

Development and Expansion of Disease Management Decision-Making Tools Across Multiple Regions

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Overview of Project Objectives

Soybean growers across the U.S. face several common yield-limiting diseases. Predictive models and disease management decision-making tools provide methods to forecast disease problems and target fungicide applications, simultaneously improving fungicide efficacy and proactively delaying the development of fungicide resistance. The Sporecaster app has been successful in helping farmers in northern states make fungicide application decisions for white mold management. The Sporecaster platform has since been used to develop a framework for frogeye leaf spot in northern regions. This project aims to expand the frogeye leaf spot prediction framework to Southern, Mid-southern, and Atlantic regions. Researchers will also consolidate activities across these regions for *Cercospora* leaf blight and target spot, laying the groundwork for comparable prediction tools for these diseases. The project will use historical datasets of fungicide trials, new uniform fungicide trials, spore trapping networks, and improved detection tools to develop the data necessary for the prediction and decision tools.

Key Results

Foliar fungicide field trials are being conducted in 11 states, with levels of foliar disease pressure ranging from low to high with frogeye leaf spot and *Septoria* brown spot being the two most commonly observed diseases so far. Spore traps were placed in soybean fields in 11 states and samples were collected weekly during the growing season. The team is in the process of quantifying the disease-causing pathogens using qPCR assays. The Smith lab continues to leverage existing and new field research data, and work on the "frogspotter" app to forecast risk of frogeye leaf spot.

Benefit to Farmers

This project will provide validated tools that soybean farmers across the United States can use to make important disease management decisions.

Links

[Development and Expansion of Disease Management Decision-Making Tools Across Multiple Soybean Growing Regions](#)

USB National Soybean Checkoff Research Database