

## When Plants are Shivering

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(Article published in *Gainesville Sun* on November 26, 2016)

Plants don't really shiver, but some don't tolerate the cold very well. When I was younger, I used to help my mom cover the plants before a freeze. It was this ritual we went through to bring in potted or hanging plants like my mom's prized staghorn fern and orchids and throw sheets over the ones that couldn't be moved. I always wondered how she picked the plants to be protected. Was it just the ones she really liked? Now that I know the science behind it, this article will tell you which plants to protect and how to protect them.

There are two different types of freezes, radiational and advective freezes, but we commonly refer to them as a frost and hard freeze.

A radiational freeze, or frost, occurs on calm, clear nights when the plant loses heat too quickly. It can occur when the temperatures reach the mid-30s or below. The leaves may or may not have ice deposits, depending on if the air is moist. Both can result in plant damage in susceptible plants. Radiant heat loss can be reduced by covering the plant.

With an advective freeze, or hard freeze, cold air moves in rapidly bringing in freezing temperatures. Windy conditions are common during freezes. Covering your plant usually doesn't help during this time.

Tropical plants and summer annuals are not adapted to cold temperatures and can be damaged at temperatures below 50°F. Subtropical plants can acclimate to colder temperatures if we have a gradual decrease in temperature and can often withstand temperatures below freezing.

An easy way to tell what your plant can survive is to look at the cold hardiness zone of your plant. If I look up the hardiness zone for my mom's staghorn fern on <http://www.learn2grow.com/plants>, it says it is in zones 10-15. Comparing that to the USDA Plant Hardiness Zone Map, zone 10 plants can only withstand lowest temperatures of 30-35°F. In windy conditions, temperatures in the 40s can easily drop into the 30s around the plant. Note that the hardiness zone only predicts survivability not possible plant damage.

Plants in containers are also more susceptible to colder temperatures even if their hardiness zone is lower due to the roots being above ground. If you are not bringing your containers inside, move them to where the heat can be trapped, such as under a tree. Push them together and protect them with mulch, leaves, or a covering.

When it comes to coverings, you can use cloth sheets, quilts, plastic or commercial frost cloths. Remember that the coverings protect more from frosts than freezes. The covers need to extend to the ground and be anchored down. They also should not touch the plant foliage, if possible, to reduce cold injury. This is especially important with plastic coverings which will take heat away from the plant if it touches it. Uncover the plants during the day, so you don't cook the plants.

Christmas lights under the cover can provide an additional heat source for the plants and add a little Christmas cheer to your landscape when they are not under a sheet.

Even with the effort to protect your plants, you may have plant damage. Cold injury can affect the whole plant or just parts of the plants such as the fruits, flowers, buds, leaves, stems, or roots. A common injury is plant desiccation or the plant drying out,

resulting in marginal or leaf tip burn or totally brown leaves. It is important to water your plants before and after a freeze to reduce this type of injury.

After a freeze, you can remove any dead leaves, but resist the urge to do any severe pruning until the early spring. Pruning too early can result in a growth flush which is more prone to cold injury. The exception is that pruning of deciduous trees (the leaves fall off) often occurs during the winter, or dormant months.

During the late fall and winter, bundle up and keep looking at the weather channel to determine if you need to cover your plants. For more information on protecting your landscape plants from cold, look at the EDIS document, <http://edis.ifas.ufl.edu/mg025>.