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Curtailing Caterpillar Damage in Flower Gardens

(Cliff Sadof, csadof@purdue.edu)

Caterpillars can threaten your mid-summer flowers by directly feeding on blooms or defoliating your plant. Fortunately caterpillars take several weeks to grow into the large individuals capable of completely destroying your garden. If you learn how to identify the early warning signs, you could kill the caterpillars before they get big enough to cause significant damage. In addition, you can kill these young caterpillars without harming pollinators.

How to inspect your plants for early signs of caterpillars.

Take some time every week, to inspect the leaves and petals of your flowers for chewed holes, or scraped leaf tissue. Young caterpillars are often too small to chew through leaves. Damaged leaves will appear to have darkened areas where caterpillars have scraped leaf undersides. Turn over the discolored leaves to confirm your diagnosis.



Figure 1. Dahlia foliage scraped by young salt marsh caterpillars.



Figure 2. Young salt marsh caterpillar scraping leaf tissue from the underside of a dahlia leaf.

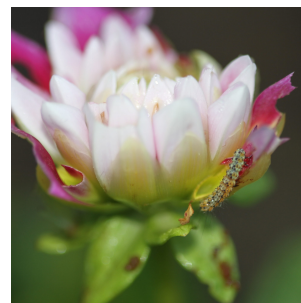


Figure 3. Young salt marsh caterpillar chewing on flower petal.

Young caterpillars can chew through flower petals, because they are much thinner and more tender than leaves. Look for holes and on leaves and small caterpillars

It can take several days for a young caterpillar to remove enough plant or leaf tissue for you to notice that you have a potential problem. Look for small dark green pellets of caterpillar excrement that will accumulate on lower leaves.

How to control caterpillars. If plants are flowering, you can apply the pesticide directly to flowers and leaves if you use *Bacillus thuringiensis* (Kurstaki). This species of bacterium kills only caterpillars and not bees or fly pollinators. It works by tearing a hole in the insect gut. Professionals can use a product called chlorantranilprole (Acelepryn) that also kills caterpillars but not

bees on leaves and flowers.



Figure 4. Fecal pellets on lower leaves of dahlia.

If plants are not flowering, or if you do not apply the product directly to blooms, you can use spinosad (Fertilome borer and bagworm killer, or Captain Jack's Dead Bug). This product will kill caterpillars and bees but not the predators that keep spider mites from becoming a problem. Carbaryl (Sevin) and pyrethroids will kill caterpillars, bees and beneficial insects that keep mites from becoming a problem.

Stake or not to stake, that is the question!?

(Lindsey Purcell, lapurcel@purdue.edu)



Figure 1. Properly staked tree adds support.

"No," is the likely answer to these common questions about post-planting tree care. Trees establish themselves quite well in normal situations. Support systems such as staking and guying are, in most cases, unnecessary and can even be detrimental. Movement caused by the wind is crucial to help saplings develop into strong, structurally balanced trees.

However, in unusual conditions, staking, guying, or a similar system may be needed to hold trees upright until adequate root growth anchors them firmly in the soil. When necessary, the support system must be installed properly and removed at the appropriate time to prevent damage.

When to Stake Trees

When stakes are needed, timing depends on the environment and the type of tree.

- Bare-root trees and container-grown trees
- Large evergreen trees with high wind exposure
- Open sites exposed to strong winds
- Taller trees with undersized root balls
- Trees in areas with high rates of vandalism
- Threat of mechanical damage

Improperly staked trees suffer from poor development such as decreased trunk diameters and smaller root systems—and may be unable to stay upright after you take the supports away. Often trunk tissue suffers from rubbing and may even be girdled by support materials. Also, due to poor development and taper, previously supported trunks are more likely to break off in high winds or blow over after stakes are removed.



Figure 2. Guy wires can provide stability in harsh, windy conditions.

Proper Methods and Materials of Guying and Staking

Staking and guying a tree trunk to keep it upright can be a necessary, temporary support system, but does not compensate for poor root development and establishment long-term.

- *Guying* is temporary and typically used on larger trees that are transplanted balled-and-burlapped. Three points of attachment provide the best support for these large-trees.
- *Staking* connects the trunk to a nearby steel or wooden post. This is a common approach on smaller trees or containerized tree stock.
- *Underground stabilizing systems* are also effective and economical for stabilizing the root balls on larger balled-and-burlapped trees. There are several commercial anchor systems available.



Figure 3. Support materials left too long can damage trees.

The cardinal sins of support include: staking trees too high, too tightly, and for too long which all cause tree damage. Improper

staking can cause stem abrasions and trunk girdling. Review the anchor, attachment point, and tension on a regular basis, adjusting as needed to make certain the supports are effective and not damaging the tree. If a tree is supported, the ties and guys should be removed as soon as feasible, usually no later than after one growing season or one year. For more information see Purdue extension publication, FNR-547-W Tree Support Systems <https://www.extension.purdue.edu/extmedia/FNR/FNR-547-W.pdf>.

Tar Spot on Maple

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

Getting calls from panicked customers about black spots on maple leaves? You're probably not alone, because now is the time when people start to notice maple tar spot.

Every summer we get questions about black spots on maple leaves that look like tar. These spots are not actually "tar" on maple, but are rather a fungal disease known as tar spot. These photos show a range of symptoms presented by this disease.



Tar spots on maples are caused by fungi in the genus *Rhytisma*. The most common species are *Rhytisma acerinum* and *R. punctatum*. Symptoms first appear in late spring or early summer as infected leaves develop light green or yellow-green spots. During mid to late summer these produce black tar-like raised structures on the upper surface of leaves within the yellow spots. *R. acerinum* causes larger spots that are 0.5 to 2 cm in diameter; *R. punctatum* causes many small punctate spots that are smaller (about 1mm in diameter). Spots caused by *R. punctatum* are sometimes called speckled tar spots.

The good news is that tar spot causes little stress for the trees that are infected, despite some loss of leaf function and occasional premature defoliation.

Fungicides are not recommended for this problem. Tar spot can even be reduced for the next year by raking, chopping and composting fallen leaves or removing leaves from the property since the fungi overwinter on leaves.

Natural Resources Commission Preliminarily Adopts Invasive Plants Rule

(Kyle Daniel, daniel38@purdue.edu)

On July 17th, at the Fort Harrison State Park in Indianapolis, the Natural Resources Commission passed the preliminary adoption of the Terrestrial Plant Rule (TPR)

(https://www.in.gov/nrc/files/lsa18316_proposed.pdf). This rule

restricts the sale, distribution, and transport of 44 invasive plants, which were determined invasive based on scientific literature by the Indiana Invasive Species Council's subcommittee, the Invasive Plant Advisory Committee (<https://www.entm.purdue.edu/iisc/plantcommittee.php>).



Figure 1. Musk thistle is one of the 44 plants listed in the Invasive Plants Rule.

The current list was taken under advisement as those species with the greatest ecological threat. If passed through the general assembly as it is written, amendments to the rule, i.e. the addition of callery pear or others, can occur after the bill is signed into law.

The Indiana Economic Development Corporation has provided an economic impact statement regarding the invasive plants rule (https://www.in.gov/nrc/files/lsa17-436_jedc.pdf), outlining the effects on small businesses. In the letter, it is noted that regulatory flexibility in potential methods for small businesses to comply with the rule. This will allow the growers options on how to best comply within their business model. The nursery inspectors, from IDNR Division of Entomology and Plant Pathology, will be responsible for enforcing the invasive plants rule if signed into legislation.

The rule adoption timeline indicates public hearings occurring in November 2018, final adoption in January 2019, and submitted to the governor in March of 2019. If the timeline is correct, this rule will become effective in April of 2019 (https://www.in.gov/nrc/files/lsa18316_timeline.pdf).

Public commenting is now available via mail or online at <https://www.in.gov/nrc/2377.htm>.

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