



Florida's Response to Tar Spot, a New Disease of Corn In the United States

EUGENE MCAVOY*¹, CHRISTIAN F. MILLER², MATTHEW BARDIN³, ROBERT BEIRIGER⁴,
NICHOLAS DUFAULT⁵, MEGAN ROMBERG⁶, SHOUAN ZHANG⁷, AMANDA HODGES⁸,
AND RICHARD RAID⁴

¹University of Florida/IFAS, Hendry County Extension, P.O. Box 68, LaBelle, FL 33975

²University of Florida/IFAS, Palm Beach County Extension, 559 N. Military Trail,
West Palm Beach, FL 33415

³Glades Crop Care, 560 Center St. #1, Jupiter, FL 33458

⁴Everglades Research and Education Center, University of Florida/IFAS,
3200 Palm Beach Rd., Belle Glade, FL 33430

⁵Department of Plant Pathology, University of Florida/IFAS, P.O. Box 110680,
Gainesville, FL 32611

⁶U.S. Department of Agriculture, APHIS PPQ PHP NIS, Bldg 580, 9901 Powder Mill Rd.,
Beltsville, MD 20705

⁷Tropical Research and Education Center, University of Florida/IFAS, 18905 SW 280th St,
Homestead, FL 33031

⁸Department of Entomology and Nematology, University of Florida/IFAS, PO Box 110620,
Gainesville, FL 32611

During early June of 2016, a diseased corn specimen was delivered to the Everglades Research and Education Center (EREC) in Belle Glade, FL. The diseased leaves were from a field of highly infected field corn located approximately 10 miles southeast of Belle Glade. Exhibiting small, slightly raised black spots resembling flecks of tar, microscopic examination revealed subglobose perithecia, which were ostiolate and aggregated. Asci were narrow and cylindrical, holding hyaline, aseptate, broadly ellipsoidal ascospores. A sample was sent to the USDAAPHIS lab in Beltsville, MD, and the pathogen was confirmed as *Phyllachora maydis*, an obligate ascomycete fungus which is part of a disease complex known as Tar Spot. Not previously reported in Florida, and only reported for the first time in the U.S. the previous year in Indiana and Illinois, the disease is native to Mexico, Central America and the Caribbean. Extension specialists with University of Florida (UF) in Gainesville, county extension agents, and the Florida Dept. of Agriculture and Consumer Services (FDACS) were all immediately notified of the outbreak and symptoms and notified local growers and neighboring states of the disease through electronic newsletters and pest alerts for the disease. Personnel from the EREC performed follow-up field surveys to determine the range and severity of the outbreak. Observations revealed that the disease was widespread throughout a 1350-acre planting of field corn, with 100% of cornstalks exhibiting symptoms. Some fields had severities (percentage of foliage showing symptoms)

of up to 80%. The oldest plantings planted in February displayed significant necrosis caused by the disease, with successively younger plantings showing less disease. Scouting of corn in the surrounding area revealed minor spread to acreages of field corn in South Bay, and Pahokee, Loxahatchee, and south of Clewiston, which are near the original location. A large late-season planting of sweet corn located within two miles of the original tar spot infestation was not affected, suggesting that fungicides which had been applied for northern corn leaf blight and rust control may have been effective in preventing infection. Scouting during the fall corn growing season of 2016 and throughout 2017 failed to report the disease. However, presence of the disease was re-confirmed in Homestead, FL, during Feb 2018, suggesting that the disease may not be a one-time occurrence. Repeated observations of tar spot in the upper midwest (Indiana, Illinois, Iowa, Michigan, and Wisconsin from 2015 through 2017 seem to support this observation. A First Alert Workshop coordinated by UF and FDACS pathologists was conducted to educate growers, scouts, extension agents and other first responders about tar spot. Personnel of the Cooperative Extension Service, FDACS, and the USDA remain vigilant, and are ready to act should this disease re-emerge. Vigilance is also being elevated for a second fungus that is an important part of the tar spot complex, *Monographella maydis*. When the two pathogens are present together, potential for yield loss is increased dramatically. Known to be favored by cooler (17 to 22 °C) rather than warm temperatures, it is conjectured that tar spot may not thrive during Florida's hot summers, but this remains uncertain.

*Corresponding author. Email: gmcavoy@ufl.edu