Organic Farming Research Foundation
303 Potrero Street, Suite 29-203
Santa Cruz, CA 95060

November 22, 2019

Rep. Kathy Castor, Chair
Select Committee on the Climate Crisis
U.S. House of Representatives
H2-359 Ford Building
Washington, DC 20024

Rep. Garrett Graves, Ranking Member
Select Committee on the Climate Crisis
U.S. House of Representatives
H2-359 Ford Building
Washington, DC 20024

Re: Policy Recommendations on Organic Agriculture, Climate Mitigation and Resilience
Submitted electronically to ClimateCrisisRFI@mail.house.gov

Dear Chairwoman Castor and Ranking Member Graves,

The Organic Farming Research Foundation (https://ofrf.org) is a nationwide non-profit NGO who works to foster the improvement and widespread adoption of organic farming systems. OFRF cultivates organic research, education, and federal policies that bring more farmers and acreage into organic production. Over the past 27 years, OFRF has awarded over 300 small grants (total $3 million) to producers and researchers trialing innovative organic strategies to build soil health and fertility; manage pests, plant pathogens, and weeds; and develop improved crop cultivars for organic farming systems. Many of these grants provided seed money for initial "proof of concept" studies that provided a foundation for larger endeavors funded by USDA and other sources, and leading to substantial practical outcomes for organic and other producers.

Every five years, OFRF conducts a nationwide survey of organic producers to identify current research priorities and information needs and thereby fine-tune the focus of our research, education, and advocacy work. Our 2015 survey revealed growing concern among organic producers about the impacts of climate change on their operations.[i] Many have observed increasingly erratic weather with unprecedented extremes of drought, flood, untimely freezes, and heat; one beef producer noted that "climate change is about to put me out of business." Others reported new or intensified weed and pest problems, disrupted flowering and production in tree fruit and nuts, and concerns about the sustainability of irrigation water resources.

OFRF conducted a thorough review of USDA-funded organic research during 2002-2018, and developed a series of science-based practical guidebooks and webinars on Soil Health and Organic Farming. These educational tools are designed to help producers manage nutrients, organic amendments, water, crop rotations, tillage, weeds, and diseases with methods that build healthy living soils for long-term sustainability. In one of these Guides,[ii] OFRF summarizes best organic farming and ranching practices to sequester carbon (C), mitigate nitrous oxide (N_2O) and other greenhouse gas (GHG) emissions, and build healthy, resilient soils and agro-ecosystems that can sustain production and profitability in the face of rapid climate change. While further research is urgently needed to realize the full potential of organic and sustainable systems to

mitigate and adapt to climate change, sufficient science-based knowledge is currently available to formulate federal policy and programming to support practices that will help producers meet the climate challenge and become an effective part of the solution.

OFRF greatly appreciates the attention that the House Select Committee on the Climate Crisis is giving to the impacts of climate change on agriculture and food production and *vice versa*, the urgent need to help producers and rural communities address the grave threats from climate disruption, and to realize their full potential to become part of the solution. Based on our understanding of research findings and farmer experience, we would like to offer the following comments and recommendations to the Select Committee on the Climate Crisis.

General Comments

OFRF is in full alignment with the comments submitted to the House Select Committee on the Climate Crisis by the National Sustainable Agriculture Coalition (NSAC) on November 22, 2019. As a member organization within NSAC, OFRF has participated actively in the development of NSAC's climate-in-agriculture policy recommendations, including the recent-released Policy Position Paper.[iii] We believe that the eight Policy Priority Areas outlined in this paper, as well as NSAC's recommendations to the Select Committee provide an excellent foundation for policy and programmatic support for all farmers – organic and non-organic – to prepare for and help mitigate ongoing and future climate change impacts.

OFRF urges the Select Committee to fully recognize the capacity of organic farming and ranching systems to build agricultural resilience to weather extremes and to make a significant contribution to carbon sequestration and mitigation of GHG emissions related to agricultural production. Recent research has shown that soil microbial activity and biodiversity plays a central role in the long-term sequestration of stable soil organic carbon (SOC),[iv, v] that herbicides and other agricultural chemicals can disturb soil biological functions,[vi – ix] and that cover crops may sequester SOC more effectively in organically-managed fields than in the presence of conventional synthetic fertilizers.[x] Because organic production of annual crops requires some tillage for weed control, and tillage is known to cause loss of some near-surface SOC through oxidation, some soil conservationists have questioned the capacity of organic systems to sequester carbon. However, long term farming systems trials have shown that organic crop rotations with tillage can store as much or more SOC than continuous no-till rotations with conventional fertilizers, pesticides, and herbicides.[ii] In addition, recent and ongoing innovation by farmers and researchers are developing improved tillage and organic weed management strategies that minimize damage to soil life and SOC.[xi]

Responses to the Select Committee's Questions

Question 5a: Where should Congress focus an innovation agenda for climate solutions? Please identify specific areas for federal investment and, where possible, recommend the scale of investment needed to achieve results in research, development and deployment.

We concur strongly with NSAC recommendations to expand funding for Sustainable Agriculture Research and Education (SARE), to provide permanent funding authorization for each of the 19 sites in the nationwide Long Term Agro-ecosystem Research (LTAR) Network, and to elevate climate change mitigation and climate-resilience research and development as priorities for both programs.

In addition, we urge the Select Committee to recommend organic farming and ranching as a priority component of the innovation agenda for climate solutions. Research to date indicates that integrated organic management systems can greatly enhance plant-soil-microbe partnerships for nutrient and water use efficiency (enhancing resilience and minimizing N_2O emissions) as well as SOC accrual, disease suppression and crop vigor. Further development and refinement of organic systems and practices to optimize C sequestration, minimize or zero-out net GHG emissions, and maximize climate resilience should be prioritized in LTAR research as well as in Requests for Applications for SARE and other competitive research grant programs administered through USDA National Institute for Food and Agriculture (NIFA).

As of 2019, the market share for organic foods in the US food system was at least six percent, while USDA research investment in organic agriculture remained near two percent of total USDA research funding. We are pleased with provisions in the 2018 Farm bill that substantially expand funding for the Organic Research and Extension Initiative (OREI). However, given the potential for cutting-edge organic systems and methods to help producers both combat and adapt to climate change, we urge the Select Committee to establish as a goal that the percentage of USDA research funding devoted to organic systems be at least commensurate with the market share for organic foods.

Question 6: What policies should Congress adopt to reduce carbon pollution and other greenhouse gas emissions and maximize carbon storage in agriculture?

Again, we strongly concur with NSAC recommendations, including establishing a national goal to make US agriculture climate-neutral or climate-positive (net removal of atmospheric GHG), establish climate as a NRCS resource concern and modify conservation programs and standards accordingly, restore full funding for the Conservation Stewardship Program (CSP), strengthen conservation compliance and sodsaver provisions in USDA programs, and support livestock producers to adopt management-intensive rotational grazing (MIG) and other advanced grazing management systems.

In multiple trials from Georgia to upstate New York to the Northern Great Plains, pasture and rangeland under best MIG management has shown potential to sequester more than a ton of carbon per acre annually, compared to ~500 lb/ac-yr in annual crop rotations under best soil health management.[ii] Thus, we are pleased that, effective in 2020, CSP is offering a supplemental payment for advanced grazing management systems. In contrast, confinement livestock operations emit large quantities of GHG. Therefore, we strongly recommend policy and programmatic provisions across all USDA agencies that support livestock producers to make the transition from confinement to MIG livestock systems

For example, the National Organic Standards currently require organic producers to give their ruminant livestock access to pasture for at least 120 days of each calendar year. In 2017, NOP developed additional guidance for organic livestock and pasture management, but the new guidance was withdrawn just before it was scheduled to go into effect early in 2018. We urge the Select Committee to emphasize in its final report the critical importance of NOP support for organic livestock producers to implement the best advanced grazing management systems for their region, in order to realize the full potential of grass-based organic livestock systems to sequester carbon, enhance climate resilience, and improve food security.

Finally, research evidence indicates that healthy, living soils under best organic management can greatly reduce the need for nitrogen (N) and other fertilizer applications.[ii] Crop cultivars with enhanced nutrient efficiency based on improved capacity to partner with soil microbes may further reduce the need for applied N.[iv] Because excess soluble soil N from any source (organic or synthetic) can lead to large soil emissions of N_2O (which account for 49% of direct agricultural GHG emissions in CO_2 equivalents), advanced organic systems that integrate best crop genetics with best soil health and nutrient management practices can make a significant contribution toward slowing climate change. We urge the Select Committee to establish this as a research priority for USDA Agricultural Research Service (ARS) and NIFA competitive grant programs.

Question 7: What policies should Congress adopt to help farmers, ranchers, and natural resource managers adapt to the impacts of climate change?

Based on farmer experience and long term farming systems trials at the Rodale Research Center in Pennsylvania, organic systems show considerable potential to enhance resilience to drought and other weather extremes.[ii,xii] This further underlines the need to increase USDA funding for organic agriculture research as recommended above.

In addition, crop and livestock genetics and genetic diversity play key roles in the capacity of US agriculture and food systems to withstand the impacts of climate change and maintain the nation's food security. Many modern crop cultivars have been developed for conventional cropping systems dependent on high inputs of soluble fertilizers and synthetic crop protection chemicals, and there exists an urgent need to develop regionally adapted cultivars that perform well in organically managed soils that receive fewer inputs and provide for crop nutrition through biological processes.[xiii] In contrast, corn hybrids selected for efficient uptake of N and effective symbiotic association with beneficial soil microbes perform well under organic management, even in nutrient-poor soils.[xiv] In the past 15 years, several farmer-participatory plant breeding networks have developed and released new public cultivars of vegetable, grain, and dry bean crops that are especially suited to organic and low-input farming systems, with dozens more in the pipeline.[xv] However available funding for these and other public plant breeding efforts amounts to only a small fraction of the current need and interest.

In addition, as public investment in crop cultivar development has declined over the past 50 years, private seed corporations have filled the gap – primarily with a low diversity of crop varieties that respond best to high-input conventional systems. In addition, many of these

varieties are covered by utility patents that prohibit producers from saving seed for planting the next season. Training and empowering producers to save and select seed, and to develop new land races better adapted to their specific soil and climate conditions may play a vital role in the capacity of US farmers to adapt their systems to shifting climatic conditions and thereby maintain the nation's food supply.[xvi]

Therefore, we urge the Select Committee to place a high priority on robust USDA funding for development of public cultivars, with emphasis on regionally adapted cultivars suited to organic production systems that optimize soil health for crop nutrition and crop protection. Not only will such cultivars enhance climate resilience of the US agricultural and food system, but they can contribute to reducing the GHG footprint of agriculture by reducing input needs and facilitating adoption of climate-friendly, carbon-sequestering organic production systems.

Question 10: How can Congress accelerate development and deployment of carbon removal technology to help achieve negative emissions?

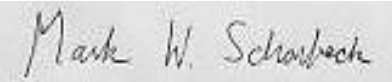
Research clearly demonstrates that the living plant is humanity's most practical and effective tool for removing excess carbon from the atmosphere, and that organic and sustainable systems show great promise for retaining plant-fixed carbon in the soil.[ii,iv,v,x] Thus, we urge the Select Committee to prioritize practices such as organic and sustainable farming and ranching, reforestation, agroforestry, and silvopasture under MIG management, over "high tech" attempts to remove carbon by storing CO_2 deep underground. Such "Carbon Capture and Storage" may be more costly per ton of carbon stored, and may not stabilize the carbon as effectively as plant root-deposited carbon that has been microbially processed into stable SOC.

Question 11b. How can Congress better identify and reduce climate risks for front-line communities, including ensuring that low and moderate-income populations and communities that suffer from racial discrimination can effectively grapple with climate change?

We strongly concur with NSAC recommendations that US federal policy and programs ensure that farmers and communities of color and economically disadvantaged producers and communities receive the support they need and deserve to overcome the disproportionately severe impacts of climate change they experience. We also agree with NSAC that the invaluable contributions of indigenous and other ethnic minorities to sustainable agriculture and food systems must be fully acknowledged and utilized toward the goal of society-wide climate adaptation – and utilized in a manner that benefits all, especially those who contributed the knowledge and wisdom in the first place. We further point out that many of the best and most innovative organic practices and some of the most valuable crop germplasm originated with African American and Native American communities who developed these crops and cultural systems in their struggle to survive throughout the nation's history, from early colonial days to the present. Racial equity and mutual respect amongst ethnic groups is an essential component to any climate mitigation and resilience strategy, not only within agriculture, but across all sectors.

We close by thanking the House Select Committee on the Climate Crisis for your vital work, and for the opportunity to provide input for your deliberations.

Sincerely,



Mark Schonbeck, Research Associate, Organic Farming Research Foundation

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