

One of the best ways to save water in your landscape is by diverting the rain drops that fall on your roof during a thunderstorm, capturing them in barrels or cisterns, and storing that water to use during dry weather. Rainwater is especially good for plants, when compared to tap water. It has a near neutral pH, is mineral and chlorine free, plus it can add a little boost of nitrogen to plants in need. Whether your landscape is large or small, established or new, the principles described here can help you install a rainwater harvesting system to meet your needs. One of the easiest ways to get started is with a 55-gallon rain barrel!



Benefits of a Rain Barrel

- Rainwater is the best water for plants
- Reduce demand on municipal water supplies
- Efficient use of water resources in both wet and dry weather
- Help reduce flooding, erosion, and contamination of creeks and lakes
- Help manage the water portion of your utility bill

Parts and Components

A rain barrel is a simple water harvesting system that includes:

- A catchment area: your roof
- Conveyance connections: gutters, downspouts, rain chains
- A storage container: a barrel or cistern

Understanding Your Catchment Area

A catchment area is just any surface from which water can be collected when raindrops fall and accumulate. The best catchment areas have hard, smooth surfaces like the roofs of homes, sheds, or barns. These catchment areas are measured by their roof footprint. Knowing your roof footprint will help you determine your rainwater harvesting potential, as well as which downspout to harvest from.

The angle of the roof sections deliver water to their respective downspouts, with several typically located around the building. Each downspout has potential to harvest rainwater and the amount is based on the size of the specific catchment area.

If your catchment area does not have gutters and downspouts, you can still harvest rainwater! Look for areas along your roofline where large amounts of water naturally falls. This is often where two sections of roof come together to form a "valley." Because of the force of water during heavy rainfall events, these areas often have disturbed soil, landscape rocks or mulch. Installing a rain barrel in these areas will help capture some of this deluge. Using a rain chain in these areas will help guide the water into your barrel opening.

The amount of water that can be harvested depends on the amount of rainfall received. A 1 inch rainfall event on a 2,000 square foot roof could potentially harvest up to 1,200 gallons of water!

Picking Your Storage Container

Rainwater storage systems can vary greatly in size, shapes, materials, needs and budget. An easy and cost-effective way to begin harvesting rainwater is to upcycle a plastic barrel. These 55-gallon plastic drums vary in shape, color, and in the materials they originally stored.

Containers to Avoid

Avoid using any drums that have previously stored petroleum products or soaps. Residues from these liquids can be soaked in the plastic and leach out over time, creating concerns for nearby plants and the surrounding soil. You might also avoid using thin plastic trashcan-like storage containers, especially ones wider at the top than at the bottom. These thin vessels tend to leak or crack over time. Containers that are wider at the top can create a tipping hazard, jeopardizing the safety of the user as well as the structural integrity of the container itself.

Create Do-it-Yourself rain barrels from upcycled 55-gallon containers made from food-grade high density polyethylene (HDPE plastic). These containers are not only durable, dent-resistant and corrosion free, but those that previously held soft drink syrup, pickles, olives, or other food products pose no harm to you or the environment. In fact, by recycling these containers, we can keep them out of a landfill—an added benefit when compared to cheaply constructed pre-made rain barrels.

Upcycled HDPE plastic rain barrels are extremely reliable. Using quality components in conjunction with this guide will ensure your rain barrel provides a safe and effective rainwater storage container, season after season.

Pro tip: There are several online tools to help you calculate your rainwater harvesting capacity as well as your system size. <https://www.twdb.texas.gov/innovativewater/rainwater/resources.asp>

Calculating Potential Rainwater Supply

For most homes in North Texas, several rain barrels can be filled in a single rainfall event. This simple calculation will help estimate the potential amount of rainwater you can collect from each downspout or roof section during a 1-inch rainfall.

.6 gallon X square feet of roof

Conveyance Connections

Gravity moves the water collected from the roof to the storage container through gutters and downspouts, through a roof valley or down a rain chain. Because each roof-line, gutter assembly, and rain barrel location is different, your conveyance system will be custom to your unique setup.

Typically, gutter downspouts (the vertical sections of the gutter) are connected by screws or rivets. To direct the water into your barrel, a section will need to be removed and redirected so it ends directly above your barrel's top opening. If you have a seamless gutter connection (which does not use fasteners like screws or rivets), the downspout will need to be cut. This can be safely done with a hacksaw designed for cutting metal.

After you remove the downspout section, the water can be redirected into your rain barrel using the original gutter materials. Simply add an angled elbow or purchase a flexible gutter extension. These materials can be found at most local hardware and home improvement stores.

The ultimate goal is to deliver as much water to the inlet of your barrel as possible. In most rain events, the volume of the rainwater coming from the roof will exceed the capacity of a 55-gallon barrel. You likely won't harvest all of the rain that falls onto your roof, nor is it necessary for most at-home applications. Harvesting even a small percentage of the rainwater that falls on your roof can lead to big water savings.

Example

2,000 square foot roof with 1 inch rain
= 1,200 gallons water retained

1,200 gallons X 37 inches rainfall per year
= 44,400 gallons/year

A catchment area as small as 100 square feet can fill a 55-gallon rain barrel during a 1 inch rainfall event

Materials Needed for Building Your Rain Barrel

- One 55-gallon, food-grade plastic drum*
- 6-inch tracing template and marker
- Yardstick and duct tape
- Shop towel or rag
- Drill with a small pilot bit
- Jigsaw with a blade for cutting plastic
- Drill with a 1 5/8 inch hole saw
- Plastic bulkhead with 3/4-inch pipe threading
- 3/4-inch brass faucet
- Teflon tape
- Vinyl insect netting
- Clear silicone caulk

** Local feed stores or garden centers can be great places to find food-grade barrels*

1. Trace a template for your water inlet. A 6-inch round food storage container works great.



2. Drill a small pilot hole near the outside of your circle to insert your jigsaw.



3. Cut out the hole using a jigsaw blade designed for use with plastic.



4. Lay the barrel on its side and use the hole saw to make a hole about 2 inches from the bottom.



5. With the barrel upright, grab your yardstick and wrap duct tape around the end, sticky side out.



6. Secure the male end of the bulkhead with washer to the duct tape.



7. Insert the yardstick into the top of the barrel and match up the bulkhead with the hole at the bottom of the barrel.



8. Secure the washer and plastic nut on the outside of the hole, hand tightening counterclockwise.



9. Wrap faucet threads with Teflon tape and carefully install on bulkhead turning clockwise to tighten.



10. Run a small bead of silicone around your 6 inch inlet.



11. Place the insect netting over the hole.



12. Use a shop towel to smooth the silicone attaching the netting to the barrel. Allow to dry.

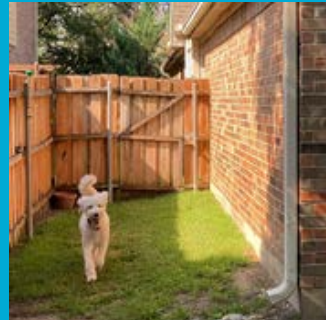


What You Need to Set Up Your Barrel

- Rake
- Shovel
- Decomposed granite, gravel, or mulch
- Cinder blocks or concrete pavers
- Level
- Hacksaw
- A screwdriver and small screw
- Flexible gutter extender

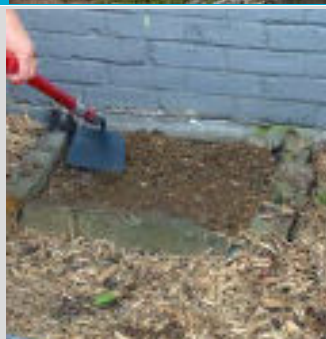
1. Find a spot to place your rain barrel

- If you have a gutter system, place the barrel near a down spout.
- If you don't have gutters, choose a spot near a roof valley where rainwater empties. These areas are typically void of mulch, with sparse vegetation. Adding a rain chain to these areas can help direct water into your barrel.



2. Prep the ground

- Level the area as needed.
- Install 1 to 2 inches of decomposed granite, gravel, or mulch to prevent erosion.
- Use cinder blocks or concrete pavers to create an 18-to-24-inch square base for your barrel to sit on. This allows for easier access for a watering can and raises the water pressure when draining your barrel.
- For safety, make sure the base is completely secure and level.



3. Install the Water Inlet

- Cut or unscrew the downspout section above the barrel.
- Use the original downspout sections or a flexible gutter extension to direct water to your barrel.
- Make sure the water inlet is secure, so it stays in place during thunderstorms.



4. Make sure the faucet is off so that your barrel will fill up during the next rain event!



Where Can Rainwater Be Used?

Watering Plants • Pots and Containers
Vegetable Gardens • Foundation Watering
Houseplants • Ponds • Aquarium • Terrariums
Birdbath • Pet Drinking Water

This is Non-potable water and should never be used for human consumption

How Much Will Your Barrel Water?

As a rule of thumb, a full rain barrel will irrigate a 10' x 10' area to a depth of about 5"-8" in the heavy clay soils of North Texas. By topdressing with compost and then applying 2"- 4" of mulch around your plants, you can reduce evaporation and help your rainwater last longer between watering. Your site's specific soil properties, the slope of your land, the amount of sunlight an area receives, and the existing soil moisture are also important considerations in estimating irrigation demands. Use a soil moisture probe to help estimate the moisture around your plants and avoid watering unless the soil is dry.

Landscape Water Efficiency

There are several ways to increase water efficiency and help your rainwater go further. Avoid giving your plants more water than they need and do not water directly after or before an expected rainfall. Only use your supplemental water during the time in between rain events, watering deeply and infrequently to encourage deeper rooting.

The types of plants in your landscape, along with their growth stages and sizes, determine the amount of water your plants need to be healthy. Because rainfall varies throughout Texas, different plants have become adapted to conditions in different regions of the state. Plants native to your region are the best choices for your landscape because their water requirements are usually met by normal rainfall amounts during most times of the year. When the right plants are incorporated into a larger area, paired with efficient irrigation and a 2"-4" layer of mulch, they require very little supplemental water. Once these plants are established, you will enjoy a lush vibrant landscape season after season, and you'll help conserve a precious natural resource in the process!

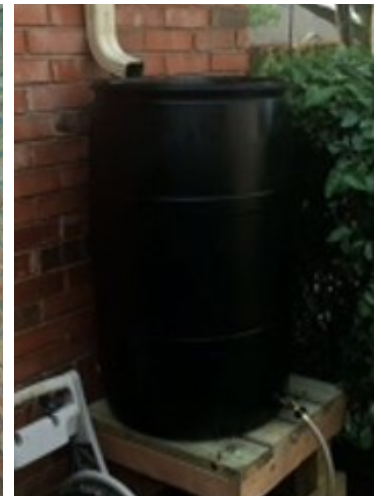
Barrel Maintenance

- Make sure your vinyl screen stays intact to prevent mosquito breeding. This may need to be replaced every couple of years.
- If there are Oak, Pecan or similar trees near your barrel, cover the supply hole or leave your barrel's faucet in the open position in early spring when they are producing flowering catkins. This happens only for a short time and will prevent acidification and yellowing inside your barrel.
- Drain your barrel if you ever notice any off colors or smells. If needed, clean the barrel using a 3% bleach solution.
- When a deep freeze is expected, drain the water from your barrel. While it is rare, this will prevent damage to your barrel or insect screen due to expanding ice.
- Periodically check your barrel for leaks around the faucet or bulkhead or for cracks to the barrel itself. Small leaks can be fixed using silicone caulk.
- Make adjustments and repairs as needed to continue the safe capture of rainwater.

Making a Splash!

There are a number of creative ways to make a barrel your own by decorating it to suit your style or camouflaging it to match your existing landscape. By painting your barrel a solid color or turning it into a work of art, covering it with a weather-proof fabric, or wrapping your barrel with wood boards or slats can transform your barrel into a beautiful and functional landscape addition. This added step reduces the sunlight that enters your barrel and thus the chances of algae growing inside.

Visit [youtube.com/waterisawesome](https://www.youtube.com/waterisawesome) for more tips on building, installing and setting up your barrel.



Water Is Awesome is a public outreach campaign promoting the efficient use and value of water in North Central Texas. Sponsors are City of Dallas Water Utilities, North Texas Municipal Water District and Tarrant Regional Water District. This publication was written and developed by Rooted In, LLC.

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