

THE PURDUE LANDSCAPE REPORT

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Hot and Dry Conditions Ahead

(Beth Hall, hall556@purdue.edu)

As I write this article, in a cool, air-conditioned office, I hear others talking about how hot it is outside. I see weather app icons showing bold suns that stress how sunny and hot conditions are and will continue to be. I read Special Weather Statements, issued by the National Weather Service, about an extended period of hot and humid conditions continuing. It is that time of year, so how hot has it been and how long with these conditions continue?

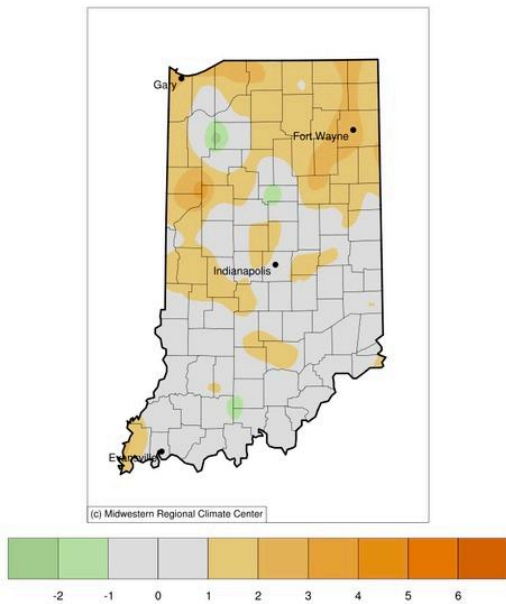


Figure 1. Average temperature (F) departure from the 1991-2020 climate normal period for May 22 through June 19, 2024.

Interestingly, as I look at the last 30 days, most of Indiana has been only one-to-two degrees (F) above normal with respect to average daily temperature with most of that influenced by the daily maximum (high) temperatures as opposed to the daily minimum (low) temperatures (Figure 1). However, something atmospheric scientists call a “heat dome” has moved into our

area. These are typically rather large in spatial extent (i.e., regional, not state-sized) and tend to stick around for a while. Due to this stagnation, winds are typically calmer, preventing both vertical mixing of the cooler air above and horizontal mixing from storm systems moving through the area. Growing degree-day accumulations have therefore been increasing faster than normal and will continue to do so over the next few weeks. Figures 2 and 3 show the accumulated modified growing degree days and departures from normal, respectively, since April 15th. Across Indiana, these growing degree days have accumulated over 220 units higher than normal for this time of year.

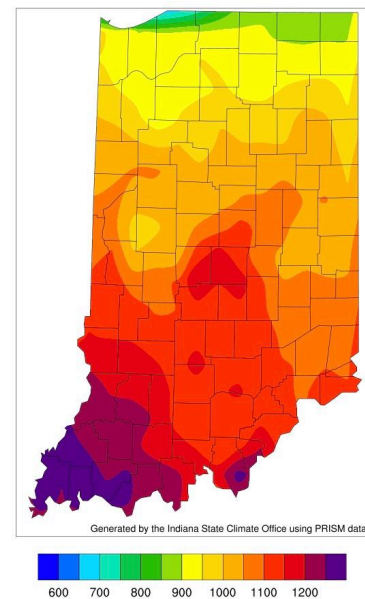


Figure 2. Accumulated modified (50 F / 86 F) growing degree days for April 15 through June 19, 2024.

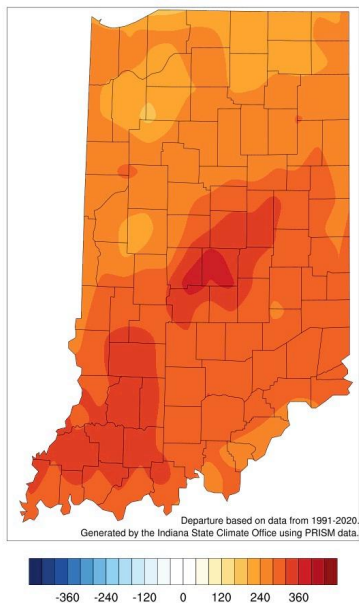


Figure 3. Accumulated modified (50 F / 86 F) growing degree-day departures from the 1991-2020 climate normal period for April 15 through June 19, 2024.

When these stagnant conditions persist, a rapid intensification of drought is more likely. Certainly, an extended period of little-to-no rain will cause a drought but combine that with above-normal temperatures and increased rates of evapotranspiration will occur. That is what has been happening over the past few weeks and has led to the U.S. Drought Monitor introducing “Abnormally Dry (D0)” status across much of Indiana (Figure 4). Another characteristic of these stagnant high-pressure areas is that any precipitation that might occur is likely to be very light and localized. Therefore, widespread improvement is unlikely until this system gets pushed out of the region and a more active weather pattern can set in.

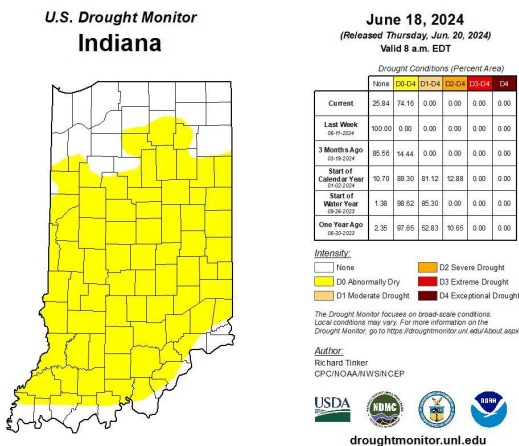


Figure 4. U.S. Drought Monitor map for Indiana based on conditions through June 18, 2024.

According to the national Climate Prediction Center, there is high confidence that above-normal conditions will continue in our area through the rest of June and into early July. The big question is whether there will be enough precipitation during this period. Climate prediction models are only slightly favoring above-normal

precipitation over this two-week period with higher chances early on. Even then, I would expect amounts to be relatively localized and short-lived. The current 7-day forecast of precipitation is predicting only 0.25”-0.5” in southern Indiana with higher amounts for the northern part of the state (Figure 5). Combine this with the 7-day forecast of reference evapotranspiration – that range from 1.5”-1.75” — and there is likely to be a moisture deficit developing quickly.



Figure 5. Precipitation forecasted amount for the 7-day period from June 20-27, 2024.

Case Study: Maple tree pests in the landscape

(Alicia Kelley, ajkelley@purdue.edu)

Recently a homeowner in Hamilton County posted on the Indiana Native Plant Society Facebook page with concerns about aphids, mites, and apple scab in her maple and oak trees. She asked for a second opinion and treatment options for these pests. I reached out to the homeowner and requested permission to collect samples from the trees. Let’s look at what I found (or didn’t find) and discuss when and if these issues should be treated.

Apple scab on maples?

First, we can eliminate the concern about apple scab because maple and oak trees are not hosts for this pathogen. Apple scab is caused by the fungus *Venturia inaequalis*, and hosts include apples, crabapples, hawthorn, mountain ash, firethorn, and loquat. There are other fungal diseases which cause leaf spotting in maples, such as Anthracnose, tar spot, and Phyllosticta leaf spot. To diagnosis these diseases, homeowners can submit a sample to the [Purdue Plant & Pest Diagnostic Lab](#), or hire a certified arborist to assess the tree. However, all these diseases are primarily aesthetic issues. A healthy tree will not die from these pathogens and does not require treatment. You can find more information about maple diseases in this publication: [Diseases in Hardwood Tree Plantings](#). You can also find a previous article on [Tar Spot in Maple](#) in the Purdue Landscape Report (Issue 18-12).

Spider mites

The next pest concern on these trees is spider mites. Out of the dozens of leaves I collected, I found only two immature mites on a couple of maple leaves I examined. This is a very small mite presence, and it is not recommended to treat for spider mites unless the populations threaten the health or appearance of the tree. Limiting pesticide usage will conserve the natural enemies, which are vital to keeping mite populations in check. In fact, improper pesticide applications can kill these important natural enemies and worsen mite infestations.

When do you know if the mite population is large enough to merit

intervention? Check your trees for signs of heavy feeding damage, such as leaf stippling (Fig. 1), or dense webbing on the leaves. Mites can also be monitored by placing a sheet of paper (8.5×11”) beneath a branch and striking the limb. Chemical treatments should be considered when you count ≥ 24 mites per strike. You can find detailed management recommendations and a full list of pesticide options in this Purdue Extension publication: [Spider Mites on Ornamentals](#).

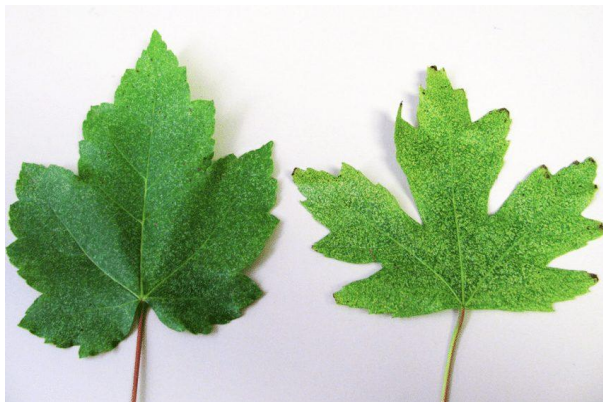


Fig. 1. Severe spider mite damage on maple leaves. (Photo: S. D. Frank, North Carolina State University)

Aphids

The aphids I found on the homeowner’s maple trees are *Drepanaphis acerifoliae*, or the painted maple aphid (Fig. 2). This species only feeds on maple trees, and is not a threat to the oak tree on this homeowner’s property. Painted maple aphid is a very common aphid in our region. I found only a few aphids on one of the maple trees I sampled, which is not enough to require treatment. In addition, one of the aphids was a “mummy”, or a carcass left behind from a parasitoid wasp. This indicates that natural enemies are already at work managing the aphid population. Aphids may rarely require chemical control if their numbers grow large enough to produce significant amounts of honeydew, which can result in sooty mold outbreaks.



Fig. 2: Adult painted maple aphids found on maple in Hamilton Co, Indiana. (Photo: Andrew Johnston, Purdue University).

Tussock moth

The only insect I found on the oak tree was a white-marked

tussock moth caterpillar, *Orgyia leucostigma* (Fig. 3). This is the likely culprit for the minor feeding damage I noticed. These are not significant pests and do not require treatment. Don’t touch them, though! The setae of this caterpillar are irritating and may cause allergic reactions.



Fig. 3: White-marked tussock moth caterpillar. (Photo: John Obermeyer, Purdue University).

Overall, the pests I found were minimal and non-threatening to the trees. It’s normal to find some insect pressure in the landscape. Knowing when and if to treat requires accurate diagnosis and monitoring of pest levels. Check out [PurduePlantDoctor.com](#) for an easy-to-use diagnostic aid and treatment recommendations.

References

1. Gauthier, Nicole. 2018. Apple scab. The Plant Health Instructor. doi: 10.1094/PHI-I-2000-1005-01
2. Sadof, Clifford S. and Gibb, Timothy J. 2017. Spider Mites on Ornamentals. Extension Entomology, Purdue University. [E-42-W](#).

Don't miss the 2024 Purdue Turf and Landscape Field Day

(Kyle Daniel, daniel38@purdue.edu)

The [Purdue Turf and Landscape Field Day](#) is an annual one-day event with the objective of providing professional turf and landscape managers exposure to research and educational opportunities with the latest research results and technical resources. The Field Day features research tours, talks on current topics, and a tradeshow with over 40 exhibitors displaying equipment and turf and landscape products. In addition to the educational and networking opportunities, a great lunch is included in the cost of registration.

Earn pesticide credits from the Office of the Indiana State Chemist, International Society of Arboriculture, GCSAA, as well as credits from surrounding states!

Network with colleagues from around the Midwest!

There are still opportunities for exhibiting at the trade show!

To register and learn more:

<https://www.mrtf.org/event/turf-and-landscape-field-day>

Morning tours:

LAWN TOUR	SPORTS TOUR	GOLF TOUR	LANDSCAPE TOUR
White grub management: evaluating options and tactics; Richmond	White grub management: evaluating options and tactics; Richmond	White grub management: evaluating options and tactics; Richmond	Downy Mildews of Landscape Plants; Bonkowski*
Diagnosing Common and Uncommon Turf Problems; Patton	Diagnosing Common and Uncommon Turf Problems; Patton	Diagnosing Common and Uncommon Turf Problems; Patton	Asian Jumping worm: Identification and Management; Burner**
Factors to Consider for Postemergence Crabgrass Control; McNally and Vukovic	Water vs. fungicide: Impact of post application rainfall/irrigation on fungicide performance; Miller and Carpenter	Water vs. fungicide: Impact of post application rainfall/irrigation on fungicide performance; Miller and Carpenter	New Boxwood Cultivars Evaluation and Expanding Beyond Boxwood; Daniel*
Using annual ryegrass as a nurse grass for lawn establishment: Does it work?; Bigelow	Using annual ryegrass as a nurse grass for lawn establishment: Does it work?; Bigelow	Divot Recovery on Driving Range Tees; Amgain	Pests of Boxwood and Boxwood Alternatives; Kelley*
Lawn recovery strategies after severe drought; Powlen	Lawn recovery strategies after severe drought; Powlen	Lawn recovery strategies after severe drought; Powlen	Proper Pruning Practices; McCallister*
Do Spray Drones Have a Place in Turf Management?; Whitford and Medenwald**	Do Spray Drones Have a Place in Turf Management?; Whitford and Medenwald**	Do Spray Drones Have a Place in Turf Management?; Whitford and Medenwald**	Do Spray Drones Have a Place in Turf Management?; Whitford and Medenwald**
Legislation Changes and How It Affects You; Kreider**	Legislation Changes and How It Affects You; Kreider**	Legislation Changes and How It Affects You; Kreider**	Legislation Changes and How It Affects You; Kreider**

Afternoon workshops:

Turfgrass Pathology Trials & Diagnostic Tribulations

- See the latest fungicide research and diagnose diseases in the field; Lee Miller and Matthew Carpenter

Afternoon Weed ID and Control Tour (meet at stop #7)

- Tour Purdue's latest weed control trials and learn about new herbicides and new control strategies; Aaron Patton.

Turfgrass Identification Practice: Learn to Identify 10+ Turf Species (meet under the north end of the tent)

- This walking tour will discuss the identification of 10+ turfgrass species. Great for beginners or those wanting a refresher. Brandon McNally, Jada Powlen, Vera Vukovic, and Naba Amgain.

Effectively Managing Conflict in Your Company (meet in classroom)

This workshop will be led by a Green Industry professional that has many years of experience, combined with an MBA and a MS in Turfgrass Science. Learn the most effective conflict management techniques for you to take home to your company; Chris Brown, Teed and Brown.

Harvesting Profit: Maximizing Revenue with Raised Garden Beds in Landscapes

- This hands-on workshop will cover the design and construction of raised garden beds for integration into your landscape installs. Learn from an expert, Nathan Shoaf, to incorporate this increasingly popular backyard element to maximize your services and profits.

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