

FORMAL REQUEST FOR C-AGG STAKEHOLDER INPUT INTO USDA DECISION-MAKING PROCESSES RELATED TO US AGRICULTURAL SECTOR GHG MITIGATION OPPORTUNITIES

C-AGG (The Coalition on Agricultural Greenhouse Gases) applauds USDA for its commitment to focus on the issue of climate change and the role of the agricultural sector in GHG emissions and emissions reductions. Agriculture is both a source and a sink of GHG, and issues of land use and agricultural production and management practices and the policies that guide and support them are obviously essential considerations to combating climate change and to enabling agriculture to adapt to a changing climate. Further, the United States is a major exporter of agricultural commodities and will be expected to show leadership in the identification and implementation of new production systems and processes that can provide food security for the growing global population, even while achieving lower GHG emissions. The renewed commitment of USDA to incorporating land use, land use change, and climate change policies into the Departments' highest priority activities is a positive step.

C-AGG acknowledges that current and ongoing USDA policy decisions and investments in infrastructure, research and development, institutional capacity, and data collection efforts will impact the Departments' ability to support US farmers within current and future climate-related rules and policies. Many of USDA's stakeholders, including C-AGG and its participants, are currently and historically deeply involved in issues related to global climate change and the role of agricultural mitigation and adaptation. C-AGG formally requests that USDA utilize our multi-stakeholder forum as a collective resource to aid in and support decision-making and policy-setting activities and discussion within the Department. C-AGG offers its capacity as a sounding board and policy discussion forum to discuss potential investments and policy decisions either in written format, face-to-face meetings, teleconferences, webinars, or any other format that USDA would find useful.

Herein, we provide some initial observations and input, including some background regarding potential future policy constructs and how the Department might position itself and the U.S. agricultural sector to best integrate climate consideration into national agricultural policies and programs. The current uncertainties regarding whether or when we may be operating under a mandatory domestic cap-and-trade framework, or whether future compliance regimes will create demand for agricultural GHG offsets, requires that we step back a moment and consider alternative scenarios for how the agricultural sector might increase its profitability and global competitiveness while reducing GHG emissions or increasing sequestration in the

future – whether via market-based offset opportunities tied to compliance regimes, policy actions that provide incentives for changing practices, or within supply-chain initiatives with value propositions for agriculture. Decisions and infrastructure investments being made now must be flexible enough to accommodate multiple future climate-related rules and policies, both domestically and internationally. Decisions about what data and imagery to collect and standardize at the national level are particularly important to enabling action at multiple levels – farm, county, watershed, region, state, and national. Improved, cost-effective tools and technologies to measure, verify and report GHG mitigation activities and performance at various scales within the agricultural sector is imperative regardless of future climate change rules and policy constructs.

Opportunities for Farmers must be Pragmatic, Flexible, Cost-Effective, and Encourage Innovation

As an overarching recommendation, we urge USDA to pursue and develop policy constructs that promote flexibility and innovation within the agricultural sector as a means of achieving the greatest possible GHG mitigation from the sector. Income generation and financial incentives are perhaps a primary means of encouraging widespread participation and promoting such ingenuity, but participation cannot be so burdensome, onerous, or otherwise costly to farmers that opportunities are lost. C-AGG believes that agricultural GHG mitigation opportunities, correctly developed, can tap the innovative and entrepreneurial spirit of US agriculture, thus generating benefits beyond what might be possible otherwise.

The following suggestions and recommendations are arranged into five categories:

- USDA Goals and Objectives: What Questions Does USDA Seek to Answer?
- Competitiveness of U.S. Agriculture
- Data Collection Efforts and Opportunities
- Costs
- Policy and Implementation

These recommendations are from C-AGG’s collective representation, and we are happy to respond to questions raised by these suggestions, or to further discuss any of these with USDA representatives. We hope that this represents the beginning of further interactions, and that these recommendations and observations are useful to USDA.

1. Addressing Broad USDA Goals: What Question(s) Does USDA Seek to Answer?

We understand that USDA is being asked to address multiple issues pursuant to climate change, with limited resources at its disposal. However, it is not clear to us which questions, exactly, USDA is trying to answer in its current planning and

development and related efforts as they pertain to agricultural mitigation of GHG. A better understanding of those specific questions and goals would perhaps help us to better focus and tailor our efforts and suggestions.

For instance, data collection efforts targeted at environmental impacts (e.g., changes in agricultural management practices targeted at helping to reduce GHG emissions and enhance biological carbon sequestration as a means of combating global climate change) would warrant a much different approach than data collection efforts targeted at value propositions for farmers (e.g., making the business case for changes in management practices that enhance income generation, including by reducing GHG emissions and by enhancing carbon sinks), since the latter would focus primarily on farmer profitability and income generation opportunities.

As well, the desired impact and timeframe is important, since a focus on the greatest potential mitigation approaches in the shortest possible timeframe would warrant a much different effort than a long-term effort focused on agricultural mitigation of and adaptation to climate change.

There are also diverse approaches that might be considered, including one based on the use market mechanisms that produce income generation opportunities (e.g. nutrient trading programs, or carbon markets), versus programmatic opportunities (e.g. Farm Bill programs that provide resources based on practices or performance), versus regulatory approaches that seek to force behavior change (e.g. EPA limits on fertilizer use in watersheds out of compliance). To prepare for each of these, USDA needs to allocate resources for infrastructure, staffing, and research and development that respond to these diverse needs and potential futures.

2. Competitiveness of U.S. Agriculture

Aside from meeting domestic food requirements, U.S. agricultural producers export significant quantities of agricultural products. Opponents to federal mandates to address climate change, including within the agricultural sector, have cited a concern that such actions would harm the competitiveness of U.S. agriculture within global markets.

On the other hand, innovation and efficient production systems combined with favorable climate and soils have made U.S. producers among, if not the, world leaders for many commodities.

C-AGG believes USDA should create the framework for collecting systematic information on the GHG emissions associated with products of U.S. agriculture

products for comparison with production systems for similar commodities in other parts of the world. This type of information would enable better global policy decisions on how best to meet the growing food needs of an increasing global population, and could help focus research on areas that would improve competitiveness of U.S. agriculture in a climate constrained future.

The efforts of the U.S. dairy producers provide a useful model of how to go about compiling such data. Results would help prioritize research funding and contribute to supply chain initiatives underway in the voluntary market. More importantly, they will enable creation of incentives for innovation that draw upon the strengths of U.S. agricultural producers.

3. Data Collection Efforts and Opportunities

In the area of data collection efforts, we believe the focus and priorities there will also be driven by the questions and goals of what USDA is trying to achieve. The need for data presents one of the greatest challenges as USDA must build upon past and ongoing data collection efforts while anticipating future data requirements. C-AGG suggests and could help to develop a matrix to help organize, assess, and prioritize data collection efforts. For ongoing and future data collection needs, it is necessary to:

- Identify existing data sources, and identify the data gaps;
- establish a framework and standardized approach for data collection; and
- prioritize data collection efforts.

We urge USDA to consider and to build into planning and design efforts the capacity to support additional data collection activities in the future that perhaps are not included at this time due to either resource constraints, competing priorities, or future potential needs not necessarily recognized at this time.

- *USDA Development of Technical Guidelines and Scientific Methods for Agricultural GHG Accounting*

C-AGG applauds the Department for its current plans to assemble expert panels to begin this process, but urges USDA to widen the breadth and scope of the expert panels to include experts and stakeholders from the agricultural community (e.g., producers and service providers), the market sector (in particular, GHG and ecosystem markets), and the science and research communities. Policy experts grounded in land use and agricultural issues and climate change mitigation opportunities should also be included, to help guide and inform the guidelines and methods development in a manner that addresses and does not preclude any potential applications or opportunities

- that may be advantageous to climate change mitigation policy and to agricultural mitigation participation. Additionally, we urge multiple opportunities for public stakeholder input in the process – at the beginning, middle, and end of the process.
- *National Soil C Assessment* -- We believe that the planned national assessment of soil carbon content, as shared with us, will provide extremely valuable data on soils, nationwide, and we commend the USDA for this effort. Regarding continuing and longer-term efforts related to that activity, we urge planners to consider data collection efforts that will continue to support US capacity to document and report soil GHG data at the national level – for instance, to support US inventories on GHG sources and sinks – but also support data collection at the farm, field and project-level scale, in order to award landowners based on performance and outcomes.
 - *National Soils Inventory* – We commend USDA for the decision to add management and land–use data collection to the NRI soils database, and urge continued development of data collection efforts to better assess and promote integrated nutrient management activities at the farm and landscape scale. However, it is important to consider (a) which data on land management and land-use will be collected (e.g., groundwater samples, soil samples, farmer reporting of fertilizer and manure application?), as well as (b) how it will be collected (e.g. will data reflect a snapshot in time? will data collection be via surveys from the road-side, or through the use of remote sensing?). We suggest that an expert panel of ARS research scientists and relevant university-based scientists, together with knowledgeable stakeholders, be convened to consider these important differences, and make recommendations to ensure that the information that is collected is valid and useful as intended.
 - *Project-Scale Data to Link to National Inventory Data* -- In this same vein, we believe that it will be important to ultimately be able to link national-level GHG inventory data with project-level data, since it will be imperative to ensure that issues of leakage, baselines, and additionality, for instance, are properly addressed, as may be necessary. Improved, cost-effective tools and technologies to measure, verify and report GHG mitigation activities and performance at the farm scale, landscape scale, and at the national inventory scale are imperative. Where there is consensus on the best way to collect certain categories of data at the farm or landscape scale, endorsing standard methodologies would help with future data linkage. Ultimately, we should be able to aggregate and disaggregate this data in a linked fashion, so that farm scale data is consistent with national inventory data. We recognize that these sorts of linkages may not be possible now, but as USDA builds it's'

capacity for the future, we urge that this ability to aggregate and disaggregate data be described as a future goal or outcome.

- *Major Land Resource Area (MLRA) level selected* – We urge use of the highest possible resolution MLRA for project and field level awards of GHG credits (whether market-based offsets or programmatic awards) based on actual performance and outcomes, inasmuch as possible. USDA may want to organize an Interagency Task Force on remote sensing and spatial analysis to provide guidance on existing and anticipated tools and on how best to integrate the outstanding historical data available through aerial imagery collected over many years by USDA. The Task Force should include other Federal agencies, including for example, DOI (to integrate data from lands it oversees), DOE (to integrate monitoring of biofuels), EPA (to integrate any expected monitoring for regulatory purposes), NASA (to access existing and future satellite data and technologies), NOAA (to integrate coastal and estuary interfaces and assessments of climate change), and other relevant federal agencies with jurisdiction over land and land use activities. The Task Force should be linked with a formal external panel of private sector service providers and NGOs.
- *Land Use, Land Use Change, Land Use Planning* – The Task Force and external panel described above could also recommend tools that will enable USDA to track, identify trends, and predict land-use and land-use change across all lands within its jurisdiction. For example, the legislative mandate for biofuels will have a major impact on land use. The same tools combined with improving climate models could help manage production risk associated with climate change and with biofuels production and mandates. For example, changing rainfall patterns could reduce production potential within affected watersheds.
- *Information on farmer motivation and decision-making processes* is needed to inform policy and program decisions that maximize desired goals and outcomes, whether they be to mitigate climate change through changes in management practices that reduce GHG emissions and sequester additional carbon, or whether they are to maximize farmer profit by identifying and implementing ecosystem service markets and programs with performance-based income generation opportunities.
- *Data harmonization, comparability, and accessibility* -- Seek harmonization of data and connectivity between and across data sets and data collection activities, with a goal to integrating nutrient management performance and outcomes together with GHG mitigation and sequestration, based on land use and management activities. Performance results tied to management activities and processes should be identified and defined. For example, we

are aware that a lot of data has previously been and is still being collected on various aspects of GHG fluxes from agricultural lands, including research data and data related to the GHG impacts of various practices and management activities. There is a clear need to integrate past, current, and future derived data into manageable, accessible databases that identify soil type and relevant regional information, for instance, and that can assess and predict nutrient management, total GHG flux, crop and livestock productivity, and ecosystem impacts of various practices, changes in practices, and climate and weather inputs. This will be imperative so that these factors can be included in extrapolation efforts and so that gaps in regional effects can be identified; and so that the GHG impacts and other environmental impacts that may result from these activities can be discerned. This should occur internally, between USDA agencies, including NASS, NRCS, ARS, NIFA, ERS, etc.; as well as across other federal agencies, including NOAA, NASA, and DOI. Also, existing and historic data sets maintained and housed at USDA, e.g. on soil carbon flux, nitrogen and nitrous oxide, and methane – and new data sets, as well – should be made available to qualified stakeholders.

- *NASS Data collection efforts, surveys:* NASS surveys should include the collection and compilation of data and information that will allow determination of baseline data, additionality, and other important metrics and issues for performance-based crediting of GHG mitigation activities. For instance, chemical fertilizer usage, by crops, should be available regionally and nationally, in order to develop baseline metrics to assess and promote reductions in fertilizer usage tied to new products, new technologies, or new practices that can incent nitrous oxide emissions reductions. Similar information on cover crops, tillage, and crop rotations would also be valuable.
- *GHG Accounting Metrics:* Consideration to the GHG accounting and quantification metrics approaches that will or can be use needs to be taken into account at the macro planning level. Based on these potential approaches, comparative analyses of the metrics that will be most favorable to US agriculture in competing markets should be assessed. For instance, are US farmers the lowest emitting producers of GHG per unit of product, for any/every commodity? Metrics need to be considered, and the various tools to implement or utilize these metrics need to be understood and demonstrated, for instance, in a pilot or demonstration project program.
- *GHG intensity metrics and agricultural intensification issues* – one of the potential systems for assessing GHG impacts within agricultural systems is an output-based intensity metric (as compared to an area-based metric). Given the

complexity of agricultural ecosystems and the linkages to agricultural production and land use and land use change, coupled with the need to increase agricultural and crop productivity to feed growing global populations, we feel there is a need to consider this approach as part of your deliberations and R&D needs. We note that these metrics may be most appropriate for some agricultural systems but not others (e.g., nitrogen management, grazing land management or other activities that don't involve significant changes in land use or crop types, etc., as it can be more difficult to implement these metrics in these latter situations). We suggest as a resource the paper by Murray and Baker on *An Output-based Intensity Approach for Crediting Greenhouse Gas Mitigation in Agriculture: Explanation and Policy Implications*.

4. Cost

We urge USDA to plan and develop capacity for agricultural GHG mitigation activities that will provide income generation or other incentives to agricultural producers in any variety of future scenarios, as a means to offset increased costs and related impacts that may affect the sector. Whether incentives for land management change come from carbon markets, supply chains, or programmatic initiatives, cost-effective approaches, tools and methodologies are necessary to gauge, monitor, and reward performance. Additionally, the costs of producer participation in the programs or policies must clearly be outweighed by the potential rewards, including an assessment of time, resources, and technical or equipment needs.

5. Policy and Implementation Issues

Policy Challenges and Opportunities: Future Scenarios that Might Emerge

There is a potential spectrum of policy approaches that USDA might pursue to foster GHG emissions reductions and increased sequestration opportunities within the agricultural sector. Given the current uncertainty regarding future legislative action, there is also a spectrum of future scenarios and drivers that the agricultural sector should be prepared to respond to and participate within. This spectrum can be described as spanning programmatic (e.g. farm bill type programs) through to market-based offset approaches driven by mandatory national GHG emissions reductions programs and compliance-based offset markets, with perhaps some hybrid categories in between (for instance, market-based approaches aimed at voluntary offset markets, or supply-chain markets with varying degrees of agricultural sector value chain opportunities). We fully recognize that USDA is grappling with these issues, and we particularly hope to engage with USDA on this issue, moving forward. We think it is imperative that USDA consider its infrastructure and policy-based investments and capacity-building for the future in

a manner that is flexible enough to derive income generation and incentive-based value for farmers regardless of future rules and policy constructs. We identify below some probable drivers that are emerging or may present themselves in the future that should be considered as USDA moves forward.

- *Conservation, production, and inputs*: Consideration of the GHG impacts of agricultural management practices and changes to practices offers the opportunity to better integrate conservation, natural resource management, and ecosystem services into farm policy. Farm policy has to be spatial and temporal, and address land use and land use change, and the correct approaches and incentives can create powerful results that combine to create food, feed, fuel and fiber as well as positive climate and ecosystem impacts and benefits. USDA might consider an impact-based ecosystem approach, rather than a nutrient-by-nutrient based approach. For example, the ecosystem enhancement opportunities afforded by an approach focused on commodity production and water quality, for instance, offers a different framework than a singular focus on soil carbon sequestration.
- *Domestic v. international policies and programs* – recognizing that international climate change policies are proceeding apace of domestic progress, and that US domestic policies and programs will be a necessary component of US participation in any international agreements or activities, we urge early and active consideration of the linkages between these two policy arenas, including development of US market-based policies and programs with an eye towards participation and relevance in developing international markets and policy environments, as well. Additionally, we urge USDA to provide continued international leadership in this area, by promoting the inclusion of appropriate agricultural and land-based GHG mitigation opportunities in international negotiations and discussions, also with a goal of income generation and incentive-based opportunities for farmers, tied to climate mitigation and perhaps also adaptation activities.
 - We are encouraged by the formation of the *Global Alliance on Agricultural Greenhouse Gases* to investigate and pool resources and collaborate on high priority research and development needs in this arena, and by the expansive participation of other countries in that Alliance, and fully support continued USDA participation in that effort. We urge USDA to continue to share information and activities of the Alliance with C-AGG and other USDA stakeholders.
- *USDA coordination function* related to agricultural GHG mitigation activities, and policy constructs to support mitigation activities – across agencies and functional areas within USDA, and across other relevant Federal agencies. For example:

- *USDA Policy interface with EPA* – while we strongly support USDA as the lead agency in the overarching set of activities and policy development needs for agricultural (and forestry) GHG mitigation activities and programs, we believe there is a clear and necessary role for EPA involvement in the process, and that strong communication and coordination between the agencies during all stages of development of these policies and programs is wise and necessary. We believe that EPA collaboration and greater awareness of USDA activities will build confidence and understanding regarding the scientific basis of these activities and policies.
- *Road-testing Market-based opportunities: Demonstration Projects*
Demonstration projects are needed to test various tools and concepts at the farm and landscape scale, and to provide confidence in approaches that optimize outcomes and that will be useful under various climate rules and programs that might ultimately be enacted. We urge USDA participation in and support for large-scale GHG mitigation pilot and demonstration projects to:
 - Road-test protocols (perhaps even overlaying multiple protocols to compare and contrast pros and cons);
 - Develop and demonstrate the application of supportive policy mechanisms, such as protocols or methodologies, in a manner that allows comparison of different approaches; and
 - Develop business case models and case studies to share with others, and to demonstrate lessons learned, approaches tested, and results achieved.

For any questions you might have, or to request clarification or further input, please contact Debbie Reed, Executive Director, Coalition on Agricultural Greenhouse Gases (C-AGG), at: dreed@drdassociates.org