

# Pest & Crop newsletter

**Purdue Cooperative Extension Service and USDA-NIFA Extension IPM Grant**

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## Tar Spot And Southern Corn Rust Update In Indiana

(Darcy Telenko)

Tar spot continues to be found in Indiana and our first confirmation of southern corn rust happened this week (Figures 1 and 2). I suggest if you have not gotten out and looked for these diseases now is the time. Even if your corn is approaching black layer it will be important to document tar spot in your fields for the future disease management decisions.

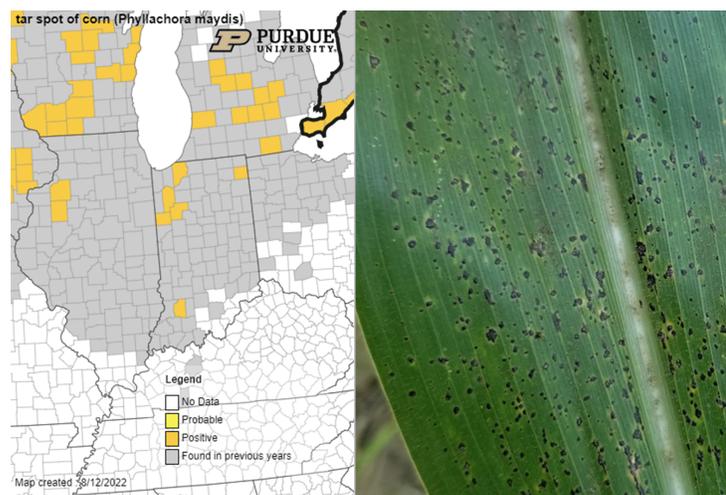


Figure 1. August 12, 2022 map of tar spot and image of a tar spot infected leaf.

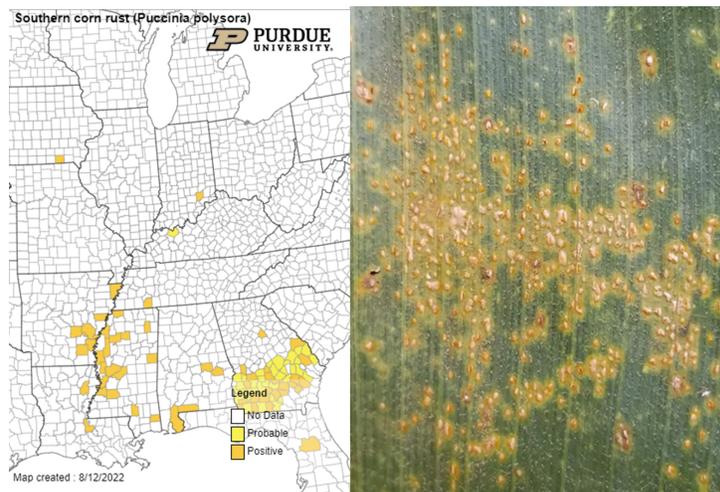


Figure 2. August 12, 2022 map of southern rust and image of a southern rust infected leaf.

There are currently 6 counties with a positive confirmation of tar spot (Figure 1). One county (Jennings) with southern rust (Figure 2). As we are learning this season where there have been favorable environmental conditions (lots of rain or long periods of moisture), we are starting to see pockets of tar spot, such as the field Davies County. In the map all gray counties indicate that tar spot was found in the county in previous seasons. I suspect we will start seeing more of it and so keep looking for this disease. The good news is the disease has started later in Indiana than in 2022, so hopefully yield losses will be less than what was seen last year in those high-risk areas.

I have been getting many questions on whether a late season fungicide application should be applied.

Here are my thoughts on what to consider to make that decision.

1. What growth stage is the corn? If at dough or beyond I would not make an application.
2. What has been the history of tar spot in your field? How much disease do you see currently? Have you found it yet?
3. If you already applied a fungicide, when was it applied? If more than 3 weeks then the effective period for many of our fungicides has run out.
4. Has the environment be favorable for tar spot development - there's an app you can use to check your field risk.

The current risk across the state is variable (see Figure 3).

5. If you do decide to make a fungicide application at this point in the season, leave check strips to determine if the fungicide gave you a return on your investment.

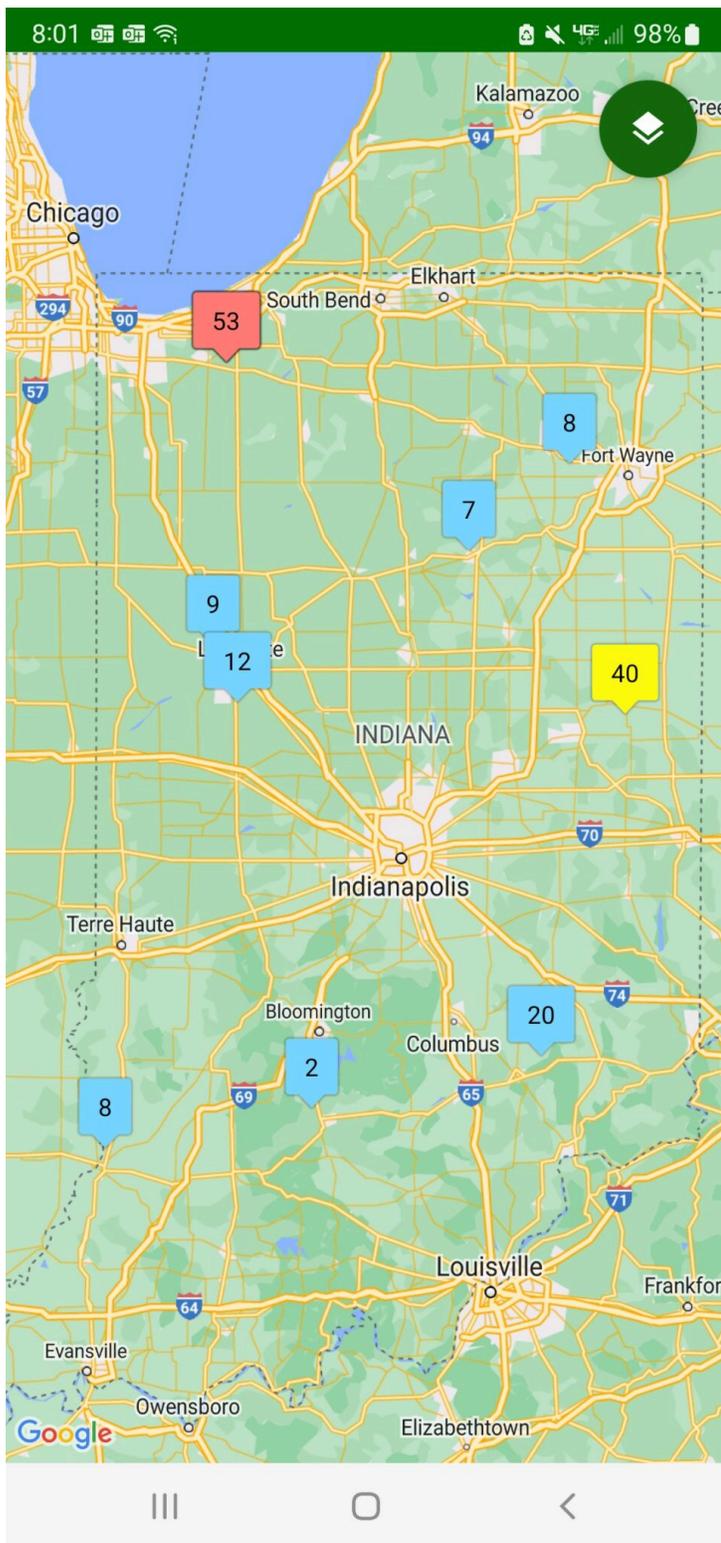


Figure 3. Tarspotter App risk for sites in Indiana as of August 12, 2022.

We are still documenting tar spot and southern rust as it is important to understand the disease distribution and severity across Indiana. 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. **If you observe tar spot in a county that has not reported this season, then please send a sample to the Purdue Plant Pest Diagnostic Lab (PPDL)**

[https://ag.purdue.edu/department/btny/ppdl/submit-samples/\\_docs/ppdl-1-w.pdf](https://ag.purdue.edu/department/btny/ppdl/submit-samples/_docs/ppdl-1-w.pdf). These samples are free of charge and/or email me a high quality photo [dtelenko@purdue.edu](mailto:dtelenko@purdue.edu)

## Beware – High Sorghum-sudangrass Nitrate Concentrations Reported

(Keith Johnson)

Brad Shelton, Feldun-Purdue Agricultural Center Superintendent, informed me of high nitrate values in sorghum-sudangrass that were reported on a forage analysis. If sudangrass, sorghum-sudangrass, pearl millet, teff, or high level of Johnsongrass contamination in other forage was struggling with dry weather early in the summer and harvested as hay, baleage, or chopped silage before or right after rainfall, it would be advised to request a nitrate test, as well as the standard forage test analysis, from a forage testing laboratory.



Avoid nitrate toxicity in livestock by sampling and testing forage that was growing in abnormally dry conditions so a feeding strategy can be developed if nitrate level is high. (Photo Credit: Keith Johnson)

The sorghum-sudangrass management scenario at Feldun-PAC, located near Bedford, IN, that resulted in the **very high nitrate values** of 13,000 and 17,300 ppm on a dry-matter basis was:

- seeded on June 9
- fertilized with 75 pounds nitrogen/acre as urea on June 22
- received little rain until July 8 and 9
- mowed on July 13 when sorghum-sudangrass was 40 inches in height with an eight-inch stubble height.

Forages containing less than 5,000 ppm  $\text{NO}_3$  on a dry-matter basis are considered safe for most classes of livestock. Forages containing 5,000 to 10,000 ppm  $\text{NO}_3$  are considered potentially toxic when provided as the only feed. Forages containing over 10,000 ppm  $\text{NO}_3$  are considered dangerous. Because the Feldun sorghum-sudangrass samples were analyzed for nitrate, a strategy can be developed to safely feed the sorghum-sudangrass by diluting it with the inclusion of low nitrate containing feeds and to the right class of beef cattle.

Laboratories do report nitrate content of feed and water in different forms ( $\text{NO}_3$ ;  $\text{NO}_3\text{-N}$ ;  $\text{KNO}_3$ ). The following table is a guide for interpreting laboratory results.

**Equivalent levels of nitrate when reported in different forms on a laboratory analysis.**

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Nitrate (NO <sub>3</sub> )		Nitrate-Nitrogen (NO <sub>3</sub> -N)		Potassium Nitrate (KNO <sub>3</sub> )	
ppm <sup>1</sup>	%	ppm <sup>1</sup>	%	ppm <sup>1</sup>	%
200	.02	46	.0046	326	.0326
5,000	0.5	1,150	.115	8,150	.815
10,000	1.0	2,300	.23	16,300	1.63

<sup>1</sup>Parts per million

Details about how to sample hay, where certified laboratories are located, and where hay probes can be purchased can be found at [www.foragetesting.org](http://www.foragetesting.org). Many county Purdue Extension offices have a hay probe to loan.

## Purdue Crop Chat Episode 39, Extreme Weather Conditions

(Shaun Casteel), (Dan Quinn) & (Beth Hall)

On this episode of the Purdue Crop Chat Podcast, Purdue Extension Soybean Specialist Shaun Casteel and Corn Specialist Dan Quinn welcome Indiana State Climatologist Beth Hall to discuss the weather extremes farmers have faced and might continue to face this season.

They also discuss crop conditions around the state after some farms have seen flooded crops while others still haven't gotten the rain they desperately needed.

This podcast is made possible by the Indiana Corn Marketing Council and Indiana Soybean Alliance. Your Indiana corn and soybean checkoff investments yesterday are paying off today. New research, new uses, demand creation — bringing dollars back to the farm.

Listen to the podcast [HERE](#) or click the image below.



Extension



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*Dr. Shaun Casteel*



*Dr. Dan Quinn*

**PURDUE CROP CHAT**

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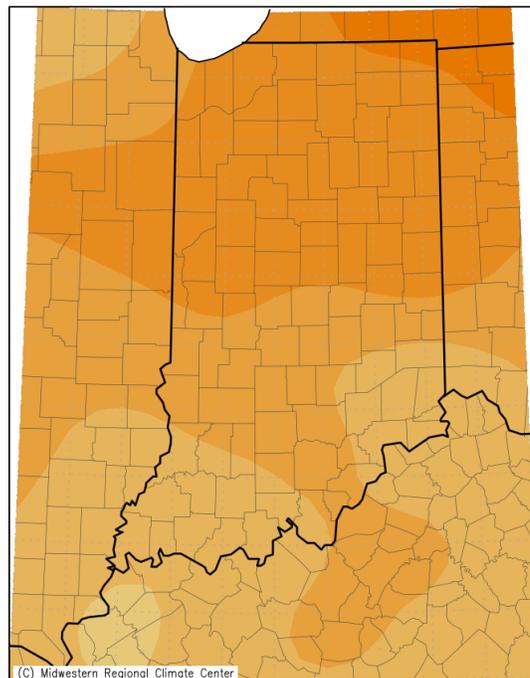
**THE FUTURE IS OURS TO GROW**

## Warm Temperatures And Rain Dominate Early August With Cooler Weather Inbound

(Austin Pearson)

July temperatures averaged 1°F above normal but had a couple of periods of extreme heat. Twelve stations recorded maximum temperatures in excess of 100°F. Portions of the month were cooler than normal, which gave way to warmer temperatures again in the last week of July. The heat and humidity continued during the first week of August, as the entire state experienced temperatures ranging from 4-6°F above normal. Northern Indiana measured the warmest temperatures, ranging from 5-6°F above normal (Figure 1). Statewide, minimum temperatures were 3-6°F above normal to start the month. There were regional differences in maximum temperatures as southern Indiana was near normal and northern Indiana was nearly 6°F above normal for the week. The Lafayette Purdue University Airport had an average maximum temperature of 90°F, with the highest temperature reaching 95°F on August 3<sup>rd</sup>. A cold front brought cooler weather to the northern part of the state on August 9<sup>th</sup>, with maximum temperatures in the mid to upper 70s. Since April 1, Modified Growing Degree Days (MGDDs) have tracked above normal for most of the state. Central and southern Indiana show the highest MGDD departures with some spots running 120-180 units above normal (Figure 2).

Average Temperature (°F): Departure from Mean August 1, 2022 to August 8, 2022



(C) Midwestern Regional Climate Center

Mean period is 1991-2020.



Midwestern Regional Climate Center  
cli-MATE: MRCC Application Tools Environment  
Generated at: 8/9/2022 11:51:09 AM CDT

Figure 1: Average temperature in degrees Fahrenheit for August 1-9, 2022, represented as the departure from the 1991-2020 normal temperature during that period.

## Growing Degree Day (50 F / 86 F) Departure From Average

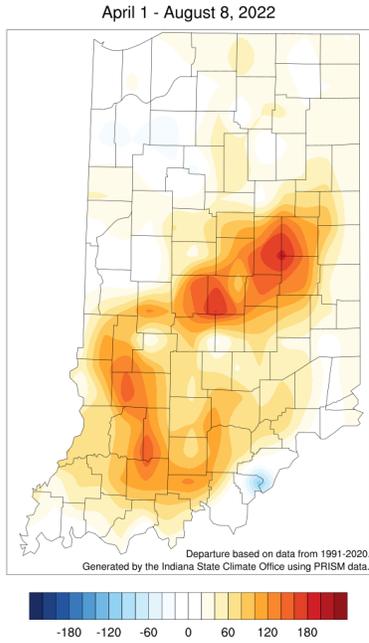


Figure 2. Modified Growing Degree Day (MGDD) (50° F/86° F) accumulation from April 1-August 8, 2022, represented as the departure from the 1991-2020 climatological average.

Through the first eight days of August, precipitation was above normal for most in the state. Indiana averaged 1.33 inches of rain, which was 0.25 inches above normal. Precipitation totals for northern and southern Indiana were over an inch (Figure 3). Southwestern Indiana averaged 1.89 inches of rain, which was 0.68 inches above normal for the week (Figure 4). There were areas with extreme precipitation, including Patoka Lake which measured 6.01 inches of rain (3.82 inches fell on August 6<sup>th</sup>). As a result, many of the stream gauges in southwestern Indiana averaged above-normal stream flows. Conversely, central Indiana was 0.13 inches below normal, with many locations totaling just over a half inch. Due to the ongoing drought, many of the stream flows in central Indiana remained below normal. On the August 2<sup>nd</sup> US Drought Monitor, the area affected by Moderate Drought (D1) was reduced slightly but continued for west-central Indiana (Figure 5). Abnormally Dry (D0) conditions continued through central Indiana. Additional improvements are expected in the August 8<sup>th</sup> US Drought Monitor.

## Accumulated Precipitation (in) August 1, 2022 to August 9, 2022

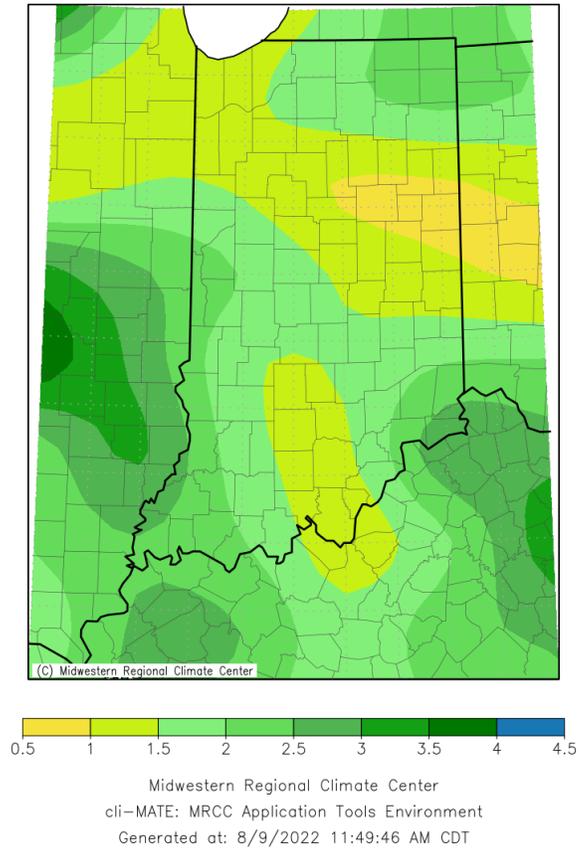


Figure 3. Accumulated precipitation (inches) from August 1-9, 2022.

Accumulated Precipitation (in): Departure from Mean August 1, 2022 to August 9, 2022

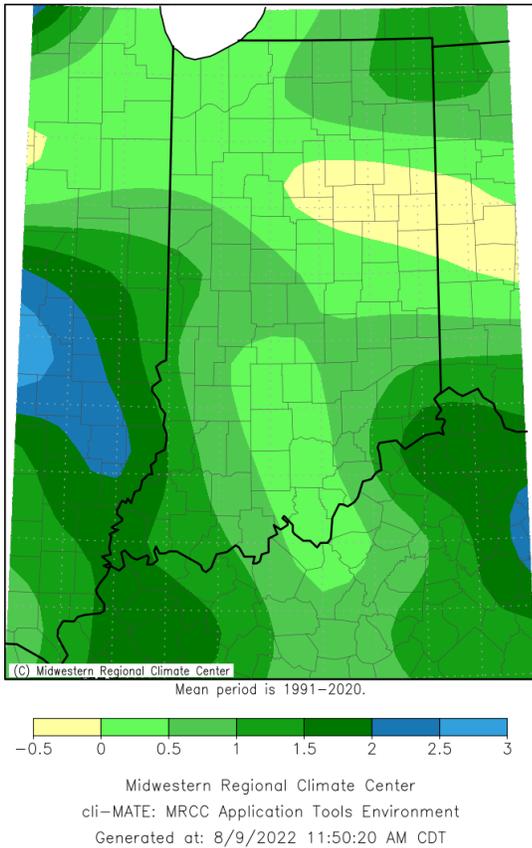
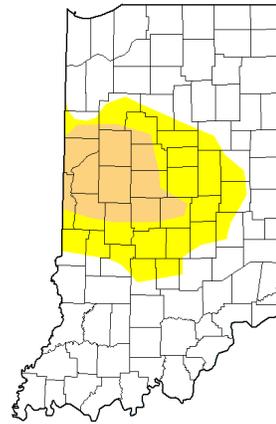


Figure 4. Accumulated precipitation from August 1-9, 2022, represented as the departure from the 1991-2020 normal precipitation that fell during that period.

**U.S. Drought Monitor**  
**Indiana**



**August 2, 2022**  
(Released Thursday, Aug. 4, 2022)  
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	70.62	29.38	10.98	0.00	0.00	0.00
Last Week 07-26-2022	50.25	49.75	12.81	0.00	0.00	0.00
3 Months Ago 05-03-2022	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 01-01-2022	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 10-01-2021	75.00	24.00	0.00	0.00	0.00	0.00
One Year Ago 08-02-2021	99.99	0.01	0.00	0.00	0.00	0.00

**Intensity:**

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/about.aspx>

**Author:**  
Curtis Riganti  
National Drought Mitigation Center



Figure 5. Indiana US Drought Monitor from August 2, 2022.

Turning focus to what's ahead, the 6-10 day Climate Prediction Center (CPC) Outlooks (August 15-19) have higher confidence in below-normal temperatures and near-normal precipitation is expected (Figure 6). The 8-14 day CPC Outlooks (August 17-23) continue this trend (Figure 7).

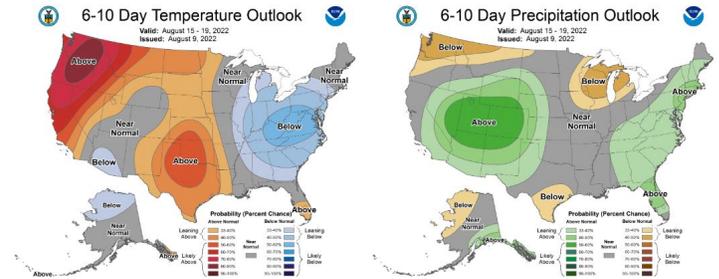


Figure 6. The CPC's 6-10 day temperature (left) and precipitation (right) outlooks for August 15-19, 2022.

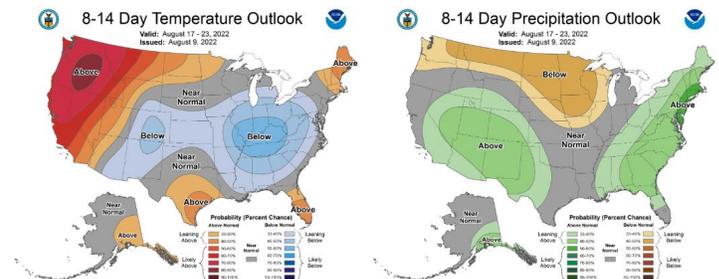


Figure 7. The CPC's 8-14 day temperature (left) and precipitation (right) outlooks for August 17-23, 2022.

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