

What happens to plants during a late freeze?

Young green leaves and flowers can get zapped during late spring cold snap. So what exactly happens? In some plants the cell inside the leaves and stems froze and the cell membrane ruptured killing that part of the plant tissue, not necessarily the whole plant. At night plants take in water vapors, carbon dioxide and oxygen through small opening on the leaves called stomates. Others might have wilted. In these plants water escaped from the leaves and plant cells too quickly due to a rapid drop temperature. Cells in the plant actually deflated causing the tissue to wilt (in horticulture we call this *epinasty*).

Due to the freeze, flowers and tender buds may be lost on plants that flower on old growth like some hydrangeas and some climbing roses. Plants that bloom on new growth, such as crape myrtle and butterfly bush may still bloom- only later, after they have recovered.

What happens now? Will my plants survive?

There are many answers. It will depend on how your plant reacted to the cold night temperatures, its location in your garden, the type of plant, or its genetic fortitude. Plants that appear to be only wilted and perk back up when the sun comes out (like some hosta, daylily, or rhododendron) should be fine. Later in the season they may exhibit puckered or stunted leaves or may have a “sunburn” look. Few may have brown or black spots on the leaves where plant cell membranes did rupture, killing that tissue.

Other plants like some Japanese maples, crape myrtle and bigleaf hydrangea are much more sensitive to the cold night temperatures. If you notice leaves that look water-soaked (imagine lettuce frozen in the back of the refrigerator) this tissue is dead and won't re-hydrate. **This Does Not Mean the Plant is Dead!** Adopt a wait-and-see attitude, some plants may re-leaf and bounce back just fine. Most likely all these plants will have brown and black tissue which can be removed later in the season (more about that below).

So what to do now?

Two words... **Wait and Water**. Wait to dig or remove any plant material. In a few months you will know if it will survive the summer.

For those plants that have lost all of the new leaves to the freeze it will be difficult to regenerate new leaves if there is not enough starch stored up in the root system for “another spring”- they will need extra water for this recovery. Water will allow wilted leaves to re-hydrate. For trees, water deeply twice weekly. Monitor your plant and if you see leaves start to droop, check the soil moisture around the roots and add more if it seems dry. Keep stressed plants mulched this summer to retain moisture around the roots.

Do Not Prune- Pruning can stimulate excessive growth, these plants are stressed, give them time to recover. Give some plants, especially trees a year before severe pruning. Dead foliage can be carefully cut away, but this is not necessary for recovery. The trick is to not to cut too much off the plant.

Do Not Fertilize- Fertilizing now with nitrogen may cause the plant to leaf too quickly instead of giving it time to recover. Trees and shrubs should not be fertilized until next winter. If you had already fertilized, make sure plants receive ample water to use the excess fertilizer.

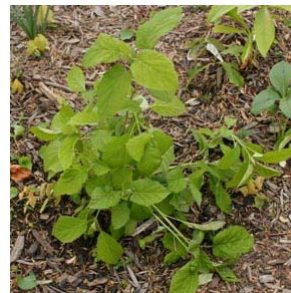
What is the future of my garden?

The damaged tissue at the tips of stems was the growing point for future growth. Tip dieback may cause you plant to look different. In most trees and shrubs you can selectively prune to redirect growth to rebuild the form of your plant (next year). The leaves manufacture a plant's food to be stored for the next growing season. If plants aren't able to store enough food this year they may not make it next year. But don't lose hope!

Remember: Your garden is also a small ecosystem. The living rudiments that allow your garden or landscape to be viable are both good and bad: plants/weeds, soil, insects, bacteria, fungus, worms, plants, birds and other critters. Each part of this system depends on the other. This freeze may have reduced these populations or will reduce the food sources for them in the coming months. Pay attention. You may see some changes in your garden's seasonal routine, greening may be slower, the color may not be as brilliant as last year and you may not see as much activity from the critters this year. Don't fret the future of your garden! Look forward each day to see how Mother Nature uses unexpected changes to open new opportunities in the garden.



Water-soaked leaves on hosta



Wilting on Annabelle hydrangea



Leaf burn on oakleaf hydrangea



"Sun burned look" on daylily