



Photo: Blake Hauptman

Typical Spruce tree winter injury symptoms.

SPRUCE TREE WINTER INJURY

Winter injury on spruce trees is very common across Wyoming. The typical symptom of winter injury on spruce is purple discoloration of the needles appearing in spring. Often times existing needles show symptoms, but buds survive. Those buds can give rise to new growth and improve the plant's appearance during the next growing season. In severe cases, trees may not recover. Winter injury can be the result of extreme cold temperatures, drought stress, winter desiccation (cold dry winds draw moisture out of the needles when the ground is frozen and roots are unable to replace moisture to the needles), or a combination of these problems. Symptoms generally appear in winter and spring. Spruce trees infested with aphids or pine needle scale can increase spruce tree susceptibility

to winter injury. Monitor for these and other pests and treat as needed.

Irrigating adequately is the best recommendation to prevent winter injury and to help trees recover following winter injury, although severely affected trees may not recover or improve in appearance even with supplemental water. Spruce trees should receive irrigation year-round. Water trees regularly throughout the growing season until the ground freezes in fall and water occasionally in winter during a thaw. While watering with a drip line can be sufficient for a newly planted tree with a very small rootball, drip irrigation is often inadequate for larger trees. Hand watering with a hose or overhead sprinklers will do a better job of irrigating large areas.

In addition to irrigation, proper planting, spacing, and maintenance practices can help keep trees healthy and less susceptible to winter injury and other stress. Trees should be planted at the proper depth. Trees planted too deep will suffer from lack of oxygen and trees planted too high will suffer from dehydration. Trees planted too close together will crowd each other and compete for water, nutrients, and light. Lower branches on spruce trees help shade and cool the tree's relatively shallow root system. Limbing-up spruce trees is not recommended because removing lower branches exposes the roots to higher temperatures and causes the soil to dry out quicker. Mulch rings around the trees will help soils retain moisture. Also, avoid growing turfgrass around the base of spruce trees. Grass will compete with the tree for water and nutrients which can be extremely problematic for young trees.



Photo: Blake Hauptman

Purple discoloration of spruce needles showing up in winter and spring is an indication of winter injury. Also, notice the white marks on the needles are pine needle scale insect pests.



Photo: Blake Hauptman

Grass growing around the base of a spruce tree can compete for water and nutrients.



Photo: Mac Smith

Spruce trees planted too close together compete for water, nutrients, and light.



MP-143

May 2020

Chris Hilgert, University of Wyoming Extension Master Gardener Statewide Coordinator and Horticulture Specialist, Department of Plant Sciences

William Stump, University of Wyoming Extension Specialist Plant Pathology, Department of Plant Sciences

Karen Panter, University of Wyoming Extension Horticulture Specialist, Department of Plant Sciences

Editor: Katie Shockley, University of Wyoming Extension

Design: Tanya Engel, University of Wyoming Extension

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