


Citrus

Varieties, Care, Grafting, Diseases and Pruning




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What is an Arizona Master Gardener?

- A University of Arizona trained individual who completes a Cooperative Extension semester-long specialized course in gardening/horticulture.
- A non-paid volunteer who agrees to complete a specified number of volunteer hours and continuing education hours each year to remain certified.



What is an Arizona Master Gardener?

- County-specific and local. Each county extension office has their own program. Maricopa and Pinal Counties focus on our conditions in the low desert.
- The Master Gardener provides educational leadership in home gardening, landscaping, and irrigation.
- We may or may not be experts or “masters” at any or all horticulture topics, but we are trained to help you find science- and research-based information.

Citrus in Arizona

- One of the “5 C’s” of Arizona’s Economic History
- Arizona is one of only four citrus-producing states in the nation
- Reconstruction of *Hohokam Canals* during the 1860s enabled irrigated farming.
- In 1889, William J. Murphy planted an experimental citrus grove in Ingelside*. He grew over 1,800 orange trees.

* near what is now 44th and Indian School Rd in Phx

The image features a large, dark green, textured brushstroke that serves as a background for the text. The brushstroke has a rough, organic shape with some lighter green and white splatters around its edges. The text 'Citrus Varieties' is written in a clean, white, sans-serif font, centered within the dark green area.

Citrus Varieties

Citrus Basic Varieties

- Orange
- Mandarin (Tangerine)
- Grapefruit
- Lemon
- Limes
- Kumquat
- Pummelo / Pomelo
- Citron
- Papeda

Citrus Hybrids

- Tangelos - a cross of mandarin and grapefruit or mandarin and pummelo
- Grapefruit x pummelo hybrids
- Limequats
- Meyer Lemon – hybrid of orange and lemon
- Ponderosa Lemon – hybrid of lemon and citron
- Finger lime – not part of the Genus Citrus, but closely related
- Tangor – Mandarin x sweet orange

Dr. Glenn Wright discusses the 100 varieties on display at the West Valley Citrus Clinic.

This is an annual event held in January by the Maricopa Master Gardeners and UA staff.





RIO RED
Grapefruit

COCKTAIL
Gra

CHANDLER
Pummelo

SARAWAK
Tahitian Pummelo

VAL



TEXAS STAR RUBY
Grapefruit

MELOGOLD
GRAPEFRUIT HYBRID

ORO BLANCO
GRAPEFRUIT

MATO BU
Pumme



KIYOMI
Tangor

**TEMPLE
(ROYAL MANDARIN)**
TANGOR

ATWOOD
Navel Orange

**BAHIANINHA
ARARAS**
Navel Orange

BONANZA
Navel Orange

ORTANIQUE
Tangor

**PARENT
WASHINGTON**
Navel Orange

BAHIANINHA SRA
Navel Orange

BECK EARLI
Navel Orange



SARAWAK
Tahitian Pummelo

VALENTINE
PUMMELO

BERGAMO
Sour Orange

CHINOTTO
MYRTLE LEAF ORANGE

BUDDHA'S HAND
Citron



BUTAN
Pummelo

SEVILLE
Sour Orange

RANGPUR
Mandarin-like

BUDDHA'S HAND
Citron



**SIDI AISSIA
CLEMENTINE**
Mandarin

**W. MURCOTT
AFOURER (DELITE)**
MANDARIN

MINNEOLA
Tangelo

WEKIWA
Tangelo

KIYOMI
Tangor

TANGO
Mandarin

ALLSPICE
Tangelo

ORLANDO
Tangelo

ELLENDALE
TANGOR



ETROG
Citron

LISBON
Lemon

PONDEROSA
Lemon

MEYER
Lemon

MEXIC

EUREKA
Lemon

PINK EUREKA
Lemon

SUNBURST
Lemon

VILLAFRANCA
Lemon



Citrus Harvest Calendar



LOW DESERT CITRUS VARIETIES

Issued April 1998 by:

Michael Maurer, Agent
Fruits Crops

Lucy Bradley, Agent
Urban Horticulture

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)

ision

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			
Navel Oranges																											
Cara Cara	■	■																						■	■		
Fukumoto																				■	■	■	■	■	■		
Lane Late	■	■	■	■	■	■																					
Parent Washington	■	■																					■	■	■		
Sweet Oranges																											
Diller	■	■	■	■																				■	■		
Hamlin	■	■																						■	■	■	■
Marrs	■	■	■																					■	■	■	■
Pineapple	■	■	■	■																				■	■		
Trovita	■	■	■	■																				■	■		
Valencia Oranges																											
Campbell			■	■	■	■	■	■	■	■																	
Delta			■	■	■	■	■	■	■	■																	
Midnight			■	■	■	■	■	■	■	■																	
Olinda			■	■	■	■	■	■	■	■																	

Tangelos

Minneola	■	■	■	■			■	■																	■			
Orlando	■			■	■																				■	■	■	■

Grapefruit - White

Duncan	■	■	■	■	■	■	■	■	■	■															■	■	
Marsh	■	■	■	■	■	■	■	■	■	■															■	■	■

Grapefruit - Pink (Lightest-to darkest flesh color)

Flame	■	■	■	■	■	■	■	■	■	■															■	■	■
Redblush	■	■	■	■	■	■	■	■	■	■															■	■	■
Texas Star Ruby	■	■	■	■	■	■	■																				

Grapefruit x Pummelo Hybrids

Melogold	■	■																								■	■		
Oro Blanco	■	■																								■	■	■	■

Lemons

Eureka	■	■	■	■																						■	■	■	■	■	■	■	■	■	■	■	
Lisbon	■	■	■	■																							■	■	■	■	■	■	■	■	■	■	■
Ponderosa	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■


Limes

Mexican Lime: (Key Lime)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Tahiti: (Bearss, Persian)	■	■																									■	■	■	■	■	■	■	■	■	■	■

Kumquats = may have fruit year-round

Fukushu	■	■	■	■	■	■																						■	■	■	■	■	■	■	■	■	
Meiwa	■	■	■	■	■	■																						■	■	■	■	■	■	■	■	■	■
Nagami	■	■	■	■	■	■																						■	■	■	■	■	■	■	■	■	■





Citrus Care: Water and Fertilizer

Citrus Care

- Citrus need much more water than desert adapted plants
- If you have an irrigation system, use a separate zone for the citrus trees and a bubbler instead of dripper
- Flood the tree basin when watering
- It is best to have two berms, one at the drip line and one around the trunk to keep water off the trunk
- Water to 3 feet deep. Use a probe to test

Citrus Care - Fertilizer

- Apply fertilizer regularly February – September, typically 3-4 times per year (see chart for type).
- It is the amount of nitrogen applied per year that is most important, not how many times it is applied
- Refer to the Annual Fertilizer Requirements chart for the amount, based on the fertilizer
- Nitrogen is always the first number in the guaranteed analysis (N-P-K = Nitrogen - Phosphorus - Potassium)



Citrus Fertilization Chart for Arizona

Glenn Wright

*Fertilizer does no good in a heap, but a little spread
around works miracles all over.*

-Richard Brinsley Sheridan - Irish Playwright

To promote optimal growth and production of your citrus tree, use the chart to determine the correct amount of fertilizer to apply.

Steps To Use This Fertilizer Chart:

1. On the **blue left edge** of the chart, find a description of the tree you wish to fertilize. Since commercial citrus fertilizer application recommendations are based either on tree height, trunk diameter or the area of the ground covered by the canopy, ranges of all three measurements are included in the tree descriptions. The total pounds of actual nitrogen recommended by the University of Arizona for a tree for one year are found in the **gray column** directly to the right. Since no fertilizer is 100% nitrogen, use the chart to determine the amount of a specific type of fertilizer needed by your citrus tree.
2. Look at the **red top edge** of the chart for the percent nitrogen which your fertilizer contains. Remember that every container of fertilizer has 3 numbers written on it. The first number indicates the % nitrogen, the second the % phosphorus as available phosphate (P_2O_5), and the third the % potassium as available potash (K_2O). For example: 9-6-4 has 9% nitrogen, 6% phosphorus and 4% potassium – see illustration.



Illustration Credit: Christiana Wright

small tree. Then, find the column for 13% nitrogen. They meet at the number 1.9 to 3.8. Because the tree is a lemon, add about 10% to the total (2.10 to 4.2 lbs.). Since the tree height is at the low end of the range, apply 2.10 lbs. of the citrus food during the year. Apply $\frac{1}{3}$ (about 0.7 lbs.) during January-February, $\frac{1}{3}$ in March-April, and $\frac{1}{3}$ in August-September.

Example 2:

You have a large, 10 foot tall adult grapefruit tree, whose canopy covers about 100 square feet of the ground surface and you have citrus fertilizer with 6% nitrogen (6 is the first of the three numbers on the bag). The row for this tree and the column for 6% nitrogen join at the numbers 20.80 to 25.00. Mature grapefruit trees require only half of the amounts listed in the table.

Therefore, this tree will require about 10.4 to 12.50 lbs. of fertilizer annually. Apply about 3.5 to 4.0 lbs. ($\frac{1}{3}$ of the total) during January- February, $\frac{1}{3}$ in March-April and $\frac{1}{3}$ in May-June.

Adapted from and replaces

Chott, G. Chard, C. Bradley, L. 1998. *Fertilizing Citrus Chart*.

2 Annual Fertilizer Requirements for Citrus Trees

- For oranges, tangerines, and grapefruit, apply $\frac{1}{3}$ of the total in January-February, $\frac{1}{3}$ in March-April and $\frac{1}{3}$ in May-June.
- For lemons and limes, apply $\frac{1}{4}$ of the total in January-February, $\frac{1}{4}$ in March-April and $\frac{1}{4}$ in August-September.

★ Oranges, tangerines, tangelos, and other exotic citrus. For grapefruit, pummelo, lemons and limes, see note below.

	Lbs. of Actual Nitrogen Required for the Year	% Nitrogen in Fertilizer (First number written on fertilizer container – See illustration)								
		4%	5%	6%	8%	10%	13%	16%	21%* (Ammonium Sulfate)	46%* (Urea)
Newly Planted Tree You may apply small amounts of nitrogen after tree is established and new growth has emerged	None to 0.13 lb.	None to 3.0 lbs.	None to 2.5 lbs.	None to 2.0 lbs.	None to 1.5 lbs.	None to 1.2 lbs.	None to 0.9 lb.	None to 0.75 lb.	None to 0.6 lb.	None to 0.25 lb.
Small Tree 2 to 3 feet tall, up to 1.25" trunk diameter and up to 9 sq. ft. of ground area covered by the canopy	0.25 to 0.50 lb.	6.25 to 12.50 lbs.	5.00 to 10.00 lbs.	4.20 to 8.40 lbs.	3.10 to 6.25 lbs.	2.50 to 5.00 lbs.	1.90 to 3.80 lbs.	1.60 to 3.20 lbs.	1.20 to 2.40 lbs.	0.50 to 1.10 lbs.
Medium Tree** 4 to 8 feet tall, 1.25" to 4.0" trunk diameter and from 16 to 64 sq. ft. of ground area covered by the canopy	0.75 to 1.00 lb.	18.75 to 25.00 lbs.	15.00 to 20.00 lbs.	12.50 to 16.75 lbs.	9.40 to 12.50 lbs.	7.50 to 10.00 lbs.	5.80 to 7.70 lbs.	4.70 to 6.50 lbs.	3.60 to 4.80 lbs.	1.60 to 2.20 lbs.
Large Tree 10 feet tall or more, 6 to 10" trunk diameter and more than 64 sq. ft. of ground area covered by the canopy	1.25 to 1.50 lbs.	31.25 to 37.50 lbs.	25.00 to 30.00 lbs.	20.80 to 25.00 lbs.	15.60 to 18.75 lbs.	12.50 to 15.00 lbs.	9.60 to 11.50 lbs.	7.80 to 9.40 lbs.	6.00 to 7.10 lbs.	2.70 to 3.30 lbs.

Note: For grapefruit and pummelo trees small adult or larger: use $\frac{1}{2}$ of the amounts shown. For lemons and limes, use about 10% more than the amounts shown.

- * Application of 21-0-0 or 46-0-0 fertilizer will require additional applications of other nutrients, as these fertilizers only contain nitrogen. Urea (46-0-0) is especially concentrated.
- ** Trees in containers should be fertilized according to this chart, but usually grow no taller than a medium-sized tree.

- To convert from decimal to ounces, multiply the decimal portion of the number by 16. Example: For 6.25 lbs. fertilizer, multiply .25 x 16 = 4 ounces, giving 6 lbs. 4 oz.
- Measure accurately before applying and always incorporate fertilizers in the soil and follow with irrigation.

Citrus Care - Fertilizer



- Example:
- What percent Nitrogen does this fertilizer have?
- How much of this fertilizer per year for a medium orange tree?
- A large grapefruit tree?
- A small, established lemon tree?



Citrus Care - Fertilizer



- How much fertilizer per year for a medium orange tree? **5.8 – 7.7 lbs**
- A large grapefruit tree? **4.8 to 5.75 lbs**
- A small established lemon tree? **2.1 to 4.2 lbs**



Citrus Grafting and Budding



ISSUED FEBRUARY 2000 BY:
Glenn C. Wright
Associate Specialist

ag.arizona.edu/pubs/crops/az1146.pdf

This information has been reviewed by university faculty.

Introduction

Citrus budding is a plant propagation technique that any homeowner can do. While it does require some skill, with a moderate amount of practice a homeowner can become proficient. Once the technique is learned, homeowners can add citrus varieties of their choice to their present citrus trees. The use of budding will lead to a producing tree sooner than if a seed were planted. Also a budded tree or branch will be genetically identical to its parent.

Fortunately, any citrus variety can be budded to any other citrus variety. Thus, a tangerine or lemon bud can be budded to an orange tree branch, or a grapefruit bud can be budded to a lemon tree branch, or many other combinations. The varietal bud is sometimes known as the "scion" to distinguish it from the rootstock (See below).

A tree with two or more scion varieties is known as a "cocktail tree." These are popular when space is limited. Homeowners make cocktail trees when they bud an additional citrus variety to an established tree. Caution should be used when selecting varieties so that those with similar growth characteristics are used. For example, a lemon with a vigorous growth characteristic and a moderately vigorous mandarin should not be budded together



Figure 1. Bark slipping occurs when the bark may be easily peeled away from the wood.

Bark slipping occurs in the spring and resumes in the fall in Arizona. In the winter, it is too cold, and the bark will not slip. In the summer, the temperatures are too hot.

A sharp knife is the third requirement. A sharp knife will allow the propagator to cut into the wood smoothly and with minimal force. When a dull knife is used, the knife cut may be jagged, reducing the chance for bud survival. More importantly, excessive force must often be used with a dull knife, leading to loss of knife control and the possibility of injury.

Finally, the propagator must have something to tie up the bud. Usually strips of rubber, such as wide

NSION

NA

85721-0036



Master Gardeners
of Maricopa County



THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE & LIFE SCIENCES

Cooperative Extension

Citrus Budding

- Citrus budding is a plant propagation technique that will add other citrus varieties to a citrus tree
- While it does require some skill, with a moderate amount of practice anyone can be proficient
- Any citrus variety can be budded to any other citrus variety. The varietal bud is known as the “scion”

Citrus Budding

- Match growth characteristics. A lemon with a vigorous growth and a moderately-growing mandarin should not be budded together, as the lemon would outgrow the mandarin and eventually dominate the tree.
- In a nursery, citrus scion varieties are budded to rootstock seedlings. A rootstock is used that has compatibility to various soil types, disease resistance, yield, fruit quality or tree vigor.

Citrus Budding Requirements

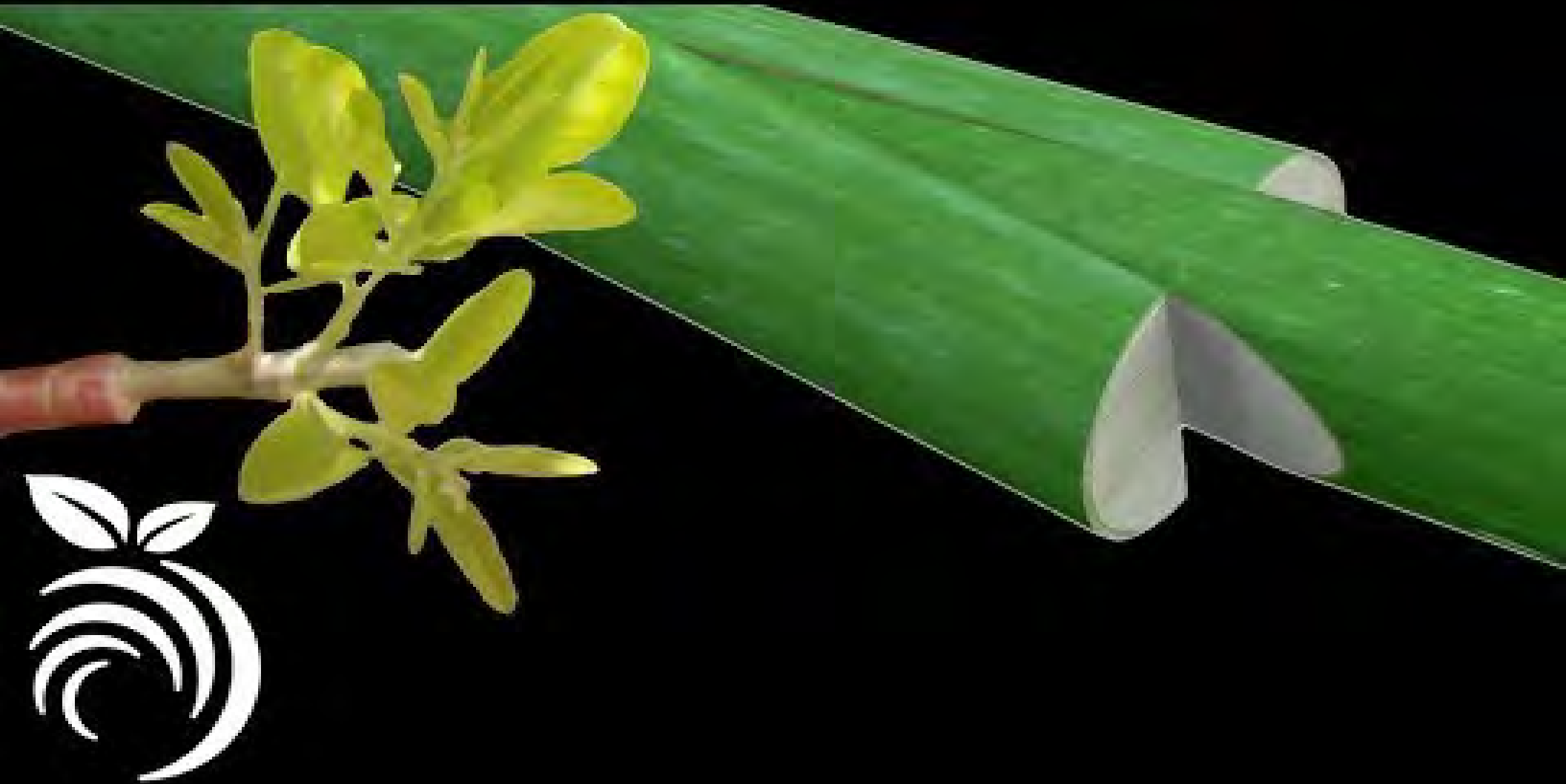
- The tree to be budded must be healthy
- The bark must be slipping. This means that the bark must easily peel away from the wood - typically spring and fall during growth periods
- Must have a sharp knife
- Use wrapping tape. Stretchy plastic tape such as florist's Tape or Teflon tape is good For sealing





Citrus Grafting

- Grafting is used to place desired varieties of citrus onto a rootstock that is adapted to our soils and climate (tolerant of alkalinity, clay, and drought).
- Grafting is also used to produce “cocktail trees” which are trees that produce more than one type of fruit.





Citrus Problems

AZ1154

Revised 08/11

DISEASES OF CITRUS IN ARIZONA

Mary Olsen, Mike Matheron, Mike McClure and Zhongguo Xiong

Introduction

Although citrus is indigenous to southeast Asia, oranges were first planted commercially in central Arizona in the late 1800s. Today commercial production is centered in several warm and low-frost-risk areas of central and southwestern Arizona. A great number of citrus varieties are also widely planted in home gardens. Many diseases of citrus have been described world wide and have colorful and descriptive names such as: blue mold, green mold, gray mold, pink mold, pink nose, brown rot, black spot, black rot, black pit, yellow vein, yellow spot, rubbery wood, lumpy rind, curly leaf, corky bark, slow decline, spreading decline, and stubborn. Other names are rooted in the many international languages of citrus such as: Italian (*impietratura* and *mal secco*), Portuguese (*tristeza*), or Greek and Latin (*cachexia*, *nerosis exortis*, *ulonerosis*, *crisocortis*, and *lonerosis*).



Diagnosing Home Citrus Problems

John Begeman, Glenn Wright

PROBLEMS OF FRUIT



Fruit Drops Prematurely:

Causes:

Natural fruit drop occurs during the spring. Trees shed excess fruit they cannot support. Fruit drop is heavier during hot, dry and windy weather and on trees receiving inadequate irrigation or inadequate nitrogen fertilization.

Controls:

Increase the amount and frequency of irrigation during periods of high heat, low humidity and strong winds. Do not under fertilize.

Citrus Problems

Pale Leaves



Causes: Nitrogen deficiency, over-watering. Occurs mostly on the older growth. Leaves also fall prematurely.

Controls: Apply nitrogen containing fertilizer - follow recommended watering and fertilization practices

Citrus Problems

Pale Leaf with Dark Veins; Pale Spots

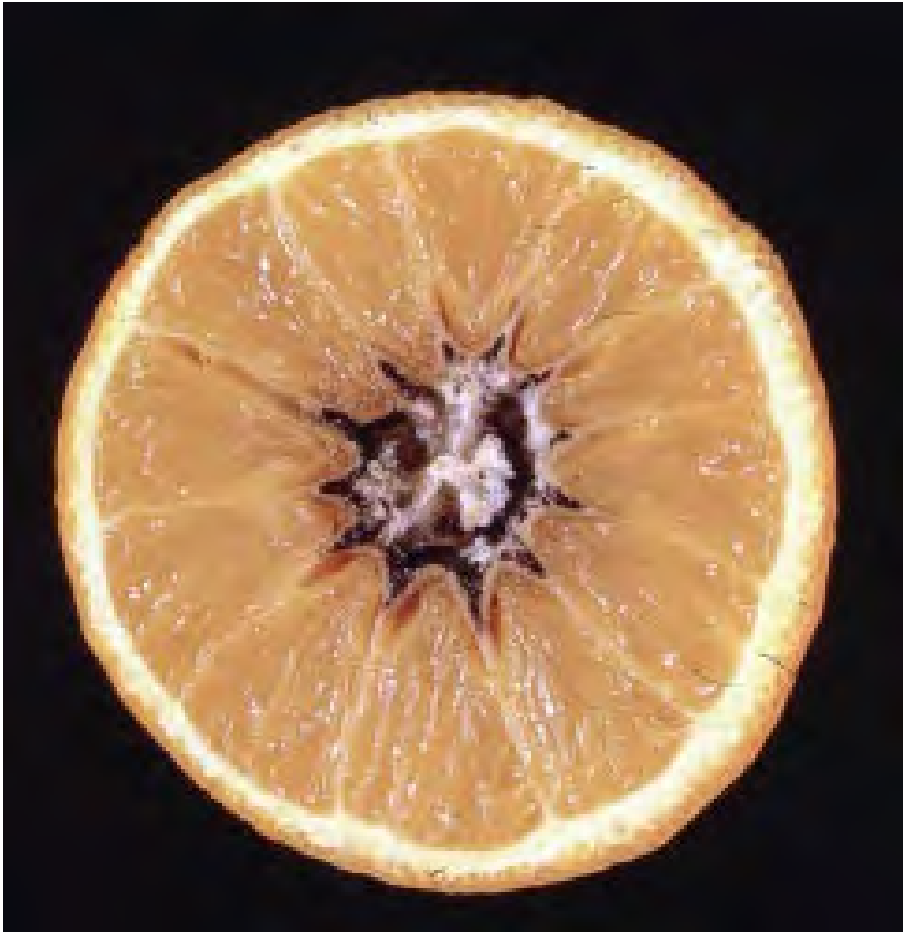


Causes: Nutrient deficiencies of iron and or zinc. Zinc deficient leaves are undersized, while iron deficient leaves are normal-sized. Occurs mostly on the newer growth.

Controls: Apply chelated forms of iron and zinc.

Citrus Problems

Black Fungus Inside Fruit



Causes: *Alternaria* fungus.
Most common following rainy winters or springs.

Controls: None available.
Dispose of affected fruit

Citrus Problems

Yellow Fruit Turns Green



Causes: Fruit on certain varieties of citrus, such as Valencia orange may turn from yellow to green as weather warms in the spring.

Controls: None required. Fruit quality is not affected.

Citrus Problems

Holes in Fruit



Causes: Birds, chewing insects, or rodents.

Controls: Physical. Bird netting, fencing, and removal of rodent nests from trees. Insect damage of this type requires no control.

Citrus Problems

Thick Peel, Puffy, Misshapen Fruit



Causes: A natural response of young citrus to the heat and low humidity of the desert. Can be found on older citrus, especially grapefruit and oranges that have been over-fertilized.

Controls: Check irrigation. Reduce nitrogen fertilization rates. of rodent nests from trees. Insect damage of this type requires no control.

Citrus Problems

Splitting Fruit



Causes: Inconsistent watering and fertilization practices or sunburn.

Controls: Maintain adequate moisture and follow recommended fertilizer applications. Infrequent, but deep watering maintains soil moisture at a more even level than does frequent, shallow irrigation. Soil mulches may also be used to enhance moisture retention.

Citrus Problems

Fruit Drop, Bud Drop

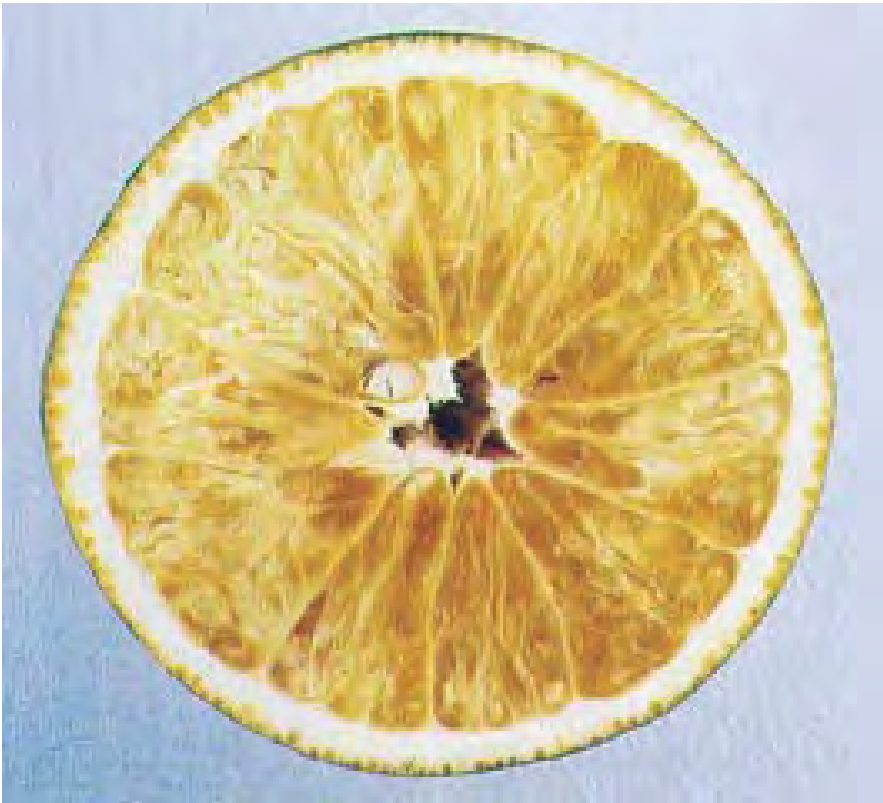


Causes: Natural fruit drop occurs in spring as trees shed excess fruit they cannot support. It is heavier during hot, dry and windy weather and on trees receiving inadequate irrigation or inadequate nitrogen fertilization.

Controls: Increase the amount and frequency of irrigation during periods of high heat, low humidity and strong winds. Do not under fertilize.

Citrus Problems

Granulation, Dry Juice Sac



Causes: Oranges, grapefruit and tangerines are affected; especially those budded on roughlemon, volkameriana, macrophylla and trifoliolate rootstocks. Cold injury may also result in granulation of fruit.

Controls: Good fertilization and nutrition practices and early season harvesting may alleviate this problem.

Citrus Problems

“Cigar” Shaped Leaf Curling



Causes: Moisture stress, insufficient water.

Controls: Increase expanse and depth of watering. Provide at least 3 drip emitters per tree. If basin watering is used, the basin should extend out to the edge of the branches and be enlarged as the tree increases in size. Wet soil to a depth of 2 to 3 feet.

Citrus Problems

Brown or Gray Scars on Fruit



Citrus thrips cause this cosmetic damage by feeding on young fruit. Leaves may also be distorted.

Controls: Not necessary. If desired, sticky yellow traps can capture adult thrips. Insecticides are not recommended, as they reduce the predator insect population, allowing thrips to thrive

Citrus Problems

Leaf Distortion, Cupping, Curling and Stickiness



Causes: Aphids.

Controls: Hose off with water or spray with a mild soap solution (mix one tablespoon of liquid dish washing detergent in one gallon of water).

Freeze Damage

- Freezing can damage both tree and fruit of all citrus varieties, but limes and lemons are most sensitive. Oranges, and grapefruit are intermediate hardiness, and mandarins are the most hardy. Older orange and grapefruit trees are more cold tolerant.
- Frost protection is necessary from November through March during the first two or three years
- Young trees can be protected by running water under the tree during below-freezing hours, covering them with a large cardboard box, placing a burlap bag over the tree, or covering with cloth.

Freeze Damage

- Do not use plastic unless you build a frame to keep the plastic away from tree foliage. Plastic does not hold in much heat compared to other materials. Remove heavy cloth coverings after each frost period. Burlap may be left in place for the entire winter.
- Hanging a light bulb or incandescent Christmas lights in the branches on cold nights provides additional heat.
- If a tree has freeze damage, do not prune frozen parts until new growth emerges in spring. After new growth begins, the exact portions killed by frost can be more clearly seen and pruned off.

Protecting a Citrus Tree from Cold



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ag.arizona.edu/pubs/crops/az1222.pdf

This information
has been reviewed by
university faculty.

*Warmth, warmth, more warmth! For we are
dying of cold, and not darkness. It is not the night
that kills, but the frost.*

Miguel de Unamuno

Introduction

Citrus trees are not particularly cold hardy. This fact is one of the primary reasons for the existence of the citrus industry in Southern Arizona. Nonetheless, freezing temperatures are likely, and it is prudent for homeowners to take precautions.

Citrus trees are most likely to survive cold temperatures if they are planted in the proper location. The USDA has divided the US into eleven plant hardiness zones based on 10°F average annual minimum temperature¹ ranges. Zones 2 through 10 are further subdivided (a and b) which represent 5° F differences within each 10° F zone. In Arizona, citrus may be safely grown in zone 10a, where average annual minimum temperatures range from 30 to 35°F, and in zone 9b, where average annual minimum temperatures range from 25 to 30°F.

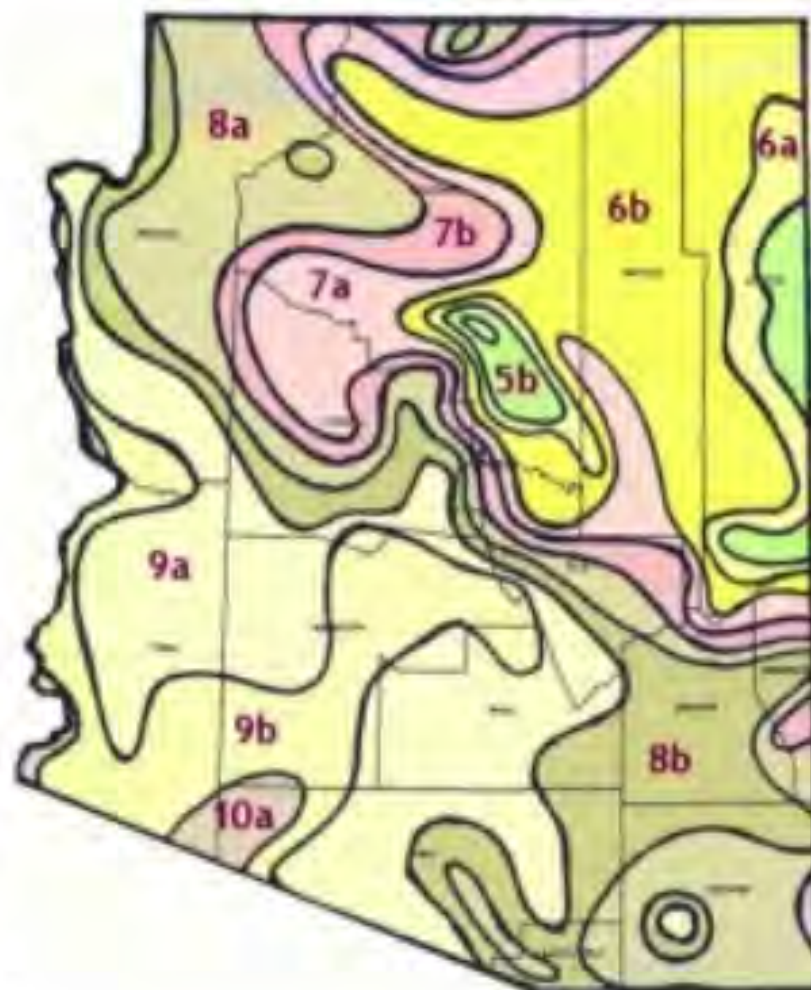


Figure 1. USDA plant hardiness zones for Arizona.¹

Sunburn

- Temperatures above 110°F usually burn some leaves and fruit and may damage any exposed bark.
- Protect any exposed bark areas with tree wraps or white, water-base paint. When lower branches or tops of old trees have been pruned, exposed bark usually is sunburned and may be killed. Fungal infection may follow and destroy larger areas (e.g. sooty canker).
- Heavy paper tree protectors or cardboard should be applied to young trees after painting.

Sunburn



az plant lady

Hendersonula Branch Wilt “Sooty Canker”

- Disease caused by the fungus, *Hendersonula toruloidea*, a wound pathogen that invades citrus bark that has been damaged by freezing injury, sunburn, or mechanical injury. The fungus does not infect uninjured bark tissue.
- Symptoms: The most common symptom of sooty canker is the sooty, black growth that develops beneath bark tissue. Scattered branches are usually affected.

Hendersonula Branch Wilt “Sooty Canker”

- Most cankers develop on trunks or limbs that face toward the sun and are not shaded. Sunburned trunks and limbs are highly susceptible to infection.



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Photo by Mike Math

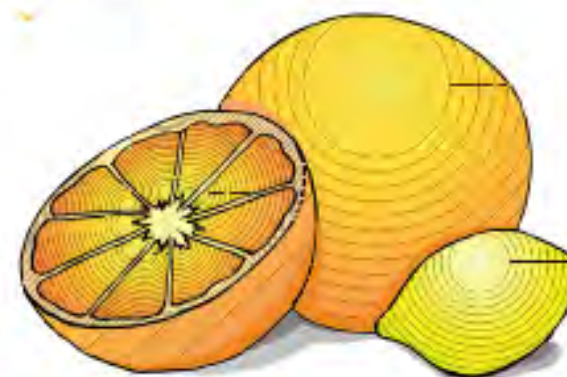
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Citrus Pruning

Pruning Citrus

"Instinct must be thwarted just as one prunes the branches of a tree so that it will grow better."

Henri Matisse



Introduction

Pruning is a common task necessary for best production of many common fruit trees. Most types of deciduous trees are pruned to invigorate the tree, to improve branch configuration, and thus make branches less likely to split under a heavy crop, to improve fruit quality, and/or to reduce the crop load which will improve the potential size of individual fruits.

Homeowners with previous experience pruning deciduous trees often assume that citrus trees should be pruned similarly. However citrus wood is naturally strong

At a Glance

- Prune citrus to eliminate sprouts, remove weak, crossing or dead branches, or to allow more light in the canopy.
- February through April are the best months to prune.
- Remove all sprouts originating from the trunk. Most sprouts are best removed by hand when they are small.
- Remove branches at the collar using a three-part cut.
- Citrus trees need not be skirted except for aesthetical reasons.
- Citrus trees may be easily hedged.



Pruning

- Never prune just to prune. Only prune for a reason.
- Pruning always causes a wound and always results in some response: loss of foliage and ability to create food from sunlight, potential entry points for decay organisms, an increase in sprouting, reduced or increased vigor and susceptibility to insect problems.
- Decide whether the desired benefit will override the negative effect on the tree.

Pruning

- Citrus wood is strong. There is no need to prune so the limbs can bear the weight of the fruit
- Citrus trees can produce fruit in all but the most shaded part of the tree
- Even when the crop load is heavy, pruning to reduce the crop load and improve fruit size is not necessary except occasionally with tangerines
- Citrus fruit quality just as good or better from a minimally pruned tree as compared with one that is heavily pruned

Pruning

Valid reasons to prune:

1. Dead, dying or diseased material;
2. Crowded or crisscrossing branches/limbs, or to establish a dominant leader;
3. Safety, Interference or clearance;
4. Reduce growth;
5. Size and shape.
6. To allow in light if the tree has heavy foliage and there is no fruit production at the interior

Pruning

- Prune citrus February through April, except when this will result in sun exposure.
- Some fruit production will be lost through pruning.
- Sometimes the lower limbs are removed to allow moving around under the tree. Be cautious of sunburn when doing this.

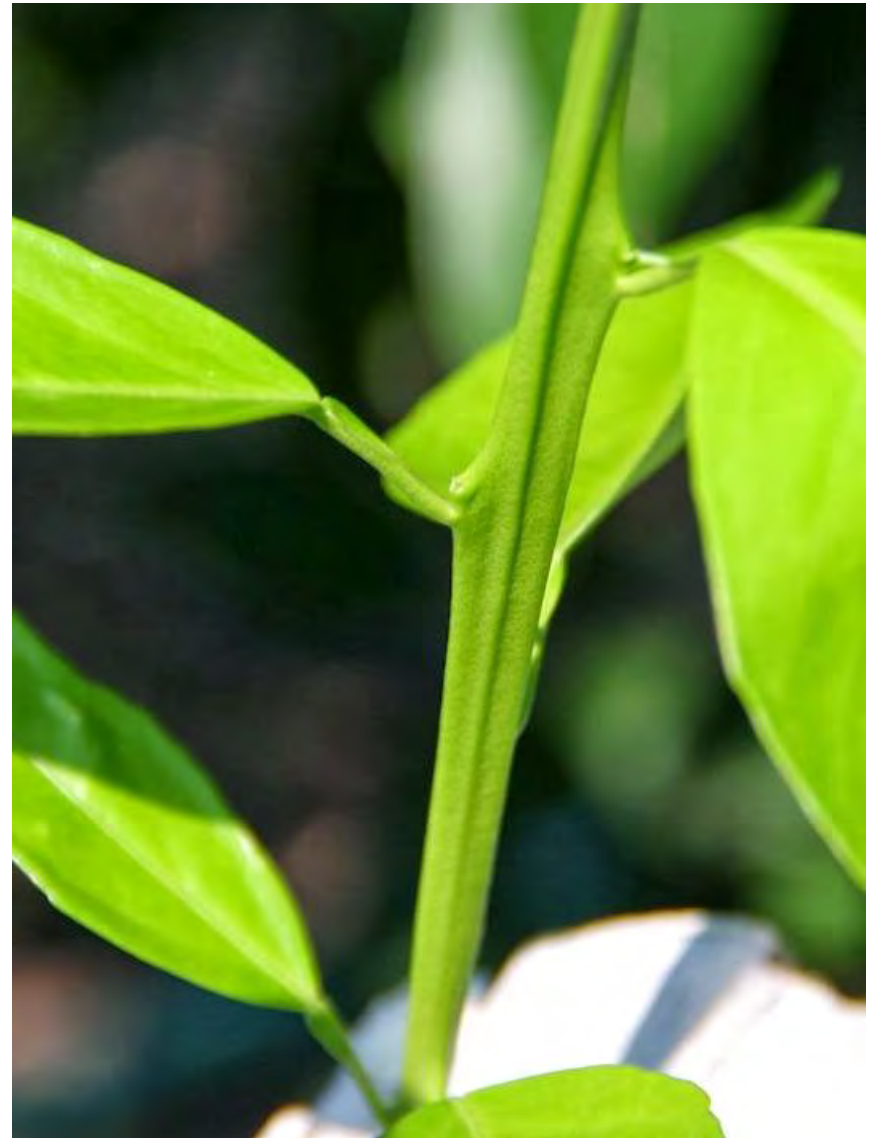
Pruning: Water Sprouts & Suckers

- Prune to remove suckers that grow from the base and water sprouts that shoot up from older limbs. They grow from latent buds.
- Water sprouts are not as strong as natural tree growth and produce very little fruit, usually of poor quality.
- Suckers that come up from below the graft may produce fruit but it will likely be inedible.

Suckers

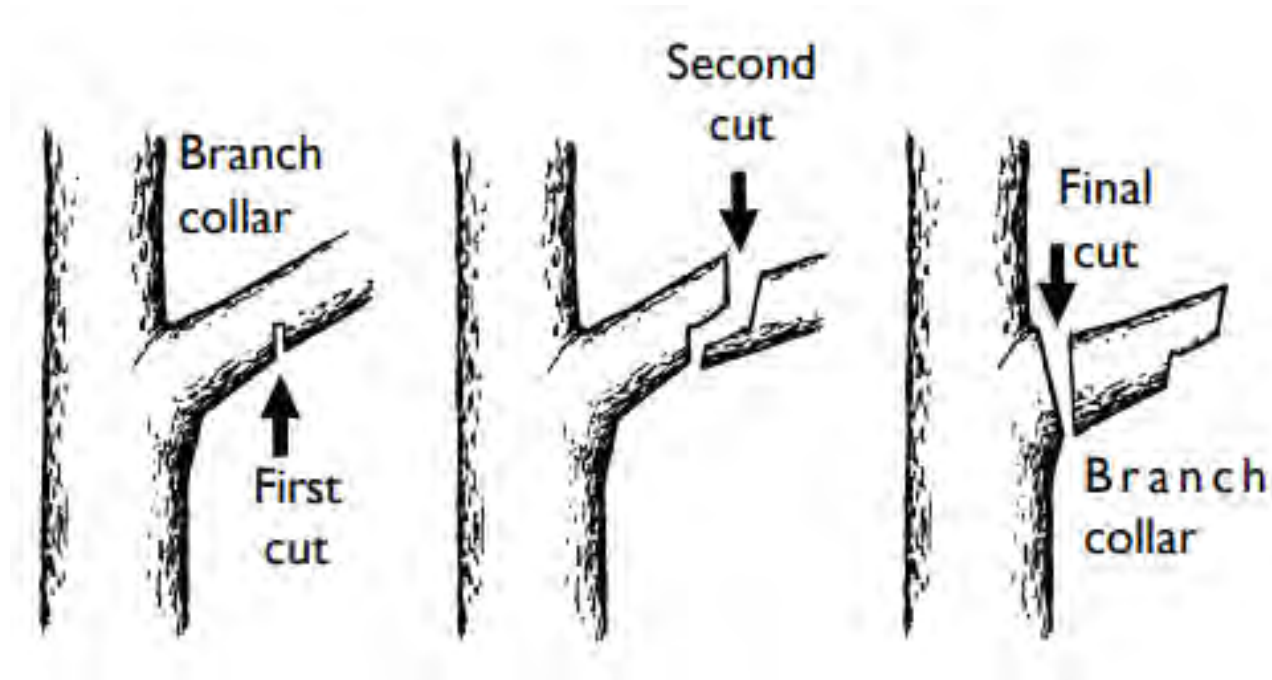


Water Sprouts – flattish stem, often have thorns



Pruning: 3-Cut Method

Use three cuts to remove larger limbs.
This prevents the bark stripping down
the trunk



Less Pruning = Natural Sunburn Protection

Justice Brothers U-
Pick, Surprise AZ



Master Gardeners
of Maricopa County



THE UNIVERSITY OF ARIZONA
COLLEGE OF AGRICULTURE & LIFE SCIENCES

Cooperative Extension



Citrus Resources

Maricopa County Extension Master Gardener Plant Help Desk

- The Maricopa County Extension Plant Help Desk provides research-based information to assist you with plant and pest problems.
- Email: maricopacountyplanthotline@gmail.com. Responses will generally be within a week
- Visit: 4341 E. Broadway Rd Phoenix, AZ 85040. Bring in a plant or pest sample. Location is in Southeast Phoenix, near Tempe.
- If a master gardener cannot answer your question, they will refer the question to University expert staff members.

Citrus Publications

Free Publications from the Extension:

Low Desert Citrus Varieties (AZ1001)

Diagnosing Home Citrus Problems (AZ1492)

Budding Citrus Trees (AZ1146)

Diseases of Citrus in Arizona (AZ1146)

Irrigating Citrus Trees (AZ1151)

Pruning Citrus (AZ1455)

Citrus Fertilization Chart for Arizona (AZ1671)

<https://extension.arizona.edu/pubs>

Books available from the Extension

Desert Landscaping for Beginners - Chapter 11: Citrus

UA Publication - Citrus Guide