

# Watering your Tucson garden: Are you doing it right?

As this monsoon is demonstrating, our rainfall in Tucson is very variable. This makes it a challenge for gardeners to figure out how much to water their plants throughout the year. These watering tips and tricks will help you use water most efficiently. Plants' watering needs will vary depending on the season. Your soil also matters, as do the microclimates in your yard and the plants you have. Tucson has two seasons when we can expect precipitation: winter and the wet summer (or monsoon). As much as 70% of residential water use is used for landscaping, according to the Arizona Department of Water Resources. The water we use is fully treated potable water – not the best use of resources. If you want to be smart about your water use, here are some basics of watering in our variable desert.

## General tips

- The hottest and driest part of the year is our dry summer, roughly May and June. This is when plant water demand will be the highest. However, the length of this period varies greatly depending on the start and vigor of our monsoon.
- The microclimates in your yard will influence how much water your plants use. Plants will lose more water in sunny and/or windy areas than in shady, sheltered areas.
- The more organic matter your soil has, the more

moisture it will hold. Mulch will also help keep soil moist and reduce watering frequency.

- In our climate, drip irrigation is the most efficient way to deliver water to plants. A programmable drip irrigation system allows you to adjust the frequency of waterings with very little effort on your part.
- Alternate sources of water, such as rainwater harvesting, greywater harvesting, and (if possible) use of reclaimed water can help you water your plants much more efficiently and cut down on our water waste.

- Be careful not to overwater your plants. This is difficult in our summer, but can happen, and the symptoms are similar to underwatering (limp leaves). Be particularly careful about your containers, and make sure they have open drainage holes.
- When the thermometer reaches over 100 and the sun is high, don't be surprised if your smaller containers need daily watering – or even twice daily. To reduce their watering needs, use pots that are at least 24 inches around and deep, and mulch your pots.

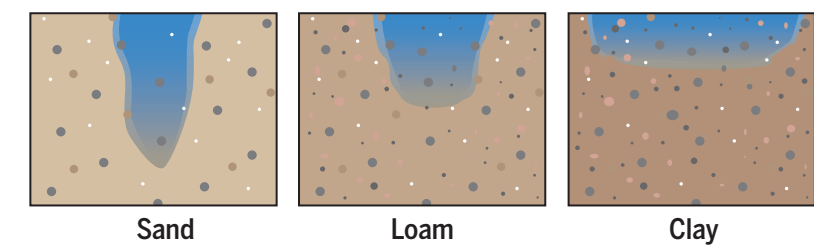
- Get an inexpensive outdoor thermometer with multiple sensors that you can hang in different parts of your yard. These will let you know the high and low temperatures in your yard and help you figure out some details about your yard's microclimates.

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## The type of soil you have matters for watering

Soil comes in different textures, which depend on the percentage of sand, silt and clay. Soil with different textures absorbs different amounts of moisture. A loam soil has approximately equal amounts each of sand, silt and clay. Water penetrates differently into different types of soil (see illustration). For that reason, it's helpful to determine the type of soil you have in your yard. You can do this easily with the jar test shown below. Keep in mind that you may have different soil types in different areas of your yard, so test your soil in at least two different places.

### Comparative wetting patterns for different soil types



One inch of water applied to the soil surface will penetrate approximately 12 inches in sand, approximately 7 inches in loam, and approximately 5 inches in clay soil.

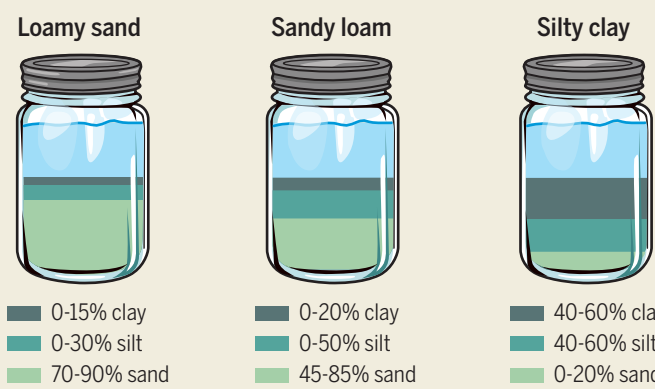
SOURCE: Landscape Watering by the Numbers handbook from the Water Use It Wisely campaign. [tucne.ws/1kw9](http://tucne.ws/1kw9)

## Jar test for soil

This test is easy to do at home and will give you an approximation of the type of soil you have.

1. Fill a large, clear glass jar half full with soil.
2. Fill the remaining half with water, leaving 1 inch of air.
3. Attach lid securely and shake jar vigorously.
4. Set jar down and leave undisturbed overnight.
5. Measure total height of soil and height of each layer. Divide each layer height by total height of soil column and multiply by 100 to get % of each component.

**Sand:** \_\_\_\_\_ ÷ \_\_\_\_\_ inches x 100 = \_\_\_\_\_ % Sand  
**Silt:** \_\_\_\_\_ ÷ \_\_\_\_\_ inches x 100 = \_\_\_\_\_ % Silt  
**Clay:** \_\_\_\_\_ ÷ \_\_\_\_\_ inches x 100 = \_\_\_\_\_ % Clay

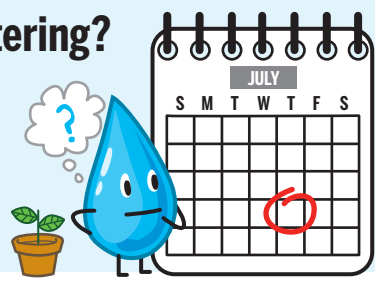


6. Use the percentages calculated to determine which of the three soil type profiles above most closely matches your soil components.

SOURCE: Landscape Watering Guidelines from the city of Tucson and Tucson Water. [tucne.ws/1kr8](http://tucne.ws/1kr8)

## Need help figuring out your monthly watering?

The city of Tucson has lots of great resources to help you figure out how much to water each month. Check out seasonal watering and landscape resources at [www.tucsonaz.gov/water/landscape](http://www.tucsonaz.gov/water/landscape) for a helpful graphic that tells you how much to water each type of plant every month. You can also sign-up for monthly watering reminders by texting Tucson WaterWiser to 468311.



## Landscape watering guidelines

**How much and how often:** Water to the outer edge of the plant's canopy and to the depth indicated. Watering frequency will vary depending on season, plant type, water and soil.

PLANT TYPE		Seasonal frequency—Days between waterings					Water this deeply (Typical root depth)
		SPRING March-May	SUMMER May-Oct.	FALL Oct.-Dec.	WINTER Dec.-Mar.		
Trees	Desert adapted	14-30 days	7-21 days	14-30 days	30-60 days	24-36 inches	
	High water use	7-12 days	7-10 days	7-12 days	14-30 days	24-36 inches	
Shrubs	Desert adapted	14-30 days	7-21 days	14-30 days	30-45 days	18-24 inches	
	High water use	7-10 days	5-7 days	7-10 days	10-14 days	18-24 inches	
Small plants and vines	Desert adapted	14-30 days	7-21 days	14-30 days	21-45 days	8-12 inches	
	High water use	7-10 days	2-5 days	7-10 days	10-14 days	8-12 inches	
Cacti and succulents		21-45 days	14-30 days	21-45 days	if needed	8-12 inches	
Annuals		3-7 days	2-5 days	3-7 days	5-10 days	8-12 inches	
Warm season grass		4-14 days	3-6 days	6-21 days	15-30 days	6-10 inches	
Cool season grass		3-7 days	none	3-10 days	7-14 days	6-10 inches	

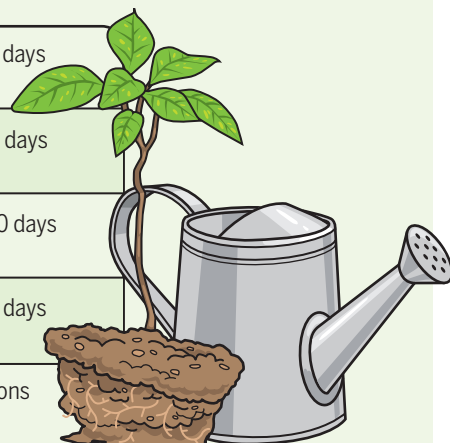
These guidelines are for established plants (1 year for shrubs, 3 years for trees). Additional water is needed for new plantings or unusually hot or dry weather. Less water is needed during cool or rainy weather. Drip run times are typically 2 hours or more for each watering.

SOURCE: [wateruseitwisely.com](http://wateruseitwisely.com)

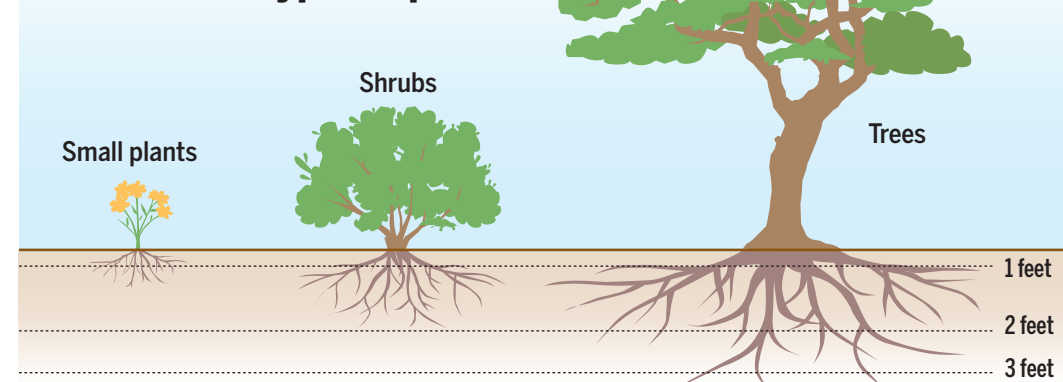
## Watering schedule for new plants

Wondering how much to water that new plant? Here are recommendations for a watering schedule from the Pima County Master Gardeners:

<b>Weeks 1 &amp; 2</b>	Water every 1-2 days in summer, every 3-4 days fall through spring
<b>Weeks 3 &amp; 4</b>	Water every 3-4 days in summer, every 6-7 days fall through spring
<b>Weeks 5 &amp; 6</b>	Water every 4-6 days in summer, every 7-10 days fall through spring
<b>Weeks 7 &amp; 8</b>	Water every 7 days in summer, every 10-14 days fall through spring
<b>After week 8</b>	Gradually extend the time between irrigations until plants are established

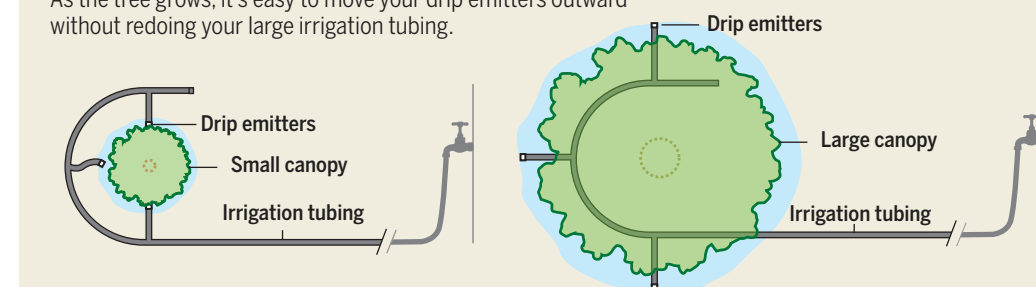


## Suggested water depth for different types of plants



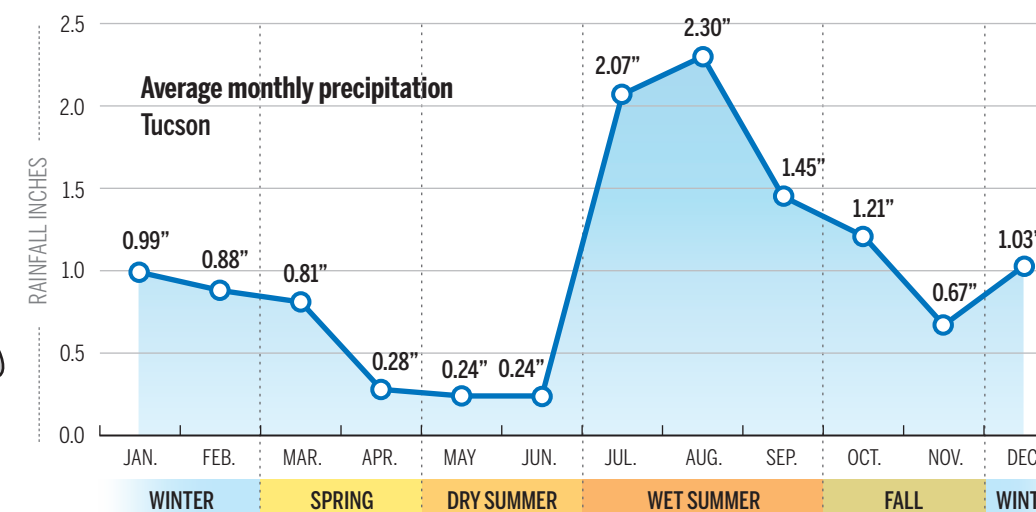
## Irrigation set up

If you're planting a small tree, plan ahead with your irrigation. You will need to move the water emitters out as the tree grows so you are watering at the edge of the tree's canopy. An easy way to do this is to have a section of j-shaped irrigation tubing around your tree, as shown here. As the tree grows, it's easy to move your drip emitters outward without redoing your large irrigation tubing.



## Tucson's seasons and precipitation

Tucson has two seasons during which we get most of our precipitation: the winter (November-March) and the wet summer or monsoon. We get little precipitation in the spring and dry summer, while our fall precipitation is variable.

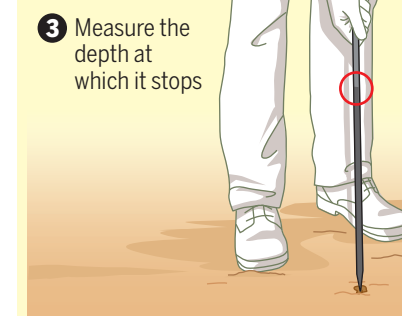
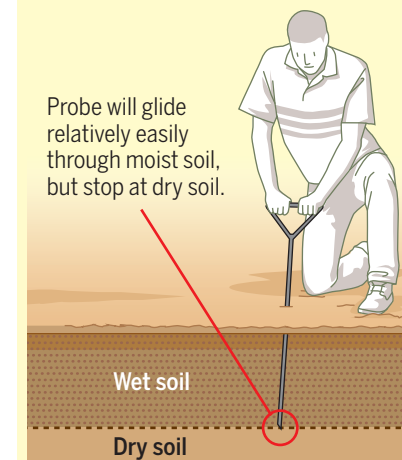
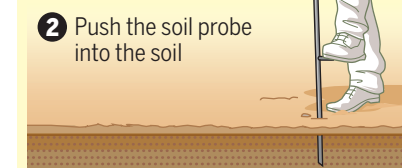


SOURCE: [www.rssweather.com/climate/Arizona/Tucson/](http://www.rssweather.com/climate/Arizona/Tucson/)

## How long should you water?

The duration that you should water your plants depends on the type of soil you have, how your irrigation system is set up, and some other factors unique to your yard. Fortunately, it's pretty easy to figure out how long you need to water for, and you only need to do this once!

1. Turn on your irrigation system for 30 minutes. After 30 minutes, walk around with your soil probe and check the depth of watering for your various plants:



How deep did the 30 minutes of watering go? Check all of your plants. You want to water small plants down to 12 inches, shrubs down to 2 feet, and trees down to 3 feet. So if after 30 minutes the soil around a shrub is wet down to 12 inches, you will want to water for 60 minutes per watering. Note that this duration stays the same throughout the year. As the weather changes, you change the number of waterings per week, not the duration.

SOURCE: University of Arizona Cooperative. [tucne.ws/1kr7](http://tucne.ws/1kr7)

## Watering tips

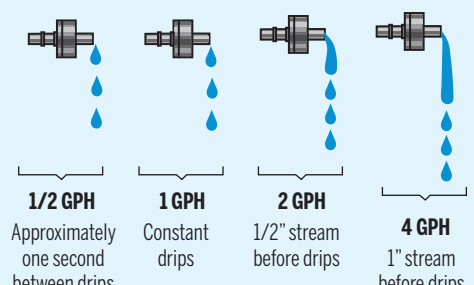
- Avoid watering during the hottest part of the day (11 a.m. to 4 p.m.) to reduce water loss to evaporation.
- Use a drip irrigation system to water. This is the most efficient system in our climate.
- Planting densely can make your water go further. Plants do well when sharing water. Consider planting under trees to take advantage of shade. Native legumes such as palo verde and mesquite also produce nitrogen, which benefits plants growing alongside them.
- If you're setting up an irrigation system from scratch, place plants with different water needs on different water "circuits." For instance, shrubs, trees and annual plants all have different water needs. Your vegetable garden and container plants should also be on a separate circuit, as should any water-intensive non-native plants.

## Suggested drip emitter quantities

	Canopy diameter (feet)	Number of emitters	Emitter flow rate (GPH)
Trees	7-10	3-5	2-4
	11-14	4-6	2-4
	15-20	6-12	2-4
	21+	12+	4
Large shrubs	4-6	2-3	2
Small shrubs/ small plants	1-3	1	1

## Estimating emitter flow

Use this visual to estimate emitter flow rates in gallons per hour (GPH)



SOURCE: [wateruseitwisely.com](http://wateruseitwisely.com)

## Helpful Links

- For a thorough guide to water needs for every kind of plant you can imagine, take a look at Brad Lancaster's Water Requirement Calculations for Tucson: [tucne.ws/1kyh](http://tucne.ws/1kyh)
- For a primer on drip irrigation, see Drip Irrigation Basics from the University of Arizona's Extension office: [tucne.ws/1kyo](http://tucne.ws/1kyo)
- For a monthly watering schedule, check out this resource from Arizona Municipal Water Users Association. You can sign up for month-specific guidelines by text. [tucne.ws/1kyp](http://tucne.ws/1kyp)
- Interactive watering guides from Water Use It Wisely: [tucne.ws/1kyq](http://tucne.ws/1kyq)
- For more tips on correct watering, salt buildup and how to prevent it, and signs of overwatering: [tucne.ws/1kyr](http://tucne.ws/1kyr)
- For a free water efficiency audit from the city of Tucson's Zanjero program take a look at [tucne.ws/1kys](http://tucne.ws/1kys)