

Estimating Rainwater Capacity Needs Examples of Water Usage

It is important to attempt to match the projected volume (with normal rainfall) of your rainwater collection system to the plant or animal needs of the system. For example, it is not wise use of collected water to only provide 10 percent of a large tree’s needs when it could have been used to meet the needs of a small, developing tree or shrub.

The numbers below are simply a starting point for the approximate water needs of a few selected plants. Obviously there are many factors affecting the specific requirement for any plant. The amount of water needed by young trees, mature trees, shrubs, flowers, low water use native plants, or vegetables depends on several factors. Soil type, exposure, plant species, plant maturity, cultural practices and weather conditions are just some factors that influence moisture demands.

THESE NUMBERS ARE NOT FOR IRRIGATION PURPOSES.

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| 1. Mature pecan tree | approx. 700-1400 gallons/week |
| 2. 20 foot Oak tree | approx. 700 gallons per week |
| 3. Mesquite tree | approx. 140 gallons per week |
| 4. Texas Sage | approx. half gallon per week |
| 5. Yucca | approx. 1 gallon per week 1 st year then
approx. 1 gallon every 2 or 3 weeks |
| 6. Crepe myrtle | approx. 1 ½ gallons per week |
| 7. Lantana | approx. ¾ gallons per week |
| 8. Tomato | approx. 1 gallon twice a week |
| 9. Squash | approx. 1 gallon once a week |
| 10. Beans | approx. 2 gallons twice a week |

Websites

- <http://www.aggie-horticulture.tamu.edu>
- <http://www.colostate.edu/drought/vegetable>
- <http://arborday.org/trees/tips/watering>
- <http://www.noble.org/ag/horticulture/pecans>
- <http://www.alamac.com/content/when-water-vegetables>

Estimating Tree Water Needs

(David Graf, Extension Agent, Wichita County)

Determining water needs for any plant is at best a guess due to variance in soil type, soil depth, plant species, changes in wind and temperature... and on and on. But I feel it is very important we attempt to 'guesstimate' how much water we might need to help protect our trees, considering water hauling, rainwater (we hope), and well water of decent quality is available for some.

If we assume our NORMAL, AVERAGE rainfall of 28 inches per year has been adequate to keep our trees healthy and growing you might try this calculation to estimate water needs. I have a large, mature pecan tree that is 40 feet from one side of the canopy to the other. That is a 20 foot radius. To find square feet: Area = radius X radius X 3.14, so the square footage of this tree is: 20' X 20' X 3.14 = 1256 sq.ft.

A one inch rain yields .62 gallons of water per sq. ft. so a 1 inch rain would provide this many gallons to this tree: 1256 sq. ft. X .62 gallons = 778 gallons

If we multiply 778 gallons per 1 inch rain, times 28 inches per year, this tree theoretically has received about 21,804 gallons per year with NORMAL rain. If this tree has had access to lawn irrigation, that number goes up. By the way, tree roots need water in the winter as well as summer.

****Mature pecan trees may require over 2,000 gallons of water per week.**

Evaluating Pecan Problems October, 1995 by George Ray McEachern, Extension Horticulturist, Texas A&M University

****Gallons per week- Dwarf yaupon holly ½; Purple sage ½; Lantana 1; Crape myrtle 1 ½**

Plant Water Requirement Study, Keith Owens, professor of range ecology, Texas A&M University Ag Research Center in Uvalde

****Peach trees-** mature 7-8 year old trees may need 30-40 gallons water per day in summer with fruit.

Peach trees 4-5 years old may need about 18-24 gallons per day.

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