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Risks and opportunities for avocado, lychee, longan, and mango production in Highlands County

The most important environmental factor in the survival and economic viability of a particular fruit crop are the minimum temperatures experienced, the frequency of freezing (or below) temperatures, the duration of freezing temperatures and timing of the freeze/frost events. The inherent genetics (tolerance) of the crop is a crucial parameter that limits the regions and sites a crop may be successfully produced in. Cultural practices such as pruning and nutrient and irrigation management are components of preparation for and recovery from freeze events and influence the trees (or vines) survival and production.

Highlands County is no stranger to freezing temperatures which occur nearly every year. Despite the average increase in temperatures and decrease in the frequency, duration, and depth of freezing temperatures throughout Florida including Highlands County, freezing temperatures still occur. While it is true mature trees (e.g., >8-years-old) tolerate more cold than young trees, part of the issue becomes how do you establish and protect young trees from freeze damage so that they become mature trees? Furthermore, frosts and freeze events that do not kill or damage the limbs, stems, and leaves may still damage or kill flowers and fruit, resulting in crop loss.

The best method for protecting trees from freeze events are to select planting sites that have no to limited exposure to freezing temperatures, select fruit species and cultivars with cold/freeze tolerance and to prepare the planting for freeze protection and recovery.

Site selection

Location, location, location

- Nearness to large bodies of water. South/southeast sides of lakes and near coastal areas are best.
- Is this fruit crop already established nearby? Are there the same or similar crops nearby, what are their specific site characteristics?
- Elevations and slope directions. South/southeast facing slopes are generally warmer than north/northwest slopes. Lower elevations are colder than higher elevations.
- Access to and permitting of water resources that could be used for cold protection.

Cold protection

- Properly designed, installed, and managed microsprinkler irrigation systems.
- Soil banks and tree wraps.
- Clean culture where possible.
- Pre-freeze irrigation – i.e., saturate soil 3-5 days prior to a predicted freeze event.