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HOME AND GARDEN INFORMATION CENTER
University of Maryland Extension

HG 85
2010

Watering Tips for Drought Conditions

Maryland frequently experiences hot, dry conditions during the summer months. Exceptionally dry conditions in fall, winter or spring can also have a negative impact on your landscape. When drought conditions are prolonged, landscape plants, trees and lawns may suffer temporary or permanent damage. This fact sheet will help you make the right decisions for watering and managing your landscape when Mother Nature turns the spigot off.

Plants are like water pumps, drawing in moisture from the soil that is used for plant growth and then releasing water from stems and leaves through a process called transpiration. Plants begin to wilt and suffer drought stress when the transpiration rate exceeds water uptake. Drought periods that occur during the long-day months of June and July are more damaging than those in August and September because of increased day length. Dry breezes also contribute significantly to drought stress.

Signs of Drought Stress

In addition to wilting, plants will exhibit some or all of the following symptoms during a prolonged drought:

- Upward curling or rolling of leaves
- Yellowing and browning of leaves, particularly along leaf margins and tips
- Under-sized and off-flavored fruits, vegetables and nuts
- Under-sized leaves; limited shoot growth
- Blossom and fruit drop
- Interior needle and leaf drop on conifers and evergreens
- Iron chlorosis symptoms on foliage (leaf yellowing between veins)

Secondary problems associated with drought:

- Spider mite infestations
- Blossom-end rot of tomatoes, peppers, squash and melons
- Increased wildlife feeding on fruits and vegetables
- Increased damage by insects (e.g. grasshoppers) driven into home landscapes by a lack of food and water

Long-term consequences of drought:

- Increased susceptibility to attack by insect borers
- Increased susceptibility to certain plant diseases
- Root death
- Diminished winter hardiness
- Terminal dieback; dead twigs and branches
- Eventual plant death

Prioritize Your Plants

First, determine which plants are most susceptible to water stress. High on your watering list should be plants that are valuable in terms of replacement cost, prominence in the landscape and enjoyment. Of course, during a severe drought, all landscape watering may be prohibited. Below is a rating system for prioritizing the water needs of typical landscape plants:

High Priority- trees and shrubs (especially those that are young and planted in an exposed site). Large, mature shade trees and shrubs can be left alone unless the drought is severe and the trees begin to wilt, or the root systems have been recently disturbed.

Medium to high priority- perennials, fruit and nut trees, small fruits and vegetables; turf that is less than one-year old.

Low priority- annual flower and herb plants, ornamental grasses, established turf. These are relatively inexpensive and easily replaced. It may be difficult to keep large beds of annuals adequately watered during a drought. (See TT 62: Irrigation and Water Conservation on Home Lawns.)

Lawns

Lawns composed mostly of turf-type tall fescue will withstand drought conditions unless they are newly seeded or sodded. Established fescue and bluegrass lawns should not be irrigated. Light, frequent watering can be harmful because it encourages shallow rooting. Fescue lawns turn brown and become dormant during a drought, but green-up and grow with

a return to cooler, wetter weather. Like fescue, bluegrass is a cool-season grass that will become dormant during droughty weather. Bermudagrass and zoysiagrass are warm-season grasses that cope well with hot, dry weather and require no irrigation. Increasing the mowing height to 2.5 to 3" for cool-season turf grasses will also help them withstand drought conditions.

Cultural Tips

- Mulch around plants to keep weeds down, conserve soil moisture and moderate soil temperatures. Organic mulches, such as bark, shredded leaves, grass clippings and straw are preferred because they improve soil structure and return nutrients to the soil upon decomposition. Apply mulches no deeper than 2-3 inches.
- Avoid using fertilizers or pesticides. Fertilizers can damage root systems under droughty conditions and pesticides may burn plant foliage.
- Resist the temptation to prune "dead wood" from your woody ornamentals. Wood that is obviously dead may be removed at any time. However, drought-stressed plants become dormant and may appear dead. Dead wood is brittle and brown under the bark and dormant wood is green under the bark.
- Keep foot and equipment traffic to a minimum on dormant turf. Turfgrass crowns become brittle during a drought and are more easily damaged by compaction.
- Keep turf at least 2 feet from the trunks of young or newly planted trees because it competes with the trees for water. Apply a mulch in this area.
- Control weeds around shrubs, vegetables and flowers. Weeds can out-compete cultivated garden plants for water and nutrients.
- Spray plant foliage with water during the day to reduce spider mite populations. Spraying water on vegetable plants will help prevent blossom and fruit drop. (Watering plants on a hot day will **not** burn the foliage).
- Replace declining or dead plants with those that are hardy and more drought tolerant. (See HG 25- Xeriscaping and Conserving Water in the Landscape)
- Leave shallow pans of fresh water out for wildlife and beneficial insects. Keep birdbaths filled with fresh, clean water.

When possible, add organic matter to the soil on your property. This will improve the water-holding capacity during dry weather and promote good drainage during wet weather.

Watering Tips

When:
When the soil is dry. Soil that cannot be formed into a ball is too dry to supply water to plant roots.

Water when plants first begin to wilt. The needles of evergreen shrubs and trees will become dull-colored when water-stressed. Leaf browning (scorch) is a sign that drought damage has already occurred.

Water in early morning, if possible. Evening watering is fine although it may contribute to disease problems.

How much:
A good rule of thumb is to apply 1 gallon of water per square foot of root zone once a week. This will vary depending on soil type, the type of plant, and its growth stage. For example, large vegetable plants, like tomato, squash and cucumber, that are fruit-laden require large amounts of water and may need to be irrigated 2-3 times each week during a drought. If you water with a garden hose without a nozzle, simply make note of how much time it takes to fill a 5-gallon bucket. You can then calculate how much time it will take to deliver one gallon per square foot of area.

Sandy soils need to be re-watered sooner than soils high in clay. Water will penetrate grass and mulch-covered soils more quickly than bare soil. Bare soils high in clay often form a crust that limits water infiltration.

Pull back your mulch to be sure the water is getting past it to the root-zone. Check the soil wetting depth with a screwdriver or stake. To adequately wet the root system you need to thoroughly moisten the top 4-6 inches of soil.

Application Methods:
It is very important to apply enough water to thoroughly wet the root zone. The larger the plant the larger the root zone. The root zones of trees and shrubs extend out from the trunk in an area at least equal to the height of the plant.

Water plants slowly and deeply at least once each week during very hot and dry weather. Apply water around the base of herbaceous plants (vegetables, flowers and herbs) so that it percolates down through the soil to the root zone.

Invest in soaker hoses and drip irrigation systems for vegetable, fruit, and flower gardens. These operate at low pressure and deliver water slowly and efficiently to the root zone.

Water sprinklers should be moved back and forth to prevent soil erosion and run-off onto driveways and sidewalks.

Gray water (from washing dishes and clothes) can be used around outdoor plants. Avoid using water that has been through a water-softening device.

August 1997. Rev. 2/02 and 7/2010