

Preparing your Landscape for a Drier Climate

Our increasingly extreme climate and soil conditions certainly make life a challenge for landscape plants. Soil and water salinity, sun intensity, and heat all amplify drought impacts in the desert southwest.

Water efficiency in our landscapes is increasingly important. With sensible planning and proper all-around maintenance, we can continue to enjoy thriving outdoor spaces.

Plant selection – the right plant for the right place!

- avoid marginal species that really belong in landscapes elsewhere
- the best plants for our desert landscapes have adaptations that help ensure that they thrive
 - small leaf size – reduced surface area minimizes loss of moisture to air
 - leaf color/covering – leaf hairs, resins, light colors
 - leaf orientation – steeper angles reduce surface area subjected to solar radiation
 - ability to store water in tissues – leaf, stem, and root succulents
 - ability to drop leaves in times of drought – this stops loss of moisture through foliage
 - photosynthetic stems – (stems lose less water than leaves) if leaves drop, some photosynthesis can still occur
 - extensive root systems – mainly near soil surface, with some deep roots in trees
 - salt tolerance – adapted to salty soils

Planting – make sure plants get the best possible start to develop into strong mature plants

- planting hole should be at least 2-3 times the width of the rootball, and no deeper than the rootball
- roots should be healthy
 - shave excess/circling roots from rootball
 - prune larger circling or kinked roots from rootball
- fall planting allows roots to begin establishing in warm soil, and plants are stronger going into their first summer

Mulching and soil health – healthy soil supports healthy roots, and healthy plants

- either inorganic (rock, etc.) or organic mulch can be used, but organic mulch will provide more benefits that will support plants in drier conditions
- organic mulch conserves moisture, helps keep soil cooler, provides nutrients to be cycled back into the soil, and supplies an energy source for microorganisms and other beneficial soil life
 - insulates and protects soil from drying
 - suppresses weeds that can compete for water and nutrients
 - assist the soil below to absorb water faster
 - encourages mycorrhizal activity
 - mycorrhizae, or “fungus roots,” colonize plant roots, helping them absorb water and nutrients more efficiently
 - reduces soil compaction
 - placed around trees - helps keep mowers and weed-eaters away from trunk
 - keep mulch 4-6” away from tree trunk
 - fresh chipped wood is best – carbon-rich fuel for microbes
 - compost is a poor mulch – carbon-depleted, can bind water and/or wick it away from soil

Watering practices – deep and infrequent!

- get roots established – all plants will require supplemental water for at least the first summer!
- apply sufficient water to penetrate deep enough into the soil profile to encourage full root development of all plants, making them more drought tolerant
 - mature trees: ~ 3' deep
 - mature shrubs: ~ 2' deep
 - matures perennials, groundcovers, succulents: ~1' deep
- apply water at the dripline (edge of plant canopy) where the actively absorbing roots are found
- use efficient technology such as smart controllers and pressure-compensating drip emitters for landscape plants
 - controller programming – know your soil conditions and plant needs
 - adjust the programs to accommodate
 - change of seasons
 - maturity of plants
 - deep watering
 - cycle-and-soak to avoid water runoff
 - text WHERETOWATER to 33222 for monthly reminders and watering suggestions
 - inspect your system frequently for leaks, breaks, clogs, and proper emitter placement
- incorporate rainwater harvesting/rain gardens – rainwater is a *salt-free* source of water
 - contour the soil to slow movement of water and allow it to soak in, rather than running off property (becoming stormwater)
- **don't overwater** – overwatering will make plants less drought tolerant
 - trees previously subjected to light water stress (elongated periods between sufficiently deep waterings) might be more drought tolerant
- recycle indoor-water outdoors – use a greywater system

Maintenance - healthy plants are better able to withstand drought

Plants need their natural canopy of leaves to be healthy and endure periods of drought.

- plants make their food through the process of photosynthesis, which mainly occurs in the leaves
 - removing foliage (shearing shrubs, over-pruning trees and palms), diminishes the food-making capacity of the plant, which weakens it – weakened plants will suffer in drought
- **proper pruning**
 - shearing shrubs, over-pruning trees – stresses plants, requiring more water as they try to recover
 - limit or eliminate pruning trees during drought, they also need their canopy to provide shading
 - removing stems removes stored energy (food sources produced through photosynthesis)
 - pruning is wounding (opens tree to infection), which can be more serious during drought
 - pruning redirects energy and tree hormones (focus is on recovery, not regular functioning)
 - pruned trees have less ability to make defense chemicals, making them more vulnerable to disease, insect infestations, and root rot pathogens
 - when possible, leave lower branches for tree vigor and to offer more shade to the trunk
- **fertilizing**
 - limit fertilizing during dry periods – fertilizers are salts, and can further limit root ability to absorb soil moisture, and might even cause burning of roots
- **lawns**
 - proper watering – infrequent and deep (6-8"), using rotors rather than spray heads

- water cutbacks – Bermuda can go drought dormant, and revive when watered again
- dethatching and aeration allow for better water percolation, and stronger roots
- alternatives – buffalograss, xoyisia, and Kurapia require less water than Bermuda turf
- don't overseed – Bermuda will remain more vigorous if not stressed by the process of

- pest control

- any pest infestations or diseases will increase plant stress, and dry conditions will have a greater impact on the plant

Miscellaneous considerations to help plants

- place plants in groups, rather than isolated plants scattered through the yard
- permeable surfaces allow more rainwater to infiltrate soil rather than add to stormwater runoff
- *prioritize landscape plants if restrictions are implemented – trees are the most valuable plants in your landscape, along with shrubs
 - lowest priority and most expendable (easiest to replace) would be annuals or perennials

Helpful links for additional information and resources

Arizona Municipal Water Users Association (AMWUA)

<https://www.amwua.org/>

Plants for the Arizona Desert

<https://www.amwua.org/plants>

Xeriscaping: Landscaping with Style in the Arizona Desert

<https://www.amwua.org/landscaping-with-style>

Landscape Watering

<https://www.amwua.org/landscape-and-garden/landscape-watering-for-the-arizona-desert>

Text WHEWTOWATER to 33222 (to receive a text with a link to the month's watering guidelines on the first of the month)

Water - Use It Wisely

<https://wateruseitwisely.com/>

Water - Use It Wisely Interactive Watering Guides

<https://wateruseitwisely.com/saving-water-outdoors/interactive-watering-guides/>

Interactive Plant Watering Guide

Interactive Lawn Watering Guide

Landscape Watering by the Numbers flipbook

Water - Use It Wisely Rainwater Harvesting

<https://wateruseitwisely.com/saving-water-outdoors/rainwater-harvesting/>

University of Arizona Publications

Drought and Extreme Heat: Plant Responses and Landscape Maintenance Practices az1876-2021

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1876-2021.pdf>

Drip Irrigation: The Basics az1392-2016

https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1392-2016_0.pdf

A Study of Irrigation Requirements of Southwestern Landscape Trees az1741-2017

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1741-2017.pdf>

Landscape Management Practices to Optimize Passive Rainwater Harvesting and Plant Health
az1916-2021

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1916-2021.pdf>

Harvesting Rainwater az1344

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1344.pdf>

Planting Guidelines: Container Trees & Shrubs az1022

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1022.pdf>

Pruning Deciduous Shade Trees az1139-2015

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1139-2015.pdf>

Pruning Shrubs in the Low and Mid-Elevation Deserts in Arizona az1499-2016

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1499-2016.pdf>

Converting Turf to a Xeriscape Landscape: How to Eliminate a Bermudagrass Lawn Using Glyphosate
az1371

<https://extension.arizona.edu/sites/extension.arizona.edu/files/pubs/az1371.pdf>