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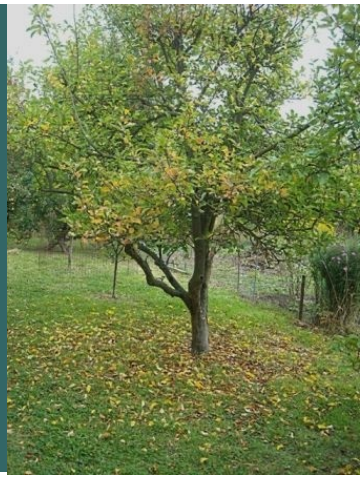
**Michigan State University Extension**
**Oakland County**

# Why Trees Drop Leaves and Twigs



Before you think about applying any pesticides, be sure you have identified the cause of the problem. Some of the leaf drop may have been caused by disease or insects, but other situations can be involved. Also, leaf drop doesn't always mean a serious health problem for the plant material. From my experience, about 80% of these leaf and twig drop situations will be cosmetic problems that do not require treatment to preserve tree health. Of course, landscaping is "cosmetics" and you might desire a treatment program to reduce the unsightly nature of these problems. Of the remaining 20% of the cases, about 10% indicate a problem that should be treated to preserve tree health. The final 10% are plants that are dead or dying and can't be saved.

The following information, mostly obtained from Dr. Francis W. Holmes, University of Massachusetts Extension should "shed" some light on this problem.

- During droughts, trees sometimes shed up to 10% of the leaves. This benefits a tree under special drought conditions because it then loses less water into the air. Loss of this much food-making capacity does little or no harm.
- Vigorous trees might make too many leaves. These excessive leaves can suddenly drop in mid-June as a natural adjustment to summer heat and lower soil moisture. Such "physiological leaf-drop" does these trees no harm.
- Trees' inner leaves and twigs, which are "shaded out" by the upper, outer leaves, normally die from lack of sunlight. They drop off, leaving large branches bare near the trunk. This is normal, not harmful.
- A whole tree can be shaded out by an overtowering tree and then die, or two adjacent trees can mutually shade out the sides that face each other. So long as both trees remain, this might look OK, but if one tree then dies, the other has only dead branches to show on that side!
- Individual leaves can fail when shaded out by a dense crust of dark fungi called "sooty molds." These molds grow on the sugary excretions of aphids. Once the aphids are killed, the sooty molds weather away and finally vanish.

- Leaves can fail because insects (such as the maple petiole borer—see bulletin OC0283) tunneled into the leaf stalks, leaving only very short pieces of petioles remaining on the leaf blades. This affects relatively little foliage and does no harm. It stops each year about two weeks after it begins. No spray is needed.

- Leaves fall after attacks of fatal diseases like Dutch elm disease or sudden devastating injuries like girdling the trunk, cutting off many roots, or freezing of roots in a bare winter when there is little or no snow cover. Here, it's too late to do anything by the time the leaves are falling. In addition, slow attacks over several years by a fatal disease like root rot or a suffocation injury from too much fill, pavement obstruction, compaction from flooding (i.e., water or gas), construction equipment and heavy foot traffic can lead to dieback of branches in the upper tree canopy. These situations can also result in smaller leaves, but not an abrupt leaf fall.

- Leaves fall after local infection by certain leaf-spot disease fungi. In the individually infected leaves, pseudo-hormones trigger autumn-like abscission. Even if all the leaves fell (which is rare), a single attack would not be fatal to a broad-leaved tree. In severe cases, a fungicide should be used the next spring, as the leaves open, to be sure the tree isn't weakened by repeated attacks. Leaf spots are most abundant after rainy springs. Our Michigan springs are often cool and wet, which is ideal for the promotion of fungi such as apple scab which defoliate many crab apples, and anthracnose which causes leaf drop or injury to sycamore, ash, maple and white oak. Hawthorns can also be defoliated by a common leaf spotting fungus infection. Check with your local Extension office or landscape supplier for management recommendations.

- Chemical injury: Effects depend on what chemical, what season, what temperature, what tree species, etc. Some chemicals discolor leaves, but the leaves don't fall. Some cause leaf drop but do not hurt the rest of the tree (new leaves come out). Others kill trees. Once such leaves fall, it's too late. There is no treatment. Be careful not to apply pesticides to trees when the temperatures reach about the mid-80ºs F. Moisture stressed plants are also more susceptible to foliar damage, and emulsified concentrates tend to cause more damage. Of course, avoid using the same sprayer for applying lawn herbicides and ornamental applications. These herbicides are very difficult to remove from the entire spray system, and small amounts can cause significant damage. Never, ever, use a non-selective, residual, bareground type herbicide in or near landscapes. Products, such as Hyvar, Spike, Triox, etc., have no safety tolerance around plant material.

Very small amounts, absorbed by root systems extending well beyond the plant material, can result in severe injury or death. Also, there is no quick antidote to fix a disaster.

- Clusters of fallen leaves, attached to short twigs, result from a twig-girdling insect or squirrel activity. In the former, a shallow depression encircles the broken twig end just inside the bark. In the latter, the break is diagonal and might have two or three small "steps." These are rarely any threat.

- Some tree species, most notably poplars, will shed twigs during periods of moisture stress. The twigs may not have any leaves attached. This is natural process for these trees. You can confirm this condition by examining the fallen twigs. Unlike rodent or insect induced twig drop, the end of the twig will be a smooth curve. This abscission will look much like a joint that was pulled apart.

As a landscape manager, you need to treat each plant as a patient that may have a unique problem. After all, that's what Integrated Pest Management (IPM) is all about.

## Would you like additional information?

**Additional information is available on-line. Please see MSU Extension-Oakland County's publications as well as the MSU Extension Bookstore on campus.**

**Please contact our office (248/858-0880) for assistance.**

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