



Enabling Policies Recommended by the North America Climate Smart Agriculture Alliance (NACSAA)

Introduction

The North America Climate Smart Agriculture Alliance (NACSAA) welcomes the opportunity to offer perspective on United States agricultural policy to the House Special Committee on the Climate Crisis. As documented in the [Fourth National Climate Assessment Report, Volume II](#), **climate change presents numerous challenges to sustaining and enhancing crop productivity, livestock health, ecosystem integrity and the economic vitality of rural communities**. Among the report's key messages: food and forage production are declining in regions experiencing increased frequency and duration of drought; the degradation of irreplaceable soil and water resources will expand as extreme precipitation events increase across our agricultural landscapes; challenges to human, crop and livestock health are growing due to the increased frequency and intensity of high temperature extremes and related spread of pests and crop and animal diseases; and key modes of communication, transportation, water, and sanitary infrastructure are vulnerable to disruption from climate stressors.

These events and conditions represent unprecedented risks to food and energy security, human health, the environment and progress towards greenhouse gas mitigation in the U.S. and worldwide. Farmers, agribusinesses and rural communities across the country are already experiencing the impacts of extreme variability in weather and a changing climate and know that the threats to their livelihoods are increasing. **The formation of NACSAA is North America's agriculture and rural communities' response to the complex threats and risks of climate change. This diverse group of agricultural thought leaders and organizations from across the continent have joined together to create a platform for inspiring, educating, and equipping agricultural partners to innovate effective local adaptations to climate challenges.** NACSAA thanks Chairwoman Kathy Castor and the House Select Committee on the Climate Crisis for the opportunity to provide input from NACSAA's [over 70 partners](#) and share the coalition's global engagement with the United Nations Framework Convention on Climate Change (UNFCCC)'s landmark agricultural program, the Koronivia Joint Work on Agriculture (KJWA). Though not every agricultural stakeholder shares identical views of the policy environment, the NACSAA partner body agrees that a number of conversation starters are of interest for consideration by the Select Committee.

This **farmer-led Alliance** focuses its efforts on helping both producers and the value chain utilize **climate smart agriculture (CSA)** strategies to enhance the adaptive capacity of North America's food system. Strategies range from minor adjustments in existing production to major changes in agricultural systems and best management practices, and are organized around the **three CSA pillars**:

Pillar One: *Sustainable intensification of production and ecosystem integrity*

Pillar Two: *Adaptations that build resiliency*

Pillar Three: *Systems that allow farmers to retain and sequester carbon or reduce greenhouse gas emissions and simultaneously improve profitability*

The use of a CSA framework is foundational to any agricultural climate strategy. By letting farmers lead and focusing on the economic viability of farming operations as they respond to the changing climate, policymakers can encourage win-win scenarios in which agriculture presents a solution for climate impacts while improving environmental resilience, building strong rural communities, engaging consumers, and ensuring public health and access to nutritious food.

The potential impact of a policy environment which encourages widespread adoption of CSA principles cannot be overstated. **Agriculture is a diverse industry, encompassing a range of farm scales and agro-ecosystem landscapes.** Generalized regional climate conditions do not well represent individual farmers' local weather and climate experiences and their varied impacts on different topographies and agricultural systemsⁱ. Thus, individual farms in each state and geographic region of the U.S. are best served through unique adaptation strategies that enable farmers to co-manage for resources, productivity, profitability and ecosystem health. Their efforts will be most successful when success is defined by outcomes and not prescriptive practices. The complexity of this stewardship – **which requires an “all tools in the toolbox” approach and prioritizes farmer access to multiple choices and innovations** – can seem overwhelming to those looking for an oversimplified “silver bullet” solution.

However, **embracing management complexity reveals one of the world's best chances to reduce atmospheric carbon.** Recent research by soil scientist Rattan Lal – a member of the Intergovernmental Panel on Climate Change (IPCC), which shared the 2007 Nobel Peace Prize with Al Gore – shows that in aggregate, place-based management of soil, vegetation and animal systems across the globe could achieve 157 parts per million of CO₂ drawdown per year by 2100ⁱⁱ. This represents nearly 40% of 2018's global atmospheric carbon levels. Enabling U.S. policies that address climate change by giving each land manager a menu of options to best serve their individual landscapes unlock enormous potential for **America's farms and forests to lead the world in both economic and environmental sustainability.**

The Alliance's partners advocate for government support with the vision to effectively capture the value that agriculture brings, allow U.S. farmers to develop consensus and strategy on a clear path forward, and provide adequate resources and capacity to execute it. With these tools, the U.S. can draw on **an untapped well of agricultural solutions** that simultaneously sustain productivity, enhance climate resilience, and positively contribute to local and global economies.

Past Engagement

The U.S. agricultural sector took an important step forward by participating in the newly inaugurated Koronivia Joint Work on Agriculture (KJWA) workshops being held under the United Nations Framework Convention on Climate Change (UNFCCC). The KJWA emphasizes the importance of agriculture and food security in the climate change agenda. By mainstreaming agriculture into the UNFCCC processes, the KJWA supports and grows current agricultural and food systems – and ultimately, influences global enabling policies – by addressing the synergies and trade-offs between adaptation, mitigation and agricultural productivity.

NACSAA, representing North American farmers, has engaged these global climate talks by focusing on the benefits of a CSA framework in policy development. **While mitigating and avoiding greenhouse gas emissions are a critically necessary response of the agriculture industry to the changing climate, this goal is only one of three pillars of climate smart production. Sustainable practices and adaptation for resilience, also CSA pillars, are necessary if farmers are to survive, thrive and achieve multiple benefits of healthy productive agricultural systems and ecosystem integrity.** To highlight the key points of the CSA model, NACSAA developed a set of guiding principles which has served well to carry North American farmer voices to an international stage and proves equally applicable to the development of domestic U.S. enabling policies.

NACSAA CSA Guiding Principles

- **Farmers must be at the center of all discussions and decision-making;** significant input will be needed from a wide range of farmer and other producer organizations outside of typical policymaking structures.
- **There is no “silver bullet” solution for enhancing the resilience of agriculture:** policymakers must embrace a systems approach that recognizes the tremendous diversity of agricultural landscapes and ecosystems and enables producers to utilize the systems and practices that best support their farming operations.
- As affirmed in the communique from the 8th Meeting of G20 Agricultural Chief Scientists (MACS), **science-based decision making**, in conjunction with **farmer and indigenous innovation**, must be the foundation for the adoption of climate smart technologies and practices for sustainable agriculture and global food productionⁱⁱⁱ.
- Since crops, livestock and production forest dominate the world’s land area, agricultural systems must be advanced that **increase both production and production efficiency** per unit of land and water; that **meet the food and nutrition needs of the future**; and that also **greatly enhance ecosystem health** by regenerating soils, watershed and habitat for biodiversity at scale, while serving as a critical sink for greenhouse gases^{iv}.
- As reflected in the Sustainable Development Goals (SDGs) of the United Nations, we should **mobilize innovation across all elements and participants in the food and agriculture system**, unlocking solutions that meet the whole set of production, environmental and social well-being outcomes, rather than relying on predetermined technologies, production types or design components.

- **Adaptation strategies will require system approaches^v** that utilize a combination of improved efficiency, substitution (e.g. new crop varieties and breeds), and redesign/system transformation to reflexively respond to continuous short- and long-term changes in climate’s impacts on cultivated and natural ecosystem conditions.
- Climate smart agriculture knowledge and recommendations from farmers, businesses and peer-reviewed academic research **must be integrated into processes and investments**.
- **Context-specific priorities and solutions** must be aligned with national policies and priorities, be determined based on the social, economic, and environmental conditions at site (including the diversity in type and scale of agricultural activity), and be subject to evaluation of potential synergies, tradeoffs, and net benefits^{vi}.

The role of agriculture and the changing climate is currently being examined nationally and worldwide. As the U.S. seeks to create climate policy and supporting actions, NACSAA Guiding Principles propose a policy environment that enables potential synergies, tradeoffs and net benefits which agriculture can provide. **It is more important than ever that U.S. farmers be heard in policy development conversations.** Further, recognized, proven, science-based practices and systems must be judged without predetermined biases on an outcomes basis at every scale, and over a diversity of landscapes. Research and innovation must be continually encouraged with no single set of practices or systems privileged as a “silver bullet” solution, so each producer can choose how to most effectively craft their operation’s unique climate change response from an abundance of tools, resources and knowledge.

Roadmap

In response to the House Select Committee’s call, the Alliance – a wide range of voices, focuses, and viewpoints from across the North American agricultural industry – has developed a series of recommendations to raise up the importance of the CSA framework and NACSAA’s CSA Guiding Principles in policy development. **These suggestions are a collaborative effort by NACSAA’s partners** calling attention to the profound and critical role agriculture plays in bridging gaps in policy arenas from food security and nutrition, to energy and national security, to rural development and job creation, to environmental protection and climate mitigation.

The following roadmap consists of (roughly co-equal) actions which should be viewed as priorities, shown with accompanying supporting policies. Many other suggestions of equal value exist and have been represented in previous commentary to the House Select Committee and other platforms from individual NACSAA partners. As NACSAA’s CSA Guiding Principles state, these recommendations do not represent a single road for U.S. agriculture but multiple pathways to effectively address the changing climate. Together, they place America’s farms, ranches and forests at the forefront of resolving food system, energy, environmental and climate challenges and achieving global sustainable development goals.

Priority CSA Enabling Policies and Programs

1. ***Manage the Water Cycle:*** Acknowledge and prioritize through funding, infrastructure and practices the extreme variations in the hydrologic cycle marked by drought, evapotranspiration, increased and more intense precipitation events, erosive runoff, sediment transfers to rivers and oceans, and increasing degradation of soil and water resources. Changes in the water cycle are iteratively driven by changes in weather and climate, land uses and human land and water management leading to shifts in the timing, intensity and volume of rain and snow pack that in turn influence land surface erosion from flowing water, saturated and ponded soils, water storage capacity and flooding.
 - Review the roles of federal agencies in state water allocation procedures to avoid interference. Create a framework to better inform and defer to states, tribes and local government decisions regarding water allocation and use in light of changing climate impacts and uncertainties. Advocate for constructive ways in which the federal government can support and facilitate those decisions.
 - Evaluate the climate impacts to, and current and future capacity of, key or challenged reservoirs, levees and dams; rivers, floodplains and aquifers; wetlands and productive lands to respond to changing precipitation patterns and protect associated land uses.
 - Inventory and evaluate current infrastructure’s capacity to ensure safe, adequate, and reliable water supplies that can be conserved, reused, stored, treated, managed and distributed in a timely manner where they are needed.
 - Direct the Council on Environmental Quality (CEQ) to convene a broad-based stakeholder group to help develop a Federal climate change adaptation strategy for water resources that optimizes the authorities provided by the 2007 SECURE Water Act. Include strategies to develop and fund a body of climate-related, watershed-specific knowledge to inform planning and adoption of adaptive water management practices and infrastructure projects.
 - Provide state-forward coordination frameworks between federal agencies and states to monitor water resources and develop adaptive approaches to climate change and water management; to assess and offer grants and cooperative agreements to local water authorities, governments and universities; and to streamline and enable access, research, and development for to infrastructure solutions.

2. ***Financial Assistance and Incentives:*** Promote and assist voluntary, locally led, incentive-based conservation efforts which may vary by conservation district to avoid “one-size-fits-all” policies; especially support proven practices such as 4R nutrient stewardship, no-till and cover crops and on-farm technologies such as methane digesters.
 - Double the nation’s climate resilience investments into farms made through the 2018 Farm Bill and/or through such programs as the Agricultural Conservation Easement Program (ACEP), the Conservation Reserve Program (CRP), the Conservation Stewardship Program (CSP), the Environmental Quality Incentives Program (EQIP), the

Regional Conservation Partnership Program (RCPP), the Rural Energy for America Program (REAP) and the Watershed Planning and Flood Prevention Program (PL 83-566)

- Enroll an additional 100 million acres of farmland to federal working lands programs by 2030, with a focus on implementing sustainable practices to maximize ecosystem services and carbon sequestration as indicated by their outcomes in each specific geography.
 - Increase general funding for cost sharing of nutrient management, conservation tillage, cover crop, soil health and biogas programs administered through federal programming.
 - Create a Section 48 investment tax credit for nutrient recovery systems that can remove nitrogen and phosphorus particles from animal manure, and another, permanent investment tax credit for anaerobic digesters for multiple uses, as in the Agriculture Environmental Stewardship Act (H.R. 3744).
 - Expand federal tools, including the soil health provision in the 2018 Farm Bill, to incentivize and measure soil health improvements, improve protocols for measuring the gains in soil carbon from soil health improvements and support development of markets for soil carbon capture and storage.
3. **Technical Assistance:** Rebuild the capacity (both resources and staffing) of NRCS, state conservation agencies and local conservation districts to provide much needed technical assistance in writing and implementing CSA plans.
- Enable NRCS to expediently access technical knowledge available in the private sector to complement and expand staff reach and expertise.
 - Fully implement 2018 Farm Bill provisions intended to extend staff coverage, such as allowing qualified non-Federal entities to certify technical service providers.
 - Use contract representatives such as Certified Crop Advisors and agronomists to alleviate the backlog of requests for NRCS help.
 - Increase investments in NRCS and annual appropriations for the Conservation Technical Assistance (CTA) program and any other programs that help cost-share conservation practices for landowners.
4. **Investments in Infrastructure:** Catalog and facilitate priority repairs and upgrades to vital production and vulnerable inland waterways infrastructure, including levees, locks, dams, and other water systems as well as roads, bridges, waterways, rails, utilities and others. Enable the use of on-farm new technology through universal in-field wireless broadband connectivity.
- Invest in increasing the capacity of inland waterway infrastructure, including reservoirs, levees and dams; rivers, floodplains, wetlands and productive lands to respond to changing precipitation patterns and to meet the need for additional floodwater storage capacity and protection of priority land uses. Inventory and evaluate current

infrastructure's capacity to ensure safe, adequate, and reliable water supplies that can be conserved, reused, stored, treated, managed and distributed in a timely manner where they are needed.

- Expand and fully fund the existing USDA Rural Utilities Service programs such as the Broadband ReConnect Program, the Rural Broadband Access Loan and Loan Guarantee Program, and the Community Connect Grant Program. As examples of expansion, adding a planning grant section in the ReConnect program would help buy down the cost of application in irrigation districts where costs provide barriers to entry, and USDA, NRCS, and FSA could use its Pilot Program to incorporate tech trials and precision agriculture infrastructure into existing farm funding or loans.
 - Catalyze public-private partnerships between Internet providers, research institutions, data managers and precision ag technology providers to fully utilize modern agricultural equipment to minimize inputs and maximize productivity.
 - Explore strategies to provide relief for the approximately \$7 billion in outstanding Rural Utilities Service loans supporting coal power plants if rural electric cooperatives agree to shut down those plants and invest in renewable energy generation. Offer funds through reauthorization and revision of the Section 1603 "grants in lieu of tax credits" program that ran from 2009 to 2011 as part of the American Recovery and Reinvestment Act.
 - Provide for local-level participation in the development of adaptation strategies. Include the message "the means and resources necessary for agricultural self-sufficiency, including water supplies and related infrastructure for irrigated agriculture, must be protected and enhanced to enable them to adapt to and withstand the impacts of climate change" in any national climate change adaptation or implementation strategy.
 - Expand the United States Department of Energy's 242 program to provide a production incentive for all community-scale renewable energy projects, the revenue from which would be used to invest in modernizing irrigation water delivery systems (currently limited to hydropower); significantly increase funding for this program.
5. **Research:** Support and encourage system-level, integrated science research on climate risks; adaptation innovations; the economic value and effectiveness of CSA production practices; decision-making at farm and landscape level management, and methods to align market incentives with desired environmental practices and outcomes.
- Involve farmers and stakeholders in continuous purposeful multi-directional stakeholder-research-outreach-extension relationships to ensure research reflects the dynamic nature of shifting agricultural systems under climate change and stakeholder real-life priority challenges and opportunities.
 - Invest in research for technology and management tools aimed at more efficient application of fertilizers and other crop inputs, such as precision equipment and 4R nutrient stewardship; research in animal feed that is aimed at reducing livestock

emissions; public breeding programs to provide farmers with regionally adapted seeds and practices; and towards energy and emissions reduction practices and technologies.

- Expand the Conservation Innovation Grant through USDA NRCS and/or create other programs to support data collection to establish the impact of conservation practices on soil health and farmer economic sustainability.
- Assess potential mitigation and adaptation practices for agricultural lands, with a focus on soil health, and work to determine their economic viability, potential to maintain or intensify agricultural production, and carbon sequestration potential.
- Pursue new climate mitigation options for livestock producers including manure analysis and the use of manure to sequester carbon and improve soil health, as well as new approaches to livestock feed management and feed amendments that can reduce enteric emissions and subsequently reduce greenhouse gas emissions from livestock production.

6. **Risk Management:** Adaptation to changing weather and climate entails a suite of management strategies based on short and longer term production and conservation goals and perceptions of uncertainty and risk associated with changing conditionsⁱ. Adjust federal crop insurance programs to incentivize and expedite adoption of CSA practices to mitigate uncertainty and risks.

- Adopt crop insurance system changes to incentivize and reward growers for adopting and utilizing conservation practices and strengthen data management systems at USDA, enabling more comprehensive understanding of best management practices for risk mitigation.
- Require the Risk Management Agency and Federal Crop Insurance Corporation at USDA to consider the climate impact of practices when establishing policies and premiums. Recognize climate-smart practices with proven effectiveness in the relevant geography (such as cover cropping, crop rotation, alley cropping, integrated livestock-crop systems, etc.) as “good farming practices” that are “generally recognized” by agricultural experts.
- Offer discounts to federal crop insurance users whose practices offer de-risking opportunities. Allow financial regulators to use conservation practices (i.e. practices which indicate a foresighted manager) as a benchmark for determining the risk weighting of a borrower.
- Programmatically treat carbon-reduction practices as risk reducing.

7. **Decision-making and Capacity Building:** Integrate the results of research, farmer experiences and their articulated needs, and technology investments to develop accessible, pragmatic, and affordable decision-making approaches that utilize the range of low, mid, and high-tech tools and strategies, and effectively connect land managers at farm and landscape scales with data, knowledge and resources.

- Incentivize the development of tools, technologies, information and training that enables farmer decision makers to address complex farm-level and landscape-scale challenges (exacerbated by climate risks) and balance management for production, profitability and ecosystem integrity.
 - Put in place institutional processes for governments and other bodies to reevaluate and adjust policies and regulations based on producer input^{vii}. Create effective feedback mechanisms to alert policy makers to changing conditions, conflicting and ambiguous regulations, and unduly burdensome bureaucratic paperwork, and expedite policy updates that improve farmer decision making and uptake of innovative sustainable production approaches.
 - Involve and incentivize government, the private sector, and civil society collaborations to encourage agriculture and its value-chains to innovate and develop efficient, effective products in support of agricultural and ecosystem co-productivity.
 - Empower USDA's network of Climate Hubs to work with land grant university extension offices and other USDA agencies and partners. Fund these partnerships sufficiently to develop and deliver science-based, region-specific information and technologies to enable climate-informed decision-making by agricultural and natural resource managers.
 - Provide additional federal support to help states develop and implement comprehensive adaptive management and ecosystem service action plans to sustainably intensify production, enhance the resilience of agriculture and improve soil, water and other environmental resources and services.
8. ***Carbon Pricing Mechanisms:*** Support a carbon pricing mechanism that also provides payments to farmers for carbon fixation in their soil, with valuation contingent on science-based evidence for time length of capture (i.e. higher values for fixation 12 or more inches below the soil surface).
- Permit lenders to use carbon credits as part of a borrower's cash flow statement, allowing producers to include net GHG emission credits as income when applying for loans.
 - Quantify the carbon sequestration benefits of CSA practices such as manure injection to enable cover crop growth; further quantify the balance between greenhouse gas emissions and potential carbon sequestration in the agricultural sector.
9. ***Payments for Ecosystem Services:*** Support the development of quantified ecosystem benefits and a voluntary, market-based, private-sector funding mechanism/incentive for ecosystem services.
- Move to adjust U.S. agricultural cost assistance (via combined international support, public good investments, payments to producers, international trade policy in a carbon-

conscious future market, and other mechanisms) towards incentivizing climate adaptation and mitigation in agriculture and the broader food system. Take forward recommendations for scaling up and mainstreaming CSA, improve opportunities for leveraging further agricultural investments.

- Provide tax incentives for farmers who adopt conservation Best Management Practices (BMPs) and other emission and runoff mitigation practices on farm.
- Authorize tax incentives or federal transferable tax credits between landowners who own the land and farmers who lease the land for farming. Allow for an exchange of tax credits for climate mitigation best management practices.
- Revise the provisions of the USDA Conservation Reserve Program's 7 CFR § 1410.63 "Permissive Uses" to clearly articulate that "the sale of carbon, water quality, or environmental credits is permitted by CCC," instead of the current provision that indicates they "may be permitted."
- Permit the sale of ecosystem credits generated by farmer or rancher actions on federal lease land resulting from private actions.

10. **Clean Energy:** Pursue the reduction of carbon through market adjustments and production diversification opportunities to expand bio-based fuels for transportation and electricity production.

- Establish a national Low Carbon Octane Standard for light duty vehicle fuel (minimum 98 RON E25) resulting in -30% GHGs relative to baseline gasoline. Support the move to alternative fuels such as higher-level blends of ethanol (E20+) and B20 biodiesel for efficiency and air quality purposes.
- Make clear that all ethanol blends with gasoline are permitted under the Clean Air Act and require DOE to produce, within 90 days of enactment and in consultation with EPA, recommendations from the Co-Optima program on optimal liquid fuel blends for climate change, air quality, and public health.
- Uphold the integrity of the RFS to further reduce emissions in the transportation sector.
- Direct USDA to collaborate with the Department of Energy to develop regionally appropriate renewable energy sources and technologies; feed stocks for biofuels and other biomass energy sources; engines that run solely on ethanol; uses for distillers' grain; and production of fuels and fertilizers from renewable energy sources.
- Expand operational renewable natural gas production and methane recovery (either direct as scrubbed biogas to pipeline quality or generation of electricity) from livestock operations, crop production and other industries which produce organic waste. Mechanisms available include making further funding and educational opportunities available through EPA/USDA's AgSTAR program, enabling ag/energy industry partnerships and adding compliance targets for organic waste to renewable energy portfolio standard laws.

Conclusion

U.S. systems of agriculture, our soils, waters and ecosystem resources, and our rural communities and landscapes are vulnerable to increasingly extreme variations in weather and a changing climate. These ten priorities, developed from collective dialogues among US farmers and their value chain partners, have huge potential **to increase agricultural sustainability and resiliency to climate disruptions and the inevitable shocks to productivity, ecosystems, markets, livelihoods and global food systems.** To address these challenges and prepare for new opportunities that climate change brings, these policy recommendations focus on managing the water cycle, financial assistance and incentives, technical assistance, investments in infrastructure, research, risk management, producer decision-making and capacity building, a carbon pricing mechanism, payments for ecosystem services, and clean energy.

The U.S. agriculture sector leads the world in productivity, innovation, technologies, and cutting-edge science. The 2020 [USDA Science Blueprint](#) acknowledges the challenge and urgency for the government to increase its investments in U.S. agriculture:

"Ensuring that agricultural lands, national forests, and private working lands are conserved and restored makes agriculture production more resilient to climate change and other disturbances such as drought, invasive species, and wildfire. Further, based on the best available science, new strategies and management practices must be developed to allow unmanaged and managed systems to be fully leveraged to mitigate and address climate change. While mitigation is a priority, agricultural systems must nonetheless adapt to the changing weather patterns and temperature regimes to ensure food security."

Continued U.S. leadership is critical if an emerging agricultural renaissance that transforms how we produce food, fuel, fiber, beneficial environmental outcomes, and robust rural livelihoods is to be fully realized. This renaissance, growing out of the climate crisis, will need a far-reaching vision, adjustments to current practices, and a redesign of policies that guide how we manage our agricultural landscapes.

Through visionary policy implementation and regulatory certainty going forward, the U.S. government can help U.S. producers set an example of the progress that can be made towards addressing sustainable development goals on a global scale. Once again, the NACSAA partnership expresses thanks to the House Select Committee on the Climate Crisis for the opportunity to offer suggestions and recommendations from the collective voice of the North American agricultural industry. Should further information be required, please reach out to NACSAA through its coordinating body [Solutions from the Land](#) at the Committee's earliest convenience.

Together, farmers can take the lead in action against climate change as they create and present the scalable solutions that can only come from the land.

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List of Terms

North America Climate Smart Agriculture Alliance (NACSAA): a diverse group of agricultural thought leaders and organizations from across the continent, who have joined together to create a platform for inspiring, educating, and equipping agricultural partners to innovate effective local adaptations to climate challenges.

United Nations Framework Convention on Climate Change (UNFCCC): an international environmental treaty with the objective to “stabilize greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system.”

Koronivia Joint Work on Agriculture (KJWA): the UNFCCC’s first ever agricultural work program to shape how countries address agriculture in planning and implementing their greenhouse gas emissions goals.

Climate Smart Agriculture (CSA): a foundational framework for any agricultural climate strategy.

Pillar One: *Sustainable intensification of production and ecosystem integrity*

Pillar Two: *Adaptations that build resiliency*

Pillar Three: *Systems that allow farmers to sequester carbon or reduce greenhouse gas emissions and simultaneously improve profitability*



North America Climate Smart Agriculture Alliance Partners (2020)

- 25x'25 Alliance
- Advanced Biofuels USA
- Agricultural Retailers Association
- American Coalition for Ethanol
- American Farm Bureau Federation
- American Farmland Trust
- American Seed Trade Association
- American Society of Agricultural and Biological Engineers
- American Society of Agronomy
- American Soybean Association
- Association of Equipment Manufacturers
- Association of Public and Land-Grant Universities
- Bayer
- Biotechnology Innovation Organization
- Business for Social Responsibility
- Canadian Federation of Agriculture
- Canadian Forage and Grassland Association
- Council for Agricultural Science & Technology
- Cater Communications
- Center for Climate and Energy Solutions
- Conservation Technology Information Center
- Cornell Institute for Climate Smart Solutions
- Crop Science Society of America
- CropLife America
- Cultivating Resilience
- EcoAgriculture Partners
- Environmental and Energy Study Institute
- Environmental Defense Fund
- Farmers Conservation Alliance
- Family Farm Alliance
- Farm Foundation
- Farm Journal Foundation
- Farm Management Canada
- Fertilizer Canada
- Field to Market
- Florida Climate Institute (FCI)
- Genscape Inc. Un of Illinois Chicago
- ILSI Research Foundation
- Innovation Center for U.S. Dairy
- Iowa Soybean Association
- Iowa State University
- Irrigation Association
- Kellogg Company
- National Association of Conservation Districts
- National Corn Growers Association
- National Farmers Union
- National FFA Foundation
- National Pork Producers Council
- Native Pollinators in Agriculture Project
- OCP North America, Inc.
- Ontario Federation of Agriculture
- Soil and Water Conservation Society
- Soil Health Institute
- Solutions from the Land
- Southeast Climate Consortium (SECC)
- Sustainable Corn Coordinated Agriculture Project
- Syngenta
- The Fertilizer Institute
- The Mosaic Company
- The Samuel Smith Noble Foundation
- The Toro Company
- United Nations Foundation
- United Soybean Board
- University of Florida
- U.S. Department of Agriculture
- U.S. Farmers & Ranchers Alliance
- Western Growers Association
- World Business Council for Sustainable Development
- World Wildlife Fund