Winter Damage on Landscape Plants

More on winter damage [1]

Winter damage can occur on many plants. A rapid temperature drop following a mid-winter thaw can cause bark splitting. Dead twigs and branches in the spring may be the result of ice and snow damage from the winter. Injury during the winter or early spring season can be from frost or freeze injury.

Foilage can turn yellow and other off colors from cold.

Some evergreens exhibit yellowing or bronzing of the needles when exposed to winter sun and wind, but return to normal color when growth resumes in the spring. Winter injury may be confused with the early stages of some fungal diseases. Needles turn from bronze to reddish brown or brown, as a result of exposure to cold, dry winter winds.

Freezing and thawing cycles can lead to browning or blighting.

Permanent damage occurs when conditions are severe, prolonged, or when temperatures change suddenly. Tissue death is caused by the removal of water in the needles faster than

the plant can replace it through root uptake from frozen water in the soil. Winter scorched needles eventually drop off.

Winter desiccation can cause leaf scorch and winter burn injury.

Leaf scorch symptoms can occur on broadleaved evergreens. Damage is most severe on shallow-rooted plants such as azalea, rhododendron, holly, cherry laurel, boxwood, mountain laurel, or those at their northern limit for winter hardiness (*Magnolia grandiflora, Aucuba japonica, Camellia* spp. and others). Injury occurs on dry, windy, warm or sunny winter days when the ground is frozen. Plants are unable to move water from frozen soil to replace water lost from the leaves. Leaves curl and droop, then brown from the tips and margins, giving the leaves a scorched appearance. In many cases, damage occurs during the winter months but symptoms appear in the spring as the plant begins to emerge from the winter dormant period and move into the spring growth phase.

Winter burn damage on cherry laurel
Photo: Elizabeth Bush, Virginia Polytechnic Institute and State University, Bugwood.org

De-icing salt can accumulate on leaves, causing leaf scorch.

Heavy accumulations of de-icing salts can cause leaf scorch similar to winter damage and may kill buds and branch terminals.

Leaf-scorch from de-icing salt is prevalent in the winter.

Blighted and browning can be caused by warm temperatures in February or March that stimulate buds, flowers or shoots into growth too early. Subsequent spring frost kills young buds and tender new growth, resulting in fewer flowers and later leaf development.

Diagnosis is easy because frozen tissue turns blackish brown. The damaged buds and leaves usually drop off and the remaining bare branches should be pruned out if new growth does not emerge as spring progresses. Blasted or damaged blooms can result from the freezing of flower buds in early spring before or during flowering. Branch dieback and leaf yellowing can be caused by sunscald, root damage, and cold weather following a warm spell.

Ice and snow damage can result in bent or broken limbs from the heavy weight of snow and ice. Gently remove snow from shrubs with an upward movement of a broom. Do not attempt to remove ice from shrubs because ice-laden branches are brittle and more likely to break.

This shows the result of a late freeze on new buds.

Cultural practices that conserve soil moisture, prevent root damage and promote "hardening off" prior to winter will reduce winter damage. Avoid fertilization or pruning in late summer, which stimulates late season growth that does not have time to "harden off" properly and is much more susceptible to winter injury. When watering, soak the soil several inches deep, and then allow to dry between waterings. This encourages deeper rooting. Avoid frequent shallow sprinklings, which encourage surface roots that are easily injured by drought and cold. The use of mulches conserves soil moisture and prevents temperature fluctuations. Mulches also keep the soil cold in early spring, which helps to reduce premature bud break.

Even hardy trees may develop sunscald or frost cracks. Tree bark warmed by the sun in winter can reach a temperature as much as 18 degrees warmer than the air temperature. To cambium layer beneath is damaged. This type of freeze damage is called sunscald.

Frost cracks occur when temperature fluctuations are extreme. Water in the cells of the tree trunk freezes and moves out of the cells, causing the wood to shrink. Tension between the frozen and unfrozen layers of wood is so great that the wood separates, causing a crack. The crack can form suddenly and is often combined with a loud cracking sound. When temperatures warm, the wood absorbs moisture and the crack closes. Frost cracks can reopen and enlarge in subsequent winters and may extend to the center of the tree. Damage to tree trunks in most likely on the south and west sides of the tree where the sun is strongest.

Frost cracks may begin in previously wounded or pruned areas. Proper pruning and avoidance of injury may help to prevent some frost cracks. Tree species prone to frost cracking (those with thin or smooth bark) may benefit from applying white latex paint to the tree trunk. The light color reflects light and helps to reduce temperature fluctuations. The following species are more likely to develop frost cracks: apple, beech, crabapple, elm, goldenrain tree, horse chestnut, linden, London plane, maple, oak, walnut, and willow.

The best prevention of winter injury is to select plants that are hardy in your area. Winter damage can be reduced by locating plants in partially shaded areas protected from winter winds. Place physical barriers about 18 inches away on the windward side of young trees to reduce winter injury. Barriers made from materials such as burlap or plastic can lessen winter wind damage by reducing wind velocity. Maintain adequate soil moisture in the fall to prevent winter desiccation. Inspect plants for winter damage in the spring and prune out affected areas.

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