

# WHERE TECHNOLOGY EMPOWERS FARMING

The **Institute for Digital and Advanced Agricultural Systems (IDAAS)** at Purdue University unites data, technology, and people to solve real-world challenges in food and natural resource systems. By connecting agriculture, engineering, data science, and the social sciences, IDAAS develops digital and automated tools that help farmers and communities become more productive, resilient, and sustainable.

IDAAS advances technologies across the agricultural value chain, including:

- **Smart livestock monitoring systems** that improve animal health, welfare, and productivity
- **Robotics and automation**, such as autonomous equipment and robotic weeding, to increase efficiency and reduce labor demands
- **Drone- and sensor-based tools** that deliver timely insights for precision crop management
- **Artificial intelligence and data analytics** supporting climate-smart practices, food safety, and traceability

IDAAS also invests in the next-generation workforce through hands-on training, student-led innovation, industry partnerships, and signature events like the **Symposium on Digital Agriculture (SyDAg)**.

Through federal investments and strategic partnerships, IDAAS delivers precision tools, decision-support systems, and workforce training that help:

- Reduce production inputs and environmental impacts
- Improve crop and livestock performance
- Strengthen rural communities and food system resilience





PURDUE AGRICULTURE

# INSTITUTE FOR DIGITAL FORESTRY

The **Institute for Digital Forestry (iDiF)** at Purdue University advances forest management through cutting-edge digital technologies. By integrating drones, LiDAR, artificial intelligence, and remote sensing, iDiF helps measure, monitor, and manage forests to deliver ecological, economic, and social benefits.

## Highlighted Projects

iDiF leads innovative efforts that turn data into action, including:

- **PERSEUS**, integrating multi-source data and AI to generate near real-time forest maps and decision-support tools
- **AI-assisted automated tree inventory** using aerial remote sensing and machine learning to identify trees and estimate biomass
- **uTREE**, focused on strengthening urban tree resilience and advancing environmental equity
- **iForester**, a smartphone app supporting efficient tree measurement and management, along with drone- and satellite-based tools for forest health and wildfire risk assessment



## Partnerships, Workforce, and Leadership

iDiF collaborates with industry partners including **Amazon Web Services (AWS)**, **Bartlett**, and **Davey** to expand the reach and impact of its research. Through federal investments, Purdue advances sensing, AI, and decision-support systems that improve forest health, resilience, and resource management.

The institute also prepares the next generation of forestry leaders through:

- Hands-on workshops and professional certifications
- A **Professional Master of Science in Digital Ecology and Natural Resources**
- The **Digital Ecology and Natural Resources Fellowship**, expanding access to emerging technology training

As a global leader in digital forestry, iDiF also:

- Hosts the **Applications & Solutions in Digital Forestry International Conference**, bringing together researchers, industry leaders, and policymakers to shape the future of forest management



Federal investments translate advanced sensing and AI into practical tools that enhance forest resilience and inform real-world decision making.