

Winter Injury of Conifers

Environmental Conditions Can Damage Evergreens

Abnormally warm weather in the winter can be very damaging to conifer species such as spruce, ornamental pines, juniper, arborvitae, and yew. Winter injury to these species occurs when the pores of the needles open and water is released from them during warm winter days. Water is lost to the atmosphere and cannot be replaced since the tree is dormant and is not absorbing water. Repeated occurrences over the winter can kill needles, branches and entire plants.

Root damage also occurs when there is little or no snow to insulate the soil during extremely cold weather periods in the winter. This damage is not immediately apparent in the spring, but may show up later in the growing season as reduced tree vigor or dead branches. Nutrient deficiencies in the soil can also reduce winter hardiness of evergreen needles, making them more susceptible to winter damage. Drought stress, alone or in combination with mite infestations, can cause severe damage to spruce and other conifer species. See our other fact sheets for further information on these conditions:

- *Conifer Spider Mites*
- *Eriophyid Mites of Conifers*
- *Watering Drought Stressed Trees*
- *Drought Stress Resistance with Cambistat*

Symptoms of Winter Injury

- Browning, yellowing or other discoloration of the foliage in late winter and early spring.
- Dead needles on entire sides or in random patterns around trees.
- Buds often survive the winter, and begin to form new needles in the spring. In these cases, the tree loses all the injured needles and develops a "poodle tail" appearance as the new needles form on the ends of the affected branches.

Prevention and Treatment of Winter Injury

Many factors contribute to winter injury, but reliable cures can be difficult to find. Once the damage is done to a plant, not much can be done to restore its normal appearance.



Result of winter injury.
Ohio State University



Winter shrub damage



Wrapping in burlap can protect conifers

Prevention is the best approach in dealing with winter injury:

- Use a soaker hose to water your trees in the fall to prevent moisture stress.
- Conserve soil moisture by applying mulch around the base of your trees.
- Plant cold tolerant evergreens from sources as close as possible to your location. Keep in mind however, that extreme temperature fluctuations can damage even native evergreens.
- Proper fertilization can remedy nutrient deficiencies and help keep evergreens healthy. Fertilize with a well-balanced, slow-release formula such as Rainbow's Tree Nutrition soil-injected fertilizer. See our fact sheet on Tree Nutrition for further information.
- Cambistat is a soil applied treatment used to increase tree tolerance to drought and other stresses. Ask your Consulting Arborist for further information on Cambistat.