

# Extreme Heat Gardening

by Carol Barany

I have to admit that I've been talking to my plants a lot this week. This blistering heatwave, prompting heat advisories for at least 113 million Americans, is pretty much all I talk about. Like heat trapped under the lid of a pot, temperatures are rising to deadly, record breaking levels across the country.

I've asked my plants exactly how hot is TOO hot for plants? Most tell me it's around 90 degrees.

Plants keep cool through evaporation of water from their leaves. On a hot, dry day, or after several days with no rain or watering, transpiration causes more water to be lost than is coming in. Dehydrated cells in the leaves and stems can no longer remain erect, and the plant begins to wilt. To avoid wilting, the plant can close its leaf pores to keep water from evaporating.

It comes at a price, since open pores are necessary for the uptake of carbon dioxide, critical to photosynthesis. Plants with limited carbon dioxide grow more slowly. Leaves may turn white for lack of chlorophyll. Some plants, especially trees, will actually shed some of their foliage in an attempt to conserve water.

While wilting slows the rate of water loss, it causes leaf temperatures to increase. Again, if unfavorably high temperatures persist, this cycle can worsen until a portion or all of the leaf is killed. The tips of leaves on trees and perennials throughout my garden are turning brown and crispy. I have faith that as long as there is some green foliage, the plant should recover.

Some gardeners choose not to remove damaged leaves from a burned plant because they may be shading healthy foliage that could also burn when suddenly exposed. It's not a pretty sight, and it takes strong resolve to step away from the pruners.

Weak and under stress, plants are more vulnerable to disease and insect pests. For example, blossom end rot is common during hot weather in tomatoes, peppers, and squash. Spider mites flourish in high heat.

In excessively hot weather, vegetables can stop producing. Tomatoes, squash, peppers, melons, cucumbers, pumpkins, and beans can drop their blossoms, while cool-season crops like lettuce and broccoli will just give up and bolt.

What can a gardener do?

\* Water your garden early and deeply to give your plants time to absorb the water they'll need to get them through the day. Overhead watering during the hotter parts of the day wastes water because much of it evaporates before it reaches your thirsty garden. However, if heat stress is apparent midday, go ahead and water. Watering at night can lead to powdery mildew, but you may have to take that chance.

Feel the soil with your fingers one inch under the surface for containers, and two inches deep for beds. If it's dry, your plants need water. Apply water as close to the root ball as possible. Properly placed soaker hoses and drip irrigation do this best, with the least wasted water.

\* The temperature under shade cloth can be 10 degrees cooler, so use it to shelter precious or vulnerable plants. Rig up some sort of frame and spread the cloth over it. To save his boysenberries from burning up, my husband covered them with what seemed like a quarter-mile of shade cloth last week.

\* Postpone pruning, which adds to plant stress.

\* Move seedlings to a shady spot and wait for cooler weather before you transplant them. I learned this the hard way, when all the divisions I planted from a clump of Japanese Forest Grass to line a sidewalk died in 24 hours last week.

\* Stop fertilizing. Plants need even more water to process fertilizer. A sudden flush of nutrients also spurs plant growth at a time when the plant's resources are already stressed.

\* Applying 2-4" of mulch around plants will slow evaporation of soil moisture. Two years ago, when the air temperature hit 113 degrees on June 29, the soil temperature in a full-sun, unmulched area of my garden was 102 degrees. Over in my dahlia bed, where the soil was covered with 4" of chopped leaves, it was 15 degrees cooler.

\* Even when soil moisture is adequate, extreme air and soil temperatures can damage plants. You may have to move vulnerable potted plants into indirect sunlight. I've learned the hard way that even my heat-loving succulents can suffer damage or even be killed by extreme heat and light reflecting off the stucco walls of our house if I don't provide some shade.

In times like these, our concerns are for the most vulnerable members of our community, our animals, and our crops. Do the best you can in your garden, and stay safe.