agInnovation Spring Business Meeting

Wednesday, March 5, 2025
2:00 to 4:00 pm ET (Zoom)

AGENDA

Time	Item #	Topic	Presenter
2:00	1.0	**Chair's Welcome**	Steve Lommel
2:05	2.0	**agInnovation Research Roadmap**	Steve Lommel
	2.2	Reflections on the process	George Smith
	2.3	Revised Roadmap Pillars	Steve Lommel
	2.4	Discussion	Membership
2:35	3.0	**Integrated LGU Roadmap**	Steve Lommel
	3.1	Power of a Unified Message to Congress	Elizabeth Stulberg
	3.2	Extension Roadmap	Vonda Richardson
	3.3	Academic Programs	Claus Tittiger
	3.4	Next steps: Governance Committee Communications consultant Stakeholder roundtables	Steve Lommel
	3.5	Discussion	Membership
3:15	4.0	**Roadmap Implementation**	
	4.1	STC – Implementation activities	Nathan Slaton
	4.2	BLC – Implementation activities	Gary Pierzynski
3:30	5.0	**Other Business**	
	5.1	DCC Discussion	Nina Lyon-Bennett
	5.2	agInnovation Rules of Operation - vote	Rick Rhodes
4:00		**Adjourn**	

Upcoming agInnovation Meetings:

- July 14-16, 2025: BAA Leadership Summer Meeting, TBA
- September 15-18, 2025: agInnovation Annual Meeting, Milwaukee, WI (Joint with Cooperative Extension)

MEETING NOTES

Attendees: Alton Thompson, Amir Ibrahim, Beth K. Gugino, Blair Siegfried, Brent Hales, Bret Hess, Carrie Schumacher, Chris Smart ,Christina Hamilton, Cindy Morley, Claus Tittiger, Chandra Reddy, Damian Adams, David Leibovitz, David Monks, Derek McLean, Desmond Mortley, Dominique Foster, Donkin, Shawn, Doug Steele, Dr. Shirley Hymon-Parker, Elizabeth Stulberg, Erdogan Memili, Frank Camacho, Gary Pierzynski, Gary Thompson, Gene Kelly, George W Smith, Glenda Humiston, Greg Cuomo, Gregory Goins, Holly Neibergs, Hongwei Xin, Hector Santiago, Harsha Thippareddi, James Averill, James Matthews, Jane Schuh, Janine Woods, Jason Hubbart, Jeanette Thurston, Jeffrey Dean, Jennifer Horton, JF Meullenet, Jodie Anderson, John Blanton, John Davis, Joleen, Joleen C Hadrich, Jose U. Toledo, Kevin Kephart, Kristel Smith, Lara Prihodko, Laura Carson, Lee Hecker, Lesley Oliver, Leslie Edgar, Lisa Williamson, Lisa Townson, Manoj Nair, Marikis N Alvarez, Mary Burrows, Matt Powell, Mike Salassi, Moses Kairo, Nathan A Slaton, Nina Lyon-Bennett, Obadiah Njue, Paula Agudelo, Puneet Srivastava, Renita Marshall, Rich Bonanno, Rick Rhodes, Robert Gilbert, Rodney Johnson, Ron Turco, Rubella Goswami, Scott Senseman, Scott Willard, Shafiqur Rahman, Shibu Jose, Shirley Hymon-Parker, Siddhartha Dasgupta, Sreekala Bajwa, Steve Zeng, Steven Lommel, Sushil Adhikari, Tim Rials, Tommeron D. Timmons, Troy Runge, Vagner Benedito, Vonda Richardson, Walter Bowen, Wendie Cohick, Wendy Fink, Zhao

Key Takeaways

- The research roadmap has evolved into 3 pillars (sustainable food systems, resilient lands, water resilience) with cross-cutting themes of workforce development and national security
- A unified approach integrating research, extension, and academic programs is needed to create a cohesive "ask" and messaging strategy
- The Diversity Catalyst Committee recommended pausing DEI-specific activities and language due to current political climate
- Updated rules of operation were approved, including changes to committee structures and decision-making processes

Topics

Research Roadmap Development

- Originally initiated by George Smith to reorient funding discussions around societal issues
- Extensive stakeholder engagement (60+ meetings) to refine pillars and goals
- Current pillars: sustainable food systems, resilient lands, water resilience
- Cross-cutting themes: workforce development, national security
- Specific, measurable outcome goals defined for each pillar
- Risks of inaction articulated to strengthen case for investment

Extension Integration

- Extension developed parallel roadmap with 6 priority areas
- Significant overlap with research pillars, especially in areas like nutrition/health
- Opportunity to integrate extension priorities into unified land-grant roadmap
- 4-H highlighted as key component of workforce development pipeline

Academic Programs Alignment

- USDA projecting 59,400 new ag/natural resource job openings annually through 2025
- Gap between graduates and job openings expected to grow
- Challenge in directly mapping academic programs to roadmap pillars
- Need to determine the relative proportion of new graduates needed for each pillar's goals

Unified Messaging Strategy

- Elizabeth Stulberg (LBA) emphasized the importance of single, cohesive message
- Recommended focusing on hope, demonstrable impact, and a singular ask
- Suggested framing around societal benefits (e.g. health, economic impact)
- Need to tailor messaging to different stakeholders while maintaining core themes

Implementation Planning

- Governance committee was formed to integrate research, extension, academic components
- Communications consultant to be hired to develop messaging strategy
- Stakeholder roundtables planned for Q2/Q3 2025
- Science & Technology and Budget & Legislative committees to support implementation

Diversity, Equity & Inclusion Considerations

- Diversity Catalyst Committee recommended pausing DEI-specific activities/language
- Decision made to protect funding and partnerships in current political climate
- Core values of access, unity, equality remain fundamental but less explicitly stated
- Hope expressed to reactivate these initiatives when political landscape shifts

Next Steps

- Complete integrated roadmap documents in Q1 2025
- Hire communications consultant and develop unified messaging strategy
- Conduct stakeholder roundtables in Q2/Q3 2025
- Present unified roadmap at BAA Summer Leadership meeting
- Launch advocacy efforts at CARET/AHS meeting in February 2026
- STC to validate aspirational goals and develop ROI information
- BLC to incorporate roadmap into budget justifications and funding strategies

Approvals and Votes

Agenda distributed on February 19 & 27 was modified by the chair moving the agInnovation Rules of Operation discussion and vote to the end of the agenda following the DCC discussion.

Agenda was approved by acclamation

Minutes from September 25, 2024, agInnovation Fall Business Meeting hosted by North Carolina State University were distributed with the agenda on February 27.

Minutes were approved by acclamation

Motion made by the Diversity Catalyst Committee and seconded by Sreekala Bajwa to accept the "Recommended Actions" in the following document entered into the minutes of this meeting.

Motion was passed unanimously

Motion made by Chris Smart and seconded by Glenda Humiston to suspend the rules to allow the modification of the Rules of Operation to the Diversity Catalyst Committee from the agInnovation Rules of Operation without the 30-day notification.

Motion was passed unanimously

Motion was made by JF Meullenet and seconded by Shirley Hymon-Parker to accept the modifications and updates of the agInnovation Rules of Operation (distributed January 2025).

Motion was passed unanimously.

Meeting adjourned at 4:00 ET.

Recommendation of the Diversity Catalyst Committee to agInnovation: March 5, 2025

The Diversity Catalyst Committee met on February 27 to discuss the framing of a recommendation to agInnovation pertaining to diversity, equity, and inclusion (DEI) activities of the Section. The discussion was initiated by the recent Presidential Executive Order, Ending Radical and Wasteful Government DEI Programs and Preferencing and similar legislative actions at the state level that restrict DEI efforts within publicly funded institutions.

Context and Rationale:
In light of these federal and state restrictions, the Committee has assessed the potential impact on the Section's DEI activities, particularly concerning funding from agencies such as the USDA. As such, the recommended actions are intended to **mitigate financial and institutional risks** that could arise from noncompliance with new policies while preserving the Section's long-standing partnership with the USDA and its extramural funding arm, the National Institute for Food and Agriculture (NIFA).

Importantly, the recommended actions are **not a renouncement or abandonment of our core values**—access, fairness, unity, and equality remain fundamental to our work. These values were and will continue to be foundational to the Land-grant University system. Alternatively, the actions are a strategic decision to ensure collective stability, standing together, and safeguarding all members from potential punitive consequences.

Recommended Actions:
- Curtail the call for nominations for the National agInnovation Diversity, Equity, and Inclusion Awards (individual and group).
- Scale back the activities of the Diversity Catalyst Committee.
- Remove the Diversity Catalyst Committee page from the ESCOP/agInnovation website.
- Remove the pages on the agInnovation website that refer to diversity, equity, and inclusion.
- Remove "Promote Diversity, Equity, and Inclusion" from the Chair's initiatives.
- Remove the Diversity Catalyst Committee from the agInnovation Rules of Operation.

These actions aim to align agInnovation's operations with the current policy landscape while reinforcing our commitment to collaborative progress.

Revision of the RULES OF OPERATION: agInnovation
January 15, 2025

Below is a brief explanation of changes made to the Rules of Operation of the Experiment Station Section and the Experiment Station Committee on Organization and Policy (ESCOP), now known as agInnovation.

- The Rules of Operation (last revised March 2023) were updated to include the name of the new organization, agInnovation, and the regional associations of agInnovation. References to ESCOP were eliminated, and agInnovation was co-defined as "the Section". Likewise, the Rules were revised to reflect the ways that business is conducted by the organization.

- Seven standing committees were identified as important entities for agInnovation, and these include: an Executive Committee, Budget and Legislative Committee, Diversity Catalyst Committee, Finance Committee, National Plant Germplasm Coordinating Committee, National Research Support Project Review Committee, and Science and Technology Committee.

- The agInnovation Executive Committee in the revised Rules of Operation is a decision-making body that is best characterized as a streamlined "ESCOP". (In the original Rules of Operation, ESCOP was defined as the Executive Committee of the Experiment Station Section and Rules also described an Executive Committee for ESCOP.) The Chair's Advisory Committee was removed from the Rules and is considered an ad hoc committee convened by the agInnovation chair.

- For all leadership positions, terms of the positions are defined as well as roles, responsibilities, and, where applicable, procedure for nomination, confirmation, and election. Likewise, for each of the standing committees, membership and membership terms are defined as well as committee member roles. Roles, responsibilities, and terms are all consistent with the ways that agInnovation currently engages in business.

- New items captured in the revised Rules of Operation include reference to agInnovation's 501(c)(3) non-profit and the relationship between agInnovation (the organization) and the non-profit. The revised Rules also allow the agInnovation Chair to request expenditures of not more than $5,000 with a maximum total of $20,000 (i.e., 4 requests at $5,000 each) for a calendar year with approval by a simple majority of the Finance Committee. Expenditures greater than $5,000 and less than $20,000 can be approved by a simple majority of the Executive Committee. Expenditures of greater than $20,000 require approval by a majority of agInnovation.

2025-2035 agInnovation Roadmap

A Critical Crossroads for the Nation:

The United States faces an urgent crisis that threatens its agricultural leadership, food security, and economic stability. Increased productivity through innovation has long driven U.S. agriculture's success, but declining public investment now jeopardizes this progress. Nobel and World Food Prize laureates warn that without substantial, strategic investment in agricultural science, the world risks a catastrophic "mismatch of global food supply and demand by mid-century."[1] Immediate action is essential to maintain U.S. competitiveness, preserve environmental resources, and ensure a safe, abundant, and affordable food supply for everyone.

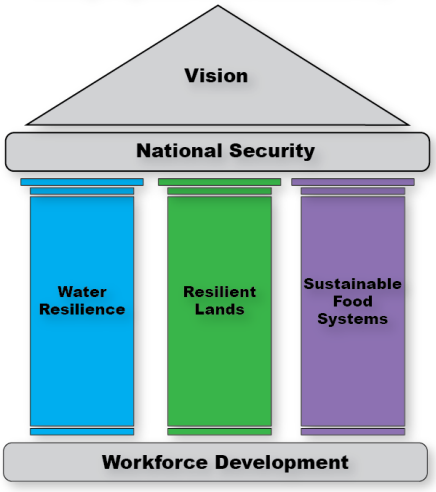
Public investment in agricultural research has plummeted by a third since peaking in 2002, reverting to 1970s levels by 2019. Meanwhile, competitors like China have surged ahead, surpassing U.S. funding of agricultural research and development. Despite delivering $20 in economic benefits for every $1 invested, federal funding has steadily declined, eroding the nation's ability to compete and innovate.[2] The stakes are too high to ignore. Global competition, geopolitical instability, pandemics, and extreme weather events are placing unprecedented strain on the nation's food systems, public health, and economy. The U.S. must act now to reinvest in food and agricultural innovation, ensuring a resilient and secure future for all.

An Outcomes-Driven Roadmap for the Nation:

To respond to the critical challenges our nation and agricultural sectors face, Land-grant University leaders developed a 10-year platform with clear goals and ambitious science outcomes aimed at addressing land resilience, water security, and sustainable food systems. This roadmap includes:

- Bold stakeholder-informed goals that enhance national security through strategic research and Extension.
- Innovative strategies to equip the next generation of agricultural professionals with the skills needed to address future challenges.
- Plans to foster strategic public and private partnerships to drive the adoption of innovative solutions.
- Innovative funding strategies and plans to ensure accountability and maximize impact.

"A world where people and the planet thrive through agInnovation and discovery"



The Role of Land-Grant Universities (LGUs):

LGUs are uniquely equipped to tackle today's challenges through their integrated mission of research, education, and Extension. Their work has both national and global impact, driving collaboration, scientific exchange, and resource sharing to address pressing agricultural issues. Agricultural Experiment Stations and Cooperative Extension Service provide critical leadership in developing stakeholder-driven, science-based solutions that enhance agricultural productivity, sustainability, public health, water resources, and environmental protection—while training future generations of agricultural leaders. Notably, LGUs and other non-federal institutions conduct approximately 70% of publicly funded agricultural research and development, highlighting their essential role in driving innovation.

A National Imperative: Public Investments in Agricultural Research, Extension, and Education:

Addressing the critical societal challenges facing the U.S. and the world demands a bold and immediate increase in federal investment in Land-grant University agricultural research, Extension, and education. Without significant funding over the next decade, the nation's ability to secure water resources, advance agricultural sustainability, and safeguard public health and the environment will be at serious risk. To build a resilient and sustainable future, it is crucial to prioritize and expand public support across a diverse range of grant programs. While USDA capacity and competitive grant programs—including research infrastructure—should be the primary focus, aligned funding opportunities across other federal agencies must also be leveraged to achieve the roadmap goals.

[1]Hunger's Tipping Point: An Urgent Call to Transform Food and Nutrition Security. https://www.worldfoodprize.org/en/laureates/laureate_letter/. World Food Prize Foundation.

[2]Investment in U.S. Public Agricultural Research and Development has Fallen by a Third Over Past Two Decades, Lags Major Trade Competitors. https://www.ers.usda.gov/amber-waves/2022/june/investment-in-u-s-public-agricultural-research-and-development-has-fallen-by-a-third-over-past-two-decades-lags-major-trade-competitors. USDA Economic Research Service.

Sustainable Food Systems

Overview:

United States food and national security depend on transformative innovations driven and delivered by Land-grant University research and Extension to build a resilient and adaptable food system. By advancing diverse approaches in production, processing, and distribution across regions, food supply chains in all agricultural and food sectors are strengthened, reducing the risk of disruptions. Delivering these innovations creates a food system that meets current needs while preparing for future challenges—ensuring it remains economically resilient, socially equitable, and environmentally sound, securing the nation's food supply for generations to come.

Outcome Goals and Impacts:

- Achieve national and local food security by producing 95% of our food domestically, increasing local and regional farm net incomes by 20%, and reducing food waste by 50%.
- Bolster supply chain resilience by strengthening local and regional markets to meet 15% to 25% of local demand, reducing the carbon footprint of food transportation by 25%, and expanding the bioeconomy.
- Reduce food insecurity by cutting the number of U.S. households experiencing low food security by 50%.
- Decrease diet-related diseases by 40% in all communities.
- Safeguard the food supply with a 50% increase in agricultural biosecurity through the creation and adoption of tactics to prevent foodborne contaminants, minimize plant and animal disease outbreaks, and manage pests from production to consumption.

Crosscutting Education Outcome Goal:

Workforce Development: Annually train an additional XX college students and XX 4-H members in food, agriculture, and renewable natural resources to meet the increasing demand for a skilled workforce. Recruitment efforts will focus on engaging youth and adult learners from diverse backgrounds and experiences.

Funding Requirement:

America's future prosperity relies on Land-grant Universities delivering groundbreaking discoveries for a resilient, sustainable tomorrow. Achieving this requires bold investments in USDA capacity and competitive funding and aligned federal programs.

Opportunities:

- **Promote innovation** across the agricultural continuum and advance strategies for regionally focused agriculture.
- **Enhance sustainability** by conducting cost-benefit, life cycle, environmental impact, and social cost-benefit analyses to assess improvements in local, regional, national, and international food systems and implement the results.
- **Reduce waste** by repurposing agricultural byproducts, extending product shelf life, implementing sustainable packaging, and educating stakeholders to minimize waste from field to retailer, thereby enhancing food security.
- **Encourage healthier lifestyles** by promoting science-based solutions, increasing access to affordable, nutritious, and safe food, and expanding education to support individuals in adopting healthier habits.
- **Ensure food safety** by developing and adopting new surveillance tools and approaches for early detection of pests, diseases, and pathogens across the food chain.
- **Improve crop and livestock genetics** to increase nutritional value and enhance resistance to pests and diseases in commodity crops, fresh fruits, vegetables, and livestock, and train local producers on deploying new technologies that take advantage of new and changing environments.
- **Adapt to change** by developing and deploying technologies and innovations that address environmental shifts and the evolving agricultural labor force.

Risks of Inaction:

Food system failures and disruptions threaten national security. Without increased investment, the U.S. risks falling behind in developing and delivering resilient, sustainable, and efficient farm-to-table practices. This stagnation could lead to increased food supply interruptions, food waste, food insecurity and hunger, foodborne diseases, economic instability, and a growing reliance on costly imports. Ultimately, a lack of innovation jeopardizes national security, food security, global economic competitiveness, health, and the stability of rural communities.

Resilient Lands

Overview:

As a global leader in agricultural production, the United States must strengthen the resilience of its agriculture and natural resources to better withstand the growing challenges of variable weather and extreme events. This requires production practices that regenerate soil, conserve water, and support biodiversity and community resilience. By adopting soil health principles, innovative technologies, and climate-resilient practices driven and delivered by Land-grant University research and Extension, we can safeguard natural resources and advance U.S. agriculture, enhancing resilience and bolstering national food and nutrition security.

Outcome Goals and Impacts:

- Enhance yield stability, improve soil health, boost energy efficiency, and increase soil carbon sequestration, while integrating renewable energy—together driving a 40% reduction in agriculture's carbon footprint through innovation and best practices.
- Drive innovation in nitrogen fertilizer use efficiency, minimizing nutrient runoff reduction, and optimizing crop nitrogen utilization while supporting producers in adopting sustainable management practices that collectively lower production costs and reduce greenhouse gas emissions by 35%.
- Foster new forestry land management, land cover, and harvesting approaches that promote healthy forests resilient to fire and extreme weather events, while increasing by 20% annually the number of forest owners with management plans to support healthy forests capable of absorbing 30% of economy-wide carbon dioxide emissions each year.
- Improve the adoption of practices to enhance the resilience of agriculture, rangeland, and forest ecosystems by developing adaptive land management plans to optimize production amid variable and extreme weather, reducing federal crop insurance costs by 25% ($3.5 billion).
- Improve infrastructure and emergency planning to reduce the devastating financial impact of extreme weather events on communities.

Crosscutting Education Outcome Goal:

Workforce Development: Annually train an additional XX college students and XX 4-H members in food, agriculture, and renewable natural resources to meet the increasing demand for a skilled workforce. Recruitment efforts will focus on engaging youth and adult learners from diverse backgrounds and experiences.

Funding Requirement:

America's future prosperity relies on Land-grant Universities delivering groundbreaking discoveries for a resilient, sustainable tomorrow. Achieving this requires bold investments in USDA capacity and competitive funding and aligned federal programs.

Opportunities:

- **Identify innovative agronomic practices** that enhance nitrogen use efficiency, soil fertility, structure, and resilience, while deepening our understanding of soil composition and processes.
- **Reduce barriers to collaboration** among farmers, land managers, communities, researchers, and policymakers to increase engagement and accelerate the adoption of grassroots innovations for adaptation and resilience.
- **Develop infrastructure and response plans** to improve the resiliency of rural and urban communities.
- **Develop accurate metrics** to quantify greenhouse gas emissions, carbon sequestration, water usage, and biodiversity, integrating long-term weather modeling and scenario simulations to strengthen the resilience of agriculture and natural resource systems.
- **Apply gene-editing techniques** to create climate-resilient crops and livestock (e.g., improved water use efficiency, drought tolerance, heat tolerance), and develop feeds to reduce methane emissions from livestock.

Risks of Inaction:

From escalating wildfires to droughts and floods, agriculture and our communities are already grappling with the effects of variable weather and extreme events. Without adaptation, these challenges will intensify, resulting in lower crop yields and greater harm to livestock, forests, fisheries, and communities. Biodiversity will decline as resistant weeds, pests, diseases, and wildfires become more widespread, disrupting ecosystems and agricultural productivity. The degradation of water, air, and soil quality will worsen, leading to severe consequences for food security, human and animal health, and environmental sustainability.

Water Resilience

Overview:

Reliable access to safe water is fundamental to agriculture, public health, and environmental sustainability, serving as a cornerstone for food and national security. Land-grant Universities must lead efforts to build water resilience through research, education, and Extension initiatives that boost productivity, enhance water efficiency, protect water quality, and promote conservation practices. As floods and droughts intensify, advancing innovative technologies and ensuring equitable access to water resources are critical. Land-grant Universities are uniquely positioned to drive focused efforts that address these pressing challenges, securing water resources for diverse landscapes and generations to come.

Outcome Goals and Impacts:

- Increase water use efficiency by 50% across food and agricultural systems, including production and processing.
- Reduce water quality impairments—such as elevated nutrients, pathogens, bacteria, sediment, and pesticides—by 40% within agricultural watersheds to protect domestic water supplies and public health.
- Strengthen agricultural system resilience by reducing production losses from waterlogging, flooding, and drought by 50%.

Opportunities:

- **Create a multi-year strategy** that integrates innovative practices, Extension programs, and water monitoring to inform policy interventions aimed at improving agricultural water use efficiency and utilization of nontraditional water sources, resilience to floods and droughts, water quality, accessibility, and ecosystem services.
- **Promote water-efficient, flood- and drought-resilient agricultural systems** by advancing best practices, tools, and Extension programs for improving crop and livestock productivity and water conservation, reuse, and quality.
- **Collaborate with communities and public officials** to develop strategies addressing water accessibility challenges.

Crosscutting Education Outcome Goal:

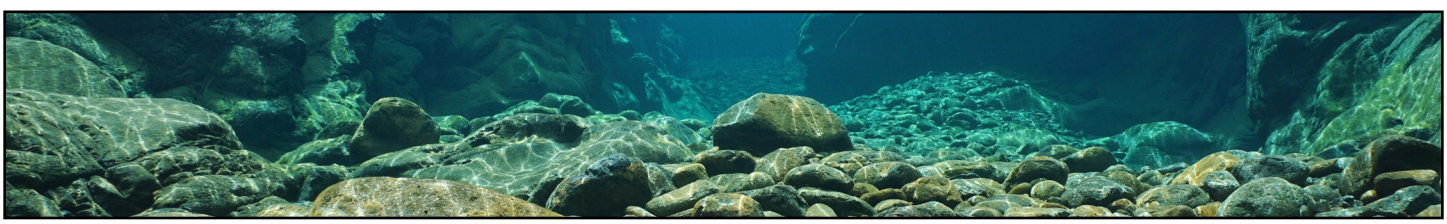
Workforce Development: Annually train an additional XX college students and XX 4-H members in food, agriculture, and renewable natural resources to meet the increasing demand for a skilled workforce. Recruitment efforts will focus on engaging youth and adult learners from diverse backgrounds and experiences.

Funding Requirement:

America's future prosperity relies on Land-grant Universities delivering groundbreaking discoveries for a resilient, sustainable tomorrow. Achieving this requires bold investments in USDA capacity and competitive funding and aligned federal programs.

Risks of Inaction:

Reduced water availability will impact drinking water supplies and household use in both rural and urban communities, while also constraining agricultural production. Declining river water levels will reduce navigable waterways, disrupt transportation, increase shipping costs, and weaken farmers' competitiveness in global markets. Furthermore, lower water levels in streams and lakes will harm wildlife, recreation, and tourism, placing additional strain on local economies and ecosystems. Increased groundwater withdrawal will worsen land subsidence, damaging infrastructure such as roads, bridges, levees, and water wells, which imposes significant financial burdens, reduces flood protection, and diminishes aquifers' capacity to store water. Simultaneously, the degradation of water quality for drinking, irrigation, and recreation will pose serious risks to public health.



Resilient Lands and Water

Overview:

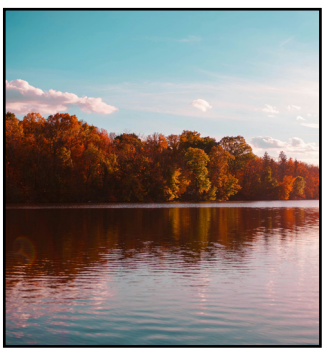
As a global leader in agricultural production, the United States must strengthen the resilience of its agriculture and natural resources to withstand the growing challenges of variable weather and extreme events. This requires practices that regenerate soil, conserve water, support biodiversity, and ensure community resilience. By adopting soil health principles, innovative water efficiency and quality practices, advanced technologies, and climate-resilient approaches—driven and delivered by Land-grant University research and Extension—we can safeguard natural resources, secure water supplies across diverse landscapes, and strengthen U.S. agriculture, enhancing resilience and bolstering national food and nutrition security.

Outcome Goals and Impacts:

- Enhance yield stability, improve soil health, boost energy efficiency, and increase soil carbon sequestration, while integrating renewable energy—together driving a 40% reduction in agriculture's carbon footprint.
- Drive innovation in nitrogen fertilizer use efficiency, minimizing nutrient runoff reduction, and optimizing crop nitrogen utilization while supporting producers in adopting sustainable management practices that collectively lower production costs and reduce greenhouse gas emissions by 35%.
- Increase water use efficiency by 50% across food and agricultural systems, including production and processing, and reduce water quality impairments by 40% to protect domestic water supplies and public health.
- Foster new forestry land management, land cover, and harvesting approaches that promote healthy forests resilient to fire and extreme weather events, while increasing by 20% annually the number of forest owners with management plans to support healthy forests.
- Improve the adoption of practices to enhance the resilience of agriculture, rangeland, and forest ecosystems by developing adaptive land management plans to optimize production amid variable and extreme weather, reducing losses from waterlogging, flooding, and drought by 50% and federal crop insurance costs by 25% ($3.5 billion).
- Improve infrastructure and emergency planning to reduce the devastating financial impact of extreme weather events on communities.

Crosscutting Education Outcome Goal:

Workforce Development: Annually train an additional XX college students and XX 4-H members in food, agriculture, and renewable natural resources to meet the increasing demand for a skilled workforce. Recruitment efforts will focus on engaging youth and adult learners from diverse backgrounds and experiences.



Funding Requirement:

America's future prosperity relies on Land-grant Universities delivering groundbreaking discoveries for a resilient, sustainable tomorrow. Achieving this requires bold investments in USDA capacity and competitive funding and aligned federal programs.

Opportunities:

- **Identify innovative agronomic practices** that enhance nitrogen use efficiency, soil fertility, structure, and resilience, while deepening our understanding of soil composition and processes.
- **Reduce barriers to collaboration** among farmers, land managers, communities, researchers, and policymakers to increase engagement and accelerate the adoption of grassroots innovations for adaptation and resilience.
- **Collaborate with communities and public officials** to develop infrastructure and response plans to improve the resiliency of rural and urban communities.
- **Develop accurate metrics** to quantify greenhouse gas emissions, carbon sequestration, water usage, and biodiversity, integrating long-term weather modeling and scenario simulations to strengthen the resilience of agriculture and natural resource systems.
- **Apply gene-editing techniques** to create climate-resilient crops and livestock (e.g., improved water use efficiency, drought tolerance, heat tolerance), and develop feeds to reduce methane emissions from livestock.
- **Create a multi-year strategy** that integrates innovative practices, Extension programs, and water monitoring to inform policy interventions aimed at improving agricultural water use efficiency and utilization of nontraditional water sources, resilience to floods and droughts, water quality, accessibility, and ecosystem services.
- **Promote water-efficient, flood- and drought-resilient agricultural systems** by advancing best practices, tools, and Extension programs for improving crop and livestock productivity and water conservation, reuse, and quality.

Risks of Inaction:

From escalating wildfires to droughts and floods, agriculture and our communities are already grappling with the effects of variable weather and extreme events. Without adaptation, these challenges will intensify, resulting in lower crop yields and greater harm to livestock, forests, fisheries, and communities. Biodiversity will decline as resistant weeds, pests, diseases, and wildfires become more widespread, disrupting ecosystems and agricultural productivity. The degradation of water, air, and soil quality will worsen, leading to severe consequences for food security, human and animal health, and environmental sustainability.