



Urban Harvest  
Gardening for good.

## Sour Citrus: Lemons, Limes, Calamondins, Limequats and the Thai Lime Leaf

Category:	Semi-evergreen
Hardiness:	Varies by variety; see descriptions below
Fruit Family:	Citrus
Light:	Full sun to half day sun
Size:	Varies by variety & rootstock; may be pruned to desired HxW
Soil:	Well-drained
Planting:	Plant after danger of frost has passed, mid to late March

The citrus world has dozens of kinds of sour citrus used primarily as flavoring in meals, in salads, and in beverages. Lemons and limes are of course well known in Texas, but in other parts of the world other varieties are favored such as the Philippine Lime (Calamondin), the Thai Lime Leaf (Kaffir), and the Yuzu.



**Planting:** Newly purchased citrus have probably not been hardened off to tolerate our winter weather. Keep your citrus in the container until late March, or until all danger of freeze has passed. Trees can be kept outside in a sunny area on mild days and nights, but move them into the shelter of the garage or house if frost is predicted. You may take them back out after the frost. Water every few days while in pots unless it rains. Test the soil in the pot by pushing your finger into the soil. If it is dry an inch down, it is time to water.

Citrus does not require full sun; however, the more sun the more production of fruit. Plant them in an area that receives at least ½ day of full sun. If you are more than 75 miles from the Gulf, plant them on the south side of a house or building or where they will get a lot of protection from winter winds. Plant them in existing soil without amendments, and make sure the graft scar at the base of the trunk is a couple of inches above the soil line. Water deeply after planting and apply an inch of compost and several inches of rotting leaves, keeping the mulch at least 12" away from the trunk of the tree. Water daily for a few days after planting, then weekly for the first summer if it does not rain.

**Pruning:** Citrus does not require pruning for production. Light pruning can be done in early spring after all danger of frost, but before the major spring growth spurt begins. Remove weak or damaged limbs and crossing branches that might rub together. Suckers, growth emerging below the graft, should be removed any time they are observed. Occasional thinning will help light penetrate the

canopy. You can prune the top to keep them at a convenient height for harvesting and you can prune back anything that gets in the way.

**Production:** Grafted orange trees should bear harvestable fruit in the third year from planting. Fruit that forms in the first two years should be removed to direct all energy into the development of a strong root system and canopy growth.

**Watering:** All fruit trees should get consistent water in the first few years. Watering can come from rain or a hose. During the first year, if the soil under the mulch is dry, provide the tree with about 7 gallons of water per week, preferably once a week. Water slowly. This can be a little more than 3 minutes with a ½" hose and 1 ½ minutes with a 5/8" hose. Remember to account for rainfall when determining how much to water with a hose. Citrus should never have wet feet.

**Fertilizing:** Do not fertilize the first spring. You can begin fertilizing with a slow release organic fertilizer during the first summer's growth. Apply 2 cups of cottonseed meal or slow release organic fertilizer per inch of trunk diameter in February and May each year.

**Harvesting:** Sour citrus ripen depending on the variety. Some, like the lime, may produce several crops during the year. It is not uncommon to have blooms and ripening fruit on the tree at the same time. Mature calamondins will produce year round. Most of the sour citrus will be useable in the fall even though they have not reached full color. Cold weather will trigger color change. Tasting is the best way to determine when they are ready.

**Pests:** If you notice the leaves on new growth starting to curl, it is most likely citrus leaf miner. This insect affects the new leaves of most citrus. You can spray Neem Oil or Spinosad on the new growth when it is the size of a mouse ear. Spray both sides of leaves, and repeat treatment every week to ten days. This may stop the leaf miner, and it may not. The tree will still grow and produce even though the leaf miner attacks the leaves. Once the plant gets tall, you likely won't see the damage. Many growers ignore this problem since it is largely cosmetic.

**Winter Protection:** Calamondin is the most freeze tolerant when mature. It suffers damage in the low 20's. Meyer, Iranian Lemon, and Limequats are safe at 25° F, maybe down to 23° F. The common market lemons such as Eureka and Lisbon are hardy to about 26°F as is the Persian (Tahiti or Bearrs) Lime. The Mexican Lime, or Key Lime, is hardy to about 27° F. The Ponderosa Lemon is hardy to about 29° F. The Thai Lime Leaf is a tropical fruit that rarely survives any amount of freezing temperature and should be kept in a container in most of the area.

Pile mulch or leaves against the base to protect the graft if predictions exceed the safe temperature range. If the tree is small enough, tent the tree with a blanket or frost cloth. Do not "wrap" the tree. Protect trees less than two feet tall with a large plastic bin or cardboard box covered with a tarp. Prior to tenting or covering, place a bucket of water beside the trunk. Water gives off heat when it freezes. If you trap this heat inside the covering, it can keep the temperature inside the cover a few degrees higher. Suggested minimum temperatures are based on mature trees. Young trees are less hardy and require protection at higher temperatures.

### ***Varieties for the 2020 Sale***

***Lemons: Eureka Pink Variegated, Lisbon, Meyer Improved, New Zealand Lemonade, Ponderosa, Ujukitsu (see Oranges)***

***Limes: Mexican (Key), Palestinian (Indian Sweet), Persian (Tahiti, Bearrs)***

***Other: Calamondin, Thai Lime Leaf (Kaffir), Eustis Limequat***

### ***Varieties of Sour Citrus for Southeast Texas***

***Eureka Pink Variegated Lemon:*** Eureka is a common supermarket lemon but this pink variant is a bit different. The leaves are variegated green and white and the rind is striped green and cream making the tree quite ornamental. When fully ripen, the stripes fade, and the rind turns yellow. The flesh is light pink at full maturity, has very few seeds, and nicely acidic. Most Eureka Lemons are thornless. Everything you would want in the landscape and the kitchen!

***Iranian (Persian Sweet) Lemon:*** A gourmet quality lemon used in Middle Eastern cooking and as a compliment to teas. It is sweeter than many market lemons, similar to the Meyer Lemon. It is sweetest when first cut, and will sour slightly within an hour of being sliced. The rind is very aromatic and makes a wonderful zest. It has a longer blooming and fruiting period than other lemons, and when mature, may produce two crops a year. The skin is thin making it difficult to ship and store commercially. The best way to have this fine lemon is to grow it yourself!

***Lisbon Lemon:*** This is the classic yellow lemon with strong acid flavor, thin skin, and high juice content. The tree is beautiful in appearance with dark green leaves, purple tinged blossoms, and bright yellow fruit. Lemons are well-suited to container growing. Vigorous, upright, slightly spreading habit. Encourage a bushier habit that is easier to maintain. May produce more than one crop a year with a main crop in late winter to early spring.

***Meyer Improved Lemon:*** The Meyer Lemon, or Valley Lemon, is considered the world's gourmet lemon. The fruit is sourest in August, and sweetest in January-February. Although it bears heavily November through April, the tree is ever-bearing in warm winters; flowers and fruit are present on the tree at the same time. Meyer grows to about 10' tall and 8'-10' wide and produces dozens to hundreds of fruit year after year. Allowed to ripen on the tree, the rind turns golden and eventually the fruit becomes less sour. They are never as sour as supermarket lemons. Meyer tolerates temperatures down to 23° - 25° F. If Meyer freezes to the ground in a very hard freeze it may grow and produce again in 18 months. The tree is hardier, less sour, and juicier than other lemons because it has orange and kumquat ancestry as well as lemon.

***New Zealand Lemonade:*** Sweet lemon hybrid of unknown parentage with a pleasant, lemonade-like flavor. There is no bitterness or aftertaste to this fruit. It has been a popular home garden tree in New Zealand and came to the US in 2007. Can set several crops each year.

***Ponderosa Lemon:*** Ponderosa is a conversation piece for the fruit collector. Thought to be a cross between lemon and citron, the fruit is huge and seedy with a thick, bumpy skin. The tree is slow growing and a bit thorny, but it often bears fruits and flowers at the same time. Flowers are a bit

larger than the typical citrus flower. The juice is nicely acidic, and one fruit can provide sufficient juice for several lemon pies. It is very tender to temperatures below 30°.

**Multi-grafted Lemons and Lemon-Limes:** New to the industry, these multi-grafted varieties offer the benefit of two different lemons on one rootstock. Perfect for small or crowded gardens and for containers. See variety labels.

**Mexican Lime (Key Lime):** The Key Lime is also referred to as a Mexican Lime. It bears a huge number of small, thin-skinned, greenish-yellow limes. This juicy lime is known for its distinctive aroma and high-acid content. In warm weather, it flowers and fruits almost continuously. It needs full sun, good air circulation, and good drainage. Unless advertised as thornless, it will be a thorny, compact bush with small, blunt-pointed leaves. It is not cold tolerant. It is easily grown in a container. Move it inside during freezes.

**Palestinian Sweet Lime (Indian or Caribbean Sweet Lime):** This nearly seedless variety produces a citrus fruit completely lacking in tartness so it is a lime only because it looks like one, not because it tastes like one. The juice has low sugar content, but tastes sweet nevertheless. Some don't like it because it is low in acidic flavor or even insipid, but it is juicy and nutritious and perfect for those who are looking for low acid citrus. This variety is hardier than common limes.

**Persian (Tahiti or Bearss) Lime:** This lime is larger than the Mexican (Key) Lime. This seedless variety is the most commonly cultivated lime for commercial purposes – the market lime. The tree is nearly thornless. The fruit is usually sold green, but it will actually turn yellow when fully ripe. Fruit stores a long time on the tree and has good shelf life after harvest. It is slightly less acidic than the Mexican (Key) Lime and has nicely aromatic zest.

**Philippine Lime or Calamondin:** In Southeast Asia and much of the tropics and subtropics, the Calamondin is king of sour citrus. They show up in Philippine kalamansi “lemonade” or as a table flavoring in all parts of the humid tropics and semi-tropics. They are also common dooryard fruits in south Florida. The Calamondin is the size of a pecan shell, and is plentiful here year-round on an 18' tree perhaps 6' in diameter. The skins are brilliant orange. The deep orange flesh is deliciously sour with a fragrance that is wonderful. The fruit looks like a kumquat on the tree, and a tiny tangerine when cut open, but like the lemon and lime, it never sweetens. It has four qualities that make it superior to lemons and limes: (1) year round production; (2) ripe, very juicy fruit are soft enough to hand squeeze easily; (3) fruit are numerous enough, small enough, and juicy enough to each make an individual serving somewhat like a catsup packet; (4) Calamondins easily survive temperatures in the low twenties. Calamondin fruit are easily frozen in a freezer and then used in summer drinks as flavored ice cubes.

**Thai Lime Leaf (Kaffir or Makrut Lime):** A small evergreen tree native to tropical Indonesia, with hourglass-shaped leaves and small green fruit that are used extensively in Thai cooking. Thai Lime Leaf is grown chiefly for the fragrant leaves, which are used as an outstanding flavoring in Southeast Asian cuisine and cost an arm and a leg in stores. The small, bumpy fruit is also used, mostly for the zest. Thai Lime Leaf is a tropical that must be kept in a pot except in places that stay above freezing.

***Eustis Limequat:*** A cross between the Key Lime and a kumquat. Excellent lime substitute. The fruit is oblong and the size of a small lime with lemon-yellow to lime-green, edible skin. Moderately juicy, with a sour but clean lime tasting flavor. More cold-hardy than the Mexican Thornless/Key Lime, but not as hardy as its kumquat parent.

***Lakeland Limequat:*** Named for the city of Lakeland, Florida; a cross between Key Lime and a round kumquat variety. Fruits heavily, even in a container. Produces year round in mild climates. Limequats in general are the hardiest citrus with an actual lime flavor, though they are not as tasty or as fragrant as supermarket limes.

Note: Although Ujukitsu is used as a sweet lemon, it is historically and botanically in the orange family. Information on the Ujukitsu will be found on the cultural tip sheet for oranges.