

## DEEP WATERING OF TREES

Supplemental irrigation of established landscape trees can be helpful – even necessary – when soil conditions are dry. The practice of deep and infrequent watering can improve tree health and help prevent insect or disease infestation.

Roots of established trees typically extend further and reach less deeply than is often thought (or commonly taught). It is not unusual to find roots of a tree extending 2 to 3 times beyond the horizontal reach of its branches. In most soils, tree roots will not extend more than 3-4 feet in depth. Soils provide insufficient oxygen beyond that depth.

The goal of deep watering is to achieve penetration of water to a depth of at least 3 feet. Use the dripline, the outer perimeter of the tree's branches, to determine the area outside of which watering efforts should be concentrated. The finer, non-woody, "absorbing" roots (those directly responsible for moisture and nutrient uptake) are usually found in this outer area.

The use of sprinklers or soaker hoses is not advisable to attempt deep irrigation. They can result in shallow flooding that impedes oxygen and carbon dioxide movement through the soil, causing a suffocating effect. Watering or "feeding" tubes can create vacuoles in the soil that result in root death. The best deep-water application device is the simplest: the bare end of a garden hose.

Set the hose end down at the dripline. With close observation, adjust the rate of flow out the hose to match the rate of acceptance by the given soil (to avoid runoff or puddling). To achieve penetration to the desired depth, more time will be required for clay than for sand. In loamy soil, water will penetrate at about 6 inches per hour. That comes out to about 6 hours per entry point. Use a probe, sampling tube, or shovel to make the initial rate and time determination. A manifold device multiplies the end of the hose and eases the effort and time involved in deep watering.

Deep irrigation should be provided in addition to normal precipitation as soil conditions dictate. This requires monitoring soil moisture in the top 12-18 inches and can be accomplished using something as simple as a spade.

During a typical summer with little rainfall, the frequency period of deep watering would be about every 4 weeks for loam (shorter for sands, longer for clays).

Winter can be a very drying time for woody plants and if soil conditions indicate, deep watering in the fall is one of *the* practices that support tree health.