

Fall Tree Watering

By Toso Bozic

As trees are preparing for winter; deep watering may help their well-being during the cold winter months as well as at beginning of next spring. The majority of Alberta is dry with very little moisture during September and October with many trees that are experiencing water deficiency during these months. The main reason for watering in fall prior to winter is that water acts **as an insulator to the soil and most importantly to the roots of trees**. Cold air around the root system will greatly damage/kill roots causing branch dieback or eventually kill the tree.

Having frozen water in the soil makes soils warmer than surrounding cold air. Roots without water around them will be more susceptible to cold dry air damages. Cold air in the soil will “draw” water from roots and create icicles in the live root cells. Icicles in root cells damage or kill fine roots causing significant stress to trees. Newly planted trees are more prone to winter kill injuries than mature trees. Be aware that during the winter months, the coniferous trees may lose water through their needles faster than their roots can absorb it which will turn needles into brown colour in spring. This process is called winter browning in coniferous

To avoid dead branches or entire trees being killed providing sufficient water supply in the fall is crucial for tree survival during harsh winter months.



Picture 1. Epicormic shoots and top branches dead due to winter root damage on old and young elm trees

Water and Soil Testing for Sodium

Prior you do any watering **you must be aware about sodium levels in water and soil**. If you have a high sodium level in water, you are setting up your trees to be killed in long run. Any water and soil-testing laboratory can measure sodium levels in water and soil. Most of labs will measure Calcium, Iron, Magnesium, and many others as well as Total Dissolved Solid (TDS) or Electrical Conductivity (EC)

First step is measuring the salinity/sodium levels in the soil. Salinity in soil is measured as Electrical Conductivity of extract (ECe) in deciSiemens per meter (dS/m). Most trees will grow in soils with an ECe of up to 4, but beyond that level their growth is restricted. With a soil with an ECe between 8-16 dS/m, only saline tolerant species may grow, and their growth may be only satisfactory.

Second step is measure sodium level in water. As you add water with high sodium levels, you will overall increase salinity in soil year after year. Most of plants (flowers, vegetable, and crops) do not perform well when more than 100 ppm of sodium in water.

According to Alberta Health most of the Chloride concentration for drinking water is less than 250 mg/L or 250 ppm.

Trees affected by salt will have stunned appearance and reduce growth as well as many will succumb due to higher doze of salt in soil or on trees itself.

Timing

When to water in the fall is hard to determine as the weather in Alberta is unpredictable but you must know your local weather situation and act accordingly. For hardwood species, you must wait until leaves fall off and just prior to first soil freezing. For coniferous timing, it is the same as for hardwood species. Most of the trees will “shut down” in the early weeks of October just prior to soil freeze. If you wait and ground freezes, frozen soil will act as barriers and water will not seep down in the soil to the root zones. Always water early in the day, so the plants have time to absorb it before the temperature drops at night.

Where to water

Most people make a very common mistake and water trees right next to the trunk. Trees should be watered what an arborist calls “drip line” -an imaginary line extending from the outermost branch tips straight down to the ground. Most of the roots are spread beyond the drip line and usually are equal to tree heights.

How much to water

As some rule of thumb for every inch in the tree breast height diameter equals 10 gallons of water. Watering should be slow and deep (6-12 inches). There are several ways to water trees by using a deep-root fork or needle (up to 8 inches into the soil), using a soaker hose, or sprinklers. Avoid water spraying on needles or foliage. If you use sprinklers avoid water hitting a tree trunk.



Picture . Use an irrigation bag for small tree watering and wood mulch to reduce the impact of cold air getting into the soil and damage roots

Mulching

Beside watering you may also add the mulch to your trees before freezing. Mulch also protects tree roots from winter freezing and reduces the possibility of root damage and tree mortality. Mulching provides several other functions such as preventing weeds, protecting roots from extreme heat and keeping moisture longer around trees. Create a donut-shaped wood chip cover around your tree to keep water inside. Putting wood chips next to the trunk attracts rodents, insects, and potential diseases.

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