

Terms of Reference (ToR)

Independent External Technical Review

Methodology: BCR0016 – Regenerative Agricultural Land Management (ALM) Version 1.0, Public Consultation Draft

1. Background

BioCarbon has developed the methodology BCR0016 – Regenerative Agricultural Land Management (ALM) (Version 1.0), currently under public consultation. The consultation documents are publicly available at:

<https://biocarbonstandard.com/en/public-consultation/>

This methodology establishes a project-level framework for quantifying net GHG emission reductions and removals resulting from improved agricultural land management practices. It applies to agricultural systems in which project activities lead to measurable changes in soil organic carbon stocks, nitrous oxide emissions associated with nitrogen inputs and soil processes, methane emissions where relevant, and, where applicable, biomass carbon stocks.

The methodology is designed for management-driven mitigation in agricultural systems, including croplands, managed grasslands, integrated crop–livestock systems, and systems transitioning toward improved or regenerative land management. Eligible activities include, among others, reduced soil disturbance, cover cropping, crop diversification, nutrient management optimization, application of organic amendments, enhancement of soil biological activity, integration of crop and livestock systems, and restoration of degraded agricultural soils.

In accordance with the BioCarbon methodological governance framework and international best practices, the methodology is subject to an independent external technical review.

This review aims to ensure methodological robustness, transparency, and alignment with high-integrity carbon market principles, including conservativeness, avoidance of over-crediting, additionality, permanence, leakage management, and avoidance of double counting.

2. Objective of the Review

The objective of the independent external review is to assess whether the methodology:

- (a) Ensures environmental integrity and conservative estimation of emission reductions and removals;
- (b) Avoids systematic overestimation of mitigation outcomes;
- (c) Applies scientifically robust and auditable quantification approaches for soil organic carbon stock changes and non-CO₂ emissions in agricultural systems;
- (d) Adequately addresses baseline plausibility, additionality, leakage, uncertainty, and permanence in agricultural land management contexts;
- (e) Is consistent with IPCC AFOLU guidance and good practice for agricultural GHG accounting;
- (f) Aligns with high-integrity frameworks, including the ICVCM Core Carbon Principles and Article 6 of the Paris Agreement.

The review shall explicitly assess whether the methodology provides a credible and auditable framework for quantifying net GHG emission reductions and removals in agricultural systems characterized by variability in management practices, soil conditions, climatic conditions, crop systems, and uncertainty associated with soil carbon measurement.

3. Scope of Work

The external reviewer shall assess at a minimum:

- (a) **Applicability and Eligibility**
 - (i) Clarity and enforceability of applicability conditions;
 - (ii) Adequacy of eligibility requirements for agricultural land management systems;
 - (iii) Consistency with AFOLU accounting principles;
 - (iv) Adequacy of exclusions related to recent land-use change, non-measurable practices, and activities resulting in net increases in emissions;
 - (v) Adequacy of regenerative integrity criteria and system-based eligibility requirements.

(b) Baseline and Additionality

The reviewer shall specifically assess:

- (i) Robustness of the baseline approach, including the treatment of the baseline as a dynamic agricultural management system;
- (ii) Adequacy of the historical reference period and reconstruction of baseline conditions;
- (iii) Treatment of baseline emissions and removals, including soil organic carbon under baseline conditions;
- (iv) Treatment of proxy data, regional datasets, and conservative assumptions;
- (v) Consistency between baseline assumptions and additionality demonstration;
- (vi) Application of the BioCarbon Additionality Tool;
- (vii) Treatment of regulatory surplus, common practice, and barrier and/or investment analysis;
- (viii) Additionality treatment for existing operations and incremental improvements;
- (ix) Adequacy of safeguards against non-additional crediting.

(c) Quantification Approach

- (i) Scientific validity of quantification methods for soil organic carbon stock changes;
- (ii) Scientific validity of quantification methods for nitrous oxide emissions associated with nitrogen inputs and soil processes;
- (iii) Scientific validity of methane quantification where relevant;
- (iv) Adequacy of treatment of optional biomass carbon stock changes;
- (v) Consistency between baseline and project scenario quantification;
- (vi) Adequacy of the integrated net GHG accounting approach;
- (vii) Application of conservative assumptions and parameters;
- (viii) Consistency of emission factors, activity data, and conversion factors with IPCC guidance.

(d) Stratification, Sampling, and Representativeness

- (i) Adequacy of stratification requirements for heterogeneous agricultural systems;
- (ii) Statistical robustness of sampling design;

- (iii) Representativeness of sampling across strata and participating units, including grouped and aggregated projects;
- (iv) Adequacy of confidence level requirements and treatment of high variability;
- (v) Consistency between sampling requirements and uncertainty management provisions;
- (vi) Adequacy of SOC sampling requirements, including depth, frequency, fixed or statistically equivalent locations, and laboratory methods.

(e) Uncertainty and Conservativeness

Treatment of uncertainty, including:

- (i) Measurement uncertainty;
- (ii) Sampling uncertainty;
- (iii) Uncertainty associated with soil organic carbon estimation;
- (iv) Uncertainty associated with nitrous oxide and methane estimation;
- (v) Application of the BioCarbon Uncertainty Tool;
- (vi) Adequacy of conservative deductions and adjustments;
- (vii) Safeguards to prevent over-crediting.

(f) Leakage

- (i) Identification of leakage sources relevant to agricultural systems, including production displacement, input reallocation, and diversion of organic matter or biomass;
- (ii) Adequacy of leakage quantification and conservative treatment;
- (iii) Consistency with the BioCarbon Leakage Management Tool;
- (iv) Integration of leakage into net GHG accounting;
- (v) Adequacy of provisions for negligible leakage determinations.

(g) Permanence and Reversal Risk

- (i) Identification and classification of reversal risks associated with soil organic carbon and, where applicable, biomass carbon;
- (ii) Application of the BioCarbon Permanence and Risk Management Tool;
- (iii) Adequacy of buffer and compensation mechanisms;
- (iv) Treatment of reversal detection, monitoring, reporting, and compensation;
- (v) Adequacy of long-term integrity provisions for credited removals in agricultural systems.

(h) Avoidance of Double Counting

- (i) Consistency with national accounting frameworks;
- (ii) Alignment with Article 6 requirements;
- (iii) Application of exclusive claim, traceability, and avoidance of double counting principles.

(i) MRV and Data Integrity

- (i) Robustness of the MRV framework;
- (ii) Adequacy of monitoring requirements for crop systems, nutrient inputs, residue management, tillage, soil organic carbon, and non-CO₂ emissions;
- (iii) Adequacy of data management, traceability, and documentation provisions;
- (iv) Suitability of QA/QC requirements;
- (v) Consistency between monitored parameters and quantification equations;
- (vi) Adequacy of verification requirements and competence expectations for validation and verification personnel.

(j) Transparency and Replicability

- (i) Clarity and completeness of methodological steps;
- (ii) Transparency of assumptions and parameters;
- (iii) Internal consistency across sections;
- (iv) Replicability across comparable agricultural systems and contexts.

4. Deliverables

The external reviewer shall provide:

- (i) A written independent technical review report;
- (ii) Identification of material methodological risks, if any;
- (iii) Clear, structured recommendations for improvement;

An overall conclusion regarding:

- (i) methodological robustness;
- (ii) environmental integrity; and
- (iii) suitability for application in high-integrity carbon markets.

The report shall clearly distinguish between:

- (i) critical issues (affecting integrity or credibility); and
- (ii) advisory recommendations (methodological improvements).

5. Eligibility Requirements for Applicants

Applicants shall demonstrate:

(a) Advanced academic qualifications in agronomy, soil science, agricultural systems, agroecology, land-use science, carbon accounting, AFOLU, or related disciplines;

(b) Demonstrated experience in agricultural GHG accounting, soil organic carbon quantification, agricultural methodologies, AFOLU methodologies, or related carbon market methodologies;

(c) Expertise in one or more of the following areas:

- (i) soil organic carbon measurement and monitoring;
- (ii) nitrous oxide emissions from agricultural soils;
- (iii) methane emissions in agricultural systems, where relevant;
- (iv) agricultural land management and regenerative practices;
- (v) stratification, sampling, and uncertainty analysis;
- (vi) IPCC AFOLU guidance and project-level GHG accounting;
- (vii) high-integrity carbon market principles, including ICVCM CCPs, CORSIA, and Article 6;
- (viii) absence of conflicts of interest.

Applicants shall disclose any past or present involvement in the development of this methodology.

6. Selection Process

BioCarbon shall evaluate proposals through a documented, merit-based process, applying criteria related to:

- (a) Technical competence;
- (b) Relevant sectoral expertise;
- (c) Independence and conflict-of-interest screening;
- (d) Capacity to complete the review within the specified timeline.

7. Independence and Financial Arrangements

To safeguard independence:

- (a) The external reviewer shall not have participated in the development of the methodology;
- (b) The reviewer shall sign a conflict-of-interest declaration;
- (c) All costs associated with the review shall be borne exclusively by BioCarbon.

8. Timeline

The external review is expected to be completed within two (2) weeks from contract signature.