

ML 2018 Project Abstract

For the Period Ending June 30, 2023

PROJECT TITLE: Distribution and Management of *Phyllachora maydis*, the Causal Agent of Corn Tar Spot

PROJECT MANAGER: Dean Malvick

AFFILIATION: Plant Pathology, College of Food, Agriculture, and Natural Resource Sciences

MAILING ADDRESS: 495 Borlaug Hall, 1991 Upper Buford Circle

CITY/STATE/ZIP: St Paul, MN 55108

E-MAIL: dmalvick@umn.edu

WEBSITE: <https://mitppc.umn.edu/research/research-projects/distribution-risks-and-management-corn-tar-spot>

FUNDING SOURCE: Environment and Natural Resources Trust Fund

LEGAL CITATION: ML 2018, Ch 214, Art 4, Sec 2, Subd 6a

APPROPRIATION AMOUNT: \$176,618

AMOUNT SPENT: \$176,618

AMOUNT REMAINING: \$0

Sound bite of Project Outcomes and Results

Corn tar spot develops rapidly causing significant yield loss. Researchers confirmed the spread of this invasive disease; developed a DNA-based assay to detect corn tar spot; identified the environmental conditions favorable for tar spot development; and developed a new method to study the pathogen under greenhouse conditions.

Overall Project Outcome and Results

Corn tar spot is a leaf disease caused by the fungus *Phyllachora maydis*. It produces black spots on leaves, and can cause significant yield loss for corn, the most widely grown crop in Minnesota. Yield loss can exceed 40%. It was first detected in the United States in 2015 in Illinois and Indiana, and has since spread to multiple states in the Midwest, including southeastern Minnesota where it has been confirmed in 12 counties. There has been limited information about the distribution, biology, and management of corn tar spot.

This project team made significant progress in developing knowledge and tools for the research and management of corn tar spot. They identified the pathogen in an additional 25 Minnesota counties, confirming that it is continuing to spread. In collaboration with other colleagues, the MITPPC team created a DNA-based test to accurately detect corn tar spot. In addition, they developed a way to reliably inoculate corn with the pathogen in greenhouse settings, enabling future research on biology and management. This had not yet been accomplished by any other researchers. The team wrote a diagnostics and methods guide on corn tar spot, the first of its kind. The guide helps to identify the pathogen and distinguish it from lookalikes, and describes its host range and distribution. This contributes to the greater body of research and provides critical information to growers.

Project Results Use and Dissemination

Three peer reviewed publications have derived from this research project. All peer reviewed publications are permanently [archived](#). Multiple public presentations were made through the UMN Extension program, as well as industry events, and academic conferences. A full listing may be found on the MITPPC [webpage](#) dedicated to this research project.