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THE PURDUE LANDSCAPE REPORT

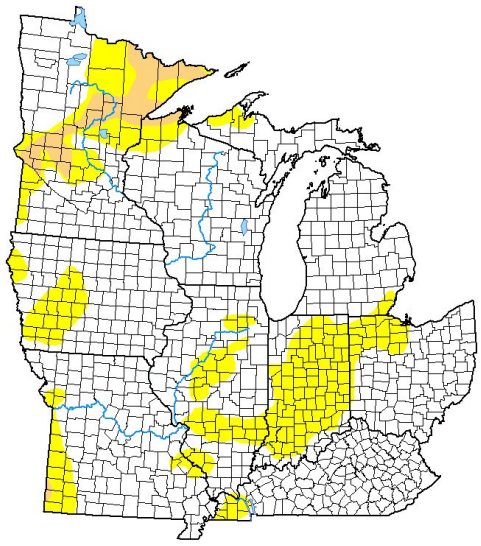
In This Issue

Dog Days of Summer Barking Early This Year

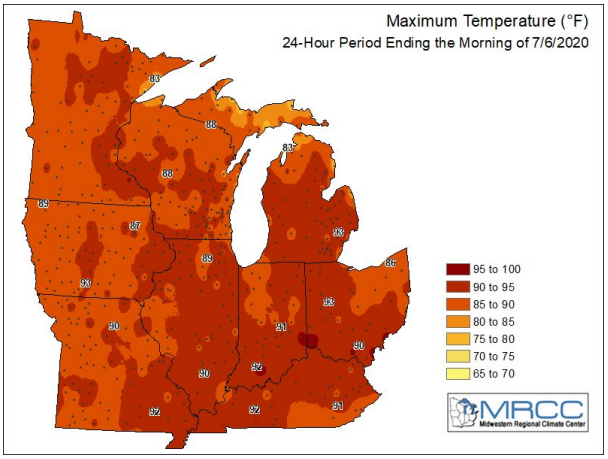
(Rosie Lerner, rosie@purdue.edu)

Hot, dry summers are not that unusual in the Midwest, but 2020's hot dry spell started considerably earlier than usual, before summer even officially began! To make it a triple whammy, the hard freeze in early May caused some landscape plants to burn up more stored carbohydrate reserves to produce a second round of foliage.

I'm sure I don't have to point out that most of Indiana is currently experiencing abnormally hot, dry conditions. Although recent rains have brought relief to some areas, any respite is sure to be temporary. Seasonal thunderstorms may deluge some landscapes with water while other areas, even those close by, may stay fairly dry. Much of the area has experienced highs in the upper 80's to over 90º F over the past month.



(Figure 1) US Drought Monitor.
https://www.drought.gov/drought/rcc/midwest



(Figure 2) July Heat Map

Leaf Scorch on Lilac

Leaf scorch on trees and shrubs, appearing as a browning along the edges of the leaves, is very common in dry summers. While minor cases of leaf scorch are not very harmful, prolonged lack of moisture can spell disaster for landscape plants. Young and newly established plants are most susceptible to the dry conditions, but even established plants may reach a critical point during prolonged drought. If the heat and drought continue this summer, branch dieback, combined with eventual root death, will make plants more susceptible to winter injury. Plants that were already under stress from other factors may succumb to severely dry soils.

Hydrangea wilting

The intense heat makes it difficult for plants to keep up with water and cooling requirements, even in areas where moisture is adequate. One of the ways that plants cool themselves is through transpiration, which allows water to evaporate from the foliage. Plant leaves have pores called stomata that can open and close to allow water vapor and gas exchange with the environment. During extreme heat and/or drought, stomata will nearly close, thus reducing transpiration and exchange of carbon dioxide and oxygen. The end result is seen as wilting foliage and leaf scorch. But not so obvious is that reduced water uptake and gas exchange also leads to reduced production of carbohydrates through photosynthesis and reduced uptake of soil nutrients, having longer term impact on plant health.

There is still plenty of summer yet to get through to see the further challenges ahead. Meanwhile, we can mitigate some of the stress by watering landscape plants as needed where feasible.

Safe Caterpillar Control

(Cliff Sadof, csadof@purdue.edu)

Several caterpillar pests feed on trees and shrubs in July. Although most trees can tolerate some defoliation, the injury can be unsightly for much of the summer. Damage to plants can be reduced by timely applications of insecticides. Proper choice of insecticides can reduce impacts on pollinators and natural enemies of spider mites that do well during the heat of the summer. Foliar applications of insecticides can be a challenge for homeowners. Although some products can be applied to the soil, label precautions must be followed to ensure that the insecticide reaches the canopy and does not burn leaves.

Look up into the tree canopy for caterpillars when you see black pellets of caterpillar feces collecting on the pavement below a tree. These pellets were produced by gypsy moths feeding on oaks during June (Photo E. Barnes). In the northern part of Indiana these caterpillars can continue to feed until early July.

Early detection of caterpillar activity is critical to successful control of these pests because smaller caterpillars are killed more easily by insecticides. While some caterpillars are easy to spot on small trees and shrubs, most are invisible to the naked eye from the ground. It is much easier to spot fecal pellets that caterpillars drop on to patios, lawn furniture than up in the tree-tops. You can then use a pair of binoculars to inspect the leaf canopy above for chewed leaves.

To avoid problems with spider mites later in the season, it is best to use products that do not kill the small lady beetles, lacewings and predatory mites that kill spider mite predators. A complete list of biorational pesticides is available in our Extension bulletins about caterpillar pesticides. Common foliar products that fall into this category include those with the active ingredient spinosad (Fertilome Borer and Bagworm Killer, Captain Jack's Deadbug etc), the bacterium *Bacillus thuringiensis* (Thuricide) as well as several insect growth regulators and other novel products like chlorantraniliprole.

When the weather forecasts pop-up thunderstorms, it can be difficult to control caterpillars with these slower acting products. In these cases, more conventional products including the pyrethroid insecticides (bifenthrin, or cyfluthrin) can be effective if allowed to dry before a rain. A list of these conventional products are also available in our caterpillar bulletin.

Controlling caterpillars on tall trees can be out of reach for most conventional home sprayers. Similarly, even professionals with more powerful spray equipment can have a difficult time applying a product on a tall tree without considerable drift to other plants and properties.

Professionals have a number of options for controlling caterpillars on large trees. Soil applications of acephate (Lepitect) can provide protection in a couple of days. Although this product does kill caterpillars and some mites, be aware of the list of plants on the

label (like some poplars and crabapples) whose leaves may be burned by a soil application of this product. The soil must be moist for the roots to absorb the product and move it up into the leaves.

Tree injections with emamectin benzoate avoids the problem associated with acephate soil injections. The product moves rapidly into the leaves and can start killing caterpillars in a few hours. Although this product is effective, it important to note that it only works during the season in which the tree has been injected. While a few years of back to back injections are unlikely to harm trees, the impact repeating this practice for decades to prevent caterpillar injury is not known. Fortunately, most caterpillar populations come and go after just a few years, so annual treatment is not likely to be necessary.

Here are some common caterpillars you may encounter:

Although bagworms have been feeding since early June, if left unchecked they will continue to grow throughout the month of July. Larger caterpillars can completely strip junipers, spruce and arborvitae of leaves and kill the plant. They are also common on deciduous trees where they cause much less damage.

Egg masses laid on leaves in late June will hatch in small caterpillars in July.

In late summer parasitic wasps will find yellow-necked caterpillars and lay eggs inside their bodies. Eggs consume the insides of caterpillars eventually killing them and reducing their number. This youtube video of a parasitized tomato hornworm shows all the gory details.

Small webs left by mimosa webworm on branches of honeylocust trees harbor green caterpillars that emerge in late July. This second generation is often larger than the first and causes much unsightly damage.

Resources.

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Slime Flux of Trees

(Tom Creswell, creswell@purdue.edu) & *(Gail E. Ruhl, ruhlg@purdue.edu)*

Figure 1. White oak slime flux

Slime flux (also known as wet wood) is a dark, foul-smelling and unsightly seepage of sap from tree trunks (fig. 1). The disease is not usually a serious problem but the appearance can be

alarming. Slime flux is caused by common surface-inhabiting bacteria or yeast fungi that enter the trunk through wounds associated with improper pruning, stem breakage, injections, cracks from freeze injury or weak limb crotches. The bacteria and yeast may live on sap nutrients within injured trees for many years without any outward evidence.

Symptoms

The main symptom is the appearance of the dark sap oozing on the trunk exterior which happens when gasses produced by growth of the bacteria and yeast cause the internal pressure of the sap to become high enough to force the sap out through cracks in the bark. The dark streaks usually turn light gray or white upon drying. Oozing sap may be frothy and white at the point of exit. Airborne bacteria, yeasts, and fungi often colonize the wet oozing material, which ferments and releases a foul odor. Slime flux may delay wound healing (callus formation).

Slime flux is extremely common on mature elms (fig 2), oak (fig 3) and mulberry; and is seen less frequently on maples (fig 4), paper birch, sycamore, and walnut.

Figure 2. American Elm

Figure 3. White Oak

Figure 4. Silver Maple

Prevention

There is no control or treatment for slime flux. Inserting a drain tube into the tree to relieve pressure and drain infected sap was once an accepted treatment, but is no longer recommended and may do more harm than good. Boring holes in affected trees causes internal spread of the bacteria within the tree and may allow entry of wood decay fungi.

To reduce the chances of susceptible trees developing wet wood avoid unnecessary wounding of the trunk and branches. Proper pruning techniques, HO-4-W, will allow branches to heal more rapidly. Make sure susceptible trees receive good general care; including irrigation when needed and mulch to conserve moisture and keep mowers away from the trunk. Avoid excess traffic in tree root zone to prevent soil compaction and root injury.

The first and most important step for managing a tree disease is to accurately diagnose the problem. The best approach to diagnosis of tree problems is to start by submitting photos of the tree via the digital upload tool on the PPDL website https://ag.purdue.edu/btny/ppdl/Pages/digitalimages.aspx . In the case of slime flux it is impractical to collect the type of physical sample needed for confirmation so photos are the best alternative.

References

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