



ATTS Group

Seasonal/Fall Needle Drop

By Toso Bozic

As fall is giving us spectacular leaf colours from hardwood species, the fall needle drop is a natural phenomenon that occurs in pine, spruce, fir and arborvitae trees during the autumn season. It is a process in which these trees shed their older needles, making way for new growth and ensuring the overall health and vitality of the tree. This shedding of needles is an essential part of the tree's life cycle and plays a crucial role in its adaptation to changing environmental conditions.

Symptoms and Identification

Depending on each coniferous species, older needles stay on a tree different time length. Pines will usually keep their needles for 4-8 years. Spruces typically keep their needles longer than pines do, generally for 5-10 years. Arborvitae sheds branchlets as they age yet remain on the tree for quite some time before falling.

The fall needle drop (yellowing of needles) occurs uniformly across the entire tree, from its uppermost branches to the lower ones. As autumn approaches, the older needles on the inside of the tree canopy and closer to tree trunk will transition from their usual green to hues of yellow, brown, or reddish-tan. **Younger needles remain green, healthy and vigour's with healthy apical bud.**

It is very important to differentiate between fall needle drop and other tree health issues. Any irregularity, such as abnormal branch die-off or an uneven pattern of needle shedding, indicates a deviation from the normal fall needle drop process. In such cases, further investigation is warranted to identify underlying issue that tree may be suffering from a more serious disease or insect problem.

Reasons for fall needle drop

The process of fall needle drop is regulated by various environmental cues and internal hormonal and cellular changes within the tree. These cues include changes in daylight duration, temperature, and soil moisture levels. One most common causes of excessive needle drop are too-wet and too-dry soils.

As the days shorten and temperatures drop, the tree begins preparing for winter, coniferous trees optimize their resources by shedding older needles. These needles have lower photosynthetic activity compared to newer ones and shedding them helps conserve energy and nutrients.

Shedding older needles further reduces water loss, aiding the tree in surviving the drier conditions often associated with the fall season. Lastly, older needles are more susceptible to diseases and infestations by pests. Shedding them helps the tree maintain its overall health and reduce the risk of infections that could potentially harm the entire tree.



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Benefits of fall needle drop

The fall needle drop has important several ecological benefits such as nutrients recycling, providing wildlife habitat and reduce soil erosion. The needles that fall to the ground serve as a source of nutrients for the soil. Over time, these needles decompose, releasing valuable nutrients that enrich the soil and promote the growth of other plants in the ecosystem.

The fallen needles create a layer of organic material on the forest floor, providing habitat and protection for a variety of insects, fungi, and small organisms. This layer also supports the growth of understory plants that serve as food for many forest-dwelling creatures. The layer of needles on the forest floor helps reduce soil erosion by acting as a natural mulch. It protects the soil from the impact of heavy rain and promotes moisture retention.

Conclusion

Landowners don't need be alarmed about the fall needle drop as it is a natural and essential process for coniferous trees. There is no harm to trees during the fall needle drop. Trees are just ensuring their adaptation to changing environmental conditions and promoting the overall health of the forest ecosystem. Understanding the symptoms of fall needle drop is crucial for tree owners, foresters, horticulturalist and arborists to differentiate this natural process from potential tree health concerns.



Picture 1: Typically, fall needle drop manifests in pine trees. The consistent yellowing of needles throughout the entirety of the tree, with a notable concentration nearer to the trunk is hallmark of fall needle drop.