

# What is Agricultural Autonomy?

The **automation** of traditional agricultural practices through the **adoption of multi-domain autonomous vehicle systems** such as drones, driverless tractors, and uncrewed maritime vessels.

These autonomous vehicle systems have demonstrated tremendous potential to modernize 21<sup>st</sup> century agricultural **production, processing, and research.**

## Research Infrastructure

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- AAI is housed in the Pace Seed Technology Laboratory on the main campus of MSU in Starkville, MS.
- Our facility includes a 4,800-ft<sup>2</sup> Autonomy Laboratory with 6 offices for faculty, staff, students, and collaborators.
- AAI has established a dedicated 5-acre “Autonomous Acres” proving ground for agricultural autonomy research, development, testing, evaluations, and demonstrations (RDTE&D).
- Through partnership with the Mississippi Agricultural and Forestry Experiment Station (MAFES), AAI has access to MSU’s four regional Research & Extension Centers across Mississippi which provide vastly diverse agricultural, horticultural, and aquacultural research and production environments.

## AAI Contact Info

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# Agricultural Autonomy Institute (AAI)

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*The nation’s first and only academic institute exclusively dedicated to advancing Agricultural Autonomy.*

AAI is Mississippi State University’s (MSU) newest University-level Institute focusing on the interdisciplinary integration of MSU’s two most prominent areas of research and educational excellence – agriculture & autonomous vehicle systems.





## Benefits of Agricultural Autonomy

Autonomous systems will revolutionize agricultural tasks which are **dull, dirty, and/or dangerous**. It is these tasks where humans exhibit notoriously poor performance. Autonomous systems profoundly benefit the **safety** and **efficiency** of these tasks and provide a much-needed solution to address current labor shortages and environmental challenges which are affecting commercial agriculture at a global scale.

Automation through autonomous systems will modernize precision agriculture to reduce agricultural inputs and their associated cost while mitigating drawbacks of traditional agricultural production (e.g., soil compaction, fossil fuel consumption, environmental footprint) with the ultimate goal of **increasing agricultural precision, production, and profitability at the individual grower level**.

## Why Ag Autonomy?

1. Farmers have been decimated by **labor shortages** in the wake of the COVID-19 global pandemic.
2. Rising **global population** demands increased agricultural production to sustain the well-being of human society.
3. Increasing risks and severity of **climate change** threatens many traditional means of agricultural production.

Autonomous systems provide a **much-needed solution to address these critical challenges**.

Autonomous systems also offer tremendous benefits which will **modernize 21<sup>st</sup> century precision agriculture**.

Agriculture's future depends on the **development, adoption, and scalable deployment** of multi-domain autonomous systems.



The Mississippi State University (MSU) Agricultural Autonomy Institute (AAI) performs research and development in the burgeoning field of agricultural autonomy. This field relies on the adoption of uncrewed, autonomous vehicles to automate and modernize 21st century agricultural practices.

AAI provides **applied research and development** support and **intellectual property (IP) development and commercialization** support to advance the practice and adoption of autonomous vehicle systems in agricultural production, processing, and research.

AAI is also committed to creating **economic development opportunities** and **workforce development and training opportunities** for careers in agricultural autonomy through strong working relationships with government and industry stakeholders.

The State of Mississippi is poised to serve as the “**Silicon Valley of Agricultural Autonomy**”. AAI supports this vision throughout our interdisciplinary research and development efforts.