

# Fruits of the Fall Season



\*APPLE  
Malus pumila





# Fruiting Spurs -Apple





\*APPLE  
Malus pumila





# Woolly Apple Aphid

- The infests woody parts of apple roots and limbs, often near pruning wounds, and can cause overall tree decline if roots are infested for several years.



Whitney Cranshaw, Colorado State University  
[www.forestryimages.org](http://www.forestryimages.org)



# Powdery Mildew





# Pear





# Pear





# Fruiting Spurs - Pear



# EUROPEAN PEAR

## Pyrus communis





# ASIAN PEAR

## Pyrus pyrifolia





# HYBRID PEAR /SOUTHERN CROSS PEAR lecontei

Pyrus X





# Sawflies

## Pear Sawfly (Pear Slug)



# QUINCE

## Cydonia oblonga





# QUINCE

## Cydonia oblonga



# Codling Moth

The larvae of the **codling moth** (*Cydia pomonella*) is the common apple worm.

It is native to Europe and was introduced to North America, where it has become one of the regular pests of apple orchards. It is found almost worldwide.

It also attacks pears, quince, walnuts and other tree fruits.

Codling moth adults are about 1/2 to 3/4 inch long with mottled gray wings that are held tentlike over their bodies. Their appearance blends well with most tree bark, making them difficult to detect.

If you are trapping the adults, codling moths can be distinguished from other moths by the dark, coppery brown band at the tip of their wings.





# Codling Moth

- Codling moths overwinter as full-grown larvae within thick, silken cocoons under loose scales of bark and in soil or debris around the base of the tree.
- The larvae pupate inside their cocoons in early spring and emerge as adult moths mid-March to early April.
- After mating each female deposits 30 to 70 tiny, disc-shaped eggs singly on fruit, nuts, leaves, or spurs. After the eggs hatch, young larvae seek out and bore into fruit or developing nuts.
- After completing development they leave the fruit and drop from the trees to search out pupation sites and continue the life cycle in the soil or on debris under the tree; some crawl back up the tree to pupate in bark crevices.
- The rate of development will vary with temperature, proceeding more rapidly in warmer weather and climates.
- Depending on the climate, codling moth can have two, three, and sometimes four, generations per year.

# Scab

## Plants Affected by Scab

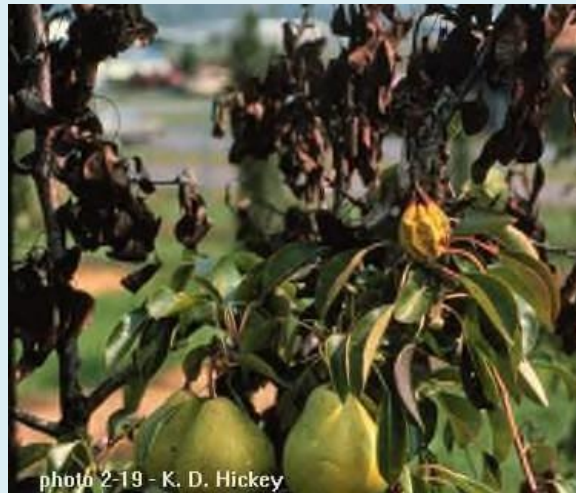
- Apple
- Pear





# Plants Affected by Fire blight

- Apple
- Loquat
- Pear
- Quince



# Bacterial Diseases

## Fire Blight

- Fire blight, caused by the bacterium *Erwinia amylovora*, is a common and frequently destructive bacterial disease of pome fruit trees and other related plants.
- Pear and quince trees are extremely susceptible. Apple, crabapple, and *Pyracantha* species are also frequently damaged. Fire blight occasionally attacks hawthorn, lilac, Cotoneaster, toyon, junberry or serviceberry, loquat, mountain ash, and other related plants.
- Fire blight infections can destroy limbs and even entire shrubs or trees.
- Disease symptoms can appear as soon as trees begin active growth. The first sign is a watery, light tan bacterial ooze that exudes from branch, twig, or trunk cankers (small to large areas of bark killed by the pathogen during previous seasons). The ooze turns dark after exposure to air, leaving dark streaks on branches or trunks. However, cankers may be inconspicuous and infections may not be noticed until later in spring when flowers, shoots, and/or young fruit shrivel and blacken.



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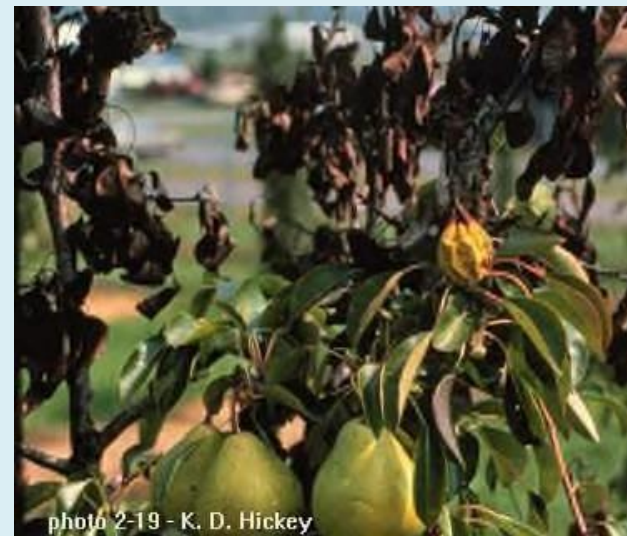
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# Bacterial Diseases

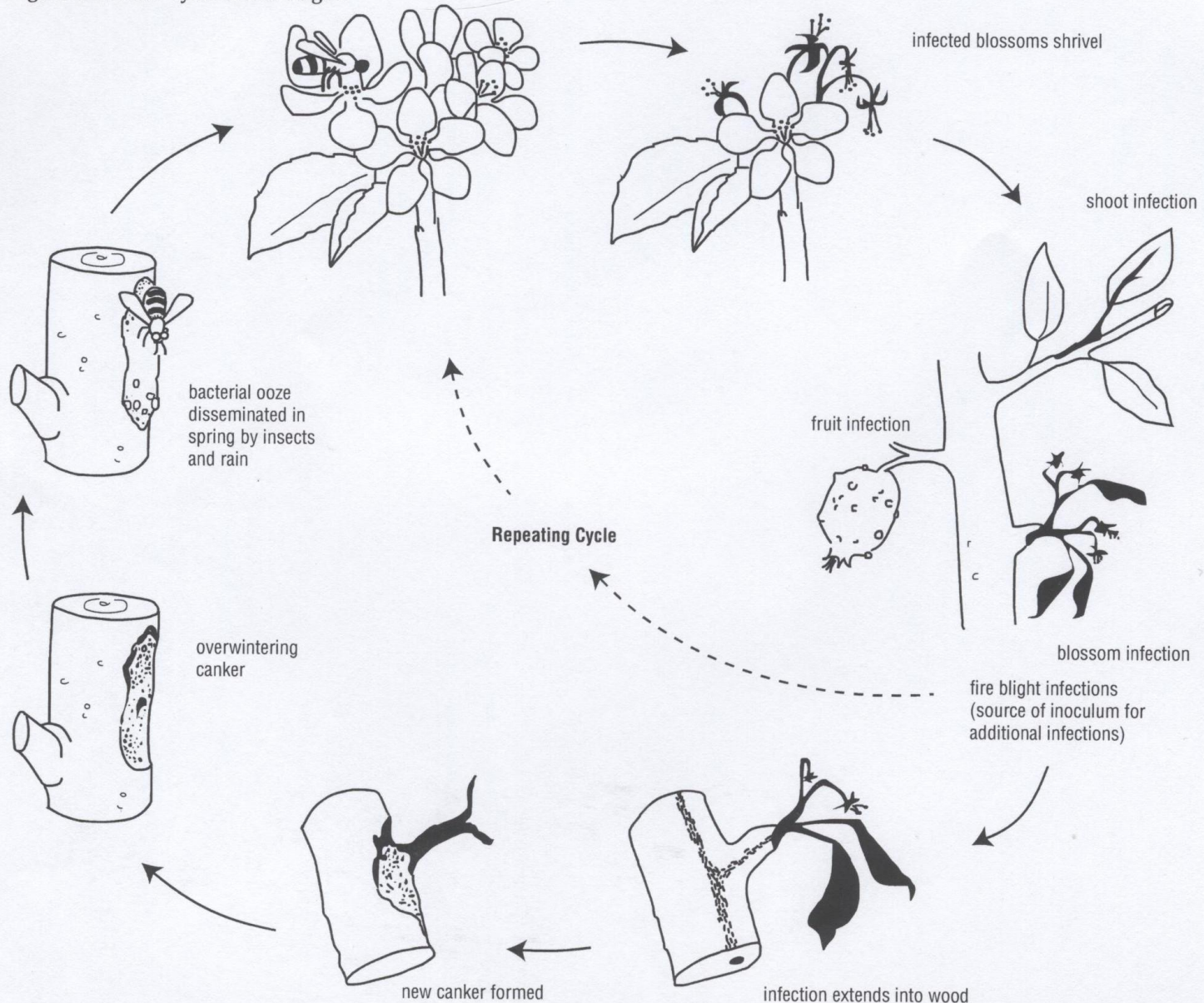
## Fire Blight

- Flowers are usually infected first. Infected flowers and flower stems wilt and turn black on pear trees, whereas on apple trees they turn brown.
- Blight infections often move into twigs and branches from infected blossom clusters, causing small shoots to wilt, forming a crook at the end of each infected shoot.
- Eventually the infected portion of the shoot turns black. Dead, blackened leaves and fruit cling to branches throughout the season, giving the tree a scorched appearance, hence the name "fire blight."



# Disease Cycle of Fire Blight

Figure 2. Disease cycle of fire blight.





# Bacterial Diseases

## Fire Blight

- The bacteria can be transmitted to nearby blossoms or succulent growing shoots by splashing rain or insects, especially honey bees. Injuries caused by wind, hail, or insect feeding to succulent tissues are easily invaded by fire blight bacteria.
- Ideal conditions for infection, disease development, and spread of the pathogen are rainy or humid weather with daytime temperatures in the range of 75° to 85°F, especially when night temperatures stay above 55°F.
- Once fire blight bacteria enter the blossoms, they may cause only a localized infection and eventually die, or they may move into the twigs and branches.
- Fire blight bacteria that survive generally do not move through the bark uniformly but invade healthy wood by moving in narrow paths up to 1-1/2 inches wide in the outer bark ahead of the main infection. These long, narrow infections may extend 2 to 3 feet beyond the edge of the main infection or canker.
- Vigorously growing shoots are the most severely affected; therefore, conditions that favor rapid shoot growth, such as high soil fertility and abundant soil moisture, increase the severity of damage to trees.

# Bacterial Diseases

## Fire Blight

- Eliminate fire blight infections by pruning out diseased branches. Always cut an infected branch at least 8 to 12 inches below the visible injury or canker. If you cut into a canker or infected wood, disinfect your tool to avoid spreading the pathogen.
- If a fire blight infection occurs on a trunk or major limb, the wood can often be saved by scraping off the bark down to the cambium layer in infected areas. When scraping, look for long, narrow infections that may extend beyond the margin of the canker or infection site. If any are detected, remove all discolored tissue plus 6 to 8 inches more beyond the infection. If the limb has been girdled, scraping will not work and the whole limb must be removed.
- To avoid spreading bacteria during pruning, dip or spray the pruning tool before each cut with a 10% solution of bleach (one part bleach to nine parts water).
- A very weak (about 0.5%) Bordeaux mixture or other copper fungicide applied several times as blossoms open can reduce new infections, but will not eliminate all new infections nor those already existing in wood. The number of applications needed depends on the blooming period. Once blossoms begin to open, make the first application when the average temperature exceeds 60°F. Apply at 4- to 5-day intervals during periods of high humidity and until late bloom is over. For pear trees, this may mean five to twelve applications per season.



# FIG

## Ficus carica





# FIG

## Ficus carica





# FIG

## Ficus carica



# Beetles

## Green Fig Beetle

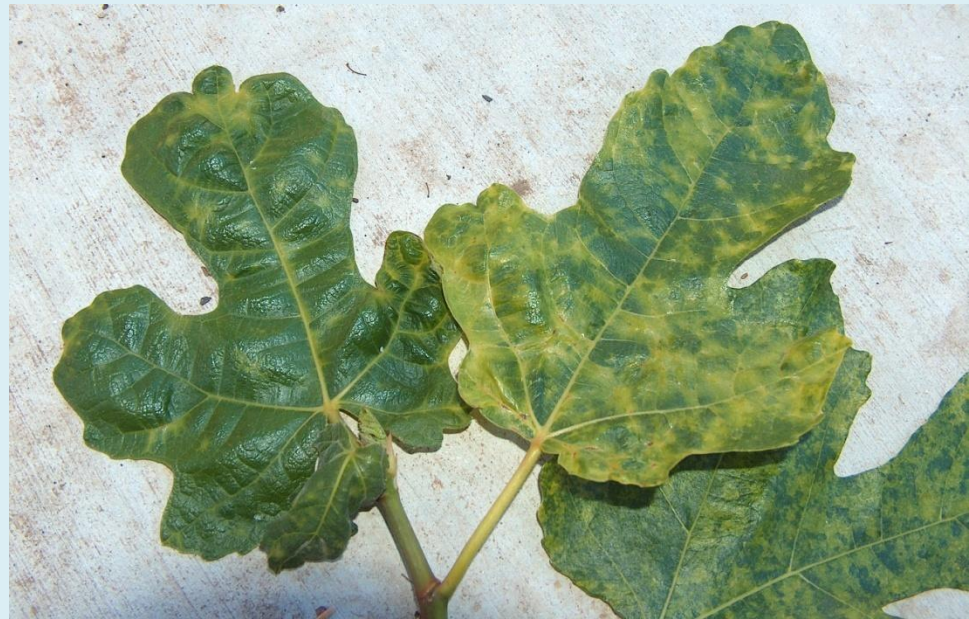
- Plants commonly attacked: Fig, soft fruit.





# Fig Mosaic Virus

- Affected figs show large yellow areas in the leaves, oak leaf pattern, ring spot area, or a mild mottled pattern. Leaves may be smaller than normal and deformed. Premature defoliation and fruit drop often occur.





# JUJUBE

## Ziziphus jujuba





# JUJUBE

## Ziziphus jujuba





# JUJUBE

## Ziziphus jujuba





# PERSIMMON

## Diospyros kaki





# PERSIMMON

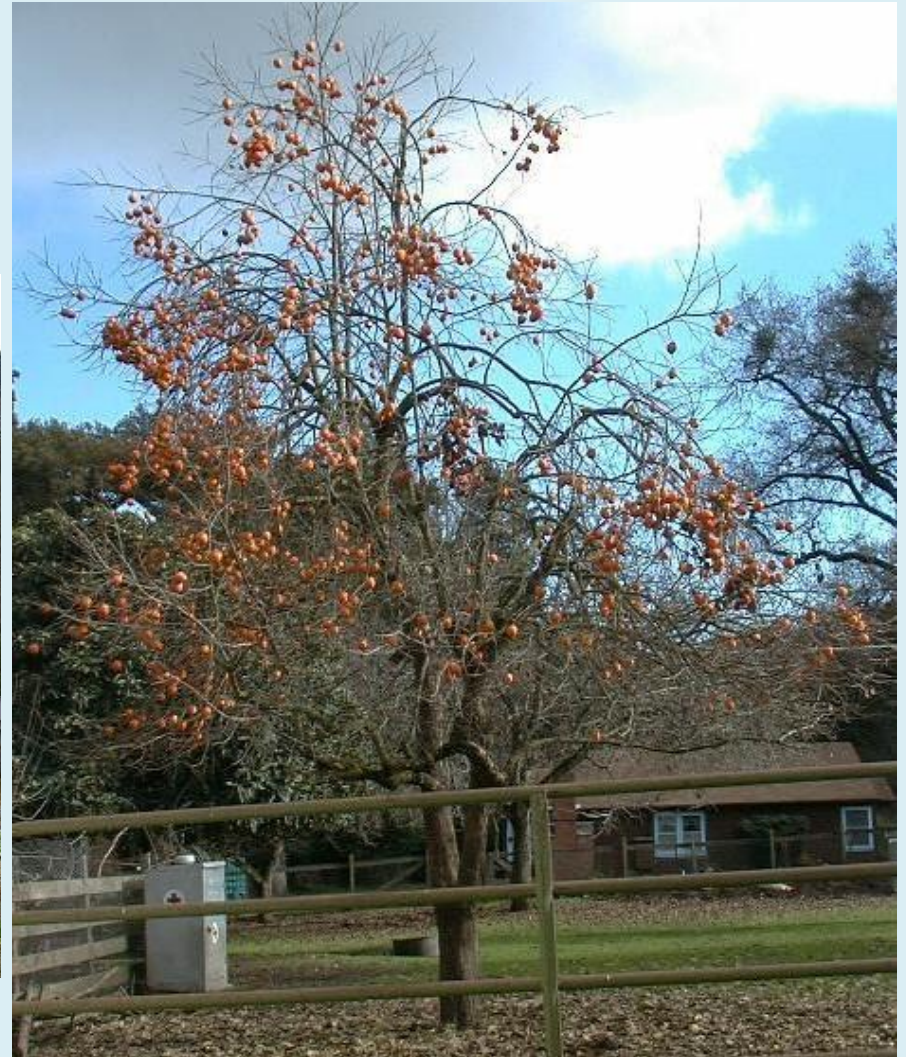
## Diospyros kaki





# PERSIMMON

## Diospyros kaki



# PERSIMMON

## Diospyros kaki





# POMEGRANATE

## Punica granatum





# POMEGRANATE

## Punica granatum





# POMEGRANATE

## Punica granatum





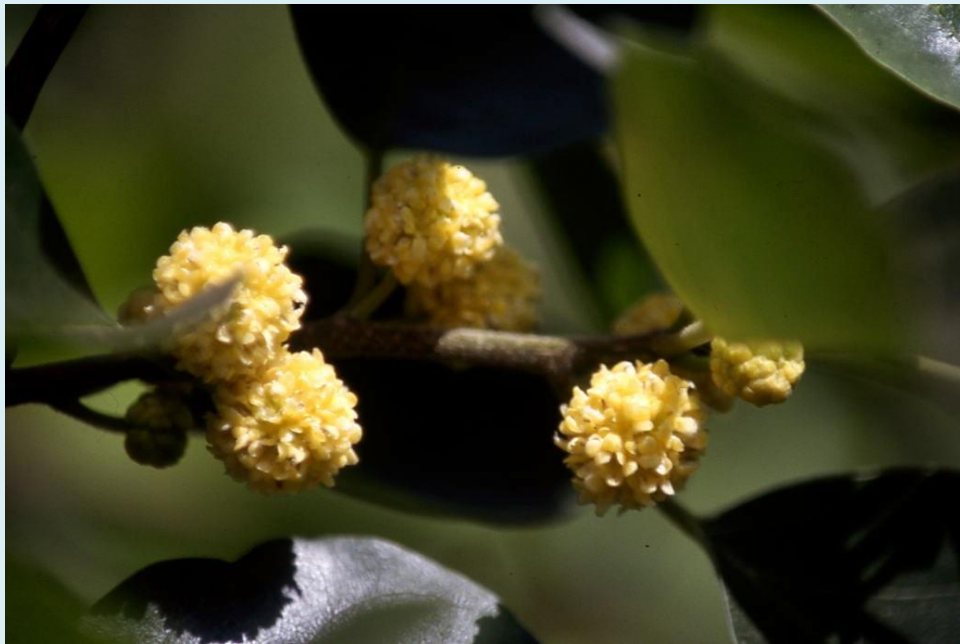
# CHE

## Cudrania tricuspidata





CHE  
Cudrania tricuspidata



CHE  
Cudrania tricuspidata



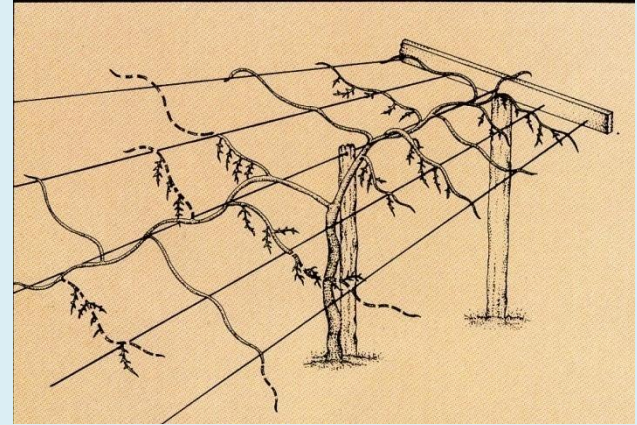


# KIWI FRUIT



- There are two main types of kiwi fruit. Traditional - fuzzy (*Actinidia chinensis* and *A. deleciosa*) and fuzz-less (*Actinidia arguta*).
- Vines are cold hardy to 10 degrees and require winter chilling of an average of 350 hours to over 800 hours depending on the variety!
- Normally, plants are either male or female. **Both** are required for fruit production. Only the female plant produces fruit!
- Very vigorous vines require a sturdy trellis system and proper pruning for good fruit production.

# Proper Pruning and Training is Required for Fruit Production!



- Annual winter pruning to remove 60% - 85% of the vine is required!
- Fruit is produced on fruiting spurs which occur on laterals which are at least two years old.
- A permanent scaffold branching system is developed which is made up of vine leaders and laterals.

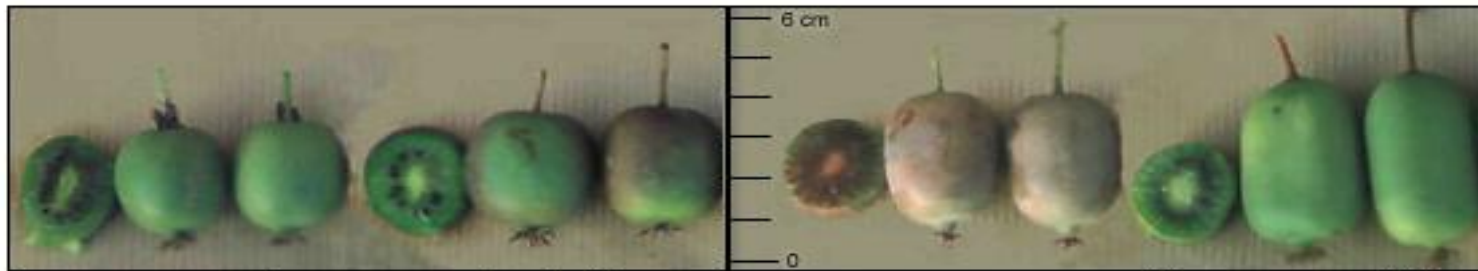


# Best Varieties of Fuzzy Kiwi Fruit for Low Chill Areas

- Matua (Male)
- Tewi (Female)
- Vincent (Female)
- New Varieties of Yellow and Orange Fleshed Kiwi Fruit are untried in low-chill areas, but are reportedly lower chill than most traditional kiwi fruit.



# Best Varieties of Fuzz-less Kiwi Fruit for Low Chill Areas (*Actinidia arguta*)



*Actinidia arguta* fruits. Varieties from the left: 'Geneva', 'Weiki', 'Ken's Red', 'Jumbo' (photo Sz. Marczyński)

- Pacific (Male)
- Ananasnaya (Female)
- Cordifolia (Female)
- Ken's Red (Female)
- Issai (Self-Fruitful, Both Male and Female)





# PINEAPPLE GUAVA (FEIJOA)

## *Acca sellowiana*

- A shrub or small tree to 15 feet. Can be severely pruned.
- Drought tolerant. No significant pests or diseases.
- Cold hardy to approximately 15 or 20 degrees F.



# PINEAPPLE GUAVA (FEIJOA)

*Acca sellowiana*

- Beautiful flowers have edible petals.
- Some varieties require pollinizer to set fruit.





# PINEAPPLE GUAVA (FEIJOA)

## *Acca sellowiana*

- Fruit ripen in late summer or fall and drop to the ground when ripe.
- Superior varieties have been developed for fruit quality and fruit size.
- Refrigerate ripe fruit to increase shelf-life and to prevent fruit quality from deteriorating.



# TROPICAL GUAVA

## *Psidium guajava*

- Trees or large shrubs to 25 feet in height. Can be kept to 6-8 feet with pruning.
- New foliage is bronzed and foliage becomes reddish in winter.
- Many varieties and cultivars. Most have white flowers and fruit that is green when immature, turning yellow or yellowish when ripe. Varieties can be seedy or have relatively few seeds.
- Fruit season is Fall – Spring.





# TROPICAL GUAVA

## *Psidium guajava*

- “Vietnamese” or crunchy types of tropical guava have fruit that are eaten crisp like an apple and do not become soft and creamy when ripe.
- Fruit are much larger than other types of tropical guava.
- They have no fragrance or odor, are greenish-yellow when ripe and always have a flesh color that is white.



# TROPICAL GUAVA

## *Psidium guajava*

- Dessert type tropical guavas have fruit that is eaten soft and creamy when ripe. Ripe fruit has a strong fragrance.
- Fruit can yellow or yellowish-green skin, sometimes with a pink or red blush, and can have white, pink or red flesh.
- These guavas are eaten fresh or are used to make jams, jellies, juice, fruit leathers, guava paste or ice cream and sorbet.





# TROPICAL GUAVA

## *Psidium guajava*

- A distinct race or group of dessert guavas are often referred to as Thai Maroon. There are several varieties or cultivars.
- Varieties of 'Thai Maroon' dessert guavas have heavy red pigment in the foliage and pink flowers.
- The immature fruit is reddish when immature and ripens to have a reddish-bronzed skin. The flesh color is deep red.





# JABOTICABA

*Myrciaria cauliflora*

- Small evergreen tree or shrub to 15 feet. Cold hardy to approximately 25 degrees F.
- Flowers and fruits three or more times per year. Flowers and fruit occur on the trunk and main scaffold branches.





# JABOTICABA

*Myrciaria cauliflora*

- Fruit resembles a thick-skinned black grape. Skin is tough and somewhat bitter.
- Flesh is soft, tender and very delicious.
- Fruit have 1-2 seeds.





# LONGAN

## Dimocarpus longan

- A fast growing, medium sized tree to approximately 35 feet. Cold hardy to 26 degrees.
- All named varieties are produced by air-layering.
- Flowers occur early summer on the ends of branches off of last years growth. Flowers are small and brownish in color.





# LONGAN

## Dimocarpus longan

- Fruit ripen in Fall to Spring. The fruit is surrounded in a thin, somewhat leathery, greenish-brown shell.
- Fruit is sweet and slightly more crisp but not as juicy as the lychee. The fruit has a single medium to large seed.



# LYCHEE

## Litchi chinensis

- Elegant, slow growing, small to medium sized trees to 30 feet. The new growth is pinkish fading to light green, then finally to the dark green color of the mature foliage.
- Trees are sensitive to excess salt, wind and temperatures below 26 degrees.
- All named varieties are produced by air-layering.
- Flowers occur early summer on the ends of branches off of last years growth.





# LYCHEE

## Litchi chinensis

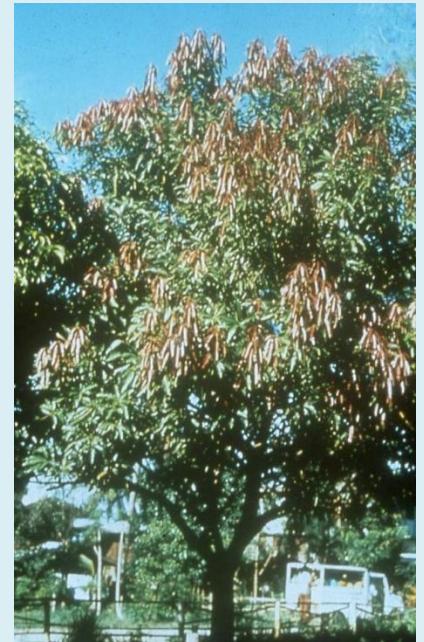
- Fruit production is often unreliable, heavy some years and light other years. Fruit ripens in late summer.
- Fruit is encased in a pink or red “leathery” outer shell.
- Fruit is juicy, fragrant, sweet and delicious.
- Fruit has a single seed which may be large or small.



# MANGO

## *Mangifera indica*

- Evergreen. Large shrub or tree to 30-35 feet. Cold hardy to approximately 28 degrees F.
- Mango trees love hot weather and grow faster with less disease problems in hot climates.
- New growth is beautiful red in color. Foliage turns dark green as it matures.





# MANGO

## *Mangifera indica*

- Yellow-brown flowers occur on pink spikes at the ends of branches in early summer.
- Grafted trees produce flowers and fruit at a very young age. Fruiting spikes should be removed until the trees are at least 5 feet tall.
- Fruit spikes should be removed after fruit set when fruit are pea-sized.



# MANGO

## *Mangifera indica*

- Many varieties are available. Fruit may be fibrous or have little or no fiber. Skin color often green with red, yellow or peach blush, red, or yellow.
- Flesh color is light to dark yellow or golden-orange. Fruit have a single large seed.
- Some people are allergic to mangos which are in the same family as poison oak. Both sap from the leaves as well as eating the fruit may cause an allergic reaction.
- Select varieties with proven track records for your area.





# MANGO

## Mangifera indica

- Powdery mildew may be a severe problem in some areas and on some mango varieties. Powdery mildew attacks both the new foliage as well as the flowers and can severely affect fruit set, resulting in little or no fruit.
- Anthracnose is a disease which affects both foliage and fruit on some mango varieties. It is a more severe problem in humid areas.





# ROSE APPLE

## *Syzygium jambos*

- A large shrub or small tree to 20 feet with a semi-weeping growth habit. Easily trained as an espalier or pruned as an informal hedge or screen.
- Cold hardy to about 26 degrees.





# ROSE APPLE

## *Syzygium jambos*

- New growth is a beautiful wine red.
- Creamy white flowers are quite showy and are produced throughout the summer.



# ROSE APPLE

## *Syzygium jambos*

- Pale green or yellowish fruit is the size of a ping pong ball and the edible portion of the fruit forms a hollow shell around the seeds.
- The fruit is mild in flavor and tastes like roses smell.
- The fruit makes a wonderful jam or jelly.





# TUNA

## Opuntia ficus-indica

- A cactus that produces lovely yellow flowers.
- Both cactus pads and fruit may have many spines or may be nearly spineless.
- Young pads are often eaten as nopales.



# TUNA

## Opuntia ficus-indica

- Fruit is produced in late summer through Autumn.
- The fruit may be red, greenish-yellow or pinkish-orange in color and has sweet melon-like flavor.





# White Sapote

Casimiroa edulis

- Large evergreen trees to 60 feet. Can be kept to 12-15 feet with pruning.
- Fairly drought tolerant once established. Cold hardy to about 25 degrees F.
- Roots are somewhat invasive.
- Fruit has a notable “splat factor” as it falls from the tree.



# White Sapote

## Casimiroa edulis

- Grafted varieties are self-fruitful and very productive.
- Fruit has yellowish-green or yellow skin when ripe. The flesh is pale yellowish-white. Each fruit has 2-4 large seeds.
- Ripe fruit is soft, creamy and sugary sweet.





# BANANA

## *Musa acuminata* & hybrids

- Dwarf, semi-dwarf and standard sized trees. Useful as screens or specimen plants.
- Plants enjoy heavy fertilizing and watering during the warm months of the year. Discontinue both during the colder months of winter.
- Plants leaves will be killed by temperatures below 32 degrees. However pseudostems and corms can survive temperatures well below freezing.





# BANANA

## *Musa acuminata* & hybrids

- Plants form clumps from an underground corm.
- Managing banana clumps is an important step to good fruit production. As “pups” develop, separate all except 1-2 pups from each flush of pups until a maximum of 10-12 pseudostems arise from each corm.
- After a pseudostem has produced fruit, cut that “tree” to the ground and let a replacement “pup” remain with the clump.





# BANANA

## *Musa acuminata* & hybrids

- Each “tree” or pseudostem fruits only once in it’s life. Flowers are produced after the final leaves are formed (somewhere between 38-45) and can occur any time of year.
- The first flowers formed are female and develop into fruit. After the last “hand” of fruit are formed, Male flowers occur on the lower portion of the fruit stem. All edible bananas are sterile.





# BANANA

## *Musa acuminata* & hybrids

- Over 80 varieties available. Bananas higher in starch are often used in cooking and are referred to as plantains. Varieties higher in sugars are often eaten fresh and are referred to as dessert bananas.
- Fruit can be green, yellow, blue, red or variegated in color. Fruit ranges in size from four to twenty four inches long.

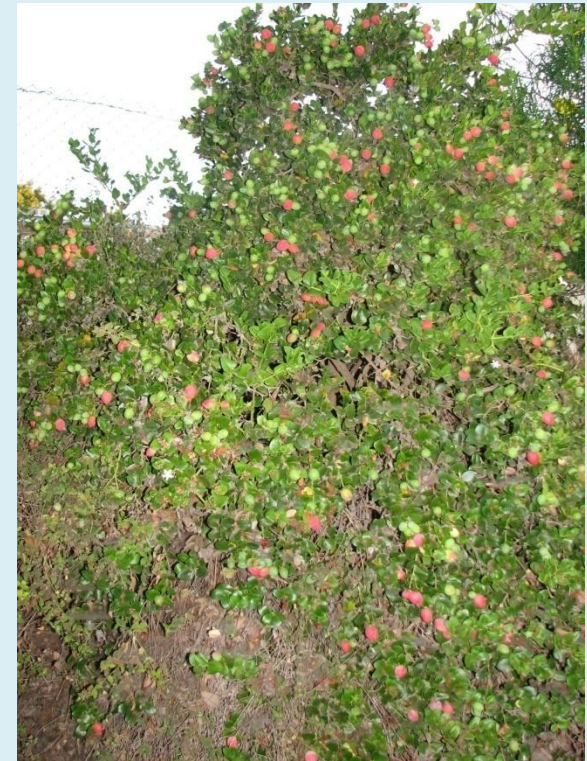




# NATAL PLUM

*Carissa grandiflora*

- Hardy, evergreen shrubs. Dwarf and standard sized cultivars are available.
- Plants are very tolerant of pruning or shaping.





# NATAL PLUM

## *Carissa grandiflora*

- Plants have sharp spines making it an excellent barrier plant.
- Attractive fragrant flowers and fruit are produced for many months during the spring, summer and fall.

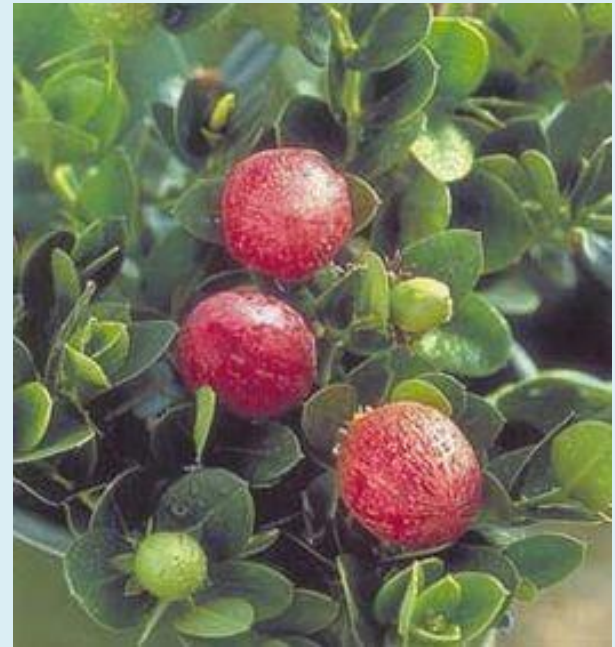




# NATAL PLUM

## *Carissa grandiflora*

- Fruit is eaten fresh or used to make jams and jellies. Flavor is somewhat cranberry-like.
- The fruit has a white latex sap when unripe that diminishes when the fruit is fully ripe.





# PAPAYA

## *Carica papaya*

- Short-lived, semi-deciduous, herbaceous trees, 6 to 20 feet in mature height.
- All papaya demand soils with excellent drainage. They enjoy frequent watering and fertilizing during the warm weather, but will develop root and crown rot if the soil stays too moist during the colder months.
- Papaya love heat, and fruit will be sweeter and better quality in hot areas or against a South facing wall.
- Trees are cold hardy to about 28 degrees F.





# PAPAYA

## *Carica papaya*

- Trees are frequently dioecious, having male and female flowers on separate trees.
- Some papaya varieties may also be monescious (such as the solo types which frequently produce both male and female flowers on one tree).



Male Flowers

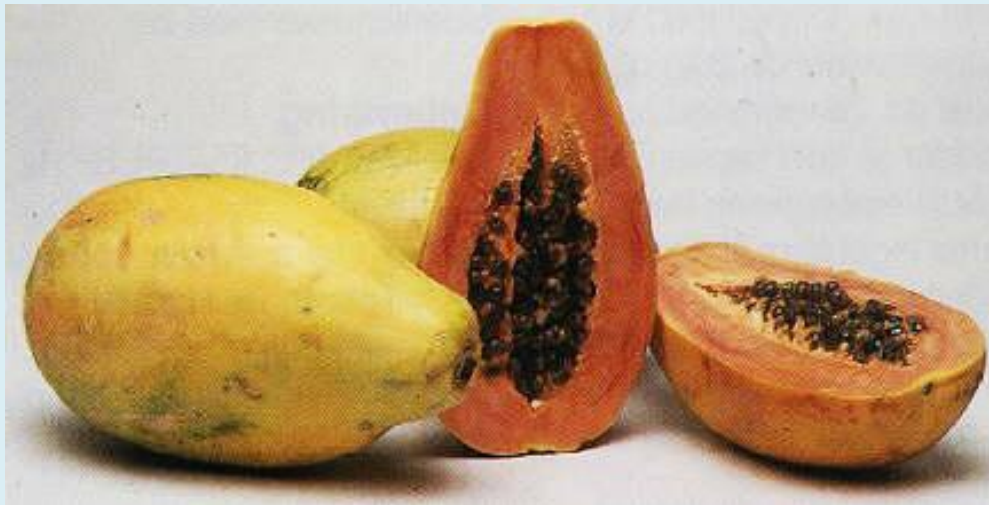


Female Flowers

# PAPAYA

## *Carica papaya*

- Many varieties, with Mexican and Hawaiian types being the most common.
- Mexican types have larger fruit and a milder flavor.
- Hawaiian types are smaller and have the potential for sweeter fruit, but must be grown in an area with long, hot summers to obtain their best flavor.





# BABACO PAPAYA

## *Carica pentagona*

- A dwarf, self-fruitful papaya. Mature height is generally 8 feet or less.
- Female plants are parthenocarpic and produce seedless fruit without pollinization.
- Cold hardy to about 26 degrees.
- Fruit generally ripen early summer – early winter.



# BABACO PAPAYA

## *Carica pentagona*

- Fruit frequently falls from the tree while still partially green in color and should be left at room temperature until completely yellow to develop it's best flavor.
- Fruit has a perfume-like fragrance, is very juicy and has the taste of a honeydew melon with lemon-lime.
- The fruit is sweet-tart in flavor, delicious chilled and eaten fresh or used to make juice, sorbets and ice cream.





# PEPINO DULCE

## Solanum muricatum

- An herbaceous perennial, related to tomato, eggplant and peppers. Damaged or killed by temperatures below 32 degrees F.
- Fruit is produced throughout the warm summer and autumn months.
- Plants do best in the cooler coastal areas and dislike the hotter areas of the county. Spider mites are a frequent pest in the hotter, dryer areas.



# Spider Mites

- Although related to insects, mites are not insects but members of the arachnid class along with spiders and ticks. The name "spider mite" comes from the silk webbing produced on infested leaves. The presence of webbing is an easy way to distinguish them.
- Mites cause damage by sucking cell contents from leaves. At first, the damage shows up as a stippling of light dots on the leaves; sometimes the leaves take on a bronze color. As feeding continues, the leaves turn yellow and drop off. Very high populations can be very damaging to or can kill plants,
- Damage is usually worse when compounded by water stress.





# PEPINO DULCE

Solanum muricatum

- The ripe fruit is usually yellowish or greenish white, often with purple stripes or markings. Fruit size averages around ½ pound.
- Fruit flavor is reminiscent of a mild cantaloupe.



# PINEAPPLE

## Ananas comosus

- A terrestrial bromeliad, each plant produces only one fruit and then dies.
- Offshoots or “pups” are produced by the mother plant to produce a spreading clump of pineapple plants.





# PINEAPPLE

## Ananas comosus

- As well as starting new plants from the pineapple pups, you can start your plant from a pineapple top.
- Cut the top off of a pineapple about a half inch below the bottom leaves. Trim excess fruit away and remove some of the lower leaves. Then allow it to dry out on the counter for a week or two. Otherwise the fruit still on there will cause it to rot.
- Plant top in fast draining potting soil, water the pineapple regularly and put in a sunny location. In one to three months roots will form and new leaves will begin to appear.
- Water and fertilize pineapple plants with liquid fertilizers through the “cups” in the leaves. Allow the roots to stay fairly dry, especially during the cooler winter months.



# PINEAPPLE

## *Ananas comosus*

- Pineapple plants are frost sensitive and should be protected from freezing temperatures.
- Ripe pineapples are golden yellow and wonderfully fragrant.
- Many varieties and cultivars.





*Passiflora edulis* and *P. edulis* hybrids are considered  
the best choices for S. California.



- Plants are self-fruitful and extremely productive.
- Fruit ripens mid-summer to late fall.
- Vines are cold hardy to the mid 20's.
- Plants are not adversely affected by caterpillars.
- Fruit is extremely flavorful, juicy, and large.
- Fruit is eaten fresh and used to make juice, jams, jellies, ice cream, popsicles, tea and more.

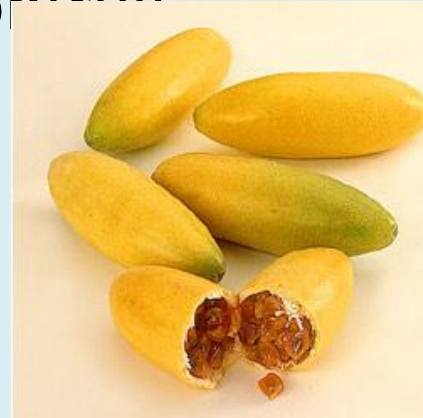
# Favorite Passion Fruit



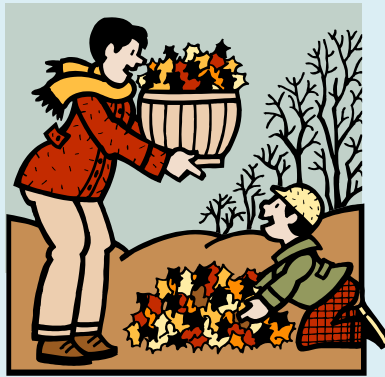
- Black Knight (*Passiflora edulis*)
  - Frederick (*Passiflora edulis* X *P. flavocarpa*)
  - Red Rover (*Passiflora edulis* X *P. flavocarpa*)
  - Maypop (*Passiflora incarnata*)
- Deciduous**



- Banana Passion fruit (*Passiflora mollissima*)







# Fruits of the Fall Season



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