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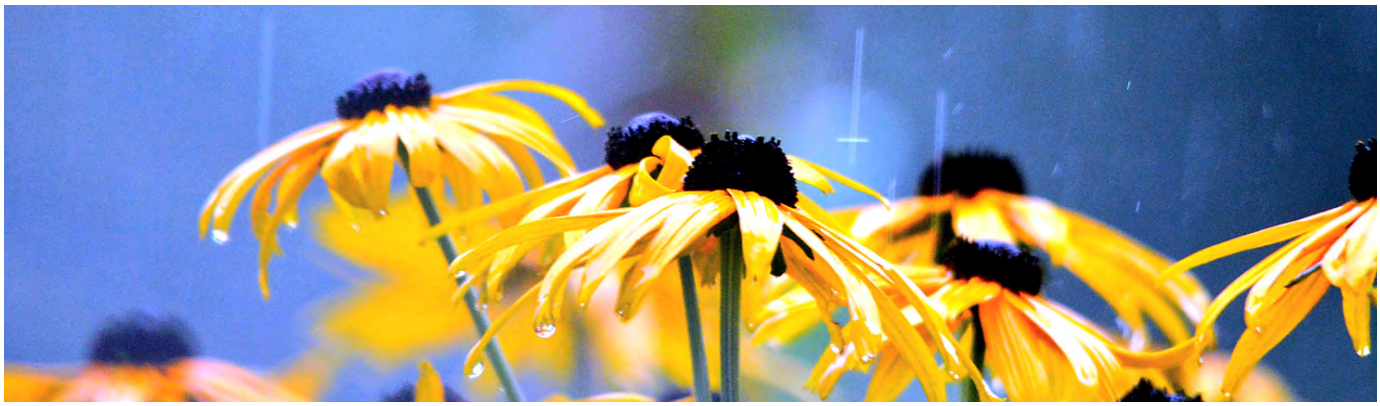
THE OUTSIDER

Illinois Extension Horticulture serving Henry, Mercer, Rock Island, and Stark



RAIN GARDENS GALORE

April showers bring May flowers but rainstorms do more than that. Rain events and seasonal patterns in Illinois are shifting. The water delivered in these storm systems can be a blessing or a curse depending on how much water arrives in the storm, how intense the storms are, seasonal conditions, and the condition of the landscape. As stewards of the landscape, people are able to influence only one of these factors impacting stormwater management. Water that arrives in a storm that does not soak into the ground is considered stormwater runoff and must go somewhere. Surface cover impacts the degree ability of stormwater to infiltrate the soil profile or drains off the area where it originally fell.

Water that falls on natural areas such as trees and woodlands, gardens and planting beds, and lawns can enter the soil and regenerate groundwater reserves. Land covered by impervious surfaces such as streets, parking lots, and buildings does not have the ability for water infiltration thereby creating water runoff and increasing the amount of stormwater going into natural bodies of water. Stormwater runoff can carry impurities and debris from these impermeable sites into natural water resources, leading to pollution and degradation of water quality.

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The average 1,200-square-foot house has approximately 744 gallons of water falling onto the roof in a one-inch rainfall event. Homeowners that wish to utilize this water in the landscape rather than move it off the property as runoff have a few options. Pervious pavement allows water to infiltrate into the substrate, downspouts could be directed toward these areas. Rain barrels are large containers fixed to downspouts that are designed to capture rainwater and store it for later use in the landscape. And strategic use of plant materials can help reduce the quantity of water leaving a site. Preserving trees, shrubs, and perennial plantings create places for stormwater to go and infiltrate the soil. Rain gardens are specifically designed to capture and infiltrate more stormwater than traditional planting areas.

RAIN GARDENS SITE SUITABILITY

Rain gardens are garden beds that are shallow depressions designed to capture rainwater from impervious surfaces, retaining it for a short period of time to allow infiltration. Rain gardens allow stormwater to be intercepted from impervious surfaces, eliminating or reducing the quantity that enters storm sewers or natural bodies of water. In addition to reducing quantity, water quality is improved as pollutants carried by stormwater are managed within the rain garden and water temperatures can be reduced as it moves through the soil profile, an important function in the protection of natural waterways and aquatic life preservation.

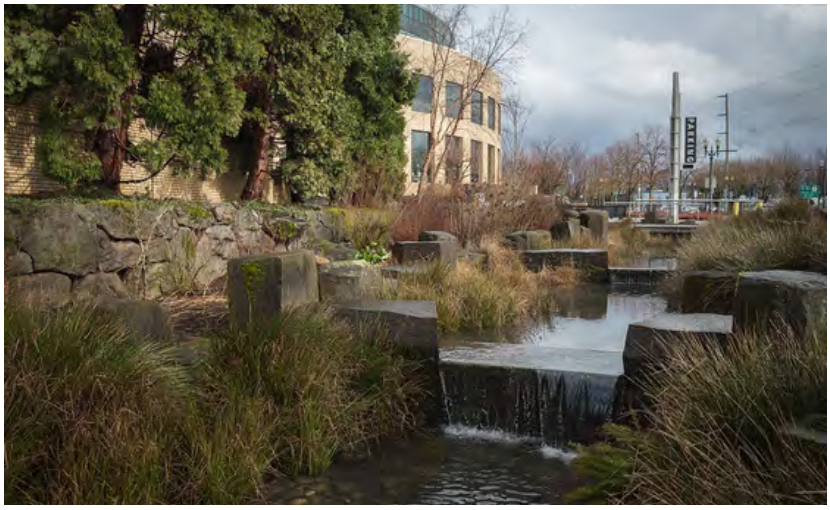
To maximize function, a rain garden must be designed properly, and this begins with sizing. Rain gardens must be built to accommodate the volume of water draining from an impervious surface of a 1-inch rainfall. To calculate the size of a rain garden, measure the area of the impervious surface and divide by the depth of the rain garden.

To calculate the depth of the rain garden, a percolation test must be conducted to ensure proper drainage. Rainwater entering the garden should infiltrate the soil within 24 hours to avoid standing water, causing injury to plants and creating a habitat for mosquitos. To conduct a percolation test, on the unfrozen ground, dig a test hole on the site of the planned rain garden to the depth of the proposed garden. Presoak the ground by filling the hole with water and allow it to soak into the soil, continue to do so until the soil is saturated. Once saturated, conduct the test by filling the hole with water and check back in 24 hours to ensure the entire quantity of water has drained into the soil. If the water has drained completely, the soil is adequate for a rain garden; if it has not drained completely, consider relocating the rain garden and conducting another percolation test.

The areas of impervious surface to be drained is done by measuring and adding together the surface area of all impervious surfaces draining to the rain garden. Hard surfaces contributing water to the rain garden may include building roofs, driveways, sidewalks, and patios. Divide the total area of impervious surfaces feeding the rain garden by the depth of the rain garden to determine the area of the rain garden needed to capture 1 inch of rain.

Rain gardens need to be sited in areas that water will drain towards since the objective is to capture running water. Locate a rain garden downhill of the impermeable surface water that will be captured from and uphill from the lowest point in the landscape to allow for overflow drainage in larger storm events.

In addition to these two key site suitability criteria, rain gardens should not be located over septic fields, drain fields, wellheads, or utilities. Rain gardens need to be more than ten feet away from buildings with basements and care should be taken when locating next to a tree to ensure species can withstand increased soil moisture. During construction, care should be taken to protect and preserve as many of a tree's roots as possible.



PLANTING DESIGN

Planting a rain garden is like designing a traditional planting with a few caveats. First, native plants are recommended over the use of cultivars or non-natives. Generally, native plants are better suited for rain gardens due to their extensive root systems that penetrate deep into the soil, accessing water reserves during times of drought while building soil structure that creates better rainwater infiltrate capacity.

Second, plant placement should account for the lower topography in the center of the bed. Overall plant height needs to account for the six-to-twelve-inch difference between the edge of the rain garden and the center.

Grasses, flowers, shrubs, and trees can be planted in a rain garden. If larger shrubs or trees are used, consider the shade they will provide when selecting other species. Rain gardens are also suitable for shady sites with proper species selection.

Plant hardiness, sun exposure requirements, sustainability goals, and personal aesthetic preferences are important considerations when designing a rain garden. Bed shape, floral colors, and wildlife appeal are auxiliary features of a rain garden that can greatly influence overall enjoyment and satisfaction.

For help getting started with a rain garden design, Illinois Extension, and Lawn to Lake have partnered to create a guide for full-sun rain gardens. The guide can be picked up at your local Extension office or accessed online here: https://extension.illinois.edu/plants/info-sheets.

ESTABLISHMENT AND MAINTENANCE

Using native plants in a rain garden will help reduce maintenance requirements by minimizing the future need for pesticides and fertilizer. During the establishment period, years one and two, supplemental water may be required during dry periods. Once plants are established, supplemental watering is rarely required. Weeding is required although established plants will help out-compete undesirable, annual weeds and reduce this maintenance need.

OUTSIDER ACTION

Try these activities to be more of an Outsider:

- This summer, go play in the rain.
- Road trip to the University of Illinois campus and enjoy Red Oak Rain Garden.

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SIGN UP NOW

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