



---

# Using Gray Water for Irrigation

In 2001, the Arizona Department of Environmental Quality (ADEQ) adopted regulations for household gray water use allowing private citizens to design and use household gray water irrigation systems (Title 18, Chapter 9 of the Arizona Administrative Code, January 16, 2001).

Gray water is that wastewater that flows from bathroom sinks, baths, showers, and washing machines. Under the ADEQ regulations, households generating less than 400 gallons of gray water per day do not need a permit to use it for irrigation purposes. Kitchen sink water and dishwasher water use is not allowed under the new provisions due to contamination risks. Water originating from toilets is called black water and should definitely not be used. On the average, older houses generate about 46 gallons of gray water per person per day and new construction generates about 35 gallons per person per day.

In addition to the sources of water that are allowable for use, the regulations require that household gray water systems comply with the following rules: 1) your house may not be on a flood plain; 2) the gray water may only be used for irrigation on your property (and must remain on your property); 3) the gray water cannot be used for food plants (with the exception of citrus and nut trees); 4) you must also be connected to a septic system or sewer and be able to divert the gray water stream back to the standard system in case of problems; and 5) you must have a cover over the gray water storage tank (if it is collected) for mosquito control and safety.

The gray water regulations have some other guidelines that must be followed. Gray water cannot be applied through a spray-type irrigation system; only flood and drip are allowable. Do not use washing machine gray water that has been used to launder diapers or for dyeing fabric. Divert water from these sources to sewers or septic systems. Use PVC or ABS (white or black plastic) pipe for your collection and irrigation system. Do not reuse gray water that contains hazardous chemicals from photo labs, car parts, or oily rags. Likewise, do not reuse gray water if a family member has an infectious disease or internal parasites.

It is much easier to design a gray water system for new construction than to retrofit an existing home. In fact, it may be cost prohibitive to completely retrofit an existing home built on a concrete slab. Wood floored homes with crawl spaces are better candidates for retrofitting. In any case, valves would need to be installed on drains and collection systems will likely be needed. The simplest legal gray water systems are those which collect washing machine water and pipe it directly to the point of use. Expanding on this idea, showers, bathtubs, and bathroom sinks can be added to the stream. One should keep in mind that storage capacity should be adequate to hold maximum amounts generated and plants to be irrigated should be downhill from the storage tank, otherwise a pump is necessary.

If you are considering gray water use, think about a year-round schedule of plant irrigation needs. A four-person household can generate 1,000 gallons of gray water per week. Can you store or use this much gray water? Do you have landscape plants that require regular irrigation in the winter? Evergreens are certainly good candidates for winter irrigation. However, it may be necessary to divert water back to the septic or sewer system during winter.

Homeowners wanting to install gray water systems should consult local building and wastewater administrative officials to obtain local rules/restrictions before designing a gray water collection and irrigation system.

## **Using Gray Water at Home**

Arizona Department of Environmental Quality

<https://legacy.azdeq.gov/environ/water/permits/download/graybro.pdf>

*December 29, 2022*

Adapted from original Backyard Gardener publications by Jeff Schalau, Agent, Agriculture & Natural Resources, University of Arizona Cooperative Extension, Yavapai County

The University of Arizona is an equal opportunity, affirmative action institution. The University does not discriminate on the basis of race, color, religion, sex, national origin, age, disability, veteran status, sexual orientation, gender identity, or genetic information in its programs and activities.