



Tree Irrigation During Drought

Planted landscape trees require some moisture year-round – evergreens especially. Droughty fall and winter seasons are tough on landscape trees – especially where they rely partially on natural precipitation. Proper irrigation practices can help trees become more drought-tolerant by encouraging root systems to occupy a greater soil volume. By following a few simple guidelines, you can maintain tree health, increase the value of your home, buffer extreme heat with shade, and beautify your surroundings.

Native-grown tree root systems often spread 2 to 3 times wider than the height of the tree (carrot-like tap roots do not exist). These widespread roots are how we would like planted tree root systems to grow as well. Most of a tree's water absorbing roots are in the top twelve inches of the soil. To encourage planted trees to have broad, shallow root systems, irrigation should be applied at the tree's dripline and slightly beyond when possible. The greater the soil volume used by the tree's root system, the greater access the tree has to natural rainfall and plant nutrients contained therein.

To effectively irrigate a landscape tree, apply water deeply and slowly to irrigate the root zone to a depth of at least 12 inches. On relatively level sites, basins can be used for flood irrigation, but make sure the basin is placed at or beyond the tree's dripline. On slopes, soaker hoses can effectively provide periodic irrigation near the dripline. Make an irrigation probe using a smooth steel rod or 12" screwdriver. When pushed into the soil, you should get an idea of how deep the soil has been irrigated. The rod will easily go through moist soil.

Drip irrigation is commonly used to establish young trees. These systems are effective for tree establishment, but rarely satisfy irrigation needs for more than two or three years after planting. The tendency is to place one or two drip emitters near the newly planted tree's trunk without regard for the growing tree's lifelong irrigation requirements. If you expand your drip irrigation system, do not move the original drip emitters away from the trunk as there are established roots there. Instead, increase the number of emitters outward to the dripline as the system allows. In some cases, the system may need an overhaul (or other supplemental irrigation) to promote development of a healthy root system.

Native-grown trees generally have widespread root systems that have developed over time and do not require fertilizer or irrigation. Fruit trees and introduced landscape plants can be irrigated by hand filling basins and directing water using earthen berms. Planted trees benefit from irrigation once a week in the heat of summer and every 6 to 8 weeks during times of fall/winter drought. By hand watering your trees, you will better understand your soil's ability to accept water and learn to better distribute the precious rain we do receive using passive rainwater harvesting.

If you have selected appropriate species and your irrigation is effective, there should be no need to fertilize your landscape trees. Fertilization encourages fast growth promoting greater leaf area. This growth will only increase water demand and will likely make the tree more attractive to damaging insects, hungry wildlife, or harmful diseases. The only appropriate time to fertilize a tree is when you are addressing a visible nutrient deficiency.

If a tree is unhealthy or has outgrown its space, consider replacing it. Often cottonwoods, willows, and mulberry trees have been planted for fast growth. These species are not drought tolerant, are often short-lived, and are excellent candidates for replacement if they are not performing to your expectations. If there are multiple trees that need replacing, consider doing it over several years. Older declining trees can be strategically removed and replaced with more suitable species as needed.

Carefully consider whether to plant evergreens or deciduous trees. Deciduous trees can moderate summer indoor temperatures when placed on the south and west sides of your home and allow sun to shine through in the winter. Careful planning and proper irrigation will ensure healthier trees that meet your objectives.



Schematic of desirable landscape tree root system which allows the tree to use a maximum soil volume to access water and mineral nutrients (from: University of Minnesota).



Newly planted birch tree showing two drip emitters and planting stakes. This tree will need additional irrigation to thrive after two to three years (photo by Jeff Schalau, University of Arizona).

Additional Resource:

[Irrigating Native Southwest Trees and Shrubs](#), Yavapai County Bulletin #41, UA Cooperative Extension

[Drip Irrigation for Trees](#), Utah State University of Minnesota Extension

[Watering Established Trees and Shrubs](#), University of Minnesota Extension

[Watering a Home Landscape During Drought](#), Colorado State University Extension

January 15, 2024

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