

Growing Citrus in Placer County



Photo:D.B-Garrido

Presented by
UC Master Gardeners of Placer County

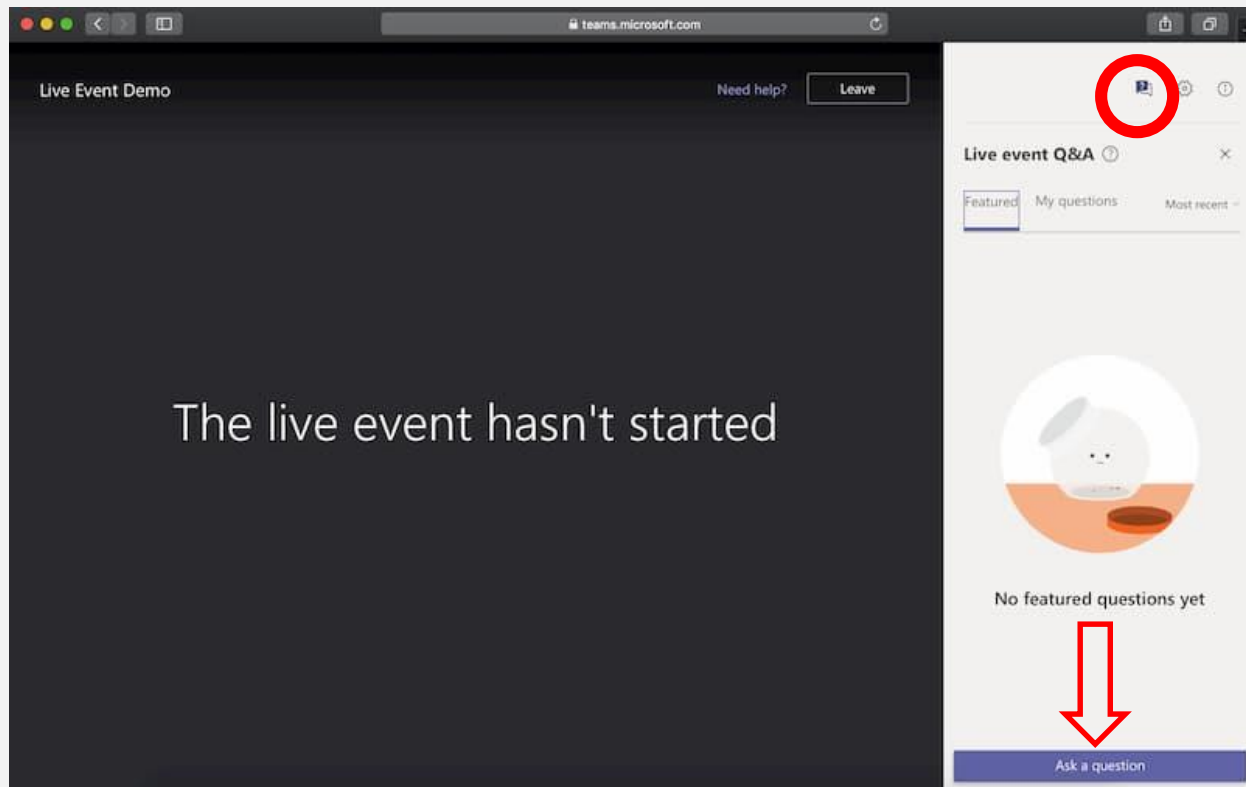


University of California

Agriculture and Natural Resources

■ UCCE Master Gardener Program

Asking Questions



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Who Are Master Gardeners?

Master Gardeners of Placer County

- ❖ Extend **research-based**, sustainable gardening and composting information
- ❖ Present accurate, impartial information to **home gardeners**
- ❖ Encourage public to make **informed** gardening decisions



Who Are Master Gardeners?

Where to find us...

Online, in the Media, and Special Publications

- ❖ Hotline: Call **(530) 889-7388** or submit your questions online
- ❖ Website: pcmg.ucanr.org
- ❖ Facebook, Twitter, Instagram
- ❖ Gold Country Media monthly column
- ❖ *Curious Gardener* quarterly newsletter and on our website
- ❖ *Gardening Guide and Calendar*



Who Are Master Gardeners?

Where to find us...

Workshops, Fairs and Festivals, and Special Events

- ❖ Speakers by Request
- ❖ Workshops (various venues, check website)
- ❖ Farmers' Markets (seasonal: Auburn, Roseville)
- ❖ Fairs and Festivals Booths (varies)
- ❖ Garden Faire (April)
- ❖ Mother's Day Garden Tour (May)



Today's workshop will include:

- ❖ Citrus Facts & History
- ❖ Selecting Tree & Site
- ❖ Planting
- ❖ Irrigating/Fertilizing
- ❖ Pest Management
- ❖ Pruning/Thinning
- ❖ Protecting



Photo: Minneola by S. Fitzpatrick

Citrus Facts

- ❖ Genus of flowering trees/shrubs
- ❖ Rue family, Rutaceae
- ❖ Common & Unusual



Photo by Judith Myrick



Photos: UC ANR



Citrus in California

- ❖ Satsuma mandarins originated in Japan 700 years ago
- ❖ CA mission gardens in the late 18th century
- ❖ 1880's orange groves in LA
- ❖ Today CA is leading supplier of fresh citrus
- ❖ Commercially grown citrus = \$7 billion in economic value
- ❖ 50% of all residences have a citrus tree *
- ❖ When did mandarins come to Placer County?

*CA Pest & Disease Prevention Program data

Placer County Citrus History

- ❖ Satsuma mandarins have been farmed in Placer County for 125 years
- ❖ Welsh settlers established Penryn (1880's) and planted fruit orchards
- ❖ Mid 20th century, Placer County was known as the “fruit basket of the nation”
- ❖ When a disease took out the pear trees – the farmers turned to mandarins



Information & Photo used with permission of the Mountain Mandarin Grower's Association

Why Grow Citrus?

- ❖ Fresh, nutritious
- ❖ 1000 varieties
- ❖ Plant what you like
- ❖ Connection to food
- ❖ Evergreen
- ❖ Yum!



Photo: Pixie Mandarin by Dale Kuroda

Nothing says winter like the smell and taste of fresh citrus!

Tree Selection

- ❖ Long lived trees – 50+ years – Investment
- ❖ **IMPORTANT:**
 - Certified citrus – reputable nursery: certified disease free and true-to-type
 - No citrus trees from other state or county
 - Quarantine laws protect the health of CA's citrus !!!
- ❖ Mandarins most popular citrus in the Sierra Nevada foothills

Rootstock

- ❖ Graft union = crook in the trunk
- ❖ Citrus trees have 2 parts: scion and rootstock which join at the graft union
 - Scion is above the graft union and determines the fruiting variety
 - Rootstock influences vigor, size, pest & disease resistance
- ❖ Trifoliolate rootstocks used for cold tolerance, fruit quality, disease resistance and semi-dwarfing qualities
- ❖ Rich 16-6 and Rubidoux are adapted to the foothills
- ❖ Flying dragon for contained citrus

Select appropriate rootstock for environment, soil conditions, and disease resistance

Graft Union Scion & Rootstock



Photo by: Dale Kuroda

Note: Any growth that appears **below** the graft should be removed

Site Selection

Right Plant – Right Place



Photo: UC ANR

- ❖ Full sun (8 hrs.) for flowering & fruit production
- ❖ South or southwest facing
- ❖ Water source
- ❖ Protected from strong winds
- ❖ In marginal zones, consider container planting which can be moved to south facing walls or indoors
- ❖ Upper limit of 1,200 feet

Planting Overview

- ❖ Dig the hole as deep as root ball height and twice as wide
- ❖ Plant in springtime (March-April)
- ❖ Shallow rooted trees/Feeder roots in top 2 ‘
- ❖ Most citrus is sold in containers – roots may be bound or kinked
- ❖ Make a small mound in bottom of hole. Unwind roots and spread over mound, tips pointing downward.
- ❖ Graft union is above ground
- ❖ Back fill with natural soil (no amendments) and tamp down

More Planting Tips

- ❖ Top dress with a few inches of compost/cover with mulch
- ❖ Leave 2-3 “ of bare soil next to the trunk
- ❖ Water well after planting
- ❖ Monitor newly planted trees. When soil feels dry in the top 6-8” – water.
- ❖ Frequent watering for 1st year – moist, not wet
- ❖ White wash trunk with 50/50 interior white latex paint/water
- ❖ Elevations of 1,200 -1,500’ will have to protect from cold
- ❖ Avoid planting in lawns Why?

Irrigation

- ❖ Correct watering leads to development of quality fruit and builds natural resistance to fungal disease
- ❖ Frequency of irrigation is determined by soil type and weather conditions
- ❖ Summer Stress – maintain adequate water
- ❖ When high temperatures are predicted for several days, irrigate in advance of the heat

More about Irrigation

- ❖ Initially have water source close to root ball – apply further out as tree becomes established
- ❖ What happens with too much or too little water:
 - Under watering yields small fruit with sunburn tendency
 - Overwatering predisposes the tree to root and crown rots

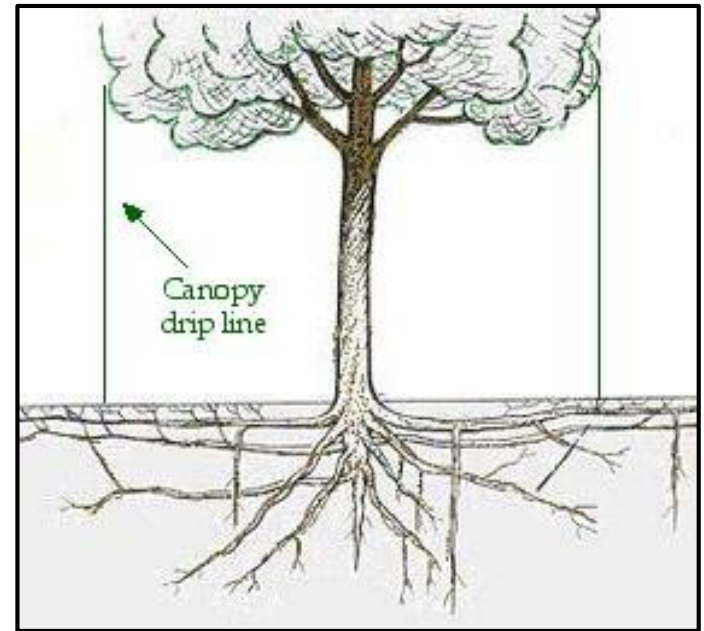


Photo: UC ANR

Fertilizing

- ❖ Typically most nutrients (except nitrogen) are available in local soil
- ❖ In doubt – request a soil analysis (see resource list)
- ❖ Mature citrus will require nitrogen: prior to bloom, then May-June, no later than August (may affect fruit quality)
- ❖ Winter yellowing
- ❖ Less fertilizer for dwarf or container trees
- ❖ More is NOT better - over fertilization causes excessive new growth, makes tree susceptible to disorders such as bacterial blast

Fertilizer Smarts

- ❖ Never add fertilizer to dry stressed plants which may damage or kill the plant
- ❖ Always read and follow label directions:
 - Amount
 - Frequency
 - Precautions

Occasional Pruning

- ❖ Citrus are evergreen but do need occasional pruning
- ❖ Keeps trees small to facilitate harvest & avoid ladders
- ❖ Allows sunlight in to develop flavors and sugars
- ❖ Dense canopy blocks sunlight and prevents air circulation and increases the risk of soft body insects



Citricola scale - Photo: UCANR

More About Pruning

- ❖ Ideal time is just prior to bloom or just after fruit sets
- ❖ Minor pruning can be done at any time - avoid late-season
- ❖ Remove crossing branches
- ❖ Prune suckers, water sprouts & dead wood anytime
- ❖ Young trees
- ❖ Prune frost damage in the spring



Photo: UC ANR

Skirt Pruning

- ❖ Branches that hang to the ground can cause problems:
 - Impedes weeding, fertilization and compost application
 - Allows ants or soil borne pathogens that may cause plant disease
- ❖ Skirt trees 1-2 feet above ground level



Photo: UCANR

Fruit Thinning

- ❖ Not necessary
- ❖ Citrus naturally adjusts the amount of fruit it carries, so fruit drop early is normal
- ❖ Excessive drop of older fruit may have several causes:
 - lack of water or fertilizer
 - heavy pruning
 - sudden temperature changes
 - insect infestation



Photo: S. Fitzpatrick

Asian Citrus Psyllid (ACP)



Photo: UCANR

Adult & Nymph (under shoot)

- ❖ ACP is a tiny aphid sized insect, a winged invasive species.
- ❖ First detected in 1998 Florida – in California a decade later.

ACP & HLB

- ❖ ACP found in Placer County in 2016
- ❖ January 2018 - county quarantine for bulk citrus and nursery stock
- ❖ ACP can damage trees by feeding but its major threat is that it carries **Huanglongbing, (HLB)** a disease that is deadly to citrus



Photo: UC ANR

Huanglongbing (HLB) (Citrus Greening)



Photo: UC ANR

- ❖ No known cure - can kill a tree in 5 years
- ❖ Affects all commonly grown citrus varieties
- ❖ Leaf symptoms: non-symmetrical leaf yellowing and splotchy yellow spots
- ❖ Fruit symptoms: uneven ripening and bitter taste

The only way to protect trees is to prevent the spread of the HLB by controlling psyllid populations and destroying any infected trees.

Inspection & Reporting

- ❖ Inspect trees monthly
- ❖ Report suspicious leaves or fruit to California Department of Food and Agriculture –Pest Hotline



Pest Hotline
1-800-491-1899

Placer County Insect Trapping

- ❖ P.C. Dept. of Agriculture's on-going insect trapping program
- ❖ Will trap for ACP during the growing season
- ❖ Traps will stay for 8 weeks

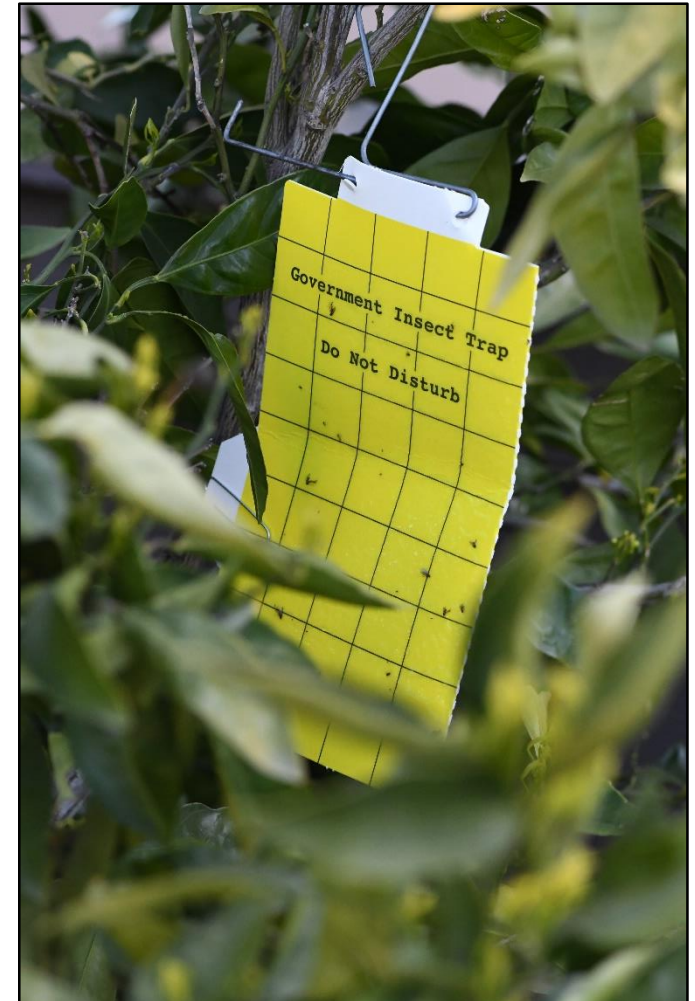


Photo: S. Fitzpatrick

Perhaps some hope



- ❖ Finger limes have natural immunity
- ❖ Researchers have identified the gene that causes immunity and created an antibiotic that has killed the disease in a controlled environment
- ❖ Finger limes, small elongated fruit
- ❖ Grown in Placer County
- ❖ “Caviar of fruit”



Pest Management

- ❖ Foothill citrus are less prone to insect and disease pests
- ❖ To learn about CA-specific citrus pest information the integrated pest management (IPM) link is included in the resource document
- ❖ Avoid pest information from other states given CA's restriction on the use of many pesticides
- ❖ Use the MGPC hotline for specific questions as they arise (530) 889 - 7388

Healthy Trees, with good soil drainage, typically require no pest management

Weather Impacts



Photos: S. Fitzpatrick

Wind damage
February 2021



Excessive Rain
September 2021

Low Temperature Tree Protection

❖ Effect:

Freezing temperatures damage plants by causing ice crystals to form in their cells and vegetation withers and turns dark

❖ Prevention:

Irrigate well prior to freeze as wet soil maintains temperature

Cover young trees with burlap or row cover (3 years)

Incandescent lights



Photo by: UC ANR

Low Temperature Fruit Protection

❖ Effect:

- Ice crystals form in fruit, causing juice vesicles to rupture and fruit to dry out
- Fruit is edible after a freeze, but is susceptible to decay and will quickly become unusable

❖ Prevention:

- Leaves & fruit most sensitive
- Trees with fruit less tolerant
- Pick fruit before a freeze



Photo: UC ANR

Resource Links

Growing Citrus in the Sierra Nevada Foothills:

<http://pcmg.ucanr.org/files/171585.pdf>

Managing Pests:

<http://ipm.ucanr.edu/PMG/GARDEN/FRUIT/citrus.html>

Citrus Overview:

http://homeorchard.ucanr.edu/Fruits_&_Nuts/Citrus/

Diseases and Disorders of Leaves and Twigs:

<http://ipm.ucanr.edu/PMG/C107/m107bpleaftwigdis.html>

Huanglongbing or citrus greening:

<https://www.placer.ca.gov/1554/Mandarin-Threat>

Irrigation:

<http://ipm.ucanr.edu/PMG/GARDEN/FRUIT/CULTURAL/citruswatering.html>

Soil Testing Labs for the Home Gardener:

<https://ucanr.edu/sites/ucmgplacer/files/262734.pdf>

SUCCESS!



Jan with her bumper crop of owari satsuma mandarins!

Tips for Successful Citrus Growing

- ❖ Buy trees from local nurseries only
- ❖ Select sunny location, plant and mulch
- ❖ Adequate irrigation
- ❖ Nitrogen application to encourage growth
- ❖ Occasional pruning
- ❖ Recognize signs of ACP/monitor monthly
- ❖ Pest management resources/hotline
- ❖ Frost protection



Photo: Gail Fitzpatrick

All that's left is to let the tree provide you with the best fresh fruit, for picking and eating, fresh squeezed orange juice for breakfast, marmalade, jellies, perhaps limoncello and lemon nut bread for dessert.

Thank You!

Any Questions?

Master Gardener Hotline: (530) 889-7388

Master Gardener Website: pcmg.ucanr.org



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