THE UNIVERSITY OF GEORGIA
COOPERATIVE EXTENSION
Colleges of Agricultural and Environmental Sciences & Family and Consumer Sciences

RAIN BARRELS

What is a rain barrel?

- A rain barrel collects and stores rain water from your home's rooftop to use later for watering your landscape and performing other outdoor tasks like washing your car, cleaning tools, etc.
- Rain barrels help lower watering costs.
- Rain barrels capture water that would normally flow down your downspout, across paved surfaces or your yard, and into storm drains.
- Rain barrels help reduce pollution by reducing storm-water runoff, which can contain pollutants like sediment, oil, bacteria, pesticides, and fertilizer.

You can purchase a ready-made rain barrel or make your own.

CONSTRUCT YOUR OWN RAIN BARREL

The following materials and instructions are examples of what you will need to construct your own rain barrel.

Materials Needed:
1 – 55 gallon food-grade barrel
1 – spigot (1/2" boiler drain spigot)
1 – 1/2" threaded PVC "T" connector (This item is normally used for sprinkler systems.)
1 – 1/2" black threaded connector to connect the spigot to the PVC "T"
1 – O-ring, 1 inch O.D., 3/4 inch I.D., 1/8 inch thick
1 – 6" drain cover
2 – zip ties
3 – pieces of window screen material
1 – downspout elbow or flex elbow
1 - #1 or #2 plug (optional)

Equipment Needed:
Drill
3/4" paddle bit
Jigsaw
Driver or screwdriver

Instructions:

1. Cut an opening in the top of the barrel for the drain cover.
2. Drill a hole for the spigot. You will have to reach down inside the barrel to secure the spigot, so drill the hole only as low on the barrel as you can reach.
3. Screw the black threaded connector onto the threaded PVC "T" and slide an O-ring over the threads. Insert the black threaded connector into the hole from inside the barrel. Screw the spigot onto the connector until tight.

4. Cut three pieces of window screen slightly larger than the drain cover and the two additional openings in the top of the barrel. Place the larger screen over the drain cover opening and screw on drain cover. Place screen over the two additional openings and fasten with zip-ties. (Note: to control mosquitoes, a piece of mosquito dunk can be placed in the barrel before securing the screen coverings, or you may opt to use a small amount of liquid dish soap for mosquito control.)
5. Optional: You may want to drill a hole in the bottom of the barrel to drain it. Put a plug in this bottom hole. (The alternative is to simply turn the barrel over to drain the water below the level of the spigot.)
6. Position the rain barrel underneath the downspout. You may want to elevate the rain barrel using sturdy material, such as cement blocks, to easily fit a watering can or bucket under the spigot or drainage hole.
7. Cut the downspout to just above the rain barrel. Attach the downspout elbow to the downspout.
8. Slide the rain barrel under the spout, lining up the mesh screen opening with the spout. Spray water on the roof and check to make sure the rain barrel and mesh opening are in the right location.
9. Optional: You may want to paint your rain barrel using Krylon Fusion paint.
10. Use the water collected for gardening purposes.

Sources: Cobb County Water System: Rain Barrel Fact Sheet; UGA Rain Barrel Presentation Power Point

SET UP BARREL AND MODIFY DOWNSPOUT

- Set up barrel. Since water will only flow from the garden hose when the hose is below the barrel, place the barrel on high ground or up on cinder blocks or a sturdy wooden crate underneath your downspout.
- Modify your downspout. Cut your existing downspout using a saw so that the end can be placed over the top of your rain barrel. Use a vinyl downspout elbow to connect the two downspout pieces (or use a downspout adapter and a piece of corrugated plastic pipe.) Trim the end of the downspout if necessary.

SPECIAL NOTE ON MOSQUITOES

Mosquito control is very important due to West Nile Virus and other diseases. If you choose to build or install a rain barrel with an opening that allows access to mosquitoes, take proper measures to ensure that mosquitoes do not breed. You may want to purchase commercial mosquito dunks or several inexpensive goldfish that will eat the larvae and any algae that may grow in the tank.

A FEW WEBSITES THAT SHOW YOU HOW TO BUILD A RAIN BARREL

http://www.cwp.org/Community_Watersheds/brochure.pdf

http://www.diynetwork.com/diy/gr_structures_ornaments/article/0,2029,DIY_13859_4603813,00.html

http://water.cobbcountyga.gov/pdf/rainbarrel_101707.pdf

RAIN BARREL SIZE

The required capacity of a rain barrel is a function of the rooftop surface area that drains to it and the inches of rainfall required to fill the barrel. (Water loss due to evaporation may be calculated but is negligible for our purposes.) A general rule of thumb to utilize in the sizing of rain barrels is that 1 inch of rainfall on a 1000 square foot roof will yield approximately 600 gallons.

Rain barrel volume can be determined by calculating the roof top water yield for any given rainfall, using the following general equation:

$V = A \times R \times 7.5$ gals./ft.^{3} where:

- V= volume of rain barrel (gallons)
- A= surface area roof (square feet)
- Area = Length x Width
- R= rainfall (feet)
- 7.5 = conversion factor (gallons per cubic foot)

1 inch rainfall = 625 gallons/1,000 ft^2

The actual calculation is:

$$1000 \text{ ft}^2 \text{ roof area} \times 1 \text{ inch rainfall} \times \frac{1 \text{ foot}}{12 \text{ in.}} \times \frac{7.5 \text{ gallons}}{\text{ft}^3} = 625 \text{ gallons}$$

How much rainwater can you collect? Determine the size of the area that will have runoff going to the rain barrel. You may want to draw a “footprint” of your home and divide the areas that drain into each gutter. Figure areas for each gutter. Each rain barrel holds ~55 gallons of water.

Example Calculations:

A roof area with a length of 50 feet and width of 15 feet = 750 ft^2

$$\frac{625 \text{ gallons}}{1{,}000 \text{ ft}^2} = \frac{x \text{ gallons}}{750 \text{ ft}^2} = 468 \text{ gallons or enough water to fill 8 barrels (468/55)}$$