



Fact Sheet Harvesting Rainwater Landowners & Others



United States Department of Agriculture
United States Department of the Interior

Exploring Benefits of Water Harvesting

Is a low-cost supply of clean and quality water important to you?

Are you interested in water conservation?



If you answered “yes” to either of these questions, it’s time to explore the benefits of harvesting and storing rainwater to supply to your home, livestock, garden area, use as supplemental fire protection, as well as many other uses.

Rainwater harvesting is the collection and storage of precipitation for future use. Harvesting rainwater can reduce the dependency on groundwater and city water supply.

- **Collection** - The catchment area is the first point of contact for rainfall, which is primarily a rooftop with metal or shingle material.
- **Transport** - Gutters and downspouts are used to move water into the storage tank. Overflow pipe is used to move excess water away from tank.
- **Storage** - Container to hold water for later use, either cistern or tank.
- **Treatment** - Ensures water is safe to drink, consists of a sediment filter, charcoal filter, and ultraviolet light to kill bacteria.
- **Distribution** - Moves water from storage and treatment to point of use, can be either gravity flow or pumping system.



How much water can be captured from a rooftop?

The runoff coefficient of a 1 ft Length x 1 ft Width x (1/12) ft Height x 7.48 (gal/cuft) equals 0.623, therefore, a rooftop with a coverage area of 1,000 sq ft will yield approximately 623 gallons of water from a 1 inch rainfall event. If the average rainfall is 20 inches, the rooftop will yield approximately 12,460 gallons of water per average year.

How much water do I need to store:

This depends on the intended use, for a home, a typical family of 4 will use around 300 gallons of water without any conservation strategies being implemented. A 60 day water supply equals approximately 18,000 gallons. An average home size with a 2,200 sq ft roof area could yield 1,370 gallons from a 1 inch rain event (2,200 sq ft x 0.623 x 1 in). Thirteen inches of rain on the same roof would be needed to fill 18,000 gallon storage tank.

65,000 gallon storage
Parker County
Sheriff Posse
Weatherford, Texas



100 ft x 300 rooftop
18,690 gallons
from 1 inch rain

For more information please visit the websites below:

- Visit the American Rainwater Catchment Systems Association <https://www.arcsa.org>
- Visit the Texas A&M Water Harvesting website at: <https://rainwaterharvesting.tamu.edu>
- Visit the Southern Plains Perspective website at: <https://southernplainsperspective.wordpress.com>
- Visit the Southern Plains BIA at: <http://www.bia.gov/regional-offices/southern-plains>

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Frequently Asked Questions

How long can rainwater be stored?

Up to one year if storage tank is located in a cool, shaded location and is treated. If stored in the sun and stays stagnant, one week.

What are common uses of rainwater?

Anything one is using water for, but here are a few examples: Irrigation, livestock water, in home use, fire protection, car wash station, rain garden, drinking water*, with many other uses.

**In home use and drinking water require treatment*

How long has rainwater harvesting been in existence?

In Texas, the Mescalero Apaches used natural rainwater catchment systems near El Paso 10,000 years ago. (The Brethren of Cisterns by Robert Bryce).

What are a few concerns with rainwater harvesting?

- Rainfall events can be unpredictable
- Initial cost can be expensive
- Maintenance is required between rainfall events
- Storage tanks take up space

What is typical start up cost for a single family home? Typically, start up cost for a single family home will range from \$8,000 to \$10,000, with the storage tank being the largest expense.

How do I determine how much water will runoff my roof?

Multiply the square footage of roof coverage by 0.5 to obtain gallons of runoff, factoring in friction loss, from a 1 inch rain event. e.g.: 1,000 sqft x 0.5 = 500 gallons



H2O Info

The information here is for educational purposes only and not an endorsement by the USDA or BIA

For more information on water conservation and other climate initiatives please contact:

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Visit the American Rainwater Catchment Systems Association <https://www.arcsa.org>



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