



# Forest Pest Fact Sheet

## Herbicide and Road Salt Damage to Trees

### Introduction

**Herbicide injury** can occur when spray is accidentally applied to tree foliage (**Figure 1**) or drifts (**Figure 2**) onto it from nearby applications. Injury can also occur when tree roots absorb herbicide that is sprayed or drifts, or washes onto soil within the tree's rooting zone (**Figure 3**). This zone often extends out beyond the tree's crown. Many lawn fertilizers also contain herbicide that can harm trees.

**Injury from road salt** (sodium chloride or magnesium chloride) occurs when salt spray is deposited on the foliage of roadside trees and when salt is washed into the rooting zone. Magnesium chloride is also used on gravel roads to reduce dust.

Correct diagnosis of injury involves interpreting symptoms and considering the pattern of injury, the location of the injured trees, and the condition of surrounding vegetation. Accurately diagnosing herbicide injury is difficult because of the many herbicides in use. Not all herbicides have the same biological effect when applied to vegetation, and therefore produce different symptoms. These symptoms vary with tree species, the herbicide used and the application rate and timing. Ponderosa pine in particular is particularly susceptible.

### Damage

Herbicides, road salt, and dust abatement chemicals can cause discolored foliage, abnormal needle loss, reduced or deformed growth, branch or top kill, and tree death. Depending on the product used and the application rate, trees that are not seriously injured often outgrow the symptoms within a few years.

### Location

The location of the injured trees and the pattern of injury are often the only indications that herbicides or road salt are involved. Locations where herbicides or other chemicals are often used near trees include roadside ditches (**Figures 1, 4, & 5**), fencerows, windbreaks, sites adjacent to or downwind from fields and pastures (spray drift) (**Figure 2**), and around homes, shops and other outbuildings (**Figure 3**).

### Symptoms

- Multiple tree species affected with similar symptoms
- Needles or needle tips turn yellow/brown (or purple for spruce)
- Needles or shoots twisting, drooping, or bending (**Figure 4**)
- Stunting or death of new growth
- Branch or top kill and tree death
- Herbicides absorbed by tree roots may cause branch dieback or needle symptoms in a spiral pattern going up the tree (**Figure 3**)



**Figure 1.** Injury on lower crown due to spraying along railroad right of way.



**Figure 2.** Damage on one side of tree due to herbicide drift.



**Figure 3.** Spiral pattern (barber pole) from root damage by herbicides or deicer salt.





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### Patterns of Herbicide and Salt Injury

Lacking evidence of insect damage or disease, these injury patterns suggest the possibility of herbicide damage:

- Entire tree affected
- Lower crown affected
- Only one side of the crown affected, especially along roads
- Needle tips only discolored
- Only new growth affected
- "Barber pole" (spiraling up the tree) injury from road salt or systemic herbicide via roots (**Figure 3**)
- Multiple tree species with similar symptoms in the same area

Examine the pattern of vegetation surrounding the injured trees. Healthy grass and broadleaved plants indicate that herbicides haven't been applied near the trees. Grass without broadleaved plants is an indication that a product that kills only broadleaved plants has been applied. Look for the presence of where broadleaved plants start or stop in relation to injured trees. The complete lack of vegetation without signs of mechanical cultivation, especially near buildings and along roadsides, can also indicate herbicide use (**Figure 6**).

To minimize the chance of injuring conifers, READ and FOLLOW herbicide LABEL instructions. Labels often list conifer species' tolerances to the product. Also, check the "plants controlled" lists for conifers that could be injured. Do not exceed recommended application rates. Follow the drift reduction instructions. Check for recommended waiting periods between application and planting conifers. Larch and spruce may be more tolerant of salt than other conifer species.



**Figure 5.** Damaged trees along roadside.



**Figure 4.** New growth drooping from herbicide damage along road.



**Figure 6.** Entire trees killed by herbicide, surrounded by complete lack of vegetation.

### Prevention & Precaution