

Wisconsin Pest Survey Report

Newly Emerging Corn Diseases

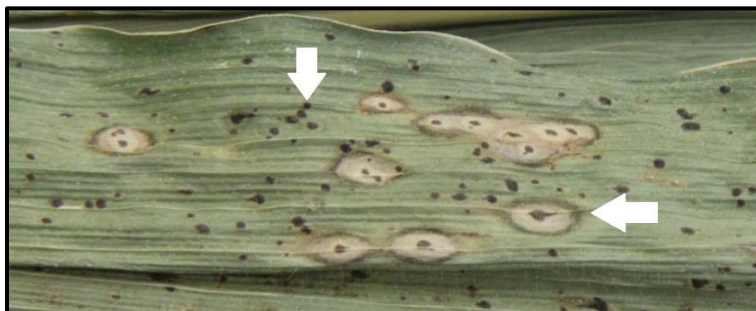
Two newly emerging corn diseases **tar spot of corn** and **Xanthomonas blight** were reported in Wisconsin in 2018. Wisconsin and other Midwest states experienced a major outbreak of tar spot of corn (*Phyllachora maydis*) in 2018. Xanthomonas blight appeared to be only incidental.

Tar spot that only affects corn, was first detected in Indiana and Illinois in 2015. In Wisconsin, tar spot was first found in Green and Iowa Counties in 2016. Appearing at low levels at the end of the season, tar spot was considered of no economic significance in 2016 and 2017. In 2018, UW Field Crops Pathology reported an outbreak in Wisconsin, warning of severe damage and early dry-down.

In Mexico, where tar spot has previously been reported and causes economic losses, the disease is described as a complex of the tar spot-causing-fungus *Phyllachora maydis* with two other fungi, *Coniothyrium phyllachorae* and *Monographella maydis*.



Tar spot symptoms on corn leaf.



Two types of tar spot symptoms on a corn leaf. Simple black spots on the left and fisheye lesions on the right. DATCP A. Phibbs

Tar spot is named for the black shiny fruiting structures of the *Phyllachora* fungus dotting infected corn leaves. Infected leaves often display fisheye-like spots formed by tan colored halos surrounding the black spots.

UW and DATCP Pest Survey documented tar spot of corn in 33 counties of the southern half of the state in 2018. DATCP surveyed corn fields from Sept 25 to Oct 16, 2018 and found tar spot in 77 of 79 fields (97%). A subset of fields was sampled and 36 symptomatic corn leaves were submitted to PIB lab for testing. Lab examination confirmed the tar spot causing fungus *Phyllachora maydis*.

The lab also observed a second fungi sporulating out of tar spot lesions. Gene-based testing identified the second fungus to genus level *Coniothyrium* with a *Paraphaeosphaeria* sp. sexual reproductive state. The third fungus reported to be associated with the disease in Mexico, *Monographella maydis*, was not observed in Wisconsin.

Our survey showed that most tar spot infected leaves were also infected with a variety of other common corn leaf diseases, notably grey leaf spot (100%) and anthracnose (98%). The next most-frequently found fungal leaf diseases were northern corn leaf blight (44%) and northern corn leaf spot (31%). *Alternaria*, *Epicoccum*, *Fusarium*, *Phyllosticta* and *Septoria* were incidental finds.

More research is needed to understand the tar spot disease complex in the Midwest and to explain this sudden outbreak.

Xanthomonas vasicola pv. *vasculorum* was found for the first time in Wisconsin in Pierce Co. in September of 2018 by UW-Madison Plant Pathology. This adds Wisconsin to the list of Midwest states where the disease has been confirmed. USDA confirmed first detections in the US in 2016 in Colorado, Illinois, Indiana, Kansas, Minnesota, Nebraska, Oklahoma, South Dakota and Texas. DATCP testing showed that Wisconsin seed corn producing fields did not have this new bacterial disease.

Southern corn rust (*Puccinia polysora*) appeared only in small traces in fields in Walworth, Richland and Sauk counties in 2018. Southern rust is sometimes picked up at the end of the season after it moves up on strong winds from the southern part of the US. Late season arrivals after corn is in milk stage (R3) pose less of a threat to production.