

Design Ideas

Water conservation is an important consideration when gardening in the Western United States. A practice used to improve water conservation is xeriscaping. The term was coined by Nancy Leavitt from the Denver Water Department in 1981 from the Greek word “xeri” for dry, and “scape”, meaning view or scene. Hence, Xeriscaping is the conscious planting of plants compatible with the natural environment. With the desert environment, succulents are a natural choice due to their low water requirements compared to other plants.



Tips for a Southwest Succulent Garden

- Use drip irrigation and group plants based on irrigation needs.
- Use permeable paving materials such as pervious concrete, natural stone and concrete pavers to avoid water runoff.
- Dry Creek Bed can be a useful addition to the garden and can also act as water retention tanks.
- It is recommended to provide some shade to new plants and also some species that might not withstand full sunlight.



Availability List

We currently provide the following varieties* of cactus and will be adding more varieties in the future:

Succulents		
Agave	Golden Barrel	Senita
Argentine giant	Gopher Plant	Toothless Sotol
Blind Prickly Pear	Hedgehog	Totem Pole
Candelilla	Lady Slipper	Twisted Peruvian
Desert Spoon	Aloe	White Bunny Ear
Dinner Plate	Monstrosus Curiosity	
Elephant Food	Ocotillo	
Bulbine orange	Purple Heart	
Elephant bush	Red Yucca	
Fish hook barrel	San Pedro	
Funny Bunny	Santa Rita	

*The above list is not exhaustive and is subject to availability



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Introduction

The term succulent is not a scientific classification but is based on the description of the plant. Succulents are often thought to be native only to arid regions, such as deserts, but they also belong in forest settings, high alpine regions, coasts and dry tropical areas. They are found in multiple families in the plant kingdom.

Botanical Nomenclature: Family → Genus→ Species

Around 60 families consist of succulents. Some families are shown below:

Family/Subfamily	No. of Succulents	Geographic Distribution
Agavoideae	300	North and Central America
Cactaceae	1600	The Americas
Crassulaceae	1300	Worldwide
Aizoaceae	2000	Southern Africa, Australia
Apocynaceae	500	Africa, Arabia, India, Australia
Asphodelaceae	500+	Africa, Madagascar, Australia
Didiereaceae	11	Madagascar (endemic)
Euphorbiaceae	1000+	Australia, Africa, Madagascar, Asia, the Americas, Europe
Portulacaceae	~500	The Americas, Australia, Africa

Succulent Characteristics

The appearance of succulents differs from species to species, but one common characteristic is swollen leaves, pads or stems (also called succulence) that allows the plant to survive in arid regions. Other characteristics can include the following:

- Crassulacean acid metabolism (CAM) to minimize water loss
- Absent, reduced, or cylindrical-to-spherical leaves
- Reduction in the number of stomata
- Stems as the main site of photosynthesis, rather than leaves
- Compact, reduced, cushion-like, columnar, or spherical growth form
- Ribs enabling rapid increases in plant volume and decreasing surface area exposed to the sun
- Waxy, hairy, or spiny outer surface to create a humid micro-habitat around the plant, which reduces air movement near the surface of the plant, and thereby reduces water loss and creates shade
- Roots very near the surface of the soil, so they are able to take up moisture from very small showers or even from heavy dew
- Ability to remain plump and full of water even with high internal temperatures (e.g. 126 °F)
- Very impervious outer cuticle (skin)
- Mucilaginous substances, which retain water abundantly
- Geophytes that survive unfavorable periods by dying back to underground storage organs.



Categories

The families of succulents that are most popular and selected by us for desert cultivation are:

Agaves- Family: Agavaceae, Genus: Agave, Species: 38 species

Aloe- Family: Asphodelaceae, Genus: Aloe, Species: 500 species

Cacti- Family: Cactaceae, Genus: ~53, Species: 407 species

Euphorbia- Family: Euphorbiaceae, Genus: Euphorbia, Species: 98 species

Yucca- Family: Agavaceae, Genus: Yucca, Species: 30 species

Category Descriptions

Agave- Agave is a genus of monocots native to the hot and arid regions of Mexico, Southwestern United States and South America. They are perennial, but they die once they flower. Agaves are succulents with a large rosette of thick, fleshy leaves, with most species ending in a sharp terminal spine. The stout stem is usually short, the leaves apparently springing from the root.

It is a common misconception that agaves are cacti. They are not related to cacti, nor are they closely related to Aloe whose leaves are similar in appearance.

Some popular varieties of Agave are:

- Agave Americana- A native of tropical America. Common names include century plant, which refers to the long time period for flowering.
- Agave Tequilana- Also called Blue Agave, is used in the production of tequila. Agave nectar, also called agave syrup, a sweetener derived from Agave sap.
- Agave Attenuata- Is a native of central Mexico and is uncommon in its natural habitat. Unlike most species of agave, attenuata has a curved flower spike from which it derives one of its numerous common names – the foxtail agave.

Aloe- Aloe species have a rosette of large, thick, fleshy leaves; they also appear to be stemless, with the rosette growing directly at ground level; other varieties may have a branched or unbranched stem from which the fleshy leaves spring. The color varies from grey to bright-green and are sometimes striped or mottled. They are frequently cultivated as ornamental plants, used in medicine, and soaps.

Cactus- Cacti occur in a wide range of shapes and sizes in habitats subject to at least some drought. Most species of cacti have lost true leaves, retaining only spines, to defend against herbivores, prevent water loss by reducing air flow close to the cactus and providing shade. The ~1,800 species of cacti fall into two categories: Opuntias and Cactoids.

Cacti are used as construction materials. Living cactus fences made from the ocotillo cactus are employed as barricades. The woody parts of cacti are used in buildings and in furniture.

Euphorbia- Euphorbias consists of around 2000 species and they are often confused with Cactus. The differentiating factor is that Euphorbias secrete a sticky, milky-white fluid with latex.

Individual flowers of euphorbias are usually tiny and nondescript, without petals and sepals, unlike cacti, which often have fantastically showy flowers. Euphorbias from desert habitats with growth forms similar to cacti have thorns, which are different from the spines of cacti.

Yucca- Yucca is a genus of perennial shrubs and trees in the family with around 40-50 species. They are characterized by their rosettes of evergreen, tough, sword-shaped leaves and large terminal panicles of white or whitish flowers. They are native to the desert climates of the Americas and the Caribbean.

South-West grown

All our succulents are grown in the South-West region rendering them hardy to the environment.

Our cactus are propagated from cuttings which are transplanted into containers and then grown to the larger sizes.

Planting

Soil- Well draining soil should be used for succulents. If the soil is not retaining water long enough, mix your cactus soil with some regular potting soil.. Adding sand can help to improve drainage. One can also add pebbles and stones as a covering for the soil. Most cacti have shallow roots since they store water in their stems. Hence, a 1–2 in of cactus potting mix with some gravel at the bottom is sufficient.

Lighting- Different species can tolerate different amounts of light (ranging from maximum sunlight to minimum sunlight) and this must be taken into account prior to planting. A common symptom of insufficient sunlight is the plants become leggy and stretch toward the light. It is also important to maintain the alignment of the plant, most nurseries mark the cacti plants with their southern exposure.

Replanting

It is wise practice to let the roots dry out completely before transplanting. This allows the roots to heal and close all the tiny lesions that occur when the roots are ripped from the soil, thereby reducing the possibility of infection. It is important that bare-root plants be kept dry and in the shade while drying out.

Watering

It is a common misconception that succulents don't need much water. Although this is true to a certain extent, they do not thrive in drought like conditions. A general rule of thumb is to water when the soil is dry. This can be weekly in hot weather and biweekly in cooler weather.

With watering, there are two conflicting rules of thumb. The first recommends watering the soil instead of the plant as this can sometimes cause rot. The second recommends watering the plant itself. To avoid overwatering, one can make sure that the soil is totally dry between watering. The most common factors that determine the intensity of watering are:

- Plant Size
- Time since planting
- Daily Temperatures

Pest Control

Mealybugs and cochineal scale are some common issues that occur. They are characterized by distinctive white and cottony masses. These can be addressed by strong jets of water.

Another issue is snout weevil bugs which lay their eggs at the base of a plant. The larvae of these bugs will eat out the interior of the cactus.

Some bacterial diseases also occur in cacti. A symptom is black ooze or soft tissue. The solution is to remove the plant from the ground, prune the dead roots, allow the plant to dry out, then replant when the infection is gone.

Cacti can be damaged by woodpeckers, hummingbirds, snakes and quail. This damage in turn leads to the development of fungi. This can be prevented by covering the cacti.