# Microclimates in the Landscape

*Texas A&M AgriLife Extension Service — Galveston County Office*

**PHOTO CREDIT: Dr. William M. Johnson**

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**Citrus are subtropical plants. When frost or freezing temperatures are predicted, precautions must be taken to minimize damage to the trees and fruit. Kumquats are the most cold hardy of all edible citrus. Kumquats can survive cold temperatures down to the 16 - 18°F range when trees are properly conditioned or acclimatized well before the arrival of a cold snap.**

A cold snap arrived as the New Year started. Nighttime temperatures in my home landscape dropped into the low twenties for a few hours.

After moving cold sensitive plants indoors, I decided to repeat an experiment with water-filled Solo cups that I first conducted one year ago on Saturday, January 7, 2017. As with my first experiment one year ago, I set out several 16-oz. capacity Solo cups which I had filled to the brim with tap water.

Solo cup #1 was placed out in an open area in the back lawn. Solo cup #2 was placed on the ground under the dense foliage of a red firecracker plant growing along the concrete slab foundation.

Solo cup #3 was placed on top of the soil about 18 inches away from the outer branches of my Meiwa kumquat citrus grown in a raised bed. Kumquats are the most cold hardy of all edible citrus and can survive temperatures down into the 16 - 18°F range but their cold tolerance is dependent on a tree being

properly conditioned or acclimatized well before the arrival of a cold snap.

I was not taking any chances with my Meiwa kumquat sustaining cold injury, so I draped two cotton sheets over the nearly 6-foot-tall tree. When television meteorologists later predicted a chance of rain, I placed a sheet of plastic over the bed sheets. My Meiwa kumquat was in full production and looked like a Christmas tree with its plethora of bright orange-yellow fruit against the dark green leaves.

Solo cup #4 was placed on the ground near the trunk and underneath the dense canopy of the Meiwa kumquat tree that I had placed two bed sheets plus a layer of plastic.

While I have no delusions about submitting experimental results from my rather rudimentary New Year experiment to a revered scientific journal for publication, the findings nevertheless can provide some insights to home gardeners on what happens when a cold snap arrives.

So what were my findings? The surface of the water in the Solo cup #1 (in an open area of the back lawn) was frozen to a depth of nearly 1.5 inches by the following morning. The water in the Solo cup #2 (on the ground under the dense foliage of a red firecracker plant growing along the concrete slab foundation) remained in a liquid state.

The water in the Solo cup #3 (placed on top of the soil about 18 inches away from the outer branches of my Meiwa kumquat citrus) was frozen to a depth of nearly 1.5 inches by the following morning.

The water in the Solo cup #4 (placed on the ground near the trunk and underneath the dense canopy of the Meiwa kumquat tree protected by two bed sheets plus one layer of plastic) had a paper-thin layer of ice on the surface.

What are the implications of this study? There can be subtle microclimates in a given area. Microclimates are the little weather variations that can occur from one side of a hill to another, from one street to the next, and even within different sites in the same yard. Wind exposure, bodies of water (ranging from small water gardens to the Gulf of Mexico), etc. can influence a microclimate.

Even the brick walls of homes can create subtle microclimates. Brick walls with a southern exposure to the sun warm up earlier, reach higher temperatures and have greater variations in temperature than north facing brick walls. I observed that leaves on the lower branches of my blue plumbago plants growing next to a south facing brick did not sustain cold injury from last week's cold snap.

The interior-most leaves of a large blue plumbago growing near my office in Carbide Park also escaped cold injury. That's why I strongly recommend not pruning away dead foliage until late winter after the likelihood of cold weather is lessened.

The occasional colds snap made many gardeners scramble to protect their cold sensitive plants. Tropical and subtropical plants can be used effectively in the landscape, but they must be protected or replaced when necessary. The best approach is to plant a good balance of tropical and winter hardy plants, so that your landscape is not totally devastated in the event of extremely cold weather.

**At a Glance**

**WHAT:** Collection & Storage of Burwood for Grafting
**WHEN:** 9:00 - 10:00 a.m. on Thursday, January 11
**WHERE:** Discovery Garden in Carbide Park (4102 Main, La Marque)

**WHAT:** Growing Great Tomatoes
**WHEN:** 9:00 - 11:30 a.m. on Saturday, January 13
**WHERE:** Galveston County AgriLife Extension Office located in Carbide Park (4102-B Main St.in La Marque). Pre-registration required (e-mail galvcountymgs@gmail.com or phone 281-309-5065).

**WHAT:** Kitchen Gardening
**WHEN:** 1:00 - 3:00 p.m. on Saturday, January 13
**WHERE:** Galveston County AgriLife Extension Office located in Carbide Park (4102-B Main St.in La Marque). Pre-registration required (e-mail galvcountymgs@gmail.com or phone 281-309-5065).