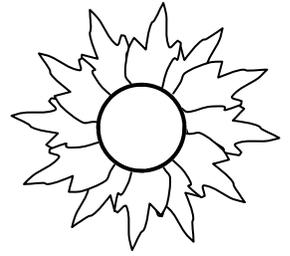


# Heat & Drought in the Valley of the Sun



It's summer, and it's burning hot! Not only are we wilting, but,—with a few exceptions—our plants are suffering, too! In recent years, the heat has been compounded by drought conditions, and the rise of night temperatures in the middle city—called the “Urban Heat Island”. Some plants seem to revel in the heat, but most need a little help to limp through the hottest months: June, July, August, and—lately—September. Common symptoms include: wilting in the middle of the day, even though the soil is moist; sunburn—brown patches in the middle of the leaf; *mesophyll collapse*—irregular brown patches on the tips and edges of the leaves; abnormal flower and leaf development; and/or *chlorosis*—yellow-green leaves with darker green veins. Fortunately, there are some things that a gardener can do to help plants resist heat and drought damage:

- Improve the soil.** The hotter it gets, the more oxygen roots need to function. That means increasing the pore size in your soil. Before planting, dig in adequate amounts of organic matter, and possibly some coarse sand, to keep your soil from packing down into adobe bricks under the summer's heavy watering. Established plants can be helped by applications of humic acid, and—in clay soil—gypsum. Regular shallow cultivation of the soil surface will also increase air penetration.
- Don't use too much organic matter.** Under extreme heat, soils that are more than ½ organic matter can turn into poorly done compost heaps, generating heat and gasses that kill plant roots. That is especially true when a layer of organic material is trapped under un-amended soil. Certain types of organic material—such as grass clippings or raw sawdust—can quickly use up the nitrogen in the soil, starving your plants to death, while you think that the heat is getting them!
- Water deeply and infrequently.** In the summer, soil surface temperatures can climb to over 160° F, so the deeper the roots can grow, the less they suffer. Deep, infrequent watering encourages better soil aeration and deeper roots. It also helps remove toxic salts that build up with frequent watering and

rapid evaporation. Some plants—such as Brittlebush or some Sages—are more susceptible to root rot in hot weather. Obviously, the best time to change watering schedules is during moderate weather, when plants are under less stress, but even slight, gradual changes can improve a plant's chances.

**Apply a thick, porous mulch.** A few inches of gravel will help some, especially with water retention, but gravel can be worse than useless for heat control. Porous stones, such as lava rock or pumice, help keep the soil temperature down better, while keeping a desert look. Fortunately, most desert plants suffer very little in the heat. Other types of vegetation do best with an organic mulch, such as medium-coarse composted materials, or ground bark of various kinds. Very coarse bark can provide a haven for some pests, such as roaches or crickets, but cedar bark has the advantage of repelling insects. High maintenance plants, such as roses, flowers, or vegetables, often do better with finer materials, such as “forest mulch” or compost, which allows for raking, frequent feeding, and light cultivation, and can be tilled in at the change of season to improve the soil. Even just sitting there, all organic mulches will improve the soil, though coarse bark works very slowly that way.

**Do feed, but feed lightly.** Plants under heat stress are susceptible to fertilizer burn, but still need nutrients to run the processes they use to fight heat damage. Continue regular feeding programs, but reduce the dose to  $\frac{1}{3}$  to  $\frac{1}{2}$  of the usual amount. Nitrogen, potash, magnesium, and iron seem to be particularly important in hot weather. Plants that love heat—such as Lantana or Bermudagrass—should be fed normally.

**Where possible, provide afternoon shade.** Not all plants will accept the lower light levels of full shade, but even the sun lovers can usually accept shade during the hottest part of the day, say from 1:00 to 5:00 pm. Of course, this usually means knowing which plants are heat sensitive before planting. Container plants can be moved, too, and slightly sensitive trees and large shrubs, such as Magnolia or Rose-of-Sharon, can benefit from a temporary shade structure during their first summer.

Using these tips and tricks should make it easier to grow unusual plants, or to keep your old favorites looking their best through the summer.