

## High Temperatures in the Garden

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All plants have a moderately wide window of temperatures that they'll tolerate; if the temperatures goes too far above or below this range, the plants will suffer. Cool-season leafy vegetables, like lettuce and spinach, will bolt (begin to flower), which makes them bitter. Broccoli and cauliflower will form loose heads with poor flavor that will quickly bloom and become unusable.

Many of our warm-season crops will appear normal, and even grow rather well, but will stop fruiting. Tomatoes, beans, and bell peppers are notorious for this. Flowers will drop off without producing any fruit, or the plant may stop blooming altogether. This is most common when daytime temperatures are above 90 degrees and nighttime temperatures are above 70. Many annual flowers in the landscape will also decrease or cease blooming during periods of high temperatures.

Sweet corn may look fine in the heat, but very high temperatures, coupled with dry weather, will cause the kernels to fail to fill out, especially at the tip. Pumpkins, cucumbers, and other vine crops may produce mostly male flowers during hot weather. Uneven irrigation and heat-related pollination problems can cause misshapen cucumbers to develop, and increase their bitterness.

Unlike people, plants don't sweat to stay cool. Temperature is regulated by transpiration, which is the natural loss of water from the plant through small pores in the leaves, called stomates. If the soil is dry from the lack of rain, plants wilt to decrease leaf surface area exposed to the sun and close their stomates to slow down water loss. This not only slows down transpiration, but also photosynthesis. Growth slows, and sugar development is reduced. Some of the visible symptoms include scorching (browning of the leaves along the edges, tips, and between the veins) and nutrient deficiencies (yellowing of the leaves or the area between the veins).

Speaking of nutrient deficiencies: a very common weather-related problem is blossom end rot. This most often occurs on tomatoes, but I've seen it on peppers, squash, and watermelons as well. The bottom (blossom-end) of the fruit develops a dark, sunken, leathery rot, usually as the fruit is maturing. This is caused by a temporary calcium deficiency in the fruit. However, most of us in the tri-state have plenty of calcium in the soil. The plant is showing deficiency because the soil is so dry, the roots can't absorb the calcium it needs. The best cure is to water regularly and deeply.

Sunburn or sun scald is another hot weather problem. If the fruit of tomatoes, peppers, squash, and other vegetables are exposed to direct sunlight, the tissues will develop large, light colored blistered areas on the sides facing the sun. It is most prevalent on plants that have lost foliage due to insect feeding or disease, or if the plant has been wilting from the heat.

You will learn more about the effects of weather on garden plants and many other topics at this fall's Master Gardener volunteer training classes. See me this week at the Vanderburgh County Fair to get more information!