



The Plant Doctor's LANDSCAPE TIPS

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WINTER BURN IN SPRING & SUMMER

INTRODUCTION

Plants in our landscapes may be affected by cold temperatures regardless of the severity of the winter (Photo 1). We witness the impact of cold temperatures on plants every winter and subsequently, the following spring, with vestiges of winter impacts even extending into summer. Various plant tissues such as buds (vegetative, and/or flower), stems, and roots may be injured or killed by winter conditions. Sometimes, it's the absolute cold temperatures and their duration that impact plants; other times it's the rapid change in temperatures among other causal factors.



Photo 1

Photo 1: A winter "Icy Wonderland" scene on the Michigan State University campus many years ago. The trees were coated in ice; many limbs were broken, and a few trees were even felled by the accumulation of ice. All trees in this photo survived.

The winter of 2025 in Michigan, in my opinion, was fairly brutal, especially in terms of duration; there seemed to be very few warming periods such as thaws in January and February, which we have come to expect in what is believed by many to be "climate change" warming trends. The folks in the Upper Peninsula typically experience long, cold winters and have adjusted accordingly. But those of us who live in the lower peninsula may have become "wussified" by our expectations of warmer, southern climes. Now consider the notorious ice storm that engulfed large areas in the northern, lower peninsula towards the end of March; this storm was so impactful that the Michigan Governor sought emergency disaster relief from the federal government. This ice storm stretched from Lake Michigan to Lake Huron in the Petoskey to Alpena areas.

WHAT IS "WINTER BURN"?

I am using the term "Winter Burn" rather loosely in this article. The term could signify actual symptomatic reactions of plants, especially conifers, to climate impacts. In other cases, it might indicate economic impacts as in, "Last winter burned a hole in my wallet due to heating expenses" or "Physical destruction of my trees was enormous" (Photo 2). I've been receiving many calls

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Photo 2: This large red oak tree (4+ feet dbh) toppled during an Ice Storm around 2005 at a lake front cabin near Manchester, Michigan. Overall, the tree appeared reasonably healthy in the years leading up to the incident. One contributing factor was that the tree's root system was infected by *Armillaria* root rot, which gave the tree a slight lean and a greater propensity for structural failure (Inset). Note: *Armillaria* mushrooms were usually visible every fall.



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and requests for assistance about why many spruces and pines have suddenly turned brown, often with accompanying needle loss; in such cases it's important we do not react too swiftly and too harshly (Photo 3). People often react with alarm to changes in their trees due to winter conditions. Before we condemn trees,



Photo 3

Photo 3: It's wise to not be hasty in condemning trees that appear to be dead or dying. Several decades ago, during January, I received these two pots of spruce trees from a nursery; the nursery owners wanted to know what "disease" had killed the trees. I could easily determine that the trees suffered from "winter burn" and not a disease; they would recover with the onset of spring. Unfortunately, before I could return my diagnosis (within 24 hours), hundreds of these trees had already been destroyed because the nursery owners mistakenly believed they were dead.

we should perform some simple diagnostic tests which can easily be accomplished in the field. First, grab a bud from the apex of a branch; if the base of the bud is dark, that bud is dead and will not recover; if the bud is green, it shows viability, and the tree may yet recover. Next scrape the bark on a branch; I look for a green cambium that indicates there is viability in the tree's conductive system; this test along with the "bud test" can be performed during the dormant period on both deciduous and coniferous species (Photo 4). Trees with green bud bases and live cambium may recover, even if they've lost many needles (Photo 5).

ICE STORM 2025

How does the ice storm of 2025 compare with other weather disasters in Michigan? The Flint-Beecher tornado on June 8, 1953, rated an EF5 with wind speeds exceeding 200 mph, is widely regarded as the worst storm in Michigan history... at least in recorded history. This storm resulted in 116 human deaths and 844 injured people, accompanied by extensive property damage, making it one of the worst natural disasters in Michigan's and United States' history. The tornado leveled a swath 27 miles long through Genesee and Lapeer counties. How does the ice storm of 2025 compare? Well, there is no comparison when it comes to



Photo 4

Photo 4: There are some simple tests that can be performed in the field on both deciduous and coniferous trees during the dormant period. With the two deciduous twigs, we can readily see that scraping the bark with a pocketknife discloses that the twig on the left exhibits a brown cambium (death) while the twig on the right exhibits green cambium tissue (life). Checking the buds of twigs reveals that the bud in the Inset is dark, indicating death. Viable buds will have green bases. A twig that snaps upon bending will also give some evidence for death rather than life.



Photo 5

Photo 5: Winter impacts on conifers are especially conspicuous. Even though the spruce tree on the left may appear ratty if not dead (standard "winter burn"), it exhibited green buds and live cambium tissues; it may (or may not) recover with time. Because of their delicate needles, white pines often turn brown during the winter, indicating winter burn/desiccation (right photo); by spring, however, the emerging shoots demonstrate viability, and the tree will easily recover. Patience is a virtue. (Left Photo Credit: Laurie Giddis)

human deaths. But in terms of economic considerations such as property damage, costs from power outages, clean up etc., it is likely the ice storm of 2025 will far exceed the 1953 Flint-Beecher tornado. Ice accumulation during freezing rain is generally more destructive than snow accumulation; the exception may be snow accumulation on certain species of conifers. Climate experts warn that climate change is likely to cause more ice storms in the future (as well as more violent storms of all types). When we think

about it, warming trends in our climate are likely to lead to more freezing and thawing conditions like the ice storm of 2025, which damaged or toppled millions of trees across northern Michigan (Photos 6A & 6B).



Photo 6A



Photo 6B

Photos 6A & 6B: Numerous properties were damaged in the 2025 ice storm that occurred in late March; millions of trees were damaged or toppled. This late March storm occurred at a close enough time to the warming high-risk period of Overland Spread of Oak Wilt – that left many Michiganders and plant professionals worried about the development of Oak Wilt (6A). In other more remote areas, many trees were damaged and will be cleaned up over time (6B); however, the occurrence of many leaning trees and “hangers” will continue to expose live tissues in oaks that will attract sap beetle carriers of the deadly Oak Wilt fungus. Remote areas will likely result in Oak Wilt outbreaks that could remain unnoticed for many years. (Photos Credit: Dave Firman)

by the storm. My reason for this answer is that the temperature remained cold (below 45° F) for many days after the damage. But here’s the problem – during the cleanup operations at many properties in the ensuing months, extending through the spring and into the summer, there would be a great potential for Oak Wilt development as trees are trimmed and/or removed . . . and that is just where corrective measures are immediately implemented: landscapes, driveways, roads, two-tracks, etc. Another major predisposing factor for development of Oak Wilt are the millions of damaged trees in 100,000s of acres across northern Michigan in the path of the 2025 ice storm. Trees that are leaning and trees with “hangers” (hanging broken branches) will continue to open new wounds in no-where-land during windy conditions and are likely to create many new Oak Wilt epicenters. Property owners in northern Michigan would be well-advised to monitor their woodlands to ensure Oak Wilt does not escape their attention and result in surprising expansion of this dreaded disease on their and neighboring properties. 🌱

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OAK WILT AND THE 2025 ICE STORM

Immediately after the late March 2025 ice storm, I received many queries from arborists, landscapers and the public in northern Michigan. I also received many photos of the damage from our northern Michigan colleagues (Photos 6A & 6B). Their typical question, “Is there a possibility of Oak Wilt development from the millions of trees damaged?” In general, my answer was “no”, that it is unlikely that Oak Wilt would develop from Overland Spread of the Oak Wilt fungus by sap beetles to wounds created