



GARDEN BAD GUYS – DROUGHT

By Nanette Londeree, Marin Master Gardener

Drought – we’re in it. No escaping the fact that while our local reservoirs still have water, other water providers around the state aren’t as fortunate. The cost of water is skyrocketing, and we’re all being asked to reduce our usage. Understanding drought and its impact on plants can help keep both your plants and you’re your pocketbook healthy.

There are a number of different types of drought – *meteorological drought* is the kind where you don’t get enough normal precipitation over a period of time. An *agricultural drought* occurs after a meteorological drought and is the lack of adequate soil moisture needed for a certain crop to grow and thrive during a particular time. A *socioeconomic drought* results when physical water supplies are so low they negatively affect the community where the drought is occurring. Or a *hydrological drought* – when precipitation has been reduced for an extended period of time, and water supplies found in streams, lakes, rivers, and reservoirs are deficient. From a plants perspective, drought is simply when it doesn’t get enough water to grow.



Like most living things, plants are made up primarily of water; to grow and flourish, they need a steady supply. They draw water through their functional roots (feeder roots and root hairs), transporting the vital liquid up through the plant to the leaves, and ultimately out through the process of transpiration. When the rate of transpiration exceeds the rate of water absorption by the roots, a water deficit occurs that can result in damage to the plant. During the summer, this can be a daily occurrence. The water deficiency is normally made up at night when transpiration slows or stops. If the soil is dry and roots cannot provide needed water to the plant, leaves of deciduous plants may droop, wilt, turn yellow, turn brown at the tips and margins, curl, or show all of these symptoms. Needles on evergreens can turn brown at the tips, and those closest to the trunk can drop prematurely. You may observe bark cracks, twig and branch dieback, general thinning of the canopy, poor growth and stunting, and in extreme cases, death of the plant. To complicate detection, symptoms of drought may not be evident in the tree or shrub until sometime after the event has occurred--even as much as one to two years later! And, in a water- stressed state, plants become targets for secondary invaders and opportunistic pests.

While our community may be experiencing a hydrological drought, there are things you can do to protect existing plants from a water deficit and reduce your overall use. Start by evaluating your plants and learn how much water they really need. Monitor the moisture in your soil - the appearance of the soil surface can be misleading. The functional roots of most woody plants are in the top 12 inches of soil, with 99% of the root system in the top three feet. If only the top inch or two is dry and it is evenly moist below that, no need to water. In clay-type soils that have been allowed to dry out, water may penetrate the top inch or two only. For plants in containers; the outer edge of the root ball may be moist, but if the root ball has pulled away from the sides of the pot, the water may be running around the surface, and not penetrating through the depth of the pot. Poke around 6 – 8 inches deep with a pencil or screwdriver and feel the soil, then decide whether it really needs water or not.

Be observant - watch your plants for signs of stress to gauge when they need water. Irrigating should be done based on plant needs rather than by the calendar or clock. Add an evapotranspiration or ET controller to your automated irrigation system; they use weather-based adjustments rather than a traditional timer. And if you're using any type of automated system, check that it is running as intended, distribution lines and emitters are not plugged or leaking.

Maximize every drop of water you use – irrigate early in the morning to reduce evaporation. Water deeply to encourage deep root growth rather than frequent, light, surface watering that promotes growth of surface roots. Use drip irrigation to direct water to the plant root zone. Keep weeds out of the beds – they're water robbers. Protect all open soil that you've added the precious liquid to by using a 2 – 4 inch layer of mulch to reduce evaporation and inhibit weeds.

And finally, think positive thoughts for a few drought-busting, watershed replenishing winters!