



CLIMATE
ACTION
RESERVE

**SUMMARY OF COMMENTS & RESPONSES
DRAFT NITROGEN MANGEMENT PROJECT PROTOCOL VERSION 2.0**

Two sets of comments were received during the public comment period for the Climate Action Reserve (Reserve) draft Nitrogen Management Project Protocol Version 2.0. Staff from the Reserve provides responses to the comments below. The public comment period for the draft protocol was August 1 – 31, 2018.

The comment letters can be viewed on Reserve's website at <http://www.climateactionreserve.org/how/protocols/nitrogen-management/>.

COMMENTS RECEIVED BY:

1. Indigo Agriculture
2. Neville Millar, Michigan State University

General Comments

1. **Forms for enrolling new fields.** Enrolling new fields will likely be an important component for project expansion, so adding any requisite forms to an appendix would be useful. **(Indo Agriculture)**

RESPONSE: Forms will be provided outside of the protocol, as per Reserve standard practice. Providing such information outside of the protocol simplifies the process for future updating.

2. **Clarify terminology (cultivation year, season, annual):** Clarify in one location in the protocol, whether the terms cultivation cycle, crop year, annual, and season are used synonymously. Maybe also limit the number of these terms used. **(Neville Millar)**

RESPONSE: The protocol has been updated to use only the term 'cultivation year', to avoid confusion.

3. **Remove disincentives for wider 4R practice adoption:** While 4R practice adoption is encouraged, there are conflicting disincentives (or at least not compatible requirements) to this in the protocol (e.g., split application and the requirement to quantify emissions associated with multiple passes). Even if de minimis, more calculations and effort required. **(Neville Millar)**

RESPONSE: The protocol is not intended as a general incentive to promote beneficial practice change, but very specifically to generate offsets, where appropriate. Disincentives to further beneficial practice change are unfortunate but, where they occur, are necessary for complete and conservative project accounting.

Section 2.2 Project Definition

4. **Expanding eligible crop / practice / region combinations.** Should include a process to facilitate the inclusion of further eligible crop / practice / region combinations, once requisite data becomes available, without necessitating a formal protocol update process. **(Indigo Agriculture) (Neville Millar)**

RESPONSE: The Reserve intends to expand the Performance Standard Test to include additional eligible crop / practice / region combinations, as additional requisite data becomes available. The Reserve intends to make such changes without the need of a formal protocol update process, using the same PST methodology and datasets as contained in V2.0. The Reserve will also explore, on a case by case basis, whether it is appropriate to expand the PST to include new combinations, using an alternative methodology, and/or using datasets not used in V2.0, without a formal protocol update process. The Reserve will also consider expansions to the NMQuanTool, outside of a formal protocol update process, subject to the availability of resources.

Section 2.2.1 Eligible Project Activities

5. **Allow for stand-alone Enhanced Efficiency Fertilizer (EEF) projects.** Projects that only employ an EEF should be allowed, rather than mandating N rate reductions in all projects. (Neville Millar)

RESPONSE: The Reserve had hoped to decouple the two practices, and will look to do so in future updates. However, this was not possible in the current update due to modeling capability limitations.

Section 2.2.3 Eligible Project Area

6. **Further defining 'field' boundaries.** Further clarity is needed regarding whether physical breaks in a field caused by the presence of ineligible areas necessitates the creation of two separate fields. (Indigo Agriculture)

RESPONSE: Section 2.2.3 has been updated to clarify that minor breaks in a field due to ineligible areas (such as roads, rivers, etc.), will not necessitate the creation of two separate fields.

Section 3.3 Reporting Periods

7. **Clarify impact of years where no CRTs issued.** Clarify whether an ex post exclusion of one reporting period counts as one of the 10 reporting periods of the crediting period? (Neville Millar)

RESPONSE: Further guidance has been provided in the protocol to clarify this issue. Ex-post exclusion of one reporting period will not count towards one of the 10 reporting periods of the projects crediting period.

Section 3.5.1.1 Performance Standard Test – N Rate Reductions

8. **Remove the NUE eligibility screen from the Performance Standard Test requirements.** Remove the requirement of the NUE metric to determine eligibility. This test is overly prescriptive, somewhat complex, likely restrictive (especially to 'bad actors'), and somewhat unfair, particularly when used ex-post with a threshold based on county statistics. Simpler BMP approaches as encouraged in the protocol are more agronomically appropriate. (Neville Millar)

RESPONSE: A difficult balance must always be struck in terms of ensuring emission reductions are additional, encouraging additional practice change, ensuring early adopters are not placed at an unfair disadvantage, and ensuring 'bad actors' or 'laggards' are not given an unfair advantage. The complete rationale for the Reserve's decision to base the PST on a nitrogen use efficiency (NUE) metric can be found in Appendix B of the protocol. In short, an NUE metric 1) reflects nitrogen management that limits N losses to the environment and maximizes N use by crops to maintain and enhance yield and 2) provides an easy to understand and easy to determine assessment of performance that can be estimated ex ante and used at various geographical scales for consistent comparisons. Further, the NUE metric used in the protocol, the partial factor productivity (PFP), is

calculated in units of crop yield per unit of N fertilizer applied, both of which should be part of any practical record-keeping for growers and are required by this protocol. That being said, the Reserve will periodically reassess the PST, to see if a more productive and reasonable approach can be found.

Section 5 GENERAL

9. **Using available organic N and not Total organic N.** Has consideration been given to using available organic N (and not total organic N) in a cultivation cycle as an input metric? **(Neville Millar)**

RESPONSE: The use of available organic N and not total organic N was considered in early discussion on development of the quantification method, but ultimately such a distinction could not be accommodated in development of the quantification method.

Section 5 NMQuanTool

10. **Unexpected NMQuanTool modeling results.** Increasing N rate reductions appear to result in a linear decrease in N₂O emissions. This modeled output is compatible with a Tier 1 EF, but seemingly incompatible with the Tier 2 EF used for organic N increases in corn in the NCR? Should these be consistent? The ‘additional’ reductions when using an NI in combination with N rate reduction, compared to N rate reduction only are surprisingly high (~6 fold and ~3 fold greater at 10% and 20% N rate reductions, respectively). Are these model output values (singly or in combination) compatible with literature values? This small credit for N rate reduction would seem to offer little incentive for management change **(Neville Millar)**

RESPONSE: The version of the NMQuanTool made available to work group members was still under development, and subject to further refinement, so results may vary once the tool has been finalized. Please refer to the discussion of the methodology underlying the NMQuanTool modeling within Appendix E of the Public Comment draft protocol. We do not have support in literature for any specific model results. It may be possible to arrange for a discussion directly with the Reserve’s technical contractor – Colorado State University (CSU) – to explore this query further.

11. **Credit for finer incremental reductions in N rate:** Quantify and allow credit for percentage reductions in synthetic (and organic) N rate in single units (i.e., 1% increments), as opposed to rounding down to the nearest 5 or 10%. Currently, this appears to be a further disincentive to increased N rate reductions (e.g., a 19% reduction would only be credited for 15%?). Also consider expanding the range beyond a 30% reduction, for instance to allow for accounting for 50% reductions. **(Neville Millar)**

RESPONSE: Introducing finer percent N rate reduction increments would greatly improve functionality, however to do so exponentially increases requisite modeling. The Reserve hopes to better accommodate such functionality in the future. With respect to allowing for higher than 30% reductions, the Reserve received work group feedback that reductions above 30% were unlikely and therefore should be removed from the NMQuanTool. The Reserve can look to add back in percent reductions above 30% in future.

12. **Eligibility of adopting no-till practices.** Allow all producers who have switched to no-till (irrespective of duration, and crop / region scenario) and who are otherwise eligible, to participate. This change in practice is predominantly beneficial and should not be a reason for exclusion; model prediction or otherwise. **(Neville Millar)**

RESPONSE: Approximately 5% of the overall possible eligible crop / region / practice combinations will be excluded based on the adoption of no-till in the short term (i.e., less than 10 years). The uncertainty levels associated with such modeling were unacceptably high, and it is for that reason, and an expected increase in emissions associated with such practice adoption, that those scenarios must be excluded.

13. **EEFs in the baseline ineligible:** Fields should not be excluded from eligibility because they used EEFs in the baseline. **(Neville Millar)**

RESPONSE: This restriction is due purely to the current availability of requisite data for modeling such impacts, and the issue can be revisited in future update processes.

Section 5.1.2.1 Evidence used to set baseline

14. **Further specificity as to what is reasonable evidence would be useful.** We recommend greater specificity as to what constitutes 'farmer records', and in particular whether verbal information is sufficient. **(Indigo Agriculture)**

RESPONSE: Guidance will be provided in the protocol to specify that in all cases written records will be required. Further guidance on the types of evidence that may satisfy a verifier will be provided in a handbook to accompany the protocol.

Section 5.1.2.1 Reduce the baseline look-back period

15. **Reduce the baseline look-back period from 3 to 2 years.** Reduce the look-back period to require 2 and not 3 eligible cultivation years; relying on historical farmer records preferable and more reliable to approaches 2 and 3. **(Neville Millar)**

RESPONSE: Several factors contributed to the Reserve's decision to adopt a 3 year baseline look-back period, including: (1) the PST benchmarks are estimated based on 3 years' of data; (2) the baseline period has already been reduced from 5 to 3 years, from V1.1; (3) the Reserve received work group feedback that a multi-year average baseline would better account for year to year anomalies, and so a 3 year average would likely be more representative of actual field conditions than a 2 year average; and (4) the risk of baseline N rates being artificially raised for 2 years to affect a greater reduction from baseline to project is increased when moving from a 3 to 2 year look-back period. Additionally, baseline Approach 1 is of higher priority than Approaches 2 and 3 and must be used if sufficient historical records exist.

Section 5.1.3.2 Exclude accounting for leakage

16. **Exclude accounting for leakage.** Exclude the requirement for leakage (shifting crop production) calculations. They are onerous and again rely on ex-post, county-based statistics. **(Neville Millar)**

RESPONSE: This is the first time such a request has been received, and other work group members have advocated that leakage considerations should be included. We will continue to follow GHG accounting best practice and include such a deduction, until such time as there is wider support for the proposition that to do so would be overly conservative.

Section 5.1.4 Organic N rate reductions

17. **Make emission reductions resulting from changes in organic N rate eligible.** The protocol should allow for the generation of credits for reductions in organic N rates, using the MSU-EPRI . There is sufficient literature evidence that N₂O response to variable organic N rate is consistent with synthetic organic N rate. The protocol uses an MSU-EPRI based equation to calculate emissions increases associated with increased organic N rate; why not for reductions in N rate? **(Neville Millar)**

RESPONSE: The Reserve's assessment revealed insufficient data to facilitate inclusion of organic N rate reductions as an eligible practice. Pursuant to best practice, the Reserve nonetheless includes accounting for emissions increases associated with increased organic N rates. The Reserve will continue to assess options for including full accounting of organic N applications in future updates. Engagement on such issues is encouraged earlier in any future update process to allow the Reserve and Work Group sufficient time to fully consider such options.

Appendices

18. **Clarify whether equations contained in Appendices are necessary for emission reduction quantification.** Explicitly state whether equations contained in the Appendices are necessary for emission reduction quantification. **(Indigo Agriculture)**

RESPONSE: All equations have been removed from the Appendices, as they are not necessary for emission reduction quantification.