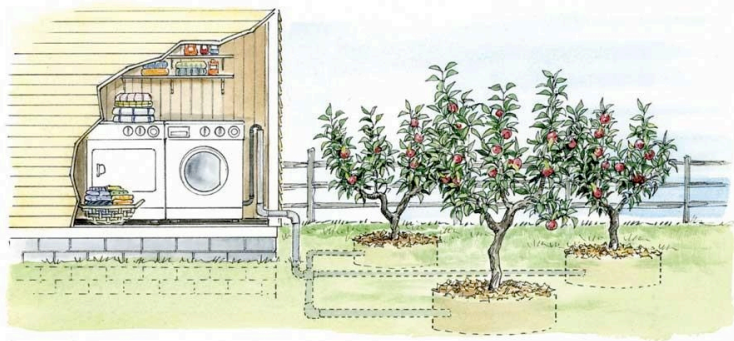


## UC MASTER GARDENER PROGRAM OF SAN LUIS OBISPO COUNTY



The UC Master Gardener Program is a public service and outreach program under the University of California Division of Agriculture and Natural Resources (UC ANR), administered locally by participating UC Cooperative Extension offices (UCCE). Our mission is to extend research based knowledge and information on home horticulture, pest management, and sustainable landscape practices to the residents of California.

### Kim Wilson, UC Master Gardener



As California's water resources decrease due to drought and population growth, homeowners are seeking ways to conserve water. It has been estimated that 30-50% of water used in our homes produces graywater. Using graywater to irrigate landscape plants reduces the waste in our septic systems and the energy used in processing the waste. Graywater use also conserves water by decreasing clean water use in our landscapes.

Although graywater use has clear benefits, the homeowner should be aware of certain guidelines in its applications and handling. Graywater may contain microbes such as bacteria and viruses or contain organic substances which attract microorganisms. Although there have been no confirmed cases of illness caused by graywater use, caution and correct handling is advised.

### Types of wastewater

- **Graywater** is untreated wastewater from showers, bathtubs, bathroom sinks and washing machines.
- **Dark Graywater** is water from kitchen sinks and dishwashers which can contain pathogens or organic material which promotes microbe growth.
- **Black Water** is water from toilets or washing machines used to clean diapers or clothes soiled with paint, hair dye, automotive fluids or other hazardous material.



**Dark graywater and black water cannot be used to irrigate landscape.**

### Graywater irrigation of plants

- Use graywater to irrigate landscape plants. Do not use on edible plants, including root crops or edible parts of any plant. Fruit trees can be irrigated with graywater but avoid any splashing of water on fruit. Bottom line: do not eat any plant or fruit which has been in contact with graywater on plant surfaces or soil.
- Do not irrigate turf grass or groundcovers with graywater because water and any potential organisms may linger on surface.
- Do not use on potted plants.

## Graywater irrigation guidelines

- Wear gloves to prevent direct contact with graywater.
- To prevent aerosol containing possible microbes, do not use in a sprinkler system.
- Reduce exposure to people, animals and waterways by not allowing run-off onto sidewalks, near drains or gutters, or to pool and remain stagnant.
- Do not store graywater more than 24 hours.
- Avoid using graywater in hoses used to wash or play.
- Drip irrigation may require a filter to prevent clogs from hair, lint or other debris.
- Avoid spraying edible plants or splashing on your skin.

## Detergents

- To reduce toxicity risks to plants choose cleaning products which are free of boron and chlorine and are pH balanced.
- Soaps (avoid antibacterial soaps) and shampoos are not as much an issue as detergents.
- Liquid detergents contain less sodium than powdered soaps.
- **Avoid** detergents which contain dyes, bleach, whiteners, softeners, fragrances or advertise enzymatic action.
- **Avoid** ingredients such as borax, borate, salts, sodium, chlorine, petroleum distillates and peroxigen. Products with hydrogen peroxide can be used.

## Water softeners

In households that use water softeners, the graywater will be high in sodium and is not suitable for irrigation. This is true for water softeners which use the more common sodium chloride in the water softening process. However, some water softeners can also use potassium chloride as a substitute. This will produce graywater which is not toxic to plants. Check with the manufacturer of your water softener to make sure it is potassium chloride compatible.

## Effects on plants

- Graywater is often alkaline and contains high levels of sodium, chlorine and boron which can be harmful to plants.
- Acid loving plants and salt sensitive plants are the least tolerant of greywater.
- Deciduous trees fare better than evergreens. However, many plants will do well with this type of irrigation.
- Monitor your plants for any signs of stress and toxicity such as brown leaf burn at leaf tips and margins, yellowing or bronzing of leaves.

## Plants that do well with graywater irrigation

Oleander, bougainvillea, fan and date palms, rosemary, roses, agapanthus, Bermuda grass, honeysuckle, Australian tea trees, oaks, Arizona cypress, cottonwood, olive, juniper, purple hopseed, manzanita, ceanothus, rushes, coffeeberry, toyon, western redbud, California wax myrtle, penstemon



Western Redbud

## Plants that don't tolerate graywater irrigation:

Rhododendron, bleeding hearts, wood sorrel, hydrangeas, azaleas, violets, impatiens, begonias, ferns, foxgloves, gardenias, philodendrons, camellias, primroses, crape myrtle, redwoods, star jasmine, holly, deodar cedar.

## Setting up a Graywater system



- Permits are not required for graywater systems which divert from clothes washing machines and do not require altering of house plumbing for a one or two unit residential building. Systems must follow the California Plumbing Code.
- Permits are required if home plumbing is altered such as cutting into drainage plumbing, for graywater systems which collect from showers, sinks or baths, systems with a pump or tank.
- Contact your city or county officials to verify if permits are needed and that your system meets the California Plumbing Code.

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GARDENING QUESTIONS? ASK THE MASTER GARDENERS AT HELPLINE: 805-781-5939



Website: Master Gardeners San Luis Obispo

Availability	on VMS > Documents/Presentations > INFO DOCS > IRRIGATION: Graywater
History	Original: 7/28/16 Revised: month/year: