Feedback & Response Document: Expert Review

PM.0002: Adoption of low-emission fertilizer strategies to transition to low-carbon agriculture

24 September, 2025

Overview

This document outlines the feedback received from Carbon Check (https://www.carboncheck.co.in/) on version 0.95 of the GHG methodology for low-emission fertilizer strategies, detailing how the feedback was addressed and its impact on the methodology, culminating in version 1.

Feedback contributors

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Detailed feedback and responses

	Section	Feedback/comment/suggestion	Response
1	List of definitions	1. In addition to the definition of nitrogen stabilizer mixtures, the Methodology Developer may also provide a clear definition of nitrogen stabilizers to enhance clarity and understanding.	We added the definition: "*Nitrogen stabilizers are compounds incorporated into fertilizer products that are used in agriculture to prolong the availability of nitrogen in soil, thereby improving its efficiency. These stabilizers typically work by inhibiting the conversion of ammonium to nitrate, reducing nitrogen loss through leaching and denitrification. (e.g., nitrification inhibitors, urease inhibitors, or a combination of both)*"
2	List of definitions	2. Product Carbon Footprint (PCF): Methodology developer may recheck the definition for the PCF to ensure it aligns with established standards.	We adopted the definitions of ISO 14067:2018, "*Sum of GHG emissions and GHG removals in a product system , expressed as CO2 equivalents and based on a life cycle assessment using the single impact category of climate change*"
3	List of abbreviations	1. Methodology Developers may include the abbreviations "FIN" and "FON" in the List of Definitions, alongside the existing definitions for Inorganic and Organic Fertilizers. Although these terms are explained later in Section 4.2 and appear in Table 2 on page 33, adding them to the definitions section would enhance clarity and ease of reference.	There was a typo (FORG vs FON) in the explanation of these abbreviations below the equations. This has now been adjusted to reflect the naming in the equations. Since the equations are full of abbreviations that are used only within them (rather than referenced in the text), it would be redundant to add all the abbreviations at the start of the document. So we decided not to include them in the abbreviation table.
4	1.1 Background	1. The methodology states that "This conventional production method not only requires high energy inputs but also releases substantial amounts of CO2 and other GHGs during its production processes". It is recommended that the methodology Developer (MD) explicitly include nitrous oxide (N_2O) emissions in this context, given that N_2O is a highly potent greenhouse gas with a	Agree with the recommendation. Text adjusted: "*In addition to emissions from production, fertilizer use also contributes significantly to agricultural GHG emissions through soil-based processes, particularly nitrous oxide (N_2O) emissions following field application. As such, the development of more sustainable practices and technologies in the field of fertilizer production and application is a critical area of focus for reducing the agricultural sector's environmental impact. Addressing emissions across the full fertilizer lifecycle (from manufacturing to field-level use) requires a transition toward lower-emission nutrient management strategies that reduce both the product carbon*

	Section	Feedback/comment/suggestion	Response
		global warming potential approximately 265 times that of CO_2, and agriculture—particularly through nitrogen-based fertilizers—is a major source of anthropogenic N_2O emissions enhancing the transparency and completeness.	*footprint and the emissions arising from fertilization practices on the field.*” Note that for the GWP of N_2O we use 273, which is based on the latest AR6 IPCC report.

5	1.1 Background	2. Methodology Developer may consider assisting a brief statement or footnote to clarify the criteria used to define a fertilizer as “low- carbon” (e.g., based on Product Carbon Footprint [PCF], Life Cycle Assessment [LCA], or other relevant metrics) improving clarity and ensuring consistent interpretation by stakeholders.	Agree with the recommendation.
			For clarity purposes we now adapted the methodology to “*Adoption of Low-Emission Fertilizer Strategies*”, as part of the intervention could be to reduce the N input per ha. This was allowed before but in it is even more clear in the title.
			
			In the background we also added:
			“*Addressing emissions across the full fertilizer lifecycle (from manufacturing to field-level use) requires a transition toward lower-emission nutrient management strategies that reduce both the product carbon footprint and the emissions arising from fertilization practices on the field.*”
			
			And in the applicability we are now explicit:
			“*This methodology applies globally to interventions that reduce GHG emissions associated with fertilizer production and/or application through the adoption of low-emission fertilizer technologies in managed soils . These interventions (which may be combined) include:*
			• *Fertilizer production emissions reduction: The introduction of (inorganic or organic) fertilizers that come with a lower Product Carbon Footprint (PCF) as a partial or full replacement of conventional fertilizers*
			• *Fertilizer in-field emissions reduction: The introduction of fertilizers that can demonstrably lead to a reduction of in-field emissions (direct or indirect N2O) compared to the baseline fertilization. This can be achieved both by:*
			    ○ *EF related: fertilizers that have a reduced in-field emission factor (EF) compared to the baseline fertilization*
			    ○ *Nut-rate related: fertilizers that can be applied with a reduced nutrient application rate (Nut-rate) compared to the baseline and thus lead to a reduction of in-field emissions.*”

6	1.1	3. The paragraph appears to blend production-	Great point, and our intention was to include both these types of emissions.

	Section	Feedback/comment/suggestion	Response
	Background	related and field- level emissions without clearly distinguishing their respective treatment within a life cycle analysis (LCA) framework. Methodology Developer may explicitly state that the methodology addresses both upstream (cradle-to-gate) and downstream (field application) emissions strengthening the methodological transparency and ensuring accurate interpretation of the emission boundaries.	Adjusted for clarity: “*This methodology applies globally to interventions that reduce GHG emissions associated with fertilizer production and/or application through the adoption of low-emission fertilizer technologies in managed soils . These interventions (which may be combined) include:* ● *Fertilizer production emissions reduction: The introduction of (inorganic or organic) fertilizers that come with a lower Product Carbon Footprint (PCF) as a partial or full replacement of conventional fertilizers* ● *Fertilizer in-field emissions reduction: The introduction of fertilizers that can demonstrably lead to a reduction of in-field emissions (direct or indirect N2O) compared to the baseline fertilization. This can be achieved both by:* ○ *EF related: fertilizers that have a reduced in-field emission factor (EF) compared to the baseline fertilization* ○ *Nut-rate related: fertilizers that can be applied with a reduced nutrient application rate (Nut-rate) compared to the baseline and thus lead to a reduction of in-field emissions.* ”
7	1.1 Background	4. Methodology Developer may provide a clear and detailed explanation of the term “large-scale farmers,” including any criteria or thresholds used to define this category. Additionally, it would be beneficial to include information regarding the anticipated scale of the project to enhance the overall clarity and applicability of the methodology across different project contexts.	This methodology could be used for small scale or larger scale projects. Since this part is still the introduction, we believe there is no need to go into detail as to how to define these. However in the leakage section, where the scale of the project can have an impact, we indeed added proper stratification: ● <1.000 ha ● 1,000 - 10,000 ha ● >10.000 ha We also note that: “*The project scale classification is based on commonly observed thresholds in land-based GHG methodologies, where projects below 1,000 ha are typically considered small-scale with negligible market influence, while projects above 10,000 ha are likely to affect regional fertilizer supply chains. These thresholds reflect practical differences in traceability, monitoring capacity, and risk of market leakage, and are consistent with scale categories used in AFOLU methodologies under carbon standards.*”
8	1.2 Applicability of methodology	1. Methodology developer may specify whether the reference to “low- carbon” pertains to the e fertilizer’s production process, its application, or both. Additionally, Methodology Developer may	The “low-carbon” term was ambiguous, so we decided to change the methodology naming to “low-emission fertilizer technologies”. For that we now clarify that there are essentially three eligible options (a mix is also possible if applicable):

	Section	Feedback/comment/suggestion	Response
		clarify the term "Managed soil" including a precise definition or criteria to enhance consistency and facilitate accurate assessment.	1) Fertilizers that come with lower *Product carbon footprint*. 2) Fertilizers that can demonstrably lead to a reduction of *in-field* emissions compared to the baseline fertilization. This can be achieved both by 2a) fertilizer products that can be applied with a reduced N rate compared to the baseline and thus lead to a reduction of in-field emissions 2b) fertilizer products that have a reduced in-field EF compared to the baseline fertilization Added definition of managed soils: "*Soils where human activities influence their use or condition, such as agricultural fields, pastures, plantations, or other lands where nutrient application or other management practices are carried out.*"
9	1.2 Applicability of methodology	2. As the methodology states "insetting projects should prioritize direct mitigation", Methodology Developer may clarify on how insetting projects are designed to prioritize direct mitigation activities, including whether this prioritization is guided by any established procedures or frameworks (e.g., the Science Based Targets initiative – SBTi). Additionally, Methodology Developer may explain how the traceability of insetting activities will be ensured—such as through chain-of-custody documentation or equivalent mechanisms.	Great point. We added the latest relevant SBTi document as reference "Corporate Net-Zero Standard Version 2.0 Consultation Draft". We now explain further in the methodology: "... This is guided by SBTi's *Corporate Net-Zero Standard Version 2.0 Consultation Draft* to prioritize direct mitigation when possible. When traceability to the either specific emissions source or the activity pool cannot currently be established, or if insurmountable barriers persist in addressing a source of emissions, this methodology also acknowledges the role of indirect mitigation as an intermediate measure." Regarding traceability we further add: "The traceability of the insetting activities can be ensured with activities such as chain-of-custody documentation, blockchain-based tracking systems, farm-level purchase and application records, or third-party verified sourcing certificates."

	Section	Feedback/comment/suggestion	Response

10	1.2 Applicability of methodology	3. Methodology Developer may clarify whether the methodology intends to use any standardized, region-specific values and, if so, explain the criteria for their selection and the conditions under which their use would be considered acceptable. Additionally, may clarify whether fallback options, such as historical averages, are allowed in cases where region-specific data is unavailable.	The methodology includes clear guidance on the use of region-specific standardized values and fallback options, though not in the Applicability section. These clarifications are provided in:
			• Section 3. Baseline Scenario: We specify very explicitly in the table what types of baselining approaches (thus regional / historic / counterfactual) can be used along with the fallback hierarchy, of where this data can be sourced from. See tables 4 and 5.
			• Section 4.1 EF-data reference approaches
			  ○ Approach 1: Emission factors retrieved from scientific studies: Now we consolidated the guidance for the selection of these values
			  ○ Approach 3: PCF or LCA data: A clear hierarchy was added
			• Section 6.1 MRV tables: The project design parameters tables for both LMU and sourcing region approaches specify which parameters require regional averages, and where historical or farmer-reported data may be used.

11	1.2 Applicability of methodology	4. Methodology Developer may specify whether the methodology permits or references the use of third-party or publicly available data sources to support regional market analysis providing guidance on acceptable data sources would improve consistency and application of the methodology across diverse regions.	Great point. For this reason we enriched the methodology to include a clear fallback hierarchy for such sources (section 4.1.a Baseline PCF emissions): "To ensure consistency and reliability, regional market analysis should prioritize the most authoritative data sources available. The following hierarchy provides a structured fallback approach, starting with official national statistics and progressing to other credible sources when higher-tier data is unavailable. 1. **Official national statistics**: Government-published agricultural, trade, and production datasets (e.g., USDA, Eurostat, national statistical offices). 2. **International organization databases**: FAOSTAT, World Bank, OECD, UN Comtrade. 3. **Recognized industry association reports**: International Fertilizer Association (IFA), The Fertilizer Institute, regional fertilizer associations. 4. **Peer-reviewed literature**: Studies providing robust, transparent, and recent regional market data. 5. **Certified third-party market research**: Subscription-based or commercial datasets from reputable providers (e.g., CRU, Argus, ICIS). 6. **Other credible public sources**: NGO reports, open-access market surveys, or expert-verified datasets, with clear documentation of methodology and limitations. "

	Section	Feedback/comment/suggestion	Response
			We followed a similar approach for the historical data: ● “*Official farm records or verified input purchase records for the relevant LMU, covering multiple past seasons of similar agricultural practices. Data from the last 3 growing seasons (crop relevant) must be used. Insights from agronomic experts can also be taken into account to make sure the baseline is defined accurately for the specific cropping system.* ● *Documented agronomic data or extension service records specific to the LMU or its immediate surroundings for similar crop and management conditions.* ● *Farmer surveys or structured interviews, supported by corroborating evidence such as receipts, cooperative sales data, or supplier records.*”
12	1.2 Applicability of methodology	5. Under point 7 of the applicability criteria, the methodology allows “project developers may provide evidence of the product carbon footprint (PCF) related to the fertilizers in scope”. Methodology Developer may provide further clarification whether the PCF should be developed in accordance with a recognized carbon accounting standard—such as the GHG Protocol, ISO 14067, or relevant LCA standards.	Clear. We updated section 4.1 EF-data reference approaches: Approach 3: PCF or LCA data to increase clarity and ease of use: “*The project developer must clearly present the calculation method used for determining the product carbon footprint (PCF) of fertilizers. Accepted methods include:* *a) ISO 14067 (Carbon footprint of products),* *b) ISO 14040/14044 (Life cycle assessment principles and requirements),* *c) the GHG Protocol Product Standard.*” We also added guidance on the source of these PCFs
13	1.2 Applicability of methodology	6. Methodology Developer may define how to calculate substitution factor with field trials or literature (not always feasible in developing regions) and NUE efficiency.	● For the substitution: ○ “*This methodology allows for partial substitution of conventional fertilizers, where only specific nutrient components (e.g., nitrogen in an NPK fertilizer) or a portion of a specific nutrient component is replaced with a low-emission (PCF related) alternative while others remain unchanged. Emission reductions are calculated only for the substituted component, ensuring accurate impact attribution.*” -> In this case, there is no need for field trials or literature, as the substitution relates to the PCF of the specific component of the fertilizer. In this case, we require: ■ “*Project developers must provide evidence of nutrient composition, agronomic equivalence to the substituted nutrient(s), and ensure transparent calculation of emissions reductions specific to the replaced fraction.*

	Section	Feedback/comment/suggestion	Response
			■ -> which is enough, since the chemical being replaced will be agronomically the same. The mode of action and effectiveness in the field will be the same ○ In case we are talking about the substitution of a fertilizer with another that can be applied with a reduced nutrient (Nut) application rate compared to the baseline and thus lead to a reduction of in-field emissions, then things become more complex. ■ We first restructured the applicability section to be super clear what is asked of the project developer in this case. ■ We also added this note: "*Project developers must provide verifiable evidence that the introduced low-emissions fertilizer technology serves as a viable substitute for the conventional high-emission fertilizer in terms of agronomic effectiveness. For that purpose, scientific studies or verifiable field studies must be used. In either case, the quality criteria presented in the Appendix C.3.2 Quality criteria of experimental design (of studies/trials) must be followed.*" and the corresponding appendix to streamline the project design and validation/verification. ● For the NutUE: ○ We have a NutUE test in the baseline section ○ And enriched the appendix by adding a section on "Different NutΘE metrics" where we explain when to use them (for different cropping systems) and how to calculate them.
14	1.2 Applicability of methodology	7. Methodology Developer may mention the other GHG methodologies for bundled practices and also provide concrete examples or references to best practices that demonstrate how multiple methodologies can be effectively integrated.	● Creating concrete examples or references to best practices that demonstrate how multiple methodologies can be effectively integrated, which will involve other third-party standards or methodologies is a good recommendation. ● Once a project is actually implemented with this kind of bundling we will add a short appendix explaining the best practice and lessons learnt. ● Each registry or standard-setting body has its own policies regarding the stacking or combination of methodologies, so the project developer must follow these (high level) rules) ● Nevertheless, as an example we added a reference to two other methodologies that are eligible.

	Section	Feedback/comment/suggestion	Response

			• "*Two examples of GHG methodologies that can be used include:*
			  ○ *Adoption of controlled-release fertilizers to transition to low-carbon agriculture*
			  ○ *Adoption of nitrogen stabilized fertilizers to transition to low-carbon agriculture*"
			• Our guidance in the document is the following:
			  ○ "In case this methodology is used in conjunction with other methodologies or programs then the project developer must:
			    ■ *explicitly mention that in the POD and*
			    ■ *demonstrate that benefits are not quantified more than once (to mitigate the risk of double counting the impact of nitrogen stabilizers across two projects)*
			    ■ *provide a separate monitoring framework to ensure that combined interventions do not undermine each other's effectiveness in long-term consistency*"

15	1.2 Applicability of methodology	8. It is observed during the review that the methodology primarily focuses on the quantification of GHG emission reductions, with limited emphasis on co-benefits such as improved agricultural productivity or enhancement of soil health. The Methodology Developer may clarify whether these aspects are considered within the methodology's scope and if so how they are addressed.	A very important point. Both of these co-benefits are important aspects. Let's break them down:
			• increased agricultural productivity:
			  ○ The methodology requires that productivity remains at least the same as a result of the intervention. We do that through the NutUE test which is presented in the baseline section. Also the risk section of the methodology emphasizes this topic.
			  ○ We do not actively quantify the increase in crop yield as part of the GHG reduction. We do however allow the translation of the absolute emission reduction in the metric of *emissions (reduced) / tonne of crop* , which is essentially related to productivity.
			  ○ However productivity can be influenced by a myriad of factors and it would be difficult to attribute it directly to the intervention. Fortunately PCF and in-field emission reductions are much more straightforward, so we are focusing on that for now. If crop yield increases as part of the intervention, that's all for the better, but it is not rewarded further.
			• enhancement of soil health:
			  ○ That is also a very important one but difficult at the same time.

	Section	Feedback/comment/suggestion	Response
			○ Important because on the long term we want the soils to remain healthy especially due to the interventions so that the system remains sustainable. ○ At the same time doing soil health measurements can be tricky (science wise) and expensive ○ There are also quite a few methodologies out there focusing on things like soil health, SOC, etc. So it could be possible that this methodology is combined with one that specializes in soil. ○ To add to this we are requiring the project developers to do the following: "*Project Developers must adhere to the "Environmental and Social Do not Harm Principle" by conducting thorough assessments to identify and evaluate potential environmental and social impacts of their GHG projects.*", so this is a place where a project developer could manage the risk of soil health deterioration.
16	1.2 Applicability of methodology	9. Methodology Developer may clarify whether the proposed methodology is intended for global application or if it is designed for specific regions ensuring appropriate application across different geographical contexts.	Indeed it is intended for global use. However, as stated in the methodology "*Higher-tier emission factors (Tier 3 > Tier 2 > Tier 1) must be prioritized*". This means that the in-field EF selection (if applicable), must be region and context specific where possible. As stated in the applicability section: "*This methodology applies globally to interventions that reduce GHG emissions associated with fertilizer production and/or application through the adoption of low-emission fertilizer technologies in managed soils*"
17	1.2 Applicability of methodology	10. Methodology Developer may clarify the definition of the term crops since fertilizers are applied to a wide range of agricultural products—including cereals, vegetables, fruits, flowers, and grasses for cattle feed. Methodology Developer may specify what is included or excluded under the term "crops" within the scope of the methodology.	The term "crops" as used in the methodology is intended to refer broadly to all fertilized agricultural plant products. This includes, but is not limited to, cereals, pulses, vegetables, fruits, flowers, forage crops (e.g., grasses for cattle feed), industrial crops (e.g., sugarcane, cotton), and legumes. We clarified this in the definitions table by adding a definition which states the inclusion of all plant products. "*In the context of this methodology, "crops" refers to all cultivated plant products that receive fertilizer application. This includes cereals, vegetables, fruits, legumes, flowers, forage crops (e.g., grasses for animal feed), and industrial crops. The term is used inclusively to reflect the wide applicability of fertilizer interventions across agricultural systems.*"
18	1.3.1 Types of fertilizers	1. Methodology Developer may clearly define what constitutes a "low- carbon" within the context of	• The "low-carbon" term was ambiguous, so we decided to change the methodology naming to "low-emission fertilizer technologies". For that we now clarify that there

	Section	Feedback/comment/suggestion	Response
		the methodology by setting a specific, measurable emissions threshold that a fertilizer must meet to qualify as a low-carbon product (e.g., less than x kg CO_2e per kg of nutrient compared to a regional benchmark).	are essentially three eligible options (a mix is also possible if applicable): ○ 1) Fertilizers that come with lower *Product carbon footprint*. ○ 2) Fertilizers that can demonstrably lead to a reduction of *in-field* emissions compared to the baseline fertilization. This can be achieved both by ■ 2a) can be applied with a reduced N rate and thus lead to a reduction of in-field emissions ■ 2b) products that have a reduced in-field EF or For options 2a) and 2b) we require (see applicability section) that: ❖ There is supporting scientific evidence (we define how that must look like) to back the claim ❖ A crop yield or NUE check is successful, to ensure that the change in practices did not lead to a reduced crop yield. ● We purposefully do **not** define thresholds regarding the PCFs of the fertilizers or the in-field EFs. ○ The project developer is responsible for making sure that the resulting emission reduction of their intervention is significant enough to make sense for them to initiate a GHG project. ○ It might be possible that a GHG project uses multiple interventions, and one of them is to use a fertilizer with a slightly lower PCF. It might be possible that only from a PCF perspective the reduction is not great, but as a whole there is significant reduction potential. We would not like to exclude such scenarios.
19	1.3.1 Types of fertilizers	2. Methodology Developer may provide a clear criterion for defining "Controlled-Release Fertilizers" (CRFs), particularly since Paragraph 1.3 states that only CRFs are eligible, as establishing specific criteria for CRFs is essential to ensure the application eligibility requirements.	CRF products are out of scope from this methodology. For that, we have a different methodology (https://proba.earth/crf_methodology) Regardless, we updated the definition of the CRF to be more clear (as there are a couple of references to CRF products). "*Slow- or controlled-release fertilizer is defined as a fertilizer containing a plant nutrient in a form which delays its availability for plant uptake and use after application, or which extends its availability to the plant significantly longer than a reference 'rapidly available nutrient fertilizer' such as ammonium nitrate or urea, ammonium phosphate or potassium chloride. Such delay of initial availability or extended time of continued availability may occur by a*

	Section	Feedback/comment/suggestion	Response
			variety of mechanisms. These include controlled water solubility of the material by semi-permeable coatings, occlusion, protein materials, or other chemical forms, by slow hydrolysis of water-soluble low molecular weight compounds, or by other unknown means. Definition based on Trenkel (2010).”
20	1.3.2 Regulatory Compliance	1. Methodology Developer may provide further clarification regarding the approach in cases where project developers are unable to demonstrate compliance with local or regional regulatory requirements. Additionally, Methodology Developer may specify whether project developers are required to submit verifiable documentation—such as product registration certificates, approvals from the Ministry of Agriculture, or equivalent regulatory listings—as evidence of compliance.	• In case where project developers are unable to demonstrate regulatory compliance (because the product is not registered in the region), then unfortunately there can not be a project. • We adapted the section to be more clear on the documentation allowed: • “*For low-emission fertilizer technologies to be eligible they must be registered in the country or region where they are being applied. Accepted evidence:* ○ *Product registration certificate or license issued by the relevant national or regional agricultural authority* ○ *Label or technical datasheet showing the official registration number and regulatory compliance statement* ○ *Official database entry or listing in the national/regional fertilizer registry or approval list* ○ *Import permit or customs clearance documentation confirming legal entry into the country (for imported fertilizers)* ○ *Supplier or manufacturer declaration referencing the registration number and confirming compliance with local regulations* ○ *Third-party verification report confirming product registration and legal use in the specified jurisdiction* • *In addition, compliance to regional guidelines is essential to ensure that the application rate is in line with local regulations. Accepted evidence:* ○ *Copy of applicable regional guidelines or regulations specifying nutrient application limits* ○ *Farm nutrient management plan demonstrating adherence to regional limits* ○ *Fertilizer recommendation sheets or application records showing rates applied* ○ *Agronomist’s signed statement verifying compliance with local application standards* ○ *Audit or inspection reports confirming that application rates meet legal*

	Section	Feedback/comment/suggestion	Response
			requirements”
21	1.3.2 Regulatory Compliance	2. Methodology Developer may confirm whether the regional application rate is intended to be continuously assessed and updated throughout the crediting period. Additionally, Methodology Developers clarify how this rate may vary in response to changes in fertilizer formulations or suppliers ensuring consistency in monitoring and improving the robustness of emission reduction calculation over time.	The methodology requires the regional application rate to be reassessed **at least every 3 years** during the crediting period, as specified in “Dynamic Baseline” in Section 3. Baseline scenario. If the regional baseline changes (e.g., due to evolving fertilizer practices, formulations, or market conditions), the project baseline must be updated accordingly. We also added this segment in the applicability section to reflect changes related to the fertilizer: “*Project developers must report any changes in fertilizer formulations or suppliers that affect emission factors or nutrient efficiency through the monitoring framework (section 6. Monitoring, Reporting and Verification) and must be transparently reported and justified in the verification report.*” Moreover, we require “*The NutUE test must be conducted during the first validation of the project and then at least every 3 years during the project verification.*”, to ensure and verify that the project’s baseline practices are following the region's guidelines and are not overapplying nutrients, which might in thus inflate the potential in-field emission reductions
22	1.3 Eligible products	Methodology Developer may consider adding clear explanations and criteria for key terms such as “Controlled Release Fertilizers,” “Slow Release Fertilizers,” and “Conventional Fertilizers” as there is wide variety of fertilizer products on the market—such as coated urea and NPK fertilizers (e.g., neem oil or sulfur-coated urea) and emerging products like nano urea and nano NPK, which claim higher nitrogen use efficiency—greater clarity on the classification and treatment of these products within the methodology would enhance applicability across diverse fertilizer types.	CRF products and nitrogen stabilizers are out of scope from this methodology. For these, we have developed different methodologies which can be used in combination with this methodology. Nevertheless, we added a proper definition as CRFs are referenced in the document.
23	1.4 Additionality	1. Methodology Developer may include guidance on specific procedures or recognized frameworks that the Project Developer may follows to demonstrate financial or practise- based additionality.	Great point. We now reference 3 documents specifically to help streamline the process: ● Proba Additionality Assessment Template ● UNFCCC’s CDM Tool for the Demonstration and Assessment of Additionality (Version 07.0) and the

	Section	Feedback/comment/suggestion	Response
			• CDM Tool for Common Practice (Version 03.1) In the document: "*Project developers are encouraged to use the Proba Additionality Assessment Template to assess and demonstrate additionality, as defined in section 3.6 of the Proba Standard.* *Alternatively, established tools and approaches can support project developers in assessing additionality, particularly for financial and common practice assessments. These include the UNFCCC's CDM Tool for the Demonstration and Assessment of Additionality (Version 07.0) and the CDM Tool for Common Practice (Version 03.1) . These tools offer structured guidance for conducting barrier analyses, determining financial attractiveness, and assessing market penetration levels of a given practice. While originally developed for offsetting contexts, they can be adapted for insetting projects when transparently applied and justified in the POD.*"
24	1.5 Crediting Period	1. Methodology Developer may clarify the requirements related to re-validation, including if there is a specific or explicit process for reassessing baseline data and relevant policies to account for changes in regulatory and market conditions.	For re-validation there are no (additional) specific requirements that must be followed. In essence, the steps that were followed in the first validation, must be done again. For clarity purposes we updated the text a bit: "*After the end of the crediting period, the project needs to be re-validated to ensure that additionality is still present, the baseline scenario is reassessed including consideration of changes in regulatory and market conditions, and the project complies with the latest version of this methodology.*"
25	1.5 Crediting Period	2. Methodology Developer may clarify whether crediting period renewals are permitted under this methodology, and if so, specify how many times a renewal of the crediting period (RCP) can be carried out for a given project.	While the current methodology text implies that crediting period renewals are permitted (by requiring re-validation after the initial period), we acknowledge that this could be made more explicit. We updated the wording in the methodology to clearly confirm that renewals are allowed, provided the project undergoes re-validation, and that there is no pre-defined limit on the number of renewals, in alignment with the Proba Standard. Added text: "*Renewals of the Crediting period are permitted and may be carried out multiple times, provided that each renewal follows a full re-validation process and continues to meet the applicability criteria, methodological requirements and alignment with Proba standard.*"
26	1.5 Crediting Period	3. Methodology Developer may provide a clearer guidance on prevention on double counting, by including a provision that ensures no emission reductions claimed under another system prior to	While the methodology currently incorporates requirements regarding preventing double counting in the context of overlapping methodologies (Section 1.2), we agree that an explicit provision to prevent crediting of emission reductions already claimed under another program prior to project registration should be added.

	Section	Feedback/comment/suggestion	Response
		project registration re eligible for crediting under this methodology.	We revised the retroactive crediting section (in section 1.5, Crediting period) to clarify that GHG reductions already credited under another carbon program are not eligible under this methodology. Added text: "T*o avoid double counting, emission reductions that have already been claimed, credited, or reported under another carbon standard are not eligible for crediting under this methodology.*" However, it is important noting that the prevention of double counting is addressed at the standard level. Specifically, in the Proba Standard (https://proba.earth/hubfs/Product/The_Proba_standard.pdf?hsLang=en) in section *5.7 Uniqueness*.
27	1.5 Crediting Period	In Section 1.5 (Crediting Period – Retroactive Crediting) MD to clarify, the term "moment the intervention was first implemented". To support consistent and transparent validation, it is recommended to clarify what forms of documentation are considered acceptable to establish this start date (e.g., purchase receipts, application records, supplier delivery notes).	We adapted the text to clarify the proof needed for the "moment" of the intervention: "*In such cases, the crediting period will begin at the moment the intervention was first implemented, as evidenced by verifiable documentation such as purchase receipts, supplier delivery notes, application records, or other dated records that clearly establish the start date. The project developer must also fulfill the requirements set by this methodology (e.g., proof of additionality, baseline, scientific evidence, documentation) and demonstrate that the intervention was implemented with the intention of utilizing carbon finance.*"
28	1.7 Risks	1. Methodology Developer may clarify whether the risk assessment is required to be updated periodically—such as during revalidation or each verification cycle—to ensure that evolving project conditions and potential risks are adequately captured and addressed.	Good point. We updated the methodology to clarify that: "*Project developers are recommended to report on co-benefits for credibility purposes, during the POD validation and at the third year of the crediting period.*" and "*The risk analysis and mitigation strategy must be re-evaluated at the third year of the crediting period, as part of the verification.*" This means that the project developer must create the plan and do a first assessment during the POD validation + once more re-assessement during the crediting period as part of a verification.
29	1.8. Leakage & permanence	1. Methodology Developer may provide clearer examples and conditions for assessing leakage risk levels, particularly in relation to factors such as	That was a very important point. We now created a proper project scale based standardized stratification of the deductions. The project scale classification is based on commonly observed thresholds in land-based

	Section	Feedback/comment/suggestion	Response
		transportation and other potential scenarios. It may not always be appropriate to assume a low level of risk, and for more conservative approach minimum default adjustments may be considered. Methodology Developer may explicitly define all applicable scenarios; otherwise, users may be limited to applying only the three predefined risk levels to ensure transparency and accuracy.	GHG methodologies, where projects below 1,000 ha are typically considered small-scale with negligible market influence, while projects above 10,000 ha are likely to affect regional fertilizer supply chains. These thresholds reflect practical differences in traceability, monitoring capacity, and risk of market leakage, and are consistent with scale categories used in AFOLU methodologies under carbon standards. And we also added a requirement for cases where the intervention is on a sourcing region level: "*For projects where the intervention is defined by the distribution or sale of a fixed quantity of low-carbon fertilizer rather than activities on a defined project area, the hectare-based stratification in Table 1 must be converted to an equivalent scale in tonnes of fertilizer relevant to the sourcing or sales region. This requires identifying the main crop types in the sourcing region, determining the average nutrient application rates per crop type, and estimating the share of each crop in the region. Using this information, the total volume of fertilizer sold or displaced can be expressed as the equivalent hectares affected, which then determines the applicable leakage deduction tier from Table 1. This ensures the leakage risk classification is consistent across both area-based and volume-based project types*" We are also now more specific on the allowed evidence: "T*he project developer must provide reasonable evidence of how these volumes were managed. Evidence can include:* • *written confirmation from fertilizer supplier or distributor that production or delivery volumes were reduced;* • *project-level fertilizer application data showing reduction in conventional fertilizer use without corresponding increase elsewhere;* • *national or regional sales/trade data showing stable or decreasing conventional fertilizer volumes;* • *market analysis or reports indicating no increase in non-project sales.*" With these changes this leakage risk we believe is dealt with in a conservative, transparent and clear to execute way.
30	1.8. Leakage & permanence	2. Methodology Developer may clarify the reliance on crop yield stability over time, considering that yields may be affected by external factors such as	The methodology addresses this concern in the leakage section, where it is explicitly stated that project developers must demonstrate that Nutrient Use Efficiency (NutUE) has not declined by more than 10%, using either historical or regional benchmarks. This serves as a

	Section	Feedback/comment/suggestion	Response
		climate variability, pest outbreaks, and other shocks, providing guidance on how such uncertainties should be accounted for would strengthen the robustness of the methodology.	proxy for maintaining yield stability. To account for external shocks such as climate variability or pest outbreaks, the methodology 1. suggests the exclusion of years with documented extreme weather events and supports the use of 2. multi-year weighted averages to smooth inter-annual fluctuations. As such we believe crop yield variability due to external factors is sufficiently addressed with this approach.
31	2.1 Scope of activities	1. Methodology Developer may clarify if there is any conservative default deduction applied to account for uncertainty in the final use of the product to ensure credible estimation of emission reduction.	The methodology addresses conservativeness with two core ways: • In the uncertainty section: "*Conservative Parameter Selection: Project developers must select values from the conservative end of available ranges. Specifically, rather than selecting the absolute minimum of the 95% confidence interval (CI), the chosen value should correspond to a point located 25% of the distance from the mean toward the lower (more conservative) bound of the interval.*" • The only fixed deduction is applied on sourcing region project "*For sourcing region types of projects, a fixed 5% deduction (as explained in section 2.3 Spatial boundaries)*" In addition: • We have addressed the two leakage risks that could lead to uncertainty in a conservative and streamlined manner (see leakage section)
32	2.2 GHG sources	Inclusion of fertilizer types: The Methodology Developer may clarify why only CRF and inorganic fertilizers are included in the cradle-to-gate emissions calculations and whether this implies that organic fertilizers are considered to have no such emissions, or if they are addressed separately.	Indeed, all types of fertilizers are in scope for the PCF calculation. For this purpose, we now clarified that "*Fertilizer production emissions (cradle-to-gate emissions of fertilizers). These include any type of fertilizer related to the baseline and project (inorganic or organic).*" To clarify further, organic fertilizers are typically de-facto excluded from cradle-to-gate emission calculations because they are often treated as by-products or waste streams in life cycle assessments, and therefore are assigned a zero or negligible product carbon footprint. Of course these fertilizers have in-field emissions which must be addressed separately (see in field emission calculations).
33	2.3 Spatial boundaries	1. The project spatial boundaries defined in the methodology do not explicitly include the full life cycle assessment (LCA) or product carbon footprint	This is an important distinction. The methodology clearly distinguishes the two parts of a fertilizer's LCA (both of which must be accounted for):

<table>
<tr><th></th><th>Section</th><th>Feedback/comment/suggestion</th><th>Response</th></tr>
<tr><td></td><td></td><td>(PCF) of the fertilizers enhancing transparency and understanding the scope.</td><td>The production emissions (or upstream emissions from fertilizer production, i.e., cradle-to-gate emissions):
The project developer must clearly present the calculation method used for determining the product carbon footprint (PCF) of fertilizers. Accepted methods include:
a) ISO 14067 (Carbon footprint of products),
b) ISO 14040/14044 (Life cycle assessment principles and requirements),
c) the GHG Protocol Product Standard.
However, we must be careful not to include the in field emissions in this step as they are calculated with this methodology.
On the other hand, this methodology does not prescribe a specific calculation method for the PCF. This is up to the fertilizer companies (which must adhere to the ISO standards stated above)
Moreover “The same data source and methodological standard must be prioritized for both baseline and project emission factor (EF) PCFs to ensure comparability.”
The in-field emissions
These are clearly calculated using the calculations, EF selection procedures, uncertainty incorporation method, as described in this methodology</td></tr>
<tr><td>34</td><td>2.3 Spatial boundaries</td><td>2. The use of GIS- based shapefiles or geospatial coordinates for the delineation of LMU, to support traceability and EXPERT REVIWER verification may be included in the methodology</td><td>Specific guidelines for evidence documentation is given in section 6.1 Monitoring.
We now also include your recommendation. We appended the list for the spatial boundary as follows:
“Satellite imagery or GIS-based shapefiles or geospatial coordinates coordinates via national land ownership databases or other proof of ownership”</td></tr>
<tr><td>35</td><td>2.3 Spatial boundaries</td><td>3. The methodology states “In alignment with the SBTi and GHG Protocol’s guidance encouraging greater transparency and traceability through field-level interventions, this methodology applies a 5% deduction to the net GHG emission reductions when the sourcing region spatial boundary is used”.</td><td>Important clarification.
The default deduction must be applied to the total net GHG emission reductions. We adjusted the text and calculation for clarity purposes.</td></tr>
</table>

	Section	Feedback/comment/suggestion	Response
		Methodology Developer may clarify if the 5% deduction applied when using the sourcing region spatial boundary pertains to all net GHG emission reductions or specifically to upstream emission factors.	To calculate the net GHG emissions reduction, the following equation can be used: $$ER = (BE - PE) \cdot (1 - LP) \cdot (1 - UP) \quad (10)$$ Where: ER = Net GHG emissions reduction (tCO_2e) BE = Baseline emissions (tCO_2e) PE = Project emissions (tCO_2e) LP = Leakage penalty (%). If leakage is reversible, the credited emissions may be adjusted retroactively, or an equivalent amount may be withdrawn from the buffer pool. In either case, the adjustment equals the leakage penalty multiplied by the annual Net GHG emissions reduction. • UP = Uncertainty penalty for sourcing region type of projects (%) We also presented all the information related to the differences between sourcing region and LMU in one table that is easy to compare and understand (see Table 3).
36	2.4 Temporal boundary	1. Methodology Developer may clarify if the methodology allows any regional seasonality such as monsoon versus dry seasons to define more context appropriate 12-month periods, particularly for tropical or bimodal rainfed regions to improve the accuracy and relevance of temporal boundaries in diverse agricultural settings.	The methodology does not require adjusting the 12-month period to account for regional seasonality, as emission reductions are quantified using emission factors (EFs) that inherently reflect the climatic and agronomic conditions, including seasonal patterns, of the region where they were derived. This is a practical concession to balance methodological consistency with the need for context-appropriate results, as region-specific EFs inherently reflect seasonal patterns without redefining temporal boundaries.

37	3- Baseline scenario of the methodology:	1. Methodology Developer may include Nutrient Use Efficiency (NutUE) performance test to ensure that fertilizers were not over-applied in the baseline scenario, which could otherwise lead to an artificial inflation of emission reduction claims. Explaining such scenario including how overuse in the baseline is identified and addressed would enhance the integrity of baseline assessment.	A NutUE performance test is required to ensure that fertilizers were not over-applied in the baseline scenario. This can be seen in the section 3 Baseline Scenario.
			Depending on the level of spatial boundary selected, there are different implications:
			• LMU level
			  ○ Project Nut rate is compared with regional average Nut rate (relevant to the cropping system)
			  ○ The baseline and project Nut-rate must not be higher than the average regional Nut-rate, unless there is a strong agronomic justification for it
			• Sourcing region

	Section	Feedback/comment/suggestion	Response
			○ Project Nut rate is defined based on the regional average ○ The Nut Check is done on a regional level. Project developers must be transparent on the Nut application rate in the region. Even though it might be high compared to another region, the intervention itself will reduce the in-field emissions (if a fertilizer with a reduced in-field EF is used compared to the region's typical fertilizers). ○ The default 5% reduction to the total net benefit can also help mitigate any potential overcrediting in the sourcing region level. ○ Claiming a reduction of in field emissions due to a reduction of Nut rate reduction is de facto not allowed, as there can be no traceability. So the risk of overcrediting is mitigated. In addition, the Appendix includes a set of NutUE metrics that can be applied depending on data availability and project type
38	4.1 EF-data reference approaches	The methodology lacks guidance on emission allocation in multi-output systems (e.g., ammonia production with co-products like hydrogen or CO_2). To ensure consistent and comparable PCF calculations, it should specify a clear allocation approach mass, energy, or economic aligned with ISO 14044 and ISO 14067. Without this, PCF results may vary inconsistently across projects.	Great point. We now require PCFs as follows: "*The project developer must clearly present the calculation method used for determining the product carbon footprint (PCF) of fertilizers. Accepted methods include:* *a) ISO 14067 (Carbon footprint of products),* *b) ISO 14040/14044 (Life cycle assessment principles and requirements),* *c) the GHG Protocol Product Standard."* Also: "*The evidence for the PCF of the fertilizers (baseline or project) must be sourced from one of the following sources in descending priority, depending on availability of data :* ● *fertilizer producers through verified Environmental Product Declarations (EPDs), PCFs or sustainability reports,* ● *widely accepted industry tools and platforms, such as CoolFarmTool, ecoinvent, Agri-footprint database, Carbon Footprint Calculator for Fertilizer Products* ● *Tier 1-2 industry reports such as the one published by the International Fertilizer Society titled "The carbon footprint of fertilizer production: regional reference values" or,* ● *Relevant scientific literature* ● *Non-validated individual PCF data directly provided by fertilizer suppliers. If only non-validated individual PCF values are available, their use is allowable under the*

	Section	Feedback/comment/suggestion	Response
			following conditions: …" For transparency and methodological consistency purposes we also added: "*The same data source and methodological standard must be prioritized for both baseline and project emission factor (EF) PCFs to ensure comparability.* *If different sources or methods are used, these must be explicitly disclosed, with a clear explanation of methodological differences and their potential impact on the results. Specifically in this case, project developers must:* • *Explain methodological differences: Describe any differences in system boundaries, functional units, and allocation rules between the standards.* • *Identify EF differences: Specify where and how the emission factor values differ as a result of these methodological variations.* • *Apply a conservative approach: Where uncertainties or discrepancies exist between standards, use a conservative estimation method to ensure the integrity of the results.."*
39	4.1 EF-data reference approaches	Indirect emissions: The Methodology Developer may clarify whether indirect emissions from ammonia volatilization, leaching, and runoff can be practically measured under actual field conditions. In many cases, project developers may need to rely on IPCC default values, and the possibility of simplifying this aspect of the methodology could be explored.	Indirect emissions from ammonia volatilization, leaching, and runoff can technically be measured through direct field measurements in some research settings. However, in most project settings, this is not feasible due to technical complexity, high costs, and variability in measurement reliability. To address this, the methodology provides clear guidance on how to quantify indirect emissions (using different methods such as based on the IPCC Tier 1 approach) using default emission factors and relevant activity data. Overall, the approach to indirect emissions is similar to the direct (in field) emissions - use of EF (preferable if available Tier 3-2 or alternatively Tier 1)
40	4.1 EF-data reference approaches	CRF product cradle-to-gate emissions: Methodology Developer may clarify how the emission factor (EFCRF) for controlled-release fertilizers will be obtained, as it may not be feasible for project developers to calculate this independently. This information may need to be provided directly by CRF manufacturers.	We added section *4.1 EF-data reference approaches* to explain the method upon which emission factors for low-emission fertilizers can be selected. For the PCF EF specifically we added this requirement: "*The evidence for the PCF of the fertilizers (baseline or project) must be sourced from one of the following sources in descending priority, depending on availability of data :* • *fertilizer producers through verified Environmental Product Declarations (EPDs), PCFs or sustainability reports,* • *widely accepted industry tools and platforms, such as CoolFarmTool, ecoinvent,*

	Section	Feedback/comment/suggestion	Response
			Agri-footprint database, Carbon Footprint Calculator for Fertilizer Products ● *Tier 1-2 industry reports such as the one published by the International Fertilizer Society titled "The carbon footprint of fertilizer production: regional reference values" or,* ● *Relevant scientific literature* ● *Non-validated individual PCF data directly provided by fertilizer suppliers. If only non-validated individual PCF values are available, their use is allowable under the following conditions:* ○ *a) The PCF must be cross-verified against at least one value from higher-tier sources (preferably for a comparable fertilizer type and manufacturing context). Significant deviations must be explained and justified.* ○ *b) The underlying LCA methodology must be aligned with ISO 14067 or the GHG Protocol Product Standard* ○ *c) The lack of third-party verification must be clearly disclosed* Note that for CRF products another methodology must be used.
41	4.1 EF-data reference approaches	Fertilizer cradle-to-gate emissions: The Methodology Developer may clarify whether the term "fertilizer" refers specifically to conventional inorganic fertilizers and explain how project developers are expected to obtain the corresponding emission factor (EFIN).	In this methodology, the term "fertilizer" refers to all applicable fertilizer products within the scope of the methodology, including both inorganic and organic fertilizers, as defined in Section 1.3.1.
42	4.1.a Baseline PCF emissions	1. Methodology Developer may clarify the expected sources for determining the total nutrient application rate (Nut-rate) in kg N/ha—such as historical farmer logs, agronomic benchmarks, or farmer self-reporting—and specify the fallback hierarchy to be applied if preferred data sources are unavailable. Additionally, to clarify whether other data sources may be permitted under certain conditions to ensure flexibility while maintaining data quality and consistency.	We updated the *baseline section* to be very specific on these topics. ● Now, the project developer, depending on the spatial level selected and intervention type, must establish ○ a) the baseline nutrient application rate and ○ b) the fertilizer type. Guidance on how to select the corresponding approach is presented in a table. ● There are three approaches for defining the baseline ○ a) historical, ○ b) counterfactual and ○ c) regional. ● These approaches are presented in another table. ● Finally, if the project is done on a LMU level and includes in-field emissions reduction then they must conduct a NutUE Performance Test as presented later in this section.

	Section	Feedback/comment/suggestion	Response
43	4.1.b Project PCF emissions	1. Methodology Developer may clearly define the terminology EPCF, baseline and EPCF, project to ensure consistent understanding and application	We agree that the terms EPCF, baseline and EPCF, project should be clearly defined to ensure consistent interpretation and application Definitions are added: "*EPCF, baseline = The total cradle-to-gate GHG emissions associated with the baseline (conventional) fertilizer products applied*"
44	4.1.b Project PCF emissions	2. Methodology Developer may clarify if the parameter EFPCF is intended to be fixed ex-ante or subject to ex-post monitoring for both the project and baseline scenarios thereby improving the transparency during validation and verification processes.	The EF PCF is specific to the sourced fertilizer. The project developer is responsible for selecting a proper EF that is relevant for their product. Guidance on what sources are accepted has been added "*a) ISO 14067 (Carbon footprint of products), b) ISO 14040/14044 (Life cycle assessment principles and requirements), or c) the GHG Protocol Product Standard.* " In case the EF (PCF or in-field) of the product they use changes, then the project developers must report on that. We added in the applicability section: "*Project developers must report any changes in fertilizer formulations or suppliers that affect emission factors or nutrient efficiency through the monitoring framework (section 6. Monitoring, Reporting and Verification) and must be transparently reported and justified in the verification report.*" However, ex-post monitoring of the EF PCF is not part of the scope of such projects.
45	4.2. Transportatio n of fertilizers	1. Methodology Developers may clarify how transportation emissions are to be treated when the Product Carbon Footprint (PCF) already includes transport-related emissions to avoid double counting enhancing accuracy and integrity of the emission reductions.	We agree with the suggestion and have incorporated a clarifying clause into the methodology. Specifically, "*in cases where the Product Carbon Footprint (PCF) provided by the supplier already includes transport-related emissions, and the project intends to make a claim on transport emission reductions, the project developer must exclude these transport emissions from the PCF value.* *Transport emissions should then be calculated separately for the project using the methodology's project-specific transport emission calculation approach.*" This ensures that transport emission reductions are only claimed once, avoids double counting, and maintains the accuracy and integrity of the quantified emission reductions.
46	4.3 Field spreading of fertilizers	1. Methodology Developer may clarify if the methodology accounts for different field types such as smallholder vs industrial operations and if there are any methodological distinctions or exceptions based on the mode of fertilizer	The methodology does not distinguish projects based on farm size (e.g., smallholder vs. industrial operations), as both are eligible provided that data quality and monitoring requirements are met. However, we agree that the mode of fertilizer application can affect emissions related to field spreading. To address your comment, we added a clarification (note) in section 4.3 that if fertilizer is

	Section	Feedback/comment/suggestion	Response
		application, such as automated spreading versus manual application.	applied manually, and the project developer can provide supporting evidence (e.g., farmer records, surveys, or regional practices), these emissions may be considered negligible and excluded from the calculation. In sourcing region level projects, field-spreading emissions are excluded from the emission reduction calculation as they can not be tracked. In addition, the scale of the project comes into play regarding the market leakage deduction for different project scale scenarios.
47	4.3 Field spreading of fertilizers	2. Methodology Developer may clarify whether field-spreading emissions in sourcing region–level projects are considered neutral by default or if they are estimated based on typical regional machinery usage pattern.	For sourcing region–level projects, the methodology assumes that field-spreading emissions are neutral. They are considered to be the same in both the baseline and project scenarios. Since field-level machinery data is not available at this scale, no emission reductions or increases are attributed to fertilizer application activities. This approach must be transparently documented in the POD. A note was added in this section to reflect that "*Sourcing region types of projects are excluded from claiming a GHG benefit from reduced application emissions, as there is no way to trace the actual application rate on the fields.*"
48	4.4 Application of fertilizers	1. Methodology Developer may clarify whether there are specific requirements to confirm the emissions associated with the application of fertilizers, particularly when using literature-based data for emission reduction calculations. Additional, Methodology Developer may clarify how the methodology ensures that such assumptions are conservative and do not lead to an underestimation of emissions or overstatement of reductions.	The approach of this methodology is to quantify the emission reduction based on concrete and relevant emission factors. For this purpose, we have strengthened the methodology by adding guidelines for the selection of EF in the *A.2 Emission factor selection criteria based on scientific studies.* There is no ex-post monitoring to confirm that the emission factor was already reduced. The monitoring relates to the confirmation that the context of the EF selected fits the context of the project. Essentially the projects rely on relevant EF scientific research that has been done in the past and applied to the project. The uncertainty section provides clear guidance to make sure that conservativeness in the selection and use of the emission factors is there and emission reductions are not overestimated.
49	4.5 Evidence for PCF EF	1. The methodology states "all emission factors must be recent (preferably <10 years)". Methodology Developer may clarify the rationale for considering emission factors less than 10 years old as appropriate, and how this timeframe helps ensure	The rationale for recommending EFs that are preferably less than 10 years old is to ensure that the data reflects current fertilizer production processes, energy mixes, and agricultural practices, which are subject to ongoing changes due to technological advancements, climate, and regional shifts in feedstock or manufacturing infrastructure. We expanded:

	Section	Feedback/comment/suggestion	Response
		data relevance and accuracy. Additionally, methodology Developer may explain how methodological consistency is maintained when different standards—such as ISO 14067 for the baseline and the GHG Protocol for the project scenario—are used, given the differences in their approaches.	"*There year that the validation of the PCF was done must be disclosed.* *This should be preferably less than 10 years old.* *Project developers must report any changes in fertilizer formulations or suppliers that affect emission factors through the monitoring framework (section 6. Monitoring, Reporting and Verification) and must be transparently reported and justified in the verification report."* Methodological consistency between baseline and project EF sources is indeed key. We now clarified that: "*The same data source and methodological standard must be prioritized for both baseline and project emission factor (EF) PCFs to ensure comparability.* *If different sources or methods are used, these must be explicitly disclosed, with a clear explanation of methodological differences and their potential impact on the results. Specifically in this case, project developers must:* • *Explain methodological differences: Describe any differences in system boundaries, functional units, and allocation rules between the standards.* • *Identify EF differences: Specify where and how the emission factor values differ as a result of these methodological variations.* • *Apply a conservative approach: Where uncertainties or discrepancies exist between standards, use a conservative estimation method to ensure the integrity of the results."*
50	4.6 Notes on calculations	In the Section: 4.6 – Notes on Calculations, methodology does not address how uncertainty in Product Carbon Footprint (PCF) data such as measurement error, data age, or lack of supplier-specific transparency is to be quantified, assessed, or reported. The methodology shall include clear guidance for evaluating and reporting uncertainty in PCF values. This may include the application of data quality scoring, confidence intervals, conservative assumptions, or the use of uncertainty factors aligned with established data quality tiers.	Great point. We grouped the information in *4.1 EF-data reference approaches Approach 3: PCF or LCA data.* We now have a clear table explaining the evidence types that must be submitted for the PCFs, as well as their specific requirements: • Source • Method • Validation body • Validation year • Baseline and project alignment • Uncertainty reporting • Relevance to the project We hope this brings clarity and alignment. Note once more, that we have now added clear rules as to which PCFs are allowed and with which methods. We are not trying to create a new method to assess PCFs. We rely on existing

	Section	Feedback/comment/suggestion	Response
			methods and bodies for that. But we do require now that the PCF is reported properly along with its uncertainty.
51	5. Net GHG emissions reductions	1. Methodology Developer may provide clearer step by step explanation of how net GHG emission reductions are calculated, specifically detailing how baseline and project-scenario emissions are derived and then applied in the overall emission-reduction equation to ensure transparency and ease of implementation.	We updated the equation and explanation in this section for transparency. We also added a footnote explaining the exact process "*The total baseline or project emissions are calculated by summing the emissions from all activities within the defined scope. The activities in scope are determined by the selected project type and the interventions included. The calculation methods for each activity are described in section 4.2 Equation of each activity step.*"
52	5. Net GHG emissions reductions	In sections 1.1 and 5, methodology defines a buffer pool but does not provide any formula or guidance for how projects should contribute. There is no clarity on contribution rates, risk factors, or project-scale considerations. Clear, standardized rules for buffer pool allocation must be added.	We note the comment and clarify that the buffer pool is managed centrally under the Proba Standard and platform rather than at the individual methodology level. The Proba Standard sets out standardized rules for buffer pool. These rules apply uniformly to all projects registered under the Standard and are therefore not repeated in this methodology. We have added a clarification as to how the buffer pool is calculated and showed this in a transparent way in section 5. Net GHG emissions reductions: "*If leakage is reversible, the credited emissions may be adjusted retroactively, or an equivalent amount may be withdrawn from the buffer pool. In either case, the adjustment equals the leakage penalty multiplied by the annual Net GHG emissions reduction.*" The project scale and risk scale is in other words prescribed through the leakage deduction factor. Since, the methodology is focused on emissions reduction rather than removal, the risk of reversibility / non-permanence is not there.
53	6.1 Monitoring	1. Methodology Developer may include a section in the methodology for parameters that are not monitored and are assumed to remain constant throughout the project. The standardized format is mentioned below:	These are presented in *Table 8: Project scoping.* The parameters in the following two tables are the ones that should be monitored and can change. As mentioned at the start of the section: "*Project scoping: Key project details defined before the project start, submitted once during the POD validation phase (see Table 8).* *Project design parameters: Variables monitored and reported during each verification cycle to ensure compliance and accuracy (see Tables 9 and 10). Those must be completed for each specific intervention that is outlined in the project scoping.*"

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<tr><td>Description:</td><td></td></tr>
<tr><td>Source of data:</td><td></td></tr>
<tr><td>Measurement procedures (if any):</td><td></td></tr>
<tr><td>Any comment:</td><td></td></tr>
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<tr><td>54</td><td>6.1 Monitoring</td><td>1. Methodology Developer may include explicit guidance within the methodology requiring that all data collected as part of the monitoring process be archived electronically and retained for a minimum of two years following the end of the final crediting period. Unless otherwise specified, 100% of the relevant data should be monitored, and all measurements must be conducted using calibrated equipment in accordance with applicable industry standards. Furthermore, any monitoring provisions outlined in referenced tools within this methodology may also be maintained and adhered to. The methodology requires all monitored parameters for each monitoring period to be listed in the following standardized format:</td><td>This comment is once again handled by the proba standard. Specifically:
“5.11 Duration of the accessibility to the data
The Proba platform is built on the public Polygon blockchain, IPFS and o-chain technology (Google Cloud Platform).
Information related to claimed Carbon Credits on the blockchain will remain available indefinitely or as long as the Polygon blockchain exists. However, only the most important Credit attributes and lifecycle history are stored on the blockchain and/orIPFS. For other information, like documents and reports, data to guarantee integrity (e.g. checksum) is stored on the blockchain. When the information is removed from the Proba Platform, it will no longer be accessible. All information on the Proba Platform is stored for the duration of the GHG Project, plus 7 years.”

And we fully agree that all monitored parameters must be stored in a proper format. For this purpose we added: “All monitored parameters for each monitoring period must be listed in the following standardized format: a) Data / parameter: , b) Data unit: , c) Description: , d) Source of data: , e) Measurement procedures (if any): , f) Monitoring frequency: , g) QA/QC procedures: , h) Any comment:”</td></tr>
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<tr><td>55</td><td>6.2 Reporting</td><td>1. Methodology Developer may clarify the required duration for data archiving, as this would enhance the quality, transparency, and traceability of documentation maintained throughout the project lifecycle.</td><td>As per Proba standard: “All information on the Proba Platform is stored for the duration of the GHG Project, plus 7 years.”</td></tr>
<tr><td>56</td><td>Appendix E: Different metrics of GHG emissions</td><td>Appendix E allows the use of multiple GHG emission metrics (e.g., tCO_2e/ha, tCO_2e/t fertilizer, tCO_2e/t crop), but lacks guidance on how these should be normalized or selected. To prevent selective reporting and ensure consistency, define clear rules or decision criteria for metric selection and normalization across reporting periods.</td><td>We agree. We added the following statement: “These must all be reported, where possible , to enable transparent comparisons.”
With a footnote:
“As mentioned in section 3. Baseline scenario, for projects implementing the sourcing region approach with intervention type a. Fertilizer production emissions reduction it is not necessary to report the baseline crop type. For this case, the only metric that is relevant is “Per unit of nitrogen-containing fertilizer applied”. If the project developer wants to attribute the emission reduction to a crop, then a crop type and Nut rate baselining must be done, which will allow the quantification of the other metrics.”</td></tr>
<tr><td>57</td><td>References</td><td>During review it is noted that several references are cited throughout the proposed methodology and listed at the end of the document. In order to enable a thorough review, it is kindly requested that PDF copies of the referenced documents, particularly those not publicly accessible.</td><td>PDFs have been shared.</td></tr>
</table>

	Section	Feedback/comment/suggestion	Response
		• Abalos, D., Jeffery, S., Sanz-Cobena, A., Guardia, G., & Vallejo, A. (2014). Meta-analysis of the effect of urease and nitrification inhibitors on crop productivity and nitrogen use efficiency. Agriculture, Ecosystems & Environment, 189, 136–144. https://doi.org/10.1016/j.agee.2014.03.036 • Akiyama, H., Yan, X., & Yagi, K. (2010). Evaluation of effectiveness of enhanced-efficiency fertilizers as mitigation options for N2O and NO emissions from agricultural soils: meta-analysis. Global Change Biology, 16(6), 1837–1846. https://doi.org/10.1111/j.1365-2486.2009.02031.x • Hutchings, N. J., Petersen, S. O., Richards, K. G., Pacholski, A. S., Fuß, R., Abalos, D., Forrestal, P. J., Pelster, D., Eckard, R. J., Alfaro, M., Smith, K. E., Thorman, R., Klaus Butterbach-Bahl, Ngonidzashe Chirinda, Bittman, S., Cecile, Hyde, B., Amon, B., Tony, & Prado, A. del. (2024). Preconditions for Including the Effects of Urease and Nitrification Inhibitors in Emission Inventories. Global Change Biology, 30(12). https://doi.org/10.1111/gcb.17618	