

Avocado Planting and Care Guide

This document is somewhat based on the University of Florida Circular 1034, CIR 1034, and primarily my own experience growing avocados in Northern Florida. Every avocado grower should read CIR1034 and the other UF avocado documents.

There are a few common problems encountered growing avocados in North Florida and the Deep South in general. The first thing to consider is selecting the right variety for your area and preferences. Your first choice should be a Mexican race avocado because of that type's cold tolerance. Some Mexican avocados are frost tolerant to 15 degrees Fahrenheit when mature. Some are even a little more cold tolerant than that. Mexicola, Gainesville, and several others fall in this category. The second thing to consider is soil and soil drainage. The usual problem in the area is planting in clay soil, thereby creating a stagnant basin that rots the roots before they can get established in the native soil. The solution is planting in a basin on a mound of well drained soil or on a raised bed. Another common problem comes from planting seedlings. This is a fine way to discover new varieties, but the juvenile period of seedlings is from eight to thirty years. I watched a tree for 30 years before it flowered and produced 6-10 fruit a year from a 60 foot high tree. A researcher in the tropics can easily wait the eight to ten years for a seedling to come into production, but a homeowner in the deep south may wait thirty or more years for the first fruit. Seedling trees are often not productive. The solution is to plant a grafted tree of known productivity which will bear fruit in two or three years. Then you can experiment with seedlings from your own productive tree. Our most recent problem is Laurel Wilt. Research is ongoing, but preliminary results suggest systemic fungicides may be necessary.

The Cold Hardy Avocados

Mexicola- smooth black skin, 6 oz., tolerant to mid teens, tasty, ripe July-August

Gainesville- smooth green skin, 6-8 oz., tolerant to mid teens, ripe July-August. This one is also extremely cold tolerant and has tasty fruit when well cared for. The fruit is larger than Mexicola. The original seedling tree on the UF campus is gone, but it lives on as grafted trees and several seedling selections.

311/Mexicola Grande- There are several Mexicola Grande floating around out west. This one is like a larger version of Mexicola, but is a little more tender.

Chattahoochee Mexican-This tree is a seedling that has survived extremely cold weather with very little frost damage. It has not fruited, so the other characteristics are unknown. It looks like a Brogdon seedling, but who knows?

Tallahassee Mexican aka. "**Vicky**"-smoother skinned version of Hass, 6-8 oz., cold tolerant to upper teens, ripe August-September. This seedling has rarely had any frost damage in Tallahassee due to the protection afforded it by the urban heat island. It seems to be a Hass seedling with a Mexican race pollen parent, but who knows? It has good size and flavor, but I think it is less cold tolerant than Mexicola.

Ft. Ogden- This tree is massive. It withstood 18 degrees with little damage in the 80's, but it is less cold tolerant than Mexicola. It seems to acclimate well to the cold. It has not had any frost damage during any recent cold years. It was damaged by the hurricanes though. I was told it is a Brogdon and knew it as such since childhood. I since learned that although the fruit type and season is the same as Brogdon, the cold tolerance of this tree exceeds Brogdon. In fact, I suspect this tree is a clone of the original Brogdon because it is actually cold tolerant to the lower 20's. The Brogdon on the market is only hardy to the mid 20's. Ft. Ogden also has anise scented leaves, and Brogdon does not. I

alternatively suspect it is a Brogdon - Mexican cross or Brogdon seedling.

Winter Mexican-pebbly green skin, 8-12 oz., cold tolerant to lower 20's, ripe October-December. This one is from Southwest Florida and has lower fruit quality than those previously mentioned. But, it is the most cold tolerant variety to ripen so late in the year, fruits until first hard freeze in North Florida.

Brogdon- smooth black fairly easy to peel skin, 8-16 oz., cold tolerant to mid 20's, ripens August-September. Brogdon is the most cold hardy common type with commercial potential, but it is too tender for all but the warmest spots. It does well enough in the urban heat Island of Tallahassee though.

Bacon- This is the hardiest Type B pollenizer for those worried about such things. There is no need to worry. The Mexican types don't have such problems in Florida. In fact, almost no avocado selection has required a pollenizer in Florida's humid climate. Even in the drier growing regions of California, the increase in production from planting a pollenizer is only 8%.

Duke- Duke is known for Phytophthora root rot tolerance as a rootstock and for fine flavor. I planted a Duke 7 in 2011 in Tallahassee. It has never had any frost burn. It was exposed to an ice storm, single digit wind chill, and a plummet to the low twenties with no acclimation to cold. The Vicky variety did get some damage, but it is more exposed since it is forty feet tall.

Day- smooth green peelable skin, 8-16 oz., cold tolerant to mid possibly lower 20's, ripe July-September. This is the hardiest big green Florida type, but is suited only to the warmest spots. There are twenty foot tall specimens of West Indian X Guatemalan race seedling trees in Tallahassee.

The Texas varieties.

There are several varieties from Texas that claim superior fruit quality and cold tolerance. I do not yet know their adaptability in our area, but they come highly recommended. Mexican types are generally more sensitive to fungal infections. The best varieties from University of Florida trials were hybrids like CH4,

but I can't find them. I saw Lila avocado suffer no leaf burn, when even Satsuma mandarin orange suffered leaf burn, from a sudden plunge to 22 degrees in mid November 2014. The weather was warm and no trees were acclimated to cold. I was amazed. I had to see it to believe it.

Brazos Belle-smooth black skin, 6-8 oz., cold tolerant to the mid teens, ripens July-August

Fantastic-smooth green skin, 6-8 oz., cold tolerant to mid teens, ripe August-September. Reportedly the most cold tolerant known. I've never had any leaf damage. May flower slightly later.

Joey-smooth slightly pebbled black skin, 6-10 oz., tolerant to upper teens at least, ripe August-October

Lila-smooth green skin with red blush, 6-8oz, cold tolerant to the mid teens, ripe July-September

Pancho-smooth green skin with a red blush, 6-8 oz., cold tolerant to upper teens, ripe July-September

The following are good varieties but not really hardy in North Florida and will need frost protection.

Choquette- Very large and tasty green fruit, 24-40 oz., cold hardy to about 25 degrees when mature, ripens November-February.

Fuerte- Like a big green Hass and ripens late, but also very tender.

Hall-smooth green peelable skin, 20-30 oz., cold tolerant to 25, ripe November-February, good flavor.

Russel- No real cold tolerance, but known for vigor and gourd shaped fruit, green, 16-40 oz., ripe July-September.

Lula- green, 12-24oz., cold tolerant to mid 20's, ripe November-March.

Monroe- smooth green peelable skin, 16-30oz., cold tolerant to 25, ripe November-January. Florida variety, one of the hardiest of the type and tasty.

Mound Planting

Bedding or Mounding is a common practice in high water table areas or in poorly draining soils like clay. A high water table is found in North Florida, but what is most common is a perched water table created by digging a hole in clay soil and planting the tree in that hole. This unfortunately common technique is called clay potting. This is fine until the rainy season. Then the hole becomes a waterlogged basin which soon rots the roots. The situation is made worse when so called "good soil", compost, peat, rotted manure, compost, etc... is added to the hole. These amendments make it worse by creating a stagnant sour root rotting pool during most of the year. Your avocado tree will die outright or be so weakened that it dies at the first frost. The weather is blamed, but the real culprit is the poorly drained planting. I followed this advice and killed trees this way due to inexperience with clay soil. The well drained sand over limestone found by the coast will never have this problem and may in fact benefit from soil amendments, especially if you plant a species sensitive to nematodes. The planting technique is specific to water table and soil drainage. It is best to add compost and mulch **only** as a top dressing around the tree but not near the trunk or the root zone. I found the only way is to plant the avocado on a mound of sand and to not disturb the clay. The roots will find what they need. Plant the tree in a basin on the mound. Mulch the slopes but keep it away from the trunk. Once the tree has been in the ground for a few years and has reached a mature fruit bearing height of six to eight feet tall and at least as wide, then it is time to bury the graft union at least six inches. If you do this at planting you will smother the roots and kill the tree. By waiting you allow the roots to get established in the mound and they won't be smothered by filling the basin. If you have extremely well drained soil, then just plant the graft union below grade. Always keep the roots well drained and moist.

Grafted Trees

There are several reasons to choose a grafted tree. A cutting from a mature tree is spliced into a seedling, the rootstock. The seedling serves as the root system for the cutting. This way you can propagate a known variety. The newly grafted tree behaves as a mature tree well past the unproductive juvenile phase. Grafts two inches high try to fruit because they don't know any better. It is best to remove all flowers and fruit before the tree reaches six to eight feet high and wide. The graft union is the point where the rootstock and scion, the tree you aim to propagate, are joined. The rootstock is less cold tolerant than the scion and should always be protected from freezes. The rootstock is chosen for vigor, disease resistance, salt tolerance, etc... If these issues are a concern, for example coastal areas or infected fields, then the rootstock should be conserved and protected from frost. The rootstock and graft union are usually buried and the scion allowed to root for itself. This is done because, in the case of severe freezes, the scion can sprout a new trunk from the underground portions of the base of the trunk. Such sprouts are from the desired cold tolerant variety with good fruit, not the rootstock. This is easy to confirm with the anise scented varieties.

Frost Protection and Cold Tolerance

My garden at the farm in Quincy always needs frost protection for young trees. My gardens in Tallahassee are in warmer spots and rarely suffer severe freezes. The immediate coast and barrier islands are also semitropical and rarely need frost protection. It depends on the needs of the individual tree. It is best to plant early in the spring or late winter after the threat of severe frost has passed so the tree can root in and get established before the winter. It is best to protect young trees from freezes below 30-25 degrees for the first few years, depending on which type of tree and stage of growth. Once they are established and the graft buried, then they will reach full frost tolerance. Assuming they are

adequately acclimated to the cold. A tomato cage and an old blanket could suffice the first season. If you are in a zone that averages below 15 degrees each year, then you should construct a frame to support a cover and prune the tree back after harvest to control size. I like pvc and frost cloth or greenhouse plastic. A misting/sprinkling system can also protect the trees but must be applied correctly or it will cause more damage. I prefer to cover avocado trees due to the sensitivity of the roots to rot which is encouraged by the irrigation. You can add supplemental heat with jugs or barrels of water, lamps, oil lanterns, space heaters, or mini-bulb Christmas lights. Avocados vary in cold tolerance. A young actively growing Fantastic will tolerate the lower 20's with little to no damage. A fully hardened and acclimated Russel will freeze to the ground at those temperatures. Some avocado varieties have the ability to acclimate to the cold. That means during cool winter weather they stop growing and put some natural antifreeze in their sap. That is why cold tolerance is properly given in a range. They are tolerant of different temperatures because of varying degrees of acclimation to cold and different stages of growth. New succulent leaves and stems are very vulnerable to cold and heat. The thermal mass of large branches versus twigs also add confusion to reports of cold tolerance. For example, Fantastic is said to have survived single digit temperatures. I'm sure it was frozen to the ground and sprouted from the roots. There are many seedling avocados in Tallahassee that freeze to the ground nearly every year, but they refuse to die. The Vicky variety had little leaf burn at 14 degrees when well acclimated one year, but lost branches as much as 3-4 inches in diameter on the top of the tree when temperatures unseasonably dropped to the low 20's last November. The weather was quite warm to that point so there was no acclimation.

Fertilizer

Mature trees seldom need any, but young trees need some early in the season. Withhold fertilizer late in the year to discourage

tender late season growth. I like slow release or organic fertilizer. Charcoal made from partially combusted wood is a great soil amendment and the only one I recommend for Avocados. I use a very light layer of pine straw/hardwood leaf mixture to mulch the slopes of the planting mounds when erosion is a concern. A cover crop like perennial peanut and clovers is a good idea.

Watering

People always ask me how often to water. The answer is you water when needed. They want to put their plants on a schedule. Taking care of a plant exposed to varying atmospheric conditions means that **nature puts you on a schedule**. Avocados are finicky like azaleas and blueberries. They need moist well drained soil, all the time. Check the soil moisture with your finger. You will learn to notice when the weather has been dry enough to water. I almost never water established trees. This area is well watered and drainage is more of a concern. However, drought occurs too. So, I always install irrigation. Timers and moisture meters are necessary in large orchards and are always preferred. Agricultural irrigation systems are much more affordable and durable than their residential counterparts.

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