



Purdue University Forestry and Natural Resources

Storms and Trees

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Storms! Wind, rain, ice, and sleet! They are as certain as spring, summer, fall, and winter. And there goes that tree limb right on the garage! One of the first questions that may spring to mind is, "What could I have done to prevent this?"

Ice and windstorms take a toll on trees, utility wires, and homes every year. Reducing storm damage can be done through a few easy steps: planning, proper pruning, and preventing root damage.



Planning means you should select the right tree for the right place. When purchasing new trees, it's best to choose ones with dense, strong wood, which are generally slower growing trees. Slow growth results in a higher percentage of large vessels and thicker cell walls. The wood is denser and consequently stronger than faster growing trees. As a result these trees are better able to withstand the bending stresses associated with wind/ice storms.

Trees with Dense Wood

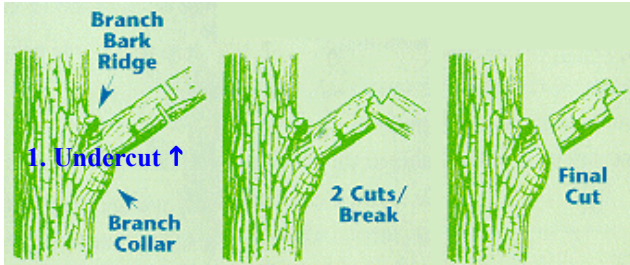
American beech – *Fagus grandifolia*
American elm – *Ulmus americana*
American hornbeam - *Carpinus caroliniana*
Birch sp - *Betula sp.*
Black maple - *Acer nigrum*
Black walnut – *Juglans nigra*
Blackgum - *Nyssa sylvatica*
Blue ash – *Fraxinus quadrangulata*
Hawthorn - *Cragaegus sp.*
Hackberry - *Celtis occidentalis*
Hickory - *Carya sp.*
Honeylocust – *Gleditsia triacanthos*
Kentucky coffeetree - *Gymnocladus dioicus*
Oak sp. *Quercus sp.*
Ohio buckeye – *Aesculus glabra*
Persimmon - *Diosypros virginiana*
Sugar maple – *Acer saccharum*
Sweetgum – *Liquidambar styraciflua*
Sycamore – *Platanus occidentalis*
White ash – *Fraxinus americana*
White fringetree - *Chioanthus virginicus*

Trees that hold their leaves late into the fall (i.e. pin oak) provide visual interest during the winter, but if an ice storm hits, this provides additional places for ice build up and more weight is added to the tree. Eliminating these trees from our landscapes is not necessarily the answer, but selecting the right spot for these trees may reduce storm damage to adjacent structures. Plant them where they would do minimal damage if ice-covered branches fell in the winter.

Selecting the right tree for the right place means you should consider the eventual height and crown spread in relation to where you plan to plant the tree. How close will it be to the house if it reaches a mature size of 100 feet tall and 80 feet wide?

Proper Pruning

- Inspection and corrective pruning of newly planted trees produces good form. Inspect trees for broken and diseased branches annually. Crossing branches lead to problems where rubbing produces damage and decay.
- Always prune branches by using the three-point cut method shown below.



- Always make the final cut outside the branch collar.
- Branches that join the parent stem with a “U” shape provide the best scaffold branching structure. “V” shape connections have a greater tendency to split and break from the tree under ice and wind loads.



U-shape connection

- If a young tree develops co-dominant stems or “V” stems, keep the strongest and most upright branch as the central leader. Left uncut, the tree will develop two weakly joined stems with included bark. Co-dominant stems are susceptible to splitting during ice or windstorms.

Under **no** circumstances should a tree be “topped” to prevent wind or ice damage. Topped trees produce many small sprouts and as they grow, the canopy weight is actually increased. In addi-

tion, topped branches often develop decayed and diseased columns, which further weaken the tree and make the branch more susceptible to breaking during wind and ice storms. Topping may **seem** to eliminate a problem, but it actually enhances the potential for storm damage by increasing sprout growth and decayed branches.

Preventing Root Damage

A major function of roots is to provide anchorage and support to the tree. Sidewalk, road, driveway, patio, or home construction often results in severing major supporting roots of adjacent trees. Removing half of the roots increases the chance that wind and ice storms will topple an otherwise healthy tree. Planning a construction project with the root system of a tree in mind will reduce the possibility of tree failure due to root loss.

Hire a Certified Arborist.

One key to preventing storm damage is to consult a qualified tree service. A certified arborist is best able to provide quality tree care. An International Society of Arboriculture (ISA) Certified Arborist has attained this designation by demonstrating abilities through experience and testing. A list of Certified Arborists may be obtained by contacting the following sources:



International Society of Arboriculture (ISA) website <http://www.isa-arbor.com> and Purdue's Department of Forestry and Natural Resources (765-494-3590)



For more information contact:

Department of Forestry and Natural Resources, Extension Office 765/494-3583, <http://www.agriculture.purdue.edu/fnr/index.html>

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