



C-AGG Meeting Summary

Tuesday-Wednesday, September 27-28, 2016

Hyatt Place

Washington, DC – USA

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Executive Summary

C-AGG Executive Director Debbie Reed opened the Washington, DC meeting with an overview of C-AGG's updated mission, vision, goals, operating model and organizational structure followed by a review of the meeting objectives. The goals and objectives of the meeting included highlighting collaborative leadership, successes and achievements in support of agricultural greenhouse gas (GHG) mitigation and ecosystem service market opportunities; sharing the role of public-private partnerships in increasing agricultural conservation practice adoption that benefits agricultural GHG mitigation and ecosystem services; learning about US priorities for agriculture and climate change mitigation domestically and internationally; and prioritizing areas for future C-AGG focus and collaboration. In addition to these major themes, a subset of the 2015 United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Conservation Innovation Grant (CIG) awardees presented on successes and challenges to date for C-AGG participants. C-AGG also presented a briefing on progress in agricultural GHG mitigation efforts and success for U.S. Senate staff, hosted by Senator Debbie Stabenow.

Day One. Robert Bonnie, USDA Under Secretary for Natural Resources and Environment, provided participants with an historical look at ecosystem service markets, a summary of where markets are today, and his thoughts on the future of markets in a post-Paris (United National Framework Convention on Climate Change (UNFCCC) 21st Conference of the Parties (COP21)) world. The conversation around market-based approaches started prior to the drafting of the Kyoto protocol. The potential inclusion of land use offsets in these markets created significant debate amongst the ngo community, with some ngo's fearing that inclusion would allow the energy sector to continue with business as usual, while others feared payment for carbon credits would encourage countries to cut down native forests to replant fast growing species like eucalyptus, for example, to generate quick credits. Lack of experience in this area resulted in mostly theoretical conversations. However, under C-AGG's leadership the domestic and international community now has considerable knowledge regarding the functioning and needs of ecosystem service markets that include land based offsets. Robert encouraged the group to continue to share lessons learned from the ground and to continue work to reduce risks to ecosystem service markets, so they can continue to mature and be an effective voluntary offset option for GHG mitigation.

Kari Cohen and Adam Chambers with USDA's Natural Resources Conservation Service (NRCS) shared new efforts by NRCS to increase conservation project finance through the new NRCS Environmental Markets and Conservation Finance team. To date, efforts have included funding for Innovative Conservation Finance CIGs, investment in public-private partnerships with Ben and Jerry's and other companies, and funding for the development of tools to help capture the environmental benefits of these initiatives. The CIG awards continue to be the office's most effective vehicle for leveraging external capital, and a new round of funding focused on precision conservation efforts will open by the end of the year.

Michael Doane with The Nature Conservancy (TNC) socialized the organization’s business case for soil health management practices as the primary theory of change to achieve conservation outcomes on US working lands, with an emphasis on productivity, nutrient loss reduction, and a range of additional environmental benefits. A recent TNC study found that implementing soil health solutions such as no till and cover cropping could address up to \$50B of annual environmental impacts. The roadmap for improving soil health that resulted from the research includes ten key initiatives spanning science and research, policy, and economics.

Dr. Michael Lohuis with Monsanto Corp described Monsanto’s efforts to form a Carbon Neutral Collaborative to help the company achieve a carbon neutral goal by 2021. The Carbon Neutral Collaborative, comprised of experts in GHG reduction options, quantification methods and verification approaches, will help develop a path to GHG mitigation at an industry scale. The goals of the collaborative include improving quantification of on-farm practices, establishing transparent accounting rules for “insetting¹,” streamlining verification that practices have occurred, and continuing to push fundamental research on soil carbon stocks.

Day one concluded with a panel discussion on future stakeholder priorities and activities to which C-AGG can contribute. Chris Adamo with The White House Council on Environmental Quality (CEQ), Pipa Elias from TNC, Nicholas Goeser from the National Corn Growers Association (NCGA), and Roger Johnson with the National Farmers Union (NFU) provided diverse perspectives from government, producers, and ngos who are all working to help achieve reduced GHG emissions from the agriculture sector. Key themes that emerged during the discussion included the need to improve access to big data from the agriculture sector and the best ways to leverage this data to increase conservation practices on the ground while balancing data privacy needs; suggestions for improvements to existing conservation programs under the next farm bill; and improved conservation outreach strategies for agricultural retailers, who are among the most trusted advisors to farmers.

Day 2. A subset of the 2015 cohort of GHG Market and Innovative Conservation Finance CIG project leads discussed major successes and challenges to date with their projects. Key successes include:

- Achievement of GHG emissions reductions from projects;
- Increased producer engagement in carbon market projects, attributed to:
 - clearer outreach and communications;
 - the development of producer friendly decision support tools that link management decisions to environmental outcomes and market opportunities;
 - a greater focus on all aspects of the business case;
 - new innovative financing models to address upfront project costs; and

¹ Insetting is defined as developing carbon offset projects within a company’s own supply chain and supply chain community.

- the development of financial agreements to create certainty in credit pricing and timing, which has increased social impact investor funding.

Current challenges to project implementation and market success continue to include:

- inherent barriers to carbon market entry including fulfillment of land eligibility criteria and the small emission reduction potentials per acre on some lands;
- lack of standardization across agriculture project types, making it difficult for project developers to possess the skills needed to span all protocols and project types;
- resources required to complete a project continue to exceed the economic return of credits; and
- inability to satisfy investment criteria needed to mainstream ecosystem service markets.

Debbie Reed facilitated a plenary discussion for stakeholders to identify future high-level activities and topics for C-AGG. Stakeholders suggested the following ideas:

- Investigate ways to align crop insurance provisions to increase participation in conservation programs and environmental market-based opportunities that increase resilience and improve conservation outcomes.
 - Remove eligibility requirements for crop insurance that discourage or prevent engagement in conservation programs or market-based projects;
 - Develop insurance products to protect against transitional (3-5 year) yield impacts associated with adoption of new conservation and management practices; and
 - Research increased resilience based on conservation practice adoption to develop actuarial tables for practice-based or outcomes-based insurance premiums.
- Improve data sharing across agencies and between farmers and ranchers to make data collection and data entry seamless.
 - Ensure proper provisions to protect confidential business information and personal data from release and to protect against misuse of shared data (i.e. use in ways not intended);
 - Reconsider what data is shared, and in what format, to facilitate landowner participation in market-based opportunities;
 - Create a farmer and rancher self-reporting mechanisms to voluntarily report management practices and innovations:
 - To create more accurate picture of practices and innovations being utilized across farmer and rancher landscape; and
 - to enable market-based project developers to identify potential participants in market-based opportunities, including innovators.
 - Streamline opportunities to promote credit stacking as a means to quantify and monetize the many environmental benefits of conservation practices; and

- Develop successful business cases and value propositions that resonate with farmers, ranchers and landowners and with project investors and potential buyers of credits.

To conclude day 2, Ranking Member Senator Debbie Stabenow of the U.S. Senate Agriculture, Nutrition, and Forestry Committee hosted a C-AGG briefing on Ecosystem Service and Carbon Market Projects for Agriculture. Moderated by Debbie Reed, the briefing featured Dennis Carman, Max DuBuisson, Shahira Esmail, Sara Kroopf, and Sheldon Zakreski who shared CIG project successes and challenges with US Senate staff. Fifteen (15) staff from 10 Senate offices participated in the briefing.

Key Meeting Outcomes and Additional Resources

- Stakeholders identified several C-AGG key priorities for the future, including:
 - a focus on improving federal data sharing and data access to support market-based approaches, including to help establish better baselines for current conservation practices;
 - investigating opportunities to improve alignment of crop insurance and participation in conservation programs and environmental markets; and
 - continued efforts to promote environmental credit stacking by quantifying and monetizing environmental benefits of conservation activities to improve the business case and value propositions for landowners.
- USDA NRCS Agricultural Air Quality Task Force (AAQTF) is a possible vehicle for elevating C-AGGs policy relevant findings to USDA. The Climate Smart Agriculture and Sustainability Subcommittee of the AAQTF in August made recommendations to improve nutrient management on farms (and to promote C-AGGs proposed Climate Smart Agriculture Awards Program).
- Companies seeking to offset emissions within their supply chains have coined the term of “carbon insetting.” The University of Bristol and the International Carbon Reduction and Offset Alliance (ICROA) have developed reporting guidance around carbon insetting in their recently released report: <http://bit.ly/2dGVxP0>.
- USDA NRCS Conservation Innovation Grant (CIG) awards for 2016 were announced in September, and are listed here: <http://bit.ly/2ccPHmB>. The 2017 CIG proposal period will open soon, with a focus on Precision Conservation, including the implementation of precision agriculture technologies.
- Preventing the conversion of agricultural land to urban uses presents a significant GHG mitigation opportunity across the country but especially in California, where farmland preservation will be essential to meet the state’s GHG reduction goals. The American Farmland Trust released a paper in April 2016 describing the importance of avoided conversion of agriculture lands to meeting CA’s state climate change goals. The paper is available here: <http://bit.ly/2ag8kqC>.

Meeting Summary

Tuesday, September 27, 2016

Welcome and Introductions: C-AGG Overview and Background

C-AGG Executive Director Debbie Reed kicked off the meeting with an overview of C-AGG, its guiding principles, its revamped mission, vision and goals, and current steering committee members. C-AGG's multi-stakeholder coalition builds sustainable agriculture and climate change mitigation capacity that accelerates change across organizations, sectors and regions, and works to create incentives and value for the agricultural sector to reduce GHG emissions and deliver ecosystem services at scale. C-AGG achieves this mission by building consensus on tools, policies, and decision support systems to develop and promote thriving carbon and environmental markets. C-AGG's three annual two-day meetings bring together stakeholders across the agricultural value chain to tackle key issues facing the sector and to learn the current state of science, policies and tool development to quantify, monitor and verify GHG fluxes and sustainability impacts from the sector. C-AGG also hosts intermittent workshops on issues requiring a deeper dive; distributes key stakeholder updates via a weekly newsletter; and maintains its website as a key resource for stakeholders engaged in environmental and carbon markets for the agricultural sector.

The meeting objectives included:

- Highlighting collaborative leadership, successes and achievements in support of agricultural GHG mitigation and ecosystem service market opportunities;
- Sharing the role of public-private partnerships in increasing agricultural conservation practice adoption that benefits agricultural GHG mitigation and ecosystem services;
- Learn about US priorities for agriculture and climate change mitigation domestically and internationally; and
- Prioritize areas for future C-AGG focus and collaboration.

Mainstreaming Agricultural Sector Ecosystem Services Markets, and the Role of Agriculture in the UNFCCC

USDA Under Secretary for Natural Resources and the Environment Robert Bonnie highlighted the successes C-AGG and USDA have achieved together over the past seven years and provided his thoughts on additional priorities the two organizations should continue to focus on in the future. Robert provided a history of discussions around ecosystem service markets, summarized the current state of markets, and predicted future developments.

During the pre- and post- Kyoto days (i.e., UNFCCC negotiations in Kyoto, Japan in 1997), the US government, ngo's, and the international community had little to no on-the-ground case studies to draw from when developing rules for ecosystem service or carbon markets. At the 1997 Kyoto negotiations, discussions about carbon markets were largely theoretical. Some

groups predicted that countries would cut down their rainforests and plant eucalyptus to increase their potential for carbon credits. Also, many saw climate change as primarily a problem of energy production, fearing that promotion of the land use sector's mitigation potential would divert attention from investments in profound changes to energy production. In the late '90s and early 2000s it became clear that significant investment was needed to understand how to integrate carbon offsets into countries' land management decisions.

Today, after significant resource investments in the space, the land use sector is in a much different place due in large part to the work C-AGG and its stakeholders have accomplished. The development of protocols, models, quantification methods, advancements in research and other infrastructure needs have changed the landscape over the past 20 years, providing a solid base for the inclusion of land based offsets in national and international ecosystem markets. The agriculture sector is no longer operating in the dark, and can point to many examples of market successes.

The challenge now continues to be the uncertain policy landscape. Ten years ago a federal cap and trade policy seemed eminent, but today we still do not have one. In the coming years, the country will take one of four paths: (1) a national level cap-and-trade policy that allows for the trading of offsets, (2) state by state cap-and-trade policies that allow for interstate trading, (3) a carbon tax with proceeds that could be used to develop mitigation projects in the land sector, or (4) a we could continue with a completely voluntary market that companies can utilize to offset emissions. Even with this uncertainty, the land use sector will continue to be an important part of the equation, so continuing to improve progress on and transparency of measurement and activities is necessary regardless of which path is taken. The next puzzle to solve will be how to get to scale and make it easier for farmers, ranchers and landowners to engage.

Looking ahead, C-AGG and its stakeholders need to continue communicating with key decision makers at the state and national levels to share successes and challenges. Promoting ways to reduce project development risks and to achieve market maturity will be critical. One way to reduce risk may be to have USDA serve as a bank to provide upfront financing or to serve as a buyer of last resort. Since some members of Congress are skeptical of climate policy, recommendations endorsed by the full value chain, which C-AGG represents, will be invaluable.

While the land use issue has been a political lightning rod internationally in the past, given the advancements in the space it will be important to articulate to decision makers the successes projects have had on the ground and to begin to reframe the conversation around yield benefits and soil health improvements, which are hard to not endorse. Creative uses of subsidies to encourage climate smart practices may be a stop-gap policy option in the absence of fully developed markets and a strong demand and price for offsets.

Corporate Partnerships and Conservation Finance

Kari Cohen, National Leader of the Environmental Markets and Conservation Finance team at NRCS, provided an update on plans to advance markets and increase project financing in the next year. The Environmental Markets office focuses on developing all types of markets including food and fiber assets, mitigation banking, wildlife habitat markets, GHG markets, water quality trading markets, and consumer-driven supply chain approaches. Conservation finance is a new concept for NRCS and last year the office invested in its first CIG projects focused on the topic. Using C-AGG as the model, NRCS funded the Conservation Finance Network (CFN) to act as a convener for all conservation finance awardees. CFN held its first roundtable meeting in January 2016. Given the demand NRCS saw last year for conservation finance CIGs, they recently awarded a second round of grants for this purpose.

Through these CIG awards, NRCS hopes to build awareness and education around conservation finance opportunities; increase the ability to more accurately measure impacts using tools such as COMET-Farm (which will embed the Nutrient Tracking Tool soon, making it a more comprehensive conservation decision support tool); inform investments in conservation policy and program development; and to “prime the pump” to take the sector from the incubation state to scale.

Adam Chambers with NRCS discussed the innovative public-private partnerships NRCS is participating in to further their conservation goals, which follow the below hierarchy:

- Put food on the table
- Ensure fiber in the tablecloth
- Put more conservation on the ground
- Reduce GHGs going to the atmosphere
- Move carbon out of the atmosphere

With the release of the Climate Smart Building Blocks last year, NRCS is now operating under a new conservation implementation framework. They have mapped the relevant building blocks to the conservation practices they promote to understand where there are gaps and where efforts need to be directed. NRCS has a good grasp of how well their different programs are being implemented, so now they need to understand the policies required to drive enhancements to fill the gap between current emissions reduction potential and the reductions needed to meet the US’s national commitment. However, NRCS will never have the amount of funding required to achieve the targets laid out in the building blocks, and is looking to public-private partnerships to leverage NRCS funds.

NRCS is currently investigating three paths to achieving the climate smart building block goals: (1) expanding direct NRCS conservation activities, (2) bolstering carbon market focused partnership activities, and (3) harnessing additional partnership opportunities. NRCS will continue to fund CIG activities, farm bill conservation programs, and investments in market infrastructure. Plans to harness partnership opportunities and take advantage of new state and federal opportunities still require further development, and may present an opportunity for C-

AGG to help advance thinking on how to target companies' internal carbon pricing funds and sustainable supply chain initiatives.

A successful public-private partnerships NRCS has cultivated is working with Ben and Jerry's Caring Dairy Initiative. The company engaged NRCS to help reduce enteric methane emissions, improve soil fertility and health, and deploy an internal carbon fund for conservation projects. The partnership will last 5 years and will focus on:

- Helping farmers and ranchers plan and implement on-site conservation;
- Encouraging voluntary conservation practices with atmospheric benefits; and
- Leveraging COMET-Farm and COMET-Planner tools.

NRCS is also continuing to bring the carbon and water quality market developers together with the conservation finance sector to work through the common complaints you hear from both sides - investors continue to say there is nothing to invest in and project developers say there is no money for investment. In addition to answering this question, NRCS is also working to develop guidance around stacking investment vehicles to achieve more impactful conservation outcomes, which may lead to recommendations for the upcoming farm bill. The hope is this money could replace money farmers are currently spending to implement conservation practices such as adaptive management. Policy risk is a major Achilles heel for social impact investors, and while NRCS could potentially help deflect some of this risk, the optics of providing insurance for private investment capital makes this model challenging. Better linkage between social impact investors and project developers will hopefully drive investment as conservation finance investors better understand the market landscape and the level of skill that project developers possess.

reTHINK Soil: A Proposed Roadmap for Collective Action

Michael Doane, TNCs Director of Working Lands, socialized a new roadmap for improving soil health and soil organic carbon. TNC set out to develop the business case for soil health management practices as the primary theory of change to achieve conservation outcomes on US working lands, with an emphasis on productivity, nutrient loss reduction, and a range of co-benefits. TNC worked with a cross cutting internal team and an external consultant to develop a roadmap for collective action. Fifty stakeholders were interviewed to understand the current gaps that exist in the industry, and to run scenarios to determine the best strategies to close.

Results show that improving soil health and implementing soil health solutions can address up to \$50B of annual environmental impacts. For every 1% of cropland that implements soil health practices, \$226M in societal value will be created along with \$37M of farm gate value. However, there is no silver bullet to increase adoption – multiple barriers exist that cannot be eliminated through technology, market or policy intervention alone. Solutions will require greater coordination across science, economics, and policy, and TNC hopes to provide leadership to help reach their goal of over 50% adoption of soil health systems by 2025.

Achieving greater than 50% adoption should result in a tipping point in the soil health paradigm.

By focusing on soils and soil health TNC hopes to achieve multiple goals including decreased erosion, improved water quality, reduce climate change impacts, and meeting the future demands for food, water, and land. TNC's roadmap is based on a situation analysis that documented the history and current status of soil health in the US. The US has experienced considerable loss of soil organic carbon (SOC) over the past 100 years resulting in degradation of 40% of cropland nationally. Restoring SOC can lead to significant water quality gains, natural climate solutions, and long-term on-farm productivity and profitability gains. Currently, there is significant momentum and investment growing in both the public and private sectors to improve soil health.

However, many challenges still exist to reach the level of conservation needed. Challenges include: (1) a lack of accurate and cost-effective soil health measurements; (2) lack of comprehensive science on conservation co-benefits; (3) management practice changes to restore SOC potentially introduce operational complexity and short-term costs, keeping adoption rates low; (4) a majority of cropland is controlled by absentee owners and most leases with farmers emphasize short-term cash returns over long term productivity; and (5) agricultural retailers do not currently promote the optimal mix of products and services to accelerate adoption of soil health practices.

To assess the "size of the prize" for improving soil health, TNC worked to monetize the farm-level and societal benefits associated with improved soil health from a limited set of practices. The benefits include productivity, resilience, and mitigation from implementing reduced tillage, cover crops, and crop rotation, the fundamentals of adaptive management. The combined economic savings of increased water capacity and reduced erosion, nutrient loss, and GHG emissions could be over \$600M for each 1% of acres adopting the three soil health practices. At the high end of adoption, this could result in almost \$50B annually in societal value by mitigating environmental impacts.

Some have raised concerns that focusing only on soil health could cannibalize other conservation practices needed on farm such as edge of field management, nutrient management, and soil health initiatives, but TNC views all these practices as part of a larger conservation solution set. TNC seeks a transformation of the US cropland management paradigm with soil health becoming the leading indicator of economic and environmental outcomes.

Using the findings of the situation analysis, TNC has developed a roadmap for healthy soils that includes 10 recommendations in the three categories of science, economics, and policy that can make the projections a reality. The recommendations include:

Science and Research

1. **Cost effective and standardized measures of soil health** – create accurate, accessible and standardized methods for rapid measurement of key soil health indicators at a scale that impacts management choices by farmers and landowners
2. **Develop operational management strategies for integrating soil health practices** – build evidence and understanding among farmers of operational strategies and regional variability for integrating multiple soil health practices on farm, including optimal cover crop programs
3. **Advance the science of soil health benefits** – further refine understanding of economic and environmental impacts of different management practices on soil health, including organic systems, with consideration for different regions, soil types, and cropping systems

Economics

4. **Align incentives between landowners and farmers** - cultivate understanding among absentee landowners of soil health benefits for society and land value and encourage new lease arrangements that integrate soil health practices
5. **Leverage technological innovation to overcome operational hurdles** - leverage technological innovations (such as sensors, drones, cover crop seeding equipment, precision agriculture software and hardware) to advance adoption and continued implementation of soil health practices
6. **Provide broader access to producers and services supporting soil health** - develop new business models with agricultural retailers that provide broader access to new products and services to accelerate soil health practices
7. **Create market signals in sustainability programs for soil health** - develop improved indicators that reward soil health management outcomes in sustainability assessment programs, aligning the incentives of farmers and society

Policy

8. **Reward farmers who optimize soil health with lower crop insurance premiums** - advocate for federally subsidized crop insurance programs to value the benefits generated from improved soil health profiles through lower insurance premiums
9. **Support policies which enable greater investment in soil health** - support state and federal policy improvements that focus on soil health practice adoption, target priority areas for implementation, and comprehensively assess impacts for societal value
10. **Build a more diverse and coordinated constituency for soil health policy** - build a strong, coordinated and diverse network of supporters for soil health policy, including farmers, landowners, the agri-food sector, community leaders, and societal interest groups

During discussion, C-AGG participants also encouraged TNC to add communications to the roadmap, specifically farmer to farmer interactions. This form of communication may be a much bigger barrier than policy, economics, science or research.

To finance these recommendations, TNCs working lands group will pitch 5 different businesses cases from the roadmap to Naturevest, TNCs social capital investment vehicle. These include a field innovation network, improved land owner relations and management, and a new ag retail models that focus on conservation.

Monsanto Carbon Neutral Collaborative

Monsanto committed in December 2015 to achieving a carbon-neutral footprint across its entire operations by 2021. To meet this goal, the company will: (1) establish an internal shadow based on the social cost of carbon to make lower GHG emissions business decisions; (2) drive carbon neutral crop production practices in their seed production operations; (3) provide incentives to their customers who adopt carbon neutral crop production methods in exchange for rights associated with the carbon reduction values; and (4) share the data and modeling results from their efforts to ensure transparency.

Monsanto adopted this goal after realizing that climate change is bad for business as well as the environment, that adaptation plus mitigation is less costly than adaptation alone, and that farmers are already starting to feel some of the effects of a changing climate on their profitability. Through the World Business Council on Sustainable Development (WBSCD) Monsanto was part of a team that investigated the potential GHG emission reductions from the agriculture and land use sector globally. The team found that 30-50% of the sector's emissions could be reduced by 2030 through avoided deforestation, increased productivity and soil carbon sequestration. According to the UNFCCC Intergovernmental Panel on Climate Change (IPCC), the agriculture sector has some of the lowest-cost mitigation opportunities, which Monsanto is hoping to capitalize on.

Monsanto's four-pronged approach will focus on (1) reducing emissions intensity of their own operations including conserving resources through precision agriculture; (2) sponsoring carbon-neutral practices such as enhancements in soil carbon sequestration with decreased tillage, an increase in cover crops, and an increase in genetically modified seed enablement; (3) implementing projects to slow or halt deforestation by removing land conversion pressures through improved land productivity and decreases in food loss and waste; and (4) purchasing offsets from voluntary markets.

By looking internally first, Monsanto realized many of their existing products offer carbon-neutral solutions. They already have the technology needed to reduce GHG emissions using precision agriculture and nutrient management products; they can improve soil carbon sequestration using no-till and cover crops (which they engineer and sell); and the company can help halt deforestation through production intensification, using their advanced breeding technologies. However, challenges still exist to implement these technologies at scale. On-farm barriers include offering the proper incentive structure to mitigate yield risks and addressing farmer concerns about data access and privacy. Beyond the farm, the industry is still struggling with cost-effective GHG quantification and verification approaches for land based activities.

Monsanto anticipates that the practices and existing technologies they have identified will not fully result in carbon neutrality and therefore they will need to either offset or “inset” the emissions they cannot fully reduce. They are currently looking into insetting, or development of carbon offset projects within a company’s own supply chain and supply chain community, to offset their own emissions and those of supply chain partners. The NCGA and Monsanto recently received CIG funding to test this insetting model.

The CIG project deliverables that will advance the concept of corporate insetting include:

- Carbon accounting and insetting framework
- Documentation of water quality modeling metrics
- Low-cost, low-touch verification system
- Integration of precision business planning
- On-farm demonstration using the NCGA Soil Health Partnership project

As a component of the CIG project, Monsanto has launched a new public-private partnership to help achieve their carbon neutrality goal, coined The Carbon-Neutral Collaborative. This collaboration of experts in GHG reductions, quantification and verification will help Monsanto develop a path to GHG mitigation at an industry scale. The collaborative’s focus will be:

- Quantification of on farm GHG practices
- Transparent accounting rules for "insetting"
- 3rd party verification that practices have occurred
- On-farm demonstration and testing of best practices
- Ongoing fundamental research into soil health and soil carbon stocks
- Publication of a series of peer-reviewed papers to document quantification, accounting and verification methodologies

To help meet the collaborative’s goals, Monsanto made a request to the GHG modeling and policy community for more government support for standardized metrics, terminology and accounting, support for science based GHG modeling to establish baselines and reductions, and regionally specific default tables for GHG reduction values. The Carbon-Neutral Collaborative is just one of many public-private partnerships that Monsanto participates in. Other partnerships include initiatives focused on advancing sustainability, biodiversity, industry dialogue on environmental issues, and resiliency. Monsanto sees constructive dialogue as often the missing piece to accomplishing collaborative goals and works with the Sustainable Food Systems Advisory Council to understand the best ways to engage the food sector in these conversations.

C-AGG Plenary Discussion: Future Stakeholder Priorities and Activities

A C-AGG Plenary discussion moderated by Debbie Reed identified some high priority suggestions for C-AGG to focus on in the future. Chris Adamo from the White House CEQ encouraged the group to think about opportunities outside of the Farm Bill, which only comes up every five years. Currently, the administration is going through a mid-century modeling review process which will result in a summary of different GHG emission scenarios out to 2050

based on various policy assumptions. He encouraged stakeholders to think about how these findings may relate to issues such as more open data sharing policies between agencies, opportunities to use funds outside of USDA to finance conservation projects, and additional opportunities to leverage more of NRCS's existing budget assuming it will not increase under the next Farm Bill.

Roger Johnson with NFU provided a producer perspective on priority areas for C-AGG and its stakeholders to engage. The group should be thinking about generational change and the outreach potential this provides to new and younger farmers who are often more receptive to new opportunities. Finding the right messenger for these conversations will be key. NRCS is a natural fit, but they are often never the first agency farmers speak with about farm management decisions, so identifying first contacts (e.g. Farm Service Agency) and arming them with the necessary messages and tools should be a critical priority area. Many farmers are innovators in their own rights - they go to field days to learn about innovative technologies and tend to do their own experimentation. It would be valuable to target these farmers, who may not be engaged with the agencies, and ask them to self-report the management decisions they are making and the benefits they are realizing to increase the breadth of anecdotal evidence that can be used in case studies. Most importantly the conservation community needs to understand what practices make farmers ineligible for crop insurance and work to either push for these practices to be included or stay away from promoting them.

Pipa Elias from TNC provided a conservation organization's view of the opportunities and priority areas for the agriculture sector that they could use more help from a collaborative such as C-AGG to promote natural climate solutions. TNC is interested in understanding what adjustments can be made to existing policies that will scale natural climate solutions or program opportunities that currently exist but are not fully taken advantage of. Initial ideas include a national monitoring, reporting and verification framework and approach that could track private and public land owners' management practices and GHG impacts to help inform the national inventory; becoming a leader on the international stage in land use and agriculture sector discussions; leverage public conservation funds through public-private initiatives to double the money available for conservation; and ensuring flexible policy frameworks that focus on outcomes and therefore can be applied differently in different situations and regions to meet local needs.

TNC is currently piloting some landscape scale approaches to effective climate smart management to learn about the appropriate monitoring needed at large scales and to better understand how to stack capital for large scale projects. Finally, TNC is working on a paper to quantify the climate mitigation potential across all working lands in the US including avoided conversion of grasslands to crop lands and restoration potential for marginal or degraded lands. Results to date show the biggest opportunities in the US are proper nutrient management, the use of cover crops, and methane reductions through improved manure management.

Nick Geoser with NCGA and the Soil Health Partnership provided another producer perspective of the opportunities and priorities that exist for C-AGG. Over the last two years,

NCGA has seen significant change in their mission and vision, with increased attention to sustainability under a new CEO. NCGA is investing significant funds to collect conservation practice information from the members, to augment or enhance the federal data that is currently collected. They are also and is asking farmers about barriers to implementing new conservation practices. NCGA is in the process of developing a survey to ask farmers about their current management practices which will feed into an LCA for the commodity. Nick reiterated Roger's point about finding an appropriate messenger to discuss conservation practices with farmers. Farmers currently receive most of their information from ag retail partners and trusted advisors and historically these groups have not received training in adaptive management.

The Soil Health Partnership is an initiative of NCGA which currently includes 70 locations across the Midwest where that are acting as a testing ground to work through some of the known behavioral, economic, and management challenges faced by their members. The partnership is actively testing changes in nutrient management, tillage and cover cropping practices. One of the key research questions they are working to answer is how implementation of these various changes impact agronomic decisions throughout the year. Data (including soil samples) on the impacts of changes in management decisions is being collected throughout the year and will be made publicly available for data mining once the results have been peer reviewed and submitted for publication. Taking a data driven approach has improved the reception NCGA has received from farmers in the program which originally included only the most progressive, but now includes a more representative sample of Midwest farmers.

Big data is quickly changing the farming landscape and the farmer's ability to optimize every square meter of land on their farms. Roger and Nick believe access to this information, sharing of this information amongst farm decision makers, and using the data to make conservation minded decisions will be a much bigger discussion in the upcoming farm bill. Additionally, related to data, panelists encouraged C-AGG to continue to push for more public access to data collected by public agencies. The Forest Service has a good process in place for scrubbing sensitive land owner information that could be used as a model for various sub-agencies within USDA and the Department of the Interior, for instance.

Another potential priority area for C-AGG which was raised during the discussion is a renewed focus on preventing conversion of fertile agriculture lands to development given the large change in GHG emissions profile that occurs with this type of conversion. This is a major priority of AFT that could benefit from C-AGG stakeholder participation and leadership.

Wednesday, September 28, 2016

USDA NRCS 2015 CIG Panel Discussion: Successes and Challenges to Date

Five Conservation Innovation Grant (CIG) project leads presented their project's successes and challenges to date and their plans for the next year. Dennis Carman with the White River Irrigation District kicked off the panel with a presentation of the numerous successes and challenges his rice farmers have encountered trying to develop and verify carbon credits from

alternate wetting and drying (AWD) activities, and the farmers' collective attempts to develop a sustainability certification to garner a price premium for their rice. The farmers were recognized earlier in the year by the American Carbon Registry as environmental stewards, which is a testament to their success to date. The project is a continuation of a previous CIG grant focused on developing carbon credits from changes in rice management practices. The farmers and the project developers have learned a lot through both CIG projects, with the biggest lesson learned being the price per acre that can be gained from the market is equal to about a bushel per acre which does not cover the costs of project development.

However, the project has successfully developed a sustainable rice certification methodology and branding platform. Currently the project has about 2.5M bushels of sustainably produced rice that can be sold for a premium to buyers looking for "green" sustainably-produced rice. However, to date they have not identified buyers for the rice or the carbon credits generated from its production. The project is hoping to establish its sustainable rice standard as the baseline for sustainability in the rice market, but the business case continues to be a challenge. Improving the business case and articulating the benefits to potential buyers is the next big step for the project.

Shahira Esmail with Terra Global Capital provided an update on their project's goal to stack benefits along the value chain to improve the business case for improved GHG rangeland and pastureland. The project is focused on recruiting underserved populations including veteran and woman farmers to participate in carbon market projects that will utilize a new integrated and modular carbon market protocol that allows for the stacking of credits from various conservation practices. One of the project's major goals is to develop conservation based metrics that can be understood by the financial sector to bring additional investment dollars to these projects. To date, the project has completed the initial protocol scoping, engaged a solid landowner base, and recruited a diverse set of partners to execute the project. Project challenges include difficulty crafting an engagement strategy that is attractive and aligned with the income potential of the projects, to ensure project objectives and expectations are properly aligned, and balancing all of the conservation practices land managers would like to see in a protocol with the actual GHG benefits that can accrue from these benefits since not all practices result in GHG reductions.

Sara Kroopf with the Environmental Defense Fund (EDF) provided an update on EDF's CIG that seeks to improve the infrastructure and implementation of nutrient management carbon market projects. The project has two main goals: (1) to reduce the barriers for growers to participate in environmental markets by improving existing protocols and quantification tools and (2) to create a large-scale nitrogen fertilizer management project and generate 25,000 tons of CO_{2e} reductions. Successes to date include completion of research into on-farm management tools, which provides a better understanding of data management collection and data transfers between producers and project developers, a draft report on the current state of the science and policy behind nutrient management, a behavioral economics study that indicates low interest at the current price per acre for credits, and healthy interest in project participation from

progressive and data-smart growers. Given the behavioral economics challenges the project has revamped their messaging and incentive framing to attract additional growers, but due to timing of the grant award the project was unable to complete their outreach prior to the current growing season. With the harvest season winding down the project will resume outreach and hopes to have their first project listed shortly, with the first credits generated by March 2017.

Sheldon Zakreski with The Climate Trust (TCT) is using CIG funds to develop an upfront financing fund that will transfer the price and delivery risks from the project developers to TCT. Capital risks and upfront financing are major barriers to project development and scaling. TCT is helping projects overcome these risks by providing upfront loans for project developers while simultaneously guaranteeing a price for the credits (50% of market rate) and no requirements for loan repayment if the project fails. If the project does perform and TCT earns their money back TCT will set up a revenue sharing plan to distribute the profits. The project has had a strong response to their request for proposals, receiving \$18M in project submissions which has so far translated into two project investments – one avoided conversion project and one dairy digester project. TCT has also hired a Director of Investments to lead and grow the fund; the goal is to grow from today's \$5M to a \$100M fund. The biggest challenges to date have been properly articulating the offer, meeting the project financing needs of all types of projects, and meeting all legal and structural requirements that come with a non-profit establishing an investment fund.

Max DuBuisson with the Climate Action Reserve (CAR) walked through his CIG that is allowing the reserve to improve their previously published protocol on avoided conversion of grasslands. The project goals are to reduce barriers to project implementation, increase protocol outreach, develop and verify a pilot project as proof of concept, and update the offset protocol with lessons learned through the pilot. The project has already developed a detailed project development handbook to help guide project developers, an excel calculation tool to simplify the necessary quantifications, and started on the protocol revisions. These updates have been presented at 2 outreach workshops and have resulted in the listing of a pilot cooperative project. Challenges to date include identification of eligible projects and working through complex legal questions related to conservation easements that have slowed project development timelines. The project will hold two more outreach workshops, prepare to verify their pilot project, and finalize the next draft of the protocol for public comment in late fall.

Neal Feeken with TNC provided an update on the development of easements on 50,000 acres of private lands in South Dakota to avoid rangeland conversion. The project hoped to couple easement payments with a carbon credit to stack benefits for the landowners. The project was initially intended to provide additional funding through the carbon credits after the government's easement payment. However, although initial discussions indicated the project could use these government funds as part of project outreach, the Solicitor's Office at the Fish and Wildlife Service indicated government funding cannot be used for the project. The project is currently retooling their approach and is hopeful they can work with NRCS to use NRCS funds for easement payments to meet the financing needs of their current project model.

The project leads agreed that to increase producer engagement they need to reframe the business case to focus on the tangible savings producers can benefit from by implementing conservation practices as well as intangibles such as increased resilience. Tangible benefits to quantify and promote include but are not limited to savings in water, fuel, input costs, and labor. Price premiums for sustainably produced products would also be beneficial; Dennis suggested a \$0.25/bushel premium for sustainable rice would be enough to move the needle. A model that would allow carbon market benefits to be split amongst project developers and the price premium revenue to go solely to the producers was suggested.

Other suggestions from the group included paying producers for the data that would allow companies to support sustainability claims since access to data is all downstream buyers need to prove continuous improvement. This reduces some of the barriers to data collection for quantification and verification and may be easier to achieve than trying to track sustainable commodities through an aggregated supply chain. Also, as a group it is important to take a step back at times and understand what markets can deliver to farmers now and in the future. If we want agriculture offsets to work the group needs to engage in emerging markets in Oregon and Ontario to ensure the markets are favorable to land based offsets. The biggest problem with most of the markets is policy certainty which drives prices, so providing policy certainty in these new markets will be essential to future offset development.

C-AGG Plenary Discussion

To prepare for the Senate Briefing and to tie the thoughts from day one's plenary to the findings from the projects on the ground, Debbie Reed, C-AGG's Executive Director, facilitated a plenary discussion to summarize C-AGG stakeholder successes to date in achieving mutual goals and to outline future high-level activities and topics for C-AGG focus. Prior to the meeting C-AGG solicited input from the CIG project leads on their major successes and challenges to date along with potential policy relevant findings stemming from these. C-AGG synthesized these into key thematic areas, which were used to begin the plenary discussion. Key successes include reductions in GHG emissions achieved by the projects; increases in producer engagement and market participation attributable to clearer communications, the development of producer friendly decision support tools that link management decisions to environmental markets, and a greater focus on all aspects of the business case; new innovative financing models to help with upfront project costs; and the development of financial agreements that create certainty in credit pricing and firm sale dates, which has increased funding from social impact investors.

Challenges to project implementation and market success continue to include inherent barriers to carbon market entry including fulfillment of land eligibility criteria and the small emission reduction potentials per acre on eligible lands; the lack of standardization across agriculture project types making it difficult for project developers to possess all of the skills needed to span all protocols; the time and resources required to complete a project being greater than the economic benefit of the credits; and the inability to satisfy the investment criteria needed to mainstream ecosystem service markets.

To overcome these challenges, C-AGG and stakeholders see opportunities to better link the financial sector to the ecosystem service markets through development of appropriate metrics; development of the tools and infrastructure needed to stack credits resulting from conservation practices; development of business cases of the financial benefits to land owners from implementing conservation practices; and harmonization of the metrics, methods, and data systems that support ecosystem service and conservations activities and payments to streamline the participation process for farmers and ranchers.

In addition to these CIG related findings, participants provided additional policy relevant findings that could create more support for voluntary incentives for farmers to implement conservation practices, including:

- Investigate ways to align crop insurance provisions to increase participation in conservation programs and environmental market-based opportunities that increase resilience and improve conservation outcomes.
 - Remove eligibility requirements for crop insurance that discourage or prevent engagement in conservation programs or market-based projects;
 - Develop insurance products to protect against transitional (3-5 year) yield impacts associated with adoption of new, improved conservation and management practices;
 - Research increased resilience based on conservation practice adoption to develop actuarial tables for practice-based or outcomes-based insurance premiums
- Improve data sharing across agencies and between farmers and ranchers to make data collection and data entry seamless.
 - Ensure proper provisions to protect confidential business information and personal data from release and to protect against misuse of shared data (i.e. use in ways not intended)
 - Reconsider what data is shared, and in what format, to facilitate landowner participation in market-based opportunities
 - Create a farmer and rancher self-reporting mechanisms to voluntarily report management practices and innovations.
 - Will create more accurate picture of practices and innovations being utilized across farmer and rancher landscape
 - Will enable market-based project developers to identify potential participants in market-based opportunities, including innovators
 - Streamline opportunities to promote credit stacking as a means to quantify and monetize the many environmental benefits of conservation practices;
 - Develop successful business cases and value propositions that resonate with farmers, ranchers and landowners and with project investors and potential buyers of credits

C-AGG was encouraged to engage with the USDA AAQTF, which may be a good vehicle for developing policy relevant findings which could be elevated within USDA. This group has been a receptive audience in the past for projects findings.

Finally, taking a closer look at how to effectively stack funding to pay for conservation efforts is needed. Currently, the push for public-private partnerships has been mostly promising, but it has also been viewed by some as an exercise in an organization's or project's ability to fundraise, which was likely not the intended goal of the program. Allowing for flexibility in the match goals is needed to implement some practices such as easements.

C-AGG Stakeholder Briefing for Congressional Staff

To conclude day 2, Ranking Member Senator Debbie Stabenow of the U.S. Senate Agriculture, Nutrition, and Forestry Committee hosted a C-AGG briefing on Ecosystem Service and Carbon Market Projects for Agriculture. Moderated by Debbie Reed, the briefing allowed Dennis Carman, Max DuBuisson, Shahira Esmail, Sara Kroopf, and Sheldon Zakreski an opportunity to share CIG project successes and challenges with US Senate staff. Fifteen (15) staff from 10 Senate offices participated in the briefing, which also covered future strategies and priorities to develop environmental service markets to scale voluntary, incentive-based agricultural GHG mitigation and ecosystem services for society. C-AGG looks forward to continuing to provide the committee and interested offices with additional updates on lessons learned from the ground and policy relevant findings over the coming year as they prepare for the next farm bill.