



Florida Cooperative Extension Service

## Growing Citrus in the Dooryard<sup>1</sup>

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Citrus trees can be an important part of the landscape for many Florida homeowners. They are both useful ornamental trees and can provide an abundance of delicious fruit for the grower. Citrus is, however, a subtropical fruit tree and its culture is limited to areas of the state that are not regularly compromised by damaging cold. Also, like most other plants in the dooryard landscape, regular maintenance such as irrigation, fertilization, weed control and pest management procedures must be followed for best growth and production of fruit. Commercial production of the crop is largely confined to warm areas south of a line extending between Crystal River on the west coast to Daytona Beach on the east coast. Major production is confined (following numerous serious freezes during the 1980's) largely to the area south of a line running between Tampa and Titusville. This does not mean that citrus cannot be grown in other areas of the state, but it does suggest that careful consideration should be given to site selection, choice of variety and cold protection if trees are to be planted outside areas where citrus trees are grown commercially.

### CITRUS TYPES AND VARIETIES

Many different types of citrus such as oranges, grapefruit and limes can be grown in Florida. Within each type of citrus there are usually several varieties with distinctive characters which set them apart from other varieties. Such cultivated varieties are usually given names and are referred to as cultivars (which is an abbreviation of the words "cultivated variety"). For

example, with Valencia orange, we have a sweet orange citrus type and the cultivar is Valencia. Numerous other examples will be found in Table 1.

Clearly, there are many types and cultivars available for the dooryard grower from the list presented. Additionally, there are many others in the industry, but only the more popular ones have been presented in the table.

Citrus trees should be purchased from a reputable source as a budded tree on an appropriate rootstock. There will probably not be a choice of rootstocks available to the dooryard grower purchasing a very small number of trees. However, this is little cause for concern since most dooryard trees will receive care substantially different from those which are placed in commercial plantings. Again, one should purchase from a reputable source that has made an appropriate rootstock selection for your cultivar and geographic location and who will stand behind their products if there are problems.

Selecting a cultivar is largely a matter of personal choice. Most people grow what they prefer to eat. There are many factors which need to be considered before the final choice is made. Perhaps the most important is sensitivity to cold. Sites which are historically cold during winter should not be planted with tender citrus types and only the most hardy should be chosen. Likewise, late-maturing cultivars

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**Table 1.** Dooryard Citrus Types and Popular Cultivars.

Types/Cultivars	Season of Maturity	Seeds/Fruit	Relative Fruit Size
<b>SWEET ORANGE</b>			
Navel <sup>3</sup>	Oct.-Jan.	Very few	Large
Hamlin	Oct.-Jan.	Few	Small-Medium
Parson Brown	Oct.-Jan.	Many	Small-Medium
Ambersweet	Nov.-Dec.	Varies	Large
Pineapple	Dec.-Feb.	Many	Medium
Valencia	March-June	Few	Medium
<b>GRAPEFRUIT</b>			
Duncan	Nov.-March	Very Many	Large
Marsh	Nov.-March	Few	Large
Redblush	Nov.-March	Few	Large
Thompson	Nov.-March	Few	Large
Flame	Nov.-March	Few	Large
<b>SPECIALTY</b>			
Satsuma mandarin	Sept.-Oct.	Few	Medium
Robinson tangerine <sup>4</sup>	Oct.-Dec.	Varies	Varies
Fallglo Tangerine <sup>4</sup>	Nov.-Jan.	Varies	Large
Orlando tangelo <sup>4</sup>	Nov.-Jan.	Varies	Varies
Minneola tangelo <sup>4</sup>	Dec.-Jan.	Few	Large
Temple orange hybrid	Jan.-March	Many	Medium
Dancy tangerine	Dec.-Jan.	Many	Small
Murcott honey tangerine	Jan.-March	Many	Medium
Sunburst tangerine <sup>4</sup>	Nov.-Jan.	Varies	Varies
Kumquat	Nov.-Dec.	Few	Small
<b>ACID<sup>5</sup></b>			
Calamondin	Sept.-Dec.	Many	Small
Tahiti lime	July-Sept.	None	Medium
Key lime	July-Sept.	Many	Small
Lemon <sup>3</sup>	Aug.-Nov.	Few	Large
Limequat	Oct.-Dec.	Few	Small

**Table 1.** Dooryard Citrus Types and Popular Cultivars.

Types/Cultivars	Season of Maturity	Seeds/Fruit	Relative Fruit Size
<sup>3</sup> Several cultivars are available.			
<sup>4</sup> These are citrus hybrids which will do best in mixed planting with other cultivars for cross-pollination which should increase both fruit yield and size.			
<sup>5</sup> The acid citrus types will often have fruit maturing year-round. Dates given are for the main harvest season only.			

should not be planted on such sites since the fruit would be frozen before maturing in many winters. Some cultivars are susceptible to certain insects and diseases and frequent spraying may be necessary. Some cultivars are often shy bearers while others require nearby pollinator trees of another cultivar to ensure good yields. Time invested researching the merits and problems of the desired cultivar should pay off handsomely over the many years of the expected life of the citrus tree. Additional information is available from local nurserymen and from IFAS Extension offices in your home county. They can also assist you with information on site selection and soil preparation.

**SOILS**

Citrus soils are generally of 3 types: (1) the deep, well-drained sands, (2) the poorly-drained flatwoods, and (3) the alkaline marl or limestone soils. Citrus trees can be grown on all 3 soils if proper preparation and aftercare is provided.

The well-drained sands need little or no preparation other than removal of weeds and grass from the planting site prior to planting. The poorly-drained flatwoods soils will need to have drainage provided or the trees should be planted on large mounds approximately 12 feet in diameter and at least 18-24 inches high.

The calcareous or limestone soils may also need special preparation. In the limestone soils, a hole should be prepared as large as is conveniently possible and filled with soil prior to planting. This will allow a maximum area for root development.

**SPACING AND PLANTING**

Spacing will vary with cultivar and desired tree density. Among the various citrus types, grapefruit trees are usually larger than orange trees which are larger than most specialty types. If several trees are to be planted, they should be set at least 20-25 feet apart unless a vigorous pruning program is maintained to keep the trees

from crowding each other. Be sure to consider proximity to buildings or other plants as citrus is rather vigorous and will grow quite rapidly when well cared for. Full sun areas are most desirable but septic tanks and drain fields should be avoided due to possible clogging of drains by the roots as well as damage to the tree from detergents and other chemicals.

Most dooryard citrus trees are purchased in containers and can be planted any time of the year, although the preferred time is late winter or early spring. All grass and weeds should be removed from an area 4-6 feet in diameter where the tree is to be planted. The immediate area where the tree is to be planted should be thoroughly spaded to a depth of 2-3 feet. Remove the tree from the container and if pot-bound, make several vertical cuts in the ball of the roots to stimulate formation of new roots. Set the plant in the ground slightly (1/2-1 inch) higher than it grew in the container. Re-fill the hole around the plant about 1/3 to 1/2 full, then water and tamp the soil thoroughly to remove air pockets. Allow the water to settle, fill the hole 2/3 full of soil, re-water and tamp again. Finish filling the hole and pack the soil firmly around the tree. Form a water basin around the tree at least 3-4 inches high and 30 inches in diameter. Water 3 times a week for 2 weeks, then taper off gradually to once a week during periods of little or no rainfall. The basin should stay in place until the tree is well established.

The young citrus tree will need special attention if it is to thrive and produce large crops of fruit. One of the most critical items to watch is the water supply. Citrus trees (especially young trees) should receive a generous supply of water every 7-10 days during periods of little or no rainfall. The area under the tree canopy should be kept weed-free to reduce competition for water and nutrients. A young tree should not be allowed to wilt from lack of water but conversely, too much water can damage the tree. This is especially true on poorly-drained soils.

## FERTILIZATION

The regular application of appropriate fertilizer materials is essential to proper growth and development of the young tree and the subsequent development of large crops of good quality fruit in the mature tree. While fertilization is important, it is not a complicated procedure if recommendations are followed. Exceeding recommendations may be just as harmful (or even more so) as not applying enough. Over-fertilization will usually produce rampant growth at the expense of fruit production and serious over-fertilization can injure or kill the trees.

Two fertilization schedules are suggested -- one for young, non-bearing trees (see Table 2) where growth is maximized and fruit yield is compromised somewhat; and, a mature tree schedule where tree growth is minimized and fruit yield and quality are maximized. Suggested applications should be made between the months of February - October.

Fertilization of the trees after they begin to mature and produce regular and substantial crops of fruit is a rather inexact science in the dooryard situation. This is because there are many variables which can affect fertilizer use such as grass growing around the tree, proximity to buildings, distance from other trees or ornamentals, heavy irrigation use from sprinkler systems, and the like. However, as a general rule of thumb, bearing trees should be fertilized 3 times per year with the same 8-8-8 (or similar) fertilizer recommended for young trees. The amount applied in each application can be gradually increased about one pound per year up to a maximum of 8 pounds. This would mean that a fully-grown tree would be receiving approximately 24 pounds of fertilizer in 3 separate 8 pound applications. Tree condition should be used as a guide to rates of applied material with noticeably deficient trees receiving more material and luxuriant, vegetative trees receiving less. The recommended 3 applications per year can be made in January - February, May - June and October - November although timing is not especially critical.

A nutritional spray may be required when minor element deficiency symptoms develop. (These problems are likely to develop more quickly on alkaline soils.) There are many pre-packaged nutritional spray mixes that are satisfactory. These should contain zinc, manganese, boron and copper. Your local garden supply dealer should be able to recommend which material is best. Some dooryard growers prefer to routinely apply a nutritional spray on an annual basis. This is a good practice on alkaline soils and will not harm trees grown

in acid sandy soils. However, the instructions on the label of the material should be followed carefully. Iron deficiencies may occur in some locations and should be corrected if present by using soil-applied iron chelates.

The pH (acidity or alkalinity) of the soil should be maintained between 5.5 and 6.5. An application of limestone or dolomite should be used to bring up the pH if it is too low (acid). Soils above pH 7.0 should not be treated to bring pH down. The local extension agent or garden supply dealer can be of service in helping to determine if a pH correction is needed.

## OTHER CULTURAL PRACTICES

Complete weed control is not essential but weeds and sod grass should be removed from the area under the tree canopy. Above all, make sure all weeds are removed from the area adjacent to the trunk of the tree since this could promote injury due to a soil-borne fungus known as foot rot which can seriously debilitate or even kill the tree. Mulches are generally not recommended around citrus trees but could be used if kept at least a foot away from tree trunks.

Pruning should not be necessary except to shape the trees or remove water sprouts or suckers. Be certain to make pruning cuts flush with the trunk or surface to be cut. Do not leave stubs as they may be attacked by rotting organisms which could damage the tree.

Fruit splitting and fruit drop may be a problem for some growers. This is a physiological problem of unknown origin. The problem is often accentuated just after a period of moisture stress followed by a heavy rain. Splitting and drop will usually not be a serious problem if the trees are well cared for and furnished with adequate nutrition and irrigation.

## INSECT AND DISEASE CONTROL

Organic farmers will be pleased to learn that citrus fruit can be successfully grown in most Florida dooryards without any insect or disease control sprays. Fruit produced in this manner, however, will rarely be of top external quality. There are several insects, mites and fungus diseases which may attack the fruit

**Table 2.** Suggested Fertilization<sup>6</sup> Rates for Citrus Trees up to Five Years of Age.

Years since planting	Number of applications/year <sup>7</sup>	Pounds/tree/application <sup>8</sup>
First	5 - 6	0.5 - 1.0
Second	4 - 5	1.0 - 1.5
Third	3 - 4	1.5 - 2.5
Fourth	3 - 4	2.5 - 3.0
Fifth	3 - 4	3.0 - 4.0

<sup>6</sup> Recommended fertilizer analysis is 8-8-8-1.6-0.4-0.2-0.025 or equivalent (N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O-MgO-MnO-CuO-H<sub>3</sub>BO<sub>3</sub>).

<sup>7</sup> Lower number of applications should be used for trees planted in colder locations or in more northerly latitudes.

<sup>8</sup> Lower number refers to first application of the year with rates gradually increased until the last application is using the rate suggested by the last number in the range.

and render it somewhat unsightly. External fruit blemishes will usually have little effect on internal fruit quality. The appearance of the tree itself may suffer somewhat also if no sprays are applied but rarely will trees be seriously damaged by most citrus pests. Natural biological control will assist in keeping most pests to a low level. Large pests such as caterpillars and grasshoppers should be removed by hand as soon as they are noticed, especially on young trees.

Formulating a spray program can be extremely complicated. Not only is there a variety of pests (insects, mites & fungi) to be controlled, there are many different types of chemicals to be used and both timing & application of sprays is critical. Other factors to be considered would include the use of

several chemicals in one spray to control different pests, the compatibility of these chemicals and adverse effects on beneficial insects caused by the use of certain chemicals. To further complicate the problem, there are many different formulations of the several chemicals available and dosages may vary with formulation and season of the year.

For the previously cited reasons and due to the fact that government regulations regarding use of agricultural chemicals are constantly changing, your local county Extension agent or garden supply center should be consulted before attempting any insect or disease control program on dooryard citrus trees. They will be able to assist with recommendations for controlling pests or in formulating a total spray program for your dooryard citrus if it is necessary.