

Protecting Plants from Winter Freezes

By Deborah Birge, Fort Bend Master Gardener

Q: How do I protect my plants from winter freezes?

When the year becomes the season of witches and goblins, quickly becoming the season of turkeys and pumpkin pies, growers of tropical and semi-tropical plants, begin planning for early frosts and winter freezes. The spring is often a time of mushy brown leaves, burnt foliage and twigs, split bark and damaged fruit, so early planning is a must.



We will begin this article by explaining how plants turn into those mushy messes after a freeze. Explained very simply, when the temperatures begin to drop, foliage and fruit will begin to lose their heat. The water inside a plant freezes causing ice crystals to form. These crystals break the plant's cell walls. When the temperature warms the cells lose their fluids, die and turn to mush.

Our most common challenge is the marginal freeze. This only lasts a few hours with temperatures dropping to below freezing in the early morning hours, then back up above freezing by mid-morning. This is a quick temperature change, not too unpleasant but enough to kill any buds or blooms on fruit trees. By planning ahead, we can do a lot to protect our plants. Additionally, the less wind involved, the more effective our efforts.

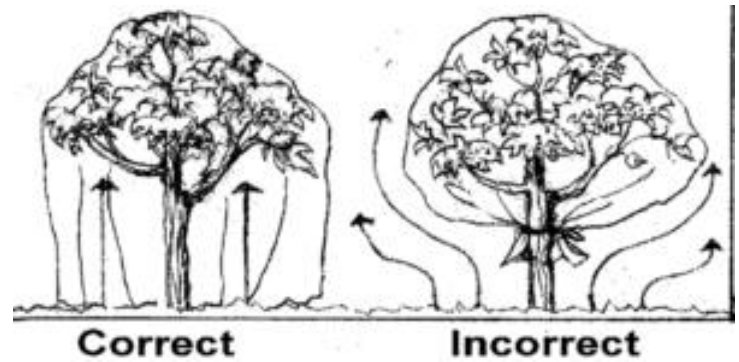
Our most dreaded challenge is the "Nor'easter" that blows in a few times each winter. It is usually accompanied by high winds, rapidly falling temperatures and rain or sleet. There is little we can do beyond moving plants into a greenhouse or garage. Most plants will suffer enough damage to set back production by a few years. But there are strategies we can use to at least keep the plant alive.

Site Selection

The first step in freeze protection is the initial site selection. All tropical and semitropical plants should be planted on the south side of a windbreak. This can be a fence, house, garage, shed or hedge. The windbreak will block much of the north wind and absorb heat throughout the day, releasing it during the night.

Covering

Tent the plant to trap heat and prevent radiation to a clear sky. This could be plastic, sheets, tarps, or blankets. You can also use large cardboard boxes, trash cans or build a frame of wood, covering it with cloth or plastic. Of course, wind is going to be a problem so anchor your tent with bricks, lumber, buckets of water, or stakes. When tenting, remember to use the covering like a tent. It should cover the plant with the ends dropping to the ground. It is not helpful to wrap the plant like a lollipop. This method does not take advantage of the radiant heat coming upward from the ground. The tent method will capture this heat and help you plant survive the freeze.



You can add additional protection by raking the mulch away from the plant. Bare ground absorbs the sun's heat while mulch will deflect the heat. Another source of heat is lighting. Add strands of the old-style Christmas lights, the new twinkly ones will not add heat. A mechanics light, or bathroom heater will also work. Do be careful with these last two so you don't awake to flames in the backyard.

Water

When a big freeze is predicted, probably the last thing you think of is getting out to water the plants. Seems counter-intuitive but water can protect plants. Plants suffering from drought are less tolerant of cold and suffer injury at warmer temperatures than normal. Water plants several days ahead of cold weather. Secondly, water absorbs heat from the sun, stores it, then releases the warmth slowly. Watering before a freeze creates a source of warmth higher than the freezing point that will radiate through the night. This alone will not save your tree but used in conjunction with tenting you should have good results.

Another method is using large trash cans or 5-gallon buckets filled with water. Make sure the lid is on, this helps with radiation. If you have a grafted plant, place several buckets of water around the truck to protect the graft union. Along with tenting, this has proven to be a reliable method of saving the plant.

Another use of water is spray irrigation during the freeze. You have probably seen fruit growers using irrigation to protect crops from a frost or freeze. For the homeowner, this method seldom works and often make things worse. The plants must be showered with a water spray from before the freeze but during the freeze and well after the freeze. A homeowner's irrigation system release too much water for this method. For homeowners, this results in a soggy, muddy lawn with drowned plants. The recovery is long and damaging.

Banking

Banking soil up the trunk of grafted trees is beneficial in saving tree grafts. Covering the graft union will act like insulator. You may lose the branches and leaves but the tree will regrow true to the scion you purchased. Be sure to use soil, not mulch or leaves. Only soil will provide the protection you need and aid in the radiant heat process. To use this method, spray the trunk with a fungicide first. Then bank soil all around the trunk and up beyond the graft union. You can do this in November or with the first predicted freeze and leave until March. After removing the soil bank from the trunk, spray again with a fungicide. Also, make sure to remove the soil from around the roots. Citrus roots are very shallow and will suffer if they become too deep.



Insulation

Insulation is accomplished by using various objects to keep ice from forming in the cells of the woody parts of plants. The use of pipe insulation, sheets, Styrofoam or plastic give spotty results and simply do not work well. However, sheets of fiberglass insulation will work to protect from freezes. You will need to wrap the plants prior to the freeze and remove as soon as the freeze has passed. Otherwise the plant will overheat. It is helpful to cover the insulation with plastic to keep dry.



Whichever method you use, the devil is in the details. When it comes to freeze protection it's all in the timing. A sudden 30-degree drop will cause severe damage no matter the precautions you take. A gradual cooling off may do no damage. But, if a spring crop is important, you should have a plan in mind for winter protection. Have your materials on hand and

don't wait until the "Nor'easter" is upon us...prepare as soon as it's predicted.