



Use of Grey Water and Recycled Water for Irrigation

As drought conditions become increasingly likely over time, it's essential that we all learn to use water more efficiently. Using grey water or recycled water can help to conserve our finite water resources.

ABOUT GREY WATER

Grey water is untreated, non-disinfected household wastewater that does not include toilet waste. It may be sourced from showers, baths, and washing machines.

WHEN CAN GREY WATER BE USED?

Grey water can be safely used to water landscape plants and orchard trees. In California, washing machine systems that do not alter the house plumbing can be built without a construction permit as long as certain guidelines are followed, detailed here: <https://greywateraction.org/greywater-reuse/>. In a typical laundry-to-landscape system, the water should enter the landscape at the dripline of plants with a good cover of mulch. The system's discharge points themselves must be covered with a 2 inch layer of mulch, stones or a plastic shield. Grey water must not be used in a sprinkler system.

WHEN TO AVOID USING GREY WATER

Because grey water can contain bacteria and viruses that cause illness, it should not be used to grow vegetables if the edible portion may come in contact with the soil. For example, grey water should not be used for growing asparagus, beets, carrots, cucumbers, lettuces and other salad greens, garlic, onions, potatoes, melons, squash, bush beans, radish, turnip, unstaked tomatoes, or strawberries. In contrast, recycled water, discussed later, has been disinfected, making it safe for such crops.

CHOOSING GREY WATER-COMPATIBLE HOUSEHOLD PRODUCTS

When using laundry rinse water to irrigate plants, your choice of household products will affect the composition of the grey water. The wrong products can adversely affect plants and soils. It is best to avoid using products that contain sodium or sodium compounds, bleach, and/or boron, as these can result in an alkaline soil condition that suppresses healthy soil biologic activity and is poorly tolerated by many plants.

Although the UC Master Gardener Program of Contra Costa County cannot recommend any particular products, the FAQ page on Greywater Action's website (<https://greywateraction.org/greywater-faq/>) lists some products that are plant-friendly. These are generally biodegradable, non-toxic, salt-free and boron-free, including products from Oasis, ECOS, Vaska and others.

The Ecology Center in Berkeley has also evaluated a number of cleaning products for compatibility with greywater systems; they also recommend products from Oasis, ECOS, and other brands. Consult their website at <https://ecologycenter.org/factsheets/> for a current list of products. (Click on link to *Greywater Compatible Cleaning Products*).



SALT & BORON TOLERANT PLANTS:

If you are not able to use products with low sodium and/or low boron levels, using grey water can adversely impact many landscape plants. However, several websites provide information on plants that can tolerate higher-than-normal levels of salts and boron:

- <http://www.fao.org/docrep/003/To234E/To234E05.htm#ch4.1.3>
- http://slosson.ucdavis.edu/Landscape_Plant_Selection_Guide_for_Recycled_Water_Irrigation/

Additional lists of salt- and boron-tolerant landscape plants can be found in the University of California reference book entitled *Abiotic Disorders of Landscape Plants*. Low tolerance indicates plants that prefer boron levels no greater than 0.5-1.0 mg/l. Moderate-tolerance plants can manage a range of 1.0-2.0 mg/l. High-tolerance plants should tolerate levels in the 2.0-10.0 mg/l range. This reference book can be purchased online or at book stores, or it may be available at your local public library. To purchase online, visit: <https://anrcatalog.ucanr.edu/Details.aspx?itemNo=3420>.

ABOUT RECYCLED WATER

According to the California Department of Water Resources, recycled water is “highly treated wastewater from various sources such as domestic sewage, industrial wastewater and storm water runoff.” This water has been through three levels of treatment including filtration and disinfection.

WHEN CAN RECYCLED WATER BE USED?

Recycled (or reclaimed) water has been safely used for irrigation for many years, is carefully regulated in California, and can be delivered to plants by either drip or sprinkler irrigation methods. It can be safely used to water trees, gardens, vegetables and lawns. All fruits, vegetables, and herbs should be thoroughly washed with drinking water prior to consuming them. Recycled water should not be used for drinking, cooking, bathing or showering.

SALINITY OF RECYCLED WATER

Most recycled water has a higher salinity level than the drinking water from which it originated, but usually will not have elevated levels of boron. As noted above, some plants tolerate higher concentrations of salts better than others. You are encouraged to consult the plant lists at the links provided above for more information on plant tolerances to salts and boron.

In 2005, the University of California prepared a report titled *Landscape Plant Salt Tolerance Selection Guide for Recycled Water Irrigation*, linked above, identifying the tolerance of 209 popular landscape species to salt spray and soil salinity.

- http://slosson.ucdavis.edu/Landscape_Plant_Selection_Guide_for_Recycled_Water_Irrigation/

The study found that susceptibility to salt damage depends on a number of factors such as weather, irrigation management, soils and fertility. For example a plant might look fine in spring after the rains, but when the dry, warm, and/or windy summer comes, salt stress symptoms develop. The study also found that plants were more susceptible to salt damage when recycled water was sprayed directly onto the leaves than when applied to the soil and roots.



The 209 plant species studied are classified as highly tolerant, tolerant, moderately tolerant and sensitive. You may want to avoid overhead watering and repeated recycled water applications for plants identified as sensitive to salts.

WHERE CAN I OBTAIN RECYCLED WATER?

Several sanitation districts in Contra Costa County began offering free recycled water to residents during the summer of 2015. Check their websites, below, for current information.

Central Contra Costa Sanitary District:

<https://www.centrsan.org/post/residential-recycled-water-fill-station>

Delta Diablo Sanitation District: <https://www.deltadiablo.org/recycled-water-2ab9d8c>

Dublin San Ramon Services:

<https://www.drsrd.com/do-business-with-us/recycled-water-use/residential-recycled-water-fill-station-1511>

Ironhouse Sanitary District: <https://www.ironhousesanitarydistrict.com/230/Recycled-Water>