Watering Wisely

Watering wisely saves money and helps grow a healthier garden with less effort. Watering too much or too little leads to plants that are weak and vulnerable to pests and diseases.

In the summer, when the Puget Sound area receives little rain, the demand on our water system almost doubles from winter – mostly because so much water is used on landscapes. The Environmental Protection Agency estimates that 50% or more of irrigation water is wasted due to evaporation, wind, runoff, or overwatering.

Prepare your garden for watering wisely

Know – & improve – your soil
The type of soil you have (sandy, loamy, or clay) influences how fast it can absorb water, how often plants need to be watered, and how much water you need to apply. To save water and improve the health of your plants, you want soil that absorbs water easily, holds water for plants longer, and drains well. Soil that is low in organic matter can be improved by mixing in compost or other organic matter when you plant.

Group plants with similar water needs
Some plants do not need to be watered after the first few years, while others will always need to be watered regularly. Grouping plants makes it easier to give them only the amount of water they need and no more.

Plant native, adapted, and drought-tolerant plants which do not need to be watered once they are established (generally 2 to 3 years).

Plan the amount of grass in your yard
In a conventional yard, grass is often one of the highest water and chemical users. Decide how much grass you really need and consider replacing other lawn areas with mulch or native/adapted groundscovers or shrubs.

Adding mulch to planting beds will help soil hold water.

Aerate your lawn and remove thatch to improve water infiltration and irrigation efficiency.

How to water efficiently

Water deeply and infrequently to wet a plant's entire root zone. Shallow watering encourages shallow roots, which make plants more vulnerable to drought and damage. Allowing the top few inches of soil to dry out between waterings lets plant roots and soil organisms breathe and encourages roots to grow, seeking deeper moisture. Check soil moisture in the summer by digging in with a spade or a soil probe, or using a soil moisture sensor. This will tell you whether you have watered deeply enough – or whether you need to water at all.

Avoid runoff by checking to make sure you are not applying water faster than soil can accept it. Look for water pooling on the surface of the ground or running down the gutter when you water. If this occurs, "cycle" your sprinklers: turn them off, wait a few hours, then finish watering.

Adjust sprinkler position to apply water only on target areas. Keep sprinklers from watering the pavement.

Use a water timer that screws onto a faucet and can turn water off after a set period of time.

Water plants in early morning or late evening to reduce water loss to evaporation and wind.

Overwatering drowns your plants: they cannot get the oxygen they need, roots can rot, and they have more difficulty absorbing nutrients.

When to water

Adjust watering schedules with the weather & cool seasons

Plants use more water during hot, dry weather. Established plants only need about half as much water in May and September as they do in July. If you use the same watering schedule from May through September, you are probably overwatering in spring and fall. Cloudy, cool, or rainy weather lowers water need even more.

Avoid overwatering

- Use a rain gauge to check how much rain has fallen, check soil moisture, and look for signs that plants need water.
- Decrease the amount you water by the amount it has rained.
- Use the guide at **iwms.org/seattle_area.asp** to find out how to adjust watering using the local evapotranspiration rate (a measure of how much water plants use).
- Wait until the top 1 to 2 inches of soil is dry before watering.
- Don't water when it's raining. Install a rain sensor to automatically shut off your irrigation system if it rains.

How much to water

Annuals and vegetables

Check soil often to ensure it stays moist 1 to 2 inches below the surface (transplants and seedlings need more water). In general, soil is moist if you can roll it into a ball in the palm of your hand.

Perennials

Many native and adapted species do not usually need to be watered after they are established (2 to 3 years). For others, check gardening books or ask nursery experts.

Trees and shrubs

Established trees and shrubs usually do not need to be watered unless it is very dry. Trees obtain water best when it soaks in around the dripline to a depth of 12 inches. During warm weather, a tree needs 10 gallons of water per inch of the tree's diameter every 1 to 2 weeks (a 2-inch diameter tree needs 20 gallons of water). Using mulch instead of grass under trees reduces competition for water.

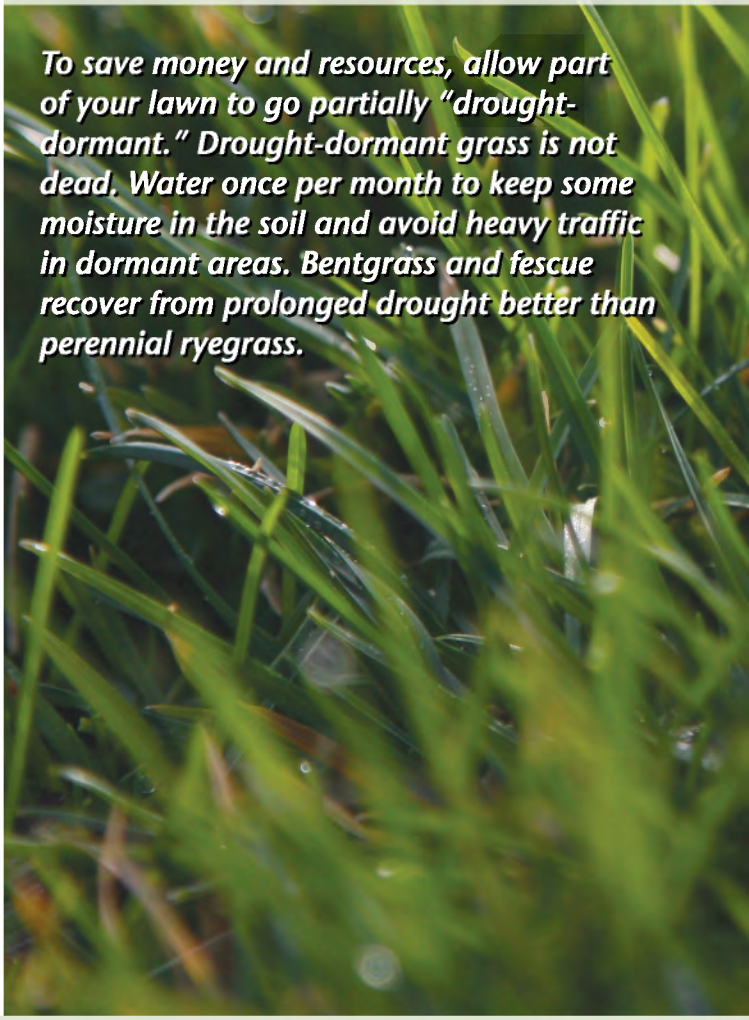
Signs your plants need water:

Grass looks dull/grey or footprints show when it is walked on.

Annuals and vegetables with soil dry below the surface or when plants begin to wilt.

Perennials with wilted leaves that stay droopy in the evening.

Trees and shrubs, once established (2 to 3 years), usually don't need supplemental water except in very dry years; wilted leaves that do not perk up in the evening.



To save money and resources, allow part of your lawn to go partially "drought-dormant." Drought-dormant grass is not dead. Water once per month to keep some moisture in the soil and avoid heavy traffic in dormant areas. Bentgrass and fescue recover from prolonged drought better than perennial ryegrass.

How much to water your grass

Grass needs about 1 inch of water per week (including rainfall) during summer and less during April through May, September through October, or when weather has been cool and cloudy. Find out how long it takes your sprinklers to apply 1 inch of water by placing tuna or cat food cans on your lawn. Turn on your sprinklers for 15 minutes and then measure the depth in each can to find the average depth.

Average water depth in can after 15 minutes	1/8"	¼"	½"	¾"	1"
Amount of time to water by soil type					
Clay soil (once per week, possibly in cycles)	2 hrs	1 hr	30 min	23 min	15 min
Loamy soil (twice per week)	1 hr	30 min	15 min	11 min	8 min
Sandy soil (three times per week)	40 min	20 min	10 min	8 min	5 min

Watering methods

There are many ways to water a lawn and garden – some wiser than others. Using different systems for watering different types of plants can help plants get the right amount of water while conserving water.

Watering by hand

Watering by hand can be very efficient when done well, but it can also lead to considerable water waste. Here are four ways to water well:

- **Soaker hoses** apply water directly into the soil, so they are much more efficient than sprinklers. Soaker hoses belong in garden beds and around trees and shrubs, but not the lawn unless there are steep slopes.
- **A portable sprinkler** attached to a hose can be a good way to water a small lawn. Choose a sprinkler that applies water evenly and has a spray pattern that matches your lawn's shape to avoid watering the sidewalk.
- **Use a timer** to avoid forgetting to turn off the sprinkler. Also use a backflow preventer to keep dirty water from contaminating drinking water.
- **Buy a good hose** that won't kink or crack, leading to hassles and leaks. A good hose has thicker walls, sometimes using layers of reinforcing fabric such as nylon or rayon. Good hose couplings and swivels are important for stopping leaks.

Automatic irrigation systems

A well-designed and maintained automatic irrigation system can greatly reduce water waste and help plants thrive. Unfortunately, many systems are poorly designed, programmed, and maintained, resulting in wasted water and plants that receive too much or too little water. To get the most out of your automatic system:

- **Get to know your irrigation controller.** An automatic controller attached to a well-designed irrigation system can do a better job of watering than most people. A controller should have the ability to water landscape areas differently (for example, grass, a vegetable garden, and native plants would be on different schedules). Learn how your controller works and adjust it according to the seasons and weather. Some newer controllers have a percent adjust function that you can use to make these adjustments based on the local evapotranspiration rate. Weather-based controllers make these adjustments for you. Remember, an "automatic" irrigation controller set improperly can waste water "automatically".
- **Install a rain sensor** that turns off your system when it rains.
- **Install soil moisture sensors** to detect the amount of moisture at the level of the root system. This will give a more exact measure of how much water plants receive and need.
- **Cover drip systems with mulch** to prevent evaporation and spread the water flow.

Hose nozzles prevent hoses from running on and wasting water.

Microspray emitter

Drip irrigation systems

Drip/micro-irrigation is one of the most efficient forms of irrigation. By watering plants slowly and applying water close to the root zone, drip irrigation minimizes water loss to evaporation, runoff, and watering areas that do not need it. Micro-irrigation is good for trees, shrubs, planting beds, and vegetable gardens. Micro-irrigation emitters include drip emitters, micro-sprays, and bubblers.

Emitters "drip" water at a slow rate.

Bubblers emit higher flows of water in a circular pattern and are useful for larger plants and for filling basins.

Microsprays emit a gentle spray of water.

Underground sprinkler systems

Lawns can be efficiently watered with a well-designed, installed, and maintained automatic underground sprinkler system. Adjust the spray pattern on automatic sprinkler heads to apply water only to areas that need it. Also, use sprinklers that apply water slowly so the soil can absorb water without runoff.

Sprinkler heads fall into two categories: spray and rotary. Spray heads produce a fixed spray while rotors move as they shoot out a jet of water. Rotors apply water at a slower rate than spray heads, creating less runoff.

Sprinkler heads can emit water across different arcs. To avoid wasting water, choose arcs that are consistent with the shape of the area to be watered. Spray heads can be purchased with a set of adjustable arcs. Rotors are always adjustable.

Use only the necessary sprinklers to achieve head-to-head coverage: spray from one sprinkler should reach the head of the next sprinkler. For full coverage without wasted water, each area should be covered by three sprinklers, but no more.

Maintain your irrigation system

At the beginning of the watering season, inspect your system for leaks and malfunctioning heads. Consider having a professional test and adjust your system annually. Throughout the season, periodically run your system for a short time when you are home and check for leaks in nozzles, hoses or sprinkler heads; clogs; and misdirected sprinklers and emitters. Look for broken or clogged emitters, feeble output, and wet or dry spots. If the lowest sprinkler leaks constantly, it's not shutting off completely. Inspect valves and replace worn or damaged parts. If there are other wet spots or eroding soil, this could be a sign of a broken pipe in the lawn; around valves, you could have a loose connection or old, leaky washers.

Note: In Western Washington allowing chlorinated irrigation water to flow into drainage systems is considered an illicit discharge as the water can end up in local streams and harm our native aquatic life.

Resources

US Environmental Protection Agency's WaterSense program and certified irrigation professionals: **epa.gov/watersense**

Washington State Dept. of Ecology: **ecy.wa.gov/programs/wr/ws/wtrcnsv.html**

Skagit County Public Utility District: **skagitpud.org/conservation**

Saving Water Partnership: **savingwater.org**

The Irrigation Association's consumer handbook and smart irrigation information: **smartirrigationmonth.org**

Thank you to Tacoma Water and the Tacoma-Pierce County Health Department for creating this publication and to the Washington State Department of Ecology for contributing funding.

SKAGIT CONSERVATION DISTRICT
SOIL • WATER • WOODLAND

City of Burlington
Skagit County, Washington
Incorporated 1902

City of Sedro-Woolley
Gateway to the North Cascades

Skagit County
Serving With Pride
Washington

City of Anacortes
1891

City of Mount Vernon