

Evergreen Conifers Winter Color  
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Some evergreen conifers, trees that keep their needle-like leaves all winter, develop winter color. Because there is an increase in evergreen diseases and drought injury, a change in an evergreens color during fall might create concern the tree is diseased or dying from drought.

Winter color in some evergreens is natural. It develops in late fall and early winter and ranges from a different shade of green to purplish-brown to bronze or yellowish. Junipers, including cedars, often show the most noticeable change in winter color, usually bronze.

Have you ever wondered how conifers are able to retain needles during winter without being damaged by cold temperatures? According to Julie Crick with Michigan State University, this is due to the physical and chemical makeup of the needles.

Crick writes the needles on conifers are thick and covered with a waxy layer that helps reduce water loss throughout the year. In winter months, conifers stop photosynthesizing and close their stomata, small openings that allow water to evaporate during photosynthesis.

This gives needles a greyish green appearance, due to the lack of photosynthesizing chlorophyll, and prevents needle injury from cold temperatures. In addition, the resin content of needles acts as an antifreeze, preventing needles from freezing.

Evergreens can suffer winter burn, especially under dry conditions like our current drought. Winter burn results in entire needles or needle tips turning brown in spring not fall. The most severe damage from winter burn occurs in March or April, when temperatures begin to warm but soil is still frozen.

At that time, warmer spring temperatures and the sun's heat cause needle stomata to open, releasing oxygen and water. The lost water cannot be replaced by roots in very cold or frozen soil, resulting in needle browning.

While most winter dessication occurs in late winter and early spring, the best way to minimize it is with correct summer and fall watering. If evergreen tissues are low in water when the soil freezes, they are much more susceptible to winter drying.

As I've talked about many times in these articles, and with our ongoing drought conditions, water evergreens if the soil is dry and not frozen, and when air temperatures are over 40 degrees Fahrenheit.

While we recommend winter watering when conditions allow, water provided during winter does not benefit the tree much until spring. It is a way to ensure soil moisture is available as soon as roots are able to take it up in spring. As March and April is when the majority of dessication occurs, this is important.

Another way winter watering benefits a tree during winter is preventing soil cracks. Tree roots are not as hardy as aboveground tree parts. Cold air entering soil through cracks can kill fine roots near the soil surface. While this won't kill a tree, it can cause stress and allow opportunistic pathogens, like root rots, to infect roots.

Another cause of off-color evergreens could be pine wilt disease. When infected, the needles Scotch and sometimes Austrian and white pines, will first develop a dull or grayish-green color. Not long after, the entire tree or a large portion of the tree turns brown and dies. Infected trees will not recover and there is no control for pine wilt.