SUMMARY OF CHANGES FROM ACR FERTILIZER METHODOLOGY V1.0 TO V2.0

ACR today posts for public comment v2.0 of its *Methodology for N_2O Emission Reductions through Changes in Fertilizer Management*. Upon final approval and publication this version will replace v1.0, published in November 2010.

The methodology's purpose, scope, applicability conditions, eligible practices, and quantification approach remain unchanged. ACR has made updates and clarifications to improve the usability of the methodology, as well as adapting certain innovations from other ACR agricultural methodologies developed since the original publication of the fertilizer methodology.

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The following is a summary of changes from v1.0 to v2.0:

Topic	Revisions	Section
Baseline setting	Three methods for setting the project baseline are now provided. Projects that reduce fertilizer rate without changing any other aspect of fertilizer management, as well as projects that adjust more than fertilizer rate but for which the Project Activity's current adoption rate already exceeds 5%, must use a Field Specific Historical Baseline. Projects that adjust more than fertilizer rate and for which the current adoption rate is less than or equal to 5% within the Reference Region must use a Common Practice Baseline. A Reference Region is a wider region in which the broad climatic and soil conditions are relatively homogeneous. It is up to the Project Proponent to propose a valid reference region. However, the proposed reference region must be recognized by the USDA, extension service specialists, or agricultural commissioners. To determine the current adoption rate of a practice, Project Proponents may conduct a statistically valid survey of producers in the Reference Region, or alternately may use expert opinion if 3 independent experts agree the adoption rate of a Project Activity is less than 2% of the fertilized acres within the Reference Region.	3.3
Early adopter crediting	v2.0 incorporates a mechanism for early adopter crediting drawn from the ACR methodology *Voluntary Emission Reductions in Rice Management Systems*. Projects that fall under Baseline Approach 2 (change fertilizer management by adjusting more than just application rate, and for which the Project Activity has	3.3 and 4.2

Topic	Revisions	Section
	a current adoption rate less than or equal to 5% of the fertilized acres within the Reference Region around the project) are deemed additional and use a Common Practice Baseline.	
Leakage	v2.0 provides a method, adapted from the ACR methodology *Voluntary Emission Reductions in Rice Management Systems*, to distinguish between crop yield reductions induced by the Project Activity and normal inter-annual yield variations. This is done by normalizing yield against county-level yield statistics to determine the portion of the change in yield that is attributable to seasonal variability. Only yield reduction exceeding this amount must be calculated and deducted from the net emission reductions. An example of this calculation is provided.	4.7 and Box 1
Uncertainty in input parameters	The methodology accounts for uncertainty in input parameters by requiring DNDC to be run in Monte Carlo mode. The Monte Carlo analysis is performed by modeling GHG emissions for both the baseline and project scenarios to calculate an input uncertainty deduction for each field in order to adjust for model uncertainty due to soil input parameter uncertainties. This technique is unchanged from v1.0, but v2.0 reduces the number of required Monte Carlo model simulations from 4,096 to 1,000.	4.4.3 and 4.8.2
Calculating model structural uncertainty	As in v1.0, a comprehensive and systematic validation of the DNDC model using independent field measurements is required by crop, management system and NRCS Land Resource Region to statistically quantify uncertainties in model-based estimates of GHG emission reductions that are obtained by a standardized approach to parameterization and calibration that can be applied across a whole region. v2.0 provides significantly more guidance on how to verify lack of bias in the model, and how to quantify model structural uncertainty by comparing measured and modeled emissions.	4.8.3 through 4.8.8, Box 2, and Appendix B
Field data for DNDC validation	v2.0 includes an Appendix on required protocols for field measurements of N_2O emissions used for validating model results.	Appendix A
Definitions	v2.0 includes an expanded list of definitions for terms that were not explicitly defined in v1.0, and terms new to v2.0.	3.4