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RAINWATER HARVESTING: SIMPLE SYSTEMS

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SIMPLE SYSTEM RAINWATER HARVESTING:

Simple system rainwater harvesting (also referred to as passive rainwater harvesting) utilizes the land and natural elements to slow, spread, and absorb water on site. Configuring the land with some added features (e.g., berms, swales, and rain gardens) helps reduce stormwater runoff that can cause local flooding. These elements slow down stormwater flows while allowing the natural precipitation to soak into the soil and be taken up by plant roots. Many plants can help filter pollutants before water enters storm drains and eventually watersheds. Raingardens, swales, and bioretention areas are excellent examples of simple rainwater harvesting systems. Not only do these systems help manage stormwater by directing it away from areas where it can cause damage, but they also add beauty, habitat, and seasonal interest to landscapes of all kinds.

SIX STEPS TO BUILDING A RAIN GARDEN:

Measure:

Observe how and where water flows off of hard surfaces (e.g., roofs, driveways, sidewalks, and parking areas) to select the right spot for the rain garden. Be sure that it is at least 10 feet from structures to prevent flooding and foundation damage.

Test Soil:

Dig a 6-inch hole in the soil and fill it with water. Time how long it takes for the hole to completely drain. The site should drain within 24 hours. If not, an alternate site may need to be selected.

Calculate Size:

Estimate the square footage of all hard surfaces that will provide runoff to the rain garden. Keep in mind: For each inch of rain, about .62 gallons can be collected per square foot of surface area. This amount, as well as slope and soil type, are necessary to properly size the rain garden.

Build the Garden:

Mark out the garden's size and shape with landscape paint or flags. Dig the garden to a depth of 3 to 8 inches—depending on the garden size, soil type and slope, graduating the sides and using a berm if necessary. Compost can be incorporated into the soil to improve planting conditions.

Select and Plant:

Choose deep-rooting plants like native bunch grasses that can help improve water quality and encourage water retention. Avoid plants that are unable to tolerate wet soil conditions for long periods (see a suggested plant list on the back of this page).

Maintenance:

Water regularly to establish plants. Manually remove weeds as needed. Observe the garden performance over time to be sure it is functioning as planned and that water is draining. Replace dead and diseased plants.

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Sizing the Garden:

Getting the maximum performance out of a rain garden takes some thought and planning. Use Texas A&M AgriLife Extension publication: *Rainwater Harvesting: Rain Gardens* (L-5482), for details on measuring flow, slope, and calculating the appropriate size and depth rain garden for a beautiful landscape feature that adds form, function, and provides for the environment.

Keep these tips in mind while creating a rain garden:

- Multiple gardens may be needed to collect all the runoff from contributing sources.
- Design the rain garden to fit the space and keep it free-flowing.
- Maintain a consistent depth throughout the bottom of the garden with gradually sloping sides.
- If necessary, make a splash pad with rocks to slow the flow of water into the garden.
- Add lots of color and texture so the garden is interesting and inviting.
- Be sure the rain garden looks great and functions properly with regular maintenance.
- Most importantly: Have fun and enjoy!

SUGGESTED PLANT LIST:

Perennials	
Bearded Iris	Gayfeather
Bee Balm	Goldenrod
Black-Eyed Susan	Horseherb
Blue Mistflower	Joe-Pye Weed
Butterfly Weed	Lamb's Ear
Cardinal Flower	Louisiana Iris
Cast Iron Plant	Moonbeam Coreopsis
Marsh Mallow	Prairie Spider Wort
Oxeye Sunflower	Purple Heart
Purple Coneflower	Ruellia "Katie"
Rain Lily	Standing Cypress
Scarlet Sage	Wood Fern
Texas Columbine	Yarrow

Grasses	
Big bluestem	Eastern Gamagrass
Inland sea oats	Seep Muhly
Sedge (*Carex* spp.)	Switchgrass

Shrubs	
American Beautyberry	Dwarf Palmetto
Mexican Buckeye	Possumhaw Holly
Southern Wax Myrtle	Yaupon Holly
Button Bush	

Trees	
Bald Cypress	Eve's Necklace
Hawthorns	Pawpaw
River Birch	

*Indicates Texas Native

See the complete Texas rain garden plant list here: *https://rainwaterharvesting.tamu.edu/files/2011/05/Rain-Garden-Plant-List-11-02-09.pdf*.

Full Rain Garden publication: *https://agrilifecdn.tamu.edu/water/files/2013/02/stormwater-management-rain-gardens.pdf*