

Tree Biology: Drought Stress & Tree Health
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Trees that accustomed to fairly regular water rainfall throughout the summer may begin to show stress after several weeks without rain. Wilting is common during hot, summer afternoons, but if the leaves are not turgid (fully hydrated) again in the morning the tree may be seriously stressed. Leaves begin to brown or drop off. If water is not added, roots will be lost, and tree will decline. Newly planted trees are particularly vulnerable to drought stress. When dug, balled and burlaped, trees lose as much as 90 percent of their root system. The roots of potted trees are encased in fast-draining mixes that dry out quickly.

How can you tell if trees are drought stressed? Leaves may wilt, droop, turn yellow, turn brown at tips, curve or show all these symptoms. Green leaves, stems and fruits may not fully develop. Shrinking can cause radial cracks in trees. Early fall colors is another indication of drought stress for river birch, flowering dogwood, pear, and certain cultivars of red maple (green leaf). In pines, needles may bend or droop near the needle base. Needles fade in color and turn brown or remain green but permanently bent. Unfortunately, drought stress has cumulative effects on trees, and it may not show up for several years.

To help a tree make a healthy recovery, deep water it and don't allow the roots to dry out again. It is best to give a tree through deep watering. Place a hose at the base of the tree and allow it to run at a slow trickle for half-hour to an hour, depending on the size of the root ball and soil type. Sandy soil requires as much as two waterings per week and clay soil generally requires one watering per week.

A good formula to use is 5 gallons for the tree, plus 5 gallons for every inch of trunk diameter, measured at 5 feet off the ground. So, a 2 inch diameter tree will require a minimum of 15 gallons of water per week. Not sure how long it takes hose or root feeder to deliver the volume of water? Then choose a bucket or watering can that you know the volume of, and run hose into it until full. If it takes a minute to deliver a gallon of water, then need to water about 25 minutes to deliver 25 gallons of water.

New transplants should be watered well in the first year or two to get them established. Some research suggests that it is best to water intensely for the first two or three months after planting, while other research suggests watering weekly through the first year. It's important to apply enough water to so that it reaches the base of the root ball and saturates it. If have any questions about drought stress or tree biology, please contact the City Arborist at 419-353-4101.

