

## **KENTUCKY PEST NEWS**

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SHADE TREE AND ORNAMENTALS

- Ice Damage to Trees in the Landscape
- More on Wounds and Wood Decay in Trees

PESTICIDE NEWS

- The Days of Maneb are Numbered
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### **SHADE TREE AND ORNAMENTALS ICE DAMAGE TO TREES IN THE LANDSCAPE**

**By William Fountain**

The recent winter ice storm has resulted in extensive damage to many trees in our landscapes. While we may be tempted to cite this as an “Act of God” it is both a cyclic part of nature and the results of some of the questionable landscape practices of the past. I am reminded of Thomas Edison’s reaction when his “Invention Factory” in West Orange, NJ burned to the ground on Christmas Eve (1914). The next morning as he stood among the smoldering ruins he remarked to his associates, “All of our mistakes have been destroyed. In a new factory we can start our experiments with a clean slate.” Through the pain of destruction and loss of landscape trees we have the opportunity to learn. In this article, I will discuss how to manage trees during and after ice storm events such as this.

Shaking ice and snow from branches. When tree or shrub branches bend over, resist the urge to go out and knock the ice or snow off. Woody plants can tolerate a certain amount of bending. Mother Nature seems to do a fair job of restoring the form for most trees suffering this type of stress. When the ice first forms on the branches, the stems are not yet frozen. As temperatures drop after branches have bent over, the water in the xylem vessels freezes. Xylem, also known as “wood” is responsible for the upward conduction of water and mineral elements from the soil to the stems and leaves. If we remove the weight of ice quickly

allowing the branch to spring back up, ice inside the frozen xylem shatters, rupturing the cell walls.

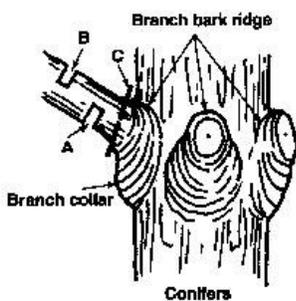
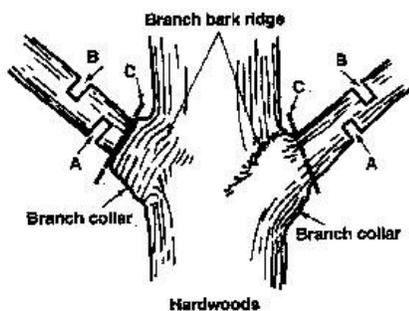
Breakage of the xylem vessels is aggravated even more by the vigorous shaking needed to get the ice to fall off. While the plant may spring back into a more upright habit, the plant pays the price in the hot, dry summer months that follow. With many of the xylem vessels shattered, the plant is unable to move enough water from the roots to the foliage. Leaf scorch and twig death are the result.

However, in situations where a bent over stem is almost certain to break, it is better to damage some of the xylem rather than to allow the central leader of a tree to break. Damaged xylem would need to be dealt with later. If ice and snow removal is absolutely necessary it is always better to use cold water from a water hose to melt the ice than to shake the branch. In most situations, water from a hose is warm enough to melt some of the heavy load. Never use hot water because it will damage the plant you are trying to protect. Small shrubs often recover rapidly if broken branches are simply pruned to the ground and allowed to sprout back.

Dealing with damaged trees. What to do when trees are damaged depends on many factors. Tree failure in an ice storm can range from broken branches to broken trunks and uprooted trees. Some species break under ice loads more frequently than other species and the way a tree breaks varies with the type of tree. Once a tree has failed, it is more likely to fail again in the future. If the tree has suffered extensive damage and presents a threat to a play area, home or driveway, it may be better to remove

it now and avoid the potential for future problems. If only a side branch has broken it can generally be removed without increasing the risk of future failures. While a gap may remain, it is better to have a slightly defective tree than to be without any tree. It is not feasible or desirable to remove every damaged tree. Tree owners need to be prepared to remove the most damaged trees that present the highest risk for causing future property damage and to provide mitigation for those that can be saved. Of those that receive restoration pruning, some will be destined for removal in the future as replacement trees reach sufficient size to function in the landscape. Advice from a professional arborist is valuable, but the ultimate decision to remove a tree must rest with the tree owner.

**Restoration pruning.** Restoration pruning is the term arborists use to describe the multi-year process of restoring the natural form for a damaged tree. Although the form will never be the same as what it would have been, the tree can be made more attractive and the risk of future failures can be reduced, but never to zero. Restoring a central leader is important. If a portion of the central leader has broken, it should be trimmed back to a lateral branch that is at least a third of the diameter of the broken terminal.

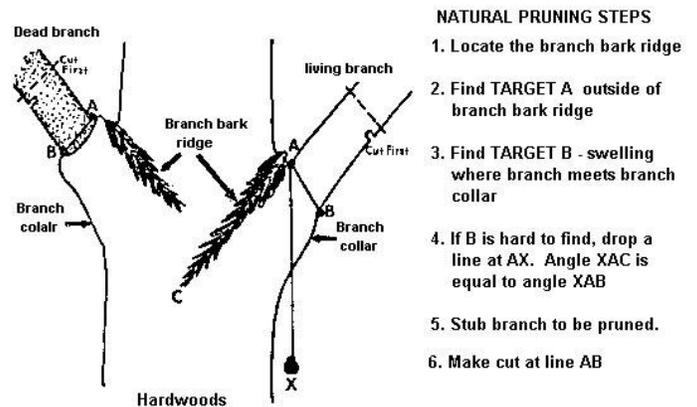


Preference should be given to lateral branches that are more upright but do not have included bark. Pruning back to a lateral that is too small will not have sufficient foliage to promote rapid wound

closure. Unfortunately, in catastrophic events such as ice storms, we may have no choice but to prune to smaller laterals. If the tree is young and the side branch being trained into a new leader is small, the

lateral branch can be tied to a nearby stem and splinted to encourage upright growth. With time this lateral branch will form a new terminal. If splinting is done it is important that girdling of the stem is avoided. Nylon stockings or cloth strips are sometimes used for holding the branch to the splint. Use of wires, even with a piece of hose pipe is never recommended.

Pruning off damaged branches needs to be done properly. See Figures 1 and 2 for proper pruning cuts. Pruning now, while trees are dormant is good. Maples, elms, birch, yellowwood and most conifers pruned at this time of year are going to bleed from these open wounds. Sap flow from wounds has never been shown to devitalize the plant, but the sugary sap in spring may attract bees. On cold nights in spring a maple icicle may form. These are more of a curiosity than a problem with the more daring of us tasting the sweet sap of the maples.



- NATURAL PRUNING STEPS**
1. Locate the branch bark ridge
  2. Find TARGET A - outside of branch bark ridge
  3. Find TARGET B - swelling where branch meets branch collar
  4. If B is hard to find, drop a line at AX. Angle XAC is equal to angle XAB
  5. Stub branch to be pruned.
  6. Make cut at line AB

“We have met the enemy and he is us.” This famous quote from the comic strip *Pogo* identifies the real cause of many of the failures during the recent ice storm. I was watching a live feed from a local television station in residential neighborhood. In the middle of the segment, seemingly on cue, the tree behind the reporter suffered a major branch failure. The camera zoomed in on the now horizontal branch that had damaged the house. It was a silver maple (a.k.a. water maple or *Acer saccharinum*) that had been topped years before. The branch that failed was one that had re-grown from a trunk that had been topped. Silver maples produce wood that is less strong and more prone to decay than many other maples. This failure was a

direct result of a home owner's mistaken impression that topping reduces potential for failure. Just the reverse is true. Topping increases likelihood of tree failures.

Trees that have suffered extreme damage may not have lateral branches remaining. Without laterals the only choices are immediate removal, make topping cuts with plans to replace the tree within a couple of years or make topping cuts and accept liability into the future. Topping cuts are never recommended for the long term survival of any tree. Even though some new growth will develop at the point where the stubbing cut was made, decay will occur and spread down the trunk at a very rapid rate. Young branches that arise after a tree is topped are poorly attached and, in conjunction with the column of decay in the trunk will suffer significantly higher rates of breakage in the future. While the final decision on topping remains with the owner of the tree, so does the liability for future damage that may result.

Safety. Tree work is very dangerous and homeowners should not attempt tree restoration which requires climbing up into a tree or using a chainsaw. Professional arborists are trained and have proper safety equipment with liability and worker's compensation insurance. Hire competent professionals. Seeking an individual who is an ISA (International Society of Arboriculture) Certified Arborist is encouraged.

Tree species differ in their reaction to ice loads. River birches, silver maples, ornamental pears, white pines, willows and many other species suffered disproportionately more damage from the ice storm. These species grow rapidly, reproduce early and are relatively short lived. They begin making seeds at an early age investing their energy reserves in reproduction instead of sound growth. Other trees like the bur oak are long lived. They invest their energy reserves in slower growth that is more durable with reproduction starting at a later age. Many of us want "instant" trees in the landscape, so we plant trees that grow rapidly, but are more vulnerable to breaking apart in an ice storm. Mother Nature is just showing us the error of our ways. We have planted our home landscapes and urban areas with too few species that grow too rapidly. Yes, river birch, pears, silver maple and

willows are attractive, but, we certainly over use them. Some trees like pin oak and beech hold onto many of their old leaves until the following spring. Broadleaf evergreens like southern magnolia retain live leaves throughout the winter. This extra leaf surface allows for more surface area for freezing rain to collect. This added weight also contributed to limb failure.

The Easter Freeze of 2007. Some tree breakage can be traced back to another mean trick of Mother Nature. It will be two years ago this April when we experienced a record breaking plunge in temperature just as we thought spring had arrived. This freeze caused trunk and branch cracking, especially in young trees so that they were too weak to withstand the effects of the recent ice storm. It also killed some or all of the flowers on many of our trees. As a result these plants did not produce any fruit in the fall of 2007. In 2008, these trees over-compensated, and with help from a good pollination season, produced abundant fruit. On trees like ash and crabapple, these fruits persisted well into the winter, adding to the accumulated weight on branches during the ice storm.

Spring will be a good time to plant a new tree. As you begin to select new trees for your landscape look for durable, long-lived species; involve your children or grandchildren in this activity, because they will benefit from your foresight in planting a good quality tree. Recognize the many important environmental benefits our big green companions contribute to our comfort and way of life. Trees, more than any other single factor are what make our homes and cities livable.

## **MORE ON WOUNDS AND WOOD DECAY IN TREES**

**By John Hartman**

Layers of ice and snow loads have caused many broken tree limbs in Kentucky in recent weeks. See the accompanying article written by Dr. William Fountain, U.K. Extension Specialist for Arboriculture. For more detailed information about tree wood decay resulting from weather-related breakage, please view a series of articles written for Kentucky Pest News in 2007. These articles can be

found at:

[http://www.uky.edu/Ag/kpn/kpn\\_07/kpndx\\_07.htm](http://www.uky.edu/Ag/kpn/kpn_07/kpndx_07.htm)

“Wounds and Wood Decay of Trees,” (Kentucky Pest News #1138, July 30, 2007). This article explores the relationship between wounds and wood decay in trees and discusses preventive measures to avoid decay and how wounds should be treated or not to minimize decay.

“Decaying Trees Can Become Hazards,” (Kentucky Pest News #1139, August 6, 2007). This article discusses circumstances under which decaying trees pose a risk to people and property. Information is presented on recognizing external evidence of decay and how internal decay is detected.

“Some of the Causes of Decay in Trees,” (Kentucky Pest News #1140, August 13, 2007). This article describes the decay disease progress in wounded trees. Names of wood decay fungi are listed and brief descriptions of the kind of decay they cause and the appearance of their fungal fruiting bodies are presented.

## PESTICIDE NEWS

### THE DAYS OF MANEB ARE NUMBERED

By **Kenny Seebold**

In late 2008, United Phosphorus, Inc. (UPI) and DuPont voluntarily cancelled all registrations for maneb fungicides in the U.S. Maneb products, important protectant fungicides used by many producers in Kentucky, include Maneb 75DF and 80WP (UPI) and Manex (DuPont), as well as home garden materials offered by companies such as Hi-Yield and Bonide. The main reason for the voluntary cancellation was based on the high cost of re-registration in the light of relatively low sales for maneb products. Also, the availability of mancozeb (Dithane, Penncozeb, Manzate) as a substitute for some maneb uses was also cited as a reason for dropping maneb.

Maneb was produced by UPI, the sole manufacturer of the active ingredient, through the end of 2008; maneb products can be sold by UPI and DuPont through the end of 2009. However, the supply of maneb may be limited in smaller markets like

Kentucky, and we face the potential of shortages. Moreover, the loss of maneb on certain crops takes away an important protectant fungicide and an option for tank-mixes and rotations with fungicides like Quadris that are prone to the development of resistance. On pepper, maneb is the only effective protectant fungicide labeled, and it is also recommended as a tank-mix with fixed copper to improve performance against bacterial leaf spot.

For some vegetable producers, the loss of maneb will have minimal impact, since mancozeb products can be substituted. Growers who produce sweet corn, cucurbits (except pumpkins and winter squash), onions, potatoes, and tomatoes can simply switch maneb for Dithane, Penncozeb, or Manzate. On the down side, those who produce beans, brassicas, eggplant, leafy vegetables, peppers, pumpkins will not be able to use mancozeb. In the short term, these producers should plan to secure maneb as quickly as possible for 2009 to ensure an adequate supply of product.

The EPA has been petitioned to expand mancozeb's label to include some of the crops that had been only on the maneb label; however, a decision will not be made until July of 2009 or later – too late to be of help for many during the upcoming season, but will help alleviate the situation in 2010 and beyond. For this season, DuPont has expressed willingness to support Section 18 emergency exemptions for use of mancozeb on maneb-only crops; this process is being investigated and could provide Kentucky's producers with a short-term fix to the maneb crisis that is unfolding. Please check Kentucky Pest News for updates on the maneb crisis, or contact me at [kwseebold@uky.edu](mailto:kwseebold@uky.edu) for latest developments.

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