BIOENERGY, CLIMATE, AND ENVIRONMENT
FOOD PRODUCTION AND SUSTAINABILITY
YOUTH, FAMILY, AND COMMUNITY
FOOD SAFETY AND NUTRITION
INTERNATIONAL PROGRAMS

NIFA

Science to Practice: NIFA Deploys Food and Agriculture Defense Initiative Programs to Strengthen U.S. Food and Agriculture Sector

CBTS Seminar| March 8, 2023

INVESTING IN SCIENCE | SECURING OUR FUTURE | WWW.NIFA.USDA.GOV

Introductions

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Presentation Overview

- Critical Infrastructure: *Food and Agriculture*
- Policy Directives and Interagency Process
- U.S. Department of Agriculture: *The People's Department*
- USDA National Institute of Food and Agriculture
- NIFA Food and Agriculture Defense Initiative
- NIFA Security/Disaster Related Competitive Opportunities
- Applying for NIFA Funding Opportunities
- Questions and Comments

National Institute of Food and Agriculture

U.S. DEPARTMENT OF AGRICULTURE

Critical Infrastructure:

Food and Agriculture

Background and Approach

Why: Food and agriculture sector represents 5.5% of the Gross Domestic Product yet it involves **vast and open systems**, a **diverse farm-to-fork continuum**, and is **susceptible** to a wide range of threats and hazards

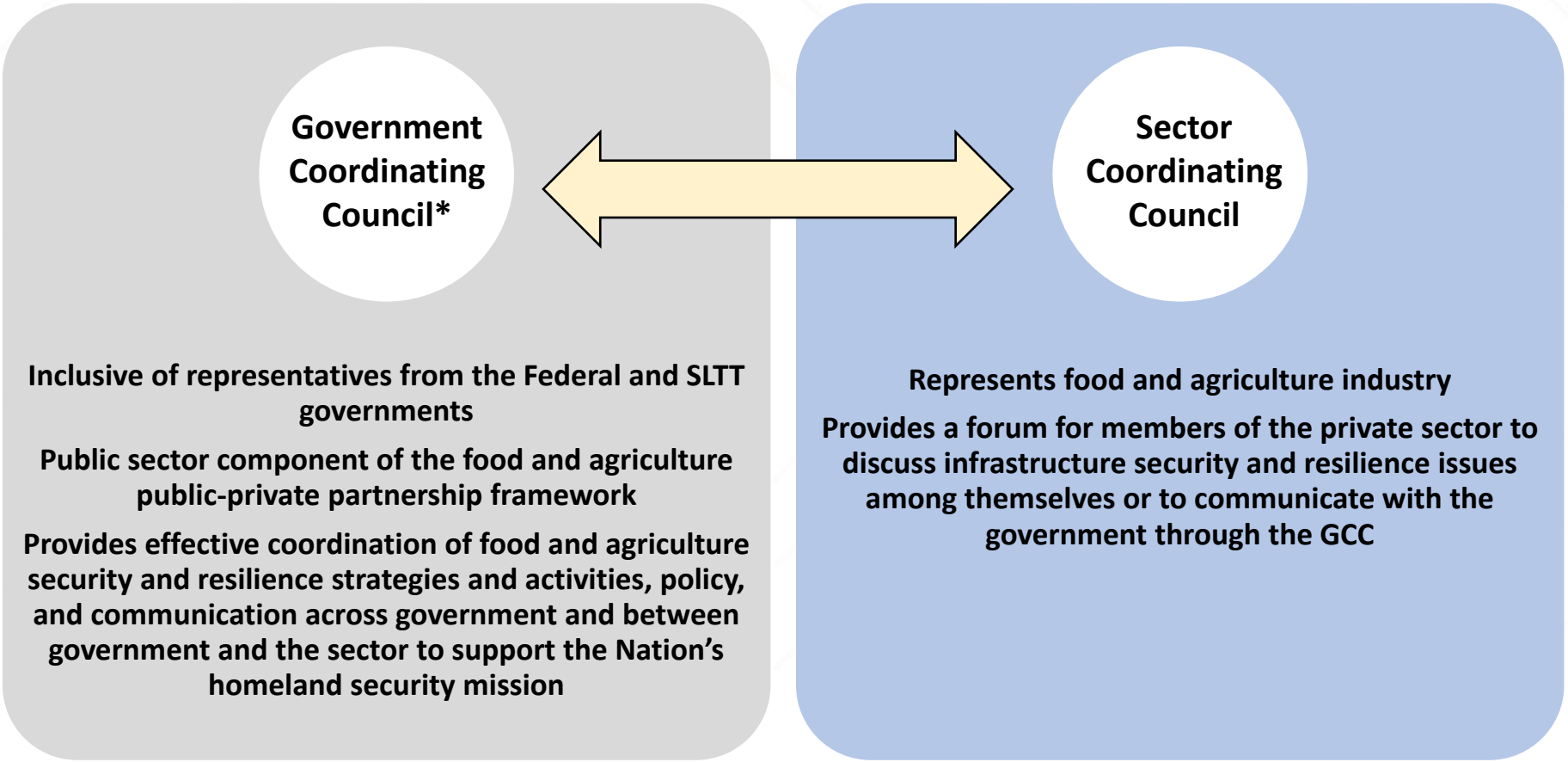
How: Policy Directives, Statutes, Regulations, and Authorities; Grants, Cooperative Agreements, Assistance Programs; and Public-Private Partnerships

What: A secure and resilient **food & agriculture sector** with the **capabilities required across the whole community** to prevent, protect against, mitigate, respond to, and recover from threats & hazards of greatest risk, including Weapons of Mass Destruction.

Critical Infrastructure: Food and Agriculture

Definition	The Food and Agriculture Sector is **almost entirely under private ownership** and is composed of an estimated 2.1 million farms, 935,000 restaurants, and more than 200,000 registered food manufacturing, processing, and storage facilities. **This sector accounts for roughly one-fifth of the nation's economic activity**.
Vision	The Food and Agriculture Sector **is a prepared and resilient system** of public and private sector partners **engaged in risk-based decision making and open communication** with robust **preparedness programs, threat prevention strategies, and vulnerability reduction activities**.
Mission	The mission of the Food and Agriculture Sector is **to protect against a disruption anywhere in the food system** that would pose a serious threat to public health, safety, welfare, or to the national economy.

Food & Agriculture Coordinating Councils



**Co-chaired by USDA and HHS/FDA as the Sector Specific Agencies per HSPD 7/PPD 21*

Critical Infrastructure Sectors (PPD-21)

There are **16 critical infrastructure sectors** whose assets, systems, and networks, whether physical or virtual, are considered so vital to the United States that their incapacitation or destruction would have a debilitating effect on security, national economic security, national public health or safety, or any combination thereof. **Presidential Policy Directive 21 (PPD-21): Critical Infrastructure Security and Resilience advances a national policy to strengthen and maintain secure, functioning, and resilient critical infrastructure**.

1. Chemical
2. Communications
3. Dams
4. Emergency Services
5. Financial Services
6. Government Facilities
7. Information Technology
8. Nuclear Reactors, Materials, and Waste
9. Water and Wastewater Systems
10. Commercial Facilities
11. Critical Manufacturing
12. Defense Industrial Base
13. Energy
14. **Food and Agriculture**
15. Healthcare and Public Health
16. Transportation Systems

Resiliency: Food and Agriculture Sector Interdependencies with other Sectors

Chemical Sector

- Cleaning and Disinfectant supplies
- Plastics
- Ethanol – CO_2 Production

Communications Sector

Energy Sector

- Electricity and Gas

Critical Manufacturing Sector

- Farm Equipment
- Food Processing Equipment
- Packaging (e.g., cans and paperboard)
- Means of transportation (e.g. trucks, trains, vessels)

Financial Services Sector

- Payment Transactions

Resiliency: Food and Agriculture Sector Interdependencies with other Sectors, *cont.*

Healthcare and Public Health Sector

- Personal Protective Equipment (for non-COVID related purposes)
- Community mitigation approaches for workforce health

Information Technology Sector

- Daily Business

Transportation Systems Sector

- Aviation
- Highway and Motor Carrier
- Maritime Transportation System
- Pipeline Systems
- Freight Rail

Water and Wastewater Systems Sector

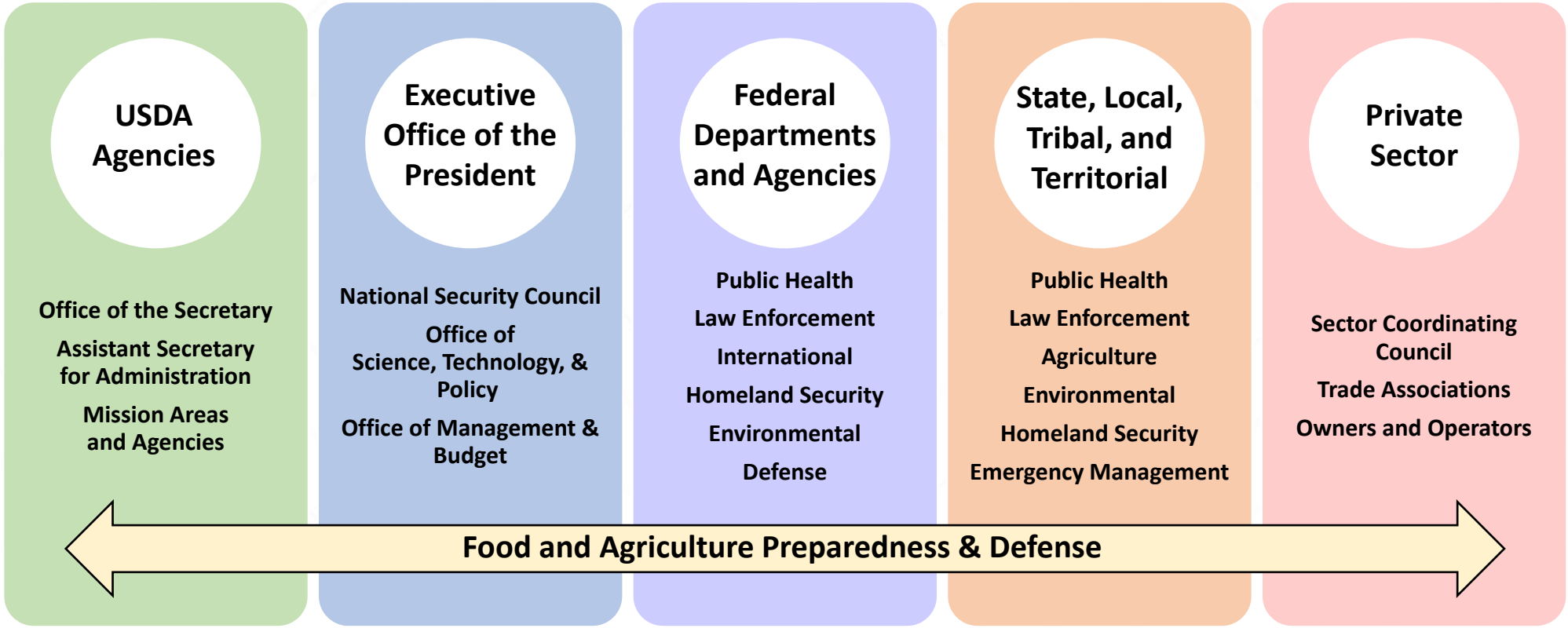
Resiliency: Food and Agriculture Sector Commonalities with other Sectors, *cont. (2)*

- **Human Capital** – all critical infrastructures are **dependent on Essential Critical Infrastructure Workforce**
- Researchers in the academic environment who develop new tools, technologies, study interdependencies, and train the workforce
- Concerns with **stability of the Supply Chain**
  - Primary, secondary, tertiary inputs
  - Often related to critical infrastructure interdependencies

Challenges

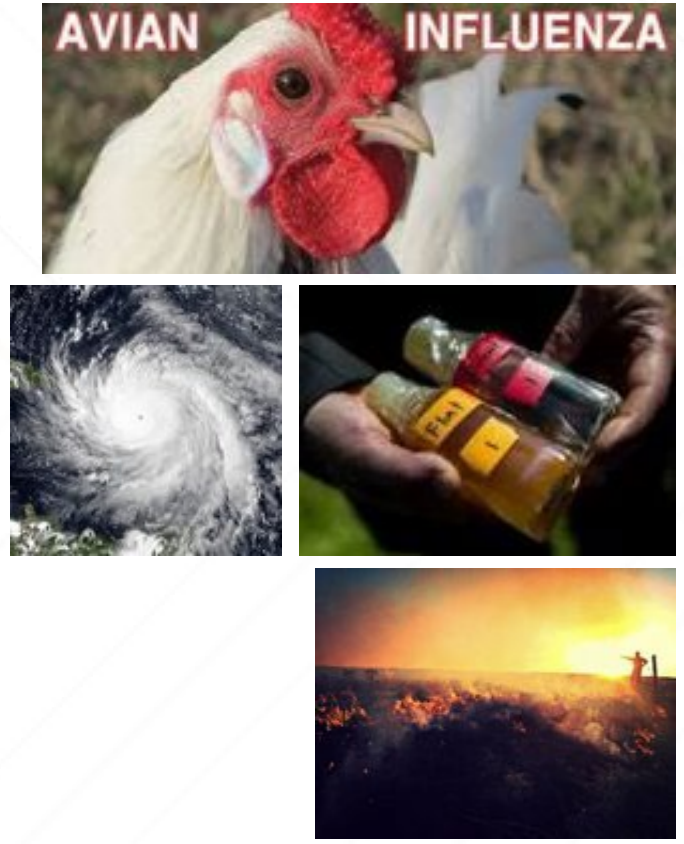
- Global food supply
- Traditional security measures may not be effective
- Vast and open systems
- Animal and plant pathogens and pests and possible adulterants readily available
- At beginning of outbreak or onset of illnesses, may be difficult to determine if naturally occurring or intentional

Stakeholders



Evolving Threat Landscape

- Extreme Weather Events
  - Wildfires
  - Hurricanes
- Cybersecurity
- Intellectual Property
- Infectious Diseases



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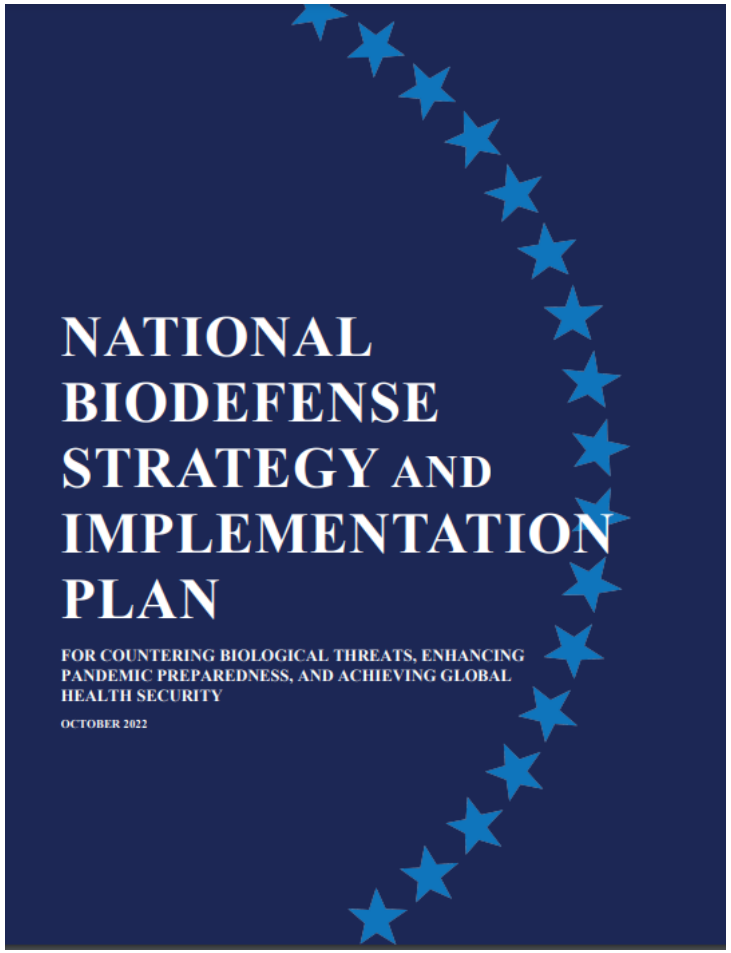
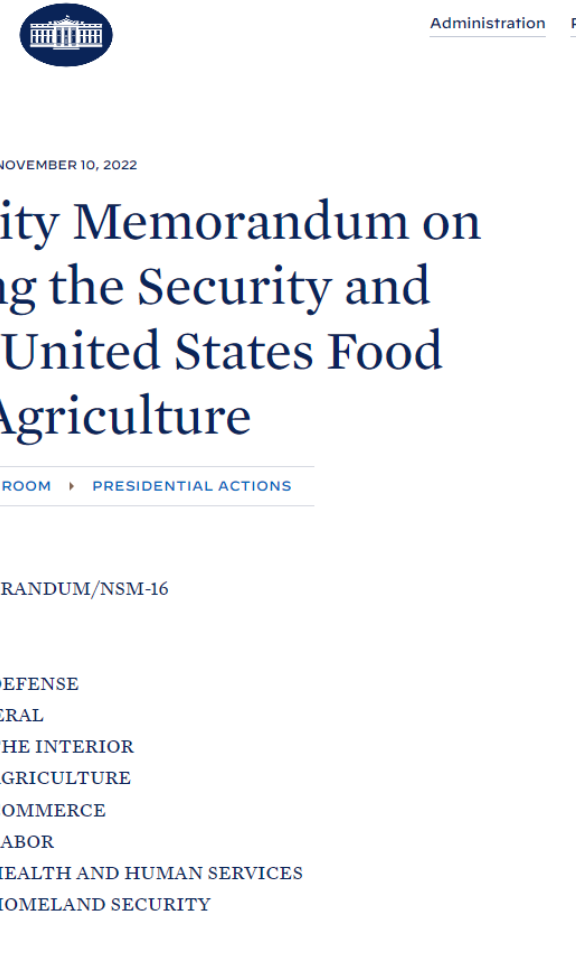
Policy Directives & Interagency Process

Recent National Security Memoranda Related to Food and Agriculture (NSM-15, NSM-16)





Administration

NOVEMBER 10, 2022

National Security Memorandum on Strengthening the Security and Resilience of United States Food and Agriculture

BRIEFING ROOM › PRESIDENTIAL ACTIONS

NATIONAL SECURITY MEMORANDUM/NSM-16

THE SECRETARY OF STATE
THE SECRETARY OF DEFENSE
THE ATTORNEY GENERAL
THE SECRETARY OF THE INTERIOR
THE SECRETARY OF AGRICULTURE
THE SECRETARY OF COMMERCE
THE SECRETARY OF LABOR
THE SECRETARY OF HEALTH AND HUMAN SERVICES
THE SECRETARY OF HOMELAND SECURITY

Multisectoral Approach is Critical

- Each Department/Agency's equities are unique
- In this case, more cooks = more comprehensive approach
- All threats, regardless of source
- One Health

How USDA Contributes to NSM-15 and NSM-16

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U.S. DEPARTMENT OF AGRICULTURE

U.S. Department of Agriculture:

The People's Department

USDA Mission

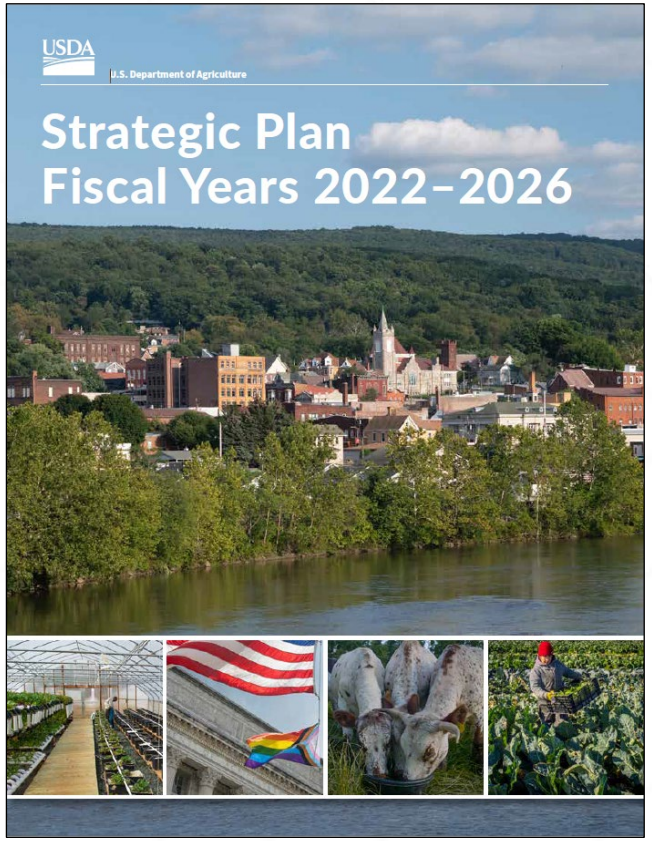
- We **provide leadership on food, agriculture, natural resources, rural development, nutrition, and related issues** based on public policy, the best available science, and effective management.
- We have a vision **to provide economic opportunity** through innovation, helping rural America to thrive; 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.

Thomas J. Vilsack
Secretary of Agriculture

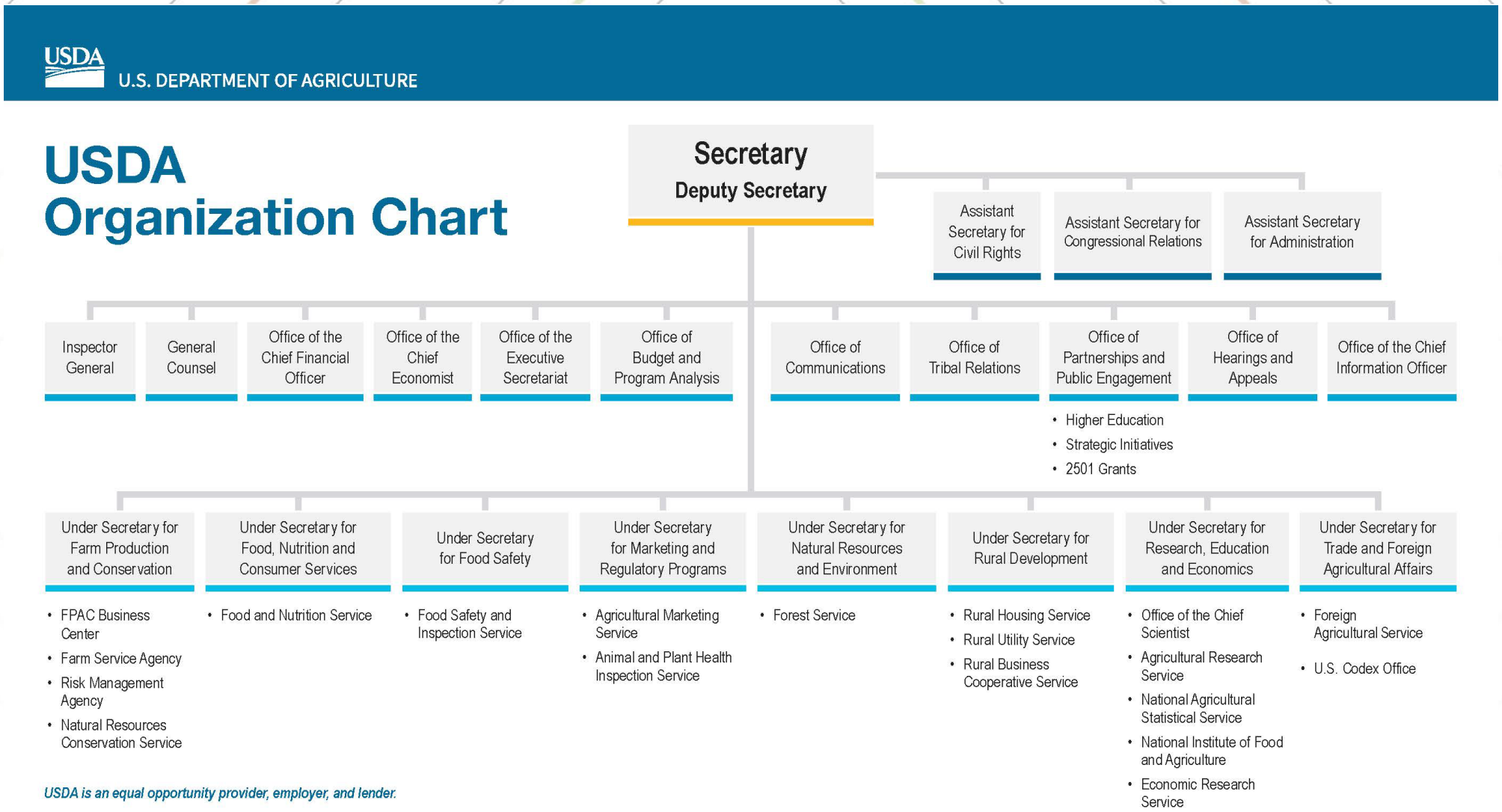
USDA Strategic Plan 2022-2026

Strategic Goals:

1. Combat Climate Change to Support America's Working Lands, Natural Resources and Communities.
2. Ensure America's Agricultural System is Equitable, Resilient, and Prosperous.
3. Foster an Equitable and Competitive Marketplace for All Agricultural Producers.
4. Provide All Americans Safe, Nutritious Food.
5. Expand Opportunities for Economic Development and Improve Quality of Life in Rural and Tribal Communities.
6. Attract, Inspire, and Retain an Engaged and Motivated Workforce that's Proud to Represent USDA.



www.usda.gov/sites/default/files/documents/usda-fy-2022-2026-strategic-plan.pdf



UPDATED 10/19/21 This organization chart displays the names of USDA offices, agencies, and mission areas. Each office, agency, and mission area is placed within a cell connected by lines to show the structure and hierarchy (Under Secretary, Deputy Secretary, or Secretary) for which they fall under. An HTML version that lists USDA Agencies and Offices and USDA Mission Areas is also available on usda.gov. The Secretary's Memorandum 1076-031 was signed August 12, 2019 effectuating a change to Rural Development.

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USDA National Institute of Food and Agriculture (NIFA)

ABOUT NIFA

MISSION

Invest in and advance agricultural research, education, and extension to solve societal challenges.

VISION

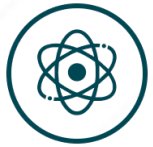
Lead innovation across the nation through transformative discoveries, education, and engagement that address agricultural challenges.

NIFA is the extramural research funding agency at the U.S. Department of Agriculture. Congress has entrusted us with more than 70 funding programs, totaling almost $2 billion. We provide funding mainly through capacity, or formula, and competitive grant programs. Our team of nearly 400 experts are dedicated to serving agriculture through research, education and Extension across all communities, benefiting all ages of people who call America home.

NIFA Overview

- The **National Institute of Food and Agriculture (NIFA)** is the extramural science-funding agency within USDA's Research, Education, and Economics (REE) mission area.
- NIFA **invests in and supports** initiatives that ensure the long-term viability of agriculture.
- NIFA provides **funding and strategic leadership** for programs that ensure groundbreaking discoveries in agriculture-related sciences and technologies reach the people who can put them into practice.

Topics Covered by NIFA Programs



Advanced Technologies
Bioenergy; Biotechnology; Nanotechnology

Animals
Animal Breeding; Animal Health; Animal Production; Aquaculture

Business and Economy
Markets and Trade; Natural Resource Economics; Small Business

Natural Resources
Forests; Grassland and Rangeland; Soil, Water, and Air

Education
Minority Serving Institutions; Teaching and Learning; Workforce Development

Environment
Climate Change; Ecosystems; Invasive Pests and Diseases

Farming and Ranching
Agriculture Safety & Technology; Farmer Education; Organic & Family Farms

Human Sciences
Community Vitality; Family Well-Being; Youth

Food Science
Food Quality; Food Safety

Food and Nutrition Security
Nutrition; Obesity; Wellness

International
Global Engagement; Global Food Security

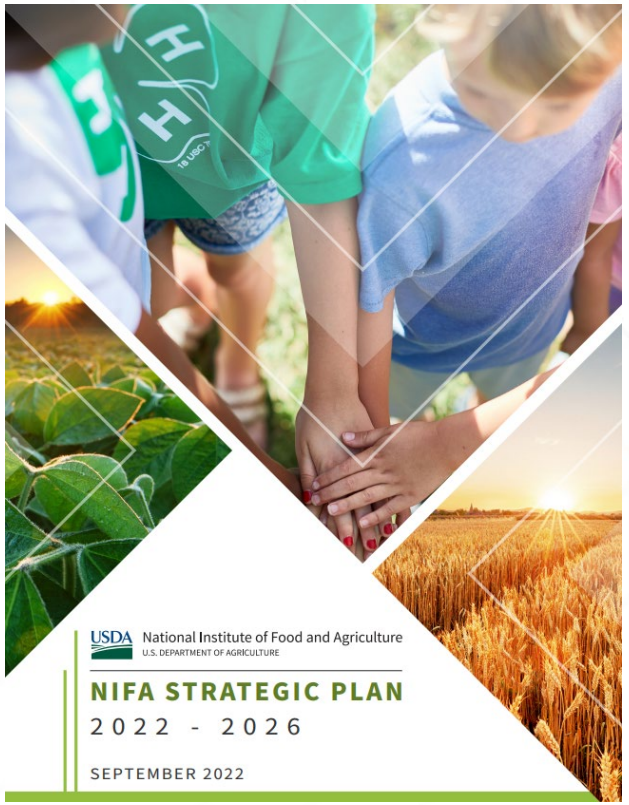
Plants
Crop Production; Pest Management; Plant Breeding; Plant Health

NIFA Strategic Plan 2022-2026

Strategic Goals:

1. Bolster scientific research to enhance the nation's resilience and response to climate change by embracing innovative and novel approaches.
2. Enhance research and investment in communities to ensure equity, reduce barriers to access, and advance opportunities for underserved communities.
3. Focus on capacity building and facilitate equitable participation in NIFA programs for all eligible applicants.
4. Invest in research, education and extension programs which prioritize nutrition insecurity and seek to ensure the food supply is safe.
5. Strengthen partnerships and focused outreach in underserved communities.
6. Build the agricultural workforce and cultivate a culture of mutual respect and accountability.

www.nifa.usda.gov/sites/default/files/2022-11/NIFAStrategicPlan_22-26_0922_AI_remediated.pdf



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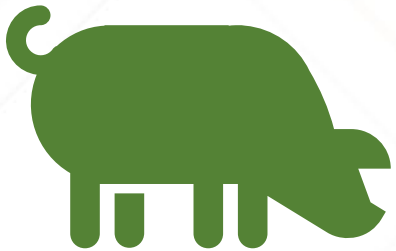
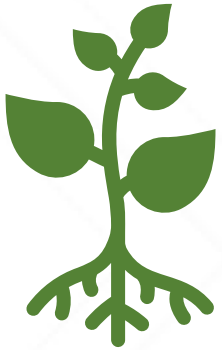
NIFA Food and Agriculture Defense Initiative Background and Programs

Food and Agriculture Defense Initiative

Extension Disaster Education Network



National Animal Health Laboratory Network



National Plant Diagnostic Network

2022 marked the 20th anniversary of the Food and Agriculture Defense Initiative

FADI-EDEN

Funding FY2022: $382,400

Contacts: Ashley Mueller, Deborah Reyome

What is FADI-EDEN?	• Expand the Cooperative Extension System's educational role with a focus on agrosecurity before, during, and after disasters to enhance the ability of the United States to manage domestic incidents.
What the program funds:	• A project that will oversee EDEN administration, deliver education, build strategic partnerships, and engage in communication efforts and activities, including the coordination of the development, implementation, and enhancement of diverse capabilities for addressing threats to the U.S. agriculture and food system.
Award status:	• 1 award ($382,400) to Purdue University in FY2022 • Funding opportunity will be competed in FY2023; RFA to be published in Spring 2023

FADI-EDEN

- Purdue University's FY2022 awarded project:
  1. Develop Critical Focus Area Working Groups. Working Groups will provide a robust and functional framework for the completion of research-based white papers by interdisciplinary working groups.
  2. Support EDEN 1890 Advisory Group for underserved audiences and further the enhancement of the 1890 Extension system's capacity to deliver disaster programming.
  3. Create functional linkages with 1994 Land-Grant Institutions (LGI) to integrate the EDEN network and identify avenues for collaboration.
  4. Implement a multi-prong communication plan, centered on a new EDEN website, that strengthens EDEN's connection with existing stakeholders and expands its reach to new audiences, both national and global.

National Animal Health Laboratory Network (NAHLN)

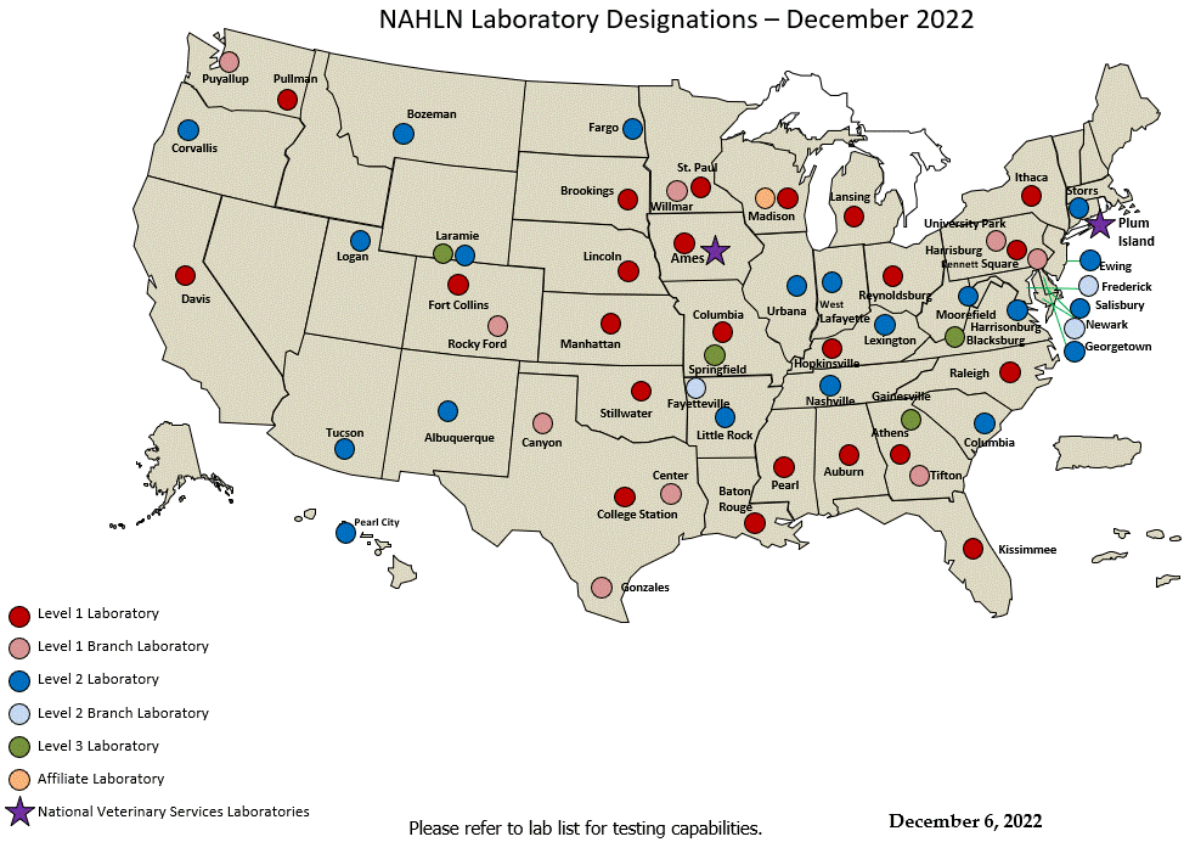
Funding FY2022: **$4,266,000**

Contacts: Michelle Colby, Kathe Bjork, Cierrah Kassetas

What is NAHLN?	• State/Federal partnerships that protects the Nation from animal disease threats by providing surveillance, early detection, mitigation, and recovery functions
What the program funds:	• In partnership with APHIS - three levels of diagnostic labs in colleges of veterinary medicine, state departments of agriculture, and departments of veterinary science/microbiology in institutions that do not have a vet school
Number of awards:	• Approximately 17, in total • Level 1 ($250,000), Level 2 ($137,000) and Level 3 ($46,000)

Current NAHLN Laboratories

- There are currently:
  - 60 laboratories distributed in 42 States
    - 32 Level 1 laboratories in 23 states
    - 23 Level 2 laboratories in 20 states
    - 4 Level 3 laboratories
    - 1 Affiliate lab at the USGS National Wildlife Health Center (Madison, WI)



Surveillance Programs for Animal Diseases

- Aquaculture
  - Infectious Salmon Anemia virus, Viral Hemorrhagic Septicemia virus and Spring Viremia of Carp
- African Swine Fever (ASF)
- Bovine Spongiform Encephalopathy (BSE)
- Chronic Wasting Disease (CWD)
- Classical Swine Fever (CSF)
- Foot and Mouth Disease (FMD)
- Influenza A in Avian (IAV-A)
- Influenza A Virus in Swine (IAV-S)
- Newcastle Disease (ND)
- Scrapie
- Pseudorabies Virus (PRV)
- Vesicular Stomatitis Virus (VSV)

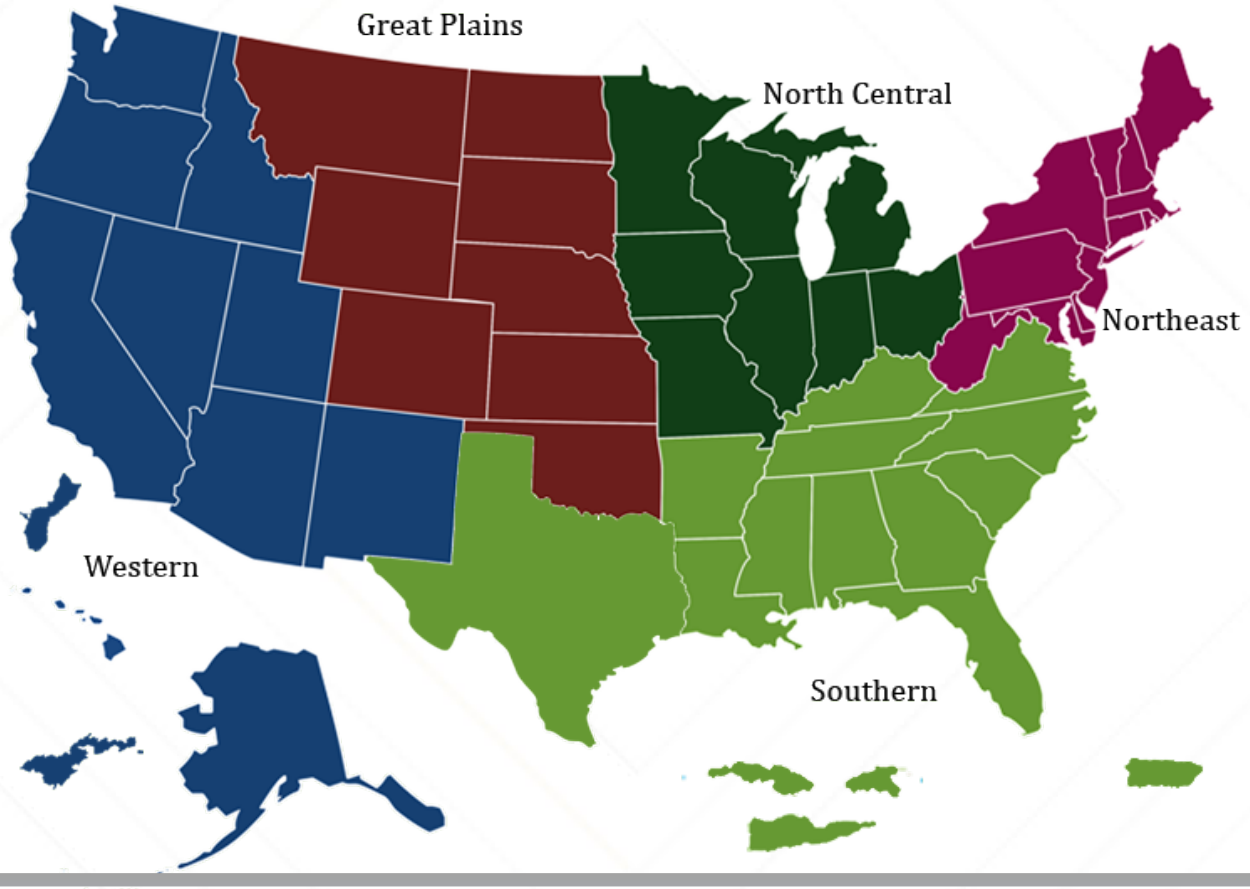
National Plant Diagnostic Network (NPDN)

Funding FY2022: $3,031,600

Contacts: Amer Fayad, Jesse Ostrander

What is NPDN?	State/Federal/University partnerships that protect the Nation from plant pest/ disease threats by providing early detection and high-quality diagnosis. NPDN responds to critical pest incursions and disasters in a timely manner, including regulated pests and pathogens, and train NPDN first detectors, critical to rapidly detect and report the presence of invasive plant pathogens and arthropods.
What the program funds:	Diagnostic labs providing early detection and identification of plant pests and diseases. The network is supported by the collective efforts of Federal, State, and Land Grant University-associated plant disease clinics. NPDN collaborates with APHIS, to provide essential testing capacity for regulated pests and manage sample surge during outbreaks. NPDN supports state and federal regulatory response efforts with accurate, timely, and reliable diagnostics
Number of awards:	• 6 awards, in total • Five Regional Centers and One Data Repository Center

NPDN - The Network



Over 70 diagnostic labs in 50 states and 4 territories (Puerto Rico, US Virgin Islands, Guam, and American Samoa).

NPDN Goals and Highlights

- Quality Diagnosis
- Professional Development
- Communication

- Last year, over 700,000 samples were processed by the NPDN.

- Over 20 common techniques ranging from image analysis, bioassays, culturing, microscopy, serological and molecular tests were performed to an average of 1.7 tests per sample

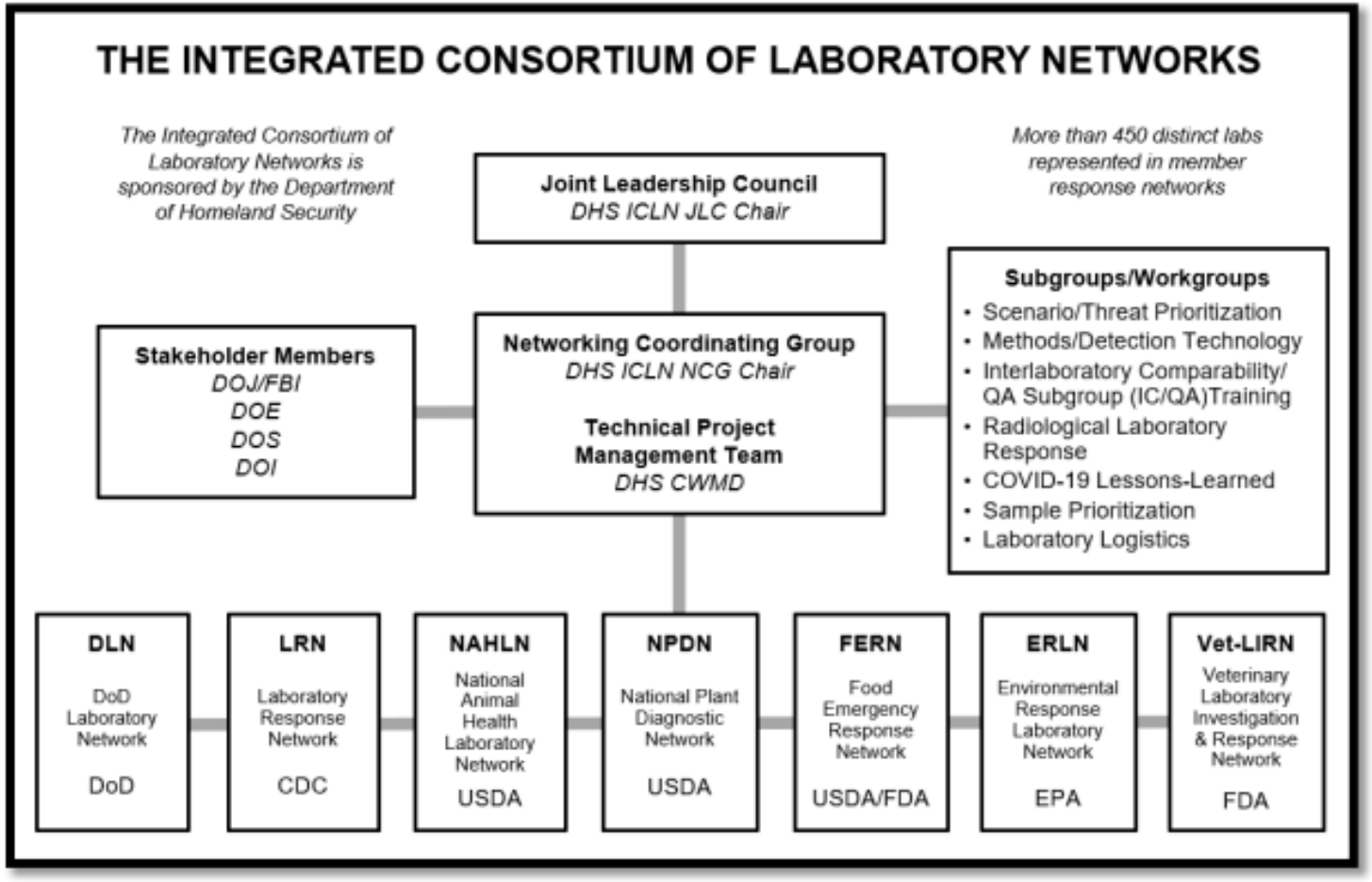


Figure 1. Organizational Structure of ICLN

Established by Memorandum of Agreement in June of 2005 to provide a nationwide, integrated system of federal laboratory networks to assist in responding to acts of terrorism and other events requiring an integrated laboratory response.

National Institute of Food and Agriculture

U.S. DEPARTMENT OF AGRICULTURE

NIFA Security/Disaster Related Competitive Opportunities

AFRI A1181 Agricultural Biosecurity

- This program area priority focuses on increasing U.S. national capacity to prevent, rapidly detect, and respond to biological threats to U.S. agriculture and food supply. Supported activities will be aimed at increasing agricultural biosecurity at the regional and national levels, and across the public and private sectors.
  - Detection, diagnostics, surveillance, and/or forecasting of transboundary, emerging, or re-emerging pests and diseases associated with animal production systems and/or transboundary, emerging, reemerging, or invasive diseases, insects and weeds associated with plant production systems. Non-traditional detection methodologies such as syndromic surveillance, predictive analysis of satellite imagery, etc. will also be considered; or
  - Rapid response to, and recovery from, pests and diseases that pose large-scale biosecurity threats to plant and animal production, including existing and imminent threats to U.S. agricultural production and food supply systems.

Proposed Budget Requests: up to $650,000 for single-function projects (3-5 years); $800,000 with specific partnerships; up to $1,000,000 for integrated projects (3-5 years); $1150,000 with specific partnerships; up to $300,000 for seed grants (up to 2 years); up to $1,000,000 for Agricultural Biosecurity Coordination Network projects (3-5 years); $1150,000 with specific partnerships
Project Types: Research, Extension, and Integrated Projects only
Application Deadline: August 10, 2023 (5:00 p.m. Eastern Time)
Contacts: Amer Fayad amer.fayad@usda.gov and Michelle Colby michelle.colby@usda.gov

Awarded Institution Map by Year

List of Awarded Projects:
https://cris.nifa.usda.gov/cgi-bin/starfinder/0?path=fastlink1.txt&id=anon&pass=&search=(GC=A1181)&format=WEBTITLESGIY

Highlighted A1181 Awards

- **Kansas State University** (M. Draper), *Tactical Sciences Coordinating Network* ($1,000,000)
- **Purdue University** (C. Cruz), *Using proximal sensing, imaging analysis, and a participatory modeling process to characterize tar spot epidemics* ($299,943)
- **Texas Tech University** (N. Hall), *Agricultural Detection Dogs: Measuring Capability and Enhancing Capacity* ($475,000)
- **Cornell University** (D. Diel), *Early Detection of Transboundary and Emerging Bovine Pathogens through Next-Generation Sequencing* ($1,000,000)
- **University of Minnesota** (M. Torremorell), *Control Technologies to Biocontain Aerosol Transmitted Swine Diseases* ($1,000,000)
- **Virginia Tech** (B. Vinatzer), *Expanding an established genome-based identification resource to surveillance of fungal pathogens* ($650,000)

A1712: Rapid Response to Extreme Weather Events

This priority area seeks applications that:

- Focus on critical and urgent solutions in rapid response to disaster impacts on the nation's food and agricultural systems.
- Clearly describe short-term deliverables *within 3 months of award receipt*.
- Clearly define the geographic scope of the project as related to the weather-related event or disaster.

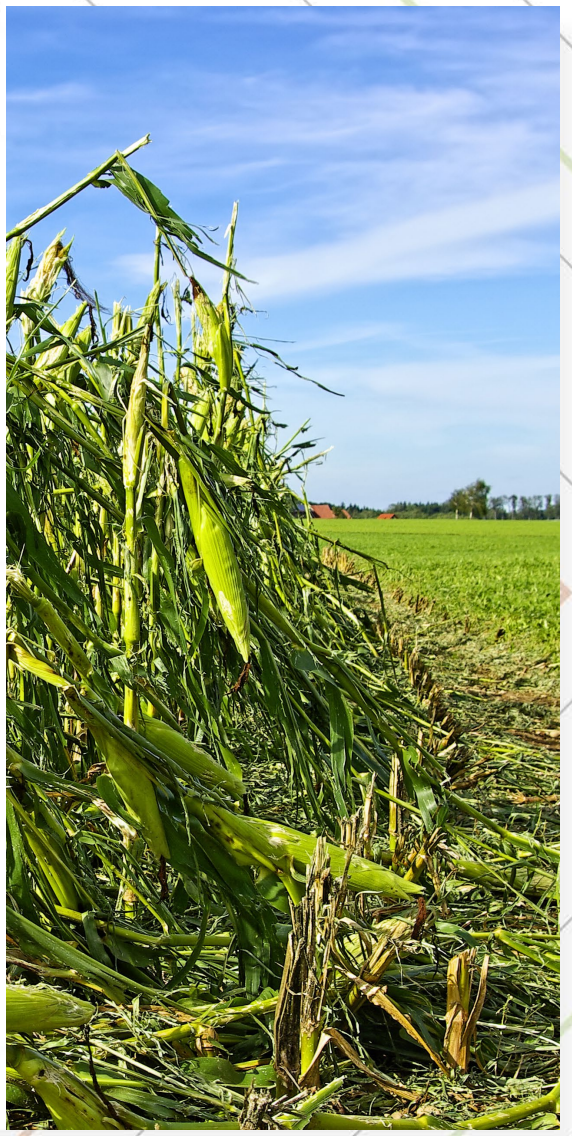
Applications must address one or more of the following:

- Agroecosystem Resilience
- Food Safety, Nutrition Security, and Agricultural Commodity Security
- Health, Well-Being, & Safety

A1712 Project Design

This priority area encourages projects to have **well-developed extension and/or outreach activities**.

In project narratives and other application materials, applicants must be able to provide a **clear, strategic approach to reaching end users**.



Highlighted A1712 Awards

Kentucky State University (A. Bernard), *Mitigating Health Disparities Among Flood Victims: The Case of Eastern Kentucky*

New Mexico State University (C. Gifford), *Implementation of Virtual Fencing Technology to Build Resiliency of Agriculture Systems Impacted by Wildfire and Subsequent Flooding*

Louisiana State University (S. L. Conger), *Decision Support, Education, and Outreach for Managing Agricultural Drought*

List of Awarded Projects:
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National Institute of Food and Agriculture

U.S. DEPARTMENT OF AGRICULTURE

Applying for NIFA Funding Opportunities

Upcoming Events

- **NIFA events calendar**
  - Upcoming deadlines, meetings, and webinars
  - https://nifa.usda.gov/calendar

- **Upcoming Request for Applications (RFA) calendar**
  - https://nifa.usda.gov/upcoming-rfa-calendar

Applying for Grants: Strategies to Consider

Read the RFA	Start the conversation	Build a team	Share ideas	Prepare documents
Learn about funding opportunities by reading RFAs – even if they are from a previous years.	Tell others about your interest in applying, especially organizational leaders and your grants team.	Bring others to the table. Who's missing? Think "whole community" and inclusively.	Brainstorm ideas. Discuss them. What do you know is a problem? Where are there gaps?	Know what it takes to apply for a grant. Get key documents ready.

Application and Submission

- NIFA only accepts **electronic** submission of applications
- NIFA Grants Application Guide available: https://nifa.usda.gov/resource/nifa-grantsgov-application-guide
- Application documents **must be in Portable Document Format (PDF)** to be accepted by NIFA, including your narrative and budget justifications
  - Grants.gov may allow other formats, but NIFA does ***not***
  - Do not use third-party PDF builders


NIFA-18-013

NOTE: The guide provided here is meant to serve as an example. Refer to and follow the Grants.gov Application Guide provided in the application package on Grants.gov for the specific funding opportunity of interest.

United States Department of Agriculture
National Institute of Food and Agriculture

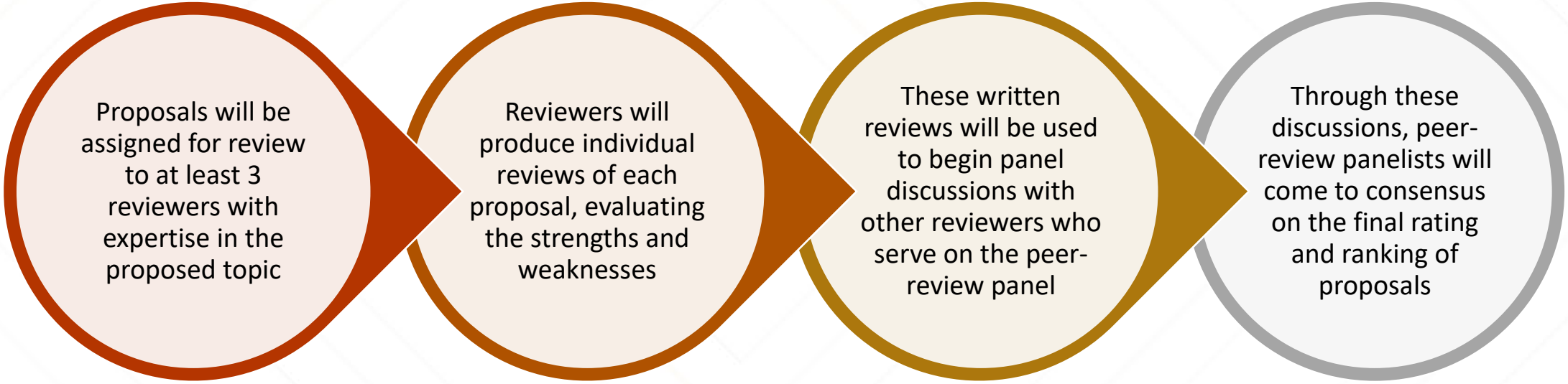
NIFA GRANTS.GOV APPLICATION GUIDE

A Guide for Preparation and Submission of NIFA Applications via Grants.gov

GRANTS.GOV℠

The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies.

Evaluation Process



Tentative Timeline of Competitive Programs

1-2 months

- Request for Application (RFA) Release
- Application writing and planning
- **Applications due**

1-2 months

- Applications are under peer review
- Proposal funding notifications

1-2 months

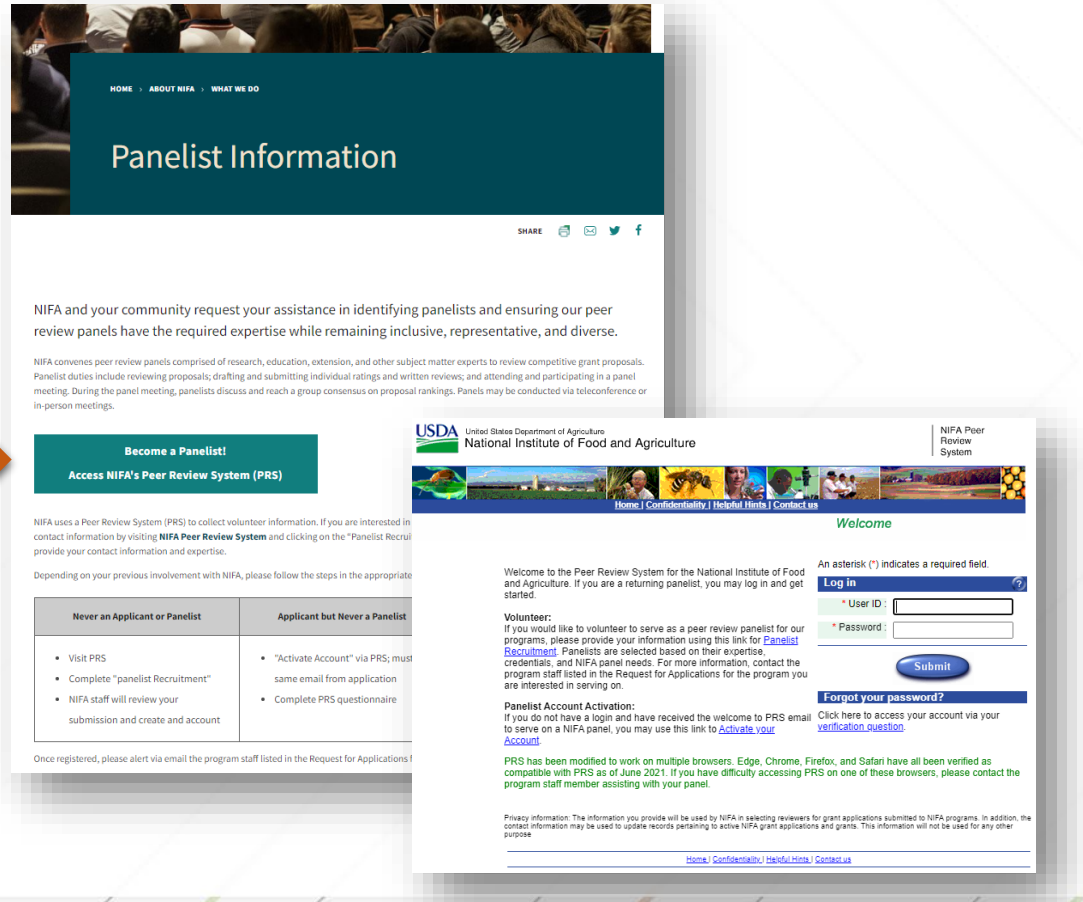
- Awards are finalized and made

On average, a competitive program takes about 3-5 months from the application due date to an award being made to an institution.
We will keep applicants updated and appreciate your patience!

Volunteer to Become a Panelist

Scan Here

Or visit: https://nifa.usda.gov/about-nifa/what-we-do/panelist-information



Non-Discrimination Statement

https://www.usda.gov/non-discrimination-statement

- In accordance with federal civil rights law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, the USDA, its Agencies, offices, and employees, and institutions participating in or administering USDA programs, are prohibited from discriminating based on race, color, national origin, religion, sex, gender identity (including gender expression), sexual orientation, disability, age, marital status, family/parental status, income derived from a public assistance program, political beliefs, or reprisal or retaliation for prior civil rights activity, in any program or activity conducted or funded by USDA (not all bases apply to all programs). Remedies and complaint filing deadlines vary by program or incident.
- Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, American Sign Language, etc.) should contact the responsible agency or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339. Additionally, program information may be made available in languages other than English.
- To file a program discrimination complaint, complete the USDA Program Discrimination Complaint Form, AD-3027, found online at How to File a Program Discrimination Complaint and at any USDA office or write a letter addressed to USDA and provide in the letter all of the information requested in the form. To request a copy of the complaint form, call (866) 632-9992. Submit your completed form or letter to USDA by: (1) mail: U.S. Department of Agriculture, Office of the Assistant Secretary for Civil Rights, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410; (2) fax (202) 690-7442; or (3) email: program.intake@usda.gov.
- USDA is an equal opportunity provider, employer and lender.

National Institute of Food and Agriculture

U.S. DEPARTMENT OF AGRICULTURE

Questions and Comments