

A WORD OR TWO ABOUT GARDENING

Succulents can be an excellent choice for Miami-Dade landscapes.

An earlier article for this column drew attention to the use of two outstanding succulents in Miami-Dade landscapes, desert rose and the crown of thorns 'Poysean Group' hybrids. Succulents are a very diverse assemblage of plants, and there are many that could be used more in local landscapes. All succulent plants have in common tissues adapted to storing/conserving water: swollen stems, thickened roots, fleshy/reduced and/or waxy/hairy leaves. Many share unique metabolic pathways that serve to reduce water loss. Although normally associated with arid climates, some succulents are found in habitats where rainfall may be relatively plentiful but the plant's location (rocky outcrops, forest canopy) restricts availability of water (e.g., epiphytic cacti). Apart from cacti, there are 30 – 40 other plant families that contain succulents. These range from agaves, aloes and euphorbias to lesser known members of other plant families such as bromeliads, passion flower (Passifloraceae) and yam (Dioscoreaceae).

There are many reasons for including succulents in your landscape design. The larger succulents such as agaves offer bold, fixed forms that provide an ideal accent to the clean lines of contemporary building design. Others can be chosen to provide seasonally showy flowers or, where more permanent color is desired, attractively variegated foliage. Then there are those that intrigue with their bizarre forms: 'fat' plants with greatly enlarged stems (caudiciforms), or the low growing medusoid euphorbias with masses of snake like spiny stems. Most succulents adapt well to infertile rocky soils, require little or no supplemental water and are sufficiently slow growing to require minimal pruning. There are few serious insect pests - stem and root rots are by far the principal problem. These may be low maintenance plants, but not 'no maintenance'. As will be described below, it is essential to keep them free of weeds. To see what can be done with succulents locally, visit Pinecrest Gardens or the arid plots at Fairchild Tropical Gardens. This is a diverse and fascinating group of plants, but a word of warning – once you enter, the world of succulents can become highly addictive!

If you wish to grow tropical/subtropical succulents in a Miami-Dade landscape, then consideration needs to be given to providing an environment that helps ameliorate our wet/humid summers. These are plants that normally grow in areas with a far drier climate. Some locally popular succulents, e.g., ponytail palms and the century plant, grow readily providing the site chosen has perfect drainage and excellent air circulation. Overall however, it is more prudent to adopt some of the basic principals of rock gardening and modify a portion of the yard by constructing a raised bed (dry rock garden). Not only will this provide conditions more amenable to growing succulents, it groups together plants having similar requirements in one aesthetically pleasing landscape feature. Rock gardens are very adaptable, and can range from a simple flat topped mound of rock and gravel, to an elaborate terraced installation with stone outcrops, walkways, and even a waterfall and pond. In an

open sunny area they are a good alternative to grass, and represent an economical use of space permitting a varied display of plants without overcrowding.

In selecting where to install a dry rock garden, you should choose an area of the yard in full sun with excellent air circulation, one that never floods, and is well away from roof overhangs and tree limbs. Stay clear of sprinklers – watering will increase the risk of disease, especially during cool weather, and in the rare instances it is necessary, is best done by hand. Where possible try to situate your garden in a part of the yard with other drought tolerant plants. If you are following principles of the U.F. Florida Yards and Neighborhoods program, the yard should already be divided into zones having plants with similar water requirements. Other considerations on where to situate a rock garden relate more to maximizing the visual appeal. The essence of a rock garden is a degree of informality, a hint at least of a natural landscape. Situating it near a display of luxuriant foliage plants, or in the middle of a lush expanse of turf grass would look out of place. Avoid adjacent landscaping that could dilute the impact of your rock garden: year round showy flowers, such as ixoras and hibiscus, boldly colored/variegated leaves (crotons or copperleaf), or coarse textured plants (chenille plant or Brazilian cloak). An area next to a driveway or open patio or in a sunny, preferably south west corner should be ideal. As background plants use those with an airy, wispy appearance and fairly neutral colors such as an ornamental grass (e.g., muhly grass), whilst further back clumps of Mexican weeping bamboo, sweet acacias or other small trees with delicate foliage (e.g., sabicu). Small palms such as thatch palms would also be suitable.

You should draw up some plans as to the size of the rock garden, and what type of plants you will feature. Think small initially – the size of the garden can always be increased as you discover more plants of interest. Mark out the garden area with spray paint, allowing an 18” wide transition area of gravel around the perimeter of the garden that can double as a path. The bed should feature curved sides (e.g., kidney shaped), rather than the rectangular appearance seen in raised beds used for vegetables and bedding plants.

Start with bare ground and build up a base with larger rocks using rubble (e.g., removed from constructing a pool), and/or pieces of scrap masonry. Fit smaller stones in between and fill any remaining voids with a mix of coarse sand, pea gravel, poultry grit (granite) and crushed oolitic limestone. When the bed is about 18 -24” high, soak it with water and leave to settle for a few days. To add interest and provide localized shade (e.g., to protect exposed caudex of some ‘fat’ plants) place a few larger boulders to simulate rock outcrops. Partially bury them for a more natural appearance and greater stability. The bed can be faced with blocks of simulated masonry or local limestone if you wish to build a perimeter wall.

The top of the raised bed should be covered with 3-4” of a modified form of scree mix. Scree mixes are commonly used in rock gardens, and in essence consist of fine to small sized aggregate (coarse sand, grit and various grades of gravel) plus varying amounts of organic matter. For an area such as Miami-Dade with copious amounts of summer rain, use plenty of mixed aggregate to help ensure adequate drainage. I have used a mix of 6 parts mixed gravel/poultry or bonsai grit ; 2 parts coarse sand; 1 part Canadian sphagnum peat and 1 part potting soil. You must use coarse sand

(at least 1 mm grain) and never ordinary fine play which impedes drainage. The potting soil should be one containing composted pine bark (see bag for ingredients). Canadian peat is easier to use if it includes a wetting agent. Finally cover the bed with a 1" covering of ½" gravel as an inorganic mulch. Do not use organic mulch (wood chips, shredded bark etc.) – they retain too much moisture and encourage root and basal stem rots.

In most instances it is best to install plants late fall/early winter or even better, late winter to early spring – choose a time when the scree mix has had time to dry out from any previous rainfall. When planting, rake back the gravel mulch and remove the underlying scree mix and if necessary remove any underlying rock, sufficient to accommodate the plant. If required add any amendments (e.g., additional organic matter) to the scree mix, and use as backfill positioning the plant just above the soil line. It is better to plant too shallow than too deep. Carefully replace the gravel mulch to cover the root ball. Do not water - the potting mix in the container will provide sufficient moisture for the first few days. I mentioned weeding earlier. This is the one maintenance chore that must not be neglected, especially during summer. Not only do weeds seriously detract from the appearance of the rock garden, but they can impede air circulation around the base of a plant and greatly increase the risk of disease. A final caution: some succulents possess vicious spines and/or contain poisonous/irritant sap (e.g., agaves and especially euphorbias). Use due caution when working around such plants: wear thick gloves (rose gauntlets are ideal), a long sleeve shirt and eye protection. If you need to prune large specimens, use a long handled cactus saw, and never a chain saw!

In choosing which succulents to plant, there are many that can be expected to do well in a Miami-Dade rock garden such as adeniums (desert rose), pachypodiums (sometimes misleadingly referred to as Madagascar palms), agaves, aloes and a varied selection of euphorbias. Often it will be a case of trial and error since there is limited experience in growing less familiar succulents in Miami-Dade landscapes. Locally, the main reason for failure is disease, either root and basal stem rots or foliage disease, due to our rainy humid summers. Fortunately winters are usually comparatively dry and rarely cold enough to cause serious damage. One factor to consider when choosing what to plant is dormancy. Succulents that tend to go dormant during the summer are at greater risk of rotting in Miami-Dade. This would include aeoniums, cotyledons, crassulas, dudleyas, haworthias and tylecodons amongst others. In some instances the dormancy is sufficiently weak to permit survival (some crassulas and kalanchoes) though the plant may not be at its best. They should recover with the arrival of fall, remaining attractive through winter and most of spring.

There are many winter dormant succulents from which to choose, though those from cool montane habitats, such as echeverias, will prove difficult to grow. Space permits only a cursory review, but here is a "starter" group of plants. First the agaves and aloes, for which there are many apart from the common century plant (*Agave americana*) and aloe vera. If you have room there are several striking forms of *A. americana* with yellow or white variegated foliage. *Agave franzosinii* also makes a large, striking, specimen plant, to 13' across, with powdery, bluish-green

reflexed leaves. The Queen Victoria agave is smaller and more compact and has attractive dark green, patterned leaves, with conspicuous white margins and a prominent black spine at each leaf tip. The cultivar 'Compacta' is smaller resembling an overgrown globe artichoke. The swan neck or foxtail agave is one of the few spineless agaves, it develops a trunk like stem to about 4' and an arching flower stem bearing a fuzzy, reddish brown inflorescence. The cultivar 'Boutin Blue' (formerly 'Nova') has eye catching bluish green leaves and an erect inflorescence. Another, less common, spineless agave, *A. bracteosa*, is unusual in being polycarpic (repeat flowering). Most agaves only flower once, developing a very tall spectacular inflorescence, usually after many years, then die, though most do produce offsets.

Aloes also form a large rosette of leaves somewhat similar to an agave, but more fleshy and with softer spines and no terminal leaf spine. Most species readily form offsets. They flower each year, usually winter into spring, forming a very showy inflorescence. *Aloe arborescens* is a widely grown, large branching aloe with grey green leaves, and is especially appreciated for the numerous prominent red cone shaped flower spikes. A smaller, hybrid form is offered as the spider aloe which produces a deep orange red inflorescence. Other small aloes include *A. brevifolia*, which makes a good ground cover for a rock garden (spikes of orange/red flowers), *Agave* x 'Blue Elf' with a rosette of steel blue leaves, and the very impressive *Agave* 'Rooikappie', unusual in that it flowers for much of the year. A miniature cultivar that is increasingly popular *A.* 'Dorian Black' has pale green leaves with scattered mint green flecks.

Any local rock garden would be incomplete without one of the succulent euphorbias: from large cactus-like plants (e.g., *E. trigona* or *E. ingens*) to a smaller spiny shrub-like *E. stenoclada* with its silvery grey stems, or the bizarrely crested forms of *E. lactea* (milkstriped euphorbia). This latter plant has stems with abnormal crescent shaped ridges, and growers in Thailand have developed cultivars with crests in a range of colors. These are becoming more widely available in this country. The cathedral cactus has upright, three angled stems, with a red form that is especially striking. *E. tirucalli* 'Rosea', commonly known as sticks on fire is a cultivar of the familiar pencil tree, which has stems that are a glowing orangey pink. There are succulent euphorbias that resemble barrel cacti (*E. horrida*, *E. obesa* and *E. symmetrica*), and other low growing plants with numerous snake-like stems growing from a swollen main stem - medusoid forms such as *E. gorgonis*.

One succulent that has recently received much media attention as a potential appetite suppressant is *Hoodia gordonii*, popularly termed a cactus, but in fact closely related to the stapelias (carrion flowers). It resembles a large spiny cucumber, having a thick leafless stem from which emerge showy maroon flowers that emit a fetid odor very attractive to flies. It is uncertain whether this plant will survive our summer, but for certain personal reasons I am sufficiently desperate that I am willing to try!