



## Your Lawn During Drought

*A lawn is almost always the single largest user of water in the home landscape and over-irrigation is very common. Many gardens have large expanses of lawn that are never used but require considerable resources to maintain. Use turf only when it serves a purpose, such as play or entertainment areas.*

### OPTION A: LOSE YOUR LAWN

*Replace nonessential turf with water-efficient landscaping, mulches, or decks and walkways. Convert sprinklers to drip irrigation. But, do not introduce new plants into your landscape until fall or when water restrictions allow. Even California native plants aren't drought resistant until they become well established.*

➤ **SHEET MULCH YOUR LAWN.** Sheet-mulching is a simple technique of laying cardboard or newspaper over an existing lawn and topping it off with layers of compost and wood mulch. Install plants through holes in the cardboard. For visuals, see *Lose Your Lawn the Bay-Friendly Way* at <http://www.bayfriendlycoalition.org/LYL.shtml>. Other ways to remove your lawn include physical removal, light exclusion and herbicides. The one you

choose will depend on how much manual labor you want to invest, how much you want to spend, and what you plan to do with the area after the grass is gone.

➤ **CHECK FOR REBATES.** Local water districts offer rebates for replacing lawns with water-efficient landscaping. Note that a pre-project inspection may be required. For information, see the resource list at the end of this document.

### OPTION B: REDUCE WATER APPLICATION RATES

*Most lawns can survive on much less irrigation than they are normally given. The goal of irrigation management during drought is to apply the correct amount of water at the correct time to optimize water uptake by the root system without killing the lawn. To do that, you must set irrigation times according to your grass type, climate zone, soil type, root depth and sprinkler output.*

- **DETERMINE YOUR GRASS TYPE.**
- **Warm-season grasses:** bermudagrass, zoysia and St. Augustine grass.
  - **Cool-season grasses:** tall fescue, dwarf fescue, bluegrass and perennial ryegrass.

Most lawns in N. California are cool-season grasses. They naturally slow down their growth in summer & resume growth in the cooler months. Established lawns with cool-season grasses have a fair to moderate drought tolerance. Tall fescue has a better tolerance for heat stress and drought than bluegrass or perennial ryegrass. Warm-season grasses are more drought tolerant than cool-season grasses, however they are better suited to warmer inland climates. For help identifying grass species, see: <http://www.ipm.ucdavis.edu/TOOLS/TURF/TURFSPECIES/index.html>.

➤ **LEARN THE SIGNS OF DROUGHT STRESS & DORMANCY.** Lawns with drought stress retain

footprints for several minutes after being walked on, will have wilting grass blades, and a bluish-gray appearance. Next, leaves will yellow and eventually brown, indicating dormancy. The lawn will probably not turn from a uniform green to a uniform brown, but will instead look mottled with green, yellow-green, gray, and brown areas. Most turf grasses can survive in a dormant condition for 3 to 6 weeks depending on soil moisture and temperatures and can usually be revived with regular, deep watering. If the dormant period is lengthy, a half inch of water applied once every 2-3 weeks will keep the crowns and roots hydrated through the dormant period but will not re-green the lawn.

➤ **REDUCE WATER TO DEFICIT OR SURVIVAL LEVELS.** Most lawns can survive on 25% - 50% less irrigation than they are normally given, provided they are watered deeply once or twice per week. Use several short cycles to avoid runoff and allow deep soakings to enhance drought tolerance.



**Optimum irrigation** is the amount of water needed for most efficient growth, maximum quality and best appearance. Optimum irrigation is based on a percentage of ETo (the total rate of water loss in inches through evaporation and transpiration) which is a function of the local climate and can be obtained from the California Irrigation Management System (CIMIS). The optimum amount of irrigation water is: 80% of ETo for cool-season grasses; and 60% of ETo for warm-season grasses.

**Deficit irrigation** provides sufficient water to maintain adequate appearance with less growth (relative to optimum irrigation). The amount of water needed for deficit irrigation is:

- Cool-season grasses: 75% of optimum
- Warm-season grasses: 66% of optimum

**Survival irrigation** provides only enough water to allow survival and potential recovery of the lawn when adequate water is again available. Under survival irrigation growth and quality are drastically reduced. The amount of water needed for survival irrigation is:

- Cool-season grasses: 50% of optimum
- Warm-season grasses: 33% of optimum

➤ **DETERMINE IRRIGATION SCHEDULING.**

Determine your sprinkler output and see the UC website *Guideline to Irrigation Scheduling* at <http://www.ipm.ucdavis.edu/TOOLS/TURF/MAINTAIN/irrfreq.html> to calculate optimum lawn watering times. During drought, reduce the optimum watering time by the percentage for deficit or survival irrigation above.

➤ **CHECK IRRIGATION SYSTEM PERFORMANCE.**

Regularly examine sprinklers and adjust them so they water only the lawn, not the sidewalk. Check your outdoor irrigation equipment for leaks. Run through all of the stations to look for broken or misadjusted heads. Use soil probes or soil moisture measuring devices to help fine tune water application rates.

➤ **HAND WATER DRY AREAS.** If uneven sprinkler coverage leads to brown patches in the lawn, hand

water those areas rather than increasing the irrigation frequency or length.

➤ **MOW TO THE PROPER HEIGHT.** When grasses are stressed by heat or drought, it is best to mow infrequently at the upper end of its recommended cutting height. Mow at a frequency that removes no more than 1/3 of the leaf blade each time. The mowing height ranges for common lawn grasses are:

- Tall & dwarf fescues 1.5" - 3.0"
- Kentucky bluegrass 1.5" - 2.5"
- Perennial ryegrass 1.5" - 2.5"
- Hybrid bermudagrass 0.5" - 1.0"

➤ **ADJUST THE FERTILIZER SCHEDULE.** While most nutrients required for lawn grass growth are normally available in native soils, all lawn grasses require nitrogen fertilizer. However, excessive nitrogen fertilization results in a greater growth rate and greater water use. During drought, apply the lowest amount of nitrogen within the recommended range. UC suggests the following nitrogen application rates during drought:

- **Cool-season grasses:** 2 lbs. actual nitrogen per 1,000 SF; applied in March or April and again in September or early October. Avoid fertilizing with nitrogen May through September.
- **Warm-season grasses:** Maximum 0.25 lbs. of actual nitrogen per 1,000 square feet per month between April and September.

Research indicates that applying 1 to 2 pounds of potassium (as K<sub>2</sub>O) per 1,000 square feet in spring may provide increased drought tolerance during the summer months.

➤ **AERATE AND DETHATCH.** Aerification and dethatching increases water penetration and should be undertaken in fall (October) or spring (March or April). Avoid aerating and dethatching in midsummer.

➤ **MINIMIZE FOOT AND EQUIPMENT TRAFFIC.** The grass crowns become brittle when drought stressed and are easily damaged.

**ADDITIONAL RESOURCES AVAILABLE ONLINE:**

- *Managing Turfgrasses During Drought*, University of California, Division of Agriculture and Natural Resources, <http://anrcatalog.ucdavis.edu/pdf/8395.pdf>.
- EBMUD Rebates: <http://www.ebmud.com/water-and-drought/conservation-and-rebates/residential/rebates/lawn-conversion-irrigation-upgrade-rebates/>.
- Contra Costa Water District Rebates: <http://www.ccwater.com/159/Lawn-to-Garden>
- Dublin San Ramon Services District/Zone 7 Rebates: <http://www.dsrsd.com/outreach/drought-watch-water-conservation/rebates-freebies> (includes link to Zone 7 Rebate info)