

Problem: Winter Damage to Woody Plants



Hosts: Varies

Description: Extreme cold temperatures during winter or a sharp drop in temperature during the fall before plants have hardened off (gotten used to cold temperatures) can cause differing levels of damage to a number of woody plants.

There is a special condition known as marcescence that can occur if there is a cold snap in the fall before the leaves have formed an abscission layer between the leaf stem and the twig to which it is attached. This abscission layer is needed for the leaves (or seed pods) to drop at the appropriate time. Without it, leaves may remain attached until the following spring. This doesn't hurt the tree directly but may increase the chances of damage from ice storms due to more area being available for ice to collect.

Cold snaps or extreme cold temperatures can also cause other damage. For example, leaves on evergreens or needles on conifers may be scorched. Scorched needles turn brown, usually at the ends of the branches. Sometimes the entire needle turns brown or, in other cases, just the tips. In broadleaf evergreens such as boxwood or Manhattan euonymus, the outside edge of the leaf may turn brown or the entire leaf may be affected. More severe damage to trees and shrubs may kill twigs, branches or even entire plants.

Desiccating winter winds can also cause injury. During the winter, evergreen foliage still loses water. On windy days the rate of water loss is high and if the ground is frozen or dry then the roots may not be able to keep up with the demand. Low temperatures play a role as well. The result is scorched needles or leaves. The damage tends to be greatest on the outer foliage which is most exposed.

So what does this mean for the recovery of the tree? Winter damage or winter desiccation is common on pine trees as well as spruce. When the needles on pine trees are damaged, they turn brown and eventually shed. However, they usually put on a new set of needles the following spring. Pine trees are pretty resilient to this kind of damage. Spruce trees, not so much. Anything that damages spruce needles and turns them brown will result in defoliation and in most cases, branch die back.

Recommendations: The best time to assess the extent of the damage and the potential for recovery is mid-May. By this time, new growth should have developed and it will be clear if the buds are going to put on some new growth. You can also check for potential recovery by pulling off a few buds. If they are brown inside, don't expect any new growth.

However, there are instances when plants will leaf out and look perfectly healthy until they suddenly collapse later in the spring or even into the summer. In such cases, the plant had been severely damaged during the winter but was able to live on stored energy reserves until the food ran out.

Once damage has occurred nothing can be done but try to avoid any further stress. Regular watering during dry periods is always a plus in helping maintain tree health.

References:

1. [Winter Injury to Trees and Shrubs](#), The Morton Arboretum, Horticulture Care

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