

Smart Nitrogen Application Program (SNAP) Demonstration Project
The Fertilizer Institute
July, 2011

The Fertilizer Institute, in collaboration with Camco, ClimateCHECK, The Climate Trust, the International Plant Nutrition Institute, USDA's National Laboratory on Agriculture and the Environment, Michigan State University, and Colorado State University was awarded a Conservation Innovation Grant for the "Smart Nitrogen Application Demonstration Project." The project seeks to develop and implement a program to recruit and enroll producers and to provide them with expert advice to implement, monitor, and track fertilizer best management practice (BMP) efforts. This will result in a system that will ultimately allow the monetization of carbon offsets. 4R nutrient stewardship using the right nutrient source at the right rate, the right time, and in the right place will play a key role in this effort. The effort will also evaluate and beta test the Alberta Nitrous Oxide Emissions Protocol (NERP), the American Carbon Registry protocol (ACR), and the Verified Carbon Standard protocol (VCS). This includes protocol modification (as needed) for their use in Iowa and Illinois – corn and soybean cropping systems. A meta-analysis will be utilized to help evaluate the effects of implemented best management practices on nitrous oxide emission reductions. The three year project award is for \$1.43 million; cost match provided by project collaborators and other sources will provide an overall budget of \$2.86 million.

Development of the Smart Nitrogen Application Program will include a website populated with information on nitrogen BMPs, climate change issues, carbon markets, water quality issues, fact sheets, and videos. Sign-up and outreach materials will be developed to support the enrollment effort. Nitrogen Desktop, a web-enabled monitoring, reporting, and verification tracking tool for data will also be developed for use with this project. The team will work with partners and project supporters to reach potential agricultural producers for enrollment in the program via marketing literature, winter conferences and expos, as well as targeted producer meetings.

The three protocols will be modified for use in the project (as needed) and tested with producer data. The effort seeks to enroll at least 100 producers with a minimum of 500 acres. Enrolled producers will implement Nitrogen best management practices and provide the necessary documentation for the protocols. The meta-analysis of N₂O emissions data will inform an element of the protocol comparison. The meta-analysis results will point to the key BMPs needed for GHG mitigation, and will identify the degree of emission reductions expected via BMP implementation. The meta-analysis findings will be compared with the practices and metrics implemented in the protocols. The protocols will be evaluated based on scalability, verifiability, effectiveness, ease of use, and credit quantification.

Based on the protocol beta-testing and evaluation, the optimal protocol will be used to quantify the GHG benefits and select the appropriate GHG registry. We expect the market to recognize a premium value on offset credits that can be used for compliance to emission regulations, therefore priority among protocol designs may be influenced by this need. An evaluation of the Smart Nitrogen Application Program will be performed at the end of the project to analyze producer acceptance, carbon market acceptance, the implementation framework, and key lessons.

If you have comments or questions about this effort, please contact Lara Moody, TFI's Director of Stewardship Programs ((202) 515-2721, lmoody@tfi.org).

Background Information for the C-AGG Chicago Meeting July 20-21, 2011

Project: Smart Nitrogen Application Program (SNAP) Demonstration Project

1. *What are the major goals of the project?*

To develop a self-perpetuating program to help producers create and sell credits into both voluntary and compliance carbon markets. The specific focus is on Midwestern corn and soybean producers, but the framework will be developed for expansion to other cropping and climate regions.

2. *What is the project timeline?*

July 15, 2011 – June 30, 2014, with producer enrollment for the 2012 and 2013 cropping season.

3. *Which GHG are targeted by the project?*

N₂O emission reductions from row crop production via utilization of N best management practices.

4. *Can you provide an estimate of tons of CO₂ equivalents (per year, and/or over the course of the project) that the project might mitigate/abate?*

The project expects to generate an emission reduction of 25,000 metric tons of CO₂ equivalents during the grant period.

5. *What methods or protocols will the project use to measure or estimate GHG emissions and emissions reductions?*

The effort will utilize the Alberta Nitrous Oxide Emissions Protocol (NERP), the American Carbon Registry protocol (ACR), and the Verified Carbon Standard protocol (VCS). A meta-analysis of N₂O emissions data will point to the key BMPs needed for GHG mitigation, and will identify the degree of emission reductions expected via BMP implementation.

6. *Do you anticipate or envision any obstacles or barriers to achieving your project goals and outcomes as currently set out, or activities that you believe will be challenging?*

We have organized a uniquely qualified project team that brings together scientists, agronomists, modelers, and experts in the GHG arena. We will face the challenges of a large project, and will face the challenges surrounding uncontrollable uncertainty of the carbon credit market and enrollment of producers.

7. *Have you identified any data or knowledge gaps associated with the project?*

Some data exists, but the meta-analysis will identify data gaps surrounding emission reductions tied to N best management practices.

8. *Please list project partners affiliated with the project.*

The Fertilizer Institute, Camco, ClimateCHECK, The Climate Trust, the International Plant Nutrition Institute, USDA's National Laboratory on Agriculture and the Environment, Michigan State University, and Colorado State University. Additional partners include Knox Fertilizer and other supporters who are being pursued to provide product or project support.