their practices to re-adopt later for eligibility in the market.

2.6 Double Counting, "Double Claiming" and Tracking Credits

This accounting problem is yet to be resolved at the international level, as countries are currently negotiating the accounting rules of international carbon markets following COP26 and next COP 27 (in which OCW will participate).

Alignment with The Paris Rule Book - Article 6

Article 6 of the Paris Agreement has made it possible for countries to purchase emissions reductions abroad and use this towards their own targets. The framework for this took six years of negotiations and was finally agreed on at COP26 in Glasgow. The text sets a framework to ensure any emissions reduction units generated by projects abroad may only be used towards a country's NDC's with corresponding adjustments in place.

This means that when an emissions reduction unit is sold abroad, the projects host country must cancel out the impact on its own carbon inventories accordingly to mirror the transfer. The outcome ensures avoidance of one emissions reduction unit being counted by two countries. Practically, it means that only credits which are adjusted for under Article 6 can be used towards another country's NDC, which guarantees credibility.

Article 6.2 provides an accounting framework for international cooperation, such as linking the Emissions Trading Systems of two or more countries. It also allows for the bilateral transfer of carbon credits between countries and other entities (so-called Internationally Transferred Mitigation Outcomes, 'ITMO').

Article 6.4 establishes a centralised UN mechanism (successor of the Clean Development Mechanism from the Kyoto Protocol) to certify tradable credits from emissions reductions generated through offset projects (ING, 2022).

VERRA has sufficient rules in place to prevent double issuance and double use and are in the process of developing guidance for the avoidance of double claiming. However, programmes are limited in their ability to do so by the lack of an international agreement on accounting rules. Nonetheless, we believe it is a clear requirement to outline how carbon projects that we will prepare will address this issue in the specific context of the project.

2.7 Learning by doing

AgricaptureCO_2 has been working in the preparation of a Project Description that will be presented for VERRA in the coming weeks. The Project Description consists in putting in practice all the concepts being considered in the VM0042 applicable to a real case scenario. See Annex I the front page and part of the index of this document.

The Project Description has been being evaluated through external audit, Earthood, acting on behalf of VERRA. This process is in validation and will finalize with a validation report. The Project Description and all its supplementary documentation and the validation report are the main documents to be presented to VERRA for the generation of carbon credits. The validation process involves the raise of clarifications and corrective actions requests by the auditor through a document called "list of findings". The first page of this document is presented in Annex II.

Despite the robustness shown by VERRA and the VM0042 methodology, the team has also worked in its improvement (see chapter below), along with the creation of a new concept "green assets" to be used in small-scale projects.

3 Revision of VM0042

As it has been presented previously, the VM0042 has been concluded to be a VALID methodology, robust and permissive to the use of AgriCaptureCO2 assets. However, One Carbon World has been contacted by VERRA to perform a deeper analysis of the technical gaps of this methodology.

The analysis was done in the form of "key questions" when some elements of the methodology are not very well addressed and there is no correction to make further clarification. The main questions were related to applicability conditions of the methodology, e.g. the definition of agroforestry and improved agroforestry. See further details in Annex III.

The second part of the analysis was done with the form of general comments. In this case, many topics were covered such as applicability conditions, project boundaries, additionality, and definitions. For further details about the comments see Annex IV. One of the main points raised is about embedding Earth Observation technology used for "adjusting existing practice".

These comments were very well received by VERRA which is currently working on a second version of the methodology. We expect this contribution to further improve the permissibility of using AgriCaptureCO2 assets for carbon projects under VM0042. A draft version of it can be seen in Annex V.

4 Prioritising Carbon Insetting

In parallel to the work being conducted with the testing of VERRA methodology, an entire new concept has been also being developed: "green assets", which is an insetting methodology and its calculations.

The term carbon "insetting" has been used to refer to a company's efforts to prevent, reduce, or remove emissions within its own supply chain. As part of the analysis done by OCW in WP4, it is recommended that organisations with agricultural supply chains should prioritise GHG mitigation through SOC sequestration as part of an insetting strategy to manage emissions across their supply chain. Internalising these efforts to compensate or neutralise its own emissions (from other sources), ensures the entity being actively engaged in collaboratively providing education, technical assistance, and in many cases financial assistance. The measurement of reductions and resulting carbon balance should follow approved standards (Oldfield, E.E., et. al, 2021).

There are currently several examples of carbon insetting where companies have directly targeted the agricultural segments of their supply chains for opportunities to sequester carbon through implementation of regenerative practices. Examples of inset markets include initiatives by Nestlé (2021) and Bayer (2021) as well as the efforts of the Field to Market Alliance (2021). Commitments by food and agriculture companies to reduce scope 3 emissions[3] from their supply chains can add value by accelerating the adoption of agricultural practices that can have benefits beyond SOC storage, such as increased resilience to climate change impacts.

As with carbon credit certification, there is a need for a robust verification procedure through standards, such as ISO 14064-2, for the verification of carbon emissions and sequestration occurring within a supply chain. This should be carried out by an independent and impartial third party following approved standards.

This approach has been successfully tested for integrity as part of OCW's research within the United Nations Climate Neutral Now Initiative. There are several companies that have been verified against this approach with great success. See Annex VI for evidence.

In the context of AgriCaptureCO2, this could be a valid approach for the Greek use case, whose context makes an "offset" carbon credit project financially infeasible (i.e. high costs of set-up, high costs to document projects for small farms, low expected revenue from climatically-determined low soil carbon sequestration potential). This will allow the project

[3] Scope 3 | Other Indirect Emissions across the value chain e.g., out grower farms

to demonstrate the potential of AgriCaptureCO2 assets for this type of context, thus extending the “learn by doing” approach we presented for offsets as well.

5 Conclusions and next steps

This document follows up on the analytical work conducted early in WP4 and presented in D4.1 Suitability assessment for legal & voluntary schemes, seeking to provide a manner to leverage tools developed in the AgriCaptureCO2 to make the carbon credit certification process easier, cheaper, and – as much as possible – more scalable.

The project assumed at its early stages, as reflected in the Grant Agreement, that this would require a dedicated "AgriCaptureCO2 Methodology", defined by the project and registered. However, the assessment activities in WP4 concluded that this was not entirely necessary. WM0042, defined under VERRA's VCS voluntary carbon credit scheme, is a wide framework for certification of carbon removals from agricultural land management and indeed generally permissive for use of novel remote sensing tools. This thesis was tested through consultations with VERRA itself, as the organisation managing the VCS programme and having certified VM0042, as well as 3rd party auditors, who in practice would assess project documentation submitted to register a carbon credit project.

Based on this improved understanding, the methodology team in WP4 concluded that a new dedicated methodology for carbon removals from agricultural was not required. Instead, it sought to clarify how these tools can be used under VM0042 – and recognised the opportunity to contribute to evaluation and improvement of VM0042, which coincidently coincided with the activities of WP4. In this manner, the decision for WP4 activities to start sooner than envisioned in the Grant Agreement allowed the project to seize upon this unanticipated opportunity.

Having in theory defined how we can use AgriCaptureCO2 tools for carbon credit projects, we recognise that there is a significant learning curve to "learn from doing". Indeed, to fully exploit project results for carbon credit certification (one of the exploitation pathways identified by the business team and described in the AgriCaptureCO2 business plan), it is necessary to take this step during the project and ensure that consortium partners develop the capacities to support carbon credit projects in a market context (i.e. outside the experimental context of a project). OCW has registered a carbon credit project in the UK under VM0042 in the VERRA registry which makes use of AgriCaptureCO2 tools to this end, and will integrate lessons learned to define clear processes, differentiate opportunities, and establish market-ready operations by the end of the project's lifetime.

In addition, the project has recognised that carbon credit projects under voluntary schemes require significant resources (in terms of both time and financially costs) which have to be justified by the context and scope of the project: i.e. expected revenues from certifying carbon credits have to (i) provide an incentive to farmers, and (ii) provide a share of proceeds to cover the administrative of the project. In the case of the Greek use case, as an indicative example, this is hard to justify on the grounds of:

- Small average farm size (<0.5 ha) and the requirement for documentation to be prepared and submitted for each farm that participates in a group of projects. It should be noted that the group of projects architecture is designed to provide a framework for similar carbon removal/reduction activities across different "instances" (in this case farms), to avoid having to register each case as a separated project. Crucially, this defines the methodology to be used across all instances. Nonetheless, there is a requirement to prepare and submit "simplified" documentation for each farm that joins the group of projects, which still has a significant administrative cost.
- Low natural potential for soils in an arid climate to sequester carbon.

OCW has conducted research on the use of assessing green assets for these contexts: i.e. net positive emissions at a step in a value chain can "inset" emissions from elsewhere in the value chain. Although the same requirements for robustness are apparent, this approach is less demanding in terms of administration as the measurements are not certified for sale to an external entity.

Overall, accelerating net carbon emission reductions is urgently needed across all sectors to meet international climate commitments and policy goals under the European Green Deal – and thus avoid the worst consequences of climate change. In agriculture, as in other sectors, it is important to create a system of incentives to help motivate actors (particularly farmers) to make changes to business as usual. Offsetting and insetting provide two approaches to this end, which can in practice be complementary to each other to avoid exclusion of farmers from potential new sources of revenue from carbon farming. As described in D4.1, offsetting and insetting should be used to address unavoidable emissions, while companies/organizations, public bodies, and countries should take actions to minimise their emissions where they can be avoided.

There also other farmer incentive programmes which are also being explored in the AgriCaptureCO2 use cases: e.g. carbon farming payments under CAP by SatAgro in Poland, lower insurance premiums and better loan terms by GILab in Serbia.

Implementing exploratory, preparatory and practical steps as a part of the AgriCaptureCO2 use cases will provide valuable insights and lessons learned for consortium partners that plan to offer/support these incentive programmes after the project.

6 Sources cited

Arthurs Legal (2021) AgriCaptureCO2 Report: Observations, Recommendations & Other Input.

Intergovernmental Panel on Climate Change (IPCC) (2021) IPCC_AR6_WGIII_FinalDraft_FullReport: *Climate Change 2022 Mitigation of Climate Change.* https://report.ipcc.ch/ar6wg3/pdf/IPCC_AR6_WGIII_FinalDraft_FullReport.pdf [Accessed: January 2022]

Nicolas J.S. Lockhart, Maureen M. Crough, Dominic Coppens, Katherine Connolly, Jason J. Lawler (2022). *The Opportunities and Risks of Carbon Credits on the Pathway to Net Zero* https://www.sidley.com/en/insights/publications/2022/03/the-opportunities-and-risks-of-carbon-credits-on-the-pathway-to-net-zero [Accessed: April 2022]

Smith, P. (2004), Monitoring and verification of soil carbon changes under Article 3.4 of the Kyoto Protocol. Soil Use and Management, 20: 264-270. https://doi.org/10.1111/j.1475-2743.2004.tb00367.x

Smith. P, Soussana. J-F, Angers. D, Schipper. L, Chenu. C, Rasse. D. P, Batjes. N.H, Egmond. F, McNeill. S, Kuhnert M, Arias-Navarro. C, Olesen. J, Chirinda. N, Fornara. D, Wollenberg. Eva, Alvaro-Fuentes. J, Sanz-Cobena. A, Klumpp. K, (2019). How to measure, report and verify soil carbon change to realize the potential of soil carbon sequestration for atmospheric greenhouse gas removal https://onlinelibrary.wiley.com/doi/epdf/10.1111/gcb.14815

Stockmann, U., Adams, M. A., Crawford, J. W., Field, D. J., Henakaarchchi, N., Jenkins, M., Zimmermann, M. (2013). The knowns, known unknowns and unknowns of sequestration of soil organic carbon. Agriculture, Ecosystems & Environment, 164, 80–99. ISSN 0167-8809, https://doi.org/10.1016/j.agee.2012.10.001. https://www.sciencedirect.com/science/article/pii/S0167880912003635

The European Environmental Bureau: EEB (2021) AgriCaptureCO2 Report: *D2.1 EU and UK Policy Context for Regenerative Agriculture.*

VCS Methodology, (2020) *METHODOLOGY FOR IMPROVED AGRICULTURAL LAND MANAGEMENT* https://verra.org/wpcontent/uploads/2020/10/VM0042_Methodology-for-Improved-Agricultural-Land-Management_v1.0.pdf [September 2022]

VERRA (2022) *Who We Are* https://verra.org/about-verra/who-we-are/ [September 2022]

Annex I. VERRA Project Description

Verified Carbon Standard
A VERRA STANDARD

GREAT BRITISH SUSTAINABLE FARMING PROJECT

ONE CARBON WORLD™

Document Prepared by One Carbon World (OCW)

Contact Information

Project Title	Great British Sustainable Farming project
Version	1
Date of Issue	19-May-2022
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Annex II. VERRA audit – list of findings

	CDM.F28W. Audit Findings Version 2.0, Dated 16/10/2015 VCS.VAL.22.16
ESPL	

Table 1. Remaining FAR from validation and/or previous verification

FAR ID		Section no.		Date: DD/MM/YYYY
Description of FAR				
Not applicable as the scope of the current assessment is validation of the project.				
Project participant response				Date: DD/MM/YYYY
NA				
Documentation provided by project participant				
NA				
VVB assessment				Date: DD/MM/YYYY
NA				

Table 2. CL from this validation

CL ID	01	Section no.		Date: 25/05/2022
Description of CL				
One of the regenerative agricultural activities in PAIs Goodwood Home Farm is farmyard manure which will involve optimization of the application of manure. Also, manure deposition and enteric fermentation is included in baseline GHG source and project GHG source. In this case, the project activity includes manure management and therefore falls under sectoral scope 15. However, the sectoral scope of the project only includes 14 as mentioned in section 1.2 of the PD. PP shall refer Appendix 1 Eligible AFOLU Project Categories given in VCS Standard, version 4.2 and address the comment. The note given at the end of the para-A1.2 of appendix section states Project activities relating to manure management are eligible under sectoral scope 15 (livestock, enteric fermentation, and manure management), not sectoral scope 14 (AFOLU).				
Project participant response				Date: 06/06/2022
The "VM0042 Methodology for Improved Agricultural Land Management, Version 1.0,19 October 2020, is always referring to "Sectoral Scope 14". The methodology describes in Table 3 (page 3) the GHG sources included in or excluded from the project boundary in the Baseline and with the Project scenario: the use of nitrogen fertilizers is a GHG source that has to be included, N fertilizers can be synthetic and/or organic. This methodology defines in page 6 "organic nitrogen fertilizer" as: "Any organic material containing nitrogen, including but not limited to animal manure, compost and sewage sludge." *Table 3 also states that in case that animals are present in the baseline or project scenario, CH_4 from enteric fermentation and CH_4 and N_2O from manure deposition must be included in the project boundary.* *In quantification approach 3, Equation 12 (nitrous oxide emissions due to fertilizer use in the baseline scenario for sample unit I in year t; tCO2e / unit area) is used to calculate the sum of emissions from N_2O emitted directly and indirectly due to the application of N fertilizers (page 28).* *Organic nitrogen fertilizers are used to calculate these emissions. Equation 13 for direct fertilizer N2O emissions and Equation 16 (Eq. 17 and Eq. 18) for indirect fertilizer N2O emissions.*				

Annex III. Revision to VM0042 – Key questions

Key Questions about the revision to VM0042 and VMD0053, v1.0

Please use the key questions in this sheet to guide your review of the revision to VM0042 and VMD0053, v1.0, and provide your answers to the questions in the *Response* column.

Questions			
1	VM0042	Section 4 Applicability conditions and Appendix 2	Are the newly introduced exceptions to allow land use changes from cropland to grassland or vice versa restrictive enough to ensure environmental integrity?
2	VM0042	Section 6 Baseline scenario and section 8.2 Baseline emissions	Are there any additional or different requirements that should be added to define and monitor Baseline Control Sites (e.g., minimum one baseline control site per stratum when a stratified soil sampling design is used)?
3	VM0042	Section 8.5 Gross and net GHG emission reductions and removals	Is the separate calculation of GHG reductions and removals logical and correct?
4	VM0042	Section 8.6 Uncertainty	Does the updated uncertainty section contain sufficiently detailed guidance to enable a robust calculation? Do you agree with the proposed uncertainty deduction thresholds?
5	VM0042	Appendix 4	Do the newly introduced criteria to evaluate the use of proximal sensing technologies to measure SOC include all important aspects or should this appendix be more detailed?
6	VMD0053	Section 5.1 Model calibration, Box 1	Do you agree with not requiring to report the calibration of a crop growth model because this calibration does not affect the SOC model substantively?
7	VMD0053	Section 5.2.3 Gather Data to Validate Model Performance and Uncertainty	Does the newly introduced rule to prioritize validation datasets to be physically closest to the project geographical location improve data quality for more robust application of models? Or is this requirement unnecessary?
8	VMD0053	Section 5.2.3 Gather Data to Validate Model Performance and Uncertainty	Are the three new proposed rules for validating datasets in systems with organic amendments, N fertilization and irrigation both rigorous and feasible?
9	VMD0053	Section 5.2.3 Gather Data to Validate Model Performance and Uncertainty	Under Requirement 2, does the new more flexible requirement for the validation dataset regarding soil textural classes maintain sufficient rigor compared to the original requirement?
10	VMD0053	Section 5.2.4 Assessment of Bias for each Practice Category	Are there any other factors, in addition to SOC content measurement technique (e.g., sampling scheme, bulk density measurement technique, etc.), worth specifying for lumping studies to compute pooled measurement uncertainty (PMU)?
11	VMD0053	Appendix 1	Is the proposed process for a modeling assessment by an Independent Evaluation Expert (IEE) reasonable and feasible for projects, including the criteria to be met by IEEs?
12	VM0042	Section 4. Applicability conditions (page 7, line 24)	Considering that land use change to forestry is not permitted considering the applicability conditions for VM0042, there is a need to clarify the definition for improved agroforestry. For instance, should the project developer apply the national definition of agroforestry where the project is located? In case there is not, what would be the canopy cover to consider agroforestry or forestry within VM0042? How tall should trees get at maturity? Could any species of trees be considered agroforestry (native vs exotic)?
13	VM0042	Section 4. Applicability conditions (page 9, line 11)	"Improve crop planting and harvesting (e.g., improved agroforestry..." What does improved agroforestry means? Could that be part of the glossary? It is understood that grassland or cropland cannot be changed to forest land use, but there are some cases that the introduction of tree plants in a grassland system without reaching the forest land definition, could be call agroforestry (and there is not land use change). What if a project developer wants to implement a silvipastural system as part of an improvement agricultural land management? Could it be selected? Or does only the "improvement" of existing agroforestry system applies? In that case, what is exactly "improvement"?
14	VM0042	General	Considering all the modifications done, what is the date for the new methodology to become valid?

Annex IV. Revision to VM0042 - General Comments

Input on the revision to VM0042 and VMD0053, v1.0

Please use this sheet to provide your general comments and feedback on the revision to VM0042 and VMD0053, v1.0.

Comments by section (add more rows as needed)				
Section	**Page Number**	**Line Number**	**Comments**	**Proposed Change**
4. Applicability conditions (VM0042 v1.0)	7	line 19 ("1. Projects must introduce or implement one or more new changes to pre-existing agricultural management practices which:...")	Increase efficiency in the use of resources (such as fuels) (e.g. agriculture precision). The implementation of agriculture precision in agriculture practices will result in the improvement of efficiency in the use of soil properties, reduction of fossil fuels, chemicals and fertilizers and also resulting in an increase in crop yields. Agriculture precision is defined by the National Research Council as "the application of modern information technologies to provide, process and analyze multisource data of high spatial and temporal resolution for decision making and operations in the management of crop production". Agriculture precision should be considered as an agricultural managment, the reasons are: -Earth Observation, which is an example of one of the source data of high spatial and temporal resolution, facilitates the decision related to agriculture (e.g. type of fertilizer and quantity) for the farmers to take. It is also a tool that can be used to take decisions in land elegibility towards the VM0042 methodology and VCS standard. Common practice analysis could be done by the use of earth oobservation methods, simplifying work and performing a more cost-effective solution. -The connection to online platforms helps keep on track and monitor the fields, and also provides a historical lookback that can help making	Adding agriculture precision as an agricultural management.
8.2.8 Nitrous Oxid	28	Equation 12 to 21	The disadvantage we found while looking at Quantification Approach 3 is that, for instance, if the project activity includes the use of controlled release fertilizers, urease inhibitor and slow release fertilizers. Equation 12 to 21 does not make a difference using this type of fertilizers. There should be an emission factor (EF) specific for these type of controlled release fertilizers, urease inhibitor and slow release fertilizers.	Including EF for controlled release fertilizers, urease inhibitors and slow release fertilizers.
2. Summary description of the Methodology (VM0042 v2.0)	6	line 4	The new addition of measuring directly on site, if there is no applicable performance benchmark, will help getting the real values for a more accurate VCU.	
4. Applicability conditions (VM0042 v2.0)	9	line 27 ("However, land use change (i.e., conversion from cropland to grassland or vice versa) may be allowed under the following scenarios..")	The fact that this was added makes it a lot easier for farmers who are interested in VCU to join the project. Mainly because most farmers have an integrated crop rotation and the fact that the VM0042 would not permit the change of grassland to cropland and vice versa made it not possible for them to join without changing their production system. This implementation was great.	
4. Applicability conditions	9	28	In "Introduction of temporary grassland into cropland is allowed where it can be credibly demonstrated prior to project validation that the integration of perennial crops (e.g., grasses, legumes) into annual crops is planned as part of a long-term agricultural management system (i.e., Integrated Crop-Livestock". Despite the introduction is very well wellcome, there is a need to include also "...integration of annual and perennial crops (e.g. grasses, legumes)..." In other words, temporary grasslands can also be an annual crop (Lolium multiflorum)	Modify the sentnces to contemplate other possible scenarios
4. Applicability conditions	11	4	About the exclusion of the application of biochar, it is understood that there is a specific methodology for that activity in Verra, however, it is still an agricultural regenerative practice. The exclusion of this will result in a challange to project developer who will need to apply two different methologies in one project activity (and one PD) if biochar is used as a set of new agricultural regenerative practices introduced to a field. In the same way, Verra does also have a methodology to account for emission reductions through N fertilizer rate reduction (VM0022) but the VM0042 is not referring to that methology when fertilizer rates are reduced as a part of regenerative agricultural practices under the VM0042 methodology.	Include biochar as a possible ALM activity
5. project bounda	12	10	Table 2: "Aboveground and belowground woody biomass must be included where project activities may significantly reduce the pool compared to the baseline." It should also say that woody biomass must also be included where the project activity includes agroforestry practices"	Include "aboveground and belowground biomass must when agroforestry practices are included".

Input on the revision to VM0042 and VMD0053, v1.0

Please use this sheet to provide your general comments and feedback on the revision to VM0042 and VMD0053, v1.0.

Comments by section (add more rows as needed)

Section	Page Number	Line Number	Comments	Proposed Change
5. project bounda	13	16	"… may be deemed de minimis and may be ignored…" It is agreed that this is a good approach to facilite project activities. However, it should be considered that the summatory of ignored sources of emissions or reduction or decreases in carbon stocks do not overpass that 5% threshold. This is a normal procedure for example under ISO standards	Include a clause that considers the summatory of ignored sources of emissions do not overpass certain threshold.
7. Additionality	18	24	"Common practice is defined as greater than 20% adoption". What will happen in the (near) future when the proposed improved agricultural land management becomes more common due to the increase of carbon projects seeking carbon credits? The activity could become common practice?	The methodology should specify at certain point that it could be demonstrated that an activity is not a common pracitce even the adoption rate is higher 20%, explained by the fact that this activity has been implemented to seek carbon credits or specifically to capture and retain carbon.
3 Definitions	7	13	Baseline control site is very well defined. However, there could be different scenarios in reality that my cause a subjective interpretation of it. For example, what if the control site that has been using for a project activity is modified and the control site needs to be moved? In terms of soil orgnanic carbon it could be extremely difficult to find another control site that is equals to the first control site. At least refer to section 8.2, page 26, table 7.	The methodology should specify more in detail the defintion of baseline control site or the procedure to follow when a control site is not applicable to the carbon project.
8.2.5 Methane En	33	14	EF ent. Enteric emission factor for livestock type l; kg CH4/(head * year). The methodology is consideting the same equation 7 to estimate emissions in baseline and project. The EF (in page 93) states that source of data may be peer-reviewed published data, for example IPCC 2019. However, it is not clear if a project developer can consider a EF based on its own estimation using IPCC 2019 and applying a tier 2 or tier 3. With that, the project developer can measure emissions reductions in its livestock due to the introduction of practices that are project related: better feedstock, more available drinking water, better genetics or management practices.	Would it be possible to introduce in the methodology the possibility of consideing a tier 2 or tier 3 method to estimate, as part of the monitoring, a project specific emission factor for enteric fermentation?
8.2.6 Methane En	34	11	EF CH4. Similarly to above, the methodology is consideting the same equation 8 to estimate emissions in baseline and project and it is not clear if a project developer can consider a EF based on its own estimation using IPCC 2019 and applying a tier 2 or tier 3	Would it be possible to introduce in the methodology the possibility of consideing a tier 2 or tier 3 method to estimate, as part of the monitoring, a project specific emission factor for manure deposition?
General	N/A	N/A	As we have been developing a project (already listed as "under development") we have some questions that are based on real situations. We have been working in a grouped project with two initial instances, but we wonder to know what is the interpretation of Verra or project developer when new instances are added with ALM activities that were not included in the first insntances. For example, shoud we structure a grouped project and PD with all the potential activities, being open to any new instances? Or should the project be stuctured with the activities included in the first instances and in the future, if new instances arrives with other activities, a new PD must be developed?	

Annex V. VM0042 version 2 DRAFT

VCS Methodology

VM0042

METHODOLOGY FOR IMPROVED AGRICULTURAL LAND MANAGEMENT

Version ~~2~~1.0

~~19 October 2020~~21 December 2021

Sectoral Scope 14

www.agricaptureco2.eu info@agricaptureco2.eu @AgriCaptureCO2

Version 1.0 of this This methodology was developed by TerraCarbon LLC and Indigo Ag. The lead authors were David Shoch and Erin Swails from TerraCarbon. Contributions from Indigo would like to acknowledge the many contributions by colleagues at Indigo Ag were made by (in alphabetical order): Chris Black, Charlie Brummit, Nell Campbell, Max DuBuisson, Dan Harburg, Lauren Matosziuk, Melissa Motew, Guy Pinjuv, and Ed Smith. Version 1.0 was approved on 19 October 2020.

Document prepared by TerraCarbon LLC

Authors: David Shoch and Erin Swails (TerraCarbon LLC)

and

Indigo Ag

Version 2.0 of this methodology was prepared by Verra staff. Revisions to the uncertainty section were prepared by **Dr. Brian McConkey**, Chief Scientist, Viresco Solutions and **Dr. Beth Ziniti**, Research Scientist, Applied Geosolutions. Indigo would like to acknowledge the many contributions by colleagues at Indigo Ag (in alphabetical order): Chris Black, Charlie Brummit, Nell Campbell, Max DuBuisson, Dan Harburg, Lauren Matosziuk, Melissa Motew, Guy Pinjuv, and Ed Smith. We would like to recognize the valuable input and guidance from Ken Newcombe at C-Quest Capital, as well as the many rounds of detailed review from the experts at Aster Global Environmental Services during the independent methodology validation process. Finally, we thank our reviewers, especially the VCS Agricultural Land Management Working Group, whose comments and suggestions contributed to greatly increase the clarity and effectiveness of this methodology.

1 SOURCES

This methodology is based on the following methodologies:

- *VM0017 Adoption of Sustainable Agricultural Land Management*
- *VM0022 Quantifying N2O Emissions Reductions in Agricultural Crops through Nitrogen Fertilizer Rate Reduction*
- *VM0026 Sustainable Grassland Management*

This methodology uses the latest versions of the following CDM tools:

- *Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities*
- *Simplified baseline and monitoring methodology for small scale CDM afforestation and reforestation project activities implemented on lands other than wetlands*
- *Tool for testing significance of GHG emissions in A/R CDM project activities*

2 SUMMARY DESCRIPTION OF THE METHODOLOGY

This Agricultural Land Management (ALM) methodology provides procedures to estimate the greenhouse gas (GHG) emission reductions and removals resulting from the adoption of improved agricultural land management practices focused on increasing soil organic carbon (SOC) storage. The methodology quantifies net emissions of CO_2, CH_4, and N_2O from grower operations. The methodology is compatible with regenerative agriculture.

The baseline scenario assumes the continuation of pre-project agricultural management practices. ~~For regions w~~Where~~where~~ an applicable performance benchmark has been approved by Verra[1], that benchmark ~~must~~ may be applied as the baseline scenario for SOC stocks. Where an applicable performance benchmark has not been approved by Verra~~. Otherwise, for each sample unit within the project area (e.g., for each field)~~, practices applied in the baseline scenario are determined applying a 3-year historic~~historical~~ look-back period to produce an

[1] Such performance benchmarks currently (as of the date of publication) do not exist but may be developed and approved by Verra in the future. If following Quantification Approach 1 (Measure and Model), the performance benchmark developed and approved by Verra will need to include a defined modeled approach that allows for validating model performance and -prediction error for use in the project domain, based on the requirements presented in the "VMD0053 Model Calibration, Validation, and Uncertainty Guidance for the Methodology for Improved Agricultural Land Management~~Model calibration, validation, and uncertainty guidance for the methodology for improved agricultural land management~~" ~~document~~module.

annual schedule of activities (i.e., ~~e.g.,~~ tillage, planting, harvest, and fertilization events) for each sample unit within the project area (e.g., for each field) to be repeated over the first ~~baseline~~ crediting period. Baseline emissions/stocks change are then modeled. Alternately, baseline SOC stock change may be directly measured in "baseline control sites" managed according to pre-project practices as set out in the schedule of activities. The baseline scenario is re-evaluated as required by the *VCS Standard*, and revised, if necessary, to reflect current agricultural production in the region.

Additionality is demonstrated by the adoption, at the project start date, of one or more changes in pre-existing agricultural management practices. A practice change constitutes adoption of a new practice (e.g., adoption of one or more of the practices covered in the categories included in ~~the~~ applicability condition~~s~~ 1~~as well as the illustrative improved agricultural land management practices listed in Appendix 1~~), cessation of a pre-existing practice (e.g., stop tillage or irrigation), adjustment to a pre-existing practice, or some combination thereof. Any quantitative adjustment (e.g., decrease in fertilizer application rate) must exceed 5% of the pre-existing value to demonstrate additionality.

Table 1: Additionality and Crediting Baseline Methods

Additionality and Crediting Method	
Additionality	Project Method
Crediting Baseline	Project Method

The methodology provides three ~~a flexible~~ approach~~approaches~~es to quantifying emission reductions and removals resulting from the adoption of improved agricultural land management practices. ~~under the following quantification approaches:~~

- **Quantification Approach 1**: Measure and Model – an acceptable model is used to estimate GHG flux based on edaphic characteristics and actual agricultural practices implemented, measured initial SOC stocks, and climatic conditions in sample fields.
- **Quantification Approach 2**: Measure and Re-measure – direct measurement is used to quantify changes in SOC stocks. This approach is relevant where models are unavailable or have not yet been validated or parameterized for a particular region, crop, or practice. ~~Currently,~~ Quantification Approach 2 ~~cannot be used because a~~ uses a performance benchmark ~~has not yet been developed~~. If an applicable performance benchmark is not available, SOC stock changes in the baseline scenario are directly measured in linked baseline control sites.
- **Quantification Approach 3**: Calculation – CO_2 flux from fossil fuel combustion and N_2O and CH_4 fluxes, excluding CH_4 flux from methanogenesis, are calculated following *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories* (IPCC, 2019) using equations contained in this methodology.

Quantification approach varies by emission/removal type. Approaches to quantifying ication of contributing sources for CO_2, CH_4, and N_2O emissions are listed in Table 5. Monitoring is conducted for both the baseline and project scenarios. If an applicable performance benchmark is not available, emission/stock changes in the baseline scenario are modeled using Quantification Approach 1, partly on the basis ofbased on one or more monitored input variables (e.g., temperature, precipitation), directly monitored (SOC stock change only) in linked baseline control sites.) or calculated using Quantification Approach 3 as detailed in Table 5.

Annex VI. Carbon insetting examples

ONE CARBON WORLD™

One Carbon World
Carbon Footprint Verification

Presented to:

Caravela Coffee and

Galápagos Supplier Farms in Collaboration with

Starbucks Coffee Trading Company Sàrl

November 2021

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