

Presidential Leadership and Innovation Award in Climate Smart Agriculture

DRAFT White Paper

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White Paper Audience

USDA, Potential Applicants, USDA Agricultural Air Quality Task Force, Potential review panel members, White House Council on Environmental Quality, USEPA

The Idea – A New Voluntary Awards Program

The US agriculture sector is responsible for 6-9% of annual US emissions of greenhouse gases (GHG)ⁱⁱⁱ (depending on whether energy use and above and below ground carbon sequestration are included in accounting methods). In states high agricultural output, the fraction of GHG attributable to agriculture can exceed 25%.ⁱⁱⁱ Livestock, grasslands and pasturelands, crop production and on-farm energy use are important contributors to US GHG emissions. While US agriculture is one of the most efficient and productive in the world, increased efficiencies and new techniques and innovations can contribute to US efforts to mitigate climate change. The agriculture sector is positioned to play a leading role in reducing GHG emissions and delivering multiple ancillary high-value co-benefits to society. These co-benefits include: enhanced ecosystem, habitat and biodiversity benefits; improved water quality and quantity; and increased food security in the face of climate change impacts.

A high visibility annual awards program for innovators and leaders in Climate Smart Agriculture is critically needed in the United States. Such a program would help to publicize and spread successful innovative practices that reduce the climate impact of food and fiber production.

A set of 12 awards was given by the White House through its “Champions of Change” program in October 2015.^{iv} However, we believe that a program dedicated to Climate Smart Agriculture is needed, with input and steering from USDA, industry, state governments, and academia. An analog exists for the Climate Smart Agriculture Awards – the Presidential Green Chemistry Challenge Awards.

In 1995, the US EPA received support from President Bill Clinton to establish an annual awards program highlighting scientific innovations in academia and industry that advanced Green Chemistry. This created the annual Presidential Green Chemistry Challenge Awards, which are managed by the US EPA with input from the Green Chemistry Institute, an arm of the American Chemical Society (ACS). The ACS brings in the voices and expertise of academia and industry through its 185,000 members.

A panel of technical experts convened by the ACS Green Chemistry Institute judges entries. “Throughout the 20 years of the awards program, EPA has presented awards to 104 winners. Since its inception, in 1996, EPA has received over 1,500 nominations. By recognizing groundbreaking scientific solutions to real-world environmental problems, the Presidential Green Chemistry Challenge has significantly reduced the hazards associated with designing, manufacturing, and using chemicals.” (Green Chemistry Awards program website^v)

We argue that a similar program would be highly valuable to US efforts at economically efficient, effective, and scalable GHG mitigation activities, techniques, and innovative approaches. Such a program would ideally be managed by the USDA, with a multi-stakeholder group such as the Coalition on Agricultural Greenhouse Gases (C-AGG) taking the role taken by the ACS Green Chemistry Institute in the Green Chemistry Awards.

Such a program would foster competition within the agricultural sector to secure awards. For example, if one large producer won awards in the inaugural year of the program, other large producers would likely submit in subsequent years to show their competitiveness. Just as is the case for the Green Chemistry Awards program, the record of past winners would become a valuable showcase of innovation and progress in sustainable technology. Furthermore, the records of award winners would be a useful tool for new award applicants, and for educators, college students, extension agents, and K-12 students researching sustainable food production.

The selection of the award name, and the potential categories for awards, will be important for the success of the program. We list some potential categories and award names in the tables below, and invite feedback from reviewers.

Potential Categories/Approaches to Categories

Option 1: Landscape Outcomes with focus on Increased Resiliency to Climate Change

- Improved soil health (to include soil carbon sequestration, soil organic matter)
- Enhanced nutrient utilization (aka 4Rs & efficient uptake of fertilizer; both water quality and GHG impacts)
- On-farm GHG emissions reductions (e.g., anything beyond what is included in other items in this list)
- Natural lands preservation and/or restoration (e.g. grassland, rangeland, wetland preservation or restoration and avoided conversion to agricultural or urban use)
- Integrated systems (e.g. integrated crop, forestry/agroforestry, livestock systems)
- Whole-farm approaches (e.g., to include on-farm renewable energy systems, biomass for renewable energy production, more efficient irrigation systems)

- Option 1 advantages
 - Promoting resiliency to climate change is quite attractive – perhaps even more attractive than just mitigating GHG emissions
 - By focusing on outcomes rather than actions or activities this can promote desirable innovation
 - Broad categories can encourage broad participation
- Option 1 disadvantages
 - May be difficult to succinctly describe the categories
 - May be overlap such that an applicant is not sure where the best category for his/her application is

Option 2: Specific GHG Outcomes

- Carbon sequestration (cropping systems, agroforestry, rangeland management, conservation lands)
- Reduced methane emissions (livestock management, rice production)
- Reduced nitrous oxide emissions (fertilizer management)
- Reduced energy utilization and/or increased renewable energy production

- Option 2 advantages
 - Broad categories can encourage broad participation
 - Fairly clear category splits
- Option 2 disadvantages
 - Narrow focus on emissions mitigation cuts out some of the benefits of option 1 (with its focus on resiliency)
 - Will be applications from very different sectors (e.g. possibly specialty crops, livestock, and row crops competing in the same category for carbon sequestration).

Option 3: Commodity or Product Specific (this is not a comprehensive list)

- Beef
- Pork
- Poultry
- Corn/Soy
- Wheat
- Cotton
- Potatoes
- Rice
- Tree nuts, peanuts, stone fruit
- Specialty crops

- Option 3 advantages
 - Would support potential for this award to be discussed and promoted by commodity groups
 - Potential to more directly resonate with farmers and ranchers than some of the GHG centric approaches or other categories
- Option 3 disadvantages
 - Many categories; perhaps rotate on annual basis to reduce number

Option 4: Food, Feed, Fiber

- Food production
 - Commodity Crops
 - Livestock
 - Specialty crops
- Feed production
- Fiber production
- Others?

- Option 4 advantages
 - Broad categories promote broad participation
- Option 4 disadvantages
 - Similar/same activities might apply across multiple of these categories (not mutually exclusive)
 - Potentially unequal weighting/representation

Potential Award Names

Presidential Leadership and Innovation Award in Climate Smart Agriculture
Presidential Innovation Award in Climate Smart Agriculture
Presidential Leadership Award in Climate Smart Agriculture
Climate Smart Agriculture Awards Program

Potential informal reviewers

Cynthia Cory, CA Farm Bureau Federation ccory@cfbf.com

Michael Doane, The Nature Conservancy michael.doane@tnc.org

Rod Snyder, Field to Market rsnyder@fieldtomarket.org

Roger Johnson, National Farmers Union rjohnson@nfudc.org

Marlen Eve, USDA ARS marlen.eve@ars.usda.gov

Michael Lohuis, Monsanto michael.m.lohuis@monsanto.com

Jerald Schnoor, University of Iowa Department of Civil and Environmental Engineering
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Questions for Informal Reviewers

1. Overall impression of the idea
2. Is this a truly novel idea, or does it duplicate any existing program
3. Areas for improvement
4. Thoughts on the name of the award
5. Thoughts on categories
6. Other potential reviewers or advocates
7. Thoughts on structure (USDA administers with input from C-AGG?)
8. How to foster producer participation

Revision History
4/30/2016. Version 1 created by combining the idea overview (Stanier) with the category ideas (Reed). Sent for further review by Reed.
5/3/2016. Edits and additions by Reed.
5/12/2016. Read through and minor edits by Stanier. Distribution to informal reviewers as word document and pdf.

ⁱ <https://www3.epa.gov/climatechange/Downloads/ghgemissions/US-GHG-Inventory-2016-Chapter-5-Agriculture.pdf>

ⁱⁱ http://www.usda.gov/oce/climate_change/AFGG_Inventory/USDA_GHG_Inv_1990-2008_June2011.pdf

ⁱⁱⁱ <http://www.iowadnr.gov/Environmental-Protection/Air-Quality/Greenhouse-Gas-Emissions>

^{iv} <https://www.whitehouse.gov/blog/2015/10/27/acting-climate-through-sustainable-agriculture-white-house-champions-change>

^v <https://www.epa.gov/greenchemistry/information-about-presidential-green-chemistry-challenge>

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