Regen Registry Internal Review of Removal of atmospheric nitrous oxide (N2O) using Photocatalytic Technology

Submitted by: Crop Intellect
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Summary of Internal Review Process

The intent of the Regen Registry Internal Review is to ensure methodologies submitted to the Regen Registry meet the integrity expected by our community and ensure the document is sufficient to warrant review by Expert Peer Reviewers.The task of an Internal Reviewer is to act as an ally to methodology developers by providing critical feedback to help facilitate an understanding of how to improve the methodology to best serve Earth Stewards while maintaining scientific and community integrity.

The Regen Network Science Team has reviewed the *Removal of Atmospheric Nitrous Oxide (N2O) using Photocatalytic Technology* to facilitate the creation of a strong methodology which can be submitted to External Peer Reviewers. Our feedback has been provided in two ways:

1) Direct Comments: To provide targeted constructive feedback to specific sections of your methodology, our team commented directly in your methodology document on what we found confusing, thought needed more definition, or what we thought was out of scope for this methodology. The comments can be found in the submitted document.

2) Overall Reflections: To provide more generalized feedback to your methodology as a whole, our team provided the additional reflections in this document. Reflections were categorized by reviewers, each of whom had different thoughts on how to improve the methodology. A final combined summary of comments, feedback and suggestions is found in the Combined Summary section.

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Internal Review:

Reviewer 1 - Ned Horning:

General Comments:

This is a fairly simple and straightforward methodology but more information is necessary so project requirements and monitoring methods are clearly defined. There is a lot of room for interpretation in the current version.

Equations and the basic workflow for calculating credits are provided but practical information such as how means should be calculated would be helpful to ensure the methodology is followed as intended. Examples related to how the different variables for each equation are calculated would be helpful.

For reporting it would be helpful if they could provide a template.

It's not clear how long, within a growing season, credit calculations are valid. Explicit mention of how the start and end dates are determined should be included.

Comments by Sections:

I put comments in the document

Final Decision: -

I expect the science is ready for Expert Peer review but some practical issues related to implementation should be addressed before it goes to that next stage.

Reviewer 2 - Gisel Booman:

General Comments:

The Methodology is simple and the science behind it seems to be robust. There are some missing details that would be good to add to standardize its implementation. In particular the protocol should include specific requirements about sampling (min. number of samples per unit area,

sample location, timing for sampling after application of the agrochemical (immediately? What's the max. number of days after its application to collect the samples?) , how to collect the samples to send to the lab, how to handle them, etc).

Comments by Sections: I left my comments in the document**.**
In section 2.5 it is mentioned that "A transparent uncertainty assessment" must be carried out, but I couldn't find any specifications on how an uncertainty assessment should be carried out throughout the document. It would be good that the authors clarify this in the text.

Final Decision: -
The Methodology is close to a version to be sent to Expert Peer reviewers. Please take our comments into consideration and complete the missing information for clarity.

Reviewer 3 - Tica Lubin:

General Comments:
My comments in the document are mainly directed at some clarifications and organization of content. There are sections that need to be moved to the credit class and some content is missing. Also in general there is more specificity that is needed in terms and descriptions as I indicated in the document. I have no comments on the science and calculations as this is beyond my knowledge base.

Comments by Sections:
I put comments in the document

Final Decision: -
Another round of Internal Review is needed to ensure that the comments are addressed, sections added and or moved.

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Reviewer 4 - Rebecca Harman:

General Comments:

The scientific application of this methodology is exciting; one area that deserves clarity is around eligible crop management practices. I see scenarios where the benefits of R-Leaf in breaking down N_2O do not outweigh the consequences of conventional tilled cropping systems (erosion, chemical fertilizers, herbicides, etc.) on the ecosystem. Measuring the project emissions from the practices does not account for the impact of certain practices. You cite a common practice analysis; do you think this is sufficient for ensuring that improved practices such as conservation ag practices are employed?

Comments by Sections:

Comment left in project activity emissions section on emissions from spraying equipment pass

Final Decision: -

An additional round of Internal Review is recommended.

Combined Summary/Feedback/Suggestions

General Comments:

More detail should be added to several sections of this methodology around project boundary, application, eligibility, and timelines as well as clarification on how and when to perform monitoring and calculations. Sections of this need to be moved to the credit class document.