

# How are plants coping with the cold?

For plants, making it through the winter can be a chilling process. Read below to learn how plants deal with the long-winter months.

If you are a plant, the first step to dealing with the cold is to go **dormant**! Environmental signals that trigger dormancy include the shortening of the day length, as well as cold temperatures. By early fall, most plants have slowed their growth and began to set **winter buds**. Once the temperature starts falling, many plants will **drop their leaves**. Why? Leaves are responsible for the movement of water through the plant. They act like a straw, suctioning water from the roots out through the top of the tree. Dehydration is more risky and damaging to a plant than the cold itself so the ability to conserve water through leaf drop provides a survival advantage under harsh conditions.



Image 1. Oak tree in winter dormancy

Going dormant and dropping leaves aren't the only tricks plants have to make it through the winter. There are many **unseen** processes happening inside the plant. A little-known fact - plants have **unsaturated fats** that help protect them from freezing<sup>1</sup>! The more unsaturated fats a plant can produce, the more resistance it has to freezing. Some plants also have the ability to undergo deep **super-cooling** and survive temperatures as low as -40 degrees F<sup>2</sup>! Super-cooling occurs when ice crystals form inside the cells of the plants, and are stored in extracellular spaces where they cannot damage critical parts of the plant's cells. Even more surprising, cold temperatures can trigger the plant to make its own brand of **anti-freeze**<sup>3</sup>!

What about plants that keep their leaves? The leaves of **Evergreen** trees and shrubs are much thicker and have a 'waxy' coating. These characteristics help the plant reduce water-loss in the winter time. Staying evergreen is a useful adaptation over dropping leaves because it gives the plant a head-start on making food once the weather breaks.



Image 2. The evergreen leaves of a holly tree

A synthetic 'waxy' substance can be applied to plants to aid in the reduction of water loss. These sprays are known as '**anti-desiccants**' and are especially useful for helping transplanted trees and shrubs survive through the cold and dryness of the winter months. Our plant health care specialists at Mead Tree & Turf Care are available to assess the needs of your plants for surviving the winter.