Gardening Basics

Rain Gardens for North Texas Landscapes

Do you have a periodic or recurring wet area in your yard? Have you noticed an erosion problem? It could be around the downspouts from your house. Maybe a soggy wet patch happens each spring or after a heavy downpour. Your home and yard itself may be causing or contributing to the problem. The roof of your home, driveway, and sidewalk create a "hardscape" that water cannot penetrate, so it collects and runs off. Rainwater is welcome in Texas, but stormwater can be too much of a good thing. Rain is not the only source of water. Sprinkler system water may collect in that gully between your house and your neighbor's. Residential watering of lawns and gardens, though well-intentioned, often ends in an excess runoff. Corral that water for gardening and help the environment at the same time. Create a rain garden!

What is a rain garden?

A rain garden is a landscaped area dug into a basin to capture water for use by plants or to soak deep into the ground where it is naturally filtered. Raingardens are designed to absorb stormwater and excess water runoff, particularly from impervious surfaces such as compacted ground, roofs, and paved areas. A rain garden stores and naturally filters pollutants from the water, protecting streams and waterways. Raingardens control erosion, too, by slowing runoff.
A rain garden is a working ecosystem that makes a lovely accent. Most rain gardens contain native perennial plants that can adapt to extreme moisture conditions. The plants absorb the water and transpire it into the air. Water evaporates more readily because it is spread over a larger surface area. The rest percolates into the ground over time. A rain garden is shallow. It is not a pond since surface water should not remain for more than 4 days. Surface water remaining longer than 96 hours could breed mosquitoes and other harmful insects.

Building a Rain garden

Each rain garden is unique because of different conditions and desired results. Take the time to plan. The three planning areas are inventory of physical conditions, garden design, and plant selection.

Inventory

Inventory the physical conditions of your yard by creating diagrams and taking notes. Look at your yard with a new perspective. A "level" yard is not completely level! Note the slope and area of the roof, driveway, and hardscapes that collect water and deposit it in volume elsewhere. Mark the location of trees, shrubbery and existing raised beds. Indicate hills and valleys (or "mounds and dips"). Look at subtleties in topology, such as slope around walkways and

driveways. Take neighboring properties into consideration where water may be a source or a downstream destination. Consider yard size and how much area should be allocated to the rain garden. Also note what materials are naturally available, such as rocks, excess soil, and of course, plants that may need dividing. Literally, gauge the water. Track the frequency, volume, and velocity of water flow. A rain gauge may help determine how much water comes from clouds or sprinkler systems, but runoff is the criteria to measure. Dig a hole in the analysis area and insert a long cylinder can (like a juice can) with the lip just below ground level. After rain/watering events, insert a ruler to measure. Downspouts and sloped areas indicate velocity and possible erosion factors. The area where water is currently ponding may not be the optimal place to build the rain garden since the water is not able to be absorbed. If the rain garden will be in a current ponding area, plan on excavating to augment the bottom with gravel and sand for drainage or decide on an alternate location that is more desirable for drainage, function, or aesthetic reasons. When deciding on where to place a rain garden, examine how the water will get into the catch basin area. Soil permeability is important. Water should collect in an area and percolate through porous soil. Heavy clay (common in Texas) does not absorb well. Test a site's soaking ability by digging a hole 6 inches deep and about 12 inches square. Fill with hose water. If water is still in the hole after 24 hours, pick another location or plan on augmenting the bottom.

Design

The garden design aspects are unlimited regarding the style, shape, and materials. Physical constraints such as topography help to determine the location and size of your rain garden. The volume of water and soil drainage capacity help to decide the size, shape, and complementary features. In addition to the rain garden basin, a swale (a trench with plants or grasses) may be necessary to direct the water into the collection area. A dry creek bed (a trench filled with rocks) or underground drainpipes can send the water to the rain garden. These are particularly useful for moving downspout water away from the house. Rocks in a dry creek bed can slow the water flow, preventing erosion and aiding the absorption area. A rain garden on a slope will need a berm on the downhill side to hold back water during a storm. Decide on a shape that is aesthetically appealing and fits the selected area. Popular shapes are crescent, kidney, and teardrop forms. Rain gardens are generally longer than wide, usually with a longer side perpendicular to the water source. Select an area that is at least 10 feet away from the house for flood avoidance. Also, stay away from tree roots. Avoid digging in a tree drip line (under the canopy). The drainage volume tests will influence the site selection. If too much volume, plan on more than one rain garden, which can be separate or connected in a chain with swales, dry creek beds, or underground piping. Use a hose or string to mark off the area, or sprinkle flour or cornmeal to outline the shape.

Call the utility company to make sure no utilities are below ground. Dig. Raingardens average 4 – 8 inches deep with a level bottom. High water volume and sloped areas would require more depth. If the water draining test was poor, dig deeper and partially fill with gravel and a layer of sand. Or, if the soil is poor, dig deeper to allow for adding topsoil. If the rain garden is on a slope, create a terrace effect by moving the soil from the steepest point to the downhill side. Use removed soil to level areas and to make a berm (dam area to retain water) at the lowest side. Berms are around 6 inches high. Rocks or landscape bricks can reinforce the berm and create a decorative accent. Amend the garden base with topsoil and compost, as necessary, to provide a good bed for plants.

Planting

Before planting anything, test! Wait for rain or another water event. Determine if water is contained and drains/evaporates at an acceptable rate. It is easier to modify the size and shape of the rain garden basin before plantings. The test also reveals how moist the soil will be, which determines plant selection. Raingarden plant selection is very similar to regular plant criteria, except for extra attention to water tolerance. Plant selection depends on the garden zone, moisture or water requirements, sun/shade, size of the area and plants, and desired effect for function and appearance. Native plants are preferred because many native plants are tolerant of flooding and drought. Natives do not need fertilizer and often self-replicate. Many natives have deep plant roots that create additional channels for stormwater to filter into the ground. Divide existing perennials that will appreciate the new conditions! Raingardens can be themed or designed with a special purpose, such as a bird or butterfly garden. Trees, shrubs, flowering and foliage plants should all be considered. A good source for suggested plants can be found at http://rainwaterharvesting.tamu.edu/raingardens/

A rain garden can have its own zones of moisture. Very wet areas may require bog plants. Perimeter areas may use

different “marginal plantings,” just like plants that grow along creek beds and lakes. Some research or trial and error may
be necessary for your unique rain garden. My Denton County rain garden is a series of basins because of water volume and location restrictions. It starts with a triangular form in a shaded area. A dry creek bed bordering two sides joins together and carries excess water to a second oval basin in the sun. The water volume required a larger basin area, but other garden features prevented digging any bigger. Tree roots, a vegetable garden, and a garden path with a gate necessitated a third basin connected by underground piping. The plants are different in the three basins. The shaded area stays damp, while the other two basins go dry in the sun. The shaded rain garden has Japanese water irises, anemones, corkscrew rush, papyrus, lemon balm, Mexican petunia, Turk’s cap, and Joe-Pye weed. The sun basin has canna lilies, daylilies, lizard’s tails, water spider lilies, frog fruit, and corkscrew rush. The other sun basin has monarda (bee balm), canna lilies, blue mist flower, and phlox. I divided and transplanted my existing plants to test what would be successful. Plants that did not work were coneflowers—the wet periods were too wet for them. Coneflowers did flourish along the border of the dry creek bed, along with sedums, bearded irises, and sages that require less water.

Maintenance

In the first year, plants should be watered during dry spells to become established. Weeding may be needed for the first two years before the perennials are established enough to dominate the area. The basin can be mulched. Plants may need some spring cleanup and occasional sprucing. The rain garden concept is to naturalize and self-maintain, which makes the ongoing maintenance simple.

This information was presented by the Denton County Master Gardener Association. For more information about the Denton County Master Gardener Association or to ask gardening questions, see dcmga.com or call 940-349-2892.