Protecting Trees and Shrubs in Winter

Winter can take a severe toll on trees and shrubs in landscapes. Old injury, desiccation, salt injury, snow and ice damage and animal damage are major types of injury that may affect woody plants during the winter. The following is a summary of precautions that can be taken to protect plants from these winter related problems.

Cold Injury. This type of injury occurs when plant tissues are killed due to exposure to low temperatures. A Key to preventing cold injury is to select hardy plant species. Start by determining the hardiness zone where trees and shrubs are to be planted.

2012 Massachusetts Hardiness Zone

Cold Hardiness Ratings for Selected Woody Plants

Select plants whose hardiness rating is at least equal to the hardiness zone of the planting location. The lower the hardiness rating, the more cold tolerant is the plant.

Be aware that the hardiness of the plant varies with the season, individual plant hardiness gradually increases through the fall, reaches a maximum in the winter, and then gradually decreases in late winter and early spring. This explains why injury can occur with sudden and severe cold snaps in fall and spring. Also, different parts of a tree or shrub have different degrees of hardiness. For example, flower buds are less hardy than leaf buds. This may explain the failure of trees and shrubs to flower following a particularly cold period, especially in late winter early spring. Aerial portions of a plant are hardier then its root system. Take this into consideration when planting trees and shrubs in above ground planters. You can protect the roots from cold injury with Styrofoam insulation. Placement of plants can influence plant hardiness. South facing walls and heat pockets as may occur in urban settings, may delay the onset of dormancy in fall or initiate growth earl in sprint making the plants prone to injury from cold snaps. Heat radiating from these surfaces may be deflected or absorbed by some inanimate but attractive screening or other feature constructed between the plants and the heat source.

Desiccation. Sun and wind during winter can be a lethal combination, especially when it comes to the foliage of needled and broadleaved evergreens. Sun and wind increase the rate of evaporation of moisture from the foliage of evergreens, During the winter when soils are frozen – or dry, as has been the case with the open winters of recent years – there is no free water for roots to take up to replace the loss through evaporation from plant leaves. The result is desiccation or dying of leaf tissue. Winter desiccation shows up as a browning of the tip and margins of the leaves or needles, typically in spring. Desiccation occurs most often in late winter when intensity of sunlight increases.

Proper placement if evergreen species can minimize the risk of desiccation. Do not place evergreens near south or southwest walls of buildings not in locations subject to high winds.

To protect evergreens from desiccation, plants should be kept well-watered right up until the ground freezes. However, studies have shown that September is a crucial month in watering of evergreens. Insufficient soil moisture during September was more likely to result in winter injury than moisture deficiencies in later months. Application of mulches to the soil around trees and shrubs in fall will help soils retain mustier through fall and winter. Evergreens shrubs and small trees may be protected from wind and sun with the use of screens or burlap wraps.

Screens of burlap, snow fencing, or other shading material may be constructed to protect evergreens from the sun and wind. With smaller evergreens, it may be more convenient to simply wrap the body of the plant with burlap. Leave the top of the plant exposed to light. Another approach to protecting evergreens plants from the drying effects of sun and wind is the applicant of anti transpirants, also known as anti-desiccants which are chemicals that coat leaves of plants with a waxy film. The best time to apply is in January and again in March on a day when temperatures will not drop below freezing.

Salt Injury. The deicing salt commonly used on streets and walkways is rock salt. The problem for plants is when the salt-laden snow is plowed onto soil areas above plant roots, and when water with dissolved salt is sprayed onto foliage of evergreens by passing traffic or snow plows.

Injury to evergreens, especially white pines, often becomes apparent during warm weather in late winter or early spring just prior to new growth. The symptoms include death of vegetative and flower buds, twig dieback, stunted growth and premature fall leaf coloration and leaf drop.

Rain will usually wash alt spray from leaf surfaces, but in the absence of rainfall, hose down foliage with fresh water when practical. Accumulation of salt in the soil can be devastating as in disrupts water and nutrient uptake by plant roots. Unfortunately, by the time the problem is diagnosed, the injury may be irreversible.

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