

# Rainwater Harvesting in Central Texas

## A Practical Guide

Rainwater harvesting gives Texans a reliable way to conserve groundwater and supplement their water supply. This guide shows how to capture and use rain for everything from gardening to drinking.

### 5 Key Benefits of Rainwater Harvesting

#### 1. RELIABILITY

A 2,000 sq ft roof can collect 40,000 gallons with a 32" annual rainfall. Unlike wells, rainwater systems give homeowners independent control and closer monitoring of their own supply—which is vital during droughts.

#### 2. COST CONTROL

As municipal water prices rise, collecting free rainwater can save thousands of dollars over time. You also avoid the cost of drilling a new or deeper well when supplies run low.

#### 3. WATER QUALITY

Rainwater is clean, soft, and mineral-free, leaving no residue on plumbing, hair, or clothes—unlike groundwater, which can be very hard.

#### 4. EASE OF TREATMENT

Rainwater is simple to treat, and RWH systems are easy to clean and maintain—with plenty of experts available if you prefer not to install or maintain it yourself.

#### 5. ENVIRONMENTAL IMPACT

RWH reduces run-off, erosion, and contamination from sediments, fertilizers and pesticides. It also prevents flooding, transforming stormwater from a hazard into a valuable water source.

### WHAT IS RAINWATER HARVESTING?

Rainwater harvesting is the practice of collecting, storing, and using rain that falls on rooftops or other surfaces. This water can be used for irrigation, livestock, or even household uses—including drinking—when properly filtered and disinfected. Systems range from simple barrels for gardening to fully integrated potable systems for entire homes.

### WHY HARVEST RAINWATER IN CENTRAL TEXAS?

Central Texas is experiencing more and more frequent droughts, rapid population growth, and an increasingly stressed and limited groundwater supply. In rural areas, residents often depend on wells that are unable to recharge quickly, may have poor water quality, and can be at risk of drying up entirely. **Fortunately, the region typically receives 25–35 inches of rainfall per year—enough to supply a household if captured and stored effectively.** Rainwater harvesting turns unpredictable storms into a reliable water source.

| Feature       | 20,000-Gallon Rainwater System                             | Drilled 450' Well System                   |
|---------------|--|--|
| Initial Cost  | \$24k-\$35k*   | \$50k-70k+<br>(deeper = more \$)           |
| Reliability   | High (with good design)                                    | Variable<br>(risk of going dry)            |
| Water Quality | High, easy to treat  | May require advanced treatment or softener |
| Maintenance   | Low (annual UV light changes and quarterly filter changes) | Moderate<br>(pump, testing)                |
| Permitting    | Simple local codes   | May require well permits                   |

\*2025 cost estimates



Image Source: Harvest Rain

## RAINWATER HARVESTING FOR OUTDOOR USE

If you're using rainwater for gardens or landscaping, storage needs depend on your plants, landscape size, and how much rain you can capture. Most rainwater users collect **more water than they can store**, so tank size is usually based on budget and space—not catchment potential. Harvesting rainwater for nonpotable use is also more affordable, since it doesn't require treatment to drinking water standards.

### Suggested Tank Sizes and Costs

| Landscape Type                                   | Suggested Tank Size | Estimated Cost*<br>(Materials + Install) |
|--|---------------------|--|
| Small garden beds, flowerbeds                    | 300-500 gallons     | \$800-\$1,500                            |
| Medium drought-tolerant landscape (~1,000 sq ft) | 400-1,000 gallons   | \$1,000-\$2,000                          |
| Large gardens or mixed use                       | 1,000-2,500 gallons | \$1,800-\$4,500                          |
| Turf or high-water ornamentals (discouraged)     | 3,000-5,000 gallons | \$4,500-\$8,000+                         |

\*Estimated costs in 2025

### How Much Outdoor Water Should You Plan For Irrigation?

1 inch of rain on 1,000 sq ft of roof = ~600 gallons

Plan for a 2-3 inch storm: ~1,200-1,800 gallons per 1,000 sq ft

### DO THE MATH!

Want to know how much rain you can generate? Use this calculation:

Catchment area (sq ft) x rainfall (in.)  
x 0.623 (conversion factor)  
= harvested water (gal)

### How Much Do You Use?

Conservation-minded households use 40-60 gallons per person per day—around 3,000 gallons per month for two people. For year-round reliability, plan to store 3-6 months of water.



### QUICK TIP

Catchment from garages or carports can boost collection potential significantly.

## RAINWATER HARVESTING FOR INDOOR USE

If rainwater is your primary or backup drinking water source, you'll need enough storage to meet daily needs and cover gaps between rain events. Rainwater harvest for potable use is a larger investment, as they require treatment to meet higher water quality standards.

### Recommended Tank Sizes and Costs

| Household Size | Recommended Storage   | Estimated System Cost* |
|----------------|-----------------------|------------------------|
| 1-2 people     | 10,000-15,000 gallons | \$20,000-\$30,000      |
| Family of 3-4  | 20,000-30,000 gallons | \$30,000-\$45,000+     |
| Larger homes   | 30,000+ gallons       | \$45,000-\$60,000+     |

\*2025 cost estimates cover tank(s), conveyance, filtration, disinfection (UV or chlorine), pump system, and professional installation. DIY systems save money but require more time and skill.



## FINDING THE RIGHT FIT



A 1,000-gallon tank can support a medium-sized landscape.  
Image Source: Texas Metal Tanks



20,000-gallon tank measuring 22' in diameter, 7'2" tall.  
Minimum recommended for a family of four. Image Source: Harvest Rain

## RAINWATER HARVEST 101: CORE COMPONENTS

### CATCHMENT AREA

The surface from which rainwater is collected - such as a roof or carport. The size of the catchment area determines the volume of rainwater that can be harvested.

### CONVEYANCE SYSTEM

Structures such as gutters or downspouts which channel rainwater into the storage system. For best results pay attention to sizing, proper installation, and appearance.

### STORAGE TANKS

Commonly referred to as barrel, cistern or tank, these come in a variety of materials, shapes, and sizes. Materials include steel/metal, concrete, wooden, fiberglass, and polyethylene/ polypropylene (plastic). Allow for overflow and design accordingly to prevent erosion. Supply lines feeding cisterns should remain dry after a rainfall event. Make sure you have a level, solid surface on which to place your storage tank.

### TREATMENT

These applications will protect your rainwater from debris and contaminants. Landscape-only systems need minimal treatment, such as fine mesh gutter guards, a first flush device to remove debris that comes with the first few gallons of runoff, and a screen at the tank inlet or downspout. Complete household systems also require filtration to remove microorganisms and sediment, plus disinfection light UV light or activated charcoal to ensure safe water.

### DISTRIBUTION

This includes pipes, pump, pressure tanks or anything else that is needed to transport stored water to where it will be used.

### MAINTENANCE

Once installed, it is important to perform regular maintenance on your system. Check gutters and gutter guards regularly to prevent debris from entering the pipe systems. Inspect the screen on top of the tank or barrel frequently to keep debris and mosquitoes or other insects from entering.





# GETTING STARTED

**1** Assess your monthly water needs in gallons. Using a water demand calculator is a good starting point.

Scan to use Texas A&M's water demand calculator!



Click here

**2** Calculate the square feet of your roof catchment area and potential rainwater capture. A general rule to calculate how much water you can capture is 0.62 gallons per square foot of covered space per inch of rain. For a good resource on average annual rainfall in your region, check out the TWDB Map below.

**3** Consult a qualified installer or attend a rainwater harvesting workshop. An expert can help you size your system, design it, and support the installation. For a DIY option, check out the Rain Bees website: rainbees.com

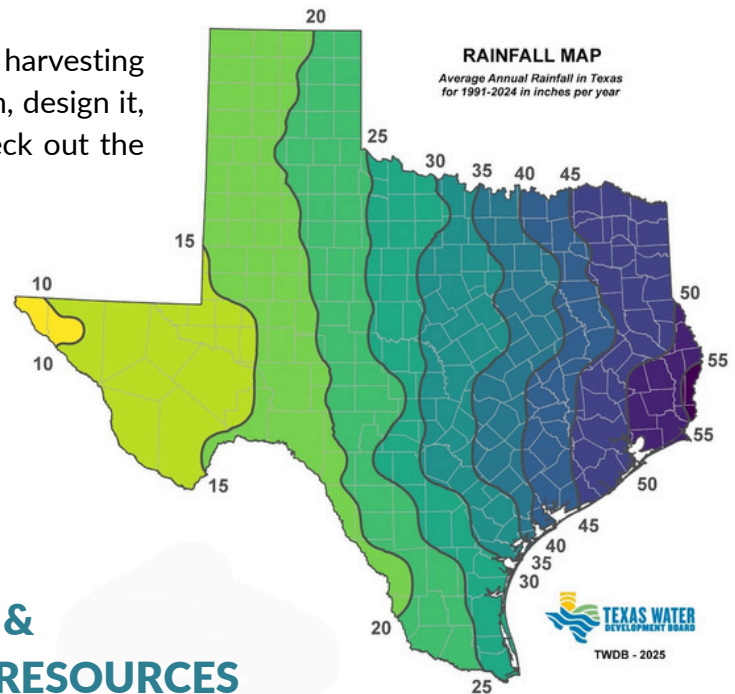
## Not ready for a full system? Try rain barrels!

You can harvest rainwater on a small scale using simple rain barrels. These systems are ideal for watering patio plants, filling birdbaths, or washing tools—especially in urban or suburban settings. A rain barrel is a container (typically 50–100 gallons) placed under a downspout to capture rainwater from your roof. Most come with a spigot or hose connection and a screen to keep out debris and mosquitoes. DIY barrels can cost under \$100 and the installation is fairly simple. Plus, you can link multiple barrels for increased capacity.

For step-by-step instructions on setting up rain barrels, check out this video from the Trinity Glen Rose GCD:



Click here



## TECHNICAL & FINANCIAL RESOURCES

**Providers & incentives:** HCA maintains a list of local rainwater harvesting specialists—scan the QR to the right to access it. While this list is a great starting point, we also recommend contacting your local groundwater conservation district, county, or city to locate additional providers and incentives.



Click here

**Design & installation guide:** The Texas Manual on Rainwater Harvesting, published by the Texas Water Development Board (TWDB), is a comprehensive guide that provides best practices, design considerations, and regulatory information to support the collection and use of rainwater as a water source across Texas.

**Workshops:** Local master naturalists and gardener groups, water utilities, Texas A&M AgriLife Extension offices, groundwater conservation districts, or local river authorities may offer workshops on rainwater harvesting. Contact your local groups for information on upcoming workshops.

