



Garden Club Newsletter

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THIS ISSUE

Article: Saguaro Cactus – What’s Going On? Insights & Recommendations

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Saguaro Cactus – What’s Going On?

Insights & Recommendations

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It is speculated that this extended heat wave and the “nonsoon” is the culprit in many saguaro cacti leaning, arms dropping off, and in some cases, completely toppling over. In addition, the year-over-year temperatures we’ve experienced here in the Sonoran Desert may be weakening some of these beautiful giants. Plant physiologists at the Desert Botanical Garden (DBG) are studying how much heat cacti can take. It was thought these plants were perfectly adapted to high temperatures and drought; however, Arizona’s heat wave is testing those assumptions.

A lack of precipitation coupled with extreme heat has contributed to major stress in saguaros, and many other plants in our low-desert climate. Cacti need to cool down at night or through rain and mist. If that does not happen, they sustain internal damage by suffocating. Plants now suffering from prolonged, excessive heat may take months or years to die. If arms fall from your saguaro, it may be a warning sign that the entire saguaro will come down a few days later, even if the saguaro appears to be healthy. Saguaros are very heavy, so you might consider removing the declining plant before it can do any damage. It is recommended that you do not park or sit under or near large saguaro cacti. Also, make sure to move valuable yard items away from large saguaro. Unfortunately, arms that have fallen off a saguaro and hit the ground are unlikely candidates to root and grow into new plants; it is possible but can take a long time to propagate. When designing your landscape and planting new saguaro, it is recommended that you place saguaro a good distance from parking areas, driveways, buildings, pools, or seating areas.

Some recommendations from a cacti horticulturalist include:

1. **DO NOT WATER YOUR SAGUARO.** They can tolerate the drought, but they are having a difficult time since the heat is not dropping below 90° at night, which is cooking them from the inside and causing them to suffocate. They do not need water; this will just make it worse. *See below for more information on the lifecycle of saguaro cacti.*
2. Wrap a 50% shade cloth as high as you can, at least to the lowest set of arms. **Note:** Sunshades for plants may be used from June 1 thru September 30 here in PebbleCreek. At all other times, they are to be removed. Material used should be a muted or neutral color. If you have any questions, please contact the Architectural Landscape Committee (ALC) office.

3. Remove gravel/pavement/brick at the base. This is unnatural for their environment. It traps water, which the saguaro absorbs, then basically becomes obese with water weight that may result in heavy arms dropping in stressful, high heat situations (like now). Most saguaros roots are only 4-6 inches deep and radiate out as far from the plant as it is tall. There is one deep root, or tap root, that extends down into the ground more than two feet. The cacti horticulturalist also notes that saguaros in the wild have skinnier arms that shoot straight up instead of the obese arms found in neighborhoods that tend to aim outward. Wild saguaros are not losing arms right now.
4. Some gardening companies also create a well around saguaro cactus when planting, similar to what you do with citrus. This is the exact opposite of what a saguaro needs. Take the well down and dig a trench so it drains properly when we finally do get some rain.
5. For the future health of your cactus, you could plant “buddy” plants around it to help shade the ground. Consider only natives that require exactly zero irrigation, such as creosote, AZ sage, desert milkweed, fishhook barrels, and brittle bush; even Mexican bird of paradise could work. Xeriscape, native plants will also not take water that the saguaro needs. See more native plant suggestions in the ALC Guidelines document:
<https://www.pebblecreekhoa.org/documents/31450/107157/ALC+Guidelines.pdf>

The DBG has research scientists on staff who are currently studying this phenomenon. They encourage anyone who's had such loss to report it to them at: saguarocensus@dbg.org. Please provide as much information as possible - pictures, location, history of the cactus (when was it planted, has it been getting irrigation right now, and if so, how much and when, what's on the ground surrounding it, etc. Any and all cultivation information helps!)

Saguaro Cacti – Recently in the News *(Some YouTube Video links of interest)*

<https://www.youtube.com/watch?v=-YGASp8r0> <https://www.youtube.com/watch?v=u3H7fKGDw2s>
<https://www.youtube.com/watch?v=C-GiTsl78SQ>

Saguaro Cacti – Lifecycle

Agaves, aloes, cacti, and yuccas are classified as succulents – plants that have highly specialized anatomical features such as thick waxy cuticles, fleshy or minimal leaves, modified leaves (spines), and roots with extra storage capabilities for food and water. These adaptations let these plants collect water efficiently, store it for long periods of time, and conserve it (minimizing water loss from evaporation). Nature has solved the heat problem by equipping many cacti with accordion-like pleats (or ribs) that help provide shade on the cactus's surface against the scorching sun and improve heat radiation. Their spines create more surface area so that they can release heat and slow down rainwater flow. Saguaros are very slow growing cactus and can grow to be between 40 and 60 feet tall. When rain is plentiful and the saguaro is fully hydrated it can weigh between 3,200 and 4,800 pounds. With the right growing conditions, it is estimated that saguaros can live to be as much as 150 to 200 years old.

Like all plants, cacti perform photosynthesis, which is the process of converting carbon dioxide and water into glucose and oxygen using energy from sunlight. However, an interesting thing about cacti is that they do it at night! All plants have special pores called stomata that can open in order to take in carbon dioxide and start the process of photosynthesis. During this process, plants lose a lot of

water to produce glucose molecules that they can use for energy.

During the day in the desert, water loss can be very high due to extreme heat. That is why cacti open their stomata at night when temperatures are cooler to reduce water loss. They take in and store carbon dioxide during the night and perform photosynthesis during the day to make glucose and use its energy to maintain their functions. During summer, when temperatures in deserts are especially high, cacti close their stomata completely, preventing glucose production and, therefore, their own growth. This is meant to be only temporary until temperatures drop. However, given the record-breaking temperature during the day and night, with no reprieve in the near future, they are suffocating. Hopefully, cacti can adapt to these new extremely arid and hot temperatures we are facing in the Sonoran Desert to survive.

For more gardening information, visit the Arizona Cooperative Extension website: www.cals.arizona.edu/gardening, or refer to Cooperative Extension publications at: www.cals.arizona.edu/pubs



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