

Trees and Winter Storm Damage

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Winter damage to trees is common, often caused by heavy snow or ice. Trees can be pruned to improve their strength and structural integrity, but another good strategy for minimizing damage is to choose trees less prone to damage.

Characteristics of Trees Prone to Storm Damage

Characteristics that make trees more prone to damage include 1) narrow branch angles with the main trunk, 2) included bark, 3) broad spreading crowns, 4) dead branches and 5) decayed wood.

Some trees naturally produce branches with narrow branch angles, which often makes the branches more likely to also develop included bark. Included bark occurs when bark is pinched between codominant branches, so there is no physical connection between them. Instead, at their base, is bark pressed against more bark. Often a trunk split will begin at this weak union point and once a split or crack begins to develop, it only gets worse over time. Trees commonly fail or split at the crack when the tree is under a heavy load from ice or snow.

Trees with broad spreading crowns are more likely to accumulate heavy snow or ice loads. Fast growing trees, like silver maple and cottonwood, are more likely to develop dead wood or decay in older trees, resulting in weakened branches unable to withstand heavy ice or snow loads.

Tree Resistance to Storm Damage

There are also characteristics that make trees less likely to sustain damage from ice or snow. These include 1) coarse branch structure which is less likely to accumulate ice, 2) conical branching, such as pine or spruce, 3) sound wood and strong branch attachments, 4) small tree stature, and 5) trees with deep rooting, which are stronger and less likely to fall over when under heavy load.

The following listing of tree resistance to damage was developed by Richard Hauer and Les Werner, associate professors of urban forestry at the University of Wisconsin-Stevens Point, and by Jeff Dawson, professor of forest biology at the University of Illinois at Urbana-Champaign. It was created from 42 primary publications of tree resistance to ice and snow damage.

Susceptible – American basswood, American elm, black ash, black cherry, black locust, black oak, Bradford pear, butternut, cottonwood, hackberry, honeylocust, jack pine, pin cherry, quaking aspen, red elm, river birch, Siberian elm, silver maple and willow.

Intermediate – American beech, boxelder maple, chestnut oak, choke cherry, Douglas fir, eastern white pine, green ash, Japanese larch, northern red oak, paper birch, pin oak, red maple, red pine, scarlet oak, Scotch pine, sugar maple, sycamore, tulip poplar and white ash.

Resistant – Amur maple, baldcypress, balsam fir, bitternut hickory, black walnut, bur oak, catalpa, Colorado blue spruce, crabapple, eastern hemlock, eastern red cedar, European larch, ginkgo, hophornbeam, horsechestnut, Kentucky coffeetree, littleleaf linden, mountain ash, northern white cedar (eastern arborvitae), Norway maple, Norway spruce, Ohio buckeye, pignut hickory, shagbark hickory, swamp white oak, sweetgum, white oak, white spruce, witch-hazel and yellow buckeye.

Get Recommendations from Nurserymen

The ornamental pear cultivar 'Bradford' is one example of a beautiful tree that unfortunately is genetically programmed to develop very tight upright branching, making trees susceptible to storm damage, usually when

they reach 20+ years old. In response, the nursery industry has bred new cultivars of ornamental pear with better natural branch structure and less susceptible to damage.

This explains why it's important to get good plant recommendations from knowledgeable nurserymen when you purchase a new tree. The cultivar 'Chanticleer', also known as 'Select' or 'Cleveland Select', is a better choice, less prone to storm damage. 'Aristocrat' is another good alternative, although more susceptible to fireblight than 'Chanticleer'.

It's a good idea to think about choosing trees with resistance to storm damage when shopping for trees this spring. A little planning now could save you from headaches in the future.

Sources:

Hauer, Richard, Les Werner, and Jeff Dawson. "Trees and Ice Storms: Developing Storm-Resistant Urban Tree Populations." *Arborist News*. February 2014, pages 32-35.

Your Suggestions are Welcome!

Is there a lawn and gardening topic you would like to learn more about? Sarah Browning is an Extension Educator with Nebraska Extension and can be contacted by phone at (402) 441-7180; by mail at 444 Cherrycreek Road, Lincoln, NE 68528; or by e-mail at sbrowning2@unl.edu.

