

Saving From a Rainy Day

When the temperature outside is 100 degrees it's hard to remember the last multi inch rain! What if you could use some of that fall and spring rainfall to minimize water supply needs during the hot Texas summer months? You can! It isn't complicated or expensive; just a little planning and a few supplies can get you started with rainwater harvesting.

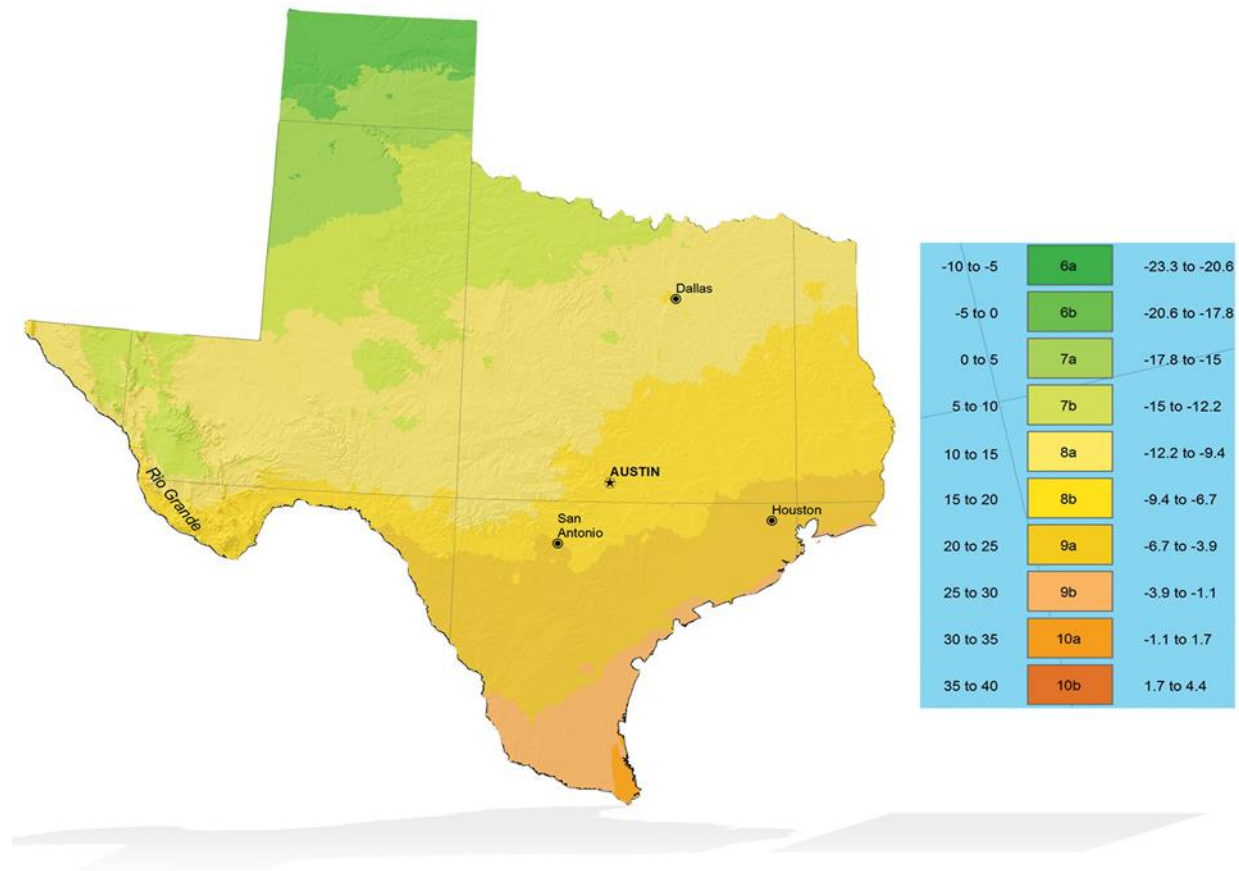
The benefits of rainwater harvesting are numerous:

- Reduces demand on municipal water supplies
- Efficient water resource
- Reduces flooding, erosion, and contamination of surface water
- Free of salts, chlorine, calcium, lime, low Ph
- Clean and free source of water
- Control over your water supply (ideal for cities with water restrictions)
- Environmentally responsible
- Promotes self-sufficiency and helps conserve water
- Reduces stormwater runoff from homes and businesses
- Solves drainage problems while providing free water
- Uses simple technologies that are inexpensive and easy to maintain
- Can be used as a main source of water or as a backup source to wells and municipal water
- Can be retrofitted to existing structure or built new
- Systems are very flexible and can be modular in nature, allowing expansion, reconfiguration, or relocation, if necessary.

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. There are also many adapted plants which thrive in our unique climate but are native to areas with similar soil types, hardiness, and rainfall patterns.

Native plants are hardy, having evolved in our (sometimes) harsh and unpredictable climate. They thrive on the soils that occur here and on the specific nutrients those soils provide. Native plants also tend to be more resistant to pest pressures of native insects and diseases common to North Texas.

Adapted plants are also hardy but have been introduced to Texas landscapes through the horticulture industry. Most often, they originate from areas with similar soil types, climates and /or hardiness zones.



- **North Texas Zone 8a**
- **Avg. Low Temp.** 10-15 °F
Record Low -8°F 1980
Record High 113°F 1980
Avg. First Freeze Nov. 22
Avg. Last Freeze March 13
Avg. Yearly Rainfall for DFW 37.54” (Can range from 20”-50”)

Rainwater harvesting can be used both in large-scale landscapes, such as parks, schools, commercial sites, parking lots and apartment complexes, and in smaller residential landscapes. Whether your landscape is large or small, pre-existing or new, the principles described here can help you install a rainwater harvesting system to meet your needs.

You will need to consider the supply (rainfall), the demand (water needed), and a system for collecting water and distributing the water to your plants.

Simple Systems:

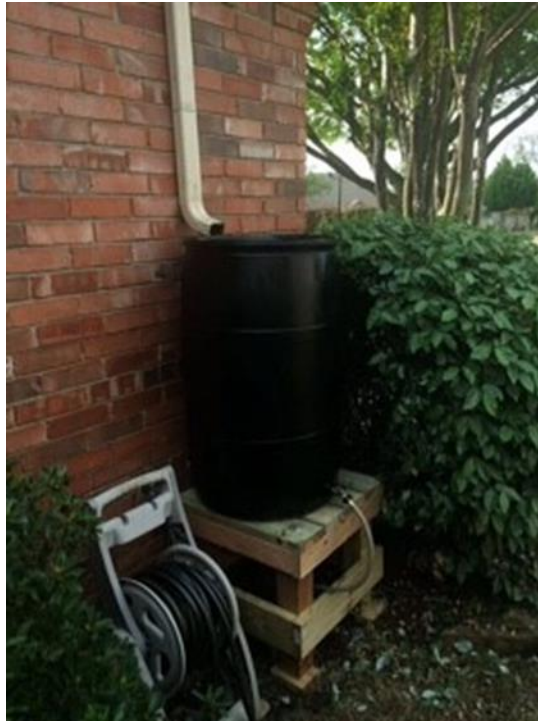
Observe the landscape during a rain to identify drainage patterns and use these to determine how to move water from catchments to plants. These could be roof, existing sloped pavements, design new sidewalk with 2% slope (1/4 in per foot), grade soil areas, design plants around foundations to slope away. Identify depressions with potential for holding water and create new ones (berms, moats, spillways, channels). Select plants based on water collection holding areas. Mulch, mulch, mulch to reduce evaporation and add organic matter to soil to improve moisture retention. Methods to harvest urban rainwater (road, roof, parking lot runoff) include berms, gabions (rocks in wire mesh), French drains, permeable paving materials, terrace grading on slopes.



Complex Systems Include catchments, conveyance system, storage, and distribution system. High yield catchments are most common, i.e. roofs, because they are hard, smooth surfaces. Conveyance systems direct water to storage containers, i.e. gutters, downspouts. Storage allows water availability when needed. Storage containers should be filtered, i.e. in-line, leaf screens. Containers can be made of polyethylene, fiberglass, wood, concrete, metal. These can be above ground or underground, however, underground containers include additional expense (pump). Distribution systems channel water to plants, i.e. garden hoses, channels, pipes, drip systems.

The most common system is rain barrels. This involves installing a barrel at a gutter downspout to collect rainwater. The actual barrel may be a recycled barrel or a new commercially available rain barrel. Pros of rain barrels include ease of implementation by homeowners, readily available in your community, stores and/or websites, and barrels don't

take up much space. There are a couple of issues with rain barrels. First the capacity is generally only 50 to 100 gallons. They also easily overflow and waste collection opportunities.



You can build or purchase your rain barrel. If you choose to build you will need a few supplies: food grade barrel, insect netting, faucet, 1.75 in. bulkhead fitting (internal pipe threading), drill, jig saw, silicone caulk, teflon tape. The Texas A&M Agrilife Research Extension in Dallas has excellent instructions on building rain barrels.

<https://wateruniversity.tamu.edu/rainwater-harvesting/rain-barrels/making-a-rain-barrel/>

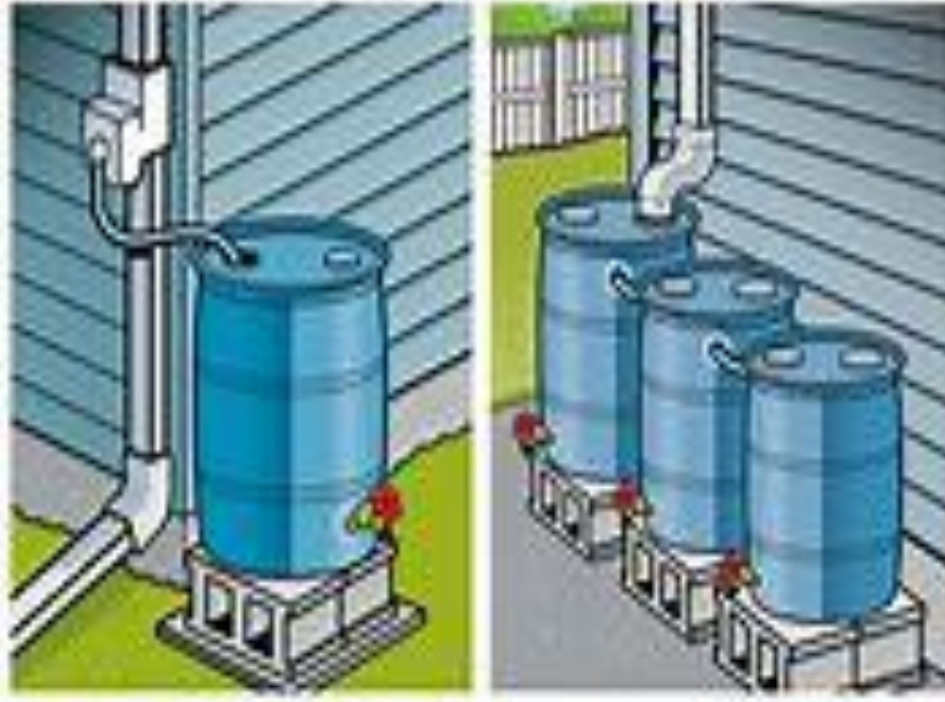
You can also purchase a rain barrel. The costs range from \$25 to several hundred dollars. Many are designed to daisy chain several together to gain larger capacity harvesting from one downspout.



Location, location, location!

Most important! Make sure the barrel is installed level and secure. A base of decomposed granite, gravel or other pervious aggregate helps prevent soil erosion around the barrel. Elevate barrel to take advantage of gravity flow; for example, place it at the higher end of a sloped lot or set them securely on top of a sturdy base like cinder blocks. The barrel should be installed in an area in which it is convenient to use, and an area near where the water is currently being directed. For homes without gutters, look for valleys in the roofline and areas underneath which have disturbed soil or mulch.

For those with a gutter system installed, reduce the length of the downspout as needed. Some can be shortened easily by removing a screw or rivet. Others will need to be carefully cut, using a hacksaw or reciprocating saw with a blade manufactured to cut thin metal. Downspout extensions, elbows, or adapters may also be necessary to divert rainwater into your barrel. This PVC version is flexible and can easily be bent towards the barrel opening.



Start with one or two rain barrels. This can demonstrate the numerous benefits of rainwater harvesting even on a small scale. For additional information or to request information about harvesting rainwater systems, contact the Texas A&M Agrilife Extension office or a Texas Master Gardener.

Resources

Cunningham, D., Dickinson, P., Woodson, D., Wolfe, C., & Ld, G. (n.d.). Texas A&M AgriLife Dallas Center. Retrieved August 15, 2019, from <https://wateruniversity.tamu.edu/>

<https://wateruniversity.tamu.edu/about/team/>

Persyn, R., Porter, D., & Silvy, V. (n.d.). Rainwater Harvesting. In *Texas Cooperative Extension, Texas A&M University* (pp. 1-28). doi:http://texasextnsion.tamu.edu

<https://www.watercache.com/education/rainwater-harvesting-101>