

American Carbon Registry approves innovative agriculture sector methodology for GHG emission reductions through changes in fertilizer management

ARLINGTON, VA, November 23, 2010 – The [American Carbon Registry](#) (ACR), a nonprofit enterprise of Winrock International (Winrock), announces approval of a pioneering greenhouse gas (GHG) offset [methodology to quantify agriculture sector emissions reductions through changes in fertilizer management](#). The methodology was developed by Winrock under a grant from the David and Lucile Packard Foundation.

Nitrogen fertilizers represent one of the largest sources of GHG emissions from global agricultural production resulting in significant emissions of nitrous oxide (N₂O), a GHG with approximately 300 times the global warming potential of carbon dioxide (CO₂). In the U.S. alone, annual N₂O emissions from agricultural soil management were approximately 216 million metric tons carbon dioxide-equivalent according to the 2008 U.S. National Greenhouse Gas Inventory.

Fertilizers have also been a key factor in the increased yields achieved by modern agriculture. Optimizing fertilizer management practices without reducing yields is therefore an effective way to reduce N₂O emissions and to improve water quality in agricultural areas.

The new ACR fertilizer management methodology incorporates site specific data into a peer-reviewed, tested and highly parameterized model to calculate N₂O emissions reductions that result from changes in how fertilizer is applied and used. The innovative approach takes into account multiple, simultaneous practice changes and produces the rigorous, science-based results necessary to create compliance-quality offsets.

“Given the need for offsets from fertilizer management to be fungible with offsets from landfill gas or any number of other sectors in which emissions can be directly measured with a high degree of accuracy, it is critical that methodologies for quantification of emissions from N₂O result in high degree of certainty and confidence,” explains Dr. Timothy Pearson of Winrock, co-author of the methodology with William Salas of Applied Geosolutions LLC.

ACR's objective in developing this methodology was to create an accounting framework that offers both credibility and integrity for reducing atmospheric emissions from agricultural applications. Direct field measurements of N₂O emissions are prohibitively costly, and the use of default values cannot capture variation in emissions associated with weather conditions and site-specific factors.

As a cost-effective solution to achieve precise results, the ACR methodology uses the Denitrification-Decomposition (DNDC) model to quantify direct N₂O emissions as well as indirect emissions from leaching and ammonia volatilization. The approach is applicable not only to changes in fertilizer quantity (rate), but also fertilizer type, placement, timing, use of timed-release fertilizers, use of nitrification inhibitors and other practice changes.

“The approach recognizes that to avoid leakage, maintain food supplies, and promote broad adoption by farmers, fertilizer management activities must be designed to minimize the risk of decreasing yields,” comments Nicholas Martin, American Carbon Registry chief technical officer. “A methodology that enables willing farmers to reduce fertilizer rate, but allows for other practice changes as well, stands better chances of broad adoption.”

The fertilizer management methodology is the culmination of two years of rigorous scientific and applied research, including field trials on different crops in California, Iowa and Arkansas. The methodology was approved by ACR following extensive stakeholder consultation, a formal public comment period, and independent anonymous peer review by four of the United States’ leading experts in nitrogen management and agricultural GHG mitigation.

The ACR methodology builds on the trend toward aggregation in carbon markets, particularly in agriculture. Increasingly farmers interface with carbon markets not as individuals but through aggregators grouping tens or even hundreds of farms together. In this case, aggregation is important not only for transaction cost efficiencies, but also for improving modeling results and diversifying risk.

“SunOne is very pleased to see the release of this pioneering agriculture methodology by ACR,” remarked John Hodges, president of North America’s #1 ranked carbon aggregator SunOne Solutions. “We have already seen a lot of interest from our farming clients in this new opportunity since until now, farmers could only participate in the carbon markets by adopting sustainable tillage practices. ACR’s fertilizer management methodology expands possibilities since it is applicable to many widely grown and specialty crops. It provides additional incentivizes for farmers to adopt more sustainable fertilizer management systems, which will further help the environment while providing added revenue sources to producers.”

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About the American Carbon Registry

The nonprofit American Carbon Registry (ACR), an enterprise of [Winrock International](http://www.winrockinternational.com), is a leading carbon offset program recognized for its strong standards for environmental integrity. Founded in 1996 as the GHG Registry by Environmental Defense Fund and Environmental Resources Trust, ACR has 15 years of experience in the development of rigorous, science-based carbon offset standards and methodologies as well as in carbon offset issuance, serialization and transparent online transaction and retirement reporting. As the first private voluntary GHG registry in the world, ACR has set the bar in the global voluntary carbon market for offset quality and operational transparency. www.americancarbonregistry.org

About Winrock International

Winrock International is a nonprofit organization that works with people in the United States and around the world to empower the disadvantaged, increase economic opportunity, and sustain natural resources. Winrock is headquartered in Little Rock, Arkansas. www.winrock.org.

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