

# Citrus Growing in San Joaquin County

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# What we are going to tell you today

- Which Cultivars are good.
- Planting
- Irrigation.
- Fertilizing.
- Pruning.
- Frost Damage Prevention.
- Pests and Diseases to look for..
- Harvesting and enjoying.
- Resources

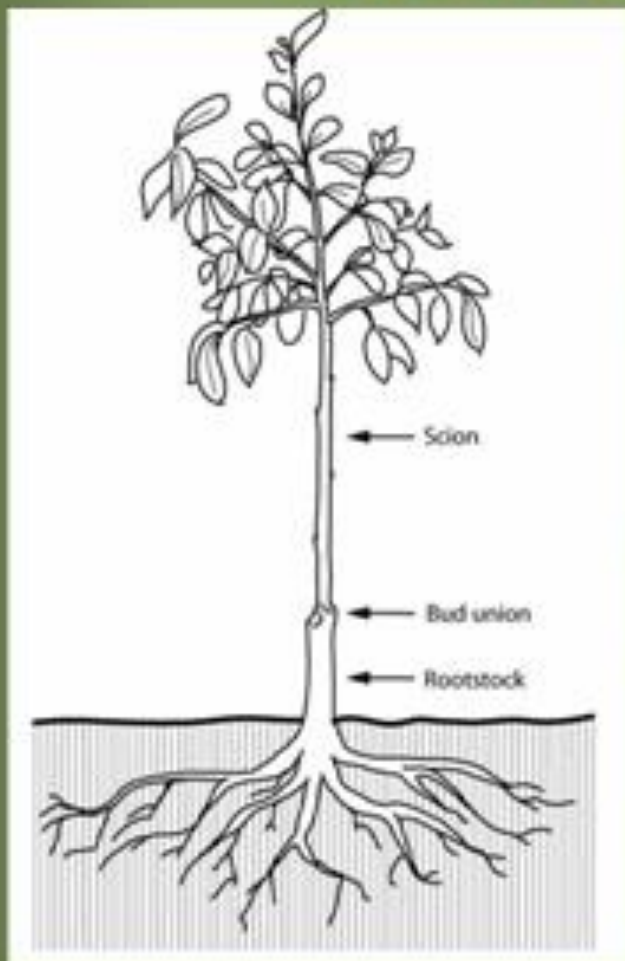
# Which Cultivars? There are hundreds to select from.

- Try to spread harvest over as much of the calendar. Go with known, good varieties.
- Dwarf vs Standard Trees:
  - Most of us have limited space and don't want to deal with ladders, Dwarfs are good and they are productive.
  - What to grow depends on your likes and dislikes.

# Rootstocks

- Most citrus are grafted onto rootstock.
- Dwarfing rootstocks are either *Poncirus trifoliata* or 'Flying dragon', a spiny dwarf variant of the this trifoliolate orange. The first produces trees 8-10 ft tall and the latter even shorter dwarfs in the 5-7 ft range which are best for container growing.
- Rootstocks can affect many characteristics such as size, color, juice content maturity, and flavor.
- Keep any spiny suckers from the root stock pruned off or they will take over.

# What is rootstock

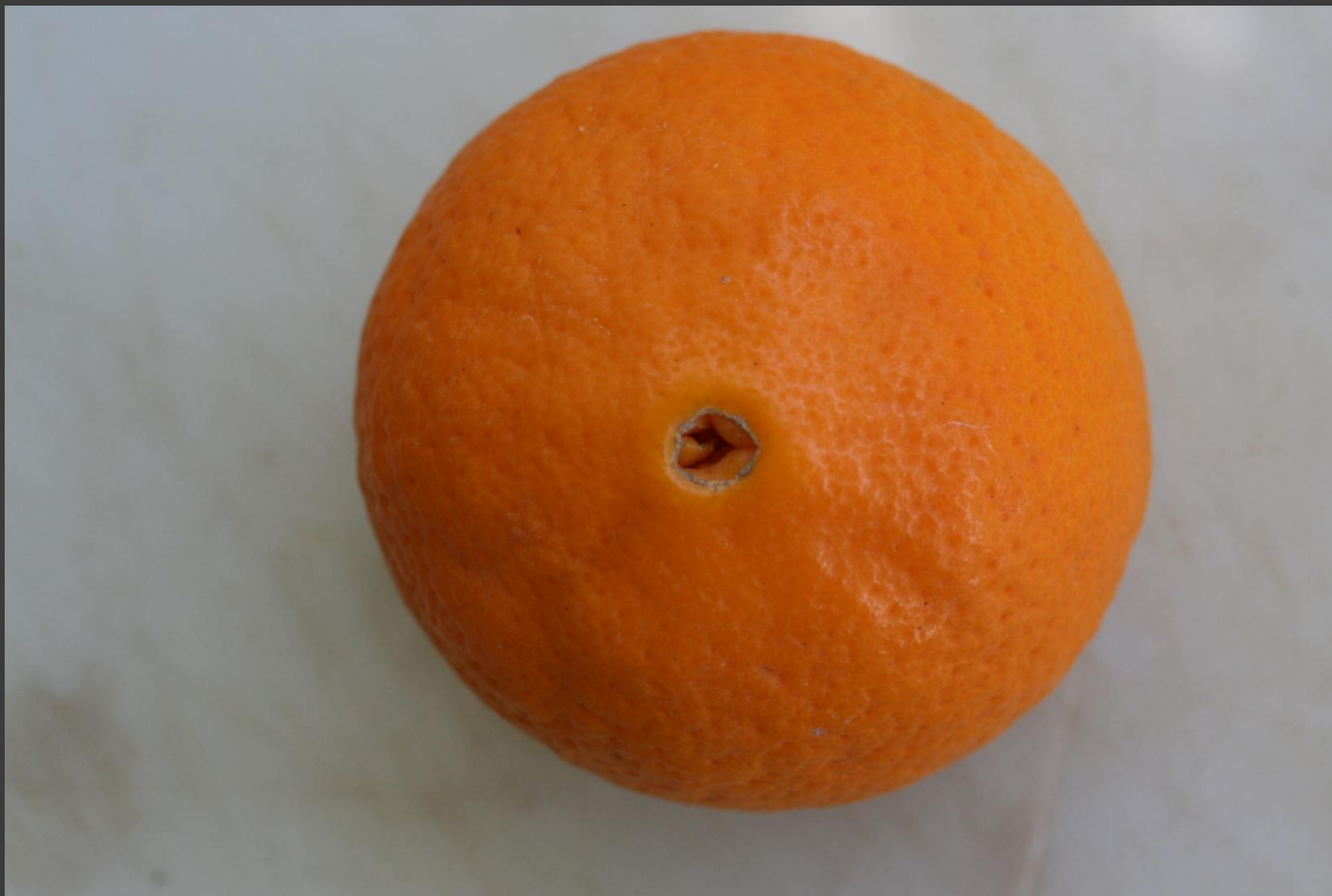


# Soil Influences\*

- It appears that average fruit size is larger and maturity is slightly earlier on the lighter-textured soils. However, the color is likely to be paler, the rind thicker, and the flavor poorer.
- It is generally agreed that the fruit holds on the trees better on the finer-textured soils.

*\*Horticultural Varieties of Citrus, Robert Willard Hodgson*  
<http://lib.ucr.edu/agric/webber/Vol1/Chapter4.html>

# Navel Orange



# Navels

## ⦿ December to March

- Washington-widely adapted.
- Robertson- a variant of Washington, earlier by 2-3 weeks.
- Cara Cara- Rosie fleshed navel.
- Skagg's Bonanza- Washington variant, early, heavy bearing.

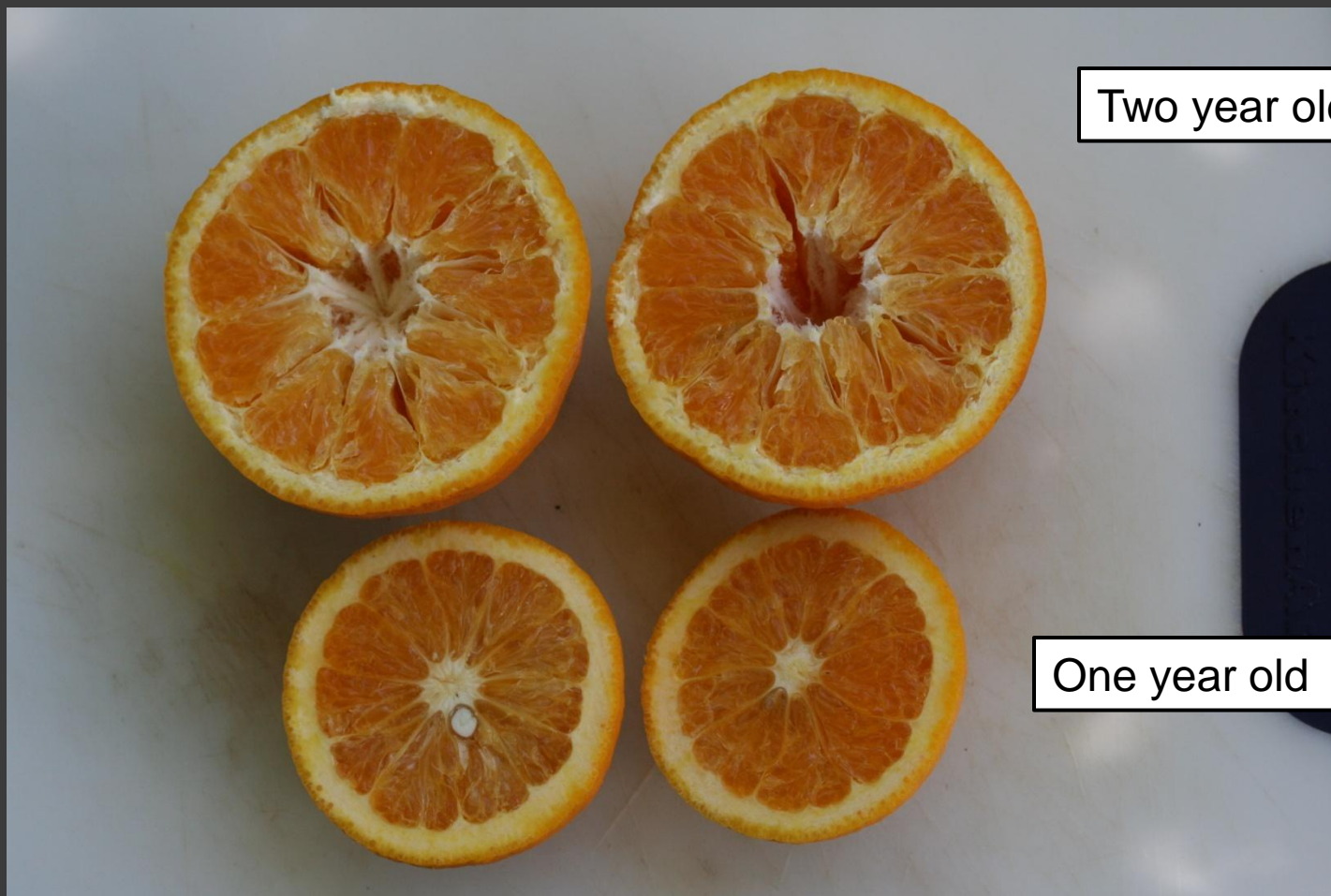
## ⦿ Summer navels

- Lane Late and Summernaut are two summertime navels for extending the season. Lane Late has best flavor and quality.

# Valencia

- February to November.
- A juice orange, though it can be eaten as well as juiced. Stores on the tree well. Even two year old fruit can be used.
- Most widely adapted and planted orange.

# Valencia



Two year old

One year old

# A word on granulation

- ⦿ A physiological disorder in citrus.
- ⦿ Navel, mandarins, mandarin hybrids, grapefruit and Valencia fruit sometimes exhibit drying of juice vesicles when harvest is delayed or when the trees are grown on lemon or other vigorous rootstocks.
- ⦿ The problem varies seasonally and is mostly on larger size or late bloom fruit. Drying appears to be associated with over-maturity, a lack of water, excessive tree vigor, extended warm, and/or dry fall weather.
- ⦿ Premature fruit drying is associated with young trees, a condition that is alleviated with tree maturity.

# Blood Orange

- ◎ Generally do well where sweet oranges thrive. Color is from anthocyanins.
  - ‘Moro’-early winter to early spring. Deep red flesh to almost black.
  - ‘Sanguinelli’- late winter to May. Flesh is orange with blood colored streaks.
  - ‘Tarocco’-early to midwinter. A mutation of ‘Sanguinelli’. Seedless and high in sugar and Vitamin C. Good quality in cooler areas.

# Blood Orange with granulation



# Moro Blood Orange



# Tarroco Blood Orange



# Sanguinelli Blood Orange



Figure 6.27. Sanguinelli Sanguinelli, a new deep blood orange variety that is resistant to anthracnose. (Photo by M. S. Sargent.)

# Lemons

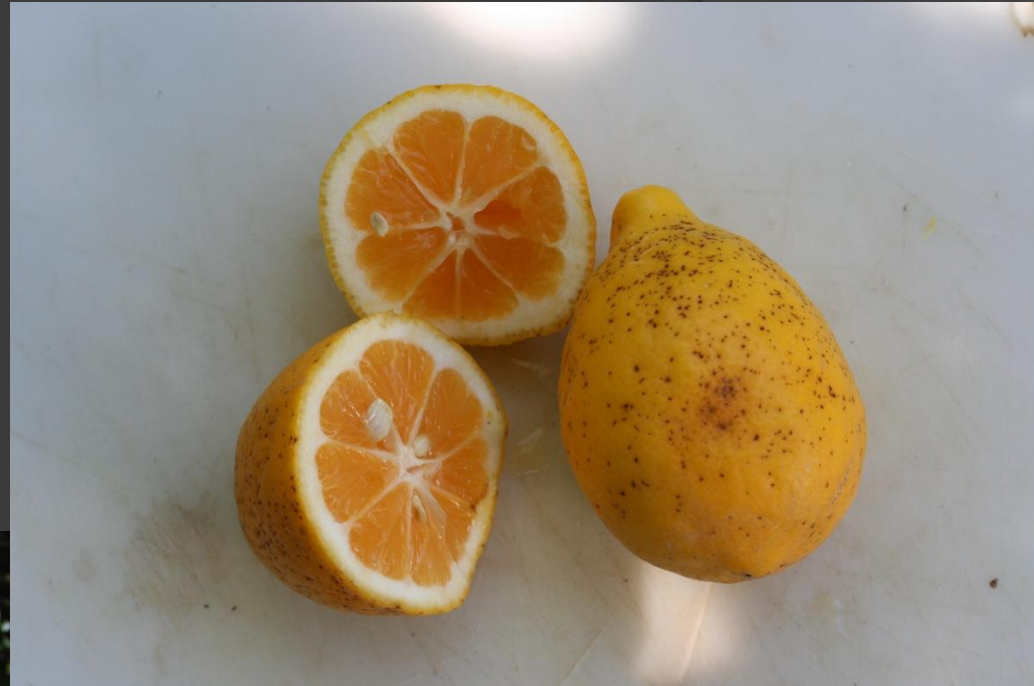


- ◉ Lisbon: A good selection for this area for a tart lemon. Thorny, standard tree to 25 ft. can be kept smaller by pruning.
- ◉ Eureka:-Nearly thornless, vigorous, short-lived tree. More frost sensitive than Lisbon and more likely to die in a cold winter freeze than Lisbon.
- ◉ Improved Meyer – Fruit is sweeter, orange in color and less tart than Eureka or Lisbon. Dwarf specimens about 6-7 ft tall. Provides fruit nearly year round.

# Lisbon Lemon



# Meyer Lemon



# A 30+ year old Improved Meyer Lemon



# Mandarin or Tangerines

- 'Clementine' – (Algerian tangerine).  
Late fall, winter. 12' tree, juicy and sweet fruit. Holds well on tree.
- 'Dancy' – late fall to winter, small, seedy, Christmas tangerine, holds well on tree.
- 'Kinnow' standard 20 ft., dwarf, 10ft.  
Rich flavor, ripens winter to early spring.  
Good in any citrus climate.

# Clementine tangerine



# Grapefruit

- 'Marsh'- White, late season, grown in the Central Valley for years. Seedless, Stores well on tree.
- 'Ruby Blush' ('Red blush' or 'Red Marsh') medium to large, early, holds very well on tree.
- 'Oroblanco' Medium to large, early, seedless, juicy, white fleshed. Does not hold well on tree.

# Ruby Blush Grapefruit-dwarf



# Grapefruit- 'Ruby Blush'



# Pummelo



- ◎ Ripens December-February
- ◎ A forerunner of grape fruit.
- ◎ Varieties.
  - ‘Chandler’- Pink fleshed, flavorful
  - ‘Reinking’- White fleshed, seedy. Not as sweet as ‘Chandler’.
  - ‘Tahitian’ - Greenish white flesh, moderately acidic with lime overtones.

# Pummelo



# Limes

- 'Bearss' is the best lime for California. Most frost sensitive of citrus. Survives well along the coasts, but should be protected during cold periods in the Central Valley.
- Best strategy - grow in a container and bring indoors when freezes occur.

# Bearss Lime



# Sour Oranges

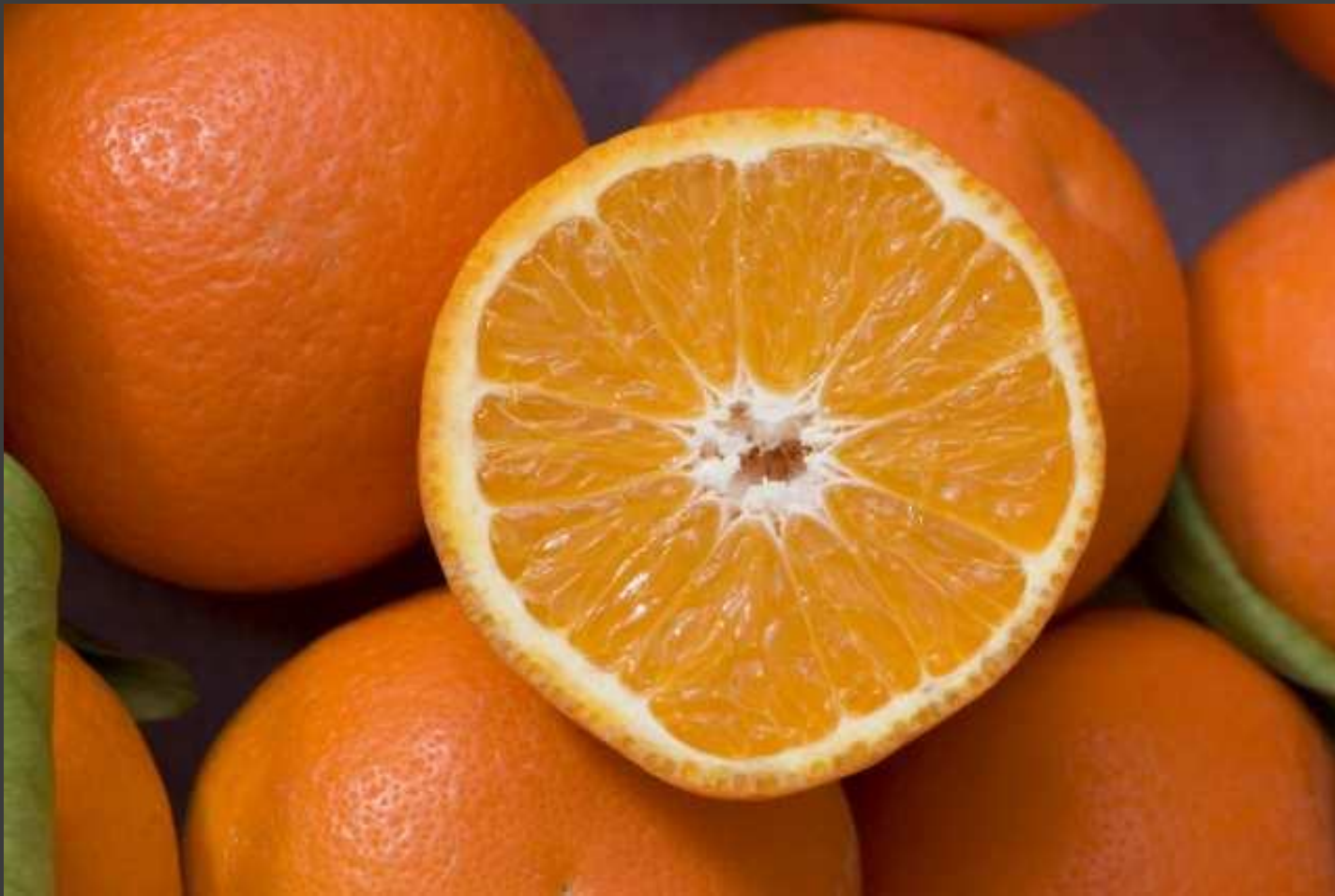
## ● Ornamental trees

- Bouquet de fleurs- 8-10 ft shrub, use as hedge or windbreak. Flowers used for perfume.
- Chinotto (myrtle leaf orange) slow grower to 20 ft. Good container plant. Fruit used in Europe for candy making.
- Seville- Grown in S. California as a street tree. Fruit used to make superior marmelade.

# Tangelo

- ◎ Cross between mandarin and grapefruit
  - ‘Minneola’ is a hybrid of ‘Dancy’ and white fleshed grapefruit. Large fruit, ripens mid to late winter.
  - ‘Orlando’- same parents as Minneola, more cold resistant. Ripens early season.
  - ‘Wekiwa’- looks like a small grapefruit, but eaten like a mandarin. Juicy mild flesh.

# Minneola tangelo



# Kumquats

- ◎ Shrubby plants 6-15 ft. Small fruit like oranges. Eat whole and unpeeled. Likes hot summers winter ripening. Hardy to 18 degrees F.
- ◎ Varieties:
  - 'Fukushu'- compact, thornless, but not as sweet as Meiwa'.
  - 'Meiwa'- Juicier, less seedy, and sweeter than other varieties. Nearly thornless.
  - 'Nagami'- Commercial variety, more productive and sweeter in hot climates, thornless

# Kumquat



# Kumquat hybrids

- ◎ Shrubby plants 3-5 ft. Bred to withstand colder temperatures, but never were a commercial success. Good for gardeners.
- ◎ **Limequat-**
  - hybrids of 'Mexican' Lime and Kumquat are more cold tolerant and need less heat than their lime parent. Some crop all year, but main crop-- fall to spring. 'Eustis' and 'Tavares' are the two cultivars. 'Tavares' makes a better looking plant.

# Limequat-Eustis



# Kumquat hybrids--- part 2

## ◎ Orangequat-

- 'Nippon' Cross of Mandarin and 'Meiwa' kumquat. Cold tolerant and low heat requirement. Small, round deep orange fruit, sweeter than Kumquat. Ripens winter and spring, but holds on the tree for months.

# Orangequat- Nippon



# Diseases and Pests of Citrus

- Soft Brown Scale are protected by ants.



# Brown scale



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Use Tanglefoot to control ants  
access to the tree.



# Tanglefoot applied to Grapefruit



# Ant control is a management strategy:

- Reduces ant's protection of scale.
- That will likely result in more parasitism on scale.
- More predation on scale by Lady beetles and other predators.

# A disease to be on guard about

- Huanglongbing (HLB), also known as Citrus Greening Disease, is a bacterial plant disease that – while not harmful to human health – destroys the production, appearance and economic value of citrus trees and the taste of the fruit and juice.
- There is no cure.

# Huanglongbing (HLB)

- HLB threatens our locally produced citrus and Californians' ability to grow citrus.
- The disease:
  - Destroys production, appearance and value of citrus trees.
  - Produces bitter, inedible, misshapen fruit.
  - Is fatal to citrus trees

# Quarantine in Florida and Georgia

- Citrus greening disease has spread throughout the state of Florida and has been found in Louisiana, South Carolina, and Georgia.
- The entire states of Florida and Georgia are under quarantine because of citrus greening disease.
- **Asian citrus psyllids** have also been found in Mexico, southern California and other citrus-producing states.

# HLB

- ① **How will HLB enter California?**
- ② HLB has not been found in a California citrus tree. HLB will arrive in HLB-infected citrus trees brought into the state or by the **Asian Citrus Psyllid** picking it up from an infected plant in a region such as Florida and being transported into California by ship, truck, car or mail.

# Enjoying Citrus



# Enjoying Citrus

- ◎ Fruitful
  - Healthful fruit stores best on the tree in most cases.
  - Fruit is nutritious and taste great and is versatile in terms of culinary uses.
- ◎ Can be used as a screening hedge.
- ◎ Landscape tree that is always green and looking good.
- ◎ Good bee foraging resource
- ◎ And they are:

wonderfully fragrant!



Citrus are a great asset  
in California gardens!

# Resources

Integrated Pest Management:

<http://ipm.ucdavis.edu/>

⦿ Diseases of Citrus:

[http://en.wikipedia.org/wiki/List\\_of\\_citrus\\_diseases](http://en.wikipedia.org/wiki/List_of_citrus_diseases).

⦿ Granulation:

<http://www.fshs.org/Proceedings/Password%20Protected/2004%20v.%20117/358-361.pdf>.

⦿ General citrus information:

<http://www.mastergardeners.org/picks/citrus.html>.

⦿ <http://ceplacer.ucdavis.edu/files/12452.pdf>.

Thank you and Happy  
Gardening!



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