PENNSTATE

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Rain Gardens – The Basics

In its most simple design, a rain garden is a type of garden strategically located so that it can intercept storm water and allow it to soak into the soil. You can select the location of your rain garden by first taking a good look at your property and determining where your storm water goes, where it runs off, where there may be wet spots in your yard. Most residential rain gardens are located near the house since the greatest amount of storm water on residential properties comes from the roof and the driveway. Rain gardens can be located near downspouts, next to the driveway or sidewalks, or out in the yard. You can allow the rain to naturally collect in the raingarden or you can direct storm water from the downspout or gutter with a length of plastic pipe. You can also bury the connection pipe, just may sure you do it so the water still flows correctly from your gutters (you don't want to cause water to back up!). The rain garden should be located at least 10 feet from the house (yours or you neighbors) to avoid any possibility of the creating moisture problems to the house or basement.

Plan your rain garden so that its deepest part is about six inches. This will allow the rain garden to drain within a proper timeframe. This depth will provide a good water regime for the plants you'll be using. Although there are plants that can withstand deep water (in excess of 8 inches), a six inch depth is well in the range that water tolerant plants can withstand. With this depth you won't need to worry about drowning your plants or about the water standing for too long. To begin your construction, you will need to select your area and begin making a shallow depression. Remove the topsoil and store it separately from other soil material (you'll want to put it back after your finished excavating). Then you will need to loosen the subsoil in your garden. Go ahead, get in there and turn up that soil! The soil does not have to be smooth, and you don't need an even grade throughout the garden. Rather, you should have areas of varying depth, ranging from ground surface level (0 inches) up to 6 inches below the ground. This way, when it rains the water will flow into the various "holes" first and will slowly fill up the other areas. Some areas of your rain garden may have only an inch or so of water and some might have six inches!

Next, return the topsoil and amend with compost if needed. Remember that clay soil is not ideal as it inhibits drainage. You may need to add compost to lighten the soil if you have heavy soil. Ideally, the water from your rain garden should drain within 12 hours or a within 24 hours at the most. This length of time will ensure that mosquitoes will not breed in your rain garden. When you are done planting you can add a layer of hardwood (resists rotting better than pinebark) mulch if you want. The mulch may shift and move around during rain events. There is a bit of maintenance at first, while the plants are getting established, but no more than any other type of garden! Remember to weed out undesirable plants. Instead of cutting back the foliage once the plants are hit by frost, leave the whole plant as a seed source and shelter for over-wintering birds and butterflies. In spring, cut the foliage back to allow for new growth.

The rain garden can be designed in a three zone approach: the lowest zone is the area that will hold water the most often. The middle zone will have water (up to a few inches) but will drain more quickly. The upper zone is the transition zone between your rain garden and your non-garden area. This area will only receive water infrequently when there are very heavy rains and this area will dry

out first. Remember that the rain garden will dry out between rain events and the plants you use must be able to withstand varying conditions.

Calculate Your Stormwater Yield:

Follow this formula to get an estimate of the amount of storm water runoff your roof produces each year:
1 inch of rain on a 1000 square foot roof yield 623 gallons of water. To calculate the amount of stormwater your roof yields, take the square footage of your house and multiply by 623. Then divide that number by 1,000. To calculate the average yearly amount of stormwater generated by your roof multiply the number above by the average amount of annual rainfall in our area. (Audubon, Sept. 2003 and Cumberland Conservation District 2006)) The average rainfall amount in our area is about 42 inches. That's a lot of stormwater, isn't it? Think about how much water can go back into our groundwater table by using raingardens!

Did You Know?

Five minutes of running the hose uses 25 gallons of water. Use a broom instead of a hose to clean decks, sidewalks, and other paved areas.

As much as 30% of the water used can be lost to evaporation by watering lawn during midday. If watering lawn, water during the coolest part of the day (preferably morning) and never on windy days.

Grass turf requires 30-50% more water than shrubs and other groundcovers. Limit grass areas and use trees, shrubs, and other native plants that typically require less water.

An average uncovered pool loses about an inch of water a week because of evaporation. Cover pools to prevent evaporation.
(Cumberland County Conservation District, 2006)

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