C-AGG Comments on Proposed Implementation Plan to Increase Public Access to Results of USDA-Funded Scientific Research

C-AGG Background

C-AGG is a multi-stakeholder coalition that supports the development of policies, programs, decision support systems, and effective financing mechanisms to enable the U.S. agricultural sector to participate in voluntary ecosystem service and greenhouse gas (GHG) markets. To create solutions to knowledge gaps and address methodological and financial challenges hampering large-scale adoption of agricultural and land use GHG emissions reductions, sequestration, and ecosystem services, C-AGG regularly convenes public and private stakeholders to facilitate collaborative capacity-building in these critical areas. To date, C-AGG participants include more than 100 stakeholder organizations.[1] Since its inception in 2009, C-AGG has been engaged in discussions with USDA representatives and leadership about the need for enhanced accessibility of USDA data to: (1) support landowner and agricultural producers' participation in market-based ecosystem service and GHG programs, (2) facilitate the development of more rigorous evaluation tools, models and impact measurement methodologies, and even state or national level programs to support market development and investment; (3) protect private property rights while making aggregated or anonymized data available for market development and participation opportunities; and (4) lowering the cost of program/project development to make these opportunities financially viable to project developers and participants alike.

C-AGG Comments

C-AGG applauds USDA's efforts to develop a comprehensive policy and implementation plan for the structured and consistent release of both scientific publications and digitally formatted scientific data for public consumption, which will contribute to the development of value-added uses for the data. C-AGG's stakeholders and the broader ecosystem service market community will greatly benefit from enhanced access to peer-reviewed publications and the associated data sets from unclassified research supported wholly or in part by USDA funds; and to greater access to USDA data generated through annual surveys produced by the following agencies under the Research, Education and Economics (REE) mission area: the Agricultural Research Service (ARS), the Economic Research Service (ERS), the National Institute of Food and Agriculture (NIFA), and the National Agricultural Statistics Service.

While the current scope of the implementation plan includes only the release of publically funded scientific research publications and data sets that have gone through the peer review process, C-AGG strongly encourages USDA to consider broadening the scope of this implementation plan to include the release of research findings, methods, tools and technologies, data sets, and project outcomes from USDA funded efforts that are equally as valuable to the research community, but fall outside the scope

[1] See attached list of over 100 organizations that participated in C-AGG in the last 24 months

of the formal peer review process. For example, C-AGG and our stakeholders could greatly benefit from release into the public domain of easily accessible anonymized project results; quantification, verification, certification methods, tools and technologies; technology interfaces such as Application Program Interfaces (APIs) for data acquisition, collection and analyses; standardized procedures and contracts for project development; and data sets, tables and analyses resulting from the Natural Resources Conservation Service's (NRCS) Conservation Innovation Grant (CIG) projects. Release into the public domain of these projects' results, data, methods, tools, technologies and analyses could influence future recipients' project development and implementation plans, highlight valuable lessons learned to the broader ecosystem service market community, and further inform effective land use policy and project development.

Carbon Market Methodology and Sustainability Certification Development

C-AGG seeks to promote agreement on and development of the proper incentives, tools, and information to enable the agricultural sector to realize the value in GHG emissions reductions and increased sequestration opportunities that provide mutual benefits to society and to agricultural producers and the food and agriculture supply chain. To better accomplish this mission, C-AGG and our stakeholders seek access to data collected by USDA through its annual surveys and its funded research to advance the development of agricultural offsets for voluntary and compliance driven carbon markets, for ecosystem service markets, and for sustainable agriculture certification programs. Two specific needs for these applications are data needed to develop baselines for methodologies and projects. Baselines for practices -- such as conservation tillage, the use of cover crops, fertilizer applications (rate, timing, source, and placement) as well as for underlying conditions, such as baseline information on soil carbon content, would be helpful for all these purposes. Data needed for carbon market and supply chain certification methodologies targeted at the largest source of U.S. agricultural emissions, nitrous oxide (N_2O) emissions, would be particularly helpful.

N_2O emissions from soil account for 47% (265.8 million metric tons) of total US agriculture emissions[2], representing a large potential GHG mitigation opportunity for the agriculture sector. The registries currently participating in the voluntary carbon market have developed four offset methodologies to quantify reductions from improved nutrient management on farms to capture the value associated with implementing these practices and to return some of this value to the producers[3]. While these methodologies have been developed with broad public and stakeholder input and through rigorous peer-review processes, uptake has been slow due to numerous factors, including the challenge of reliably quantifying N_2O emissions resulting from specific changes in nutrient management practices. USDA could help address this challenge by making all relevant nutrient management data sets, especially those that highlight specific correlations between fertilizer application and emissions produced, publically available. These data could be used to further calibrate and validate process models, such as the DeNitrification-DeComposition (DNDC) model, for larger land areas across the US.

[2] United States Environmental Protection Agency. 2015. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2013. EPA 430-R-15-004

[3] American Carbon Registry's Methodology for Quantifying Nitrous Oxide (N_2O) Emissions Reductions from Reduced Use of Nitrogen Fertilizer on Agricultural Crops & Methodology for N_2O Emissions Reductions from Changes in Fertilizer Management, the Climate Action Reserve's Nitrogen Management Project Methodology, and the Verified Carbon Standard's Quantifying N_2O Emissions Reductions in Agricultural Crops through Nitrogen Fertilizer Rate Reduction methodology

The use of process models is currently necessary for the reliable quantification of GHG emission reductions from changes in nutrient management practices. However, calibrating, validating and using such models requires dedicated resources, including data sets and specific technical expertise, which can be a major project implementation barrier for many carbon market project developers looking to develop nutrient management projects. To improve the efficiency of the data analytics for these project types in the future, C-AGG encourages USDA to make publically available data that could also be used to establish baselines and generic GHG emissions reduction rate tables by soil type for farm management practices on various crop types. This step would enable the development of region-specific coefficients or default values for average N_2O emission reductions by practice and crop type, for use in nutrient management protocols. These coefficients could be accompanied by estimated levels of uncertainty to help establish standardized discount rates that any project developer and/or potential participant can use to simplify the quantification process.

Such data and data uses will contribute significantly to ongoing collaborative public and private sector investments to build more robust process models and more accurate GHG emission reduction coefficients. The impact will be to reduce project developers' implementation costs, increase market and investor confidence in these tools, and free up resources that can be used to invest in other aspects of a project such as the broad collection of more detailed activity data from precision agriculture equipment. More detailed activity data has the potential to increase the quantified GHG benefits associated with a project, resulting in greater credit and revenue generation, or the ability to certify environmental outcomes associated with specific practice changes. Development of these rate tables and GHG coefficients could remove a significant barrier to nutrient management project development resulting in greater uptake of the methodologies, greater returns to farmers for improved nutrient management practices, and enhanced GHG reductions from the agriculture sector, which can be applied towards US global climate change mitigation goals and achievements.

Ecosystem Service Market Methodology Development

C-AGG understands that the following recommendations may fall outside of the current scope of the implementation plan, but would like to put forth these additional examples of areas for improved public access to USDA data sets in an effort to continue moving the dialogue on these issues forward. Ecosystem service markets for water quality, habitat conservation, and biodiversity credits have been functioning for several years on small and regional scales often incentivized by regulatory programs aimed at enforcing rules promulgated under the Endangered Species Act and/or the Clean Water Act. To increase the reach of these programs and the benefits they provide to landowners, the markets require more data on federal payments for conservation practices and the estimated environmental outcomes from these payments. These data sets would establish a baseline for federal conservation program cost-benefits that would allow for services delivered above and beyond these baselines to be remunerated via ecosystem service markets, establishing a clear value for environmental outcomes.

In addition to better access to performance-based payments for conservation practices, C-AGG encourages USDA to improve access to information on agricultural producers' participation in NRCS programs, with caveats related to producer consent and protection of private and confidential information from public disclosure. To scale ecosystem service markets in certain regions, it would help if project developers could assess aggregated and anonymized federal outlays for specific practices (according to applications or conservation management plans for EQIP and CSP, for example) to establish practice-specific, regional baselines for the establishment of standardized remuneration/valuation rates that could be used by any project developer and/or potential participant in the market.

At present, NRCS requires producers to appear at field offices to sign consent forms to allow project developers to access producer files; in some instances, the agency has required that an NRCS staff member be present to witness the signing, which makes it cumbersome for project developers to access the data they need in a reasonable timeframe to implement a project. Even in instances where producers have signed forms allowing project developers to access their files, data retrieval and access is complicated. While the requisite information exists, access is hampered by the fact that producer's files appear to be non-digitized, such that specific data fields cannot be selected and retrieved or reported, requiring review of sometimes hundreds of pages of information, and replication of desired information by hand. To reduce project development time and costs, C-AGG encourages USDA-NRCS to review current policies for data access and data collection/storage to ensure they support and promote the timely development of environmental service markets.

Data Formats

C-AGG applauds USDA's proposed efforts to harmonize the data release formats for all digitally formatted scientific data from USDA funded studies. C-AGG also encourages USDA to consider harmonizing all publically available digitally formatted data released across USDA mission areas and agencies. Currently, the range of formats for USDA digital data includes searchable databases to downloadable Excel files to static tables, making it challenging to search for available data. In addition to harmonizing the release format to improve searchability, USDA should also consider putting all data into a format that can be easily accessed by common database software.

Conclusion

C-AGG fully supports USDA's decision to implement a policy and a plan for the structured and consistent release of both scientific publications and digitally formatted scientific data for public consumption, specifically the development of standard operating procedures for data reporting and data release formats. During the implementation of these policies and procedures, C-AGG also encourages USDA to look across all publically available USDA data sets to harmonize the release formats for enhanced usability. C-AGG also encourages USDA to apply the same principles outlined in the implementation plan to additional USDA funded research and data collection efforts that fall outside of the specific peer reviewed class included in this plan. Public access to USDA survey results and CIG project outcomes (in aggregated and anonymized formats to protect privacy and confidential information) would further enhance the development of important ecosystem service markets, which is a stated priority for the Natural Resources and Environment mission area. Access to these markets can provide landowners with additional revenue streams and assist the broader community by preserving essential resources for the future and by helping to monetize the value of critical ecosystem services to society.