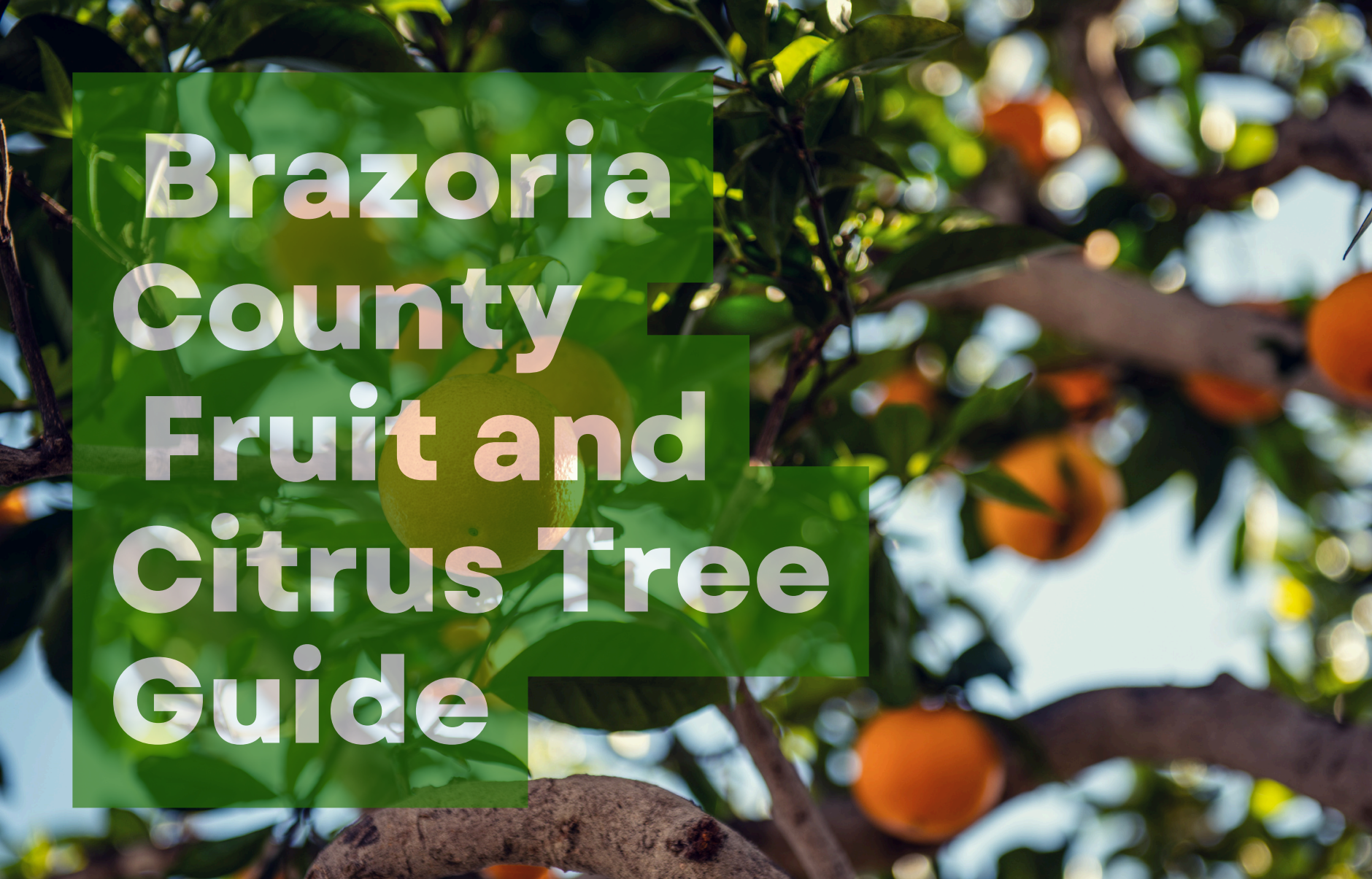

# Brazoria County Fruit and Citrus Tree Guide


Texas A&M AgriLife Extension

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Texas Master Gardener
Texas A&M AgriLife Extension

# FOREWORD

The Brazoria County Master Gardener Association is a volunteer support program of Texas A&M AgriLife Extension Service and is a 501c3 charitable organization under IRS statutes. Funds derived from programs and fee-based workshops support the Brazoria Environmental Education Station (BEES) education and demonstration garden located in Angleton, Texas, and Brazoria County AgriLife Extension horticulture programs. BEES garden is open to the public on select annual programming events. Demonstration bed themes include herbs, native and adapted plants, Texas Superstars, fruit orchard, roses, tropical ornamentals and more. Brazoria County Master Gardeners strive to provide the public with sound research-based information to support public effort at gardening success. The contents of this brochure utilizes multiple resources from leading agricultural universities, Texas and other state and national organizations. Thanks to you for your continued support!

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# TABLE OF CONTENTS

# APPLE

**The old adage "you get what you pay for" is an important consideration when buying apple trees. Bargain plants may not be healthy or may be a variety not adapted to your area. Buy only trees of recommended varieties from a reliable source.**
**Remember the following points when purchasing apple trees.**

- **A healthy 1-year-old whip, approximately 2 to 3 feet tall with a 1/2-inch diameter trunk and a good root system, is preferred.**
- **A small tree with a good root system is more desirable than a large tree with a poor root system.**

**Anna** — Light greenish-red, sweet, slightly tart and crisp apple. Adaptable in the Houston area. Fruit stores well. Harvest in late June. Cross-pollination includes 'Ein Shemer' and 'Golden Dorsett'. 200-400 chill hours average.

**Fuji** — Yellowish green with a blush of orange, interior color a creamy yellow-orange. A very attractive modern apple, crisp, sweet-flavored, and keeps well. Developed in the 1930s by researchers in Japan, a cross of Red Delicious and Ralls Janet brought to American market in 1962. Self-fruitful, also a recommended pollinizer for other mid-season apple varieties. Ripens from late August through October. 200-400 chill hours average.

**Golden Dorsett** — Originated from the Bahamas. Golden with red blush. The firm, crisp flesh is very sweet and tart at the same time. Fruit are slightly smaller than ‘Anna’ and resembles ‘Golden Delicious’. This characteristic makes it a superb choice when making pies, desserts and sauces. Well known for holding its flavor during any baking or cooking process. Ripens from mid-June to mid-July. Cross-pollination includes ‘Anna’ or ‘Ein Shemer’. 100-350 chill hours average.

# Apricot

The apricot, *Prunus armeniaca,* is closely related to plum botanically and culturally, and is thought to have originated in Armenia. Apricots are small trees with a spreading canopy. It is not uncommon to find trees that are 25 to 30 feet in height and width. The fruit is similar to a small peach, ranging from yellow to orange and often tinged red on the side most exposed to the sun. Its skin is smooth but can be covered with very short hairs. Apricots are self-fruitful; they do not require a pollinator.

**Gold Kist**- These plum-sized, orange, freestone fruits, originally from California in the 1960's, are the first apricots to ripen each season. The firm orange flesh is delicious eaten fresh or dried. What a great way to extend your harvest!
Only 300 chill hours needed to reliably bloom and set large quantities of fruit. Especially well-suited for warm climates. Blooms early; not for growers with variable spring weather.

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# AVOCADO

The avocado tree is a large evergreen that has thick, deep green-colored leaves. Avocados need special care for their first year. It's best to plant them in a raised bed to prevent their roots from staying too wet. For the first Texas summer months, cover with a shade cloth to decrease sunburn on the trunk. Avocado roots are shallow so mulch heavily.

There are three major groups: Guatemalan, Mexican and West Indian. Mature Mexican avocado trees can withstand cold temperatures down to 20˚ F. Some growers will tent cover their avocados and place a heat source under the canopy when a heavy freeze is predicted.

Cold hardy avocados produce blooms beginning in mid-February. Late frosts will cause bloom drop. Covering avocados will prevent frost from reaching the blooms. Each successive year produces more fruit as the tree grows. A specimen of cultivar 'Joey' has produced over 100 fruits in its sixth year in Brazoria County. Avocados do not come true from seed, and seedlings may take 10 to 15 years to fruit. Recommended to purchase a grafted tree with the cultivar of your choice.

CLICK HERE

**Brazos Belle**—Originated in Pearsall, Texas. Very vigorous growing tree that produces large, shiny, black skinned fruit. Hardy to mid to upper teens. Ripens August-September.

**Don Juan ™** —Produces good sized fruit with a speckled green skin. The flesh is of exceptional quality. After years of maturity, it may reach 23 feet tall. It is cold hardy to mid-10° F.

**Fantastic**- One of the most cold-hardy avocado trees! Originating from Texas, the Fantastic Avocado tree is a more cold-tolerant variety that bears fruit with creamy smooth. The skin is dark and bumpy, with thin skin that remains green when ripened, unlike the black/purple Hass.

**Joey ™** — Found by Joey Ricers in Uvalde, TX. Small egg-shaped fruit, with a dark purple skin and flavorful nutty flesh. Ripens from August to October. Extremely cold hardy, to 15-18° F.

**Lila** — Originated in Uvalde, Texas. Tight growing, vigorous tree. Medium pear shaped fruit, rich flavor, green skinned. Ripens August - September. Hardy to mid-teens.

**Mexicola Grande** — The fruit is 15% - 25% larger than Mexicola and somewhat rounder in shape. Turns a deep purple-black at maturity. The flesh has a rich creamy texture. Its flavor is rich, nutty and smooth. A consistent large bearer. Medium size and weighs an average of 4-6 ounces. Ripens from
August to October. Hardy to mid-20° F.

**Pancho** — Medium to large green with red blush, 6-8 oz fruit. Rich nutty flavor. Ready to give fruit the first year, ripens from mid July-September. Another extremely cold hardy variety from Texas, to 15-18° F.

**U-la-la -** Super Hass Avocados are a dwarf variety, which make them great container plants. The fruit is very similar to the Hass Avocado, except this variety is larger and has a longer shelf life. A single fruit can weigh over a pound and the tree grows to reach just 8 feet indoors, or 15 to 20 feet when planted outside.

## BERRIES—BLACKBERRY

Blackberries are an excellent fruit plant for Texas home landscapes. They are relatively easy to grow in small areas, they tolerate hot Texas summers well, and they bear good fruit in spring, summer, and fall. Although blackberries have some challenging diseases and insect pests, they produce well for growers. Blackberries have two types of canes: primocanes, which grow during the current season which are 1-year-old, flower-bearing canes that die after the berry crop matures. Cultivated blackberries are classified into two fruiting types:

- Floricane-bearing, which flower and set fruit only on floricanes
- Primocane-bearing, which flower and set fruit on primocanes late in the growing season, and then bear on floricanes also the following spring

**Caddo**- Caddo is the latest in a series of erect-growing, high quality, productive floricane-fruiting black berry cultivars. Size has been larger than both Osage and Ouachita, holding size through the harvest season. Hardiness is anticipated in zones 5–9.

**Natchez** — Released in 2007 by University of Arkansas. A Texas Superstar plant. Erect, thornless canes.
8-9 grams/berry. High fruit quality, consistently high yields, large fruit size and excellent post harvest fruit-handling. Superior fruit for making pies. Ripening begins in early to mid-June for 6 weeks. 500 chill hours.

**Osage**- Osage was developed with the intention of advancing flavor to a higher level in Blackberries. Osage ripens 5 days after Natchez around June 10, three days earlier than Ouachita. The berries are medium size and very firm with excellent flavor, good yielding and has an excellent storage potential.

**Prime Ark Freedom** — Brand new release from University of Arkansas, the first thornless, primocane-fruiting blackberry. Fruits very early in the season; where the climate is suitable, fruits again in the fall. Exceptional fruit size, good flavor, excellent disease resistance, great heat and humidity tolerance. Self-fertile and ideal for growing organically at home due to very little need for a spray. Kids love it fresh, right from the canes. ~200 chill hours.

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# BERRIES—BLUEBERRY

The Brazoria County Master Gardeners have been growing “blues” at the B.E.E.S. (Brazoria County Environmental Education Station) Demonstration Garden for several years. Blueberries are one of the few fruits native to North America. Only highbush and rabbiteye blueberries are recommended for this area. Southern highbush blueberries are the earliest blueberries to ripen in North America. Berry yields of 2-5 pounds per plant can occur by the third or fourth year, provided pollination is good. Yields increase up to 7-8 years of age.

Blueberries should be spaced at least 20 feet from any building. Space plants 8-10 feet between each other. Soil pH needs to be 4.0 to 5.5; very acidic. Soil can be acidified by thoroughly mixing a small amount of granulated sulfur into the soil before planting and/or mixing soil and planting with sphagnum peat moss. Fertilizers produced for azalea’s can be used to maintain soil acidity. Blueberries need companion species to ensure pollination; two plants are recommended. 150-300 chill hours average.

**Emerald** — Southern highbush. Released in 1999 from University of Florida. High yield crops with large berries. Spreading growth habit. Yield/plant is 5-10 pounds when mature. Early bloomer. Cultivar ‘Misty’ is a good companion plant for cross-pollination. 250 chill hours average.

**Jewe**l — Southern highbush. Upright bush 6-ft to 8-ft tall with green foliage in fall. Large tangy berries. Dependable in mild winter climates. Berries ripen late April to early May. Plant with other mid-season fruiting blueberries for best performance. 200 chill hours.

**Pink Lemonade** — Rabbiteye. Compact plant, reaches to about 5-ft..Yellowish, pink fruit. Two times sweeter than a regular blueberry. Spring flowering. Does best in full sun, acidic soil, somewhat moist but well-drained. Sets fruit better when planted with other rabbiteye varieties. 300 chill hours average.

**Rebel** — Southern highbush. Very early season blueberry, flowers in late February to early March, berries ripen late April to early May. Light blue fruit, mild flavored with good fruit size. Evergreen foliage, spring bloom, full sun to partial shade. 400 chill hours average.

**Sunshine Blue** — Southern highbush. Abundant crops with large berries Considered a semi-dwarf, maximum height around 3 feet. A vigorous producer. 150 chill hours average.

**Tifblue**- Rabbiteye blueberry. A deciduous shrub that is known to produce large and flavorful berries. Native to Texas and can be found in many parts of the state. Grows to be about 6' and produces fruit that up to one inch in diameter. The berries are a deep blue color and have a sweet flavor. Requires cross-pollination in order to bear fruit. Pair with "Pink Lemonade", "Brightwell" or "Powder Blue".

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# CITRUS

Citrus are productive fruit trees for the homeowner, especially in Brazoria County. The fruit begins to mature in October. On average, one can pick and eat fruits into February each year. Citrus stores well on the tree, and is easy picking through February. Any residual fruit that you have not given away can be made into glazes and delicious marmalades. One concern for home gardeners is the survival of trees after “hard freezes”. Our working definition of a hard freeze is freezing temperatures lasting at least 3 continuous days. Brazoria County has had hard freezes in 1989 and 2010. During 2010, temperatures of 19º F-32º F for 42 continuous hours were reported in the Gardeners in this area use trifoliate orange (C. trifoliata) as the rootstock of choice. Trifoliate orange is much more cold tolerant than citrus coming from the Texas valley where they use ‘Sour Orange’ for rootstock. Miniature or dwarf citrus is achieved by grafting onto rootstock called ‘Flying Dragon’, a cousin to C. trifoliata.

All citrus require full sun. Some citrus tree seeds can grow true to parent, producing the same fruit you currently enjoy; you will, however, wait 6-7 years to eat your first fruit. Recommended to get a grafted tree and start enjoying fruit the next year after planting.

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## CITRUS—GRAPEFRUIT

Grapefruit was originally named the “forbidden fruit” of Barbados. They were developed from a cross of the pummelo (Citrus maxima) with a sweet orange (Citrus sinensis). These evergreen trees may achieve 10-12 feet tall in about 10 years with our coastal temperatures and soil conditions. Space 12 feet apart from other trees and the house. Excess fruit (not given to your neighbors) makes for top notch glazes. Texas red grapefruit was designated the official state fruit of Texas in 1993

**Bloomsweet** — Also known as ‘Kinkoji’ in Japan, produces bountiful crops of large yellow and delicious fruit without the bitterness typical of grapefruit. Excellent quality. Believed to be hardy to less than 15-F. Easy to peel and segment. White flesh. Ripens throughout December.

**Cocktail** —Also known as ‘Mandelo’; a cross between cultivar ‘Frua Mandarin’ and pummelo. This exceptionally sweet and juicy fruit was developed by U.C. Riverside. It has a thin, deep yellow skin, is fragrant and extremely succulent. Fruit is seedy. Juice is delicious and can be used in cocktail, smoothie, jams or frozen desserts. The taste of this cultivar is unparalleled; sub-acid flavor.

**Oro Blanco**—UCR—Patented by U.C. Riverside; also called ‘Sweetie’. Cross of pummelo and white grapefruit. One of the sweetest of all grapefruits with white flesh. Plants at 12 years of age are 12-14 feet tall. Off the tree eating is a pleasant experience.

**Ruby Red** — Discovered as a limb sport on varietal 'Pink Marsh' in 1929. Ruby Red was the first grapefruit to be granted a U.S. patent in 1929. Red-blushed yellow rind and luscious deep ruby flesh that fades to pink at medium to large size fruit. Grows 15 to 20-ft tall, 8 to 10-ft wide. Moderate growth rate and moderately drought tolerant. Cold tolerant to 29-F. Harvest late October through May; fruit holds well on the tree.

**Rio Red** — Derived from cultivar ‘Ruby Red’, a grapefruit that started the Texas industry. Discovered as a chance mutation in the valley in 1929 and was the first grapefruit to receive a patent trademark. ‘Rio Red’ is also marketed as ‘Rio Star’. ‘Rio Red’ has a smooth, thin yellow rind blushed with red once mature. Flesh is deep red and juicy with few seeds. Ripens mid to late November. Holds well on the tree through February.

## CITRUS—LEMON

**Improved Meyer** — Not a true lemon. Scientists believe the varietal is a cross between a lemon and an orange. Frank Meyer, a plant explorer for the USDA, found them growing near Peking, China and introduced them to the U.S. in 1908. Called “improved” because of it’s resistance to citrus tristeza virus. Absolutely tasty in a homemade lemon pie. Matures in October, producing a tart taste as the fruit turns a rich golden color. The flavor mellows to an orange-like sweetness come January. May set fruit throughout the year. The standard form grows to approximately 8-ft to 10-ft; grafted onto Carrizo root stock.

**Lisbon Seedless** — Imported from Australia in 1953. Classic yellow lemon, strong acid flavor, thin skin and full of juice. A delightfully refreshing old fashioned lemon that packs a sharp punch. The Eureka and the Lisbon are the most common lemons found in the supermarket. Most cold tolerant of the lemons (mid -20’s)

**Variegated Pink** — A lemon cultivar with unique pink flesh, a green-striped rind when ripening, and variegated foliage; a unique ornamental when not in fruit. Discovered as a sport on a Eureka lemon tree in Burbank, CA in 1931. When fully ripe, the stripes fade, and the rind turns yellow with distinct pink oil glands. Low-seeded and very acidic.

**New Zealand Lemonade** — Discovered in New Zealand in the 1980s, hybrid of lemon and mandarin orange that tastes like lemonade. Large, yellow-fleshed fruit that is virtually seedless. Can grow to 8-10 ft tall.

**Ponderosa Lemon** — ‘Ponderosa' is not a true lemon, although its fruit are much like citrons (Citrus medica) and lemons. It was found as a chance seedling during the 1880's. Trees are rather small and somewhat thorny; its fruit are large with a yellow, thick and bumpy-textured peel. 'Ponderosa' is more sensitive to cold than true lemons. The impressive-sized fruits may be left on the tree for many months after they've ripened without a drop in the fruits' quality. Good zest lemon.

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# CITRUS—LEMON continued

**Ujukitsu** — A 1950's sweet lemon developed by grower Tyosaburo Tanaka from Japan. A hybrid between orange and lemon; often called "Lemonade on the Tree". One can pull it off the tree, juice it, and it tastes like the best lemonade ever made. When mature, a single yellow-skinned jewel averages a half pound in weight. A pitcher of fresh "lemonade" is no problem.

# CITRUS—LIME

There are 2 major acid (sour limes) in world trade: Mexican and Persian (Tahiti). The best known and most widely cultivated is the Mexican or 'Key Lime' (Citrus aurantifolia). There is now a thornless variety
available. Fruit can vary from the size of a large walnut to the size of lemons. Limes can be very cold sensitive.

**Key (Thornless)** — Compact enough even for urban balconies and limited-space gardens. Begins bearing small, juicy, thick-skinned fruit at an early age! Even if there were no fruit at all, this evergreen would be attractive enough to grow as an ornamental. Mature fruit is small, green to yellow green ripening in July to December.

**Mexican** — Is more sensitive to cold than the lemon, and can be grown only in protected locations. Most homeowners prefer to pot in a large container which can be brought inside during freeze warnings. Blooms/fruits multiple times during the year which provides almost year round fresh fruit.

**Persian (Tahiti)** — The large, green, seedless limes found in your supermarket are the Persian lime (C. latifolia). The fruit is larger than the 'Key Lime', more resistant to disease and pests, and has a thicker rind. Commercially, they are picked slightly immature while they are still green in color (they turn yellow when fully ripe, and might be confused with lemons). The nearly thornless trees grow vigorously to a medium to large size with a spreading form and have white blossoms. Persian lime trees are more cold-hardy than Mexican lime trees.

## CITRUS — CALAMONDIN, MANDARIN, SATSUMA, TANGELO, TANGERINE

Mandarin is a group name for a class of oranges with a thin, loose peel, dubbed "zip skin" oranges. "Tangerine" could be applied as an alternate name to the whole group, but is usually confined to the types with red/orange skin in the citrus trade. Some mandarins and satsumas may bear heavier one year and lighter the next. To reduce alternate bearing, thin fruits during heavy bearing years by removing some of the fruits while they are still small. Satsuma and tangerines tend to "plug" when pulled from the tree; the peel tears loose from the fruit and remains attached to the stem. Use a pair of clippers when harvesting any of the satsumas, mandarins or tangerines.

**Calamondin** — Cross between a mandarin and a kumquat. Fruit is sour but peel is sweet. Small and orange, about one inch in diameter, resembles a small tangerine. Can be used like lemon or lime to make beverages. Grown more for its looks than for its fruit edibility. Performs well as a patio plant or when trimmed as a hedge. The fruit takes nearly a year to ripen. Prefers bright light for best growth and fruiting. Flowers are self-fertile. Hardy to 20° F.

**Honey Mandarin**—Hybrid of a King Mandarin and a Mediterranean Mandarin. One of the tastiest petite citrus fruits. Small, sweet and virtually seedless. Tree produces fragrant, tiny white flower blossoms. Thrives in warm weather.

**Page Mandarin**—Hybrid of Minneola tangelo and Clementine mandarin. Small tree, does better in warmer climates. Small fruit, reddish-orange rind, easy to peel. Rich sweet flavor.

**Ponkan Mandarin** — Most widely grown mandarin in the world. Fruit is very sweet and round in shape, almost the size of an orange. Heavy bearing every other year, and growers resort to propping the limbs up as needed.

**Kinnow Mandarin** — Most widely-planted mandarin in Pakistan. Heavy-bearing variety grows vigorously and with upright form to 15-ft, and does well in very hot climates. Fruit is relatively large with a smooth orange rind, yellow-orange flesh; it is seedy but has a rich distinctive flavor. Cold tolerant to 28-F.

**Kishu Seedless Mandarin** — Ancient Japanese and Chinese heirloom. Semi-evergreen. Small at maturity with a round form. Reliable producer. Does well in pots. Mild flavored, sweet seedless fruit, ripens in October. Fruit holds well on the tree into winter. Full to half day sun, 10H x 10W.

**Shiranui Mandarin** — Cross between Ponkan tangerine and Kiyomi tangor. Rind can be yellow, yellow-orange or orange with a bumpy texture. Flesh is orange with an acidic sweet taste, seedless. Crown is compact or dense. Likes partial to full sun and well-drained soil. Can grow to 4-8 ft. Ripens late fall to winter. Hardy to 25°F.

**Yuzu Mandarin** — Believed to have originated in central China. Hardy to 10 F. Yuzu is highly acidic with average 4.5% citric acid, used much like a lemon. Rind color changes from a dark green to a yellow-green during

## CITRUS — CALAMONDIN, MANDARIN, SATSUMA, TANGELO, TANGERINE continued

**Early Saint Ann Satsuma** — Medium sized, thin skin, juicy fruit and easy to peel. Open-pollinated seedling of unknown parentage released by LSU Citrus Research Center. Ripens in late September – October. It has a low heat requirement allowing this mandarin to ripen early, providing fresh fruit for the winter holidays.

**Louisiana Early Satsuma** — Early maturing satsuma, developed by LSU. Seedless variety begins ripening in late September. Imported from Japan in early 1800's. Easy to peel, brilliant orange fruit that is sweet to taste. Fruit bud and blossom set are heavy, with even distribution throughout the tree.

**Miho Satsuma** — Large fruit with very good sweet flavor and few seeds. Limbs are more upright than most Satsumas. Extremely cold hardy. Ripens late September or early October.

**Owari Frost Satsuma** — Medium sized, bright orange fruit, often with slightly bumpy rind. Extremely sweet, sprightly flavor and is seedless. Very easy to peel and breaks off into segments. Ripens mid to late October and is often ready to eat when the rind is still green. Fruit holds well on the tree until late December/early January. The primary satsuma cultivar commercially grown worldwide. Typically grows to 8 feet. Cold hardy to 12 to 15-F.

**Xie Shan Satsuma** — Early ripening variety with rich flavor of the late ripening varieties. Seedless, easy to peel with a super sweet flavor. Grows more upright than most Satsuma varieties, fits into tighter spots in small gardens.

**Mineola Tangelo** — Cross between a Duncan grapefruit and a Dancy tangerine. Sweet, mildly tart, juicy winter fruit with few seeds. Fruit is slightly bell-shaped with bright reddish-orange skin that is easy to peel. Blossoms are self-incompatible and must be cross-pollinated by a suitable pollinator. Tends to be cold hardy.

**Dancy Tangerine**—Originally grown from the seed of tangerine varietal 'Moragne' around 1867. Easily peeled, tasty red/orange fruit. Alternate bearing, nearly thornless, upright growth habitat. Fruit matures around December-January.

**Sunburst Tangerine** — Cross between two hybrids: 'Robinson' and 'Osceola' in 1961. Medium-sized, about 2.5-3 inches in diameter. Oblate with a depressed navel. Rind is thin, smooth and somewhat easily removed. Seed numbers will generally average between 10 to 20 seeds per fruit in most years. Reaches maturity by mid-November and can remain on the tree until December.

# CITRUS—PUMMELO

Pummelo is the largest of all citrus and parent of grapefruits. Native of Asia. Pummelos are similar to grapefruit; however, are much larger and sweeter.

**Chandler** — U.C. Riverside release in 1961, also called ‘Shaddock’. Hybrid of ‘Siamese Pink’ and ‘Siamese Sweet’ pummelo. Reaching 10 to 12-ft tall and wide. Pinkish-flesh fruit has been weighed in the 9 lbs. class/fruit.

**Nam Roi** — Recently imported from Vietnam. White flesh, very juicy. A 7-inch fruit can fill an 8 oz glass. Most adaptable citrus to both tropical and subtropical climates such as we have in Brazoria County.

**Sarawak** — From North Borneo. Round small to medium-large fruit with a flattened bottom, greenish-yellow rind and thinner than the average pummelo. Greenish flesh, juicy and sweet with a delicious mild lemon-lime flavor some refer to as melon-like. Fruit ripens in September to November and holds well on the tree. One of the best tasting pummelos.

**Valentine** — Released by U.C. Davis in 2009. Hybrid fruit. If cut and held upside down, resembles a heart. Large size, low acidity with red pulp. Easier to peel. ‘Valentine’ is a relatively new and delicious fruit that ripens during the coldest part of the ear. This varietal is a combination of a pummelo, a mandarin and a blood orange. Also called a Chinese grapefruit. Fruit matures near Valentine’s day.

# CITRUS—Sweet Orange

Sweet orange cultivars can be categorized into four distinct groups: round oranges, navel oranges, blood oranges and acid-less oranges (small group). Red pigmentation varies with climate and can be intense when blood oranges are grown in regions with large diurnal fluctuations in temperature.

**Cara Cara** — Discovered at the Hacienda de Cara Cara in Venezuela in 1976; did not enter the U.S. market until the late 1980s. Red fleshed. This medium sized fruit is sweet and low acid. Flavor is more complex than most. Produces annually.

**Hamlin Orange** — One of our most cold-hardy (18° F) of the sweet oranges. Records indicate this orange has been grown since 1885. Early-ripening orange matures 12 to 14-ft and 8 to 12-ft wide. Fruit is thin-skinned, has a few seeds with a delicious tangy sweet flavor. Excellent juiced or for fresh eating. Fruit ripens October to November and is a self-pollinator. One Brazoria Co. Master gardener has grown Hamlin for 25 years.

**Moro Blood** — The Texas mid-coast has a good temperature variance, producing a rich "redness" for the flesh of this variety. Small-medium with a thin orange rind becoming bright red blushed at maturity. Flesh is juicy with few seeds and can range from light orange/red early to red later in the season. Flavor is rich and distinctive at peak maturity with a very distinctive aroma. Ripens early to mid-January. Holds well on the tree until March.

**N33 Navel** — Also known as 'Bond N33'; Texas selection of a mutation off of 'Marrs' orange. Similar to 'Washington' navel. The fruit of the N-33 Navel Orange tree is a lovely orange color, delicious, easily peeled, seedless fruit. It is produced on a medium sized tree. Matures about Thanksgiving to early December.

**Pineapple** — Found in Florida (1870). Medium to large round fruits, pineapple scented. Thornless. Excellent juicing orange. Cold tolerant to 22° F. Ripens early to mid-season. Does not hold on tree as well as some.

**Republic of Texas** — First citrus reported in Texas at Angleton (1847). Produces a nice size orange, very sweet, juicy, highly flavorful and slightly seedy. Grows to 15-ft x 15-ft. Survived the 2010 severe freeze when temperatures were below freezing for 42 continuous hours down to 19° F.

**Sanguigno Blood** — Nearly acid free sweet orange with pink flesh. Small to medium size tree at maturity with round form, seedy. Because of lack of acidity, the fruit can be eaten as early as late fall or early winter. Cold tolerant to 22° F.

**Taracco Blood** — Native to Italy. Flesh color is deep red. Largest fruit size of the blood oranges. Orange rind and flesh develop a red blush when ready. Grows best in warm climates like coastal Texas. This plant is suitable for growing indoors in containers. Self fertile.

**Valencia** — Imported into California by 1876. Considered a sweet orange and are juicier than most other varieties. Largest planted citrus in the world, often called "the orange juice of the world". The fruit is almost seedless with only a couple of seeds. Most common orange juice in any supermarket.

**Washington Navel** — An exceptionally delicious, seedless, easy-peeling fruit imported into the U.S. in 1870. Flesh color is deep, texture is firm; it is moderately juicy with rich flavor. The moderately sized trees have waxy white fragrant flowers with deep green shiny leaves. At its best in the late fall-winter months, however, will hold on the tree for several months beyond maturity and stores well. The flowers bloom in the spring, then take 7-10 months to mature and ripen. Will not pollinate other orange trees.

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# CITRON

Buddha Hand — Fragmented finger-like fruits with no pulp or juice. Grows to 6 to 8-ft high, 4-ft wide in well drained soil. Deep green leaves, with aromatic pinkish flowers. Requires full sun. Ripe fruit is a bright yellow. Non-bitter tasting fruit can be cut up into favorite drink or zested into a favorite dish. Can also be container grown.

# COFFEE-ARABICA

Coffee arabica, also known as the Arabian coffee; believed to be the first species of cultivated coffee and is the global dominant cultivar. Evergreen shrub with glossy, dark-green leaves on willowy stems. Best grown in containers or outdoors in protected area from cold temps. Best with filtered sunlight and maintain a moist, well-drained acidic soil (pH range from 5.5 – 6.4), very similar to blueberry or azalea production. Fragrant spring blossoms, producing coffee beans.

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# FIG

Figs are deciduous fruit trees. They can grow taller than 15 feet and wider than 12 feet. When planting, space them 10-20 feet from other trees. They may produce figs in 1-4 years after planting. Figs grow best in full sun, with a western or southern sun exposure. Containerized figs have the same requirements, but must be watered more often. Fig rust may cause trees to defoliate. Figs are heat tolerant but can have cold sensitive branches. If branches are frozen, fig trees will re-sprout from the plant base next spring.
Black Mission—A large fig with purple-black skin and light strawberry pulp. First heavy crop in early summer and average main crop in late fall. Very vigorous growing but not very cold hardy. Has some problems with leaf mosaic but does not affect the fruit. One of the better figs for mild winters. Its large size and rich taste make it a premium fig. Good either fresh or dried.

**Brown Turkey** — Also called 'Texas Everbearing'. Considered to be a ' standard ' in many a yard. Expect at least two harvests each year. Rich and savory fruit, perfect for snacking fresh off the tree. This fig is easy to propagate; stick the end of a young suckering stem into some rooting hormone, then place it in lightweight potting mix. The Brown Turkey Fig has the longest ripening season of recommended varieties; the breba crop ripens in May; the main crop ripens in late June and continues to ripen into August. Moderately closed eye.

**Celeste** — Medium-sized, sweet fruit with amber pink flesh. Heavy bearer that ripens in early July. Excellent for eating fresh, canning and preserving. Heat tolerant and self-pollinating. Prefers full sun and well-drained soil.

Hardy Chicago—Small to medium size fruit. Light brown skin and strawberry pink pulp. Very cold hardy and has an excellent

**Italian Black** — Heirloom, medium to large fig with glossy black skinned fruit and deep red flesh. Ripens mid-season. Perform best with at least 8 hours full sun. Drought tolerant. Grows to 10-ft x 10-ft.

**LSU Gold**- Large flattened gold fig up to 1¾ inches in diameter. Amber flesh is tender and exceptionally sweet. A vigorous grower with a fig at every leaf axil. It has a small, slightly open eye but resists splitting and souring. The superb quality improves during a dry season. Great for eating or preserving.

**LSU Purple** — Flavor is excellent and mild with a high sugar content. Has a closed eye and resists spoilage. Light amber to light strawberry red flesh. Very vigorous upright grower and hardier than most fig trees. The fruit are about two to two and a half inches long. Very reliable and excellent in the ground or container grown. Great for the Gulf Coast and surrounding areas.
Particularly suited to hot, humid areas, medium size with dark-purple, glossy skin, light strawberry-colored flesh with high sugar content when ripe. May produce 3 annual crops. Grows to 10-ft x 10-ft.

**Magnolia** — The most popular fig for canning and preserves. A medium to large fig with a bronzy yellow skin, amber colored flesh and rich flavor. A good medium to large-sized tasty fig with attractive, deeply lobed leaves. A vigorous, very hardy tree; known to survive 5° F without damage. Also known as 'Brunswick', 'Madonna' and 'Dalmatian'. Semi-hardy. May have splitting and souring problems. Open eyed.

**Olympian** — Discovered in Washington State and introduced in 2014. Produces two crops of green and purple striped fruit with sweet, violet flesh that is excellent for fresh eating, canning or drying. Produces huge fruit (as large as a tangerine) and is extremely cold hardy.

**Texas Everbearing**- With this variety there are a lot of conflicting opinions. Some say it is the same variety as "Brown Turkey" and some say that it is similar but not the same variety. There are three differences: 1) the flesh is more amber in color, 2) the leaves have three lobes, and 3) the shape of the tree is more upright instead of broad-spreading. It has the same cold hardiness and the fruit are nearly the same in taste. It bears well and with good growing conditions, it will bear two crops a year. The early crop ripens in late May to late June and the second crop in late September to early November

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## GOJI BERRY

Goji Berry — Contains highest concentrations of melatonin, third-highest antioxidant capacity of any common dried fruit. Also has a specific antioxidant pigment zeaxanthin. When eaten, zeaxanthin is shuttled into our retinas and is reported to protect against macular degeneration. Thorny and sparsely arching stems. Plant in fertile, well-drained soil. Full sun is best, tolerates some shade. Water well the first year of growth, quite drought-tolerant after established. Flower and fruit throughout the summer until first frost. If left unpruned, they can grow as tall as 10-13-ft with a spread of about 4 ft.

# LOQUAT

**Japanese Plum Loquat** — Unusual among fruit trees, flowers in autumn or early winter, and fruits ripen in late winter or early spring. Fruits are at their sweetest when soft and orange. The flavor is a mix of peach, citrus and mild mango. The loquat tree is hardy in USDA zones 8 and above, and will flower only where winter temperatures do not fall below 30° F. In such areas, the tree flowers in autumn and the fruit ripens in late winter. White/near white blooms on tree which matures at 20-30 feet; fruit grows in clusters of 4—30. Cold hardy to 10° F..

# PEACH AND NECTARINE

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Peaches are the leading deciduous fruit crop in Texas. They take 3 to 4 years to reach full production. Although they are a long-term commitment, one peach tree can potentially produce 50 to 100 pounds of fruit each year**.** Ideally, prune peaches just as the buds swell enough for you to start to see pink. Peach trees fruit on one year old wood so they
an be pruned rather hard. Remove about 40% of the tree each year to encourage new growth for annual fruit production. Remove diseased fruit to decrease incidence of infection. Do not plant in poorly drained area; peaches hate “wet feet”. Peaches can live up to 20 years. Nectarine have smooth skin, cultivate same as peaches.

**August Pride Peach** — Folks have been asking for a peach that ripens later in the year rather than in spring. ’August Pride’ is a large freestone yellow-fleshed fruit; sweet, aromatic and richly flavored. Good for eating off the tree on a “pleasant” late coastal July/August summer evening. Self-pollinating. Think about juice, running down your cheeks and you keep on tasting. Considered as self-fruitful. Less than 300 chill hours average.

**Florida King Peach** — Older cultivar released in 1978 by University of Florida. Some resistance to bacterial spot. Fruit has a medium-large clingstone pit with melting, yellow flesh. May have split pits. Early season peach. Self-pollinating. 450 chill hours average.

**La Feliciana Peach** — Developed by LSU. ‘La Feliciana’ is a late-ripening, large, sweet, freestone peach. Heavy production and excellent flavor make this one a must for the home orchard. Supposed to have better disease resistance, including brown rot. Ripens in July. Self-pollinating. 400-500 chill hours.

**May Pride Peach** — Add this delicious tangy, sweet yellow semi-clingstone prize to your collection. Showy pink blossoms and large, red fuzzy fruit. Very early ripening for our coastal area. Self-pollinating. 175-200 chill hours.

**Mid Pride**- Best yellow freestone for warmer climates like Houston. Exceptional flavor. Self-fruitful, heavy bearer and disease resistant. Grows to 15' tall. Likes full sun and moist, well-drained soil. Harvest mid-July. 250 chill hours.

**TexKing Peach** — Texas A&M introduction. Large fruit with firm flesh. Clingstone. Produces good sized crop. Ripens in May. Self-pollinating. 450 chill hours.

**Tropic Snow Peach** — Excellent tasting, white-fleshed freestone. Pale yellow skin with red blush. Large fruit ripens in May. Self-fruitful. 150-200 chill hours..

**Sun Red Nectarine** — Small to medium size fruit with a firm bright red skin and sweet yellow flesh. Semi-freestone that does well in warm winter areas. 200-300 chill hours. Early harvest.

**Snow Queen Nectarine**— Early, sweet and juicy freestone nectarine that is self-fruitful. Attractive pink spring flowers produce firm, red-tinged fruit with sweet white flesh. 200-300 chill hours.

# PEAR

Pear trees can get taller than 25 feet. Most pears are deciduous and are cold-hardy. Pear production is best where two different varieties are in close proximity for cross-pollination (i.e. on the same half-acre). The skin ranges in color from green, yellow, red, brown, pink or a combination of these colors. Pear flesh is white, juicy and grainy in texture. Of all the deciduous fruit tree species, pears are the most tolerant of wet soil conditions. However, they perform best on deep, well-drained sites. Generally take more than 3 years to achieve full production. Asian pears have a distinct pear-like taste; however, they have a crisp texture, much like an apple. Many Asian pear varieties also appear shaped like an apple, giving them the nickname "apple-pears".

**Acres Home** – Outstanding pear for this area. Acres Homes is a “found” pear; first seen growing in a backyard in Houston’s Acres Home subdivision. Very large fruit with a traditional pear shape and a red blush on the sun-exposed side. Bears at three years. Pollinize with Southern Bartlett, Southern Queen, Meadows or Tennessee. Very cold tolerant. 300-350 chill hours.

**Housi** – Semi-dwarf tree, great choice for milder climates. Ripens in July. Pollinate with Southern Bartlett. Large brownish-orange fruit. 400-500 chill hours.

**Shinseiki Pear** – Bright yellow skin with a round shape. Good flavor, medium size. Juicy, crisp and sweet like an apple. Easy to grow and keeps well. Heavy bearing beginning the second year. Has some resistance to fire blight. Needs a pollinator. Ripens in July. 250–300 chill hours.

**Southern Bartlett** – Exceptionally juicy. Gets somewhat taller than ‘Acres Home’. Moderately fire blight resistant. Can use ‘Acres Home’ as a pollinator. 400 chill hours.

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# PERSIMMON

A premier fruit that can be grown in the greater Houston area. Coloring is light yellow/orange to dark red/orange. The fruit can vary in size from .5 to 4 inches in diameter. Shape may be round, pumpkin-like or acorn shaped. This fruit is botanically defined as a berry. Though there are native persimmons, the Japanese varieties are favorites due to favored qualities for eating. Persimmons need full sun and no standing water. Persimmons are deciduous. Birds may be pests of the fruit.

Chocolate — Small to medium sized oblong fruit with bright red skin. Sweet, spicy and firm brown flesh with a few seeds when grown with a pollinizer, orange flesh and seedless without a pollinizer. Astringent until ripe. Bears in 2 to 5 years. Matures to 12 to 16-ft.

Fuyu — 'Fuyu' is the most popular persimmon cultivar in the U.S. Firm, medium-sized fruit. Skin is a deep orange color when ripe. Non-astringent; it can be eaten when unripe. Tomato shaped. About 2-4 seeds per fruit. Heavy and consistent bearer, reaching heights of 20 feet tall and 15 feet wide. Fruit ripens from September-October. Self-pollinating; however, can be used as specimen for cross-pollination for other varieties.

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# PLUM

Like peaches, plums are a stone fruiting species. Agronomic reports from 2010 indicate “best plum crop in 10 years”. 1989 was also a year of large fruit production.

**Burgundy** — Reddish-purple flesh and skin. Semi-freestone. Fruit keeps well on tree. Self pollinating. 250-350 chill hours.
**Scarlet Beauty** - Japanese-style Gulf Series plum. Red purple skin and soft, sweet red flesh. Ripens May – June. Self-fertile, but will produce more with another variety planted nearby. 150 chill hours

# POMEGRANATE

The pomegranate originated in the region extending from modern-day Iran through Afghanistan and Pakistan to northern India, and has been cultivated since ancient times throughout the Mediterranean. It was introduced into Spanish America in the late 16th century and into California by Spanish settlers in 1769. Today it is widely cultivated throughout the Middle East, tropical Africa, and South and Central Asia. It is more common in commercial markets through the 20th and 21st centuries. A hard, colorful rind protects the fruit, and inside are many seeds bearing a honey-sweet and edible gel, called arils. The arils are the part of the fruit that are eaten.

**Kandahar Early** — Considered one of the best “Old World” varieties. Bright red skin and seeds. Ripens in September.

**Texas Pink** — Deciduous tree with dark green and glossy leaves, making it an excellent landscaping tree in addition to producing excellent fruit. It grows best on full sun, adapts well to any soil, and is self-fruitful. The tree is named after the pink rind of the fruit. The arils are ruby red, making a beautiful contrast of colors. The fruit can grow up to 4 inches diameter.

**Garnet Sash** — Vigorous tree sets large crop of large, dark red fruit with deep-red sweet-tart seeds. Can be grown as a shrub or tree and kept any height. Average to 15-ft. Full sun in a well drained location. Self-fruitful.

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# REFERENCE SECTION

## WORKING DEFINITIONS

**Sun**—Continuous, direct exposure to six hours/day
**Full Sun**—Greater than six hours/day
**Chill Hours**—Annual number of hours between 45˚ F and 33˚ F.
**Chill Hours in Brazoria County**—2009 = 424; 2010 = 703; 2014/2015 = 439. Average is 200-400.
Seedless—0 to 6 seeds per fruit
**Clingstone Peach**—Fruit flesh does not separate easily, contains more pectin; a better canning peach.
**Freestone Peach**—Flesh separates very easily from the seed with a circular cut.
**Deciduous**—Typically used to describe trees or shrubs that lose their leaves seasonally.
**Macronutrients**—Minerals needed for growth and other plant function. Include: nitrogen, phosphorus, potassium, calcium, magnesium and sulfur.
**Micronutrients**—Minerals required in smaller qualities. Some of these maybe bound in specific pH soils. Chlorine, iron, boron, manganese, zinc, copper, molybdenum and nickel.
**Russet**—Reddish-brown color (sometimes red/gray).
Fig Eye:
**Open eye**-Open hole at the bottom of a fig. Bugs can crawl into the open hole and spoil the fruit.
**Semi-open eye**-Pinprick opening at the bottom of the fig. Also known as semi-shut or semi-closed.
**Closed eye**-Opening closed at the bottom of the fig.
**Astringent**—Sharp or severe in manner or style.
**Diurnal**—Of or during the day.

# Freeze Protection
# By: Nick Felsted
# Brazoria County Master Gardener

Citrus Growers-

The Brazoria County Orchard Committee is working on Project Polar Freeze, a study to determine the best techniques to protect citrus trees in a major freeze. We hope to wrap it up and publish it in 2024. Since it may take some time to publish the results, I thought I would share the interim results with you.

**Summary**: Use bark mulch, a heat source and a tarp or plastic cover to protect citrus trees in extreme cold. Use only a heat source and plastic/tarps/cloth in modest freezing conditions.

**Temperature Ranges**

There are different temperature ranges to consider when it comes to freezing weather. Additionally, the length of time at a given temperature matters. If the temperature barely dips below freezing for an hour, minimal damage will occur. If temperatures get down to 20 degrees continuously for 4 days, much more damage will occur. The latter event would be serious both because of the low temperature and the length of time at that temperature. At this point, the effect of the length of time will not be quantified, but the reader should be aware that it makes a difference. If longer freezing periods are predicted, greater freeze protection should be used.

28-32 F: If the temperature only gets down to 28 degrees, most citrus will usually survive with no protection. That does not mean that the tree won't defoliate, but that the trees will usually survive. With that said, I don't choose to gamble with my citrus orchard. I prefer to protect my trees with level 1 freeze protection (see below) whenever the temperatures are predicted to fall below 32 F for more than a few hours.

26-28 F: If the temperature gets down to 25-28 F, that is low enough that some citrus trees will start to die without protection. I use the level 1 citrus protection, see details below.

12-25 F: If the temperature gets down into the low 20s or mid-teens for a day or two, most citrus will die back to ground level. In this case, the graft on grafted citrus trees will die. This requires level 2 freeze protection. Level 2 protection is not guaranteed to save the trees, but most of the people who have used this level of protection have successfully protected their trees.

**Level 1 Freeze Protection**: Anytime the temperatures are predicted to drop to 26-32 F, I try to use this technique. To do this, add a heat source to the tree and wrap them with a plastic cover or tarp. Some people use cloth, but it blocks the sun. I typically use 1-2 strings of conventional Christmas lights (do not use LED lights) or a heat lamp and a clear plastic drop cloth. For smaller trees I use a clear shower curtain. I tape the sides closed but leave the top so I can close it when it freezes and open it when temperatures stay above freezing. In this way, I can wrap them before the first freeze of the year and open the top when it warms up. I can leave it this way for weeks and each time it freezes I can close the top. One year I left the trees totally wrapped in plastic for several weeks and when the sun came out, it overheated many of my trees causing them to defoliate.

# Freeze Protection Continued
# By: Nick Felsted
# Brazoria County Master Gardener

**Level 2 Citrus Protection**: Anytime the temperature is predicted to drop below 26 F, consider using mulch to protect the graft. With citrus, it is most important to protect the graft. Usually, the roots will survive a freeze, but if the graft dies, the tree will no longer produce the same fruit. Level 1 techniques should be used, in the freeze of December 2022, residents who used level 1 and 2 together had the greatest success in preserving their trees. To use Level 2 freeze protection, pile bark mulch around the trunk to a depth of 8-24". The graft must be protected, or it will die (it is true that not all citrus is grafted, but a large majority of citrus is grafted). The deeper the mulch the better the protection. During ongoing research, respondents who used 6 inches of mulch lost half their trees. Respondents who used 8-24 inches of mulch lost very few trees. One respondent used 5 ft of mulch and saved the roots, graft, most of the trunk and some branches; however, finding 5 feet of mulch may be difficult and expensive. Leave the mulch around the trunk as long as the freezing temperatures last. Once temperatures rise and appear to stay above freezing, then pull the bark mulch back from around the trunk. The mulch can cause disease if left piled around the trunk for a long period of time. During the freeze of February 2021, a large majority of the Brazoria County residents who used these techniques saved the grafts of their citrus trees (see disclaimer). This is the best-known technique for saving citrus in a serious freeze.

**Question: Can someone skip level 1 citrus protection and only use level 2?**

**Answer**: This could work; however, the most successful residents used both level 1 and level 2 protection. Using only level 2 has an additional drawback. In a moderate freeze event, the leaves are much more likely to freeze and die if you skip the level 1 protection. The graft will be protected, but the branches and leaves may or may not survive. This will NOT kill the tree in a moderate event but could cause serious damage. If just doing level 2 freeze protection is all the energy one has, this is a good approach,

**Disclaimer** - While these recommendations are the best available, their success depends to a large degree on how well they are implemented. Two people who use the same techniques may implement them extremely differently. The effectiveness of the implementation can vary widely and accordingly the result of the same techniques will vary. Also, the size of the tree can have an effect. The youngest trees are the most sensitive and need the most protection. In a serious freeze event, even the largest trees need protection. Lastly, there is variation in this world. Like it or not, sometimes we follow the best instructions carefully and trees still die; sometimes we do nothing, and the trees live.

I am always trying new techniques, so updates to these techniques could occur. Hopefully, these updates will be tweaks of the original guidelines and not major changes.

# FERTILIZER AND CULTIVATION RECOMMENDATIONS:

Any organic or inorganic material of natural or synthetic origin that is supplemented to a soil to supply one or more nutrients essential for plant growth and essential for high-yield harvests. Commercial fertilizers typically provide six macronutrients and seven micronutrients necessary to plants. Apply around the drip line.

**Macronutrients**—(N) nitrogen, (P) phosphorus, (K) potassium, (Ca) calcium, (Mg) magnesium and (S) sulfur.

**Micronutrients**—(B) boron, (Cl) chlorine, (Cu) copper, (Fe) iron, (Mn) manganese, (Mo) molybdenum and (Zn) zinc.

**NPK**—In the U.S., these letters listed on fertilizer labels represent an analysis of the composition by weight. These three numbers correspond to nitrogen, phosphorus, and potassium (N-P-K) and always appear in specific order. The second value P is not elemental phosphorus; it is phosphate oxide (P2O5). The third value is not elemental potassium; it is potassium oxide (K2O). For example, a 50 lb. bag of 10-10-10 will contain 10 lbs. nitrogen, 4.4 lbs. phosphorus and 8.3 lbs. of potassium.

**Nitrogen**—Most needed macronutrient. Plants only absorb nitrogen in two forms: nitrates and ammonium (ammonium sulfate).

**Apple**—Generally fertilized with nitrogen each year, preferably ammonium sulfate. One month after planting, apply 1 cup over a 2-foot circle. In May and June following planting, add 1 cup around the tree. Spring of second season: 1 cup in a 3 foot circle repeated in April, May and June. Year three: 2 cups, 4 times per year in March, April, May and June. Four year or older trees are considered mature. Growth of 12 to 18 inches per year is ideal for bearing trees. Apply one lb./inch of tree trunk diameter. Example: an 8 inch diameter tree would get 4 lbs. at bud break and the other 4 lbs. in May. If crop is poor or nonexistent, delete the May application.

**Avocado**—Essentially the same as for other fruit trees in South Texas: ammonium sulfate (21-0-0). One half-cup per month in the first year, 1 cup per month in the second year and 2 cups per month in the third year; monthly from February to September. Thereafter, apply 2 cups per year per inch of trunk diameter, split into equal
applications in February, May and September.

**Blackberry**—Requires about 1.25 pounds of ammonium sulfate per year, per plant. Rule of thumb: 1 cup=8
ounces, 2 cups=16 ounces or 1 lb. Apply fertilizer 12 inches from the plant. Apply all the fertilizer in the winter (Jan./Feb.) or in smaller increments during the growing season: 1 application in March, June, and September

# FERTILIZER RECOMMENDATIONS Continued:

**Blueberry**—Switch your horses because these plants MUST have an acidic soil medium for growth; use soil amendment such as sphagnum peat moss to decrease soil pH. Caution: blueberries are very sensitive to over fertilization! Subsequent years, use 1 ounce of fertilizer for each year from planting , a total of 8 ounces per plant/year. Apply early spring and late spring for best results. Always water well after fertilizing. Organic fertilizers: blood meal and cottonseed meal work well. Avoid using fresh manure. Aluminum sulfate (generically sold as azalea fertilizer) may also be used.

**Citrus**—"Look at the leaves, they tell you the story"... Herman Auer, Santa Fe citrus grower for 30 + years and a Galveston County Master Gardener. Yellowing leaves can indicate nutrient deficiency or poor drainage. Dark-green, lush leaves with burned tips indicate excessive fertilizing. Yellow leaves with green veins indicate an iron deficiency. Fertilizing too much when the tree has a healthy appearance may cause it to produce inferior fruit. Most citrus are nutrient hungry from the time they bloom until they have firmly set fruit. In the first year, apply a balanced fertilizer with an 8-8-8 ratio; then move to 18-5-10 combination thereafter. Use 1 cup/first year at bloom/fruit set; thereafter, 2 cups (about 1 lb.) for every inch of tree diameter. Make sure to split the total recommended rate, or 1/3, into 3 sessions; one "rule of thumb" when to apply fertilizer: Valentine's/Mother's/Father's day.

**Fig**—Fertilization is usually necessary only for potted trees or when they are grown in sandy soils. Excess nitrogen encourages rank growth at the expense of fruit production; fruits often ripen improperly. In general, fertilize fig trees if the branches grow less than one foot in the previous year. Apply a total of .5-1 lb. of nitrogen sulfate, divided into 3 or 4 applications beginning in late winter or early spring and ending in June.

**Pear**—First Year spread a half-cup of 10-10-10 fertilizer in a circle 12 inches from the trunk. Keep the fertilizer away from the trunk. Fertilize young trees monthly using only one-quarter cup of fertilizer through June. Feed mature trees each spring using a half-cup for every year of age until the pear tree is four years old, then apply the fertilizer at the rate of 2 cups thereafter.

**Persimmon**—Trees do well with minimal fertilizer application. Excess nitrogen can cause fruit drop. If mature leaves are not deep green and shoot growth is less than a foot per year, apply a balanced fertilizer such as 10-10-10 at the rate of 1 pound per inch of trunk diameter. Spread the fertilizer evenly under the canopy in late winter or early spring.

**Stone Fruit**—First year, 1 cup of a balanced 8-8-8 fertilizer in April, followed by 1 cup of 21-0-0 fertilizer in May and June. Second year, 2 cups of 8-8-8 in March, then 2 cups of 21-0-0 April, May and June. Mature trees take 2 cups (8-8-8)/inch diameter in February followed with 2-6 cups of 21-0-0 in May.

**PRUNING**:

Not generally done with apple, avocados, citrus, figs, mulberry, olives, pear, pecans, persimmon, pomegranates or plums. Occasional pruning for low branches where the fruit lays on ground and to remove storm damage and/or freeze dieback. Perfectly acceptable to remove branch that smacks you upside the head while mowing.

**Blackberries**—May develop canes of 6-10 feet each year. Tie canes on trellis or wire to get them off the ground. Remove dead canes. In summer, tip prune first year canes to about 3-3.5 feet tall, then let them grow. This helps them develop lateral canes which have more fruit. In late winter, shorten lateral canes some to increase berry size.

**Peach and Nectarine**—Trees should be trained to an open center; when pruning for shape, picture an upside down umbrella as a final goal. After planting your new tree, prune to a single trunk of 24–36 inches tall, removing all branches. Within a few weeks after new growth begins, select the strongest three to five shoots arising from the top 6 inches on the main stem. They should be evenly spaced along the trunk. Remove all other shoots along the trunk or limbs. These few branches will grow vigorously for about 4 weeks and then begin to harden and turn brown near where they are attached at the trunk. Have branches spaced as equally as possible around the trunk at a height 18-24 inches from the ground. Post harvest: prune 40% of all branches and any branches that grew toward the center of the canopy

# REFERENCE SECTION

## DISEASES, PESTS AND CONTROL:

**Citrus Greening and Quarantine**: Citrus greening is a bacterial disease (Candidatus Liberibacter asiaticus) that lives in the vascular tissue of the plant, accumulating and blocking plant vessels. Symptoms are expressed as yellow leaves with a blotchy, irregular coloring and is often mistaken for nutritional deficiency. Fruit set is low and the expressed fruit will be oddly colored and distorted. Trees infected with the disease die slowly, usually lasting about 3-10 years. The disease is also known as Huanglongbing or Yellow Dragon disease.

**Gulf Coast Quarantined Area**: Citrus greening quarantine prohibits any citrus plants, fruit, equipment or items made with citrus (floral arrangements, wreaths, potpourri or seasonings like kaffir lime leaves) being moved from quarantined areas. Illegal movement of citrus trees or materials from quarantined areas can be subject to fines ranging from $1,000 to $60,000. In our area, quarantine includes all of Brazoria, Fort Bend, Galveston, Harris and Montgomery counties. For more information about the quarantine, contact your county Extension office.

Brazoria County Master Gardeners and affiliated Texas Master Gardener chapters work with producers certified to provide quality disease-free citrus material and encourage you to celebrate citrus culture in your community.

**Avocado**—No real problems with pests. May have problems with salt burn and sunburn on trunk.

**Apples**—There are many off the shelf pesticides appropriate for the home orchard to control fruit tree pests. Always follow all label instructions when applying pesticides specific for fruiting trees or any other pesticide

**Berries**—We jokingly say “When the berries get red in color, secret messages are sent to all birds in the neighborhood to join the berry fest”; use bird netting to defend against bird damage. Anticipate an occasional stink bug infestation on your fruit; mechanical control and least toxic methods are recommended for this pest. An aside: a local Master Gardeners wife’s solution for stink bug control was to use a car vacuum for removal because the bugs were too stinky to smash. Remember to modify the vacuum intake to fit a .75 inch clear plastic hose.

**Citrus**—Citrus leaf miner (CLM) can be a challenge for the home gardener. Citrus leaves can become twisted with the appearance of “tracks”, damage from the tunneling insect. The best pesticide for control are products containing 17% Spinosad (neurotoxin insecticide); products containing 1% Spinosad are also available for sale. Spinosad is a natural substance made by a combination of soil bacterium spinosyn A and D. Spray your citrus when it has fresh growth in early spring to help prevent some damage. CLM will not kill mature trees; however, photosynthesis in immature trees could be compromised from CLM damage. Citrus also have problems with rust mite damage; damage from the mites can turn your fruit brown (note the fruit can still be eaten). Other pathogens: sooty mold (fungus turning your leaves black, but can be rubbed off), greasy spot (fungal disease) and others.

**Fig** — While figs are very hardy, they may exhibit fig rust. Signs are a mottled color on leaves, and the leaves may dry up and die, falling off the tree. Early stages of infection: look at the back of the leaf and for a yellow or orange “dust”, or spores. Dormant oil can be used at early leaf set in spring as a preventative. Remove the diseased leaves to reduce further infection. There are not fungicides rated for use against fig rust.

**Stone Fruit**—Apply fungicides for scab and scale. Apply post bloom, 3-6 weeks.

# BED ELEVATION / RAISED LANDSCAPE BEDS:

Providing adequate soil drainage is second only to rootstock selection. Brazoria County generally has flat land endowed with predominant clay soil. Edible fruiting trees perform much better with adequate to superior soil drainage. Creating a raised landscape bed provides for long term productivity.

**Raised Planting Bed Materials:**

Choice #1: Cinder bricks, holes pointed up and filled with soil, will last indefinitely (unless you run over it with a tractor). Creating a 40-inch “square” with cinder blocks is ideal; the blocks are 16-in long, place 2 lengthwise and 1 sideways, repeat 3 times to form a 40 inch square. A 2x16-inch flat cinder on top makes for nice sitting.

Choice #2: Commercial landscape timbers. There are many options of untreated or treated woods that are pest and weather resistant; cedar, juniper and redwood are ideal. You may consider non-wood timbers, typically made of plastics, metals and wood composites that contain recycled wood fibers.

**PLANTING TIDBITS:**

Bare Root Planting Tips:

It’s best to plant as soon as possible when you purchase the tree. If you are unable to do this, temporarily heal them into the soil until you can plant, making sure not to let the roots dry out. Healing involves placing the trees in a slight depression in the landscape, covering the roots with soil and then moistening the soil in order to keep the roots alive. Provide a light pruning to the roots to start growth prior to healing them in.

# REFERENCE SECTION

## PLANTING TIDBITS: continued

## Container Tree Planting Tips:

Dig a hole that is wide and deep enough to accommodate the root system and save the soil you pulled out. Make sure the hole is twice as wide and no deeper than the height of the root ball. Tease the roots out at the edge of the root ball for growth, root prune as necessary. Always ensure the graft union is above the ground. Place reserved soil back in the hole. Add 4-in of mulch out to the tree drip line; make sure mulch is 6 inches away from the trunk. Initially water the plant well; water again when the soil is moist to dry. Do not water when the soil is saturated.

**ROOTSTOCK**: A plant onto which another variety is grafted. The importance of rootstock for long term fruit productivity cannot be stressed enough.

**Citrus** — Poncirus trifoliate is the best plant to use as rootstock for this area as it is hardy for our cooler weather. Variety Flying Dragon is used as a dwarfing rootstock.

**Citrange** — Created by Dr. Swingle at ca. 1897. Carrizo citrange are hybrids of the Washington Navel orange and P. trifoliata. The later crosses were made with to produce cold tolerant scion (young plant shoot or twig) varieties.

**Freeze Precaution**—Keep mulch away from trunk EXCEPT when a hard freeze is eminent. Temporarily pile mulch around the trunk and cover up to 10-in above the graft line. Remember to remove the mulch after a hard freeze. Remember to prune new growth from the rootstock, and cultivate growth well above the graft union.

**Site Selection and planting** — A well-drained, slightly acidic to neutral soil high in organic matter is desirable. Trees planted on heavy clay soils with poor internal drainage should be planted on a mound or row 8-12 inches higher than ground level. The best time to plant citrus is mid-February after an average frost season; March–June.

**Flowering** — February-March. Strolling through a citrus garden during bloom season is a feast of captivating aromas that everyone should experience. Lemons and limes will have repeat blooming during the year, increasing chance of multiple crops. Regarding pollination, citrus flowers have both male and female reproductive organs in the same flower; pollination is seldom a problem (except for tangelos). Citrus trees produce an abundance of flowers and have a natural tendency to drop flowers. Blossom drop of 90% is normal.

**Spacing** — Navel oranges, grapefruit and other oranges are the most vigorous type of citrus trees. Ideally, citrus should be spaced 30 feet apart. Allow at least 15 feet from any building or large tree on each side of the navel orange, grapefruit or other round oranges. Satsumas require a 20-foot circle in diameter, while kumquats, lemons and dwarf varieties need only a 15 foot diameter circle.

# PEACH (additional cultivation tidbits):

Thinning—As a rule of thumb, fruit should be thinned within 2 weeks after bud set. The average gardener may grimace at the thought of throwing away hundreds of peaches. Remember the goal is not hundreds of small peaches, rather dozens of plump, large fruit. Thin the fruit 4-6 in apart along the branches. Tip: make a longhorn sign with your hand to estimate 4-6 inch measurement.

Four Steps to Prune a Mature Peach Tree:

(1) Remove all hanger shoots, rootstock suckers, and water sprouts on the lower 3 feet of the tree.

(2) Remove all shoots above 7 feet in height. Do not remove red-colored 18-24 inch fruiting shoots unless they are growing in towards the center of the tree. Pruning should remove limbs growing at a 90 degree angle.

(3) Remove the center scaffold and shoots which grow toward the inside of the tree.

(4) Remove old, gray wood in the 3-7 foot production zone.

Planting—Remove from the container and prune any dead or damaged roots before planting. Make sure the root system is fully extended when planting; do not coil or bunch up the roots. If you should purchase and cannot plant bare root trees immediately, heal them into the soil until you can plant or at least make sure the roots do not dry out. Healing involves covering or burying the roots and then moistening the soil in order to keep the roots alive. Prune roots as necessary of bare root plants before planting.

Irrigation—Watering new fruit trees/mature trees in the spring, then getting them through a hot Texas summer is essential. Don’t forget to water in the fall: November/December. Fruit trees need sustaining watering.

Chill Hours—We recommend not to buy a peach tree unless you know the cultivar. Each cultivar has a known annual chill hour requirement. Reaching optimal chilling hours helps break dormancy, induce bloom and vegetative growth. Texas A&M has established that Brazoria County is in the 450 chill hour or less zone; for Brazoria county, recommend to buy peach trees rated with 450 chill hours or less. The Master Gardener weather station in Angleton keeps records of chill hours.

# SOIL TIPS

Estimating the Amount of Soil or Compost
Needed for a Project:

Multiply the length x width of the area = square feet
Multiply square feet by the depth factor = number of cubic yards

Example: L X W = Sq. ft. x depth factor = Cubic Yards

Depth Factors:

| | |
|---|---|
| 1 inch depth = .003125 | 6 inch depth = .01875 |
| 2 inch depth = .00625 | 8 inch depth = .025 |
| 3 inch depth = .009375 | 12 inch depth = .0375 |

# SOIL TESTING OVERVIEW

· What is a soil test? A process measuring available nutrients, pH and organic matter of soil.

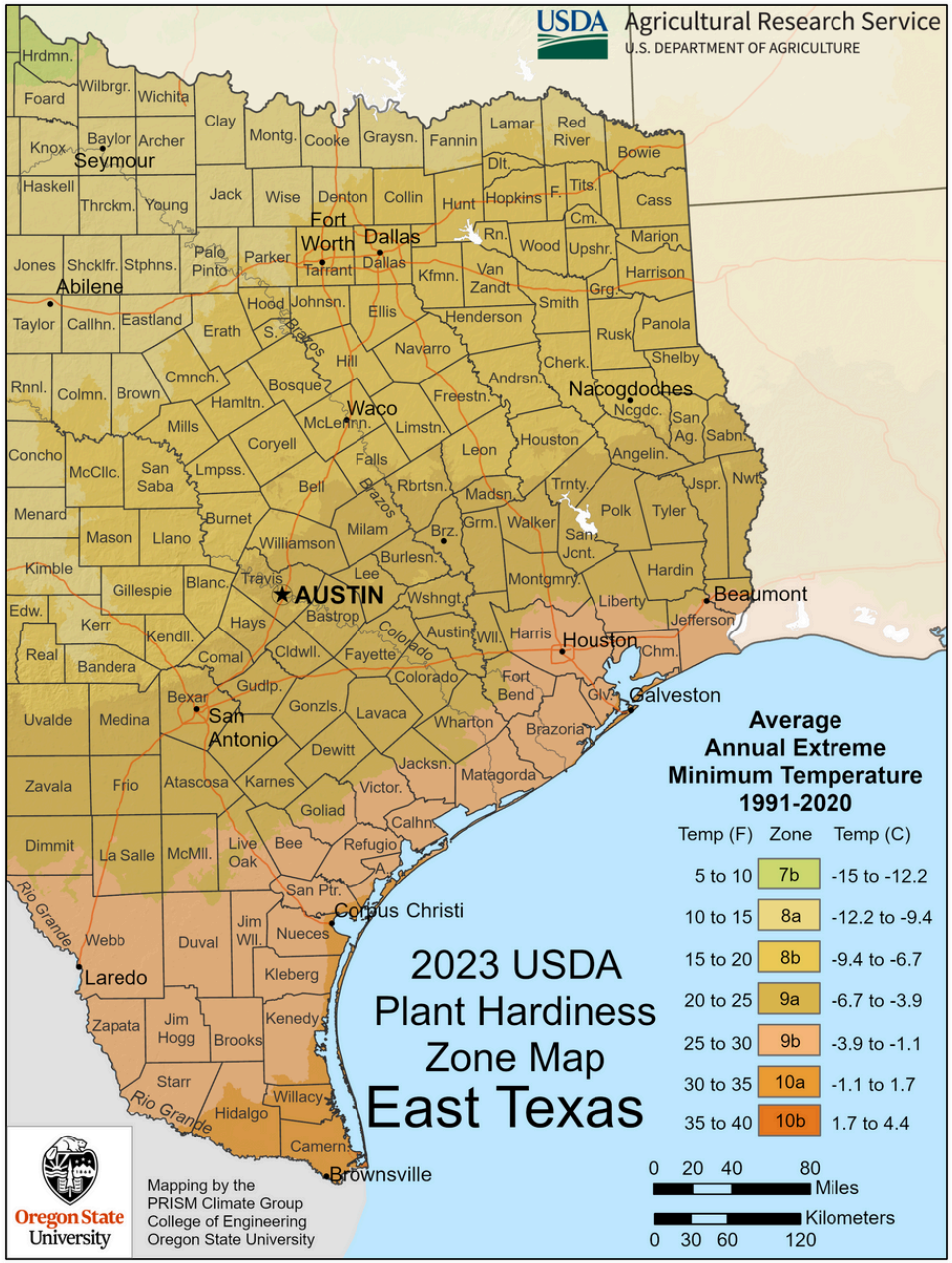
· Why would I need a soil test? To determine the exact amount and kind of fertilizer to use, as well as choice of appropriate cultivar for your orchard – thus eliminating waste, cost, and support environmental sustainability.

· Where do I sample? Any given area of a lawn or garden. Suggest to take multiple soil samples in different areas to compare results and get an average of soil condition.

· Collecting a soil sample: Use trowel to scrape away any non-decomposed plant tissue and materials; dig a sample with a trowel about 6 inches deep and place into a clean container. Repeat step 8-10 times in each area. Mix all soil thoroughly for each area, removing any roots or visible plant materials. Air dry if the soil feels wet. Place 2-3 cups into a quart size, sealable plastic bag. Label with a permanent marker.

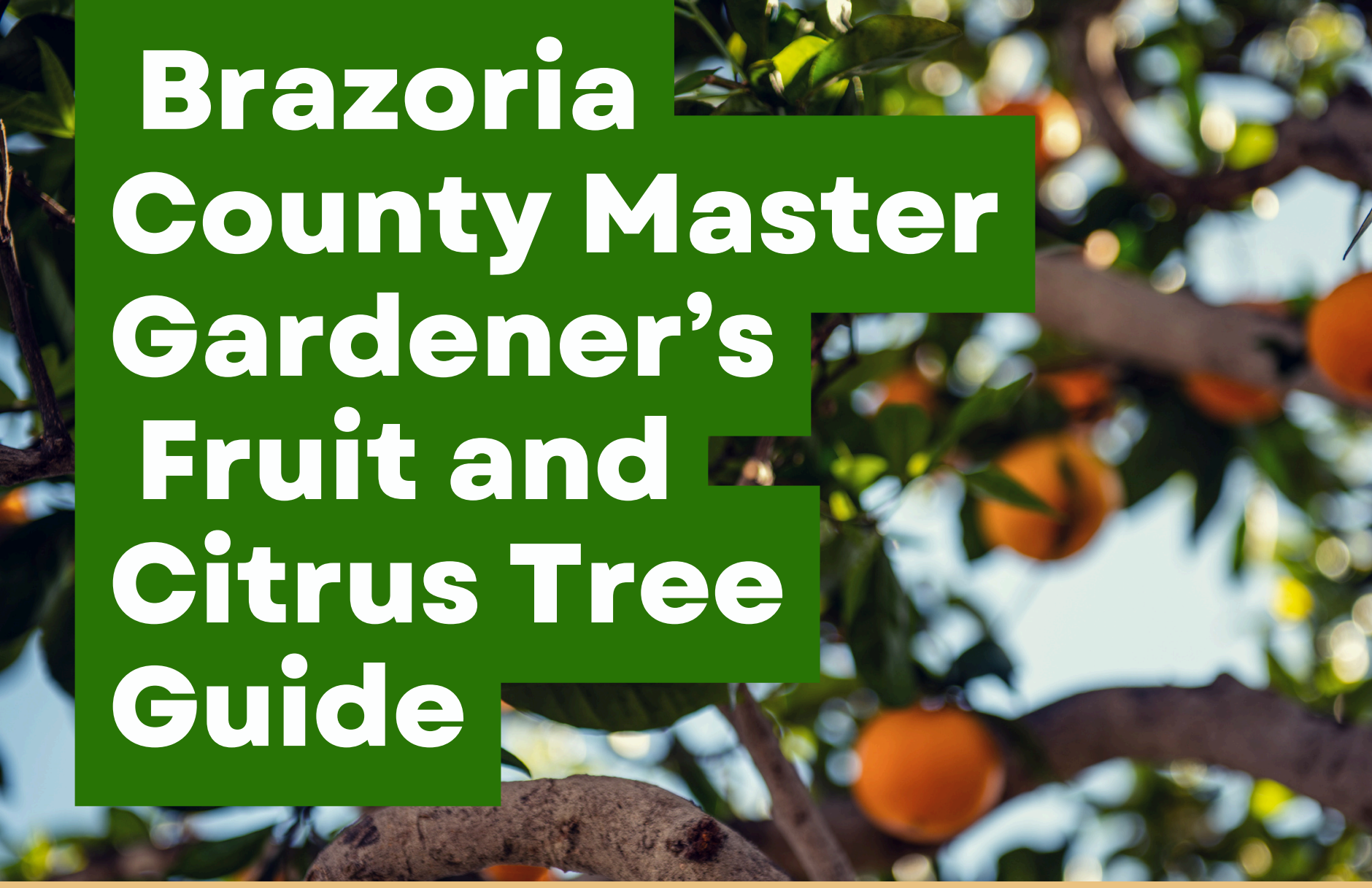
Sending samples for analysis: Obtain Urban Homeowner Soil Sample Information form from the Brazoria AgriLife Extension office, or visit the Texas A&M AgriLife Soil, Water and Forage Testing Laboratory online: **http://soiltesting.tamu.edu/**. Print form and follow specific mailing and payment instructions

# 2023 USDA Plant Hardiness Zone Map




The USDA Plant Hardiness Zone Map is the standard by which gardeners and growers can determine which perennial plants are most likely to thrive at a location. The map is based on the average annual extreme minimum winter temperature, displayed as 10-degree F zones and 5-degree F half zones. A broadband internet connection is recommended for the interactive GIS-based map above.

To find the Plant Hardiness Zone at your location quickly, enter your zip code in the Quick Zip Code Search box in the map above, or click anywhere on the map to view the corresponding interactive map.



# Brazoria County Master Gardener's Fruit and Citrus Tree Guide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**For more information online:**
**https://txmg.org/brazoria**


Revised 12/12/2023