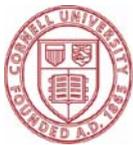


# HOME GROUNDS FACT SHEET



Cornell University  
Cooperative Extension  
Nassau County



Horticulture Center  
Demonstration & Community Gardens  
at East Meadow Farm  
832 Merrick Avenue  
East Meadow, NY 11554  
Phone: 516-565-5265

## Winter Injury

There are several ways in which the winter environment can adversely affect trees and shrubs: direct low temperature and frost injury, dessication injury, winter sunscald, frost cracks, frost heaving, and snow and ice breakage.

### Direct Low Temperature and Frost Injury

Plants frequently injured directly by low winter temperatures are those planted in areas north of their appropriate hardiness zone. Such species cannot harden off at an appropriate rate or to an extent sufficient to withstand prevailing winter temperatures. Even hardy plants can be injured during unusually cold periods when temperatures drop rapidly or oscillate frequently. If hardy plants aren't managed properly (not properly fertilized, pruned, watered, etc.) they may also suffer. Flower buds, vegetative buds, branches, stem, crowns, bark, roots, or even whole plants may be injured. Containerized plantings are particularly vulnerable to low winter temperatures since their roots are not protected by being below ground.

Late spring and early autumn frosts can injure metabolically active tissues that are insufficiently "hardened" to withstand the cold temperatures. This type of injury may occur on native or exotic plants, although the latter are usually more vulnerable. A result of late spring frosts can be the death of dormant or expanding flower buds on species such as magnolia or lilac or the death of young, succulent, actively-growing shoots. Cold temperature injury that occurs during winter may not be evident until injured tissues fail to grow the following spring.

#### *Management*

Avoid planting exotic species north of their plant hardiness zones unless unique microclimates in the landscape guarantee winter survival. Containerized plants should be placed in protected areas, sunk into the ground, grouped together or heavily mulched to avoid low temperature injury to roots. To allow proper hardening of plant tissues, avoid heavy applications of nitrogenous fertilizer in late summer to in-ground plants. Mulch around the bases of root-tender plants to help protect their crowns and roots from freezing temperatures. Even with good management, injury to young growth or insufficiently hardened tissues may still occur as a result of unusual weather patterns. Little can be done in these instances.

Injured and dead tissues should be pruned to discourage invasion of the plants by disease organisms. Replace plants that are completely killed with species adapted for the appropriate plant hardiness zone.

### Dessication Injury

This type of injury, called "winter drying" or "winter burn," is usually observed in late winter or very early spring on evergreen plants. Broad-leaved evergreens such as rhododendron exhibit browning or even total necrosis of their leaf margins (leaf scorch), depending on the extent of injury. Narrowleaved evergreens such as white pine exhibit slight browning of needle tips when injury is slight. Extensive injury may result in browning and premature abscission of entire needles. The injury occurs during sunny and/or windy winter weather when plants lose water from their leaves through transpiration faster than it can be replaced by roots that are in frozen soil.

#### *Management*

Plants that are properly watered during dry periods in late autumn are better equipped to withstand this type of injury. Thoroughly watering the soil around plants once every two weeks (once per week for new transplants) during extended dry periods throughout the growing season will also prove helpful. Placing a protective barrier of burlap over or around plants to protect them from winter wind and sun will help to reduce the incidence of this injury. Antidessiccant sprays applied once in late autumn and again in mid-winter may also prove helpful.

D-2-17 revised RT 1/08

-continued-

*Building Strong and Vibrant New York Communities*

Cornell Cooperative Extension in Nassau County provides equal program and employment opportunities.

## **Snow and Ice Breakage**

Heavy snow or ice on weak limbs or limbs with foliage (like evergreens) can result in breakage. Even strong healthy limbs of deciduous trees and shrubs can be broken if ice or snow is extremely heavy.

### ***Management***

Prune trees and shrubs to reduce the amount of snow or ice they will collect and/or to eliminate those branches that will be inherently weak. Branches with a wide angle to the main stem are generally stronger and can support more snow and ice than can those with a narrow or acute angle. Cabling and bracing of weak limbs on specimen trees by commercial arborists may be helpful. However, removal of such limbs may be the only truly safe measure in many instances. Plant trees and shrubs away from places where snowmelt from roofs will drip on them; the dripping water may freeze on the plants and accumulate sufficiently to break branches. Wooden barriers may be built over small shrubs to allow snow and ice to slide off rather than accumulate.

## **Winter Sunscald**

This type of injury occurs when the sun warms tree bark during the day and then the bark rapidly cools after sunset. These abrupt fluctuations are most common on south or southwest sides of trunks and branches and may kill the inner bark in those areas. Young and/or thin-barked trees are most susceptible to winter sunscald.

### ***Management***

Wrapping trunks of susceptible trees with protective "tree wrap" is the most effective way to minimize this type of winter injury.

## **Frost Heaving**

Frost heaving of new transplants and small shrubs during the winter will expose plant roots to severe above-ground winter conditions like cold temperatures and drying wind and sun. Freezing and drying injury to roots, if extensive enough, can result in the death of plants that are heaved.

### ***Management***

Proper mulching around the base and entirely over the root zone of plants will help prevent the soil from frequent freezing and thawing - conditions that are most responsible for heaving. Replant heaved plants quickly if possible and mulch around them. Wait until spring to determine the extent of injury and need for replacement.

## **Frost Cracks**

Frost cracks are splits in bark and wood of a tree that result from rapid drops in temperature. They may be associated with internal defects resulting from previous injury to the trunk in previous years. Defective wood does not contract as readily as the outer layers of healthy wood when winter temperatures plunge rapidly. The strain between the outer contracting layers of wood and the inner defect causes the outer layers to crack. The initial crack is often accompanied by a loud snap. In winter, the crack may become wider or narrower during colder or warmer periods. Such frost cracks often close and callus over during the summer only to open again in subsequent winters. This callusing and re-cracking may lead to the formation of large "frost ribs" on the sides of affected trees.

### ***Management***

Avoid wounding trees when they are young. Be particularly careful not to bump trees when mowing near them. Mulch around young trees to eliminate the need for close mowing and to help prevent lawn mower injury. Large frost ribs can be braced to prevent reopening during the winter, which will enhance callusing and healing. Frost cracks in trees are ideal sites for the entrance of wood decay organisms. Affected trees should be checked regularly to ensure that they are free from serious decay and are not a hazard to surrounding buildings and living things.