



Mississippi Corn Promotion Board 2024 Progress Report

Project Title: Evaluation of UAS Systems for Aerial Applications and Cover Crop Seeding

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Department: MAFES Administration

Project Summary (Issue/Response)



The primary objectives of this project remain to investigate pesticide application, cover crop seeding, and granular fertilizer application using multiple UAS platforms. Multiple flight height and flight speeds will be evaluated with commonly used pesticides, fertilizer products, and cover crop mixes to determine efficacy, efficiency, and return on investment. In addition, effective application width varies across UAS application platforms and merits further investigation. An economic analysis and return on investment from pesticide application, granular fertilizer application, and cover crop seeding that includes UAS operational cost, efficacy, and yield will also be determined.

This project will impact Mississippi corn producers by providing unbiased data on efficacy, cost of operation, and return on investment utilizing UAS application platforms. In addition, it is anticipated that data generated from this project will help shape regulations on application with UAS platforms from the Mississippi Department of Agriculture and Commerce. Currently, existing data from which to inform producers and regulatory agencies is substantially lacking with respect to UAS application.



Project Results/Outcomes

This funding support was used to (1) secure a dedicated Graduate Research Assistant (GRA) for the research project, (2) procure a Hylío AG-230 UAS (i.e., “spray drone”), (3) complete manufacturer flight training on the Hylío AG-230, (4) perform an initial literature review of relevant scientific publications, (5) perform ongoing regulatory reviews and remain apprised of relevant regulatory policy developments, and (6) share the results of these efforts through presentations and demonstrations at multiple events and conferences including the American Society of Agricultural & Biological Engineers Annual International Meeting, Mississippi Agricultural Industry Council Annual Convention, MSU Agronomic Field Day, MSU Spray UAS/Drone Seminar, and MSU Row Crop Short Course. Additionally, FY2024 support enabled four students (James Ikerd, Madison Dixon, Will Rutland, Antonio Taveres) to complete FAA mandated flight physicals and obtain FAA Third Class Medical Certificates to serve as Pilot-in-Command for flight operations of the Hylío AG-230 and other spray UAS platforms for the research project.

Project Results



Hylio AgroDrone-230 (AG-230) takes flight in MCPB funded research at MSU

Project Deliverables

The results of these efforts will be provided through presentations and demonstrations at multiple events and conferences including the American Society of Agricultural & Biological Engineers Annual International Meeting, Mississippi Agricultural Industry Council Annual Convention, MSU Agronomic Field Day, MSU Spray UAS/Drone Seminar, and MSU Row Crop Short Course.