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Cold Protection: Which Plants do I need to Protect? Sharing the Frosty Chill Experiences of 2008 and 2010.

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Left: Ixora are sensitive and will defoliate all their leaves, almost simultaneously it seems, about 2 days after a cold snap.

Right: Crossandra within hours of 35 degrees F. on January 3, 2008 in Naples, Fl.

It is easy to get caught off-guard in south Florida when those Siberian Express cold fronts blow through. But, do I need to worry if it is not going to reach 32 degrees? This is when an inventory of the tender and tropical plants in your yard will come in handy. I run around looking for the pile of frost cloths, and other items to cover plants, buckets, waste baskets, left over pool blanket pieces and rags and try to sort out which plants to protect that I have added since the last freeze……the bromeliads or the crotons?…the chenille shrub or the variegated tapioca? I don't have enough frost cloth! Such was the night of January 3, 2008, when the Naples airport registered a chilly 35 degrees Fahrenheit. Of course there were landscape pockets where it was colder and more plant damage occurred.

Frost cloth is one of the best ways to insulate plants, especially tender flowering annuals because it isn't necessary to prop it up, off the foliage. To insulate plants, an air gap needs to be maintained with heavier covers such as old sheets, shirts, leftover Christmas, cardboard boxes, those large yard waste bags. These need to be supported by wire or something handy, old pots, baskets, etc., to avoid foliage contact. Scattering a light covering of pine straw (needles), say ½ to ¾ inch deep on top of sensitive plants should help. Even bales of pine straw as will afford some protection if pushed next to the base of sensitive tropical shrubs (last picture) or young fruit trees (cover the grafted area) such as mangos or bananas with a bale of pine straw will help avoid complete dieback.

Use clothespins, rocks, clay pots, old shoes, tent stakes, etc. to help hold the frost cloth or protective containers in place against the winds.

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Stephen Brown, the Lee County Commercial Horticulture Extension Educator, reported (2008) that there was severe shrub damage in a community that irrigated during the night, hours before the freeze. Shrubs in non-irrigated areas were fine. Some attributed the damage to the wind, but a breeze is helpful in that it reduces the odds of ice forming. Plants are **not prone** to wind-chill which can only reduce body temperatures of warm blooded animals.

To quote Stephen, "Using irrigation water to save plants from freezing temperatures can have grave consequences if the relationships between plants, temperature and water are not well understood."

HERE'S WHAT'S SENSITIVE:

To begin, different plant species are damaged by cold weather at different temperatures. Our landscapes are filled with plants that can be injured when the temperature is just above freezing or even in the low 40's for some of these tropical-sub-tropical species. **These plants include crape jasmine, cocoplum, hibiscus, and wild coffee. [I would also add areca and coconut palms; crossandra, chenille plant, *Clerodendrum* species, coleus, copperleaf plant, caricature plant (*Graptophyllum pictum*); crotons, dieffenbachias, mussaenda, native firebush, 'Green Island' ficus; ixora, heliconia, variegated tapioca (*Manihot esculenta*) and the variegated groundcover, *Alternanthera ficidea*; also orchids such as Vandas, Ascocendas and Dendrobiums]. Again remember,** some of these tropical plants will react adversely to non-freezing temperatures. My variegated tapioca, crossandra and caricature plants drop leaves around 40-45 degrees. The longer the cold spell, the more plants will be injured. For example, on Jan. 22, 2020, Naples had a few hours of 37-39 degrees with slight injury to some of the above plants. A slight breeze helped reduce injury.

"However, citrus is relatively more cold tolerant than these and many other landscape plants. This knowledge is used by citrus growers to save trees and livelihoods. Here's why. The major source of heat from irrigation is provided when the water changes from liquid to ice. As long as water is constantly changing to ice, the temperatures of the ice-water mixture will remain at 32°F. Since citrus for the most part is not damaged unless temperatures dip to 27°F and below, the mixture acts as a blanket against even colder atmospheric temperatures. Thus, the grower should begin irrigation before the freeze and keep it running until after the danger of freeze has passed. On the other hand, this ice-water mixture is capable of killing tissues of the aforementioned tropical plants as they are not tolerant of temperatures of 32°F and below. The situation is made worse when the leaves are wet and there is no protective 32°F coating."

"Here's why. Even on the same plant, under windy conditions, wet leaves will sustain more cold damage than dry leaves because the temperature of wet leaves will be much lower than the temperatures of dry leaves. That is because wet leaves are drained of heat faster [as the water evaporation process requires energy, that is, ambient heat] than dry leaves and become more susceptible to cold damage." Its one of those Laws of Thermodynamics that I had in Physics 101 some years back.

"If a freeze is forecast, turn off the irrigation system as it can cause more damage than would otherwise have occurred. If irrigation is to be used, it should be done in time for the leaves to dry before the cold settles on the landscape."

I was surprised that none of my bromeliads were affected. I have reports from growers and collectors that attempted to protect bromeliads with irrigation and ended up with a bunch of "stir fry mush", that is, dead bromeliads. However, you might cover the *Neoregelia* species which have thinner leaves, which are typically the species that do better in the shade. The ones that do well in the sun have tougher leaves and more cold tolerant.

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After the freeze avoid pruning, as new growth may be stimulated which will be more vulnerable to freeze injury. In fact, it is best not to prune between November and February to avoid inducing tender new growth that will be prone to freeze injury. Although that is not such a big deal down here, as we may not have freezing temperatures every year, and a hard freeze maybe every 15 to 20 years. For a good reference on cold damage (explains radiational and advective freezes) and protection of landscape plants see fact sheet https://tinyurl.com/spfecvh by Sydney Park Brown, D. Ingram and T. H. Yeager (2014).

If plants suffer brown leaves or dieback, don't be too zealous to remove or rip them out right away. They may be ugly, but give them until late March or so and see if they send out new growth.

Crabgrass is also susceptible to frosts. That may be a good thing. However, our office is receiving calls from people thinking their lawn was dying or that they needed to fertilize to bring it back. Some of the five species of crabgrass in our area browned out pretty quickly after our last cold front. We also see a flare-up of large or brown patch disease on St. Augustinegrass and zoysia with these cooler temperatures. For info on this disease see: https://www.youtube.com/watch?v=xgyuFGvigtA

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