



Autumn is officially here; cue the falling leaves, cool nights, and yellowing pine trees. Knowing the cause of the discolored needles will help to know if it is nature taking its course or if it is a disease infecting your trees.

Evergreen needles change color in autumn too, just like deciduous trees. It is a normal occurrence that happens in the fall of the year called natural needle drop. The older, interior needles of pine and spruce turn yellow and drop from the tree. The needles that are lost are usually located closer to the trunk inside the tree. Factors that increase stress on an evergreen, can intensify the autumn needle drop. Common stress factors include drought, herbicide injury, root damage, insect or disease damage.

Like many living things, evergreen needles also have a lifespan. Conifers are called evergreens because they are green year round, not because they keep their needles forever. Pine trees hold their needles for 2-3 or more years. Spruce trees hold their needles longer than pines, usually around 5-7 years. After the needles have lived their lifespan, they fall from the tree. Some trees, like the white pine, make it easy to see the needle drop.

The location of the discolored needles can determine if it is natural needle drop or if a disease has infected the tree. If the tip of the branch was the only part affected this spring, fungus could be to blame. Cool, wet springs are ideal conditions for fungus, this spring was no exception. The Sphaeropsis tip blight fungus will infect the new growth as it emerges causing it to turn brown and hang on. If fungicides are applied, the best time to spray preventative treatments for Sphaeropsis tip blight fungus is April or May when the new growth is just starting.

Are you seeing half-brown needles on the tree? Another fungal pine disease can be to blame for the discolored needles. Dothistroma needle blight causes reddish lesions on the individual needles. It causes the needles on last years' growth to appear to be half green and half brown. It mainly infects the lower half of the tree. Preventative fungicide applications can be made in mid-May and again in mid to late-June. Both of the fungicides are preventative, not curative. By the time you see the infection, it is best to wait until next year.

Pine wilt can also cause needles to change color. If the entire branch or tree turns brown and the needles hang on, it could be pine wilt. The cause of pine wilt is smaller than we can see with the naked eye. The pinewood nematode is a very small worm-like organism that attacks the tissues that move water and nutrients throughout the tree. The nematode doesn't travel very far by itself, so it uses a 'friend' to help it move around. Nematodes hitch a ride on pine sawyer beetles and fall off when they reach a new tree to infest. The first symptom is the tree or a major branch will have a grayish green tint to it. As the nematodes progress and multiply the tree turns tan and then eventually brown. One important thing to remember is that the dead brown needles will remain on the tree for a year or more.

Brown, outer needles on the north or west side of the tree is a different issue. Winter desiccation happens when the evergreen loses more moisture from the needles than what the roots can soak up from the ground. Moisture now can help to prevent needles from changing color next spring; thankfully this year Mother Nature took care of that for us. One of the most important things you can do to prevent winter desiccation is to water in the winter. When air temperatures are above 40 degrees Fahrenheit, apply water early enough in the day so it can soak into the ground before temperatures drop below freezing. Apply enough water to moisten the top eight inches of the soil under the drip line of the tree. Be sure to check the soil moisture before irrigating.

Proper identification of the culprit behind the color changing needles can help you determine if this is nature taking its course or if you have some action to take in the future.

Elizabeth Killinger is the Horticulture Extension Educator with Nebraska Extension in Hall County. For more information contact Elizabeth at elizabeth.killinger@unl.edu, her blog at <http://huskerhort.com/>, or HuskerHort on Facebook and Twitter.