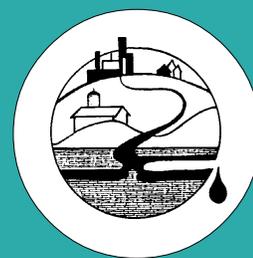


Water Quality



Knowledge to Go
Purdue Extension



Water Conservation in the Home

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Why Conserve Water?

We often take water for granted, since Indiana generally has a plentiful supply. With an abundant supply of water, some of us ignore dripping faucets, let the water run while we brush our teeth, or water our lawn on a set schedule even if it doesn't need watering. Why is it a good idea to conserve water when there is so much available?

Saving money is one reason. A leak caused by a faulty flush valve in a toilet tank can waste as much as 10 gallons of water an hour, typically costing more than \$200 per year (based on a rate of \$2.50 per 1,000 gallons for water and sewer). On a community level, reduced water use can even postpone or avoid expensive upgrades of water and wastewater infrastructure in the community. If you use a septic system, conserving water can extend the life of the system—a significant savings, since replacing a septic system costs thousands of dollars.

Water use efficiency also benefits the environment and protects water quality. Conserving water reduces demands on water supplies, and therefore, more water is available in stream and river systems for wildlife habitat and recreation. Water conservation decreases the amount of wastewater generated by our families. An average household sends several hundred gallons of water down the drain every day, with 20 to 30 percent coming from toilets.

Wastewater is piped either to a septic system or through a sanitary sewer system to a wastewater treatment plant. Reducing water usage minimizes the possibility of septic system failure—a significant water quality concern in Indiana. Failed septic systems contaminate lakes and rivers with

E. coli, viruses, and other pathogens. Also, nitrate leaching from septic systems threatens ground water in some locations. Finally, conserving water decreases the load on sewage treatment plants and minimizes the possibility of inadequately treated sewage reaching rivers and other surface water.

Even though water is usually plentiful in Indiana, water shortages can and do occur. The Midwest and eastern U.S., usually water-rich regions, have recently experienced widespread drought. Conserving water is always a good idea, but particularly necessary when water is scarce.

This publication examines water use in and around the home, and suggests ways for conserving water.

Water Use in the Home

Just how much water does a family use each day? The American Water Works Association (AWWA)

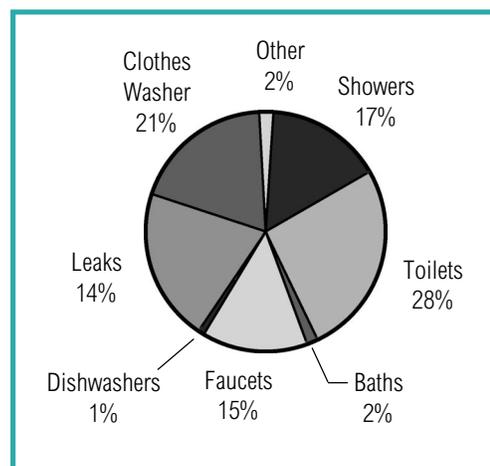


Figure 1. Typical water use (per person) in an American single family home. (Source: AWWA Residential End Use Study, 1999)

reported in its 1999 Residential End Use Study that the typical single family home in America uses 72.5 gallons per person per day. The greatest amount is used by toilets with 20 gallons (28 percent of total use), closely followed by clothes washers with 15 gallons (21 percent), and showers with 13 gallons (17 percent).

Although these numbers are national averages, studies show wide variations in water usage between households. In general, urban households use more than rural households, with people in western states using more than in the eastern U.S. or Midwest. Also, less water is used in the early morning hours of the day and during the winter months. Peak consumption takes place in the summer, when lawns are often watered, and families return home in the late afternoon.

Water-saving Techniques

According to the AWWA, a family can reduce their daily water consumption by as much as a third by installing water-efficient fixtures and appliances, repairing leaks, and changing some of their water-use habits. The following are specific suggestions for reducing water usage.

1. Install water-efficient fixtures and appliances

Low-flow plumbing fixtures are permanent conservation measures. Water-efficient models are required for all new sales of toilets, showerheads, and faucets. Appliances have generally become more water efficient over time, although the amounts of water used vary widely between models. It is important to look carefully at a product's water-use rating before purchase.

Toilets

The Energy Policy Act of 1992 requires that all new residential toilets operate on 1.6 gallons per flush or less. This regulation has resulted in the conservation of billions of gallons of water, and saved countless infrastructure upgrades. Complaints of inadequate flushing with the 1.6 gallon-per-flush models are often based on experiences with older models. Current low-flush toilets have been re-engineered and generally perform well.

When buying a new home or remodeling an existing one, all new toilets must meet the current low-

flow standard. In some cases, replacing current plumbing fixtures might even be cost-effective over time (for example if you have a failing septic system). Talk to a plumber or plumbing supplier about their recommendations.

Installing displacement devices or water dams in the tank of an older, inefficient toilet is also an effective way to conserve water when flushing. A displacement device can be as simple as placing a gallon milk jug filled with rocks in the tank. These simple devices can often save 10 to 25 gallons of water per day. Do not use a brick, because particles from it could harm the plumbing.

Showerheads and faucets

New showerheads and faucets are required to use 2.5 gallons per minute or less when wide open (as compared to 4.5 gallons per minute used by older models). Installing a low-flow showerhead can save as much as 10 gallons of water during each five-minute shower.

Faucet aerators break flowing water into fine droplets and add air while maintaining a strong flow. These inexpensive devices can be

installed on older faucets and can reduce water use by as much as 60 percent.

Appliances

Be sure to check water-use ratings when buying new appliances like dishwashers or washing machines. Look at the energy label attached to the appliance or check information for the model and brand you are considering at the Energy Star Website <<http://www.energystar.gov/>>. An appliance that uses less energy also uses less water. Ask for information on water use before buying any appliance.

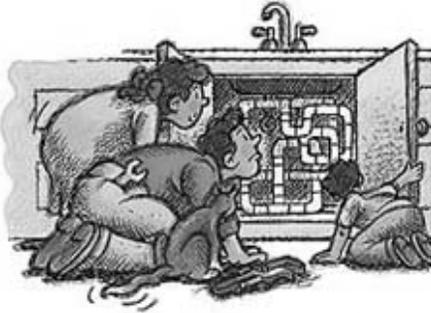
- New dishwashers use only about 9 gallons per load as compared to older models that typically use 20 gallons.
- New energy- and water-conserving clothes washers use half as much water per load, as compared to about 40 gallons of water per load in conventional washers. A typical household doing nearly 400 loads of laundry per year could save about 7,000 gallons of water. The new washing machines, known as high-effi-



ciency tumbler washers, use substantially less water than conventional agitator washers. These high-efficiency machines are usually front-loading.

2. Find and repair leaks

Leaks can consume several gallons per day, adding up to thousands of gallons per year and



accounting for as much as 10 percent of all household consumption. Be alert to leaking faucets and toilets throughout the house. Check and repair leaks as quickly as possible.

- Repair faucet drips promptly by replacing worn washers.
- Check for leaks in the toilet by putting a small amount of food coloring in the tank. If color appears in the bowl without flushing, there is a leak that should be repaired.
- Periodically check for other “hidden” leaks. Read your water meter while no water is being used in the home. Check again after several hours when no one has used any water. If the meter reading has changed, you may have an underground leak.

3. Practice water conservation in your daily activities

There are a number of common sense steps that we all can and should follow to eliminate water wastage. Most of them do not involve a noticeable change in lifestyle. It is more just a matter of “turning off the water” when not using it.

Bathroom

- Take short showers, not baths. Showers use between 2.5 (water conserving) and 4.5 (conventional) gallons per minute, so even a 10-minute shower uses 25 to 45 gallons of water compared to as much as 35 gallons with a bath. Turn off the shower while you soap up and shampoo your hair.
- Water wasted while waiting for water to get hot can be reduced by insulating hot water pipes.
- Turn off the water while shaving, brushing your teeth, or washing your hands.

Laundry

- Try to launder only full loads, or if the washing machine has a water level control, adjust it accordingly for the size of the load.



Kitchen

- Keep a covered bottle of drinking water in the refrigerator so that you don’t have to let the faucet run to get cold water.
- Wash only full loads in the dishwasher. Select the shortest cycles when possible. Follow the manufacturer’s instructions on how to save water and energy.
- When hand washing dishes, turn off the hot water when rinsing dishes.
- Use a pan of water to wash, peel, or clean vegetables rather than letting the water run.

Household cleaning

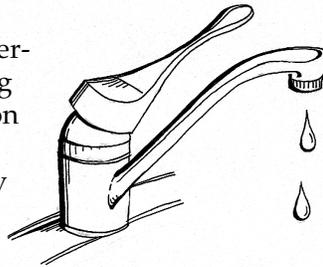
- Clean up spills and remove spots as quickly as possible so floors or carpets do not need cleaning as often.

Outdoors

- For the healthiest, densest, and greenest lawn, turf needs about 1 inch of water per week, preferably in one or two waterings. Rain provides this requirement most years. For more information, see AY-7, Irrigation Practices for Home Lawns.
- Allow turf to become dormant (turn brown) during dry periods and water only once every four to six weeks to rehydrate the grass plants. Dormant turf can survive without water four to six weeks without significant thinning, and will then become green again following a soaking rain.
- Mulch around shrubs and small trees to retain moisture in the soil.
- For shrubs and flowers, consider installing effective irrigation systems. Trickle or drip systems use 25 to 50 percent less water than standard hoses and sprinklers.
- Divert the water from roof downspouts to help water your garden.

- Check hoses, faucets, and water devices periodically for leaks and malfunctions.
- Use a broom instead of a hose and water to clean the driveway, garage, or patio.
- Wash your car at a car wash that recirculates water rather than at home. When washing cars at home, park cars on the lawn rather than the driveway so that water infiltrates into the grass rather than running off the driveway into the storm sewer.
- Keep swimming pools, spas, or hot tubs covered to reduce evaporation. Clean and maintain the filters regularly so that you won't have to replace water as often.

Finally, teach children water-saving techniques. By being aware of water conservation practices throughout your home you can substantially reduce your family's water consumption.



References

1999 Residential End Use Study. American Water Works Association. Available at <<http://waterwiser.org>>.

"Conserving Water at Home," Circular 819-1; University of Georgia Cooperative Extension Service. 1994.

"Water Quality For Domestic Use," National Association for Family and Community Education. 1992.

Cleaner Water Through Conservation. EPA 841-B-95-002. April, 1995.

For more information

- More information and suggestions for conservation are at the "Water Wiser" website developed by the American Water Works Association at <<http://www.waterwiser.org>>.
- Information on appliances that conserve energy and water can be found at <<http://www.energystar.gov/>>. Although the focus is on energy use, appliances that use less energy generally use less water.
- An interactive website on water conservation is available at <<http://www.epa.gov/seahome>>, developed by the U.S. EPA and Purdue University.
- The following publications are available from the Purdue Extension Service. The publications can be obtained from a county Purdue Extension office or by calling 1-888-EXT-INFO. Many Purdue publications are available online at <<http://www.agcom.purdue.edu/AgCom/Pubs/menu.htm>>.
- What is Ground Water? (WQ-2)
- Buying Home Water Treatment (WQ-6)
- Wellhead Protection in Indiana (WQ-24)
- Home*A*Syst (WQ-25)
- Irrigation Practices for Home Lawns (AY-7)
- Septic Systems Owners Guide (AY-9-33)

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