



Waterwise Gardening with Xeriscape

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The state of Hawaii is experiencing drought that in some areas of the islands is considered extreme (http://droughtmonitor.unl.edu/DM_state.htm?HI). Master Gardeners can help provide the gardening public with information on selecting planting material and adopting water conserving practices.

Xeriscape comes from the Greek word *xeros* which means dry and *scape* in English (when used as a suffix) means “wide view of a particular type,” thus a drought tolerant landscape is called a Xeriscape. Drought tolerant plants come to mind when people think about xeriscaping. However, xeriscaping can simply mean designing a garden or landscape to use water efficiently. In other words, your design may not be entirely comprised of drought tolerant plants. You may have plants with higher water requirements that are grouped together with other plants of similar needs.



Honolulu Board of Water Supply Xeriscape Garden.
Photo: Diane Moses

Xeriscaping also encourages the "zoning of landscapes," which means clustering your turf, ground cover, shrubs, plants and trees according to their water needs — and according to how natural weather conditions affect each area of the landscape. These "microclimates" are affected by moisture, sun, shade, air movement, and heat. For example, reflected light from structures facing the area of most sun creates high temperatures and increases the loss of water from nearby plantings. Shade trees and ground covers strategically planted in these exposures reduce temperatures in the warm, dry season, yet allow sunlight to enter during the months of high rainfall.

Similarly, water-loving plants can be grown in the microclimate zone of the landscape where irrigation and other water run-off is captured in drainage swales—again reducing the need for heavy watering. All of these microclimates utilize the Seven Principles of Xeriscaping.

Seven Principles of Xeriscaping

1. *A good xeriscape garden starts with good planning and design.* Planning allows you to install your landscape in phases, which minimizes initial expenses.
2. *Limit and separate turf areas.* Grassed areas frequently require the greatest amount of watering. Replace turf with other, less water-demanding materials such as ground covers, low water-demanding plants or mulches. Turf is best separated from planting of trees, shrubs, ground covers, and flowering plants, so that it may be irrigated separately.

3. *A well-designed sprinkler system can save water.* For efficient water use, group garden plants according to similar water needs. Refer to the LICH publication “[Landscape Irrigation Conservation Best Management Practices](#)” for the latest information on newer, more water efficient irrigation systems.
4. *Soil improvement allows for better absorption of water and improved water-holding capacity.* Add compost and soil amendments high in organic matter to the soil to increase the soil’s natural water holding capacity, improve soil structure, and provide plant nutrients to help them take root and flourish.
5. *Replace turf areas with mulched planting beds.* Mulches cover and cool soil, minimize evaporation, reduce weed growth, and slow erosion. Mulches also create landscape interest. Organic mulches are typically bark chips, or wood grindings. Inorganic mulches include rock and various gravel products. Place mulch directly on the soil or on breathable fabric. Avoid using sheet plastic in planted areas.
6. *“Less-thirsty” plants improve your garden in more ways than one.* There are many attractive less-thirsty garden species available for use in the tropical xeriscape, including numerous popular flowering trees, shrubs and vines, and turf grasses, which require less watering than others. There are many native Hawaiian plants that are drought tolerant.
7. *Regular maintenance preserves the intended beauty of your landscape and saves water.* Because of their design, xeriscapes can help reduce maintenance costs. Pruning, weeding, proper fertilization, pest control, and irrigation system adjustments further water savings. Always water according to plant needs.

Irrigation during plant establishment

Although plants may be drought tolerant, all newly planted trees and shrubs need water to become established due to their small root systems. For new trees, it’s recommended that they receive water at least once per week during the first 6 months. From months 7 through 12, they should be watered deeply at least once per month. In years 2 and 3, provide weekly water when rain or irrigation is less than 1-inch during the driest times of the year, July through October.

To reduce drought stress, even established trees should receive 1-inch of water per week either through rain or irrigation. Soil type can determine how often irrigation is required on established trees. Soils that are sandy and have good drainage may require more frequent watering. To reduce the incidence of plant disease, avoid overhead irrigation and do not apply water to the base of the tree trunk. If you must use overhead irrigation, try to water in the morning to allow foliage to dry. Midday irrigation is not recommended as it can burn foliage and evaporation rates are high. For more information, see the CTAHR publication, “Watering Trees.”

Mulches can reduce the need for water by retaining moisture in the soil. In addition, mulch slows water movement across the surface of the soil allowing for infiltration and preventing erosion. Organic mulches, such as woodchips, help build the soil as they decompose. For information on mulches, see “Mulches for the Home Garden.”

For more information

- Native Plants for Water Conservation:
http://www.ctahr.hawaii.edu/rnre/native_plants_water_conservation.asp
- Board of Water Supply City and County of Honolulu
Xeriscaping: <http://www.hbws.org/cssweb/display.cfm?sid=1086>
Oahu Planting Guide: <http://www.hbws.org/cssweb/display.cfm?sid=1360>
Halawa Xeriscape Garden: <http://www.hbws.org/cssweb/display.cfm?sid=1135>
- Landscape Industry Council of Hawaii (LICH) "Landscape Irrigation Conservation: Best Management Practices" http://landscapehawaii.org/_library/documents/lich_irrigation_conservation_bmps.pdf
- County of Maui Landscape and Gardening Handbook:
<http://www.co.maui.hi.us/documents/22/90/Handbook%20Publication.PDF>
- Department of Water County of Kauai Xeriscape:
http://www.kauaiwater.org/ce_waterconservation_xeriscape.asp



Amaryllis. Photo: Diane Moses