

CLIMATE ADAPTATION & RESILIENCE PLAN

Office of the Chief Scientist
U.S. Department of Agriculture

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Message from the Director

Dr. Deirdra Chester, Director

U.S. Department of Agriculture

Office of the Chief Scientist

Climate change is a significant global threat to the future of agriculture and forestry, as well as to food systems, working lands, and the communities that rely on them. At the U.S. Department of Agriculture, Office of the Chief Scientist, it is our mission to bolster the USDA leadership and scientific community with the latest rigorous science and effective coordination as we rise to the challenge of climate adaptation and resilience in the U.S. and abroad.

As the Director, I am proud to advance the Climate Adaptation and Resilience Plan for the Office of the Chief Scientist. Aligned with the [USDA Climate Adaptation Plan 2024-2027](#) and the [USDA Science and Research Strategy 2023-2026](#), this plan details how the OCS will support climate adaptation and resilience within the OCS, the USDA, and our interagency and external scientific communities. The actions outlined span programmatic, coordination, strategic planning, and organizational effectiveness approaches to ensure resilience of service to the American public and rapid advancement of scientific understanding of and innovative solutions for climate change.

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Office of the Chief Scientist

Mission of the Office of the Chief Scientist

The U.S. Department of Agriculture's Office of the Chief Scientist (OCS) was established in accordance with the Food, Conservation, and Energy Act of 2008 to provide strategic coordination of the science that informs the Department's and the Federal government's decisions, policies and regulations that impact all aspects of U.S. food and agriculture and related landscapes and communities.

OCS advises the USDA's Chief Scientist and the Secretary of Agriculture in the following areas of science:

- Animal Health and Production, and Animal Products
- Plant Health and Production, and Plant Products
- Agricultural Systems and Technology
- Renewable Energy, Natural Resources, and Environment
- Food Safety, Nutrition, and Health
- Agricultural Economics and Rural Communities

OCS work supports larger goals of scientific prioritization and coordination within the Research, Education, and Economics (REE) mission area and across the entire Department. Senior Advisors bring both subject matter expertise and an understanding of USDA's research enterprise. OCS identifies, prioritizes, and evaluates Department-wide agricultural research, education, and extension needs. In addition, OCS regularly convenes a [USDA Science Council](#), composed of leadership from all USDA agencies and mission areas, to further facilitate cross-Departmental scientific coordination and collaboration.

OCS provides scientific leadership by ensuring that research supported by, and scientific advice provided to, the Department and its stakeholders is held to the highest standards of intellectual rigor and scientific integrity. Scientific integrity is the condition resulting from adherence to professional values and practices when conducting, reporting, and applying the results of scientific activities. Scientific integrity is critical to all OCS areas of emphasis to ensure objectivity, clarity, and reproducibility as well as provide insulation from bias, fabrication, falsification, plagiarism, inappropriate influence, political interference, censorship, and inadequate procedural and information security.

OCS also coordinates the USDA response to National Science and Technology Council/Office of Science and Technology Policy (NSTC/OSTP) memoranda, ensuring timely and appropriate implementations of policies and reporting to meet OSTP requirements and deadlines.

Climate Change Impacts and Vulnerabilities

The OCS mission is vulnerable to impacts of climate change via disruption of USDA agencies that interact with OCS, preventing these agencies from delivering necessary knowledge assets in a timely manner. Climate-related impacts may also affect OCS facilities and personnel.

Programmatic Coordination & Collaboration

OCS staff, senior advisors, and fellows advise the Chief Scientist and coordinate scientific activities about several topic areas relevant to the scientific underpinnings of climate change. OCS staff must be well versed in the climate change vulnerabilities of their subject matter area to ensure that the USDA meets its vision “to provide economic opportunity through innovation, helping rural America to thrive; to promote agriculture production that better nourishes Americans while also helping feed others throughout the world; and to preserve our Nation's natural resources through conservation, restored forests, improved watersheds, and healthy private working lands.” The sections below detail the climate change vulnerabilities relevant to each OCS area of emphasis.

Animal and Plant Health and Production, and Products

Animal and plant health are impacted by climate change in complex ways. Heat stress, drought, and extreme weather events can negatively affect both individual and population health for plants and animals. Pests and disease prevalence are also anticipated to change, and in some areas increase, including due to expanding geographical ranges of disease vectors, with implications for agricultural plants and animals as well as the surrounding ecosystems that support our agricultural systems. For livestock, effects of climate change on the quality and quantity of their food resources can lead to unexpected indirect consequences, such as increased prevalence of invasive plants in grazing lands decreasing nutritional value of forage or increasing vulnerability to wildfire. Reduction of forage quality due to elevated temperatures can also lead to higher enteric methane emissions from ruminant livestock.

For pollinators supplying crop pollination services, climate change can lead to reduced quantities of pollen and nectar and the nutrition they offer. Additionally, phenological changes driven by climatic stress can lead to pollinator-boomtime timing misalignments. These issues can quickly equate to crop yield losses. Over 100 crops grown in the U.S. depend on pollinators. Many of these crops are fruits, nuts, and vegetables, which are important, nutrient-dense components of healthy diets. Thus, pollinator decline threatens national and global food and nutrition security and human health.

Agricultural animal and plant health and production are not only impacted by climate change, but also are a significant source of greenhouse gas emissions. Enteric methane

evolution from livestock, methane evolution due to manure management, and nitrous oxide generation resulting from imprecise application of nitrogen fertilizer to crop plants are responsible for the largest share of agricultural greenhouse gas emissions.

Agricultural Systems and Technology

Animal and plant production systems are impacted by, and contribute to, climate change as described in the section above. Agricultural systems are increasingly driven by information and communications technology (ICT) for production, transport, and storage, making our agrifood system vulnerable to power and internet outages due to extreme climatic events. Agricultural systems are also dependent on surface water and groundwater irrigation technologies; as extreme drought and variable weather conditions become commonplace, agricultural systems will be vulnerable to fallowing and abandonment.

Renewable Energy, Natural Resources, and Environment

The US renewable energy grid and feedstocks for biofuels are vulnerable to a variety of impacts of climate change. These vary across regions but include temperature extremes, altered snowpack, flooding events, severe drought, sea level rise, more frequent and catastrophic hurricanes, and wildfires. These impacts also affect the quantity and quality of our nation's water resources by decreasing supply and increasing erosion and coastal inundation. Additionally, climate change can affect the nation's natural resources and environment by impacting soil health, forest health, mainland and coastal agroecosystems, pollinator health, and distribution and intensity of pests, invasive species, and diseases of plants and animals.

Bioeconomy

A changing climate could put pressure on the biomass systems important for the bioeconomy – whether crop- or forest-based, livestock, or residual – either by direct damage (injury/death), indirect damage (e.g., reduced yield from reduced inputs [water]), or by economic challenges to biomass availability (e.g., damaged infrastructure). However, environmentally sustainable biomass is also an important contributor to climate change mitigation. The development of new biomass crops, such as intermediate oilseeds, helps power the bioeconomy while helping climate change mitigation.

Food Safety, Nutrition, and Health

Food safety, nutrition, and human health are predicted to be critically impacted by climate change, especially the poor and vulnerable communities. Communities are considered food secure when food resources are readily available, accessible, useful and nutritious, and stable over time. Climate change has impacted, and will continue to impact, each pillar of food security through disruptions to production, local availability, transportation, and

imports/exports¹. Greater disruptions will lead to increases in costs across global supply chains, ultimately leading to greater costs for the consumer. Food safety is also at risk. Higher temperatures and increased moisture during storage and transport may lead to increased incidences of bacteria-caused illness and mycotoxin contamination¹. Extreme precipitation and flooding events may also cause heavy metal and toxin contamination in food supplies, including high toxin levels in fish and shellfish from harmful algal blooms.

Beyond food security and safety, nutrition and human health are negatively impacted by climate change. Elevated levels of carbon dioxide can lead to dampened mineral, micronutrient, and protein content of important global food staples¹. Extreme heat also poses critical risks to human health and may be of particular concern for agricultural producers and field crews². Exposure to environmental pollution associated with wildfires, extreme flooding, and other disasters can exacerbate human health burdens, such as asthma, cancer, and other life-threatening diseases.

Agricultural Economics and Rural Communities

Rural communities are particularly vulnerable to extreme weather events due to a greater direct dependence on agriculture, forestry, and outdoor recreation for income and employment, and existing challenges with infrastructure and connectivity in rural areas. Increasing climate variability will result in increasing uncertainty in agricultural and forest industries in rural communities. This uncertainty has led to declining trends in population and employment as well as reduced resources for local governments to deal with climate change variability.

International Collaboration & Diplomacy

Climate change is a global crisis that requires international coordination and collaboration to find and implement effective solutions. OCS advances research, new technologies, products, and approaches required to adapt to climate change through leadership of the Agriculture Innovation Mission for Climate (AIM for Climate). Launched in 2021, AIM for Climate is a joint initiative by the United States and the United Arab Emirates that seeks to address climate change and global hunger by uniting participants to significantly increase investment in and other support for climate-smart agriculture and food systems innovation. Since its launch, AIM for Climate has enabled global investments of over \$17 billion and created a network of over 600 global partners. These international efforts depend on travel and diplomacy for relationship building. Extreme weather events as well as political unrest due to climate change can pose challenges to efficient and safe travel that is important for

¹Brown, M.E., J.M. Antle, P. Backlund, E.R. Carr, W.E. Easterling, M.K. Walsh, C. Ammann, W. Attavanich, C.B. Barrett, M.F. Bellemare, V. Dancheck, C. Funk, K. Grace, J.S.I. Ingram, H. Jiang, H. Maletta, T. Mata, A. Murray, M. Ngugi, D. Ojima, B. O'Neill, and C. Tebaldi. 2015. Climate Change, Global Food Security, and the U.S. Food System. http://www.usda.gov/oce/climate_change/FoodSecurity2015Assessment/FullAssessment.pdf.

² Tigchelaar, M., D.S. Battisti, and J.T. Spector. 2020. Work adaptations insufficient to address growing heat risk for U.S. agricultural workers. *Environmental Research Letters*, 15: 094035.

stakeholder engagement and science diplomacy and weakens the abilities of our international partners to address the causes and consequences of climate change.

Personnel and Infrastructure

Direct climate-related impacts on the OCS mission may result from disruption of OCS personnel, facilities, and/or ICT. All OCS personnel have entered telework or remote work agreements resulting in geographically dispersed staff that are dependent on ICT to perform their duties. This makes the OCS mission vulnerable to extreme weather events that occur in the Washington, D.C. area and at the locations of our distributed workforce. Extreme weather can impede OCS daily operations by causing power outages, internet outages, and other impacts on ICT, and the inability to safely commute to work. This loss of continuity of operations may negatively impact OCS's compliance with legislative directives, OCS's advisory role with USDA's Secretary and Chief Scientist, science prioritization and coordination, as well as the functioning of OCS staff on various Office, intra-Departmental, and all-of-government teams. Additionally, extreme weather events may damage or destroy ICT resulting in the loss of electronic files and records.

The main OCS office is within the National Capital Region at USDA headquarters near the National Mall. The National Capital Region is expected to experience increased flooding with continued sea level rise, land sinkage, and heavy rain events due to climate change. The water level rise along the National Mall's Tidal Basin is projected to be between 1 to 5 feet by 2050 possibly subjecting OCS's physical and ICT infrastructure to flooding. Flooding may also interrupt local transportation for OCS personnel and block access to OCS offices.

Key Actions to Address Climate Change

Climate adaptation actions by OCS segregate into the following areas: Programmatic, Coordination, Strategic Planning, and Organizational Effectiveness. By implementing these actions OCS is poised to advance climate adaptation solutions for farmers, land managers, and rural communities.

Programmatic Actions

USDA Science and Research Strategy Development and Implementation. OCS has driven the development of the USDA Science and Research Strategy for 2023–2026 which included Driving Climate-Smart Solutions as one of its major priorities. Implementation of this strategy will guide agricultural research by REE agencies as well as research conducted by other USDA research-oriented agencies and partners. Research under the Driving Climate-Smart Solutions priority will:

- Improve capabilities for detection and monitoring of sources and sinks of greenhouse gases,
- Develop and improve technical greenhouse gas mitigation potential of agriculture and forestry sectors of the economy,
- Improve the adaptation potential of agriculture and forestry systems to make them more climate resilient,
- Develop and expand the availability and application of climate-informed decision support tools to ensure that the agricultural community has ready access to scientific knowledge assets, and
- Conduct science that supports sustainable markets for agriculture and forest bioproducts and clean energy to drive sustainable economies and supply chains with reduced greenhouse gas emissions.

The USDA Science and Research Strategy was developed after consulting with a wide range of diverse stakeholders, including Congress; private citizens; State, local, and Tribal government; producers; landowners; policy experts; universities and trade schools; lenders; foundations; environmental and social advocates; industry partners; and consumer groups. To derive the greatest impact, research must be inclusive, equitable, accessible, innovative, and competitive. The process of adoption of new practices and widespread use is complicated, requiring ideas from the above multiple sources to successfully deliver solutions.

OCS Staff Climate Literacy. Climate literacy is necessary for success in responding to climate change. Climate literacy is particularly important for OCS staff as agriculture policy and scientific advisors. OCS will encourage staff to become better educated in climate science as well as its intersections with environmental justice.

Interagency Coordination for Climate Change Science

Subject Matter Expertise. OCS has increased the climate science responsibility within the portfolio of the Senior Advisor for Renewable Energy, Natural Resources, and Environment position to coordinate climate science and information among REE agencies and throughout USDA. OCS will also take advantage of the Climate Fellows program, when possible, to aid in these activities. This coordination effort will improve the delivery of information about USDA-wide climate adaptation science and policy efforts.

Innovative Solutions for Climate Mitigation & Adaptation. OCS will continue to push for and amplify evidence-based technologies and agricultural practices that support climate change mitigation and adaptation of the agricultural sector. Essential to this is coordination of USDA and interagency working groups, as well as stakeholder engagement.

US Global Change Research Program (USGCRP). OCS will continue its participation and engagement as working group members with the USGCRP.

Global Research Alliance for Agricultural Greenhouse Gases (GRA). OCS will continue to co-lead the US participation in the international GRA, an international consortium of scientists that aim to enhance GHG mitigation through agriculture and create standardized methodology for measurement, monitoring, and validation of GHG.

Strategic Planning and Organizational Effectiveness

Planning for Continuity of Operations. OCS will safe-guard continuity of operations by:

- Increasing training and information sharing for seamless operations across employee teams, including planning for distributed team function and full utilization of cloud-based IT tools to increase resilience to site-specific climate emergencies.
- Leveraging Enterprise Risk Management in collaboration with the USDA Office of Budget and Program Analysis (OBPA) to prioritize continuity of operations efforts for climate adaptation.
- Collaborate with the USDA Office of Homeland Security to plan for climate-resilient continuity of operations and emergency response.

Ensure Workforce Flexibility. OCS has moved to a work model where OCS management identifies positions eligible for remote, telework, or on-site work. Employees in positions designated as remote eligible may choose to work from their home duty station or work from USDA headquarters with telework flexibilities. This flexibility increases the ability for operations to proceed unimpeded during the occurrence of extreme climate events in the Washington, D.C. area.

Improve REE Knowledge Management. OCS will expand on knowledge management efforts within the natural resources, environment, and climate space, among other scientific priorities, within the REE mission area. These efforts will be directed at improving the capture

and curation of explicit knowledge assets (encoded data, information, and other knowledge), enhancing efforts to capture tacit knowledge assets and transform them into curated explicit knowledge, enhancing methods to find expertise within the REE mission area and USDA as well as knowledge assets, and enhancing integration with REE mission area stakeholders. Knowledge management efforts will increase the efficiency of REE mission area climate activities and enhance delivery and adoption of climate-related technology and knowledge to our stakeholders.

Implementation

To operationalize this plan, OCS has organized an OCS Climate Adaptation Team, composed of OCS's Senior Advisor for Renewable Energy, Natural Resources, and Environment and Climate Fellow, which will function in coordination with the Director and Deputy Director of the Office of the Chief Scientist. The OCS Climate Adaptation Team will meet once per month.

The team annually compiles accomplishments for USDA and OCS review, and progress towards implementing the OCS Climate Adaptation and Resilience Plan will become part of accomplishments reporting. Progress toward implementing proposed actions will be monitored by tracking data on output metrics that lead to desired outcomes and long-term impacts (Table 1). The Climate Adaptation and Resilience Plan Actions are either "ongoing", "planned", or "proposed." "Ongoing" refers to an action that is already being tackled; "planned" means the action has not yet been undertaken but can be accomplished by reallocating existing resources; and "proposed" refers to an action that will require additional personnel and/or financial resources.

OCS will use the principles of adaptive management to implement the OCS Climate Adaptation and Resilience Plan and ensure positive climate change adaptation impacts. Through monthly meetings and annual progress reporting, OCS will create regular check-in points to assess the efficacy of our climate adaptation actions, to identify barriers or challenges to implementation, and to adjust actions or create new priorities in a timely manner. Through an iterative programmatic monitoring process and through evaluation OCS will learn from outcomes and make corrections as needed.

Crosscutting Programs

Environmental Justice

USDA agencies conduct research that impacts rural America and other underserved communities either through development of agricultural knowledge and technology or gathering data and doing economic analysis of environmental impacts, including those related to climate change. OCS, through its role in scientific prioritization and coordination within REE and across the Department, will ensure that research that supports the needs of disadvantaged communities is supported and that relevant knowledge assets and technology are disseminated to public-facing agencies within USDA so that they can better reach underserved communities.

Tribal Engagement

OCS will continue to meet and coordinate with the Office of Tribal Relations to ensure delivery of information about REE mission area climate science efforts and outcomes. Where appropriate, OCS will work with the REE mission area leadership to coordinate opportunities for joint tribal engagement efforts, such as participation in the annual First Americans Land-Grant Consortium (FALCON) conference.

Workforce Climate Literacy

REE mission area agencies are both consumers and generators of climate-related knowledge assets. OCS through its science prioritization and coordination role will ensure that climate-related data, information, and other knowledge assets generated by REE mission area agencies will be distributed to relevant parties throughout the USDA, Federal government, and public.

Climate Hubs

USDA's Climate Hubs are a collaborative effort hosted by ARS and the Forest Service at ten regional locations. Additional contributors are agencies both within and outside the REE mission area including NASS, the Natural Resources Conservation Service, Farm Service Agency, Animal and Plant Health Inspection Service, and the Risk Management Agency. OCS will continue to support Climate Hubs through its science prioritization and coordination role among USDA agencies.

Appendix 1. Authors & Plan Development Process

Author List

Linsey Haram, OCS Climate Fellow; Daniel P. Roberts, former OCS Senior Advisor for Renewable Energy, Natural Resources, and Environment; and Ann Stapleton, former OCS Senior Advisor for Agricultural Systems and Technology.

Plan Development

OCS prepared this Climate Adaptation and Resilience Plan in accordance with Departmental Regulation (DR) 1070-001, which provides guidance on the establishment and periodic revision of the USDA Climate Change Adaptation Plan and is consistent with implementation of Executive Order (E.O.) 14008, Executive Order on Tackling the Climate Crisis at Home and Abroad, issued on January 27, 2021. This plan describes how OCS addresses climate change in its operations and is integrating climate adaptation to ensure it can fulfill its mission requirements.

The OCS Climate Adaptation and Resilience Plan was sequentially subjected to internal OCS review, review by the Office of the Chief Economist for completeness, and approval by the Director of the Office of the Chief Scientist.

Appendix 2. Glossary

Definitions

Explicit knowledge	Knowledge that is written or codified.
Knowledge assets	Knowledge assets include databases, documents, policies, procedures, or previously un-captured expertise and experiences of individual workers.
Knowledge management	Knowledge management promotes an integrated approach to identifying, capturing, evaluating, retrieving, and sharing all an organization's relevant knowledge and information assets.
Tacit knowledge	Expertise or knowledge that is not captured (e.g., institutional knowledge)

Acronyms

GHG	Greenhouse Gases
GRA	Global Research Alliance for Agricultural Greenhouse Gases
ICT	Information and Communications Technology
NSTC	National Science and Technology Council
OBPA	USDA Office of Budget and Program Analysis
OCS	USDA Office of the Chief Scientist
OSTP	White House Office of Science and Technology Policy
REE	USDA Research, Education, and Economics mission area
USGCRP	U.S. Global Change Research Program

Table 1. Climate Adaptation Key Action Table

Target Outcome	Action Description	OCS Lead	Inter- & Intra-Agency Coordination	Timeframe	Status	Progress Metrics	Accomplishments to Date
Implement the USDA Science & Research Strategy's 'Driving Climate-Smart Solutions' priority Theme Team.	Develop and disseminate and enact an implementation plan for the USDA Science & Research Strategy.	Holly Wiggins	USDA	FY24-FY25	Ongoing	Release of the implementation plan.	OCS finalized membership for the Theme Team. S&RS Implementation Plan roll out in progress.
Assess the progress of the USDA Science & Research Strategy's 'Driving Climate-Smart Solutions' priority.	Work with interagency members of the 'Driving Climate-Smart Solutions' Theme Team, to assess the progress of the USDA in addressing key strategies since FY23.	Linsey Haram, Julie Snorek	USDA	FY25	Ongoing	Submission of assessment to Chief Scientist & OCS Leadership. Presentation of progress to USDA Science Council.	Assessment framework created and disseminated to key strategy working groups. Facilitation of assessment underway.
Enhance climate literacy of OCS staff.	Encourage staff to add climate science and environmental justice literacy training to Individual Development Plans (IDPs), and to attend climate science related webinars, workshops, and conferences.	Linsey Haram	OCS, REE	FY25	Proposed	Number of staff engaged in climate-relevant training and activities per year.	
Increase subject matter expertise within OCS staff.	Ensure the detail position for relevant Senior Advisor portfolio is filled. OCS will also take utilize the Climate Fellows program, the ORISE Fellowship, and/or the AAAS Science and Technology Policy Fellowship to aid in these activities.	Deirdra Chester, Rich Derksen	REE	FY24	Ongoing	Number of subject matter experts assigned to the OCS Climate portfolio.	OCS has increased the climate science responsibility within the portfolio of the Senior Advisor for Renewable Energy, Natural Resources, and Environment position to coordinate climate science and information among REE agencies as well as throughout the Federal Government.

<p>Promote scientific innovation for climate change mitigation and adaptation.</p>	<p>OCS will continue to push for and amplify evidence-based technologies and agricultural practices that support climate change mitigation and adaptation of the agricultural sector.</p>	<p>Deirdra Chester, Rich Derksen, Linsey Haram</p>	<p>ARS, ERS, NASS, NIFA, OCE, FAS</p>	<p>FY24-FY25</p>	<p>Ongoing</p>	<p>Number of relevant initiatives. Number of partnerships. Number of briefings with stakeholders.</p>	<p>Innovation Challenge award announced and awarded in FY24 in partnership with the Foundation for Food & Agriculture Research. Held 5+ stakeholder meetings relevant to climate-smart agriculture innovation.</p>
<p>Promote scientific innovation for climate change mitigation and adaptation.</p>	<p>Lead AIM for Climate to amplify necessity for increased investment in and support for climate-smart agriculture and food systems innovation globally.</p>	<p>Jaime Adams</p>	<p>FAS, NIFA, OCE, State, USAID</p>	<p>FY24-FY25</p>	<p>Ongoing</p>	<p>Number of briefings related to climate-smart agriculture provided to REE and OSEC leadership. Number of AIM for Climate partners & their geographies. Total \$ investment by AIM for Climate partners in climate-smart agriculture R&D. Number of AIM for Climate events led and co-led by OCS staff.</p>	<p>AIM for Climate Team executed high-level events at COP28 and COP29. Total increased self-financed investment by partners has grown to over \$29 billion, as of COP29.</p>
<p>Promote scientific innovation for climate change mitigation and adaptation.</p>	<p>Coordinate interagency working groups to advance research, innovation, and scaling of climate-smart agriculture and forestry.</p>	<p>Deirdra Chester, Rich Derksen, Paul Zankowski</p>	<p>USDA agencies, DOE, FAA, NASA, NOAA, DOI</p>	<p>FY24-FY25</p>	<p>Ongoing</p>	<p>Number of interagency working groups led or co-led by OCS. Number of products from working groups.</p>	<p>Co-leads the Sustainable Aviation Fuel Grand Challenge. The interagency working group has developed a roadmap and implementation framework. Leads the USDA interagency working group developing the Implementation Plan for Regenerative Agriculture.</p>

Represent agricultural research and stakeholders in the USGCRP.	Continue OCS participation and engagement as working group members in the USGCRP.	Deirdra Chester, Rich Derksen	OCE, USGCRP members (including DOC, DOD, DOE, DHHs, DHS, DHUD, DOI, DOS, DOT, EPA, NASA, NSF, Smithsonian Institution, & USAID)	FY24-FY25	Ongoing	Proportion of OCS staff engaged in USGCRP working groups. Spread of OCS staff across USGCRP working groups.	Members of OCS staff currently participate in 3 of the 12 USGCRP interagency working groups.
Represent U.S. scientific equities in the Global Research Alliance on Agricultural Greenhouse Gases (GRA).	Co-lead and bolster U.S. participation in the international GRA to enhance agricultural GHG mitigation and to create standardized methodology for measurement, monitoring, and validation of GHG.	Jaime Adams, Linsey Haram	ARS, NIFA, FAS	FY24-FY25	Ongoing	Number of staff from REE agencies participating in the GRA.	New representatives from NIFA have been identified and will join the current USDA representatives on 3 of the 4 GRA research groups.
Safe-guard continuity of operations.	<p>1) Update ICT and storage.</p> <p>2) Increase training and information sharing for seamless operations across distributed staff teams, including full utilization of cloud-based IT tools.</p> <p>3) Leverage Enterprise Risk Management in collaboration with the USDA Office of Budget and Program Analysis (OBPA) to prioritize continuity of operations efforts for climate adaptation.</p> <p>4) Collaborate with the USDA Office of Homeland Security to plan for climate-resilient continuity of operations and emergency response.</p>	Rich Derksen, Holly Wiggins	OCIO, OBPA, OHS	FY24-FY25	Ongoing & Planned	Annual review of actions.	<p>OCS/REE established a Risk Register System in FY23.</p> <p>OCS actively promotes ERM on an ongoing basis through one-on-one agency consultations and an annual Risk Register System refresh process.</p> <p>OCS will co-host quarterly USDA ERM leadership meetings to continuously monitor current and emergent risks, as planned for FY25.</p> <p>OCS regularly participates in continuity of operations planning with the Office of Homeland Security.</p>

Ensure workforce flexibility.	Utilize a flexible workplace model, allowing for operations to proceed unimpeded during the occurrence of extreme climate events in the Washington, D.C. area.	Deirdra Chester, Rich Derksen	OSEC, OHRM	FY24-FY25	Ongoing	Number of staff equipped with fully functional remote and hybrid workspaces.	OCS staff hold a mix of remote and hybrid work agreements.
Enhance REE knowledge management efforts.	<ol style="list-style-type: none"> 1) Launch pilot project to demonstrate the power of linked knowledge graphs for USDA science. 2) Perform a gap analysis. 3) Develop a White Paper on a proposed Knowledge Management Plan for the REE mission area. 	Deirdra Chester, Elizabeth Hill, Linsey Haram	ARS, NAL, OCIO, OBPA	FY25	Ongoing	<p>Completion of pilot project.</p> <p>Completion of gap analysis.</p> <p>Completion of White Paper.</p> <p># of USDA-led knowledge graphs developed.</p>	<p>OCS has developed a Knowledge Management Team.</p> <p>Pilot project has launched.</p>