

## Natter's Notes

### Summer's Challenges

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Ah, summer. Thoughts of gentle breezes and abundant harvests. But, wait! Even as I write this, temperatures are soaring. Just how severely plants were damaged by the time you read this will depend upon how rapidly gardeners reacted. Or, better yet, were ahead of the game.

Just how plants are affected by high temperatures depends upon numerous factors, among them the extent and duration of the heat; the relative humidity; windy or not; soil moisture content; also, the kind of plant, its age, site, and general status when the heat hit. Sometimes leaves are only damaged superficially. Other times, tissues die.

Tissue survival is most likely when the plant is fully hydrated well before the heat hits. After extreme heat arrives, stomates close, inhibiting water uptake by roots. So, whenever a heat wave is predicted, water the night before or early morning, between 2 and 6 AM.

Although sufficient and timely irrigation is important, so is temporary shade. Container-grown plants are especially vulnerable to damage during bright, hot weather. If possible, move them to a shaded site until the heat passes; if that's impossible, rig temporary shade at least 18 inches overhead.

#### Avoid wilt

It's critical to avoid wilting because wilted plants are permanently damaged even if the plant "totally recovers" after it is watered. Vegetables won't produce the abundant yields gardeners expect.

Wilting is obvious with herbaceous plants, less so with woodies. In all cases, watch for subtle changes in leaf color. Early on, water shortages are signaled by an off-color, a somewhat blue- or gray-green.

**Other effects of excessive heat** include the following:

- Leaves droop, a plant's temporary response to protect tissues from excess sunlight.
- Flower buds shrivel and dry instead of opening.
- Flowers scorch, especially at the petal edges.
- Fruits with insufficient leafy cover, may sunburn, and eventually spoil.

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*These rhododendron leaves reveal varying degrees of tissue damage from excessively bright light combined with high temperatures and reflected light from an asphalt surface. The chlorophyll was killed in the yellow zone whereas the tissues in the brown areas took the brunt of the damage and are dead. (Client image; 2015-07)*



*A thorough history and appropriate images are critical to resolving a diagnosis. If only a few leaves were submitted from this vine maple with one-sided damage from excessive heat, one might mistakenly assume the tree was dead, thereby inadvertently providing an inaccurate diagnosis. (Client image; 2017-08)*

- Pollination fails, such as when immature summer squash doesn't enlarge and, instead, rots at the blossom end. Or, when tomatoes stop setting fruit, resulting in a harvest lull later on.
- Pollination is incomplete, as when summer squash resembles a billy club.

### Blossom End Rot in tomatoes

Blossom end rot in tomatoes won't be recognized by gardeners for a week or two. It's caused by insufficient transport of calcium to the bottom of the fruit. (No; crushed eggshells in the soil won't help.)

Early on, you'll see a slight graying of the skin color on the blossom end. With continued stress, cells die, producing a black area which gradually enlarges and may permeate the entire fruit with a secondary infection (rot). Perhaps most frustrating is, even though damage isn't visible on the exterior, the internal flesh has rotted. (See "Blossom-End Rot of Tomatoes" - FS139; <https://catalog.extension.oregonstate.edu/sites/catalog/files/project/pdf/fs139.pdf>).

### General guidelines for water

- Water early in the day so that your plants will meet the rising temperatures well supplied with a fully moist rootball.
- On scorching days, consider adding a second brief supplemental irrigation, perhaps up to half the usual amount, in the early afternoon to "top off" soil moisture.
- Realize that the output of drip irrigation and soaker lines is in gallons per hour whereas sprinklers, in-ground or not, is gallons per minute.

### Resources

- "Abiotic Disorders of Landscape Plants" (UC); pages 139 to 155.
- "Diseases of Trees and Shrubs" (Sinclair & Lyon, 2nd edition); pages 492 to 494.
- "How High Heat Affects Vegetables and Other Crop Plants" <https://extension.udel.edu/weeklycropupdate/?p=3203>



Classic drought stress symptom: Dry brown leaf edges. (Client; 2017-08)



The fruits of eggplants, peppers, and tomatoes may be damaged by sunburn whenever leafy cover is sparse. Here, the 2 peppers in the center of the image, show superficial damage on the most exposed portions of the fruit whereas other, more severely damaged, fruits have begun to rot. (Client image; 2011)



Perhaps one of the toughest times for gardeners is when their mature tree fruits are damaged during a late season heat wave. It's enough to make a person cry. But when gardeners know such an event is predicted, they can rig temporary shade and avoid the loss of at least a portion of the crop by protecting some of the branches. (J.R. Natter; 2016-08)