



Make Your Garden More Climate-Resilient: Water

Earth is undergoing a warming trend that results in melting glaciers, rising sea level, increasing ocean acidity, and more frequent and severe droughts and floods. The Pacific Northwest has seen prolonged drought, increasing wildfire incidence and severity, heat waves, insect outbreaks, and tree diseases. Reduced snowpack results in earlier peak flows in rivers and streams and reduces water supplies. In addition to these trends, climate change brings erratic, extreme weather events (heat wave, heavy rain) in greater frequency.

<https://blogs.oregonstate.edu/occri/oregon-climate-assessments/>

How do we garden in these times? This handout offers ideas for building resiliency into the garden.

What We Know

- As a result of climate warming, extreme weather events are happening more frequently.
- The gardening climate of the Pacific Northwest is trending toward warmer and dryer. Record breaking events of heat and drought are occurring with increased frequency.
- Drought, heat waves, wildfires and intense rainstorms are likely to increase in intensity and frequency in the future.
- A lack of snowpack in the mountains can lead to low flows in streams and rivers which will restrict water use for irrigation. We need to be prepared for this future.

Potential Climate Mitigation

- Improve soil to increase its ability to absorb rainfall and reduce the need for irrigation.
- Reduce stormwater runoff and retain water in your garden.
- Employ irrigation practices that reduce water waste.

What to Do

- Increase water-holding capacity of garden soil. The best investment you can make to ensure healthy plants and water conservation is to improve your soil. Adding organic matter such as compost or shredded leaves adds nutrients, increases the soil's ability to absorb and store water, and increases air spaces in the soil. As a result, roots penetrate the soil more easily and grow deeper. In addition, water soaks into the soil instead of running off the surface.

Gardening in Clay Soil

<https://cmastergardeners.files.wordpress.com/2022/02/gardening-in-clay-soil.pdf>

Conserving Water in Your Yard and Garden

<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/em9125.pdf>

- Cover bare soil with a 3-to-5-inch layer of coarse textured organic mulch. This will reduce water evaporation by 70 percent. Mulches with large, coarse particle sizes include shredded bark and wood chips. Mulch will also reduce soil temperature during hot periods, prevent soil compaction, support water infiltration and control weeds.

Mulching Woody Ornamentals with Organic Materials

<https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/ec1629.pdf>

Gardening with Mulches

<https://cmastergardeners.files.wordpress.com/2022/02/gardening-with-mulch.pdf>

- Install a rain garden to capture stormwater and retain the rainwater on-site. A rain garden is a sunken bed that collects and treats stormwater runoff from rooftops, driveways, sidewalks and streets. A rain garden should be located near the source of the water intake, such as a downspout that drains rooftop runoff, and has the size of at least ten percent of the area of the impervious surface draining into it. The water in the rain garden should be absorbed into the soil in a 24-to-48-hour period. Avoid siting a rain garden where the area is wet throughout the season as that indicates poorly drained soil. A rain garden should also be located three feet from a sidewalk, two feet from a retaining wall or building and on a slope of less than 10 percent. Adding a Rain Garden <https://cmastergardeners.files.wordpress.com/2023/04/adding-a-rain-garden.pdf>
- Install a bioswale, a linear rain garden that can slow the flow of water and allow it to soak into the ground. The linear design of a bioswale makes it suitable for roadside runoff but it can also be constructed to meander across a landscape, creating an attractive feature that will allow water to be absorbed into the soil instead of running into the storm system. Site your bioswale 5 feet away from utilities (it is the law in Oregon to call the Utility Notification Center at 811 before beginning any excavation) and 10 feet away from buildings. Avoid installing a bioswale where the down gradient slope exceeds 30 percent. Some cities and counties have specific regulations regarding disconnecting downspouts and routing or piping water. Verify requirements with local authorities. Adding a Bioswale <https://cmastergardeners.files.wordpress.com/2023/04/adding-a-bioswale.pdf>
- Reduce irrigation loss by watering when cool. Deliver water to the root zone of plants at a rate that matches the soil's ability to absorb input. You do not want water running off the surface of the soil. Watering thoroughly but infrequently, will produce deeper roots and plants that are more drought tolerant.

Create zones that group plants together with similar water needs. For example, annuals require more water due to shallower root systems vs. perennials and shrubs that require less water due to deeper rooting systems. Set up a drip irrigation system with a timer or use soaker hoses that will slowly place water where needed minimizing evaporation and allowing the soil to uptake as much water as plants require.

Drip Irrigation: An Introduction <https://extension.oregonstate.edu/catalog/pub/em8782-s>

Watering Tips <https://cmastergardeners.files.wordpress.com/2022/02/watering-tips.pdf>

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