

Update on CAR Agriculture Protocol Development

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Reserve Agriculture Protocol Development



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- **Rice Cultivation Project Protocol (RCPP):** CH₄ reductions resulting from a change in water and/or residue management
 - Version 1.0 Adopted on December 14, 2011
- **Nitrogen Management Project Protocol (NMPP):** N₂O emission reductions resulting from a change in nitrogen management
 - Expected Completion June 2012
- **Soil Carbon:** Initiating research on land-use change opportunities, including preservation of grasslands and/or conversion of marginal cropland to grassland



NMPP Goals

- Develop a standardized approach for quantifying, monitoring and verifying GHG offsets resulting from changes in nitrogen management practices that reduce N₂O emissions from U.S. croplands
- Maintain consistency with & build upon existing methodologies
 - American Carbon Registry
 - Electric Power Research Institute/Michigan State University
 - Alberta Offsets Program
 - Reserve's RCPP (aggregation and other general principles)

NMPP Development Progress



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Methodology Synthesis Paper	May 6, 2011
Workgroup Meeting 1 (conference call)	May 18, 2011
Workgroup Meeting 2 (conference call)	June 27, 2011
Background Paper Completed (draft)	July 18, 2011
Draft protocol to workgroup	July 27, 2011
Workgroup Meeting 3 (Los Angeles)	August 1, 2011
Science Advisory Committee Meeting (Los Angeles)	September 7, 2011
WG Meetings 4 (conference call)	October 25, 2011
WG Meetings 5 (conference call), <i>continuation of mtg 4</i>	November 11, 2011
Second Phase of Background Research	Oct - Dec 2011
Science Advisory Committee (conference call)	January 17, 2012
WG Meeting 6 (conference call)	January 25, 2012
Draft Protocol for WG/SAC review	March 28 2012
WG Meeting 7	April 2012
Start of 30-day public comment period	April 20 2012
Public workshop	May 2012
Protocol adoption by Reserve Board	June 27 2012



Project Definition

- The adoption and maintenance of approved practices that reduce nitrous oxide (N₂O) emissions. Specific project practices must be adopted and maintained on individual fields with at least one approved project activity implemented on each individual field.
- Approved project activities may be implemented on a single field, known as a “single-field project,” or may be implemented on two or more individual fields combined into a single project area, also known as the “project aggregate.”



Approved Practices

- Started with a list of eight high priority practices based on SAC report
- Narrowed “approved practices” to those for which:
 - Geographically broad data are available to develop performance standards
 - Quantification approaches consistent with the Reserve standard are available
- Final list still pending analysis of data and quantification methods
- Will include N-rate reduction and possibly use of nitrification inhibitors and/or switching from fall to spring application



Performance Standard for N Application Rate

- Nitrogen use efficiency is the basis for evaluating a project's performance
- $RTA = (\text{Yield} \times \text{N content of crop}) / \text{N applied}$
 - Yield = bushel/acre
 - N content = lbs N/bushel
 - N applied = lb N/acre
- Performance standard test still in development but will involve comparing project-specific RTA values to state & crop specific RTA threshold values calculated from USDA data.

Performance Standard for Other N Management Practices



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- Reserve is trying to develop a “positive list” of other practices, specific to crops grown and geographic location (state)
- Will consider temporal trends in activity penetration rates when setting thresholds for inclusion on the list
- Will strive for consistency with existing standards (VCS)
- Initial data source identified is USDA ARMS
- Further analysis of barriers for specific circumstances may be necessary



Quantification Approach

- NMPP v1.0 will include at least one quantification approach for N₂O
 - Evaluating MSU Tier 2 emission factor for N-rate reductions in corn in the US North Central Region
- May also allow submissions of other quantification approaches, in addition to Reserve developed approaches
 - This will help to cover a diversity of possible management systems while applying uniform and consistent standards



Project Aggregation

- Aggregation is optional but we expect it will be common in the NMPP
- Purpose is to help improve accuracy of GHG quantification and boost cost-effectiveness
- A Project Aggregate = multiple fields owned/managed by one or more Project Participants
- Credits issued to aggregator (farmers can be their own aggregator)
- Aggregates are unlimited in size
- Eligibility rules, start dates, & crediting periods associated with individual field, not the aggregate
- Fields have limited opportunity to switch aggregates



Land-Use Change RFPs

- Cropland Management Project Protocol has been suspended, but the Reserve is continuing to investigate soil carbon sequestration opportunities
- Current focus is on sequestering carbon in grasslands through either:
 - Avoiding conversion of grasslands to other land uses
 - Converting marginal cropland to grassland
- We will soon issue two Requests for Proposals related to:
 - Reduction potential, performance standards, and quantification
 - Leakage issues



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