



# LOW DESERT CITRUS VARIETIES

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When choosing a variety of citrus to plant in your yard consider: what you like to eat; when you want to harvest; and how cold it gets in your yard.

- & Each of us has individual taste and the variety that you prefer may not be what someone else prefers. Do you want a seedless fruit? Is it important that the skin be easy to peel, or that the fruit be low in acid? These are all personal preferences. Evaluate the fruit characteristics that are important to you and choose a fruit to meet your needs.
- & Harvest time can have a significant impact on fruit flavor. Citrus fruit will not ripen once removed from the tree. However, if the fruit is left on the tree it will continue to sweeten as the season progresses. For example, grapefruit is palatable in September, but most people prefer them in March or April when they are sweeter and have less acid. If you are only here in the winter, you will want to choose a variety that is sweet while you are here.
- & Some fruit trees are more frost sensitive than others. Kumquats and Mandarins tend to be the most cold hardy, followed by grapefruit, orange, lemon and lime. If you live in some of the colder parts of the Valley you may want to select cold tolerant varieties. (While trees may be somewhat cold hardy, the fruit is not)

When purchasing citrus be sure to select a tree that is clearly identified. It is not enough to simply be identified as an orange, grapefruit or mandarin. There are many varieties of each species of citrus, each with its own characteristics. Be sure the tree has a tag which identifies both the variety and the rootstock, i.e., 'Fukumoto' navel orange on a 'Carrizo' citrange rootstock.

Listed below are some of the most popular varieties of citrus available in Maricopa County. This is not an all-inclusive list, but includes varieties that are often available at your local nursery.

## Navel Oranges

Navel oranges are the premium fresh-eating orange, because they are seedless and moderately easy to peel. Navels can also be juiced, but the juice can not be stored, as navel oranges have a compound called limonin which produces a bitter taste.

## At a Glance:

Select varieties that:

- & meet your needs regarding flavor, ease of peeling, number of seeds, acidity, and color
- & ripen at a convenient time
- & have adequate cold hardiness
- & are clearly identified as to variety and rootstock

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**Pigmented navel ‘Cara Cara’** or red navel is the only pigmented navel orange with a crimson flesh similar to red grapefruit. The flavor and peel color of the ‘Cara Cara’ is similar to other navel orange varieties. Fruit segments are attractive in salads due to its crimson color.

\* **‘Fukumoto’** an early-season, medium-sized navel which should be harvested by the end of October or early November. Currently being evaluated for Arizona, this variety has performed well in California trials. Due to its early maturity it may not have full orange peel color at the time of harvest although it is ready to eat. \***‘Beck Early’** should be harvested about the same time as the ‘Fukumoto’. Depending on climatic conditions, this navel tends to be more oblong in shape than most navels. This variety also is being evaluated for Arizona.

\* **‘Lane Late’** is one of many new Australian late season navels. These are often called summer navels; however, here in Arizona they can be harvested beginning in January. There are over 13 different varieties of late navels with the ‘Lane Late’ being one of the most promising. It is currently being evaluated for Arizona conditions. Other varieties include **‘Autumn Gold’**, **‘Barnsfield’**, **‘Chislett’**, **‘Powell’**, and **‘Summer Gold’**.

**‘Parent Washington’** is probably the most popular navel grown in the Salt River Valley. This mid-season navel variety produces a large fruit which has good quality. Harvest beginning around Thanksgiving or the first of December. Other mid-season navels include **‘Atwood’**, **‘Fisher’**, **‘Newhall’**, **‘Robertson’**, **‘Spring’**, and **‘Thompson Improved.’**

## Sweet Oranges

“Arizona Sweets,” refers to any one of a number of sweet orange varieties. The sweet oranges are good for both juice and eating fresh.

**‘Diller’** originated in Arizona and is a small-to-medium-size sweet orange with comparatively few seeds. This variety has been popular here in the Salt River Valley due to its productivity. This variety produces the largest yield and is excellent for home use if juice is the main interest.

**‘Hamlin’** is an early-season sweet orange which has done well here in Arizona. The fruit is medium in size with 0-6 seeds per fruit.

**‘Marrs’** is another early-season, semi-dwarf tree, sweet orange. The fruit is medium to large in size and is moderately seedy with 7-10 seeds per fruit. It reaches maturity early in the season, and is best when it fully ripens in November.

**‘Pineapple’** produces fruit which is medium in size and seedy with 15-25 seeds per fruit. It is very productive; however, it tends to alternate bear.\*\* The name ‘Pineapple’ came about as some people thought the tree had the flavor or smell of a pineapple.

**‘Trovia’** is an excellent sweet orange and produces well here in Arizona. The fruit is medium-to-large in size with 6-10 seeds per fruit.

## Valencia oranges

Valencia Oranges are known for their high-quality juice, which has a deep orange color and high sugar content. However, the fruit does not reach maturity until about March. The fruit is medium in size with few seeds (0-6). Two popular varieties which have performed well in the Salt River Valley are the **‘Campbell’** and **‘Olinda’**. Two newer varieties which are seedless are the **‘Delta’** and **‘Midnight’**.

## Pigmented or Blood Oranges

In cool climates blood oranges are characterized by the dark red internal color they develop, hence the name “blood oranges.” The red color may even be observed on the peel of some varieties. However, in the warm climate of Arizona many of the blood oranges fail to develop the typical deep red internal color. In the Salt River Valley, the **‘Salustiana’** variety produces the most consistent dark red internal color. Other varieties of blood oranges which may or may not develop dark red internal color, depending on the climate, are **‘Moro’**, **‘Ruby’**, **‘Sanguinelli’**, and **‘Tarroco’**.

## Mandarins (Tangerines)

Mandarins are popular because most of the varieties are easy to peel and section well. The fruit has a thin peel which when ripe may “plug” (a section of the peel where the stem was attached is removed if the fruit is pulled from the tree). If you are going to store mandarins it may be necessary to “clip” the stem of the fruit from the tree to prevent “plugging” that otherwise may lead to desiccation or decay.

**‘Algerian’** (**‘Clementine’**) is an early-season mandarin ripening in November. Fruit size is small to medium. If the tree is self-pollinated it will produce fewer seeds, but also fewer fruits. Cross-pollination will increase fruit production, but will also result in fruit with more seeds.

**‘Daisy’** is an excellent early season, very sweet, red/orange mandarin. Fruit size is medium to large. 0 - 5 seeds.

**‘Dancy’** is harvested beginning in December. Fruit is medium in size with 6-20 seeds. Like many mandarins ‘Dancy’ tends to be alternate bearing\*\*.

**‘Fairchild’** is a popular early-season commercial variety in the Salt River Valley. The fruit is medium in size and ripens in November about the same time as the ‘Algerian’. The trees tend to produce more fruit with cross-pollination, but this makes the fruit seedy. Alternate bearing\*\* is a problem with this variety.

**‘Kinnow’** is a popular late-season mandarin maturing in January here in the Salt River Valley. The fruit is medium in size and has numerous seeds depending on cross-pollination. Like other mandarins, but even more pronounced, they tend to be alternate bearing\*\*. This variety is very sweet when ripe and has the flavor characteristic of many mandarin beverages.

## Tangelos

Tangelos are hybrids resulting from the cross of mandarin and grapefruit or mandarin and pummelo.

**‘Minneola’** is a hybrid of ‘Duncan’ grapefruit and ‘Dancy’ mandarin. Fruit is mature beginning in January. The bright, orange red fruit is large and pear-shaped and typically have a fairly prominent neck; however, not all fruit exhibits this characteristic. The fruit has 7-12 seeds. Cross-pollination is recommended for regular production. ‘Dancy’, ‘Algerian’ and ‘Kinnow’ mandarins provide satisfactory pollen.

**‘Orlando’** is the result of the same cross as the ‘Minneola’ but is distinctly different. The fruit is medium in size but without the neck. It is harvested in November. Seediness depends on cross-pollination (0-35). Cross-pollination is recommended with ‘Algerian’, ‘Dancy’ or ‘Kinnow’ for regular and good production. This is one of the best juicing fruits available.

## Grapefruit

Grapefruit varieties can be divided into two natural categories: white or red. There is a common misconception that the red grapefruit is sweeter than the white; however, this is not true. Although the demand is greater for red grapefruit, the white grapefruit are just as sweet if allowed to fully ripen.

**‘Duncan’** is one of the oldest grapefruit varieties and, according to many, the best-tasting grapefruit. However, it is very seedy (30-70) and lost popularity as a fresh fruit when the Marsh was introduced.

**‘Marsh’** is the most common and widely planted white grapefruit in the Salt River Valley. Although the fruit is ready to harvest in December, if left on the tree the fruit will continue to mature and become sweeter with time. Fruit is typically best from March through May after acid levels in the fruit have declined. The fruit is large in size with only a few seeds (0-6).

The following is a list of red grapefruit varieties, progressing from lightest-to-darkest-colored flesh.

**‘Redblush’** (**‘Ruby Red’**), popular here in the Salt River Valley, was one of the first pigmented grapefruit varieties. It has large fruit with few seeds (0-6). The internal color is a light pink. The fruit is picked beginning in December, but becomes better the longer it remains on the tree. Interior fruit color becomes golden in spring.

**‘Flame’** is a new release from Florida which produces large fruit with few seeds (0-6). The fruit is mature beginning in December. ‘Flame’ is still being evaluated for the low desert.

**‘Rio Red’** produces a large fruit with few seeds (0-6). The flesh is one of the darkest and the peel can develop a red tint as well. Fruit is picked beginning in December, however, fruit will stay on trees as late as July.

**‘Texas Star Ruby’** produces the darkest flesh color of any variety. However, it is not recommended for this area. The trees are sensitive to our hot summers and leaves will sunburn more readily than other citrus trees. High temperatures above 115 degrees may kill ‘Star Ruby’ trees.

## Grapefruit x Pummelo Hybrids

'Troyer' or 'Carrizo' rootstocks should be used for these hybrids.

- \* **'Melogold'** has retained more of the pummelo characteristics. The fruit is large and has a distinctive taste with a high sugar content. It is less acidic than grapefruit. The peel is thick.
- \* **'Oro Blanco'** has retained more of the grapefruit characteristics. The fruit is about the size of a grapefruit with a slightly thicker peel. The fruit is lower in acid and higher in sugar than grapefruit and has more of the pummelo flavor.

## Lemons

Lemons are typically treated with ethylene gas by commercial growers to develop the yellow color early in the season. They can be harvested when green and used well before the rind turns yellow at maturity.

**'Eureka'** is generally more ridged, usually with a rougher rind surface and a smaller or less pronounced nipple. The tree is thornless and more frost sensitive.

**'Lisbon'** fruit is medium in size and characterized by a prominent nipple. The rind is generally smoother than the 'Eureka'.

**'Meyer'** is illegal (and therefore not available) in the State of Arizona. This variety is known to harbor the Citrus Tristeza Virus (CTV), which is a devastating disease of citrus. Meyer is not a true lemon, but likely a hybrid of a sweet orange and lemon.

**'Ponderosa'** is most likely the hybrid of a lemon and citron. The 'Ponderosa' is more characteristic of the citron than a lemon and is often grown as a garden ornamental. The fruit is the size of grapefruit and has a thick peel.

## Limes

Limes are extremely frost sensitive and need to be planted in warm areas or protected from frost.

**'Mexican Lime'** ('Key Lime') ripens in September and the fruit is small. The fruit is prized for the flavor, used in pies and for other culinary purposes.

**'Tahiti'** ('Bearss', 'Persian') is believed to be a hybrid between the small acid lime and possibly the citron. The fruit ripens in June and is larger than the 'Key Lime'.

## Kumquats

**'Fukushu'** has small bright orange entirely edible fruit. Small symmetrical tree with attractive dark, green leaves. Beautiful landscape or container specimen

**'Meiwa'** has round fruit with spicy sweet peel and pulp. The fruit is used for preserves and candied fruit. Similar to the Nagami, the trees are used in home and commercial landscaping and are cold hardy.

**'Nagami'** is more oblong than the 'Meiwa', more acid in taste, and a brighter orange color. The 'Nagami' trees are used in home and commercial landscaping and are quite cold hardy.

## Limequats

**'Tavares'** is a hybrid (East Indian lime x oblong kumquat). The fruit is characteristic of the kumquat but has a small neck. The trees are popular in home landscaping, and the fruit may substitute for lime as a condiment. The limequat is not as cold hardy as the kumquat.

\* Currently under evaluation for growing in the Salt River Valley.

\*\* Alternate Bearing: Tree alternates between heavy production one year to fewer fruit the next.

## URL:

<http://ag.arizona.edu/extension/pubs/garden/az1001.pdf>

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THE UNIVERSITY OF ARIZONA COOPERATIVE EXTENSION, MARICOPA COUNTY  
**Citrus Harvesting Calendar for the Low Desert**

Citrus Variety	Harvest Dates																							
	Jan		Feb		Mar		April		May		June		July		Aug		Sept.		Oct.		Nov.		Dec.	
	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15
<b>Navel Oranges</b>																								
Cara Cara	■	■																					■	■
Fukumoto																				■	■	■	■	■
Lane Late	■	■	■	■	■	■																		
Parent Washington	■	■																				■	■	■
<b>Sweet Oranges</b>																								
Diller	■	■	■	■																			■	■
Hamlin	■	■																				■	■	■
Marrs	■	■	■																	■	■	■	■	■
Pineapple	■	■	■	■																			■	■
Trovita	■	■	■	■																			■	■
<b>Valencia Oranges</b>																								
Campbell			■	■	■	■	■	■	■	■														
Delta			■	■	■	■	■	■	■	■														
Midnight			■	■	■	■	■	■	■	■														
Olinda			■	■	■	■	■	■	■	■														
<b>Pigmented/Burgundy Oranges</b>																								
Moro	■	■	■	■																			■	■
Ruby	■	■	■	■																				
Salustiana	■	■	■	■																				
Sanguinelli	■	■	■	■	■	■																		
Tarroco	■	■	■	■																				
<b>Mandarins/Tangerines</b>																								
Algerian: (Clementine)																							■	■
Daisy	■	■																					■	■
Dancy	■	■																					■	■
Fairchild																						■	■	
Kinnow	■	■	■	■																				■

Citrus Variety	Harvest Dates																									
	Jan		Feb		Mar		April		May		June		July		Aug		Sept.		Oct.		Nov.		Dec.			
	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15	1	15		
<b>Tangelos</b>																										
Minneola	■	■	■	■																						■
Orlando	■																				■	■	■	■		
<b>Grapefruit - White</b>																										
Duncan	■	■	■	■	■	■	■	■	■	■															■	■
Marsh	■	■	■	■	■	■	■	■	■	■															■	■
<b>Grapefruit - Pink (Lightest-to darkest flesh color)</b>																										
Flame	■	■	■	■	■	■	■	■	■	■															■	■
Redblush	■	■	■	■	■	■	■	■	■	■															■	■
Texas Star Ruby	■	■	■	■	■	■	■	■																		
<b>Grapefruit x Pummelo Hybrids</b>																										
Melogold	■	■																							■	■
Oro Blanco	■	■																							■	■
<b>Lemons</b>																										
Eureka	■	■	■	■													■	■	■	■	■	■	■	■	■	■
Lisbon	■	■	■	■													■	■	■	■	■	■	■	■	■	■
Ponderosa	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
<b>Limes</b>																										
Mexican Lime: (Key Lime)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Tahiti: (Bearss, Persian)	■	■															■	■	■	■	■	■	■	■	■	■
<b>Kumquats = may have fruit year-round</b>																										
Fukushu	■	■	■	■	■	■															■	■	■	■	■	■
Meiwa	■	■	■	■	■	■															■	■	■	■	■	■
Nagami	■	■	■	■	■	■															■	■	■	■	■	■
<b>Limequats</b>																										
Tavares	■	■	■	■	■	■																			■	■

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