



## Your Landscape During Drought

*Contra Costa County has a Mediterranean climate characterized by long, hot, dry summers, and most landscape plants should be watered to survive under these conditions. We must learn how to use water more efficiently as demand rises and drought conditions continue.*

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### PRIORITIZE YOUR PLANTS

*Be aware there may be NO landscape watering allowed if conservation measures are inadequate. Consider letting go of high water use plants (even those that are high priority), and replacing them later with more drought tolerant plants. When prioritizing what to keep and what to let go, consider replacement costs, prominence in the landscape, and the length of time for plants to reach maturity.*

**High priority** plants are usually trees, shrubs, and fruit and nut trees. They provide shade, are expensive to replace, and take a long time to mature.

**Medium priority** plants are ground covers, perennials and vines that grow quickly and are usually inexpensive to replace.

**Low priority** plants are annual ornamentals, annual vegetables and lawns. These are the least expensive to replace and reach maturity in a season. The lowest priority should be given to lawns, which use a lot of water and are not sustainable in summer dry climates like ours.

### PLANT CARE ACTION PLAN

- Hold off on planting anything new in drought conditions. If rains return in the fall, take advantage of cool temperatures and fall & winter rains, since all new plants require a steady supply of moisture for 1 to 2 years.
  - Remove medium and low priority plants from planting beds if they will compete with high priority plants for soil moisture. Remove any turf within the canopy of trees, and replace with 4" of mulch.
  - Keep beds weed free, as weeds will out compete plants for soil moisture.
  - Mulch heavily (3–4 inches) to prevent weed germination and evaporation from the soil surface. Keep mulch at least 2" from the base of all plants and 6" from tree trunks.
  - Avoid fertilizing and dormant pruning, since both will stimulate heavy top growth that will require additional water to support.
  - Spring and summer prune (April through July) plants that are too big or have excess foliage. This will lower water demand without stimulating a lot new growth. If dieback occurs, prune out deadwood.
  - Water as little as possible to keep plants alive.
    - **Ornamental trees:** One or two deep irrigations several weeks apart in spring and summer will keep most trees alive.
    - **Fruit and nut trees:** Keep alive with a few early-season water applications, but don't expect good production.
    - **Shrubs:** Most established shrubs can survive with spring watering and 1 or 2 thorough waterings in the summer.
    - **Ground covers:** They often survive on half the water they would normally receive. Water at least every 3–6 weeks April through September, depending on location and soil condition.
- Many species will drop leaves/wilt when drought stressed, but will survive. Fruit size will be reduced and future production will be limited, but will return to normal over time once adequate irrigation is resumed.





## DROUGHT STRESS

*Plants are like water pumps, drawing in moisture from the soil to use for plant growth, then releasing water from the stems and leaves through a process called transpiration. Plants begin to wilt and suffer drought stress when the transpiration rate exceeds water uptake. Plants require the most irrigation in June and July when day length is longest. In August and September water needs begin to diminish as the days become shorter, despite temperatures that may remain largely the same. Dry winds also contribute significantly to drought stress, and may occur at any time of the year.*

### Primary signs of drought stress:

- Wilting or drooping leaves that do not return to normal by evening
- Yellowing and browning of leaves, especially along leaf margins and tips, or foliage that becomes grayish and loses its luster
- Under-sized leaves and limited shoot growth
- Blossom and fruit drop; under-sized and off-flavored fruits, nuts and vegetables
- Interior needle browning and leaf drop on conifers and evergreens

### Secondary signs of drought stress:

- Spider mite infestations
- Increased damage from insects

### Long-term consequences of drought:

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

## WATERING YOUR LANDSCAPE

- Check, adjust and repair pipes, valves and sprinkler heads; convert to drip irrigation where possible.
- Water in the early morning when there is no wind and little evaporation.
- Water deeply every 3 to 4 weeks through fall and winter if there is no rain, to maintain plant reserves and the plants' ability to handle drought stress during the summer.
- Apply water slowly around the drip line of trees and shrubs. The goal is to have the water seep down to the root area. Don't dig holes in an effort to get water deeper. Digging kills roots and makes it more difficult for the tree to take up water. You can use a deep root water spike if the spike can easily be inserted into the soil. Use low pressure to apply water slowly and apply water to a minimum of four sites around the perimeter of the tree.
- Over-irrigation is very common! Most established trees and shrubs can survive on 20 to 40 percent less irrigation than is normally given. Gradually reduce by no more than 10% at a time over several weeks to allow plants to adjust to less water. Thereafter, a few deep, thorough irrigations spaced several weeks apart will keep most trees and shrubs alive through the summer.

## ADDITIONAL ONLINE RESOURCES

For information on selecting water wise plants:

- **"Gardening in Contra Costa County, Guided Plant Search,"** Contra Costa Water District, <http://www.contracosta.watersavingplants.com/search.php>.
- **"WUCOLS IV Water Use Classification of Landscape Species,"** UC ANR, <http://ucanr.edu/sites/WUCOLS/>.
- **"Arboretum All-Stars,"** UC Davis Arboretum, [http://arboretum.ucdavis.edu/arboretum\\_all\\_stars.aspx](http://arboretum.ucdavis.edu/arboretum_all_stars.aspx).
- **"Eco-Friendly Landscape Design Plans for the New California Landscape,"** EcoLandscape California, <http://www.ecolandscape.org/new-ca/>.

*Special thanks to the Sonoma County Master Gardeners for allowing us to use the excellent materials their members prepared as the starting point for this document. Edited by Contra Costa County Master Gardeners Susan Heckly and Martha Lee, March 2014.*



## Your Food Garden During Drought

*When facing serious drought, we can be water-wise and successful growing a food garden. Here are some things to consider when planning a food garden during a drought and some suggestions for optimizing water usage.*

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The first step in deciding to have a food garden is to determine if **extra water** beyond basic household needs of cooking, bathing, etc. is available. This includes rain collection systems as well as captured tap water (not to be confused with “graywater”). Buckets can be used to capture water in sinks and tubs while waiting for the water to get warm and then used to irrigate edibles. Note that collected roof water may have contaminants and should not be used for overhead watering of food crops.

**Graywater** is untreated wastewater from clothes washers, showers, bathtubs, bathroom sinks and laundry tubs that is used for outdoor watering. Graywater is an option for irrigating your ornamentals but it should not be used to water root vegetables or any vegetables whose plant parts come into contact with the soil due to the *potential* that human pathogens might be present. In addition, you must be careful to avoid using household products that add salt, boron or chlorine bleach to the soil. Check with your local building department for graywater regulations.

### FOOD GARDEN ACTION PLAN

*If you determine that you have sufficient water, plan ahead to minimize the garden's water needs.*

**1. COMPOST, COMPOST, COMPOST!** Add organic matter to the soil. If soil is sandy, the addition of organic matter allows the soil to hold more water. Organic matter also helps open up soil allowing roots to go deeper and find more water at lower depths if there is any. Higher soil nutrition helps plants produce better yields with the same amount of water. Avoid adding excessive amounts of nitrogen as this encourages lush leafy growth that requires more water to sustain.

**2. MULCH, MULCH, MULCH!** Mulch keeps soil cool, conserves moisture and reduces weeds. Use three to four inches on top of the soil. The larger the material size, the deeper layer you need to provide. Choose from straw, fallen leaves, hulls, shredded bark, grass clippings and newspaper. It is not advisable to use plastic sheeting as mulch because it deprives the soil of much-needed oxygen. Keep mulch two inches away from the base of the plant to avoid the possibility of rot. When hand watering, pull back mulch so that water goes directly into the soil.

**3. USE A DRIP SYSTEM.** Learn about individual plant moisture needs and group plants that have the same need together on the same valve. If using in-line emitters in one-fourth inch tubing that use one-half gallon per hour per emitter and there is a length of ten feet with emitters spaced every foot, five gallons of

water an hour is used on that section of tubing. Add up all drip lines to determine total water used. Install a timer. Install shut-off valves at the beginning of drip lines in order to turn them off when an area is fallow. Irrigate only as long as it takes to moisten the active root zone. Water, preferably, in the morning or in the cool hours of the evening so that soil stays evenly moist. Don't forget the drip system once it is set up. Monitor and adjust it, as needed.

**4. BE SELECTIVE.** Consider the water available to support crops through harvest, and grow only the amount and types of vegetables the family will consume. For example, plant two beds of vegetables instead of six; plant four tomatoes instead of ten. To get the most out of the water you apply, grow high yielding vegetables like beans, chard, mustard, eggplants, peppers, tomatoes, squash, quinoa and amaranth.

Do not grow crops that need consistent moisture during summer months. Examples include most brassicas (broccoli, cabbage, Brussels sprouts, kohlrabi, cauliflower and radishes), lettuce and other greens, beets, carrots and other root crops, celeriac, celery, leeks and onions. Avoid these unless a particular variety has been bred to need less water. Generally, cool season crops are not drought resistant and growing them during the heat of the summer requires extra water to keep them cool.





Consider the following observations on which crops need the most water and when:

- **Sweet corn and some beans** need considerable water to produce a good crop. Beans need water most when they are blooming and setting fruit.
- **Corn** needs water most during tasseling, silking and ear development. Yield is directly related to quantities of water, nitrogen and spacing.
- **Peas** need water most during pod filling.
- **Other vegetables** such as cucumbers and squash, and fruits, such as melons, need water most during flowering and fruiting.
- **Tomatoes, peppers and eggplant** need water most during flowering and fruiting. After tomatoes set fruit, they can do very well with reduced water.

After deciding what to grow, choose varieties that tolerate dry conditions. Look for the terms “drought-resistant” or “drought-tolerant” in seed catalogs or on plant labels (note that “heat-tolerant” refers to above ground air temperature and is not the same as drought-resistant or drought-tolerant). Even these varieties require water. Some water is needed to start seeds or establish a seedling, and to periodically irrigate the plant through the growing season. Selecting varieties that are described as “widely-adapted” in addition to drought-resistant and drought-tolerant also may be helpful.

**5. LOOK FOR EARLY-MATURING OR SHORT-SEASON VARIETIES.** A crop needing fewer days to mature requires fewer irrigations before harvest (e.g., 62-day ‘Stupice’ vs. 85-day ‘Cherokee Purple’ tomato). Days to maturity will vary from one part of the country to another as well as from one microclimate to another.

**6. LAYOUT PLANTING AREAS IN BLOCKS, NOT ROWS.** As plants mature their foliage touches and creates an umbrella over the soil, shading roots, reducing evaporation and creating a beneficial CO<sub>2</sub> bubble on the underside of plants.

**7. PLANT DETERMINATE AND BUSH VARIETIES.** Determinate tomato plants, for example, tend to be smaller in size than indeterminate types, so will use less water. Additionally because they set most of their fruit at one time, the harvest period will be shorter, reducing the number of days irrigation is needed. Bush varieties of cucumber and squash are more compact than vining types and provide better shade canopy to the soil below, using less water and reducing evaporation from the soil. Bush varieties of beans also provide shade

protection to the soil and, because they tend to be determinate in nature, set most of their fruit at one time, resulting in a shorter harvest period.

**8. START SEEDS IN FLATS RATHER THAN DIRECT SOWING.** Sowing seeds in a flat uses far less water than when seeds are sown directly in the garden bed. For example, if direct sowing a 5' x 5' block of corn, you would need to water 25 square feet of garden bed from the first day. However, if those seeds are sown in a flat and then transplanted when they reach 5 or 6 inches tall, for the first 20 to 30 days you will only use enough water to keep one flat moist.

**9. DRY FARM SOME CROPS.** When we have winter rains, some of the water is stored in the soil for plants to use in the spring as the weather warms up and growth begins. Gardeners use this “bank” of available water to dry farm – a technique that depends on sufficient soil moisture and deep-rooted plants that scavenge to access water without adding much supplemental irrigation. Crops that can be successfully dry farmed include tomatoes, grapes, potatoes, winter squash, grains and fruit trees. You can find information on how to dry farm tomatoes on our website: <http://ccmg.ucanr.edu/files/140321.pdf>. Keep in mind that while dry farming can produce fruit with much greater flavor concentration, you can also expect a significantly reduced yield.

**10. USE LIGHT-WEIGHT ROW COVERS AND PROVIDE SHADE.** Cover plants as a means to collect dew. Dew drops onto soil and keeps it moist. While using row covers can help prevent insect damage, look under the cover from time to time to monitor plant growth and check for unwanted insects trapped inside. Heat-sensitive vegetables can benefit from being planted where they receive some afternoon shade. Plant them underneath or behind taller plants or consider using shade cloth.

**11. ELIMINATE WEEDS.** Weeds compete for water. Be aggressive in removing them from growing areas.

**12. DETERMINE WHEN IT IS TIME TO WATER AGAIN.** Use a soil moisture meter. Or squeeze the soil in your hand: if it sticks together, it is still moist; if it is crumbly and falls apart, it is time to water.

**13. HARVEST CROPS ON TIME.** Pick crops at the peak of growth and flavor and remove plants that have stopped producing, eliminating the need to irrigate.

*Special thanks to the Sonoma County Master Gardeners for allowing us to use the excellent materials their members prepared as the starting point for this document. Edited by Contra Costa County Master Gardeners Janet Miller and Terry Lippert, March 2014.*



## 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.*

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### 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 sheet mulching guidelines, see "Lose Your Lawn the Bay-Friendly Way" <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:** Bermuda grass, zoysia and St. Augustine grass.

**Cool-season grasses:** Tall fescue, dwarf fescue, bluegrass and perennial ryegrass.

Most lawns in Northern California are cool-season grasses. They naturally slow down their growth in summer and 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/>.

2. **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" <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 some 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 allows no more than 1/3 of the leaf blade to be removed. 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.** Aeration 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 ONLINE RESOURCES:

- **"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/for-customers/water-conservation-rebates-and-services/lawn-conversion-irrigation-upgrade-rebates>.
- **Contra Costa Water District Rebates:** <http://www.ccwater.com/conserves/Lawn.asp>.
- **Dublin San Ramon Services District/Zone 7 Rebates:** <http://www.zone7water.com/rebate-programs/170-water-efficient-lawn-conversion>.

## *Your Irrigation System During Drought*

*Contra Costa County has a Mediterranean climate characterized by long, hot, dry summers, and most landscape plants should be watered to survive under these conditions. We must learn how to use water more efficiently as demand rises and drought conditions continue.*

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### IRRIGATION SYSTEM MANAGEMENT

➤ **CHECK THE IRRIGATION SYSTEM.** Check, adjust, and repair pipes, valves, and sprinkler heads to make sure there are no leaks and no water is being wasted. Correcting these problems can improve the uniformity of water application and reduce water waste by 10 percent or more. Move drip emitters away from the crowns, out to the dripline for trees and shrubs that have grown since the original irrigation was installed.

For a convenient checklist, see the Colorado State University Lawn & Gardening Drought Tip Sheet "Irrigation Check Form" <http://www.ext.colostate.edu/drought/droughttips.html>.

➤ **UPGRADE IRRIGATION EQUIPMENT.** Replace worn out irrigation system components and consider upgrading systems that are over 10 years old with new, higher efficiency components.

- Convert sprinklers to in-line drip irrigation.
- Replace conventional sprinkler nozzles with high-efficiency rotating or precision nozzles.
- Replace traditional irrigation timers with weather-based models (smart controllers).
- Install pressure regulators to improve system performance.

**Rebates** are available from the local water districts for upgrading irrigation equipment and installing Smart Controllers. For information, see the resources list at the end of this document.

➤ **GROUP PLANTS BY HYDROZONE.** Group plants with the same water needs onto the same valve or line. For the water use requirements of different plants, see the UC document "WUCOLS IV Water Use Classification of Landscape Species," <http://ucanr.edu/sites/WUCOLS/>.

➤ **WATER IN THE EARLY MORNING.** Water in the early morning when there is no wind and little evaporation.

➤ **WATER ACCORDING TO PLANT NEEDS AND SOIL TYPE!** Check soil moisture (dig down or use a moisture meter) and water only when the soil is dry. Adjust irrigation frequency and run times to water plants as little as possible to keep them alive. Get used to plants that don't look perfect.

The following links provide sample sprinkler and drip run times. After factoring in your climate, soil, plant type and sprinkler output, these can be used as a starting point. Gradually reduce water use by 10 percent increments over the course of a few weeks, giving plants time to adjust:

- Contra Costa Water District "Water Information" and "Sample Irrigation Schedules" <http://www.contracosta.watersavingplants.com/Watering-Guide/Schedules.php>
- EBMUD "Watering Guide" [http://www.ebmud.com/sites/default/files/pdfs/WateringGuide\\_0.pdf](http://www.ebmud.com/sites/default/files/pdfs/WateringGuide_0.pdf)

➤ **AVOID RUNOFF.** Know your soil type and water to match the infiltration rate with your soil to avoid runoff. Irrigate more frequently with shorter runtimes for sandy soil, so that water is not wasted below the rooting depth. Irrigate less frequently but with longer runtimes for loam and clay soils. On slopes and areas with compacted soils, avoid water runoff by using multiple (cycled) start times (also called pulse irrigation) to allow water to soak in slowly. Adjust spray heads so that no water runs off onto sidewalks or into the street.





## ALTERNATE WATER SOURCES

- **CAPTURE EXTRA WATER.** Use buckets to capture water in sinks and tubs while waiting for the water to get warm and then use it to irrigate plants.
- **COLLECT RAINWATER.** Consider installing a rainwater catchment system or a rain garden to capture and direct rainwater for deep soil infiltration during the rainy season. Note that collected roof water may have contaminants and should not be used for overhead watering of food crops.
- **CONSIDER A GRAYWATER SYSTEM.** Graywater is untreated wastewater from clothes

washers, showers, bathtubs, bathroom sinks and laundry tubs that is used for outdoor watering. In California, wastewater from toilets and kitchen sinks or dishwashers is not allowed. Graywater is an option for irrigating your ornamentals but it should not be used to water root vegetables or any vegetables whose plant parts come into contact with the soil due to the *potential* that human pathogens might be present. In addition, you must be careful to avoid using household products that add salt, boron or chlorine bleach to the soil. A permit may be required for certain graywater systems. Check with your local building department for graywater regulations.

## ADDITIONAL DROUGHT TIPS

- **REQUEST A WATER AUDIT.** EBMUD and Contra Costa Water District will perform on-site home water surveys free of charge. They test showerhead and toilet flow rates and help locate leaks. The landscaping, irrigation system, and watering schedules are assessed; and recommendations are provided to improve water use efficiency. Repairing leaking faucets, toilets, pipes and valves can free up additional water for landscape use.

- **DO NOT WASH YOUR CAR AT HOME.** Go to a commercial carwash where the water is recycled.
- **USE A BROOM.** Instead of the hose, use a broom to clean off pavement.
- **TEACH YOUR CHILDREN THAT THE HOSE IS NOT A TOY!**

## SOME ONLINE RESOURCES FOR FURTHER INFORMATION

### University of California

Managing Water Sustainably: [http://cagardenweb.ucanr.edu/General/Managing\\_Water\\_Sustainably/](http://cagardenweb.ucanr.edu/General/Managing_Water_Sustainably/)  
Landscape Water Calculator: [http://ucanr.edu/sites/UrbanHort/Water\\_Use\\_of\\_Turfgrass\\_and\\_Landscape\\_Plant\\_Materials/Plant\\_Water\\_Needs/Easy\\_Calculators\\_for\\_Estimating\\_Landscape\\_Water\\_Needs/](http://ucanr.edu/sites/UrbanHort/Water_Use_of_Turfgrass_and_Landscape_Plant_Materials/Plant_Water_Needs/Easy_Calculators_for_Estimating_Landscape_Water_Needs/)

### East Bay Municipal Utility District

Rebates: <http://www.ebmud.com/for-customers/water-conservation-rebates-and-services/lawn-conversion-irrigation-upgrade-rebates>  
Graywater: <http://www.ebmud.com/environment/conservation-and-recycling/recycling/graywater>  
Home Water Survey: <https://www.ebmud.com/for-customers/residential-customers/conservation-incentives/site-water-surveys>

### Contra Costa Water District

Rebates: <http://www.ccwater.com/conserve/Lawn.asp>  
Graywater and Rainwater Catchment: <http://www.ccwater.com/conserve/alternatives.asp>  
Home Water Survey: <http://www.ccwater.com/conserve/singlefamily.asp>

### Dublin San Ramon Services District

Rebates: <http://www.dsrsd.com/waterconservation/rebates.html>

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