2016 WISCONSIN CROP DISEASE SURVEY

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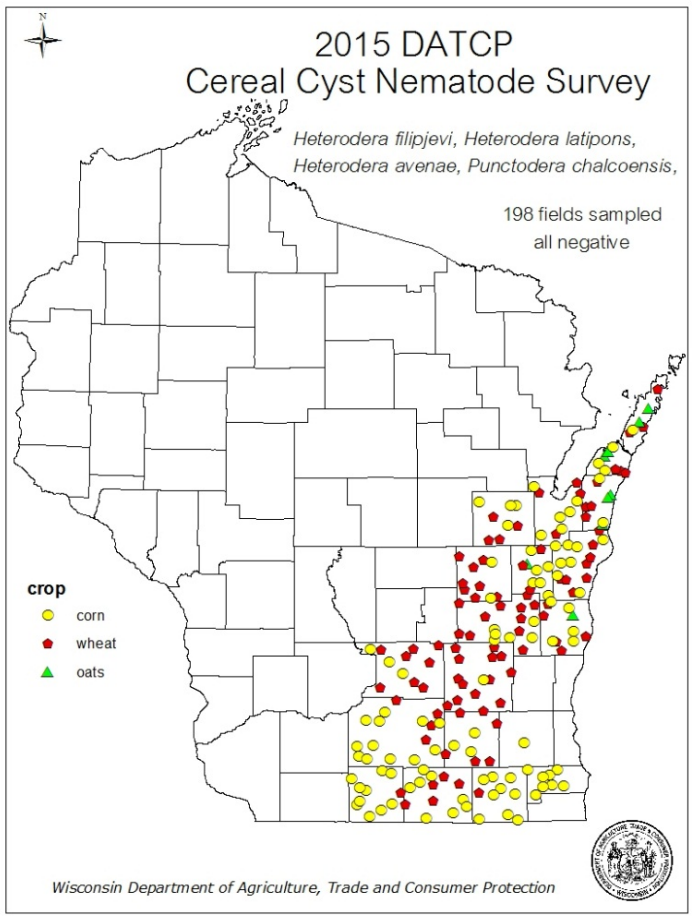
https://datcp.wi.gov/Pages/Programs_Services/PestSurvey.aspx

This survey was conducted to detect exotic cyst nematodes in cereal and corn producing fields of Wisconsin. The targeted nematodes were *Heterodera filipjevi*, the cereal cyst nematode; *Heterodera latipons*, the Mediterranean cereal cyst nematode; and *Punctodera chalcoensis*, the Mexican corn cyst nematode. Any of these nematodes could potentially impact crop production, management practices and trade if they were accidentally introduced into this state.

Sampling was conducted in counties that contain the majority of the wheat acreage in the state, (Brown, Calumet, Columbia, Dane, Dodge, Door, Fond du Lac, Green, Jefferson, Kewaunee, Manitowoc, Outagamie, Racine, Rock, Sheboygan and Walworth, Winnebago). Wheat is the main host for *H. filipjevi* and *H. latipons*. Corn, the host *of P. chalcoensis* is also grown in these counties.



From April 17 to November 2, 2015, the survey collected 198 soil samples (15-20 cores per field), 98 samples were collected from corn, 91 from wheat and 9 from oat fields. Soil samples were taken to Plant Industry lab for cyst extraction and identification. All soil samples tested negative for the three exotic cyst nematodes. The map shows the surveyed field locations by crop.

28% of soil samples contained cyst nematodes often found in Wisconsin fields. Soybean cyst nematode (*Heterodera glycines*) which is a common pest in soybeans, was found in 29 fields. Clover cyst nematode (*H. trifolii*) was detected in 5 fields and *Cactodera* spp. in 12 fields. Clover cysts infest clovers and legumes but not corn or cereals. *Cactodera* cysts are usually found on non-crop hosts except one. This cyst was determined to be *Cactodera rosae*, a species previously only reported on barley roots and soil in Mexico. Comparison of partial 28S rDNA sequence showed 100% homology to this species that was first described in 2008 by Cid del Prado. Morphology was confirmed by the USDA Nematologist. Our knowledge of this species is very limited at

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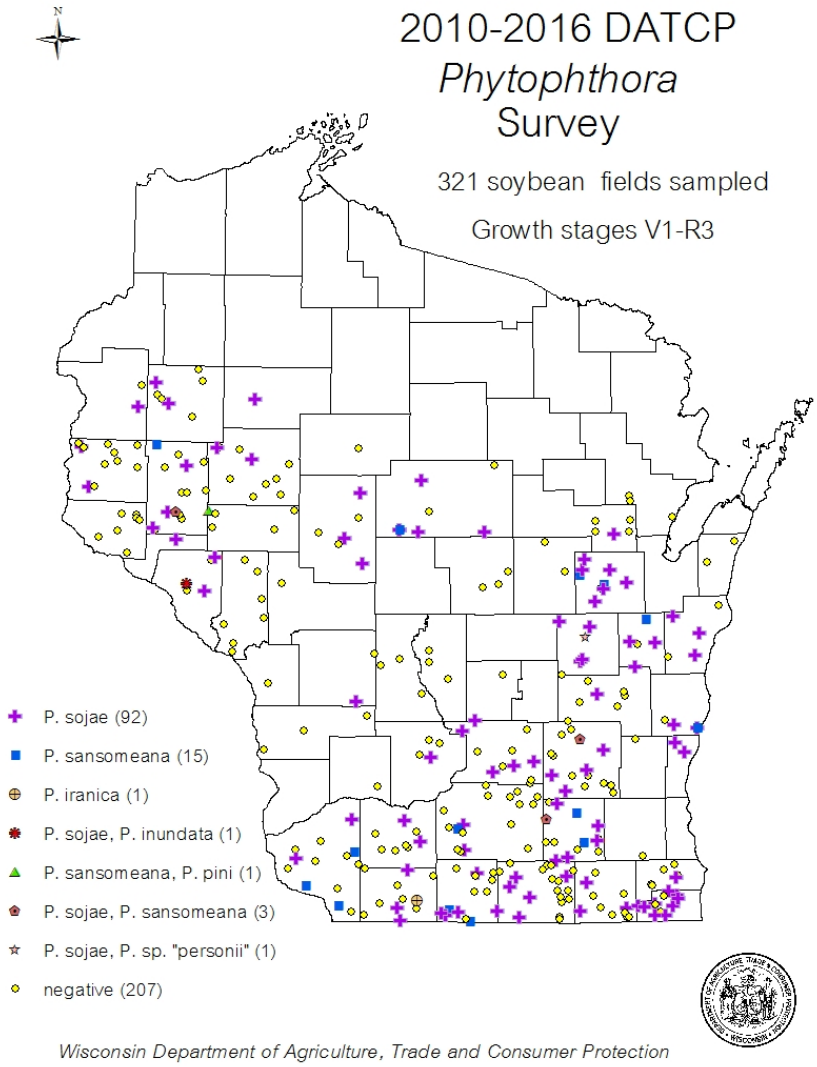
this point, including if there is any effect on cereal or corn. This is a first detection of *Cactodera rosae* in Wisconsin and possibly the US.

The 2016 Early Season Survey for Soybean Phytophthora Root Rot showed 32% (17 of 53) of surveyed fields tested positive for Phytophthora root rot disease caused by *Phytophthora sojae* compared to 38% in 2015. Fifty-three fields in the vegetative stages were sampled from June 7 to July 13. This fungus-like pathogen that causes soybean damping-off was detected in 12 counties: Barron, Columbia, Crawford, Dodge, Dunn, Green, Jefferson, Marathon, Outagamie, Racine, Rock, and Walworth.

Besides ***P. sojae***, that is known to occur throughout the state, this survey has been looking for Phytophthora species that are new to Wisconsin soybean production areas. Since 2012 five other Phytophthora species have been identified: *P. sansomeana*, *P. pini*, P. sp. "*personii*", *P. inundata* and *P. iranica*. ***P. sansomeana*** has been documented in soybean in 10 Wisconsin counties (Calumet, Dane, Dodge, Dunn, Eau Claire, Green, Jefferson, Outagamie, Marathon and Sheboygan). It was detected in soybean roots from a Dunn Co. field this year. At least some isolates of *P. sansomeana* have been reported to be pathogenic on soybean and corn. It has also been found on Christmas trees in Wisconsin.



P. pini and *P.* sp. *personii* were found in 2014, *P. inundata* and *P. iranica*, in 2015. It is not known at this time if these four species could have any significant impact on soybean production. They are associated with diseases on a variety of vegetables, hardwood trees and shrubs in other countries.

Corn Fall Survey and inspections screened for two new diseases, tar spot of corn (*Phyllachora maydis*) and Xanthomonas blight (*Xanthomonas vasicola pv. vasculorum*). 105 fields throughout Wisconsin were visited from Aug 5 to Sept 15, 2016.

Tar spot was detected in Green County on September 12, 2016 by DATCP's pest survey team and in Iowa Co, on

September 20 by UW-Madison. The USDA Mycologist confirmed this first detection of tar spot disease in Wisconsin. It is considered of minor importance at this point. The disease that only affects corn was reported on corn in Indiana and Illinois in 2015. It is better known in Mexico, Central and South America. In Mexico significant crop losses were observed when tar spot infections were colonized by another fungus *Monographella maydis*. This second fungus has not been observed in Wisconsin. Tar spot is spread on plant debris that is carried by wind and rain.

Xanthomonas blight was not observed in Wisconsin in 2016. Samples were examined at PIB lab and a suspect was send to the USDA identifier in Kansas where is was pronounced negative. This bacterial pathogen was confirmed on Aug. 26, 2016 in Colorado, Nebraska, Illinois, Iowa and Kansas. It was first reported in the Republic of South Africa in 1949. Symptoms are similar to gray leaf spot but since this is a bacterial disease, fungicide applications are ineffective. USDA determined Xanthomonas blight is of negligible disease importance and has no quarantine significance for domestic or international trade.

This corn survey also detected **Southern rust** (*Puccinia polysora*) in Lafayette (September 9) and Grant counties (September 15). Prior to that UW reported it in Rock Co (August 25). Southern rust is rare in Wisconsin. It does not overwinter but occasionally can be blown up from the southern US and tropics. Late season arrivals after corn is in milk stage (R3) pose less of threat to production.

Goss's Wilt of Corn was detected in 6 Wisconsin counties (Dane, Fond du Lac, Eau Claire, Grant, Pierce and Walworth) during seed corn field inspections in August. This bacterial disease caused by *Clavibacter michiganensis nebraskensis* was confirmed in 11 of 78 (14.1%) samples at Plant Industry lab compared to 15 of 39 (38.5%) in 2015. Stewart's wilt (Pantoae stewartii) was not detected. Northern corn leaf blight (*Exserohilum turcicum*), common rust (*Puccinia sorghi*) and anthracnose (*Colletotrichum graminicola*) were the most common diseases.

Virus Screening of Corn continues to show no evidence of high plains virus (HPV), wheat streak mosaic virus (WSMV) or Maize chlorotic mottle virus (MCMV) in Wisconsin. Three fields in Dane county tested positive for sugarcane mosaic virus (SCMV), formerly called maize dwarf virus (MDMV).

Potato Late Blight caused by *Phytophthora infestans* was reported by UW from two Wisconsin counties in 2016: Polk (tomato and potato) and Dane County (tomato). PIB lab helped to resolve an incident of potato foliage with late blight-like symptoms from Adams Co. by determining it was infected with another species of this fungus-like pathogen called *P. nicotianae*. Sporadic infections with this pathogen have been reported from Florida, Missouri, Nebraska, and Michigan. It is usually associated with tobacco, onion, tomato, infecting 90 plant families causing fruit-, leaf blight and root rot on ornamentals, fruits and vegetables. This may be a first find on potato in Wisconsin. Red Norland are considered more susceptible than Russet potato varieties.