

Pest&Crop newsletter

Purdue Cooperative Extension Service and USDA-NIFA Extension IPM Grant

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2019 Pest&Crop Survey

(John Obermeyer)

Dear Pest&Crop reader,

The following is a link to a simple, short online survey. Please consider doing this right now, as we need your evaluation of this newsletter. Too, we need to show our funding agencies whether or not this information from Purdue specialists throughout the season is meaningful to you and the industry. Thanks in advance for your support!

https://purdue.ca1.qualtrics.com/jfe/form/SV_4SFCy6FzF66v91b

To Understand the Future Risk on Your Farm Now is Time to Scout for Tar Spot

(Darcy Telenko)

Tar spot of corn has been a concern this season after the localized epidemics we experienced last year in Indiana. At this point in the field season, **there are a number of areas with active tar spot**. We again would like to document tar spot disease distribution and severity in Indiana. Our research trials are in full swing and optimistically we will have some positive results about management this winter, but we still need your help collecting samples and documenting this disease. It is not only important to understand tar spot distribution statewide, but it is extremely important to know if this disease is present in your fields for future risk assessments and to implement disease management tools if necessary.

We have currently confirmed active tar spot fields in 20 counties in 2019. In 2018, we confirmed tar spot in 41 counties (Figure 1).

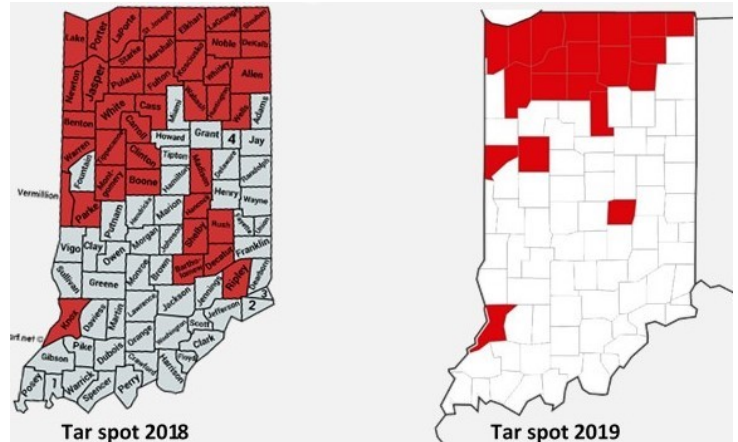


Figure 1. Distribution of tar spot in Indiana in 2018 and current distribution as of Oct 1, 2019.

What to look for: Small, black, raised spots (circular or oval) develop on infected plants, and may appear on one or both sides of the leaves, leaf sheaths, and husks. Spots may be found on both healthy (green) and dying (brown) tissue. Often, the black spots are surrounded by a tan or brown halo; this is especially obvious on healthy leaves (see Figure 2).



Figure 2. Corn leaves infected by tar spot. Infection can range from severe to mild on a leaf. The spots will be raised (bumpy to the touch) and will not rub off. In addition, they be surround by a tan or brown halo. (Photo Credit: Darcy Telenko)

We greatly appreciate the samples that we have received this season and want you to keep it up. If you have (or think you have) corn tar spot, please collect several leaves showing the symptoms and send them with a PPDL form

https://ag.purdue.edu/btny/ppdl/Documents/Forms/PPDL-Form_13MAY15FILLABLE.pdf.

Please wrap the leaves in newspaper and ship in a large envelope. Please ship early in the week. If you are sending samples from multiple

locations please label them and provide the date collected, variety of corn, field zip code or county, and previous crop.

Research funding from the Indiana Corn Marketing Council is supporting sample processing, therefore there will be no charge for corn tar spot samples submitted to the clinic.

Mail to: Plant and Pest Diagnostic Laboratory
LSPS-Room 116, Purdue University
915 W. State Street
West Lafayette, Indiana 47907-2054

Question please contact Darcy Telenko
(dtelenko@purdue.edu/764-496-5168) or PPDL (ppdl-samples@purdue.edu/765-494-7071)

Premature Plant Death Due to Drought Stress: Insult to Injury

(Bob Nielsen)

Areas of Indiana have been exceptionally dry since early July. With no meaningful rainfall in recent weeks, the dry soils, and above normal temperatures, continue to cause problems for some late-planted corn fields as they enter the home stretch heading towards physiological maturity.

The photos that accompany this article illustrate spatial variability for premature plant death in a no-till continuous corn field in southeast Indiana that was planted on June 4 under less than ideal conditions... let's just say that soil moisture at the time was "slightly wetter than desired". Over the next 20 days, close to 11 inches of additional rainfall occurred on this field, including almost 7 inches over a 4-day period. Among the "casualties" of the June "monsoon" season was a root system unable to develop very deeply or extensively and, thus, dependent on timely rainfall the remainder of the season to avoid drought stress.

Unfortunately, rainfall has been largely AWOL over the past 60 days and has already reduced grain yield in fields like this due to kernel abortion (fewer kernels per ear) and smaller kernels. In response to continued pressure from excessively dry soils and above normal temperatures in mid- to late September, photosynthesis of shallow-rooted stressed plants simply "shut down" prematurely. In areas of the field that were still alive on September 27, kernels were at the so-called half-milkline stage and approximately 10 to 14 days away from physiological maturity. In areas of the field where plants were dead or dying, kernel blacklayer had already occurred (i.e., were physiologically mature) and kernel size was visibly smaller than those on ears from plants still alive.

Fields with spatially variable stress like this one will be challenging to harvest for a couple of reasons. The spatial variability that is apparent now for premature plant death will lead to spatially variable grain moisture at harvest, which will cause headaches at the grain dryer. Stalk health and integrity is already poor in those areas where plants are dead or dying. While waiting impatiently for the healthier areas of the field to reach physiological maturity AND dry down to harvestable moisture content, the risk of severe stalk lodging in the dead and dying areas of the field will increase with every passing day, leading to problems at harvest time if those areas of the field are lodged severely or even flat to the ground.

Situations like this, in a cropping season already fraught with problems, simply add insult to injury.

Related Reading

Nielsen, RL (Bob). 2018. Effects of Severe Stress During Grain Filling in Corn. Corny News Network, Agronomy Dept., Purdue Univ.
<http://www.kingcorn.org/news/timeless/GrainFillStress.html> [URL accessed Sep 2019]

Nielsen, R.L. (Bob). 2019. Grain Fill Stages in Corn. Corny News Network, Agronomy Dept., Purdue Univ.
<http://www.kingcorn.org/news/timeless/GrainFill.html>. [URL accessed Sep 2019]

Nielsen, RL (Bob). 2019. Stress During Grain Fill: A Harbinger of Stalk Health Problems. Corny News Network, Agronomy Dept., Purdue Univ.
<http://www.kingcorn.org/news/timeless/StalkHealth.html> [URL accessed Sep 2019]



Aerial view of spatial variability for plant health, 24 Sep 2019.



Aerial view of spatial variability for plant health, 27 Sep 2019.



Prematurely dead plants (foreground) and still functional plants (background).



Ears from immature plant (L) and prematurely dead plant (R).



Half-milkline kernels from immature plant (L) and black-layered kernels from prematurely dead plant (R).

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