YARD WHISPERS

TREES ARE OUR PASSION

Drought & Watering Trees

By

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The direct impact of drought on trees is characterized by slowing or eliminating growth, serious health threat causing injury or death. Drought also impact trees indirectly, by increasing their susceptibility to wildfire, insect pests and disease and overall long-term decline. Severe droughts cause widespread tree mortality across landscape (urban, acreage, farm, county, or province wide) with profound effects on the function of tree/forestry ecosystems and overall environment.

Alberta native plant communities (grass, shrubs, and trees) are well adapted for dry summer and fall as well as for a period of prolong drought but still the effect and impact of droughts on trees are devastating and long lasting. Trees that were already stressed by some other issue, like harsh winter/winterkill, poor soils, salt, herbicides and mechanical damages or insect infestation, are likely to decline even more following a drought. ***Watering trees is extremely important for well-being and survival of your trees during drought conditions.***

Watering Considerations

Water is scarce in the prairies and water requirements for trees can be substantial, particularly for large trees. Understanding how much water trees need during drought is difficult to determine. Some large trees can use nearly 200-500 gallons of water on a hot, summer day. To understand water requirements for your tree, there are several key factors to consider prior water including:

- Soil types – clay vs sandy soil, poor vs rich, compacted vs natural,
- age of trees - newly planted vs few years old vs mature trees
- Tree species types– water loving vs drought resistant, shallow vs deep rooted, wide vs narrow roots
- Water quality and quantity – overall availability of water
- Water delivery system – irrigation vs hand vs bags
- Time of day – morning vs late in day
- Cost of watering
- Mulching using arborist wood chips is best way to keep moisture in long term

Each of these considerations will determine how much watering you need provide to your trees. Based on these considerations the amount of water require for each tree will be determined.

Picture 1: drought impacted trees with loss of periphery leaves (L and C) and edge leaves browning (R)

Proper watering during the drought

Unfortunately, lots of people do not perform proper watering during the drought. There are several steps to consider:

1. ***Test your water for sodium*** before watering your trees. If it contains high levels of sodium, it will kill your trees fast and not provide chances for them to survive
2. ***Check moisture*** in soil by using a garden trowel/knife to a depth of 4-6 inches. If you can, easily push/insert a 6-inch screwdriver into the soil, there is enough water.
3. ***Amount of water*** - still today, science does not provide an exact amount of water for each tree but there are some rules of thumbs. During drought, trees grown in sites without lawn irrigation need approximately 10 gallons (38 liters of water each week per inch(2.5 cm) of trunk diameter measured. For example, for a tree that is 4 inch (10 cm) in diameter, it will require 40 gallons (152 liters) of water. Some trees can handle drought better than others- e.g. pine are more drought tolerant than poplars, elm and many others.
4. ***Timing –*** optimal time to water trees are early in the morning. Try to avoid water late at night due to potential of developing fungus. Also, it is extremely important to water trees when temperature is scorching during the day. If your trees are showing signs of water stress in the middle of the day, by all means you should water them**.**
5. ***Where/area to water –*** very common mistake people practice is to put water hose right next to the trunk. Fine mesh of roots that are responsible for nutrients and water absorption is the furthest away from 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.

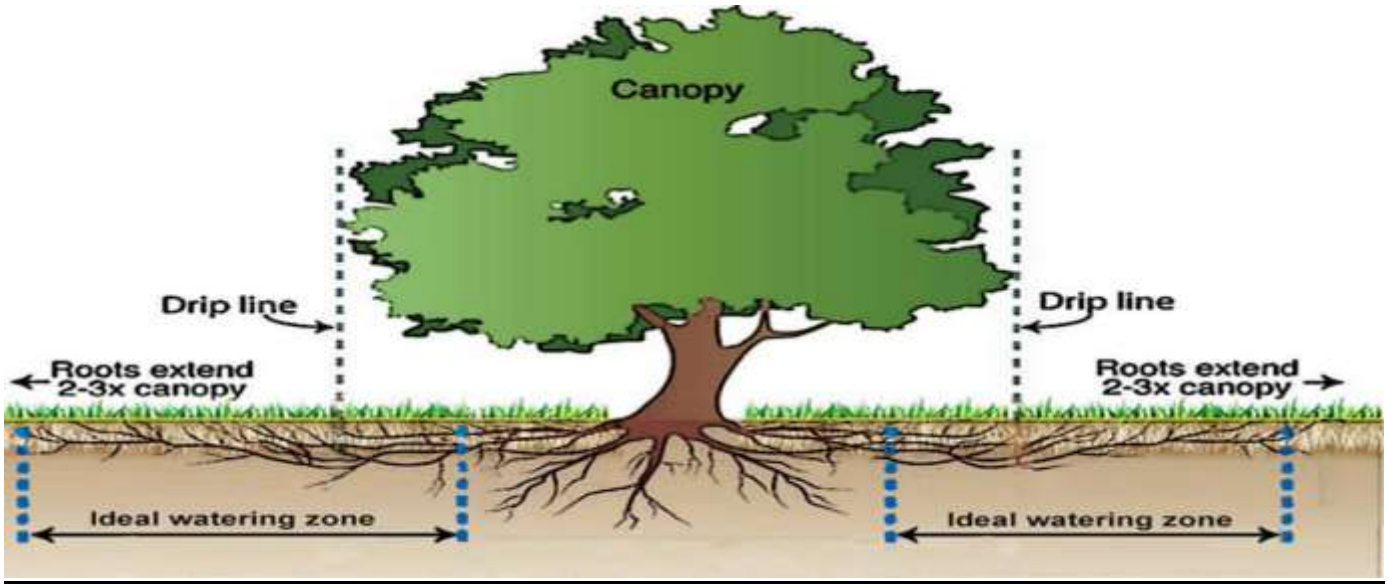

Photo source : Trees for Missoula - https://www.treesformissoula.org/watering-trees

6. ***Water delivery mechanism –*** drip irrigation is best way to water trees as you can control the amount of water delivered as well as the speed of water droplets. If you don't have drip irrigation and using hose, sprinklers, water gator bags, and buckets, it is extremely important to perform long and slow soaking at the outer edge of the drip line. Avoid any water run offs and water hitting trunk.

Picture 2: Watering systems – drip irrigation(L), sprinklers(C) and Gator bag (R)

7. ***Frequency of watering*** –water trees once a week with slow soaking water. Avoid overwatering even during the drought as you can " drown" your root system if you have heavy clay in your soil.
8. ***Mulching –*** add 4-6 inch arborist wood chips – See Blog for mulching techniques
9. Do not forget to ***water trees in fall*** – see Blog about fall tree watering

Mulching is a must and the most important root protection that you can do. Mulching provides a very important function during the drought - protects roots from extreme heat and keeps moisture around trees. Create a donut-shaped wood chip cover around your tree to keep water inside. Applying 4-6 inches (10 -15 cm) of arborist wood chips mulch will greatly reduce loss of moisture in the soil. A layer of woodchips mulch will maintain more constant soil temperatures and moisture.

Picture 3: arborist wood chips is the best option in long term. It enhance water infiltration and retention especially during drought, moderate temperature and reduce root drought stress, and provide nutrients

Picture 4. Mulching is a must and the most important activity that you can do to prevent drying of the soil and loss of moisture in the roots.

Overall, supplemental watering during drought conditions and dry, and the use of wood chip mulch, will go a long way to helping trees survive, remain healthy and avoid long term negative impact of drought stress. Many trees have survived extreme droughts in the past. With a little help, trees can survive and thrive.

For more information:

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