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Damon L. Smith, Plant Pathology, UW-Madison/Extension

(405) 334-1975, dlsmith26@wisc.edu, <http://fyi.uwex.edu/fieldcroppathology/>

Anette Phibbs, State Plant Pathologist and Nematologist, Department of Agriculture, Trade, and Consumer Protection, (608) 266-7132, anette.phibbs@wisconsin.gov, <http://pestsurvey.wi.gov/>

The 2012 field season has been one for the record books. There have been many challenges this season from drought, to various insect issues. There is also a pathogen of interest that was detected for the first time in Wisconsin in 2012. Plant pathologists with the Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) detected the pathogen *Phytophthora sansomeana* on soybean. Most growers and consultants are familiar with *Phytophthora* rot on soybean; however, the primary causal agent in Wisconsin is *P. sojae*. The 2012 season is the first time that *P. sansomeana* was detected on soybean, resulting in root rot in Wisconsin.



Soybean roots infected with *Phytophthora sansomeana* and *Pythium* sp. displaying root rot lesions. Photo Credit: Anette Phibbs, DATCP.

How were fields sampled?

DATCP plant pathologists sampled 49 soybean fields from May 29 to July 2, 2012. Soybeans were mostly in the vegetative stages V1 to V4, while a few were in R1 by July 2. Soybean fields were chosen randomly for sampling. Twenty soybean plants were dug up from each field, from areas with suspected symptoms of root rot. The plants were brought back to the Plant Industry Laboratory at DATCP and roots were washed and tested for the presence of *Phytophthora* and *Pythium*.

What was found?

Out of 49 total samples, eight (16%) tested positive for *Phytophthora sojae* the primary causal agent of root rot in Wisconsin. All samples tested (100%) were positive for *Pythium* in 2012. In three of the 49 samples tested (6%), *Phytophthora sansomeana* was detected (see map). The new *Phytophthora* sp. was detected using DNA-based techniques and was also isolated and grown in culture to review growth characteristics and morphology. To the best of our knowledge, this is the first detection of *Phytophthora sansomeana* on soybeans in Wisconsin.

What is the Significance?

Phytophthora sansomeana has been reported on corn in Ohio, soybeans in Indiana, Douglas fir seedlings in Oregon, and weeds such as white clover, wild carrot, and white cockle in alfalfa fields in New York. In 2011 DATCP plant pathologists isolated this new *Phytophthora* and other

closely related species from Fraser fir grown in Wisconsin Christmas tree plantations. Little is known about the efficacy of known resistance genes to *P. sojae* and if they are at all effective against *P. sansomeana*.

Management Recommendations

More research needs to be done to assess the impact of *P. sansomeana* on soybeans, corn and other hosts. The host range is significant to note in the context of crop rotation for disease management. However, crop rotation is considered of limited efficacy for Phytophthora rot in general, because inoculum of the pathogen can survive for many years in soil. As with any *Phytophthora* management program integrated disease management (IDM) should be adopted. In areas prone to Phytophthora rot, use soybean cultivars with good resistance to the known *P. sojae* races in the field. Improving drainage is very effective in many soils to manage Phytophthora rot. Fungicide seed treatments can also reduce the incidence of Phytophthora rot on soybean.

For More Information

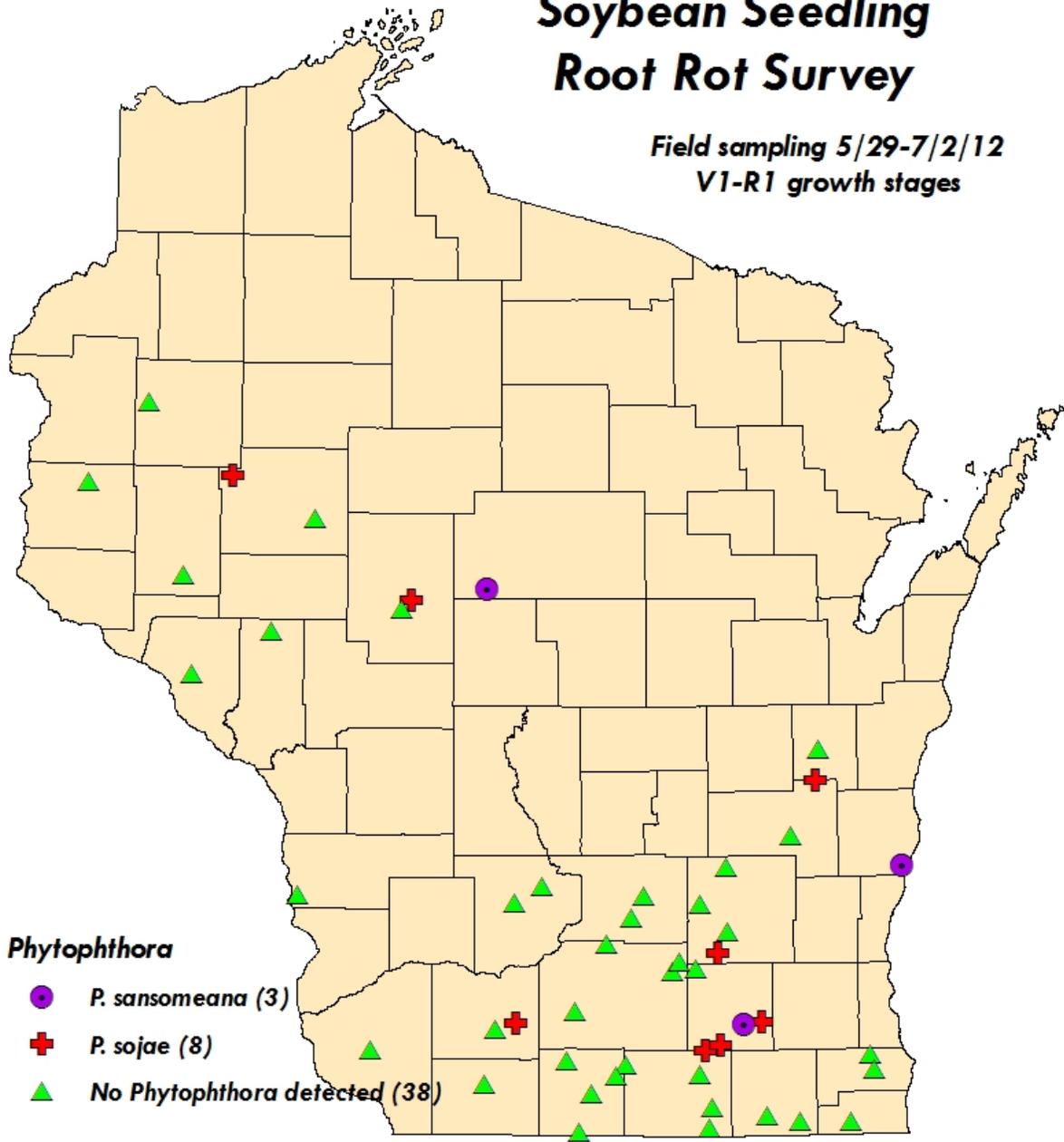
Contact your local UW Extension agent or the authors with questions. For more detailed information about Phytophthora rot visit the following website:

American Phytopathological Society, Education Center – Phytophthora root and stem rot of soybean

(<http://www.apsnet.org/edcenter/intropp/lessons/fungi/Oomycetes/Pages/PhytophthoraSojae.aspx>)

2012 DATCP Soybean Seedling Root Rot Survey

Field sampling 5/29-7/2/12
V1-R1 growth stages



All 49 samples tested positive for *Pythium* species.

Wisconsin Dept of Agriculture, Trade and Consumer Protection



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