



## Using Gray Water on the Landscape

In times of water shortage, slightly used water can provide an alternative landscape irrigation source. Separating slightly used (gray) water from sewage (black water) makes good conservation sense.

Daily, homeowners misuse or waste an average of 33 percent of valuable drinking water. Most of this water misuse is for diluting toilet, sink and laundry wastes and from slightly used sink, shower and laundry water. Every day we use many gallons of drinkable water for purposes like landscape irrigation, which could employ gray water.

Gray water is water that can be used twice. It includes the discharge from kitchen sinks and dishwashers (not garbage disposals); bathtubs, showers and lavatories (not toilets); and the household laundry (not diaper water). Using gray water can almost double home water-use efficiency and provide a water source for landscape irrigation.

Unfortunately, many health regulations consider any non-drinkable water as black water or sewage. Many plumbing and health codes do not accept gray water for reuse because of assumed health risks. For the legal status of gray water in your community, county and state, consult your local building codes, health officials, sanitation engineers and pollution control officials.

The most effective uses of gray water are for flushing toilets and watering landscapes.

Gray-water composition depends on the water source, plumbing system, living habits and personal hygiene of the users. The physical, chemical and biological characteristics of gray water and when it is used varies greatly among families and businesses.

You should not allow some materials and water inputs to enter the gray-water collection system. Cleaners, thinners, solvents and drain openers should bypass the collection system. Avoid using cleaning and laundry materials that contain boron.

Do not use artificially softened water. Softeners replace calcium and magnesium with sodium. Long-term irrigation with high-sodium water can cause soil problems.

Do not recycle drainage water from swimming pools. It contains large salt concentrations and stabilized chlorine and/or bromine that will cause problems for landscape plants.

Disinfection is critical for gray water held more than 3 hours. A chlorine concentration of 0.5 ppm will disinfect gray water. As gray water is held overnight or longer, the chlorine slowly moves out of solution. The chlorine in laundry wastewater is too dilute to disinfect a gray-water holding tank.

To make it easy to identify and to prevent usage mistakes, add a vegetable dye to gray water. In a new installation or in a plumbing retrofit, use colored pipe to identify the lines carrying gray water.

There are two principal ways of collecting and holding gray water commercially:

1. Pipe it from selected drains into an aboveground, usually in-house, holding tank. This system uses gravity to move the gray water into the tank and a pump to remove it. Holding tanks of this type will require an attached disinfection unit.
2. Install a "septic" tank. Whether you are hooked into a city sewer or a private leach field for your black water, you can use a separate in-ground tank for gray water in many places. A gray-water septic tank can be designed to use seepage lines that are dug into the root areas of valuable landscape plants. No disinfection is required--only a coarse filter and grease trap. Seek installation advice from sanitation engineers, and do not pump untreated gray water from such septic tanks onto the landscape.

Before you can use gray water on the landscape, it must be filtered to remove particulate, fiber and floating materials. A grease trap is critical to prevent filter plugging.

Correctly filtered and disinfected gray water can be applied through normal irrigation systems. Apply gray water at or slightly below the soil surface. Surface broadcasting by soaker hose is acceptable, providing standing puddles and runoff does not occur. Leach fields from gray-water septic systems also can be used for distribution.

Gray water slightly modifies soil-organism populations and usually initiates no additional pest problems. Changes that do occur are due to the additional water present. Over-watering and extended periods of soil saturation with gray water can cause severe root problems for plants.

Organic matter and soil-texture adjustments are critical in raised beds with gray-water irrigation. Do not use gray water on plants with limited root areas or for hydroponics.

### **Tips for using gray water:**

1. Make trees and shrubs high-priority watering items because of their individual value.
2. Use gray water when natural precipitation and normal irrigation water are not available.
3. Apply gray water to soil. Never spray on foliage, twigs or stems. Never soak bark or root-collar area.

4. Do not spray edible plant parts or soils where water splash can move gray water onto edible plant parts.
5. Do not use on root or leaf crops consumed by people or domestic livestock.
6. Do not use on new transplants.
7. Do not use on indoor trees or other plants with limited rooting space, in small containers, or plants normally under saturated conditions.
8. Always apply gray water at or slightly below the soil surface. Apply over or under mulch, if present.
9. Avoid using micro or regular sprinkler heads that can blow gray-water aerosols downwind.
10. Be careful of applications that apply gray water directly to leaf surfaces of ground covers and turfgrasses.
11. Control gray-water application and infiltration to prevent standing puddles and surface runoff.
12. Test soil periodically to reveal salt and boron toxicity problems.

Source:

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