

Evaluating Problem Trees Before Storms Hit



Photo credit to Stan Rosenthal, UF-IFAS Leon County Extension: Trees with V-shaped joints create a special hazard during storms.

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The tropical storms this year made many of us more aware of the trees around us. No doubt they provide many things for us such as beauty, shade, oxygen, and erosion control, and they help with stormwater retention. Still, sometimes they break in storms and can cause damage to people and property. Now that we have gotten through a few storms, it is a good time to reflect on how we can avoid some of these problems.

Certainly if we get a category five hurricane, even healthy trees can break. Generally though, trees that fail during storms have certain characteristics. Some tree species are more prone to breakage. Older trees are more likely to fall or be uprooted. But probably more important is how we care for the trees. We need to examine how we manage the soil and roots of trees. In addition, we need to look at how we prune trees. It is best to be proactive in pruning and fix or remove trees that have been weakened due to poor structure or injuries.

Probably the most common problem when trees break is what foresters and arborists call “V” shaped joints. This is opposed to “U” shaped joints that are structurally strong. These “V” shaped joints are weaker, because as each tree trunk or branch gets thicker, the tree ends up pushing apart. Often a high wind is the last push that breaks the tree apart. To be proactive, prune young trees to remove V-shaped joints that have formed. Large trees that already have V-shaped joints should probably be totally removed when they are within falling distance of something valuable.

Another factor that is often overlooked is the tree’s root system. Research has shown us that on a typical tree

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in Florida its roots will grow out three times the tree's branch spread. Most of the tree's roots are located in the top foot of soil. This is not just for pine trees, but it is true for all trees, including oaks and other hardwoods. Quite frequently, more roots are located outside the tree's branch spread than inside. The biggest factor for root growth and survival is available oxygen in the soil. Thus trees growing in uncompacted soils will have more oxygen available to their roots and be healthier and stronger. Tree roots also supply the tree with water and nutrients. So, if you have areas of hard, bare, compacted soil beneath your trees, you need to be aware that this is weakening the root system of the tree. To minimize this compaction and erosion, it is good to maintain a natural leaf litter mulch beneath the tree, similar to what nature provides in a forest situation.

When we look at a tree, we tend to concentrate on the parts of the tree that we can see: the trunk, the branches, and the leaves. Roots, an equally critical factor for a healthy tree, are out of sight, and too often out of mind.

Root systems are more delicate than many people think. In fact, just driving over tree roots three or more times can compact the soil enough to kill the roots. Root damage is often irreversible. The damage may show itself in a few months. However, more commonly, it will be years before visual signs occur, sometimes as many as 20 years.

Many of our activities, of course, damage and restrict root growth, thus making trees more likely to uproot in a storm. Consequently, we always recommend that adding fill soil around a tree, cutting roots, or compaction of the soil not be done beneath the branch spread of the tree. This is why it is so important to restrict all activities under a tree's branch spread during construction projects. Even activities outside the branch spread of the tree will damage roots. But, at least if you restrict the activities to areas outside the branch spread, the tree will probably have enough roots to survive.

So back to the original question, which trees do best in a hurricane? A tree, properly pruned, and with roots in well-cared-for soil would have the best chance of survival. It is not a matter of some types of trees having deeper roots than others. It's a matter of how you care for the tree.

If you wish to find out more about the complicated world of trees and what trees survive high winds best and why, two excellent surveys of tree damage in the Florida Panhandle were conducted after Hurricanes Erin and Opal. These studies can be viewed at <http://edis.ifas.ufl.edu/FR010>

You may be surprised at what you find. During these two storms, only 2% and 1% of the trees respectively, damaged property. This tells us that we could have probably removed the problem trees prior to the storms, avoided their destructive damage, and still have had plenty of trees to enjoy.

Often I liken a storm to a pride of lions chasing a herd of zebras. The weaker, older, and sicker zebras fall behind and are killed and eaten. Like this scenario, a storm comes through and thins out the forest. In many cases, the choice is ours to make. Should we thin the trees out as they become more dangerous, or wait for the next storm to tell us which ones needed to go?

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