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William Hohenstein
Director, Office of Energy and Environmental Policy
U.S. Department of Agriculture
1400 Independence Ave SW
Washington, DC 20250
ccpooce@usda.gov

The American Farm Bureau Federation (Farm Bureau) welcomes the opportunity to provide comments on how farmers, ranchers, and forest owners can deliver natural climate solutions. Farmers, ranchers, and forest owners have been battling the effects of challenging weather and changing climatic conditions not just for generations but for millennia. One of the toughest challenges American agriculture can face is dealing with the obstacles and variability that Mother Nature often hands us.

We urge that the work of the U.S. Department of Agriculture (USDA) be open and transparent. Given that any policy changes dealing with this matter will undoubtedly affect Americans from all walks of life, in every region, it is most appropriate to engage as broad a spectrum of opinion as possible.

Our grassroots members, comprised of hard-working farmers and ranchers, have developed the following policies relating to climate change and the regulation of greenhouse gasses (GHGs).

Farm Bureau supports the following:

- Market-based incentives, such as pollutant credit trading, are preferable to government mandates;
- Voluntary market carbon credit trading system that is not detrimental to other agricultural producers;
- Compensation to farmers for planting crops or adopting farming practices that keep carbon in the soil or plant material;
- Alternative energy sources, which will minimize atmospheric pollution;
- Incentives to industries seeking to become more energy efficient or to reduce emissions of identifiable atmospheric pollution and the means of preventing it;
- Market-based solutions, rather than federal or state emission limits, being used to achieve a reduction in GHG emissions from any sources;
- EPA's re-evaluation of burdensome emission control rules for farming practices, farm equipment, cotton gins, grain handling facilities, etc; and
- The inclusion of the agricultural community as a full partner in the development of any policy or legislation.

Farm Bureau would oppose:

- Climate change legislation that establishes mandatory cap-and-trade provisions;
- Climate change legislation that is not fair, affordable or achievable;
- Any law or regulation requiring the reporting of any GHG emissions by an agricultural entity;
- Any climate change legislation that would make America less competitive in the global marketplace and put undue costs on American agriculture, business and consumers;
- Any climate change legislation until other countries meet or exceed U.S. requirements;
- Any regulation of GHG by EPA;
- Any attempt to regulate methane emissions from livestock under the Clean Air Act or any other legislative vehicle; and
- Taxes on carbon uses or emissions.

Whether it is excessive flooding or withering drought, farmers and ranchers rise each day to meet the challenges of the weather; we have no doubt that we will continue to adapt to a changing climate. Farm Bureau believes that there are tools and solutions that will make combating inclement weather less challenging without hindering our productivity or harming the U.S. economy.

American farmers and ranchers play a leading role in promoting soil health, conserving water, enhancing wildlife, efficiently using nutrients, and caring for their animals. For decades they have pushed past the boundaries of innovation by investing in agricultural research and adopting practices with the goals of improving productivity, enhancing [sustainability](#), and providing clean and renewable energy. In fact, the use of ethanol and biodiesel in 2018 reduced greenhouse gas emissions by an amount equivalent to taking 17 million cars off the road.

Livestock and crop production are the heart of American agriculture, providing the food we enjoy every day. Ensuring this production continues sustainably is essential for people and the planet. Farmers have embraced technologies that reduced emissions and increased efficiency. Building upon the strong foundation of voluntary stewardship investments and practices, including those in the Farm Bill, we look forward to working with the agency to further advance the successful sustainable practices used by U.S. agricultural producers. Throughout this process, USDA must ensure that any governmental analysis characterizing U.S. crop and livestock systems reflects U.S. agriculture's leadership globally in sustainable farming practices.

All told, agriculture accounts for roughly 10% of total U.S. greenhouse gas (GHG) emissions, far less than transportation, electricity generation, and industry sectors. Farmers continue to produce more with greater efficiency. In fact, U.S. agriculture would have needed nearly [100 million more acres in 1990 to match 2018 production levels](#).

U.S. farmers and ranchers have long been at the forefront of climate-smart farming, utilizing scientific solutions, technology, and innovations to raise crops or care for livestock. These efforts are designed to protect soil and water, efficiently manage manure, produce clean and renewable energy, capture carbon, and improve sustainability. Over two generations, we've been able to increase productivity by 287 percent, while using the same resources. In essence, we're doing more with less.

Total carbon sink efforts from forestland management, land converted to forestry, grasslands, and wetland management more than offset agriculture's contribution to total emissions. However, many of agriculture's carbon sequestration efforts are not directly assigned to the agriculture sector. It is certain that if the carbon sequestration efforts of U.S. farmers and ranchers were assigned to agriculture, our

contributions to GHG emissions would be significantly lower. It is worth noting that U.S. farmers have enrolled more than 140 million acres in federal conservation programs, equal to the total land area of California & New York combined. Millions more acres are dedicated to nonfederal conservation programs.

More productive livestock operations allow ranchers, pork producers, and dairy farmers to maintain their total contribution to GHG emissions at less than 3%, while also leading to lower per-unit GHG emissions.

U.S. farmers and ranchers contribute significantly fewer GHG emissions than their counterparts around the world. EPA data shows agriculture's global contribution to GHG emissions was 24% in 2010, more than double U.S. farmers' and ranchers' contributions to total U.S. emissions in 2019. This significant difference is largely driven by farmers' enthusiastic adoption of technology. Farmers are the pioneers of sustainability and should be recognized for their contributions, efficiency gains, and the considerable impact of their carbon sequestration efforts.

Farm Bureau believes that adaption strategies and tools can be utilized to face the challenges of more inclement weather and a changing climate. Increased funding and emphasis should be given to agricultural research and extension. Having the technology, traits and production practices will be more beneficial than burdening the economy with additional regulations.

Agricultural research and investment has given American agriculture a firm foundation to battle the challenges of producing food in the 21st century. We will need a further commitment to technology and research for agricultural producers to be competitive into the future and tackle the challenges thrown our way. In general, we could support the development and refinement of policies and strategies that foster adaptation.

We are committed to finding solutions to the challenges of climate variability while striving to find opportunities for economic prosperity. Only in working together can we achieve common sense solutions that not only make agriculture more resilient, but our country stronger without enacting policies that hampers the competitiveness and productivity of America.

In this spirit, we felt it was important to convene a wide group of stakeholders to further explore policy options for farmers, ranchers and rural communities. What came out of that effort is now known as the Food and Agriculture Climate Alliance (FACA). FACA consists of organizations representing farmers, ranchers, forest owners, agribusinesses, manufacturers, the food and innovation sector, state governments, sportsmen and sportswomen, and environmental advocates. These groups have broken through historical barriers to develop and promote shared climate policy priorities across the entire agriculture, food and forestry value chains.

As stewards of the land, we have enormous opportunities to drive solutions that reduce greenhouse gas emissions, increase carbon sequestration and storage, build resilience to the changing climate and drive sustainability across the supply chain. This shared understanding is what led members of FACA to form such an unprecedented alliance. The group first united around three principles:

1. Support voluntary, market- and incentive-based policies.
2. Advance and accelerate science-based outcomes.
3. Promote resilience and help rural economies better adapt to climate change.

Over the past year, FACA members have worked to find areas of common policy interest and formulated over 40 specific policy recommendations. The majority of these recommendations fall within the scope of questions in the Request for Information (RFI).

The recommendations and full list of members can be viewed at www.agclimatealliance.com.

Enclosed you will find FACA's response to the RFI, as we stand behind the consensus driven recommendations developed by the group. We look forward to working with the agency to drive climate-smart solutions while also enhancing economic opportunities for our farmers, ranchers and forest owners.

Sincerely,

A handwritten signature in black ink, appearing to read "Sam Kieffer". The signature is stylized and cursive.

Sam Kieffer
Vice President
Public Affairs

Enclosures: FACA RFI Response

1. Climate-Smart Agriculture and Forestry Questions

A. How should USDA utilize programs, funding and financing capacities, and other authorities, to encourage the voluntary adoption of climate-smart agricultural and forestry practices on working farms, ranches, and forest lands?

Existing U.S. Department of Agriculture (USDA) policies and programs can encourage voluntary adoption of agricultural and forestry practices that sequester carbon, reduce greenhouse gas emissions and promote resilience. FACA recommends that USDA take the following actions utilizing programs and policies currently in place.

I. Incentivize Contracts that Improve Soil Health

The Natural Resources Conservation Service (NRCS) should prioritize new applications and existing Conservation Stewardship Program (CSP) and Environmental Quality Incentives Program (EQIP) contracts that result in demonstrated positive soil health, carbon sequestration, and resilience outcomes where appropriate and in line with local conservation priorities. This will ensure that, where appropriate, positive climate benefits will be identified and adopted as part of current and new CSP and EQIP contracts, encouraging producers to continue to adopt new soil health and climate stewardship measures.

II. Study the Interaction Between Crop Insurance and Soil Health

USDA should conduct a study to review the impact of soil-improving practices on crop productivity and on crop insurance coverage, liabilities and premium rates. USDA should also identify potential policies or modifications to crop insurance to accelerate the voluntary adoption of climate-smart farming practices. This study will help identify additional ways to assist producers in adopting science-based climate stewardship practices, while ensuring that any steps taken are driven by data and consistent with appropriate underwriting practices. We would urge USDA to consult with growers and industry representatives as a part of this process.

III. Ensure Livestock Producers Can Participate in CIG On-Farm Trials

Feed, genetics and nutrition management should be eligible under the Conservation Innovation Grant (CIG) On-Farm Trial Program. CIG on-farm trials are a critical tool for farmers to try out and prove new practices with reduced risk. While trials around feed additives and genetics are not explicitly excluded, it's also not clear that they are included. Inclusion will provide additional opportunities for farmers to test out the newest technologies and evaluate their impact within their operation.

IV. Incorporate Food Waste Education Into Existing Nutrition Programs and Materials

Food loss and waste across the supply chain contributes to climate change - wasted food also wastes resources and ends up in the landfill as a methane emitter. Education about food waste reduction and prevention strategies is not only imperative to help reduce greenhouse gas emissions, but can also help extend the budgets of low-income Americans.

The Food and Nutrition Service (FNS) should explicitly include food waste in the list of program priorities for the Food and Agriculture Service Learning Program. Specific activities

to assist food waste reduction could include education on appropriate portion sizes and the proper storage of perishable goods. In addition, food waste education should be added to the list of program goals for the Expanded Food and Nutrition Education Program under “food resource management”.

Food waste prevention and reduction should also be incorporated into all materials geared toward teachers and students through Team Nutrition education materials as well as Foods in Schools product information sheets. Schools are an important setting to shape the behavior of a newer generation of consumers.

V. Innovate in Carbon Accounting Protocols that Measure Forest Carbon Sequestration

Today’s carbon protocols, which are the rules of the road for participation in carbon markets (baseline, additionality, permanence, reversal risk, etc.), deserve credit for getting a viable carbon market up and running. There is room for improvement to increase rigor and confidence in data behind carbon markets in addition to increasing participation, which remains too low to achieve significant climate outcomes. Advances in technology can improve measurement and verification. USDA can support market growth and improvement by endorsing existing and future carbon protocols through guidelines that remove barriers to entry, increase efficiency and reduce costs while maintaining rigor. Led by USDA’s Climate Change Program Office and the Forest Inventory and Analysis Program, such guidelines could benefit a variety of USDA programs and spur additional confidence in private carbon markets by 1) reducing unnecessary burdens on landowners; 2) reducing or addressing hurdles to landowner participation in existing protocols; and 3) maintaining or increasing accuracy, certainty, and effectiveness of forest carbon assessment.

In addition to utilizing existing authorities, USDA should also look to new strategies and approaches to encourage the voluntary adoption of climate-smart agriculture and forestry practices. Specifically, FACA recommends:

I. Streamline NRCS Conservation Practice Approvals

Nearly all of the FACA policy working groups established in 2020 identified the lag in conservation practice approvals as a barrier for farmers and ranchers to innovate and adopt the latest systems and technologies. NRCS should conduct a science-based, comprehensive review of existing conservation practice standards to evaluate their effectiveness on climate mitigation and resilience. As part of this process, NRCS should consult with additional USDA agencies, including the U.S. Forest Service. NRCS should establish a process for proactively investigating and implementing new conservation practices and technologies and including those in the suite of conservation practices available to producers. This is the opposite of the current approach. Currently, producers and stakeholders must petition through the local, state and then national level for a practice to gain interim status. NRCS then studies the practice for a minimum of three years before determining the validity of a practice. This bottom up approach is incredibly slow and bureaucratic.

In addition, NRCS must recognize feed and nutrition management as a critical tool to reducing agricultural emissions. Row crop producers can receive assistance for conservation planning on their farms to address climate and resource concerns, but currently there is no assistance for

farmers and ranchers working to reduce emissions from their animals. NRCS should establish conservation practices to reflect feed management, genetics and nutrition planning.

NRCS should also explore the use of modern precision agriculture equipment as an important conservation tool. Quantifiable climate benefits are achieved through the adoption of modern precision agricultural tools, such as auto-guidance, section control, variable rate, telematics/analytics and precision irrigation. Measurable benefits include reduced fuel use, more efficient use of cultivated lands and other carbon gains achieved through the optimization of inputs and water. Properly accounting for these climate benefits would give producers additional incentives to adopt precision agricultural tools.

A streamlined conservation practice approval process that better keeps up with rapidly changing technology will hopefully free up additional conservation program funds in a more timely manner.

II. Improve and Expand NRCS Technical Assistance

Technical assistance is critical to assist farmers, ranchers and forest owners with planning and implementing conservation practices. FACA supports a conservation technical initiative focused on increasing climate resilience and reducing net greenhouse gas emissions. USDA should recruit and train additional NRCS professionals and technical service providers (TSP) needed to provide on-the-ground support to producers seeking to proactively manage and implement climate-smart practices and technologies. To better scale manure management technologies, more support is needed to install and operate anaerobic digesters, covers with flares and solid separators.

III. Provide a Science-Based Regulatory Pathway to Streamline Animal Biotechnology Approvals

Improved animal genetics is a critical tool as livestock producers work to adapt to a changing climate. Ensuring a risk- and science-based approval process for animal biotechnology products will help farmers and ranchers better insulate themselves and food production from the risks of climate change, and contribute to GHG reductions as well. Improvements in animal genetics to produce more meat or milk could allow for a reduction in the total number of animals in production, thus reducing the aggregate environmental impact. The use of technologies, such as gene editing, could enable such improvements to be made quickly.

IV. Move the AgStar Program to USDA

FACA recommends the AgStar program be moved from EPA to USDA. Many farmers and ranchers already participate in other USDA programs and we believe that this shift will encourage increased participation in AgStar, resulting in increased access to technical assistance for producers evaluating the feasibility of a methane digester.

V. Fund “Carbon Bank” Pilot Programs Using the CCC

FACA supports climate-related pilot programs utilizing the Commodity Credit Corporation (CCC) Charter Act. Any funding for activities out of the CCC should not jeopardize the funding of the core Farm Bill programs that farmers rely upon. FACA offers specific guidance on such pilot programs later in this document on pages 8-10.

VI. Climate Advantageous Inputs

Plant protectants in combination with tillage management and other conservation practices will be necessary to meet productivity, carbon sequestration, and reduced greenhouse gas emissions goals. FACA supports continued innovations in crop and forestry protection that reduce non-target impacts, improve crop and forest productivity, and maximize the benefits toward meeting climate objectives. We support a strong, science-based risk/benefit regulatory system that ensures access to safe and effective tools while also promoting biodiversity on the landscape.

B. How can partners and stakeholders, including State, local and Tribal governments and the private sector, work with USDA in advancing climate-smart agricultural and forestry practices?

I. Reimagine Extension

Farmers, ranchers and forest owners are increasingly looking to private sector, state, academic and other on-the-ground organizations for information on new practices and methods that help them adapt, mitigate and become more resilient to climate change.

The Cooperative Extension network would benefit from partnering with these trusted advisors to maximize reach and enhance program delivery. As such, we recommend that USDA better (coordinate?) integrate private sector partners, such as agricultural retailers, cooperatives, seed and feed companies, with Extension services to help train, demonstrate and disseminate information on new, climate-smart practices and programs. Examples of work by private sector partners and Extension could include hosting field days and educational seminars.

II. Streamline Technical Service Provider Certification

Technical assistance from trusted partners and on-the-ground support is critical to help farmers, ranchers and forest owners overcome administrative barriers that impede the adoption of climate-smart practices. FACA recognizes the staffing and resources challenges facing the Natural Resource Conservation Service, which is why we support a streamlined process for Technical Service Provider (TSP) certification. TSPs expand the availability of technical experts that can work with producers and landowners on conservation planning and implementation. Specifically, USDA should streamline certified crop advisers' ability to become TSPs.

III. Public-Private Partnership Focused on Food Loss and Waste Education

USDA can help educate consumers on food loss and waste prevention strategies. The public has become better educated on the issue over the past five years, but ongoing efforts tend to focus more on awareness and less on solutions. A joint effort between USDA and the business community could change this focus toward addressing the issue in concrete ways that can be measured and reported more easily. Modeled after the Partnership for Food Safety Education, this new effort would include consumer-facing outreach and could also serve an important secondary function of helping to educate the public on how food is produced. New efforts can build on existing ones, such as the ongoing Ad Council campaign on food waste and EPA's "Food: Too Good to Waste" effort.

IV. Partner With State Departments of Agriculture

FACA urges USDA to partner with state departments of agriculture on new programs and initiatives. State departments of agriculture are uniquely positioned as co-regulators with responsibilities for conservation, environmental protection, and the promotion of economic sustainability of farmers, forest owners, and ranchers. In this role, as co-regulators, state departments of agriculture welcome the opportunity to partner with federal partners to share current best practices in climate resiliency and work together to expand voluntary, incentive-based climate smart agricultural and forestry programs. State departments of agriculture recognize the opportunities and support climate smart agricultural and forestry practices that reduce greenhouse gas emissions, capture carbon from the atmosphere and store it in forests and in the soil; and strategies to protect land, crops, and livestock from changing climate conditions and are committed to their further development.

C. How can USDA help support emerging markets for carbon and greenhouse gases where agriculture and forestry can supply carbon benefits?

I. Develop and Improve Measurement, Modeling, and Verification Tools

Measurement and verification represent the highest costs and barriers to participation in private carbon markets. To strengthen the science around soil and forest carbon sequestration, FACA recommends:

1. Establishing a national, on-farm soil monitoring network;
2. Utilizing updated technologies for forest inventories and verification; and
3. Improvements to the COMET Tool.

These recommendations are detailed in Section D.

II. Launch “Carbon Bank” Pilot Programs

Farmers, ranchers, and forest owners must be at the table and active participants in conversations on policies and programs that affect them and their operations. FACA has called for voluntary policies that achieve the highest number of appropriate climate-smart practices on the highest number of acres in order to sequester carbon and reduce other greenhouse gas emissions. A USDA Carbon Bank could be one such mechanism for achieving this objective. FACA offers the following recommendations for objectives and goals for these efforts, and potential areas of focus for pilot or other projects.

Objectives and Goals

The Carbon Bank should work to scale voluntary adoption of climate-smart agricultural and forestry practices to promote resiliency and climate change mitigation across public and private, natural and working lands.

In the long term, USDA should create a foundation for the Carbon Bank that gains bipartisan Congressional support and leverages private investment for agricultural and forest land-based carbon sequestration and greenhouse gas emission reductions. The Carbon Bank should invest in approaches that reduce barriers for participation by farmers, ranchers, and forest owners in carbon credit trading programs, and provide confidence in the practices and verification of sequestration and reduction activities. The Carbon Bank should avoid undermining carbon markets.

A USDA Carbon Bank should seek to advance the following objectives:

1. Maintain the confidence of farmers, ranchers, forest owners, and carbon credit purchasers in the value of climate-smart agricultural and forestry practices across the diversity of agricultural and forest production types, regions, and sizes.
2. Ensure opportunities for participation in the Carbon Bank by all interested farmers, ranchers, and forest owners.
3. Encourage coordination, cooperation, and consistency across federal agencies and departments, and with states, public research institutions, and other stakeholders.

Pilot Project Areas of Focus

USDA should act quickly to establish pilot projects that address key issues and barriers that farmers, ranchers, and forest owners are facing as they implement methods to sequester carbon, reduce emissions, and increase the resiliency of their land—efforts and information that can also be used by carbon markets as they develop.

Pilot projects should be prioritized to build out the needed critical climate infrastructure to ensure participation for all producers and landowners. Existing carbon markets may not provide as many opportunities to all farmers, growers, ranchers, and forest owners due to regional differences, crop and production types, total acreage under crop production, farm and forest size, and other factors.

Potential areas of focus for pilot projects:

1. Develop, improve, and scale of critical climate infrastructure and climate-smart practices.
 - a. Deploy critical climate infrastructure that includes soil health and livestock management systems, carbon and carbon-equivalent data gathering and analytical tools, access to improved genetics, nursery and seedling production capacity development, cover crop seed production, and others.
 - b. Deploy climate-smart agricultural practices that include reduction, direct capture, or sequestration efforts through improved energy efficiency, increased supply chain efficiency, enhanced manure management, the use of new technologies such as feed additives and improved genetics, and other livestock, soil, crop and forest management practices.
2. Encourage the wide-spread adoption of climate-smart practices and critical climate infrastructure.
 - a. Facilitate short- and long-term financial and technical support for farmers, ranchers, and forest owners adopting climate smart practices and critical climate infrastructure.
 - b. Support and promote projects with important climate benefits not well suited to a carbon market.
 - c. Reduce producer risk, disincentives, and barriers to engaging in climate smart agricultural and forestry practices.
 - d. Ensure producers have information on the benefits of climate-smart practices, as well as information and assistance on the adoption of climate-smart practices.
3. Develop consistent and credible criteria for permanence, reversal risks, additionality, leakage, uncertainty and project aggregation to account for carbon for climate-smart

agricultural and forestry practices and project types, set minimum standards to provide needed benchmarking of protocols, and embed flexible mechanisms to update standards over time as better approaches become widely available.

- a. Use the best available science to foster innovation in programs and protocols to scale landowner and producer participation in carbon bank projects and broader carbon markets and programs. This can be accomplished by setting parameters to maintain rigor in carbon outcomes while reducing unnecessary burdens on landowners and producers. Ensure periodic reviews and updates to the minimum standards.
 - b. Make aggregate data from Carbon Bank and other USDA and federal agricultural carbon sequestration and emissions reductions programs centrally located and publicly available while maintaining high protections for producer privacy.
4. Engage with and provide opportunities for minority, socially disadvantaged, and small farmers.
- a. Provide targeted technical support, land ownership and legal support, aggregation mechanisms, and assistance for overcoming other barriers to participation faced by small, minority, traditionally underserved farmers, ranchers, and foresters.

D. What data, tools, and research are needed for USDA to effectively carry out climate-smart agriculture and forestry strategies?

I. Build Out a National, On-Farm Soil Monitoring Network

FACA supports the build out of a national, on-farm soil monitoring network to track a number of soil health and resource indicators over time, including soil carbon sequestration. FACA recommends building the network to 5,000-7,000 Natural Resource Inventory (NRI) sites across the U.S. These sites would be tested on a rotating, interval basis to provide an ongoing, statistically relevant data stream that could be used to inform carbon modeling and farm-planning tools such as the Carbon Management Evaluation Tool (COMET). We understand that the Natural Resources Conservation Service entered into an agreement with Colorado State University to pilot this network, but full buildout was ultimately suspended.

II. Utilize Updated Technologies for Forest Inventories and Verification

FACA supports the use of technologies that reduce costs and make it easier to measure and monitor forest carbon, especially for forest inventories and verification. The Forest Inventory and Analysis (FIA) program should utilize these technologies, building upon current program work on satellite and remote sensing research. As previously mentioned, FACA has advocated for increased funding for the FIA program through the FY 22 appropriations process.

III. Improvements to the COMET Tool

USDA should update the COMET tool to improve systems integration with existing data sources and models and make other improvements such as capabilities on a smartphone or app format.

IV. USDA Research Trials

The Agricultural Research Service (ARS), Agricultural Experiment Stations (1862s), and Agricultural Research Programs (1890s) at land grant universities have a vast network of on-farm research, soil test facilities, research laboratories, scientists and technicians that can be leveraged to provide critical answers to research questions around regional and crop- and livestock-specific measures to adapt, mitigate and become more resilient to climate change. ARS, in coordination with the Experiment Stations, Agricultural Research Programs, and the private sector, could help create universal standards for measurement protocols.

V. Better Utilization of and Linkage with the Climate Hubs

USDA should ensure cross-regional collaboration between the hubs and within the agencies conducting climate research including: the Natural Resources Conservation Service, Farm Service Agency, Agricultural Research Service, Risk Management Agency, National Institute of Food and Agriculture (research and Extension), Economic Research Service, National Agricultural Statistics Service and U.S. Forest Service.

In addition, USDA should add an emphasis throughout the regions or establish a new hub or subhub focused on feed and manure management. Pasture and grazing is currently included.

We also support the creation of a new field experiment network through the hubs to evaluate and further develop region-specific best management practices for soil carbon sequestration and net greenhouse gas reduction in the agriculture and forestry sectors. This research should be jointly conducted by USDA and land-grant universities.

Lastly, we support formally linking both Extension and the Forest Inventory and Analysis Program with the Climate Hubs to better connect farmers, ranchers, forest owners and on-the-ground decision-makers to climate science that will assist in planning and application.

VI. Public-Sector Genetics Research

To mitigate the effects of climate change, ensure climate resiliency, and continue to achieve environmental gains, public-sector research should support farmers', ranchers', and forest owners' access to improved genetics developed using a range of breeding methods, including gene editing, genomic enabled predictive breeding, and genetic engineering.

VII. Pasture/Grazing Analysis

Improved pasture and grazing management has the potential to play a substantial role in terrestrial carbon sequestration. More needs to be done to develop protocols and to deploy prescribed pasture and grazing practices to reduce emissions.

NRCS, in coordination with the research agencies, should identify regions and practices with the greatest potential for carbon sequestration, methane and nitrous oxide emissions reduction, and should support research, development and widespread use of decision-support tools for climate and land stewardship outcomes. In addition, NRCS state office priorities should support technical assistance to grazing land managers in high-priority regions (developed in coordination with the National Grazing Lands Coalition).

FACA also supports research and development efforts to improve enteric fermentation/forage intake estimation models.

VIII. Research Infrastructure Upgrades

FACA believes it is critical to invest in climate research and development by providing land grant universities funding to upgrade their research infrastructure, including brick-and-mortar facilities and computing capabilities and networks. This will position the U.S. agricultural and forestry sectors to lead on developing climate innovations that provide new economic opportunities for farmers, ranchers, and landowners.

E. How can USDA encourage the voluntary adoption of climate-smart agricultural and forestry practices in an efficient way, where the benefits accrue to producers?

Broadly speaking, USDA climate policies must be developed with all of agriculture and forestry in mind, regardless of size, geographic region or commodity. There is no one-size-fits-all solution. Instead, solutions must be flexible to accommodate the diversified needs of our industries.

USDA climate policies must also balance maximizing profitability of farmers, ranchers and forest owners along with environmental outcomes. Since day one, FACA members have aligned around producer- and landowner-led, incentive-based policies that provide our industries with the tools needed to combat the effects of climate change, promote resilience and drive sustainability throughout the supply chain.

2. Biofuels, Wood and Other Bioproducts, and Renewable Energy Questions

A. How should USDA utilize programs, funding and financing capacities, and other authorities to encourage greater use of biofuels for transportation, sustainable bioproducts (including wood products), and renewable energy?

I. Biofuels

Biofuels have a role to play as we work together to reduce the GHG footprint of the U.S. transportation sector. Agricultural best practices and production methods have the potential to reduce the life cycle emissions of biofuels. Comprehensive approaches to reducing emissions should recognize the relative benefits of biofuels based on their full life cycle emissions and encourage continual improvements in biofuel carbon intensity to ensure increasing benefits over time. Looking forward, renewable fuel and/or bioenergy policy should be market-based and provide clear, simple and consistent eligibility criteria across all feedstocks.

FACA encourages the Environmental Protection Agency to update its modeling on the lifecycle emissions of transportation fuels. The modeling should be updated to reflect technological advances in the U.S. biofuels industry and data on current agriculture production practices to more accurately measure the carbon intensity of biofuels, such as the consistent updates to the Department of Energy's Argonne National Lab Greenhouse gases, Regulated Emissions, and Energy use in Transportation (GREET) model. USDA possesses practical knowledge and expertise on biofuels and innovative farming techniques and, thus, should be consulted throughout the assessment process. FACA supports the use of the best available and latest science.

In addition, USDA currently supports agricultural renewable energy infrastructure projects through its Higher Blends Infrastructure Incentive Program (HBIIP). FACA encourages building upon this program to support projects that connect agricultural renewable energy sources to distribution. Consistent and increased funding will provide businesses with the certainty they need to invest in infrastructure that will expand access to agricultural renewable energy with a lower carbon intensity.

II. Wood Products

FACA recognizes the importance of low carbon building materials and, through a variety of U.S. Forest Service programs, seeks to strengthen the science regarding the role of wood in a low carbon economy.

Specifically, FACA recommends that the Wood Innovation Grants program be expanded to include technology transfer and projects that address technical and educational barriers to scaling adoption in wood building design and construction. Similarly, the Forest Products Laboratory should also look at wood use technology transfer, market research/demonstration and continue its life cycle analysis work. The Forest Inventory and Analysis Program should also focus research on the climate benefits of wood utilization in collaboration with the National Association of University Forest Resources Programs and other partners. Recognizing the U.S. Forest Service's limited resources, FACA has supported increased funding for all three programs through the FY22 appropriations process.

Combined, this broad research initiative would strengthen the science surrounding wood carbon storage. The use of low carbon building materials not only reduces the carbon footprint of the built environment but also supports strong forest products markets, which enable private forest owners to invest further in sustainable forest management that enhances forest carbon sequestration, water quality and wildlife habitat.

In addition, to unlock the potential of low-carbon building materials like wood, USDA should revise USDA's procurement policy and Green Building Manual to incorporate the goal of reducing the carbon footprint (including embodied and embedded carbon) by 20% for new, renovated, and rebuilt buildings and prioritize use of building materials that reduce embodied carbon emissions and provide carbon storage. This aligns with the first plank of the Biden-Harris Administration's Climate Innovation Working Group, which [calls for](#) "zero net carbon buildings at zero net cost, including carbon-neutral construction materials.

B. How can incorporating climate-smart agriculture and forestry into biofuel and bioproducts feedstock production systems support rural economies and green jobs?

The U.S. biofuels industry supports nearly 300,000 green jobs across the agricultural supply chain – from farmers to plant workers. Working forests and forestry-related businesses support 2.5 million jobs, \$288 billion in sales and manufacturing, and \$109 billion in payroll.

C. How can USDA support adoption and production of other renewable energy technologies in rural America, such as renewable natural gas from livestock, biomass power, solar, and wind?

I. Enhance Rural Energy for America Program Participation

To further enhance participation in the Rural Energy for America Program (REAP), Rural Development should coordinate with the Natural Resources Conservation Service to develop an application that is streamlined and less burdensome for farmers to navigate. Applications and additional information should also be readily available in Farm Service Agency field offices.

II. Conduct a National, On-Farm Energy Study

FACA is not aware of a recent study or report examining the status of on-farm energy initiatives. For that reason, we encourage the Department to conduct a comprehensive, nationwide study focusing on energy efficiency adoption, rural renewable energy product and biofuels deployment. The study should identify barriers to adoption and opportunities to increase on-farm energy efficiency and renewable energy use including but not limited to solar, wind, biomass, biofuels and biogas. This data collected should be considered as the Department looks to improve the delivery and efficacy of its energy programs.

III. Reestablish the Biogas Opportunities Working Group

We support reestablishing the interagency Biogas Opportunities Working Group, which should be led by USDA and include participation from the Department of Energy, Environmental Protection Agency, as well as livestock, dairy and nonprofit stakeholders. The working group should be directed to remove barriers to technology adoption, identify funding opportunities sources, integrate renewable natural gas into a clean energy strategy and work with the AgStar Program to enhance technical assistance.

3. Addressing Catastrophic Wildfire Questions

Severe wildfire is a reality we must address. While fires are a natural and important part of many forest ecosystems in the United States, severe wildfire is caused by a set of complicated and compounding factors – including dry weather cycles exacerbated by the effects of climate change, decades of fire exclusion and fuel buildup in many forests, and lack of adequate resources to realistically address wildfire risk.

We need to take action across all forest ownership types. In particular, we should focus on the following areas:

- I. Wildfires are a natural part of many forest and rangeland ecosystems but have gotten more severe and frequent as a result of multiple factors that include changing land-use patterns, the role of human-ignited fires, decades of fire suppression in the U.S., and the effects of climate change, leading to catastrophic events in the western United States.
- II. These catastrophic events have a multitude of impacts, harming areas vital for rural livelihoods, rural economies, and environmental considerations like water production, habitat, carbon storage and sequestration and many other ecosystem services.
- III. Great work is being done to address wildfires through collaboration, including restoring landscapes to mitigate and adapt to climate, with Indigenous communities, and basing our practices on sound science. Particular attention is needed to further spur forestry, grazing and community actions that restore forest, grassland and rangeland health and resilience to fire, and to help reforest vast areas that have been harmed and need help in these climate-stressed environments. USDA and its state, local and Tribal government partners should also take into account the impacts on rural communities affected by these wildfires, including considering

making grants available to replace damaged farm and forestry equipment and fencing lost to wildfires to ensure agriculture and forestry can recover as quickly as possible.

- IV. Policies should recognize that wildfires do not respect boundaries, so all forest and rangeland stakeholders across ownership types (federal, state, private, tribal, etc.) as well as the environmental and conservation communities, and land-use communities – including grazing permittees – should be at the table to craft solutions.
- V. There is a need for research on the food safety consequences of the presence of wildfire ash or residues of fire retardants in fresh produce. Research is also needed to understand the most effective ways to remove wildfire ash and fire retardant residues from fresh produce.

4. Environmental Justice and Disadvantaged Communities Questions

FACA is committed to working with the federal government, and within our own memberships and networks, to support current and future farmers, ranchers, and forest owners of all genders, races, creeds, religions, sexual orientations, and backgrounds. USDA must commit to having a broad, diverse, and inclusive stakeholder group actively participate in the climate policy-decision making process. USDA programs and incentives should be structured inclusively, and designed to equitably distribute benefits and burdens of climate and agriculture policies.