

Summer Extension Newsletter

July, August, September 2024

Whoomp! There it is! What to do about Tar Spot of Corn in 2024

July 2, 2024/in [Corn](#), [Corn Disease](#), [Tar Spot](#), [Urgent](#) /by [damonsmith](#)

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Over the last several weeks we have seen confirmed positives for tar spot in parts of Iowa, Missouri, Kansas, Nebraska, Indiana, Illinois, Michigan, and now Wisconsin (Pepin Co.; Fig. 1). While it has been found in Wisconsin, the severity and incidence are extremely low and does not necessitate spraying fungicide at the moment! So, what should we do now?



Figure 1. Map of counties in the Midwest where tar spot has been confirmed in 2024.

My advice is to get prepared and make sure you have the tools in place to deal with this problem. As I said the last few seasons, tar spot is here to stay and we need to simply be prepared and ready to fight the disease. The first line of defense is to know if you have had tar spot before. This will tell you if there is resident inoculum sources present that can initiate epidemics. If you have seen tar spot on your farm before, then assume the pathogen is present and in close proximity to corn (the host). Remember the disease triangle? The last component of the triangle is the weather. If there has been conducive weather then the triangle has been met and risk is high for finding tar spot. So how do you know if the weather is conducive? Well, there is an app for that!

Tarspotter and **Field Prophet** are both Smartphone applications that can help you determine if the weather has been conducive to put your corn crop at high risk of tar spot development. The app DOES NOT tell you if the pathogen is present. We are working on this part of the triangle to improve our predictions, but you need to determine if the pathogen is present in your field. This tool just tells you if the weather has been conducive.

So what weather is conducive for tar spot development? Yes, precipitation is helpful, but more importantly, **we need intermittent wet/dry cycles to give us intermittent leaf wetness**. Specifically leaf wetness at night. What gives leaf wetness this time of year other than rain? That would be high dew points and humidity. These variables are included in the models that run in Tarspotter and Field Prophet. We also include temperature which is an influential variable too. These variables are measured over the last 14 days and 30 days and included in each daily run of the tool. We use the GPS on the smartphone to pull down cloud-based weather for a precise location. Thus, these results are site-specific. I also like to use the Field Prophet version of the models as this version provides a 7-day trend line on how weather has been progressing and also allows for a true 7-day forecast. These additional tools can better help with the decision-making process. If you would like to learn more about the “nuts and bolts” that run behind the smartphone apps, you can find our research publication **HERE**.

My corn is at V8-V10, should I spray Fungicide?

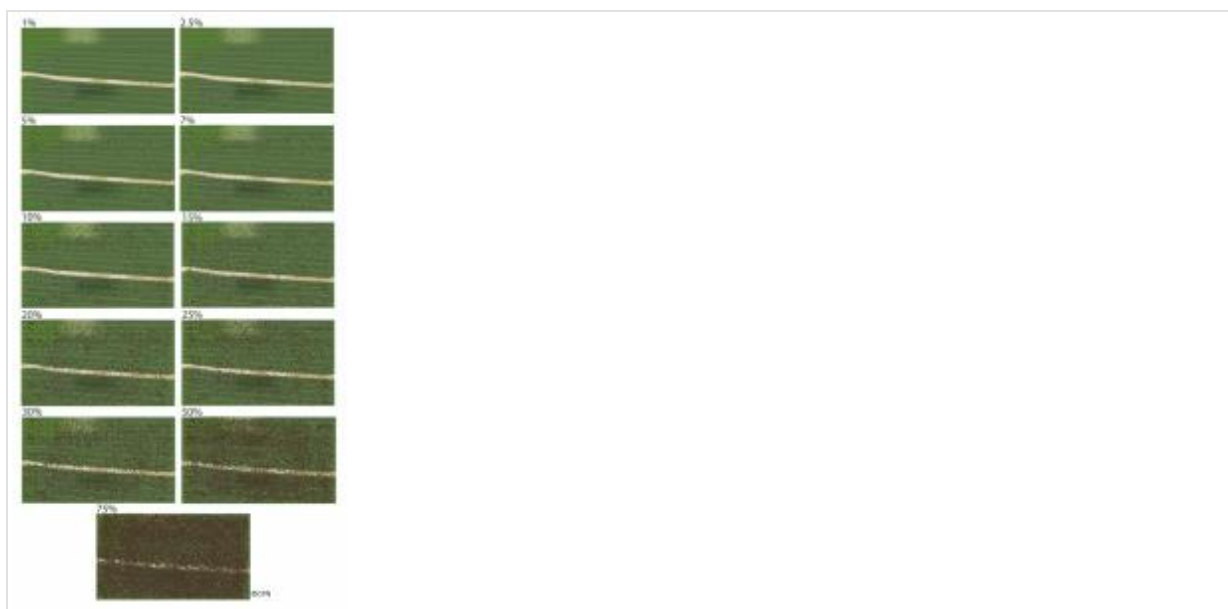


Figure 2. Tar spot severity diagram indicating various levels of tar spot on corn leaves. Yield loss isn't typically detectable in the field until severity reaches 10% or more on the ear leaf or leaves above this leaf.

My short answer is no! The disease is just getting started. If you find it in Wisconsin right now, it will be at low severity and is low in the canopy on leaves that are not going to contribute to yield. My advice is to use your prior knowledge of where tar spot occurred and the Tarspotter tool to help guide your scouting efforts. Get out into the fields and know what you are dealing with. Figure 2 shows various severity levels on a corn leaf. We don't start to see yield loss until we reach about 10% severity on the ear leaves or above. Thus, you have time! Target fields planted to known susceptible hybrids. Get yourself prepared and use those lower leaves to monitor severity and tar spot progress. Be ready to protect (put fungicide on) those leaves that contribute to yield (ear leaf and above), later on especially if the weather becomes increasingly conducive (**think wet/dry cycles!**) and/or your scouting indicates severity is increasing.

When should I spray fungicide? What should I use?

When making decisions on using a fungicide for tar spot management keep in mind that fungicide active ingredients are important. Products with multiple fungicide classes are preferred (QoI + DMI or QoI + DMI + SDHI). Products with multiple fungicide classes tend to provide better efficacy and delay the development of fungicide resistance. **See the CPN Fungicide Efficacy Guide** for specific products and their ratings for tar spot and other diseases.

Application timing is very important for tar spot management. It is best to use scouting and/or tar spot risk or profit tools like Tarspotter and Field Prophet to make informed decisions about when to apply fungicides for tar spot management. These apps use weather data to determine if the environmental conditions are favorable for tar spot to develop, and consequently optimize fungicide application timing.

In most years, a fungicide application will not be needed prior to the V10 growth stage. In most years, one well-timed (VT-R3 growth stages) fungicide will be sufficient to manage tar spot. Even in years where two applications appear to improve tar spot control, improved ROI is marginal over a single well-timed application.

The Conclusion

DON'T PANIC! This is just a call to be ready. Download the apps and know what the weather is doing. Use your prior knowledge and scouting in key locations to track tar spot. Get your management plan in place. Have your fungicide of choice available. Communicate with your custom applicator. Be ready to spray between the VT and R3 growth stages if you plan to use just one fungicide application and you are seeing tar spot increase. If you spray between the V8 and VT growth stages, be ready to monitor the smartphone apps and do more scouting as you might have to pull the trigger again later in the season. Get out and SCOUT, SCOUT, SCOUT!

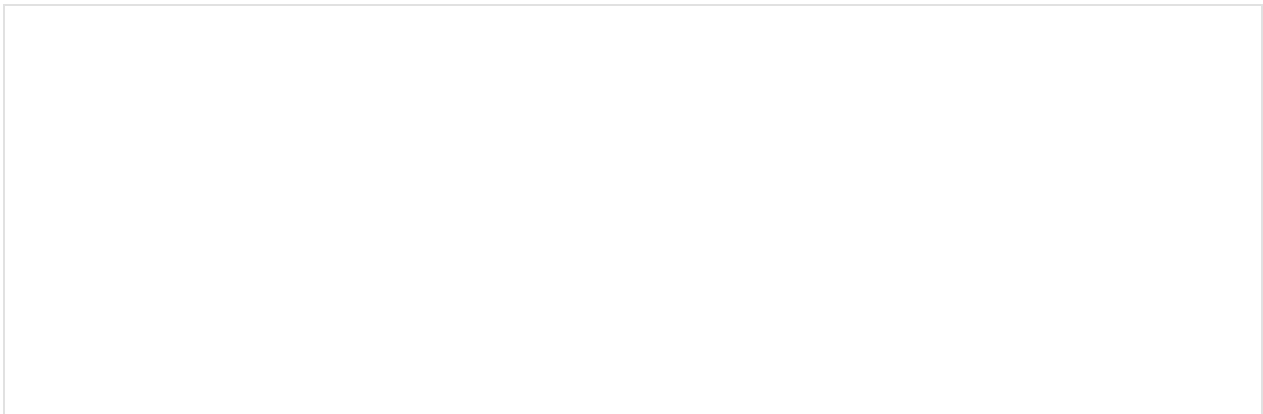
Other Resources

- **Tar Spot Web Book**
- **Fungicide Use in Field Crops Web Book**
- **Corn Foliar Fungicide Efficacy Table**
- **Wisconsin Fungicide Test Summaries**

- **The Crop Protection Network CPN TV Tar Spot Series**
- [Tar Spot Epidemiology, Model Development, and Decision Support System](#)
- [Best Practices for Tar Spot Management](#)
- [Tar Spot of Corn Emerging in New States](#)

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Soil Test Phosphorus (STP) Program

Sheri Shwert

Extension's Ag Water program at the University of Wisconsin-Madison is looking for high-quality on-farm data to help improve our understanding of how soil health practices impact phosphorus stratification. The project's goal is to assess soil test phosphorus in different farming systems and find out if there are systems currently mitigating high surface concentrations even with routine phosphorus application.

Nutrient stratification occurs across most agricultural fields, however high soil test phosphorus values at the top inch or two are often associated with no-till fields, where fertility is often surface applied. Phosphorus concentrated in the top 2 inches of soil indicates a higher risk for water quality. Questions still exist on effective drawdown strategies and the effects of soil health practices like cover crops, and reduced tillage. Our project seeks to explore this relationship.

We are looking to collaborate with individual farmers or farmer groups on a soil test phosphorus survey. Individual participants will gain soil test results and an analysis on how nutrients are distributed within the top 6 inches of their fields. Groups will receive outreach and education on aggregated results and recommendations for minimizing water quality risks.

In 2023, 23 counties were sampled, shown in the map above. These counties yielded valuable results on phosphorus stratification across many different farm management strategies. More sampling this fall, prior to any fall fertility application, will add to our database, and to our understanding of phosphorus stratification.

Nearly all fields, or even pasture, could provide valuable data for the project, but fields of particular interest include those with known high phosphorus values, and those utilizing soil health practices (reduced tillage, cover crops, manure) for varied lengths of time. Farmers will choose up to 3 fields to be sampled by the nearest team member. For farmers in Jackson, Buffalo, Trempealeau, Pepin, or La Crosse, that is Sheri Schwert. Get in touch at sheri.schwert@wisc.edu or 608-792-0727.

Sheri is also a source for outreach on the impacts of increased extreme precipitation in southwest/Driftless Wisconsin and soil health practices that can improve resilience to extreme weather. Read her article on the subject in the Journal of Nutrient Management [here](#). Beyond the STP project, and promoting resilience to extreme weather, Sheri is a member of the ag water quality team based out of La Crosse, and delivers outreach on topics that relate to agriculture and water quality, including nitrate, soil loss, and the water quality impacts of a range of conservation practices, including perennial/prairie strips, cover crops, and reduced tillage.

Potato Leafhopper in Alfalfa

Bryan Jensen, UW-Madison Dept. of Entomology and Integrated Pest Management Program

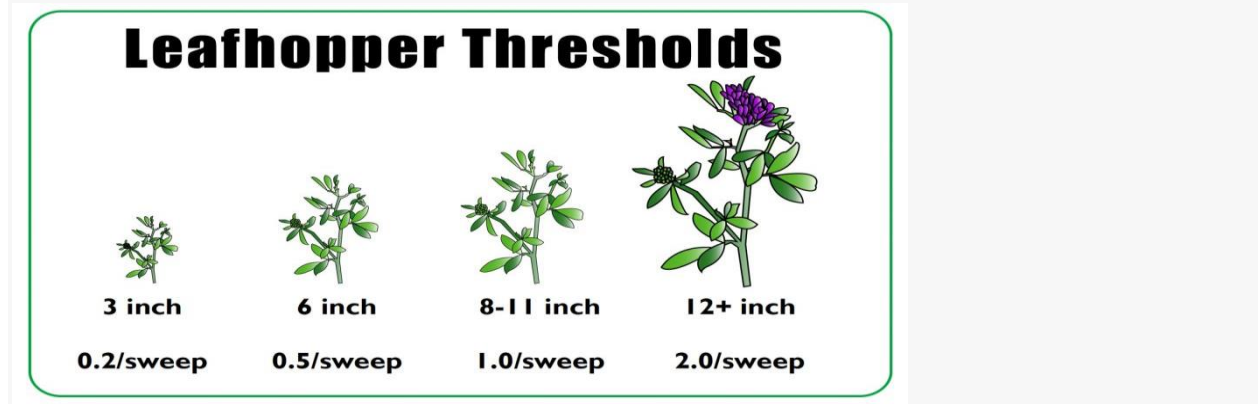
The recent warm weather has been favorable to potato leafhopper development. I've been noticing some late instar nymphs and this is the time populations may, or may not, get rolling. Potato leafhoppers can go through 4-5 generations per summer and adult females can live and lay eggs for a relatively long period of time.

Damage caused by potato leafhoppers is not reversible, however, control should not be considered preventative by nature. With consistent scouting we can prepare and use rescue treatments before economic damage occurs. I have seen lots of tools used to sweep leafhoppers including caps, ice cream pails, 5-gallon pails as well as observations on the cutter bar or pant legs. Only a 15-inch diameter sweep net should be used to estimate populations and to determine if the economic threshold has been met or exceeded. To get a representative estimate of field populations **take 20 consecutive sweeps in each of 5 areas of the field (100 total sweeps)**.

Do not sweep field edges and expect populations to be similar within the field. I wish it were that easy. Pay very close attention to the edge of the net when counting. Leafhopper nymphs are often found along the edge of the net. Adults more commonly are found in the back of the net. Early instar nymphs can be difficult to see and often yellowish in color. Later instars and adults are fluorescent green. Missing the nymphs on the edge of the net can mean the difference between accurate and poor field scouting.

The economic threshold for established alfalfa stands is to treat if sweep averages are greater than 0.2 leafhoppers/sweep on 3 inch alfalfa, 0.5 leafhoppers/sweep on 6 inch alfalfa, 1.0 leafhopper/sweep on 8-11 inch alfalfa and 2.0/sweep on alfalfa taller than 12 inches. Typically, most applications will be on alfalfa < 6 inches tall, however, applications

on taller alfalfa are possible.



Leafhopper economic thresholds in Alfalfa. Credit: UW-Madison Integrated Pest Management Program.

When alfalfa is within 1 week of harvest, I would suggest taking an early cutting if that stand is otherwise considered healthy. **Cutting of established stands is an excellent cultural control method.** After harvest there isn't a food source and adults will leave. Nymphs are likely to die because of the lack of food and exposure. **Therefore, automatically spraying stubble after cutting is not a good control tactic.** We do not know exactly when (or if) adults will migrate back into that field at populations high enough to cause economic damage. If they do, weekly field scouting will catch that migration back into the field and result in a better-timed insecticide application.

Direct seed alfalfa is a little different situation. After first cut, there can be adequate green foliage on the stubble that both adults and nymphs may feed on. If high populations existed prior to cutting sweep these fields immediately after harvest.

On a side note, as you start scouting soybean for aphids you will undoubtedly find some potato leafhopper nymphs. Usually, the trichomes will help protect soybeans from economic feeding. To give you a perspective of the economic threshold on soybean, populations of more than 2/plant on soybean less than V4 may benefit from an insecticide application. R1-R3 soybean require approximately 3/sweep and soybean at R4 or older require 6-7/sweep. These thresholds serve as a management guideline. I would certainly consider growing conditions and crop health before deciding to treat. Remember wheel tracks can slightly reduce yield and a well-meaning foliar application can flare aphid and/or two-spotted spider mite populations.

I am often asked when leafhopper populations will slow down. Usually by mid-August populations are declining. However, it is not common to find economic populations after Labor Day. Occasionally, I have noticed a significant reduction after July 15. However, mid-August is usually more common.



Potato leafhopper adult



Potato leafhopper nymph

Calendar of events

Trempealeau County Fair, July 16-21.

Jackson County Fair, July 30 – August 4.

Buffalo County Fair, August 1-4.

August 22, 3:00pm **Buffalo Trempealeau Farmer Network bus tour**. Bus leaves N32153 WI-93 Trunk, Arcadia, WI 54612 at 3:00. A tour of cover crops and other soil health practices will take you around West Central Wisconsin.

Soil Test Phosphorus (STP), August 29 6 pm – 8 pm. Waumandee Country Bar, S2020 Cty. Rd. U, Waumandee.