USDA Office of the Chief Information Officer
U.S. DEPARTMENT OF AGRICULTURE

AI in the Field

How USDA is Welcoming AI into Agriculture

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Outline

I. Our Strategic Approach to Data and Artificial Intelligence
   I. USDA Data Strategy
   II. USDA AI Strategy
II. AI and Agriculture in Action: Encouraging AI Adoption
   I. USDA's AI Use Case Inventory
   II. Leveraging USDA's National Proving Grounds
III. Getting Involved: University Partnerships

Our Strategic Approach to Data and Artificial Intelligence

Data is Our Foundation

AI outputs are only as good as our data inputs, so our Data Strategy is the foundation for AI at USDA.

Published in 2023, **USDA's Data Strategy guides our data governance and leadership, data & analytics workforce, common data & analytics toolset, open data, and analytics portfolio.** This strategy is the result of collaboration across over 100 key data stakeholders from across the agency.

The investments in data stewardship, data quality, and a culture of data-driven decision-making under our USDA Data Strategy enable AI at USDA.

www.usda.gov/ai

USDA's AI Strategy

USDA's AI Strategy, released in September 2025, builds on the foundation of our Data Strategy. The AI Strategy establishes a **high-level vision for AI adoption at USDA** and outlines critical focus areas for AI integration related to our mission and programs.

This Strategy sets objectives for workforce readiness, AI infrastructure and toolset, data readiness and access, trusted and scalable AI, and AI governance and leadership.

Focus Areas

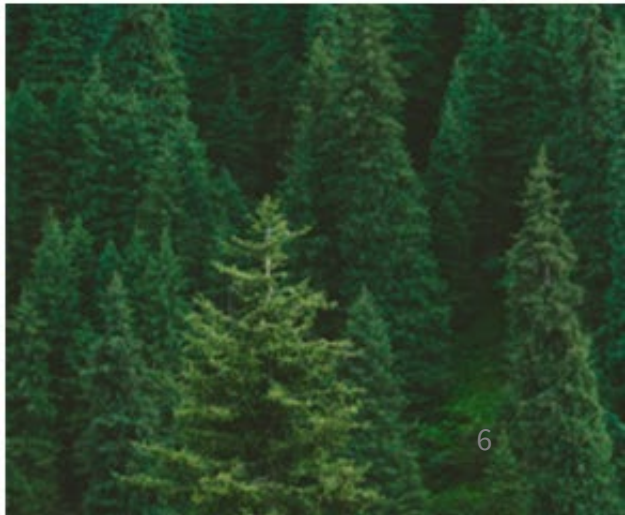
USDA's AI Strategy includes seven "focus areas," or priority areas for AI adoption related to our mission delivery. These include:

I. University Partnerships
II. Commodities Grading
III. Forest Health and Wildfire Prevention
IV. Agricultural Stability
V. Food Production and Resilience
VI. Fraud and Improper Payments
VII. Loan Modernization









AI and Agriculture in Action

86

New AI Use Cases inventoried in 2025

19

Retired Use Cases

USDA's AI Use Case Inventory

USDA's AI Use Case Inventory reveals the ways USDA has pursued AI innovation over the past fiscal year.

In 2025, USDA:

- Nearly **doubled** our total AI Use Cases (96% increase).
- Invested heavily in AI within the Natural Resource and Environment mission area (**46 new use cases**).
- Improved **efficiency** across the Agency – leveraging AI on everything from accelerating daily tasks and compliance requests, to road mapping initiatives and emergency preparedness.
- Developed a range of AI solutions, including Machine Learning (**53% of cases**), Generative AI (**32%**), and Computer Vision (**12%**).

www.usda.gov/ai

Noteworthy Use Cases

USDA is innovating with AI in nearly all Mission Areas, demonstrating a deep commitment to American producers and taxpayers. Some of our most notable developments include:

Forest Fire Effects Remote Sensing Models

Predicts the status of forests after wildfires

Rangeland Analysis Platform

Guide conservation practices around invasive species, wildfire risk, woody species encroachment, and more.

Nutrition Education and Local Access Dashboard

Provides county-level information on nutrition education and food access.

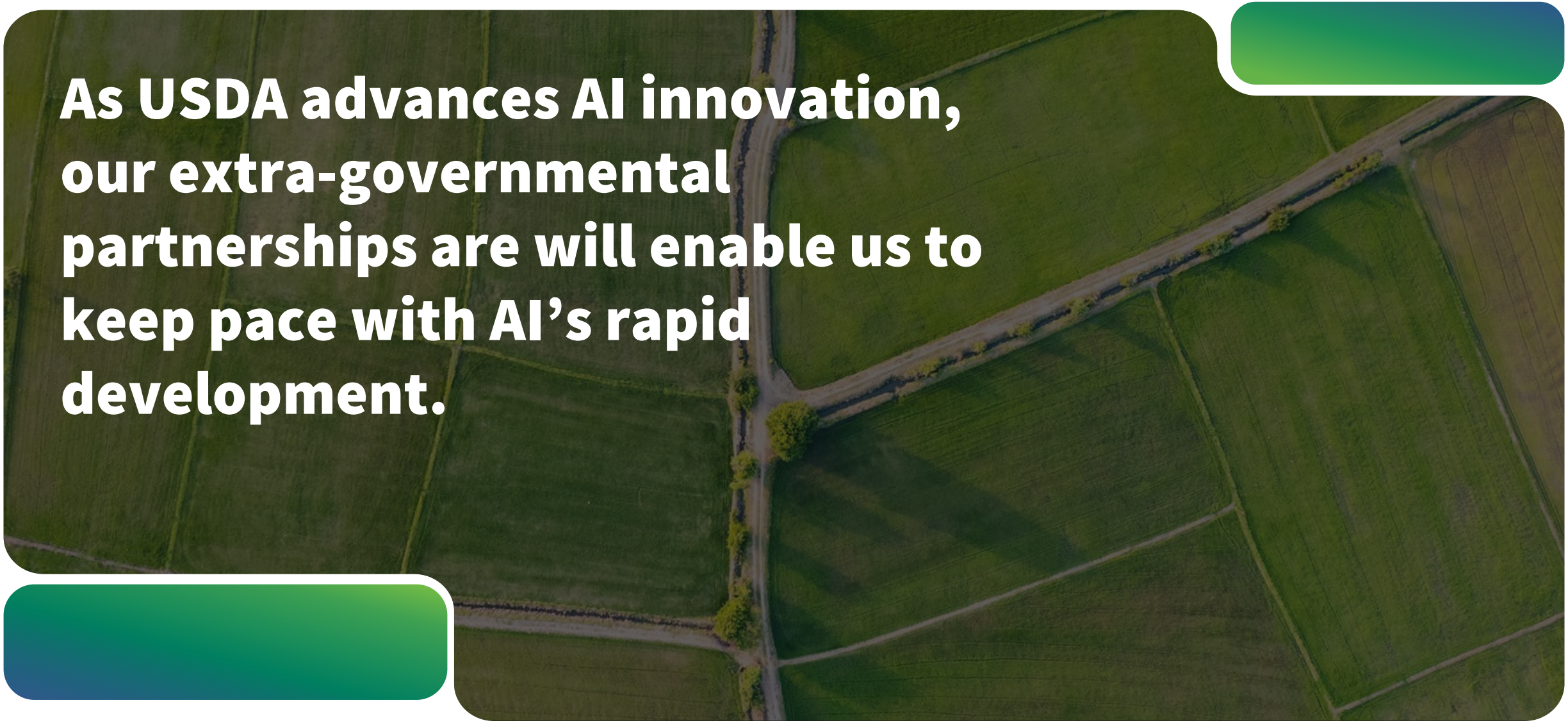
Pre-Season Corn and Soybean Forecasts

Uses machine learning to model planted acreage forecasts for the nation's producers.

U.S. Poultry and Operations Dataset

Identifies the location and distribution of poultry agricultural facilities.

Teaming Up



As USDA advances AI innovation, our extra-governmental partnerships are will enable us to keep pace with AI's rapid development.

USDA's National Proving Grounds

USDA plans to continue exploring AI technologies in the agricultural context via our USDA National Proving Grounds Network for AgTech (NPG-Ag). NPG-Ag is a nation-wide collaborative effort which will leverage USDA's partnerships with land-grant universities and national labs to evaluate emerging technologies under real-world conditions.

NPG-Ag will give USDA the opportunity to rigorously test AI and other technologies for dependability and applicability before recommending them to the nation's producers.

www.usda.gov/agtech

University Partnerships

USDA recognizes the immense value that partnerships with universities provide to our agency. We regularly host **hackathons and long-term university engagements** where matriculates can help us develop new technological solutions to pressing agricultural problems.

We also bring universities and vendors together with our **vendor accelerator programs.** These opportunities allow universities across the United States to collaborate with vendors, like AWS, to produce a prototype of a platform-specific solution.

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University Partnerships

	University Engagements	Hackathons	Vendor Accelerators
Method	• Sponsor a capstone/practicum project • Embed a problem statement to solve with AI/ML	• Competition to rapidly iterate a solution to a USDA problem • Internal or external venues	• Partnership between USDA, a university, and a vendor • Develop a solution on a specific platform
Team	• Students • Professor • USDA AI practitioners • USDA subject matter experts	• Variable size (scope) • Cross-disciplinary	• Students • Professor • USDA AI practitioners and SMEs • Vendor platform subject matter experts
Resources	• USDA data, subject matter expertise (SMEs), AI/ML practitioners, stakeholders/users	• Organizing team • Venue/hosting infrastructure • Problem sponsor SME • Technical Support • Participant Support	• Vendor platform, solutions architects • USDA data, SMEs, stakeholders
Deliverables	• Proof of concept/ prototype • Demo for stakeholders	• Multiple potentially viable prototype solutions	• Prototype solution specific to vendor platform • Demo for stakeholders
Timeline	• ~1 semester	• 24 hours to several weeks	• 6-8 weeks

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Example University Partnerships

Challenge

Apply computer vision models to automate meat grading

Benefit

AMS able to offer grading services to smaller businesses, expanding markets

Challenge

Analyze various data and build a model for fruit fly risk on imports

Benefit

APHIS can focus limited resources more effectively to protect the food supply

Challenge

Develop a GenAI-based public comments analysis tool

Benefit

Save millions of dollars in contract and federal labor costs

Challenge

Analyze satellite imagery of forest land to identify unmapped roads and trails and navigate an autonomous vehicle

Benefit

Improve wildfire response efforts and enhance UAV navigation (NASA)

Interested in Partnering with USDA?

USDA prioritizes partnerships with:

- **Land Grant** Universities
- Universities **located near USDA regional hubs** (Washington DC; Kansas City, MO; Indianapolis, IN; Raleigh, NC; Salt Lake City, UT; Fort Collins, CO)
- Universities with **competitive Computer Science, Data Science, GIS**, and AI colleges or programs
- Universities that can demonstrate **collaboration** across multiple colleges, universities, and programs

Please note, these are student-direct engagements.
Faculty and staff are allowed, but engagements are focused on student development.

Appendix