

Fruit Tree Pruning, The Basics

**Presented by
Professor ML Robinson
University of Nevada Reno**

**By: John Candelaria,
Master Gardener Tree
Committee**



JUST BECAUSE IT IS SOLD HERE DOES NOT MEAN IT WILL GROW HERE



ASSORTED
BERRY

\$7.⁴⁸

Lower prices... **Guaranteed.**
Los precios bajos... **Garantizado.**



What This Presentation Will Cover

- **We will discuss basic concepts of fruit tree pruning.**



Basic Fruit Tree Pruning

- **Fruit trees versus landscape trees**
- **Pruning requirements for fruit trees**
- **Why we prune**
- **When we prune**
- **Tools used for pruning fruit trees**

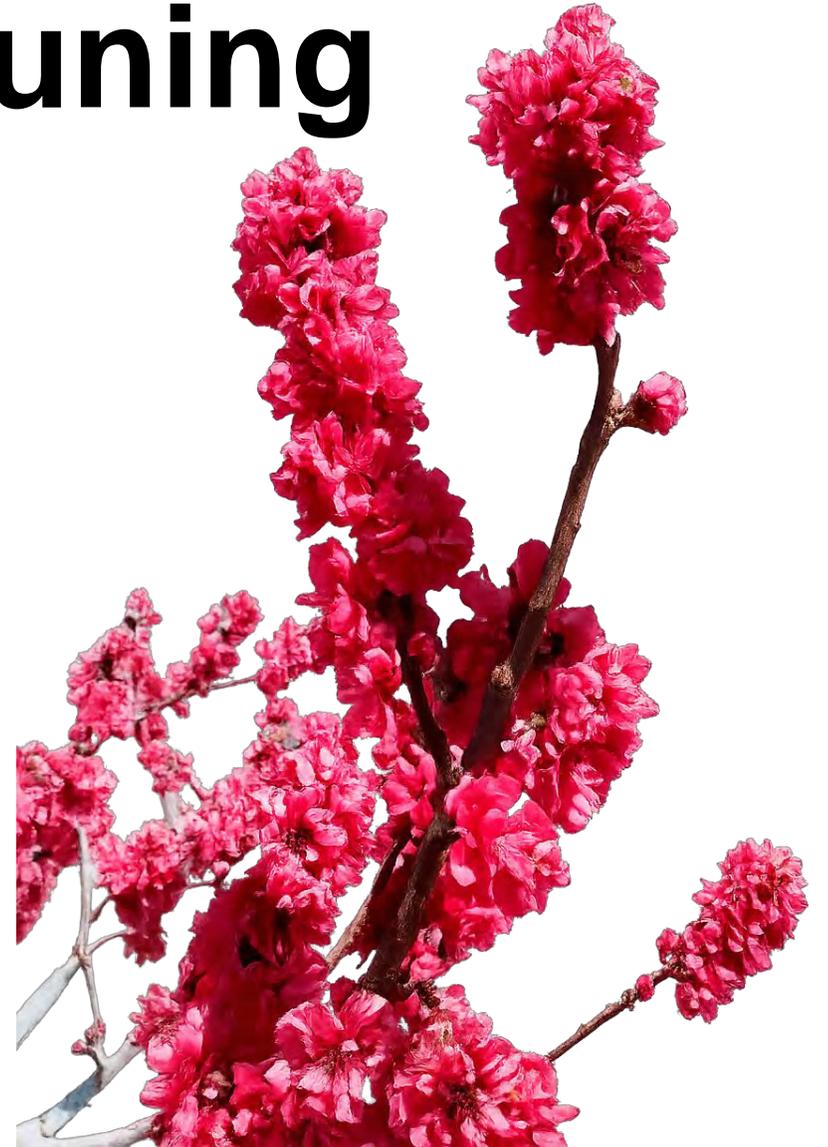
Tree Parts

Shape of Tree

Structure of Tree

Thinning and Heading cuts

Cutting at the branch collar



Pruning Fruit Trees vs Landscape Trees

Pruning techniques for landscape trees and fruit trees are not the same:

Landscape tree pruning:

- **Typically allows for central leader**
- **Focus is on shaping the tree and removal of dysfunctional branches**

Fruit tree pruning:

- **Most likely won't have a central leader**
- **Focus is on the development of a good tree structure with strong scaffold branches that can support fruit development and fruit load**
- **Allows access to fruit when picking or thinning**

WHY DO WE PRUNE FRUIT TREES

**HELP WITH BETTER FORM, STRONGER
BRANCHES AND FEWER FRUIT**





Pruning will depend on how the fruit trees are being grown.



3 FRUIT TREES IN THE SAME PLANTING HOLE



BELGIAN FENCE ESPALIERED KRENITSELS



Pruning will depend on how the fruit trees are being grown and where.



**FIG TREE AS AN
ORNAMENTAL IN A
WARM DESERT
CLIMATE**

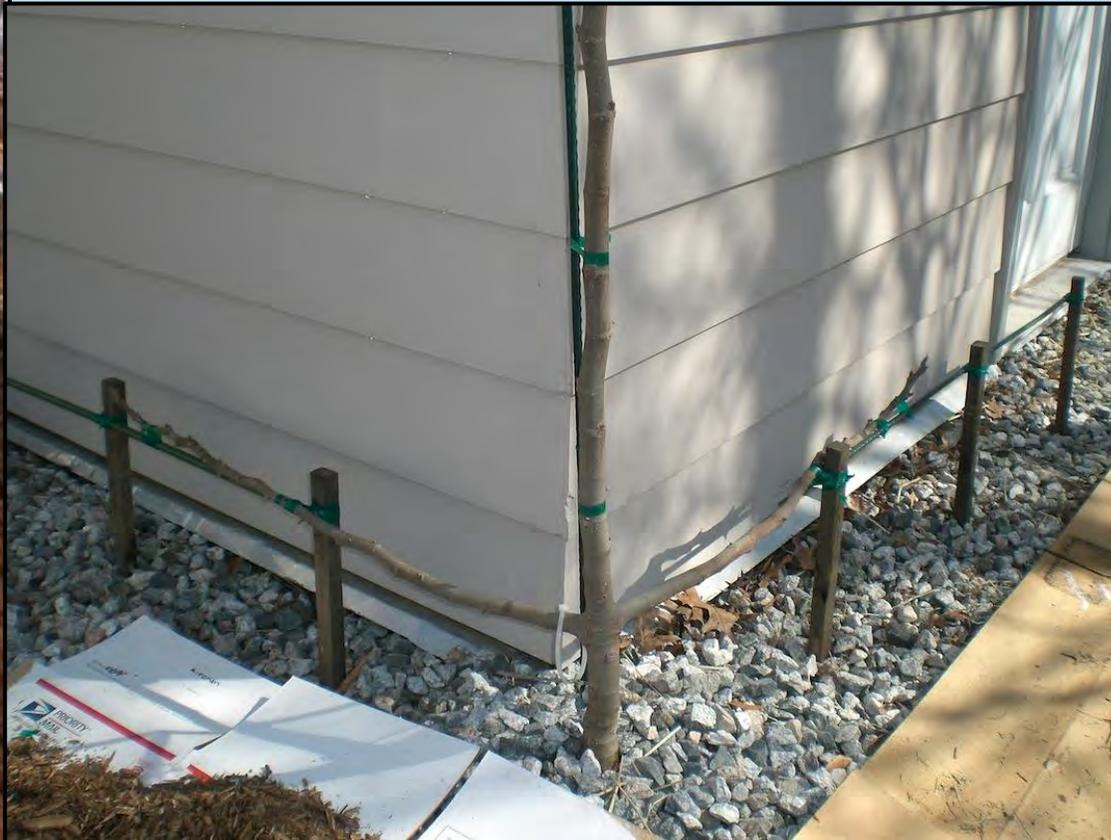


**FIG TREE PLANTED IN A
PROTECTIVE AREA ZONE 5**

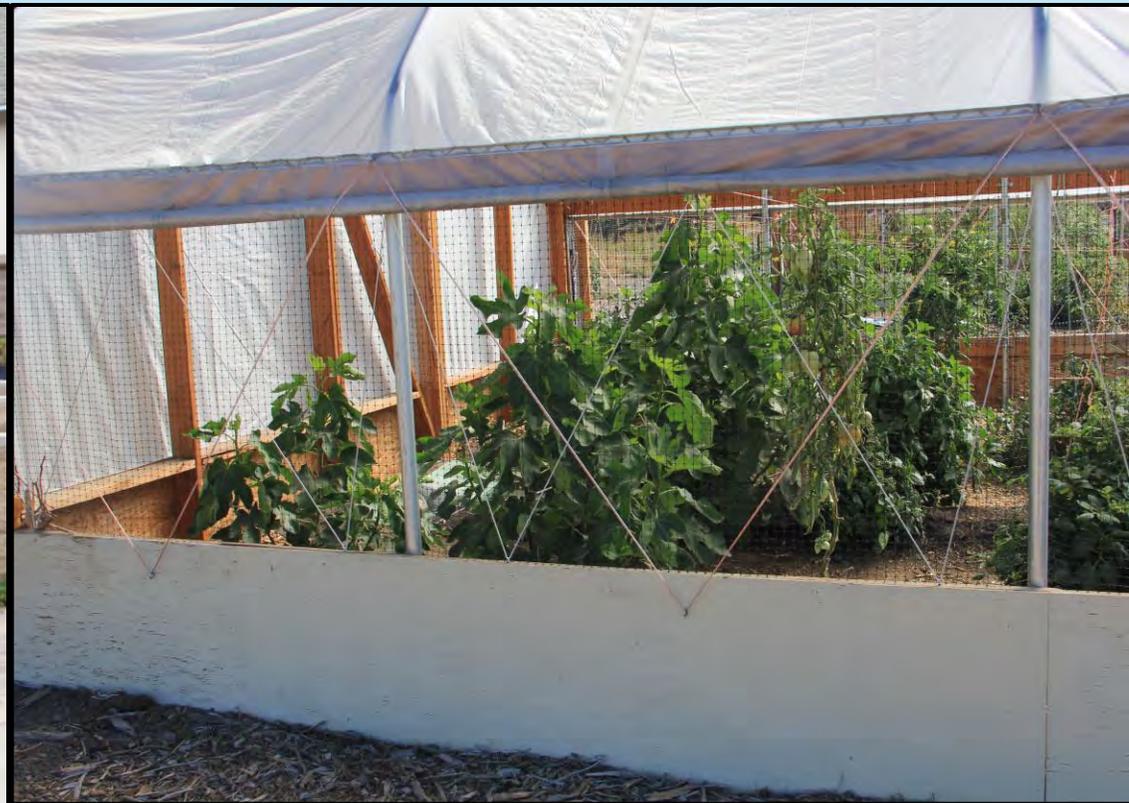
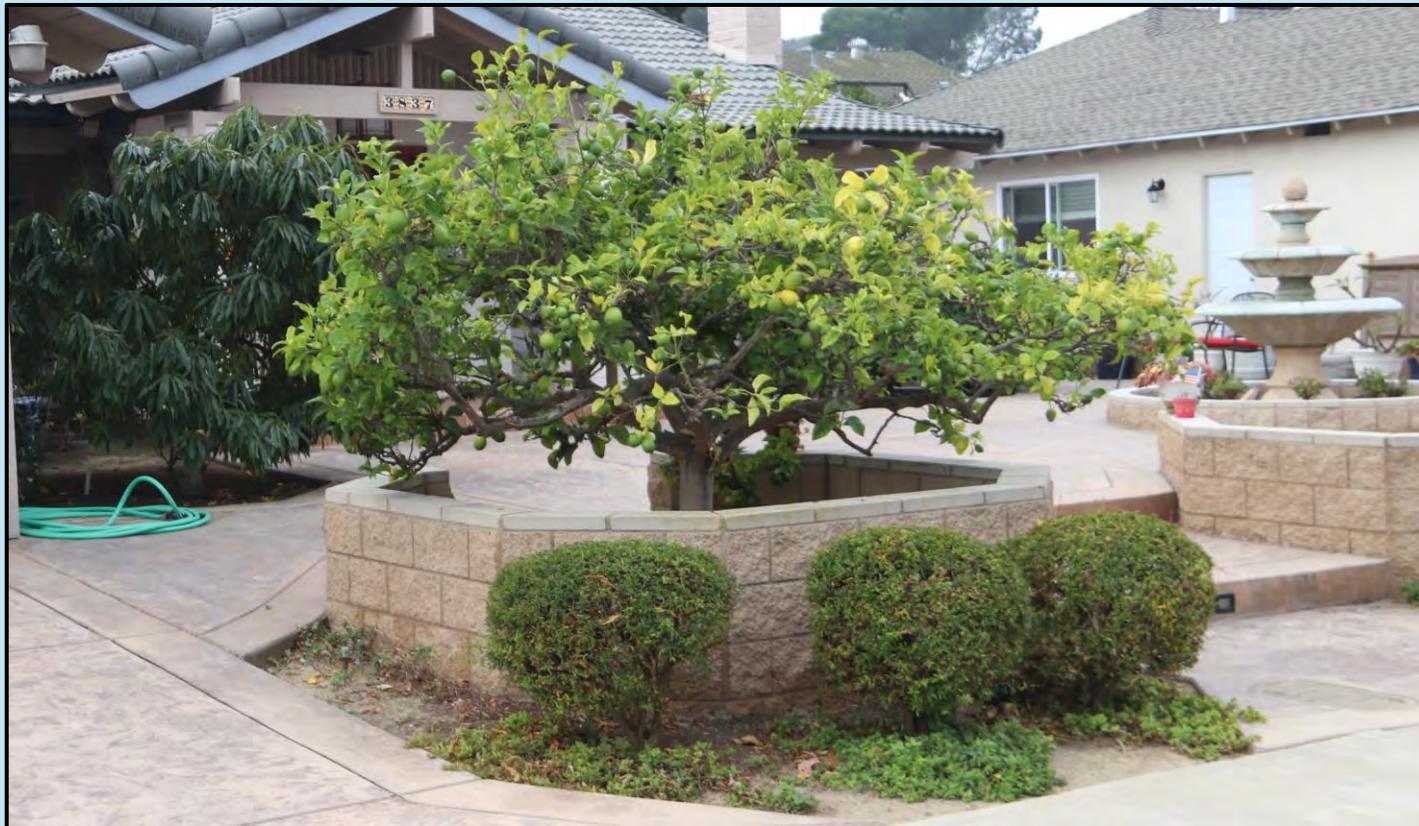


**FRUIT TREE PLANTED
IN NATIVE GARDEN**

Pruning will depend on how the fruit trees are being grown and where.



Pruning will depend on how the fruit trees are being grown and where.

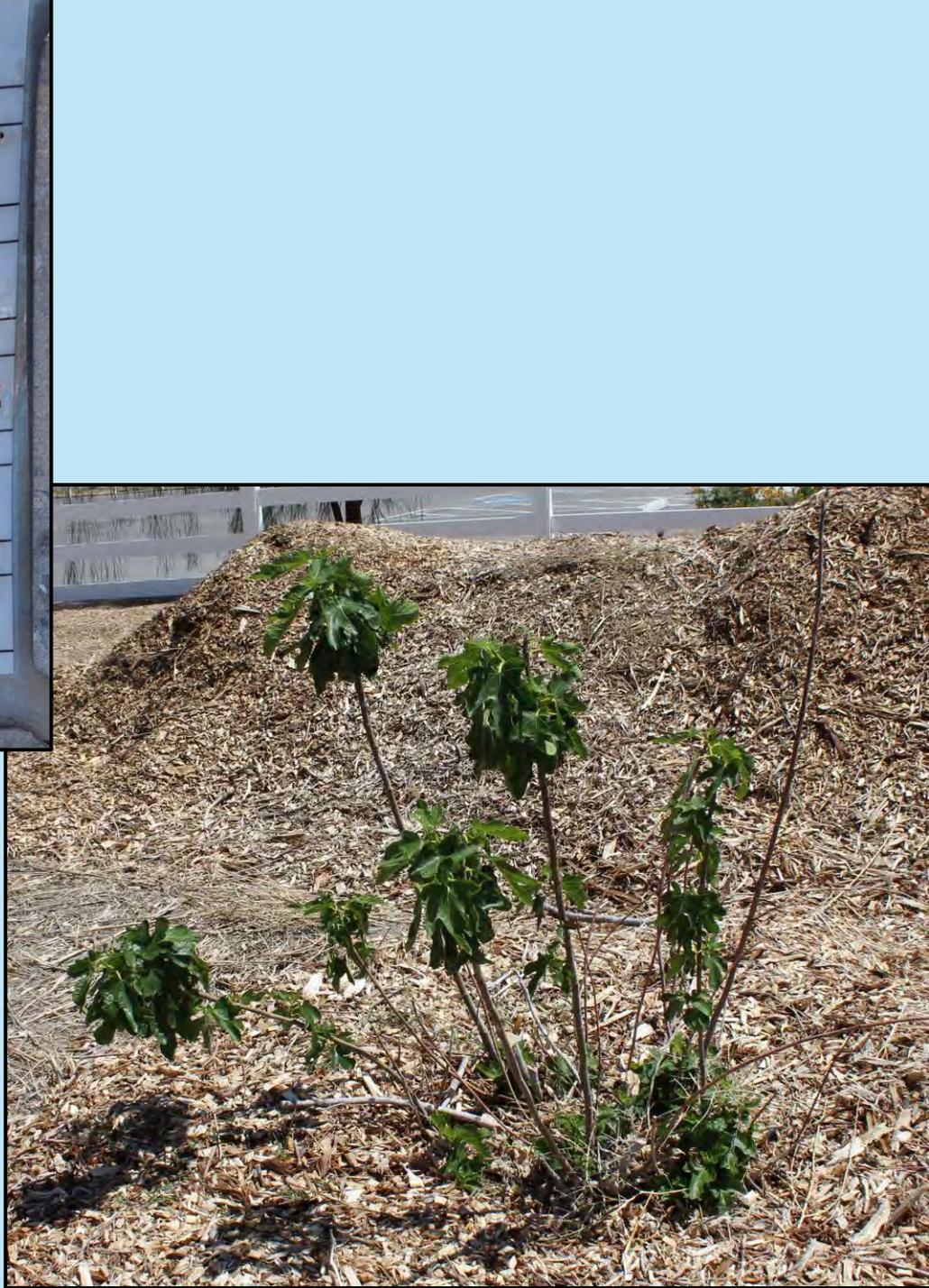




Peach
Red Baron
Nemaguard
Date Planted: 1999
Row 12



Fig
Panachee Tiger
Own Roots
Date Planted: 2012
Row # 1
Space # 1



TO HELP TREES DEVELOP STRONG BRANCHES





Growing Fruit Inside a Bottle

Fruit is allowed to develop inside a bottle while still attached to the tree. Once mature, the bottle is filled with high-proof grappa or brandy. The alcohol preserves the fruit and infuses its flavor, producing a distinctive, high-end specialty drink.

MAKING ROOM FOR AN URBAN ORCHARD



FOR BIGGER AND BETTER FRUIT



Pruning Requirements for Fruit Trees

- **Determined by the type (i.e., apple, peach or apricot) and age (i.e., Just planted to three years old, mature tree, tree requiring rejuvenation) of the fruit tree**
- **Other factors including the tree's existing framework, vigor, health, growth and fruiting habits (where fruit grows on the tree)**

TERMINOLOGY

Reference: Pacific
Northwest Extension
Publishing, PNW 400

Basic terminology

Branch collar — The raised tissue at the base of every branch. It contains specialized cells that seal off pruning wounds from wood rot fungi. Pruning to the branch collar makes it unnecessary to apply wound dressings.

Crotch angle — The angle formed between the trunk and a limb. The strongest crotch angle is 45–60 degrees.

Crown — The base of the trunk where the tree meets the soil.

Heading (or head cut) — A pruning cut that removes only part of a branch at some point along its length.

Lateral branch — A side shoot off of another branch, usually at a more horizontal angle.

Leader — The uppermost portion of a scaffold limb. In a central-leader-trained tree, only one leader is left in the center of the tree. Multiple-leader-trained trees usually have three to five leaders per tree.

Scaffold limb — A large limb that forms the framework of a tree.

Shoot — The length of branch growth in one season. The bud scale scars (ring of small ridges) on a branch mark the start of a season's growth. The terminal bud marks the end.

Spur — A short shoot that produces flowers and fruits.

Stub — A short portion of a branch left after a pruning cut. Avoid leaving stubs.

Sucker sprout — A 1-year-old shoot that grows from the root.

Terminal — The end of any shoot.

Thinning cut — A pruning cut that removes an entire branch from its point of origin.

Vertical branch — A branch that grows upright.

Water sprout — A 1-year-old shoot that grows within the tree.

Why Do We Prune?

- **Shape the tree, direct the growth, and keep the tree within its designated space**
- **Reduce tree density to allow airflow and sunlight to reach the branches and fruit**
- **Remove dead, diseased, damaged and dysfunctional branches**
- **Restore fruiting wood**
- **Remove branches to reduce fruit production**

Some Dysfunctional Branches

- Branches growing “outside the lines” of the tree’s designated growing area
- Parallel branches
- Crossing or rubbing branches
- Suckers
- Watersprouts (branches growing straight up from a horizontal branch)
- Branches growing downward
- Branches that interfere with fruit tree picking and thinning
- Branches in congested areas
- Branches that grow below the scaffold branches
- Branches growing in a direction that is inconsistent with the selected tree structure

When Do We Prune?

- **Most fruit trees are normally pruned when the trees are dormant, usually in late fall or winter (this does not apply to citrus trees)**
- **However, some pruning to maintain the shape of the tree or keep it “inside the lines” can be done at any time**
- **Summer pruning is often done to encourage bud development on lower levels of a tree. These are the buds that will produce fruit in the upcoming year**

Pruning Techniques Vary by Fruit Tree Type

Examples:

- Where fruit grows varies:
 - Peaches grow on one year old (last season) wood
 - Apricots grow on both one and two year and older wood
 - Apples & pears grow better on horizontal branches & produce fruit at the end of two-year old branches.
- Some fruit tree types can withstand harsher pruning than others
- Recommended tree structure can vary among fruit tree types
 - Open vase, modified central leader, central leader
- Longer fruiting spurs are required for some fruit tree types than others
 - Fruiting spurs for peaches that are less than 6 inches are removed
 - Fruiting spurs for apricots less than 6 inches do not have to be removed
- Size of the fruit matters... the smaller the fruit, the less spacing required

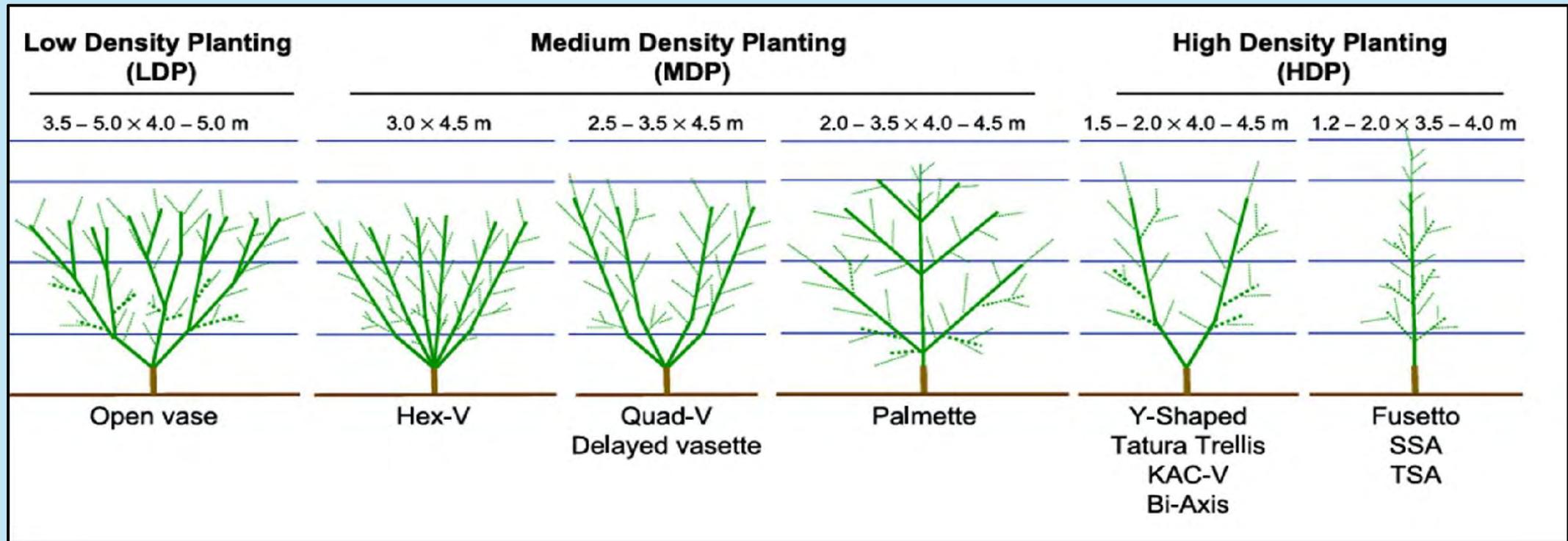
Table 1. Fruiting wood characteristics and pruning of fruit trees

Type of tree	Location of fruiting buds				Spur life (years)	Type of training system	Amount of pruning for mature trees
	On long shoots		On short shoot or spurs				
	Laterally	Terminally	Laterally	Terminally			
almond	minor	—	major	—	5	open center	light (thinning)
apple	minor	very minor	—	major	8–10+	central leader, open center, or modified central leader	medium
apricot	minor	—	major	—	3	open center	heavy
cherry, sweet	minor	—	major	—	10–12	open center	light
fig	major	—	—	—	bears on 1-yr and new shoots	open center or modified central leader	various
nectarine	major	—	minor	—	1–2	open center	heavy
peach	major	—	minor	—	1–2	open center	heavy
pear, Asian	minor	very minor	—	major	6–8	central leader or open center	medium to heavy
pear, European	minor	very minor	—	major	8–10	central leader or multiple leader	medium
persimmon	major	minor	—	—	bears on new shoots	modified central leader	light (mainly thinning)
plum, European	very minor	—	major	—	6–8+	open center	medium

Structure of a Fruit Tree

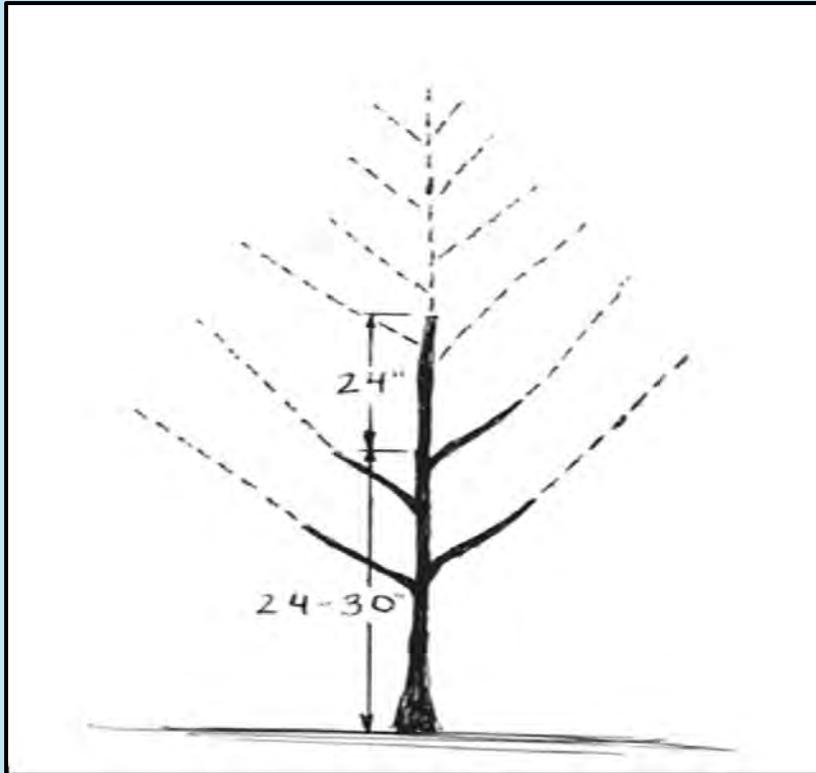
Scaffold Branches

- **Factors that affect the structure of the tree:**
 - **Location**
 - **Sun Exposure**
 - **Desired shape of the tree (owner's preference)**
 - **Safety**
- **My neighbor's favorite saying about his overgrown fruit trees, "They think they are shade trees"**



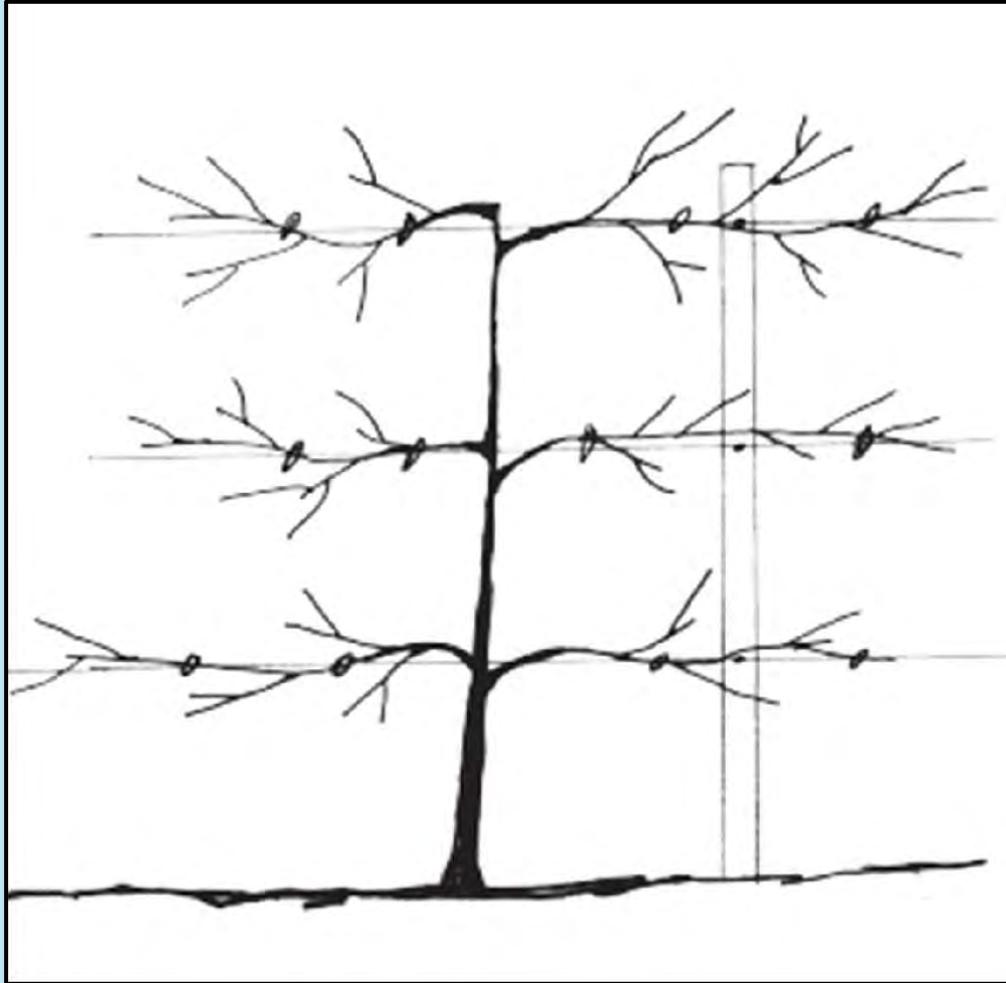
OPTIONS FOR TREE STRUCTURE

Structure for Modified Leader & Open Center



Tree Structure: Owner's Reference

You can shape your tree however you like!





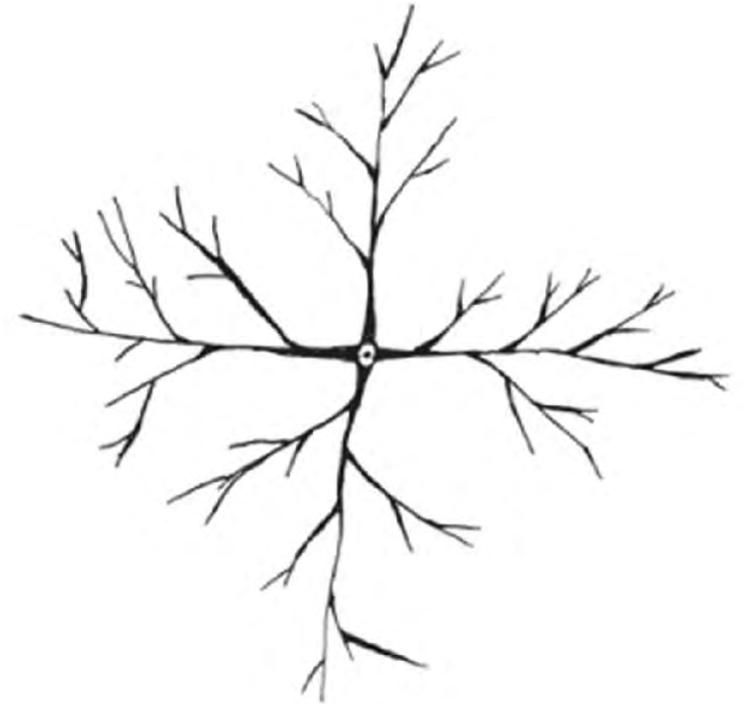
Pomegranate Tree in Narrow Planter

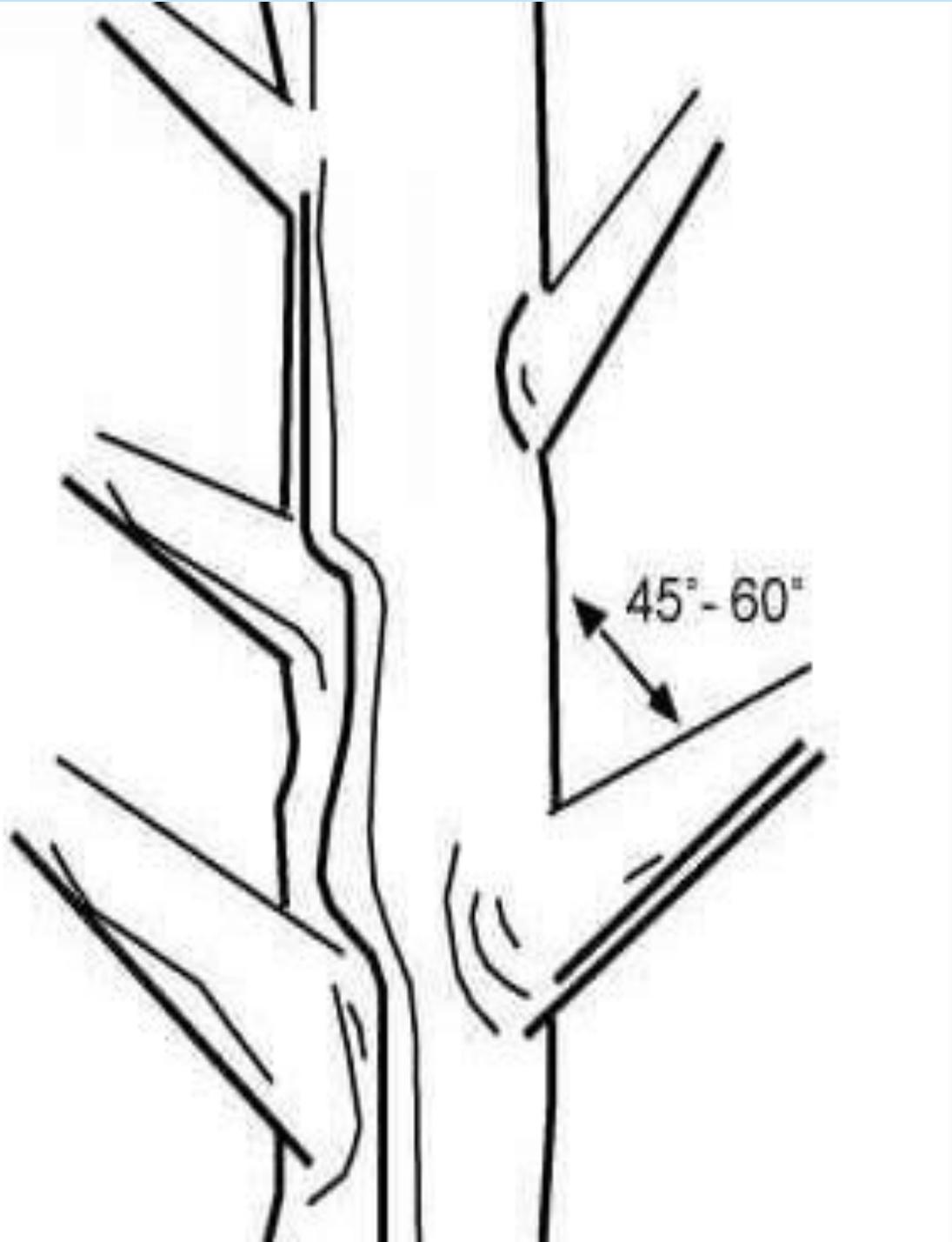
- The scaffold branches on this tree were pruned to:
- Address western exposure
- Fit in the narrow planting area
- Form a fan shape to provide shade in front of the windows
- Keep the tree's fruit and branches from hitting the house



Top View: Radial Spacing of Scaffold Branches

- **This radial spacing, horizontal branch arrangement, is for a tree that has 360 degrees sun exposure.**
- **Radial spacing of scaffold branches should be adjusted based upon your tree's sun exposure and location.**





Crotch Angle

Vertical spacing of branches and crotch angle for tree with modified central leader shape

Tree Parts

- **Trunk**
- **Scaffold Branches**
- **Central leader**
- **Side branches/laterals**
- **Shoots**
- **Wide & narrow angle branches**
- **Suckers**
- **Water sprouts**
- **Buds**



Trunk and Scaffold Branches

Yes!!!

- No central leader
- Scaffold branches are generally at greater than 50-degree angles from the vertical axis of the tree

Scaffold Branches

No!!!

- Scaffold branches with narrow angles with respect to the vertical axis of the tree
- Think about what height you would start picking the fruit on this tree

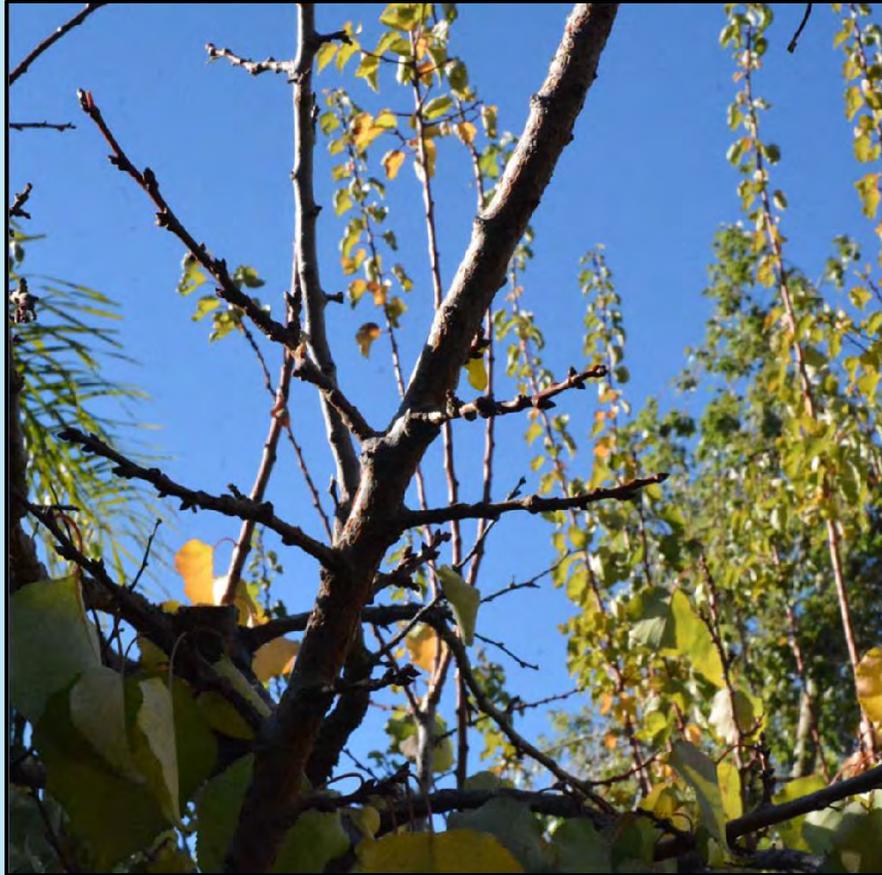




Scaffold Branches

What??????????

- Two sets of scaffold branches on a tree that is typically pruned to an open center (peach)
- Upper scaffold shades the lower scaffold branches



Shoots (or Spurs)

- Shoots on an apricot tree



Preferred Crotch Angle for Laterals and Shoots

- Branches at angles that are less than 40 degrees do not form strong bonds with the tree
- Branches at angles that are greater than 60 degrees tend to grow water sprouts
- For some fruit tree types, branch angle affects the amount of fruit that grows on the branch (apple, pear)

Suckers

Suckers should be removed from the base of the tree.

- They take energy away from the rest of the tree
- They may not bear fruit that is the same as that on scaffold branches
- They interfere with accessing the tree





Water Sprouts

- Don't produce quality fruit
- Grow excessively and take energy away from the rest of the tree
- Shade other potential fruit bearing areas of the tree

More Buds

- Buds on an apricot tree
- Terminal bud does not produce fruit



Thinning and Heading Cuts

Thinning cuts

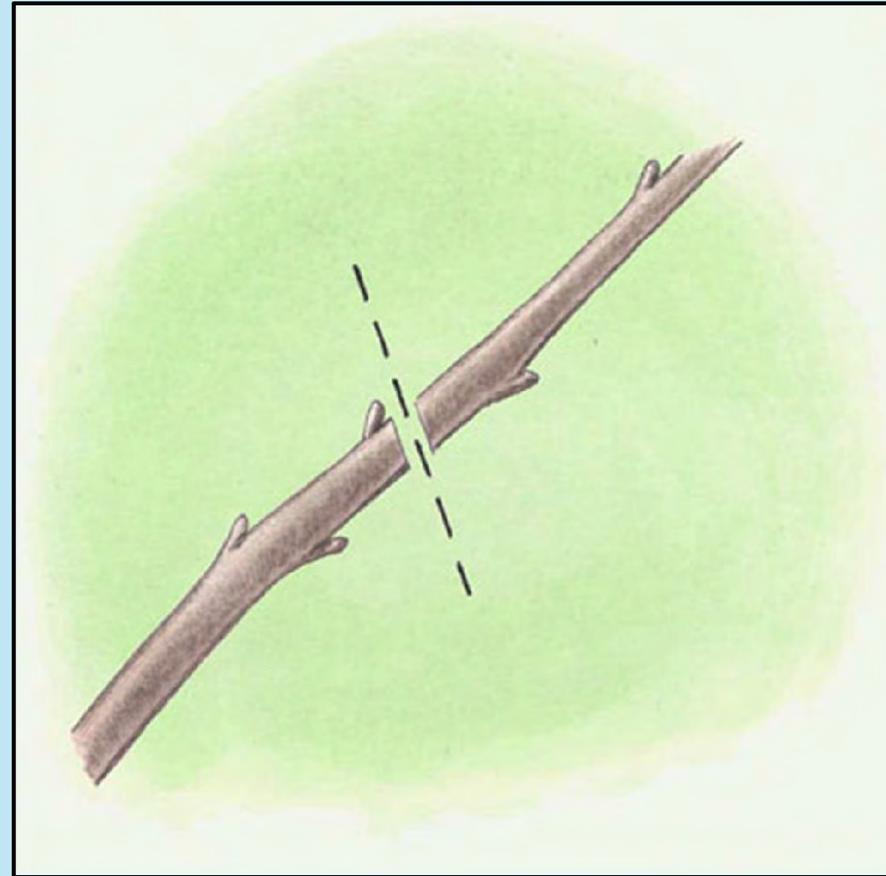
- A thinning cut is removing a branch at its point of origin on a tree
- Thinning cuts should not cause growth near the cut if done properly

Heading Cuts

- Heading cuts remove terminal buds that are emitting hormones, called auxins, that prevent buds below the terminal bud from growing
- Heading cuts activate buds below the cut

Heading Cut

- A heading cut is made $\frac{1}{4}$ inch above an outward facing bud and at a 30 degree angle





Heading Cut

- Heading cuts activate buds below the cut
- In which direction are the most vigorous shoots growing?



Thinning Cuts

- Thinning cuts are made at the Branch Collar
- Removing the branch at its collar allows the tree to heal itself properly, reduces decay and prevents the entry of diseases into the tree
- What happens if you leave a stub?

Tree Collar

- The red (curved) line is the tree collar
- The thinning cut is made inside the tree collar at the yellow dashed line



What Tools Are Typically Used for Pruning Fruit Trees From the Ground?

- Bypass Hand Pruners
- Bypass Loppers
- Hand Saws

Pruning Hand Tools

- Bypass Hand Pruner
- Bypass Lopper
- Hand Saw
- Their holsters, and
- Tools to keep them sharp



Selecting and Using Pruning Hand Tools

- Spend some time selecting tools that protect you, the user
- Use the correct tool for the branch you are cutting
- Hand pruners should be used on branches less than $\frac{1}{2}$ inch in diameter
- Loppers should be used on branches less than one inch in diameter
- Hand saw for branches greater than one inch in diameter
- Keep your tools sharp
- Be careful!!!!

Disinfect Your Tools!!!



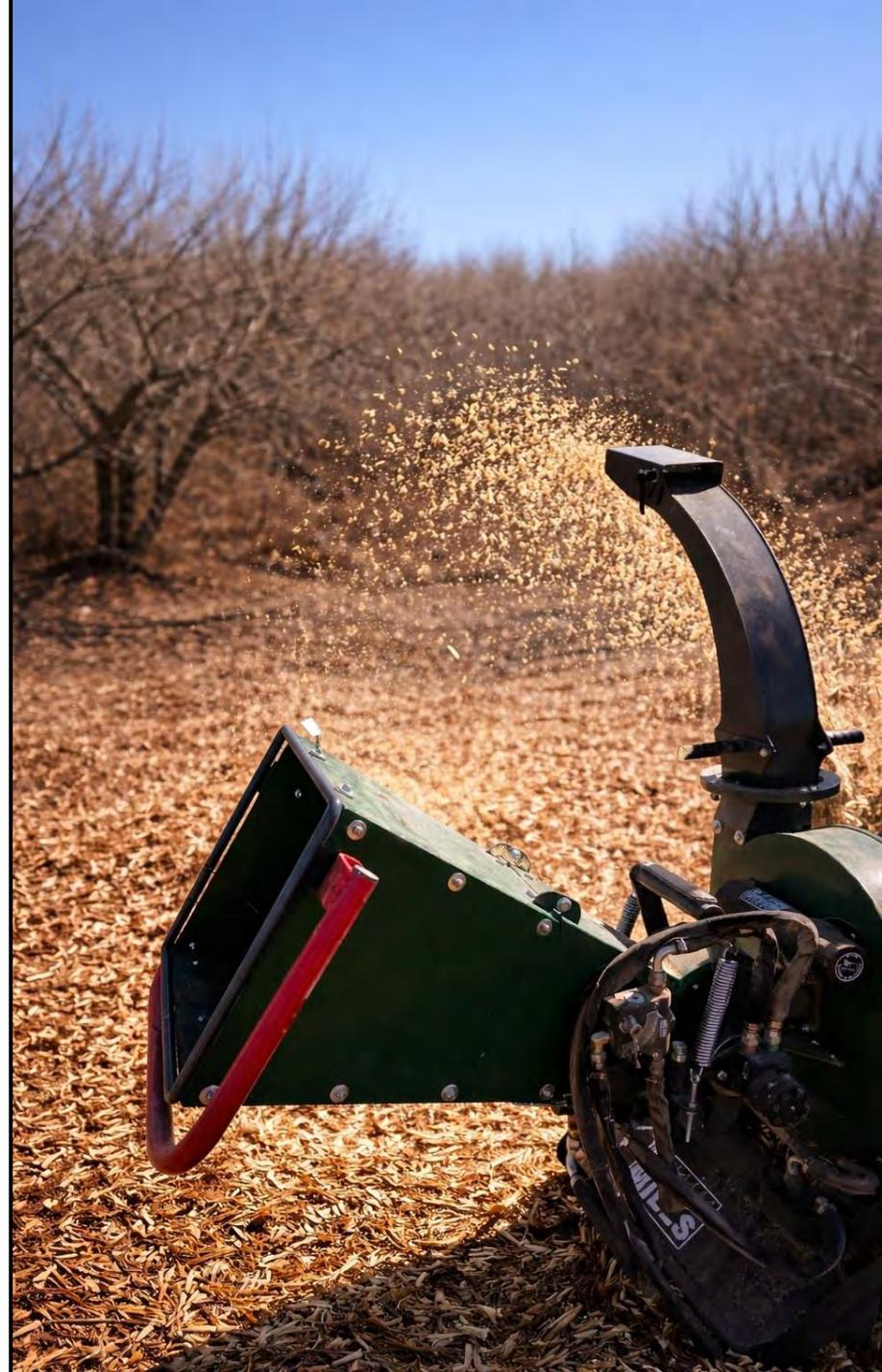
- Disinfect your tools before you start pruning and after every tree
- While pruning, remember not to place tools where they can get infected, like on the ground
- While several products can be used to disinfect your tools, 70% alcohol works well and doesn't harm your tools

Safety!!!

- Safety glasses
- Gloves
- Protective clothing
- Hat
- Be careful



**What to do with
the
pruning's?????
Only do this if
they are disease
and insect free**



First Year Pruning

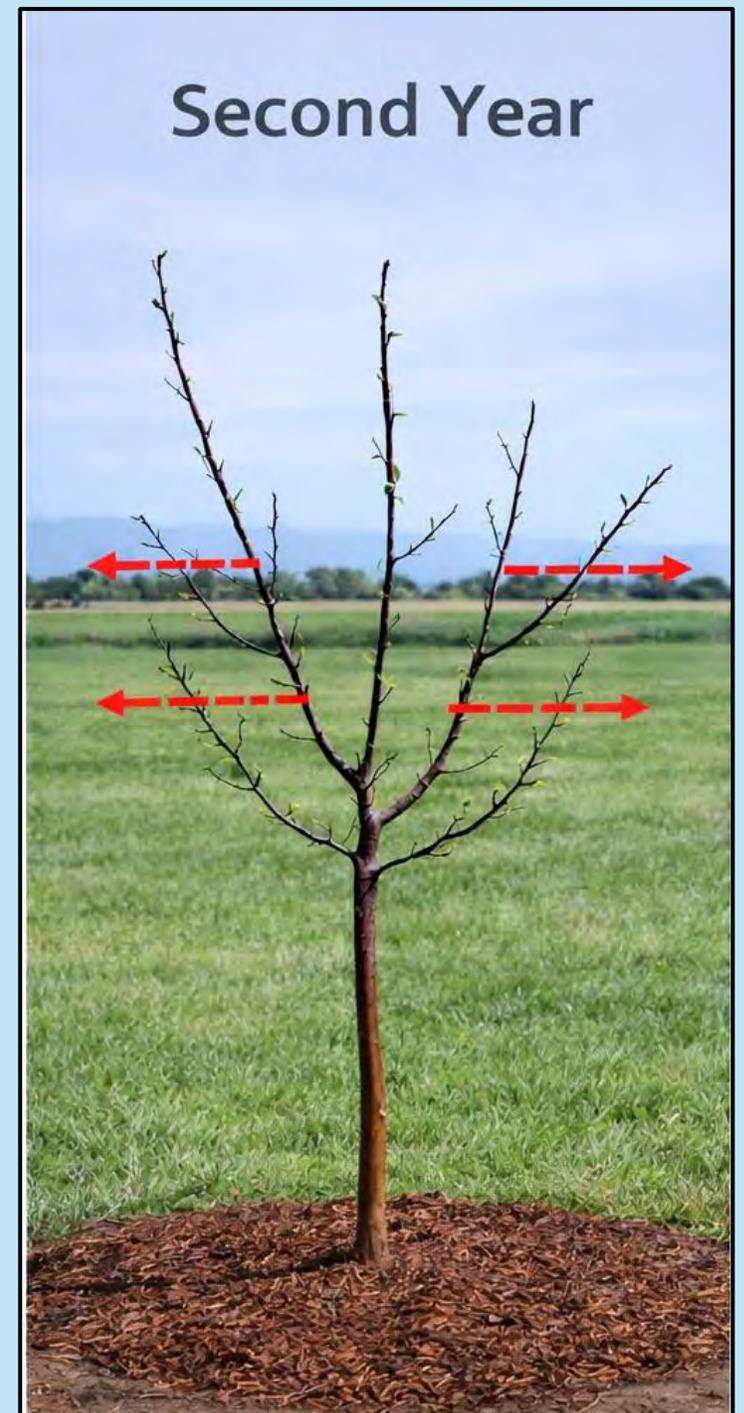
- Select suitable scaffold branches that may have developed after the heading cut that was made at planting. These are branches with angles of 45 to 60 degrees from the vertical axis of the tree that are well spaced around the horizontal axis of the tree (e.g., one branch growing east, one west, one north, one south)
- Remove all branches above the last selected scaffold branch with a heading cut
- Remove all the remaining lateral branches that will not be kept as scaffolds
- Remove approximately one-fourth of each of the selected scaffold branches at outward facing buds



Second Year Pruning

Continue to focus on development of strong scaffold branches

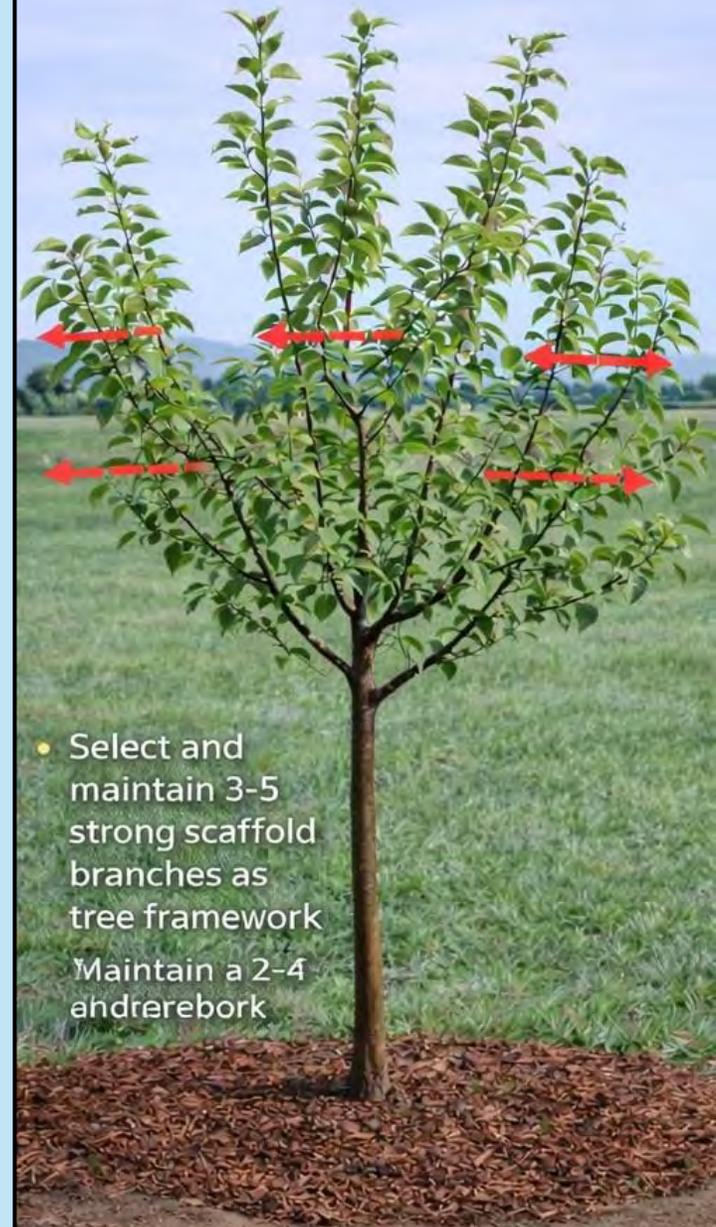
- If scaffold branches were selected at the first-year pruning, continue developing these into strong scaffold branches
- Heading cuts on the selected branches should be made on outward facing buds
- Spreaders and ropes/string can be used to influence direction of scaffold growth
- Remove all undesirable laterals
- If scaffold branches were not selected after the first-year pruning, select scaffold branches that are at angles of 45-60 degrees from the axis of the tree
- These may be lateral branches that are six inches below the initial heading cut
- Remove all undesirable laterals



3rd Year Pruning

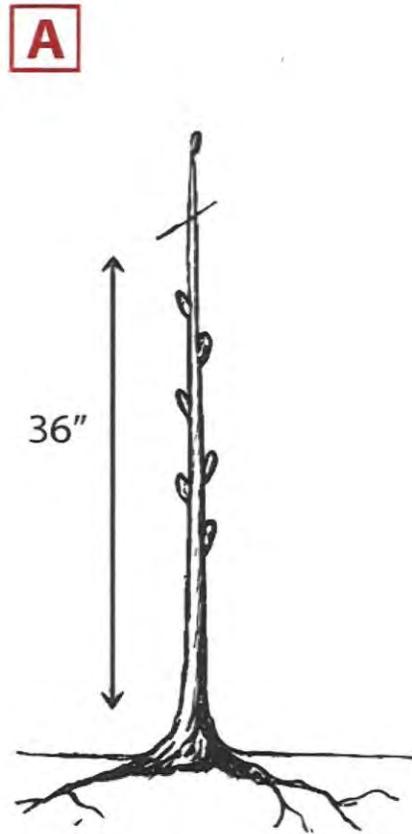
- 3rd year pruning is the beginning of a normal pruning cycle for fruit trees
- Remove dead, damaged, diseased and dysfunctional branches
- Maintain open center or modified central leader structure and continue develop scaffolds at 45–60-degree angles
- Make heading cuts at outward facing buds that point in desired direction
- Spreaders, braces, and ropes/string can be used to influence direction of scaffold growth
- Remove excess fruiting wood to reduce the fruit production of your tree
- Don't allow your young tree to overburden itself with fruit
- Build strong scaffold branches, then grow fruit!

Third Year



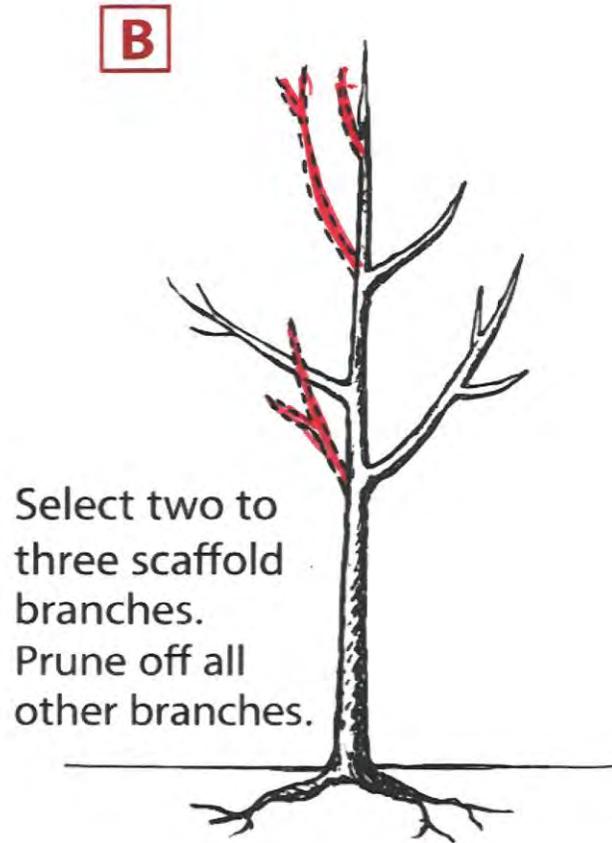
- Select and maintain 3-5 strong scaffold branches as tree framework
Maintain a 2-4 andrerebork

Pruning Cuts to Develop a Strong Tree Structure



Planting Time

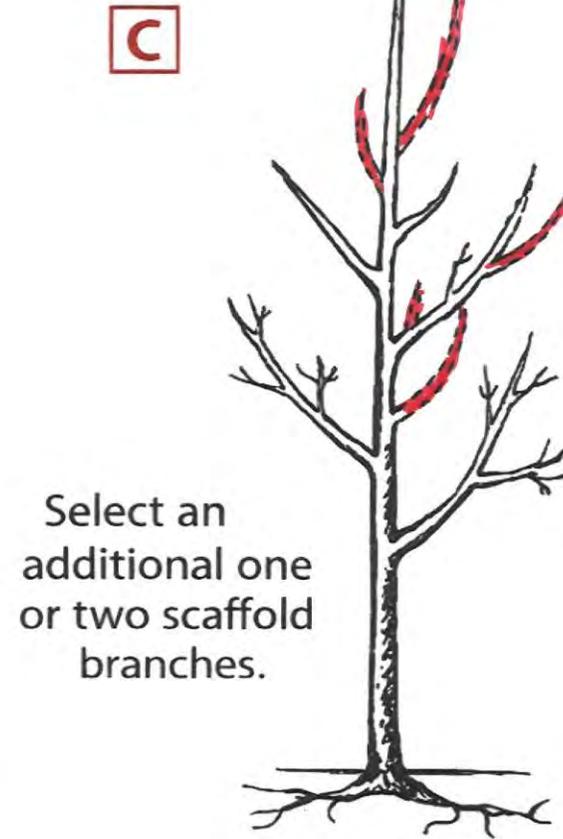
Cut whip back to 36 inches.



Select two to three scaffold branches. Prune off all other branches.

Second Year

Select two to three scaffold branches.

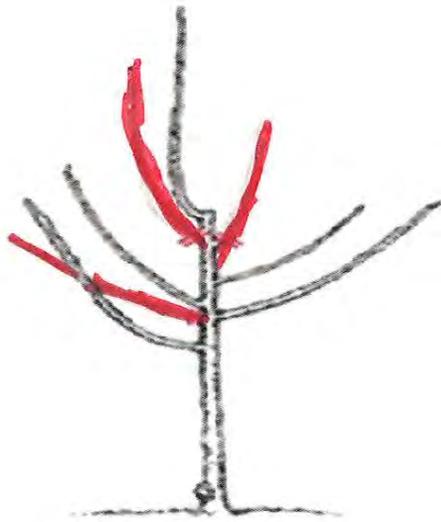


Select an additional one or two scaffold branches.

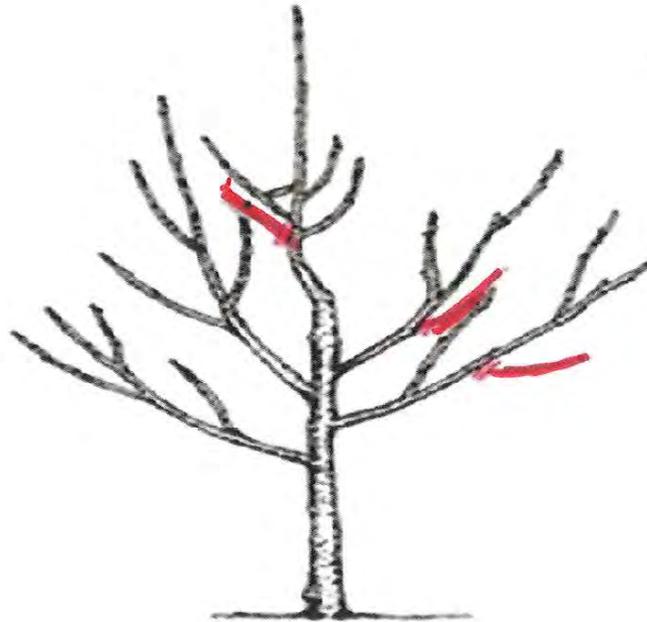
Third Year

Select an additional one or two scaffold branches.

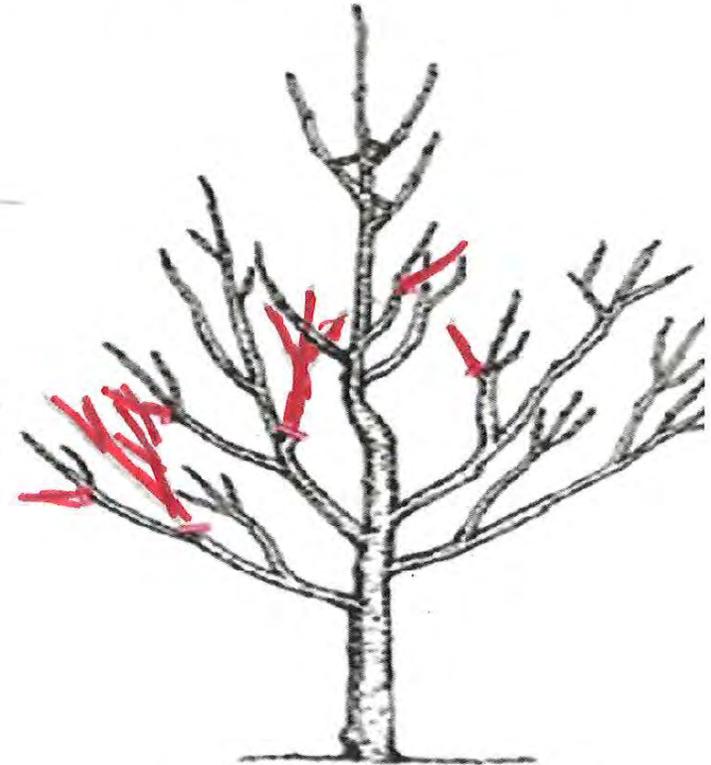
Central Leader Pruning Method



1st Year



2nd Year

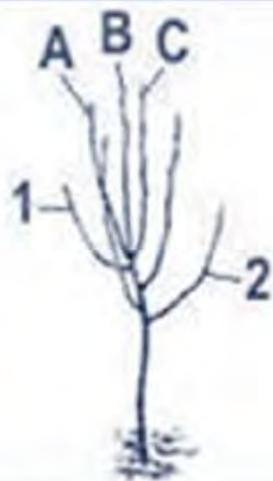


3rd Year

Pruning Fruit Trees



CORRECT



Tree as received from nursery



Pruned at planting



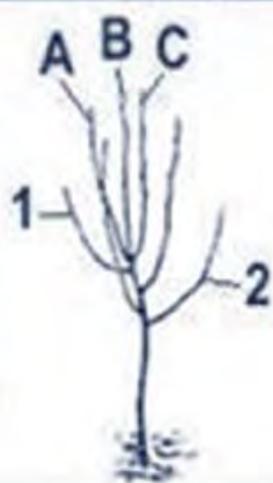
One year later



NOTICE STRONG CROTCHES

Six to eight years later

INCORRECT



NOTICE WEAK CROTCHES Split Easily



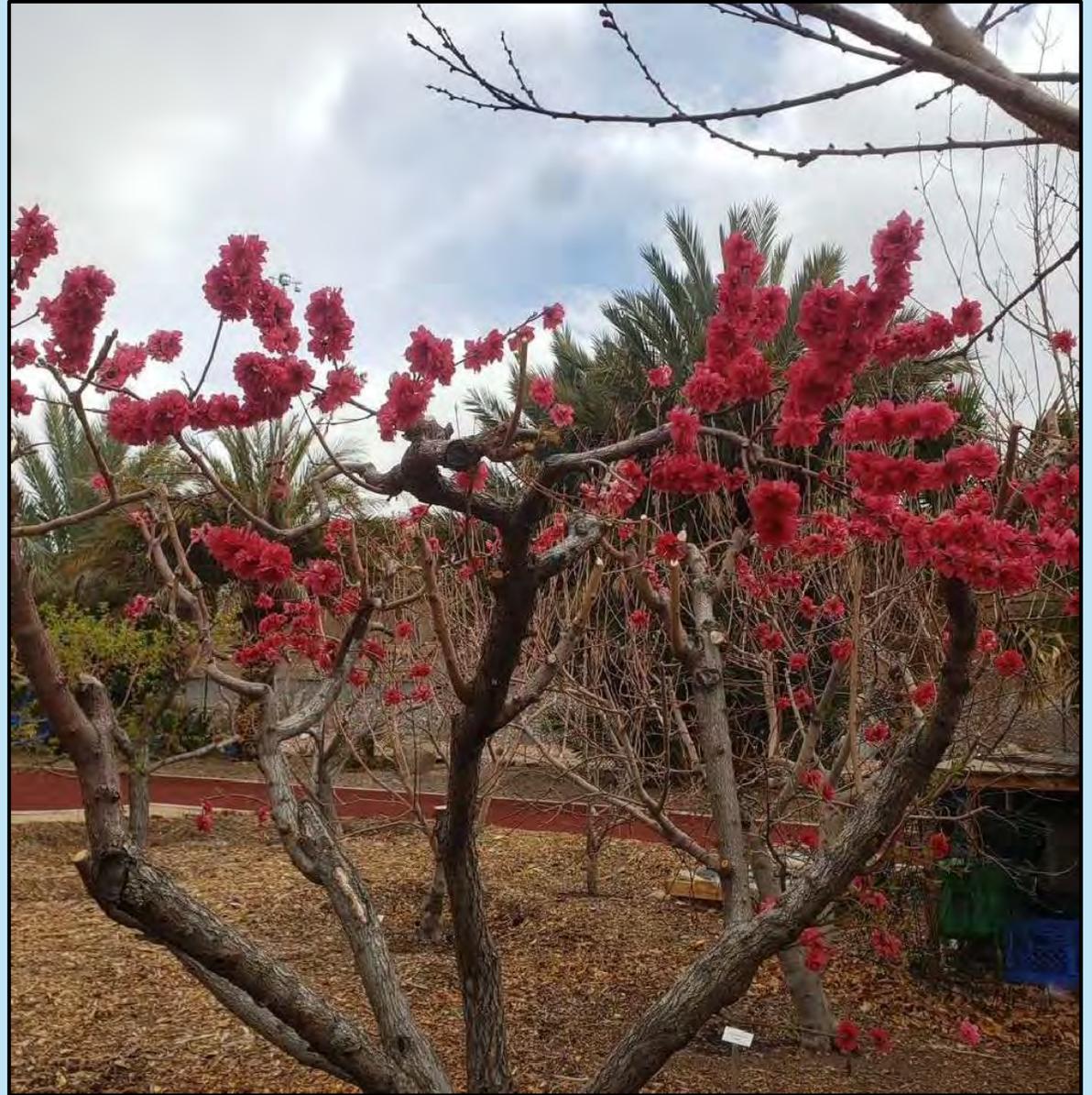
Pruning Mature and Older Trees

- The goal of pruning mature trees is to maintain desired tree height and maintain productive fruiting wood throughout the tree
- Encourage more fruiting wood by removing dead, damaged, diseased and dysfunctional branches as described previously in this pruning guide
- Remove branches that sag below the horizontal line with the axis of the tree
- The fruiting wood on older trees will become scarcer. Fruit on these trees tends to grow on the end of long scaffold branches
- These trees can be invigorated by cutting back into the older wood of the tree
- This “cut-back” will initially affect the fruit production of the tree

Rejuvenation Time?

- Peach tree with fruit growing at the end of the scaffold branches

Photo by Heather Ridenour



Methods for Pruning Overgrown Trees

- Thinning method
- Three-year size reduction method
- Severe pruning method

Thinning Method

- Prune out dead, damage, diseased and dysfunctional branches
- Make extensive thinning cuts to expose lower branches to the sun and encourage growth in this area
- After new growth develops at lower levels of the tree, reduce the height and size of tree to the desired size

Three-Year Size Reduction Method

- This method is often used because of concerns that drastic reductions in the height and size of the tree will detrimentally affect the tree, especially if it is an older tree.
- First, select the desired height and size of the tree
- Cut back the tree a third of this height and size per year until you get to the desired height & size
- Large heading cuts will stimulate new growth so, sprouts that shade the lower fruiting wood must be cut back once or twice during the summer
- During the three-year process, thin the tree to encourage growth from the lower part of the tree

Summer Pruning

What is summer pruning? Why is summer pruning done?

When is summer pruning done?

What is Summer Pruning?

- For a number of reasons, most pruning to fruit trees occurs in late fall, or in the winter when the tree has lost all of its leaves and is dormant. This type of pruning is called “dormant season pruning”
- “Summer Pruning” is pruning that occurs anytime outside of the tree’s dormant period

Why Do Summer Pruning?

- Removes unproductive and excessive growth from the tree such as water sprouts, suckers, branches in congested areas, and other dysfunctional branches
- Energy that was going to the unproductive and excessive growth is redirected to the other parts of the tree, such as the branches you want to keep, and the fruit
- Removes branches that prevent light from reaching the flowering buds on the lower branches of the tree (where one has easiest access fruit picking). Flowering buds wherever they are must have sunlight “this year” in order develop into fruit in the “following year”
- Reduces tree height and makes dormant season pruning easier
- Reduces the tree’s vigor: Limits regrowth of branches as summer pruned branches do not re-grow as vigorously as branches that are dormant season pruned

Final Result of Summer Pruning

- This slide shows the new branches that were retained around a heading cut that was made to an apricot tree during the dormant season
- This is an underside view

Photo by John Candelaria



Congestion

- Heavy growth areas don't allow sunlight to reach the flower buds on the lower sections of the tree, which is where you want to pick the fruit
- Fruit buds in the lower sections need light this year to produce fruit next year



Photo by John Candelaria

Height Control

- This plum tree has vigorous growth that is the “engine” that drives continued growth in the tree
- Reducing the height of the tallest new branches results in less energy for the tree to use and less vigorous regrowth

Photo by John Candelaria



When Should Summer Pruning Be Done?

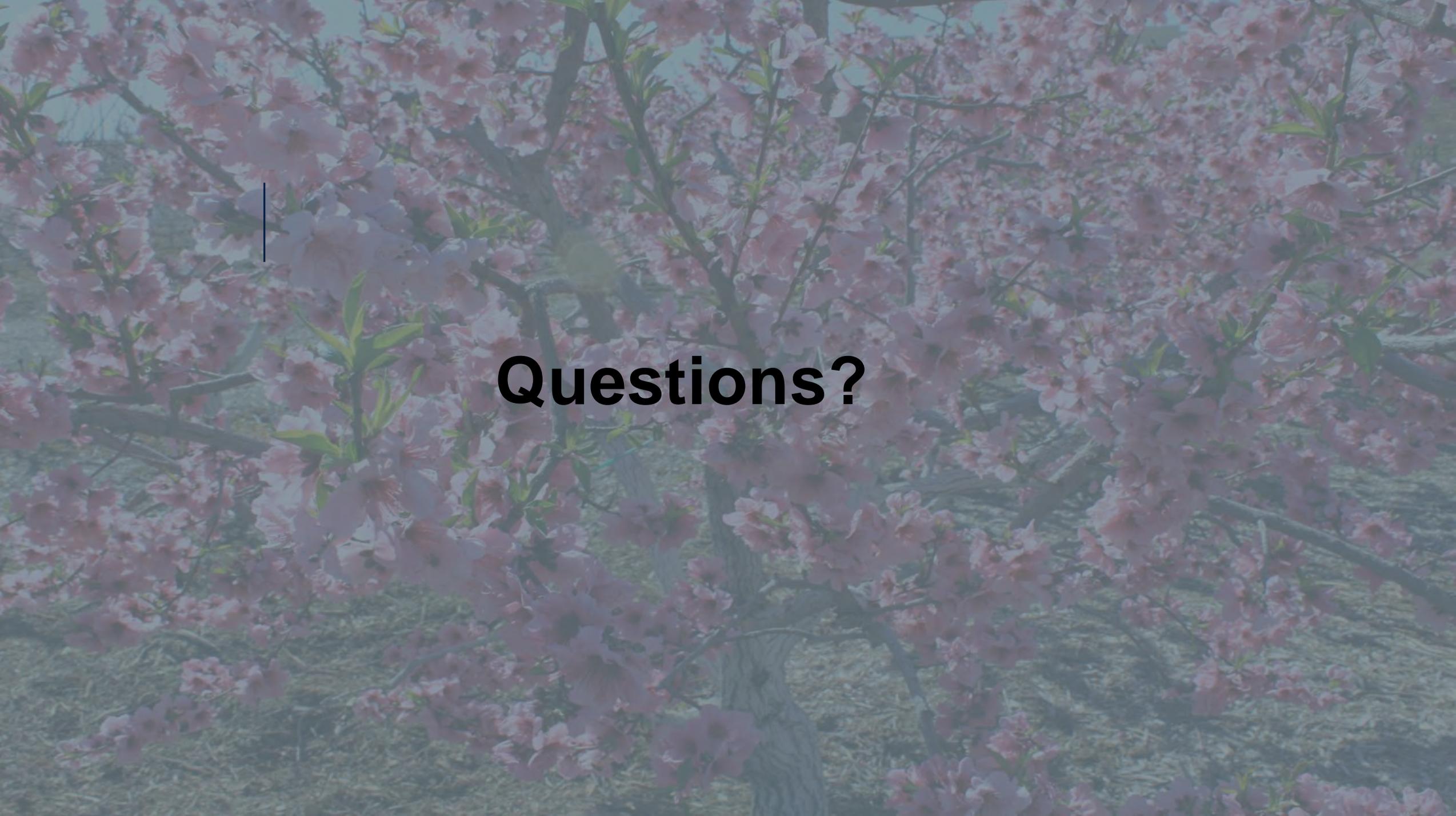
- Summer pruning can begin in March and continue until the end of August (yeah, beats me why it's called summer pruning)
- Early pruning in March and April can be done by hand. That's right, just rip the branches off the tree with your hand as they are just tender shoots at this point. Summer pruning is easier if you do it early, as it is easier to remove a sprout than a branch
- Summer pruning after early April will require pruning tools and maybe a ladder. If you try ripping the branches off after April, you will pull away some bark with any branch you remove

PRUNING NEW BARE ROOT TREES



PRUNING NEW BARE ROOT TREES IN BAGS AND POTS FOR SALE IN A NURSERY





Questions?

Pruning to Address Common Pest & Diseases

- Borers
- Fire Blight (In depth)
- Sooty Canker
- Crown Gall

Borer Damage on an Apple Tree



Photo by John Candelaria

Borer Damage On Apple Tree

Photo by John Candelaria





Borer Damage to a Pear Tree

Photo by John Candelaria

Borer Damage on a Pear Tree

Photo by John Candelaria



Pruning Borer Damaged Limbs

- **Non-Dormant Season:** When sap stains are found, a shallow slice in the surface of the bark with a sharp knife will expose or kill the young borer without causing any injury to the tree. At this time, it is often possible to locate and destroy, with a flexible wire probed into the tunnel, an occasional second-year borer that may have escaped the previous year's worming.
- **Dormant Season:** In the Research Center and Demonstration Orchard, dead and dying limbs infested with borers are removed and disposed of properly. Branches that are still alive but have had more than 50% of the outside bark consumed by borer larvae are cut back to a healthy point (usually 6-8 inches from the point where over 50% of the bark on a branch is dead). At the cut back point, borer holes may be observed if the larvae have traveled deeper into the tree. A thin wire can be inserted into the borer hole to try and kill the borer.

References:

"Insect Borers of Fruit Trees," University of Missouri Cooperative Extension;

"Are You Bored," Article by John Candelaria regarding treatment of borer damaged fruit trees in the UNR Research Center and Demonstration Orchard

Management of Borers

Maintaining healthy trees and disposal of infested wood are key to preventing spread of flatheaded borers.

- The most susceptible trees are drought-stressed, newly planted, or those with trunk or limb wounds
- Females lay eggs just under the bark or in deep bark crevices in **sun exposed areas** of the trunk. Wrapping the trunk and lower branches with burlap or painting the trunk with a 50% diluted white latex paint before the adults emerge, is helpful in preventing egg laying. Peak egg hatch occurs in late spring and summer

Fire Blight, A Common Disease of Apple and Pear Trees

- What is fire blight?
- How to manage fire blight
- How to treat a tree with fire blight

What is Fire Blight?

- Fire blight is caused by the *Erwinia amylovora* bacterium
- Fire blight is an important disease affecting pear and apple trees. Infections commonly occur during bloom or on late blooms during the three weeks following petal fall.

Fire Blight of Apple and Pear: by Tianna DuPont, Associate Professor, Washington State University; Tim Smith, Washington State University Tree Fruit Extension Specialist Emeritus; Ken Johnson, Professor of Plant Pathology Oregon State University; Youfu Zhao, Washington State University. Updated April 13, 2023.

FIRE BLIGHT

“Sheppard’s Crook” on an
apple tree





Fire Blight on a Pear Tree

Photo by John Candelaria



Fire Blight

Canker

Photo by John Candelaria



Canker on an Apple Tree

Photo by John Candelaria

Managing Fire Blight

Winter Treatment:

- Prune out old blight cankers as thoroughly as possible. Ideally, cut blight before you prune for tree structure so that the blighted cuttings can be removed from the orchard. Compared to cuts made in summer, winter removal cuts can be made closer to the visible canker edge. In winter, the pathogen is confined to the cankered area. Cut at the next “**horticulturally sensible**” site below the canker.

Managing Fire Blight

Summer Treatment:

- Timely cutting of fire blight infected material soon after infections occur is recommended to reduce the spread of the pathogen throughout the orchard and to limit the advance of the disease in the tree, which can lead to plant death. Remove infected branches 12 to 18 inches below the visibly infected tissue into 2-year or older wood. Timely removal reduces the number of trees that die from fire blight (DuPont et al 2023).

Ref: WSU Tree Fruit, Comprehensive Tree Fruit Site

Managing Fire Blight

Organic Management

- Non-antibiotic control programs for fire blight which contain Blossom Protect and soluble copper products during the bloom period (e.g.
- Previsto, Cueva) followed by *Bacillus* based biorationals (e.g. Serenade Opti) at petal fall have performed well suppressing

Sooty Canker in Apple Tree

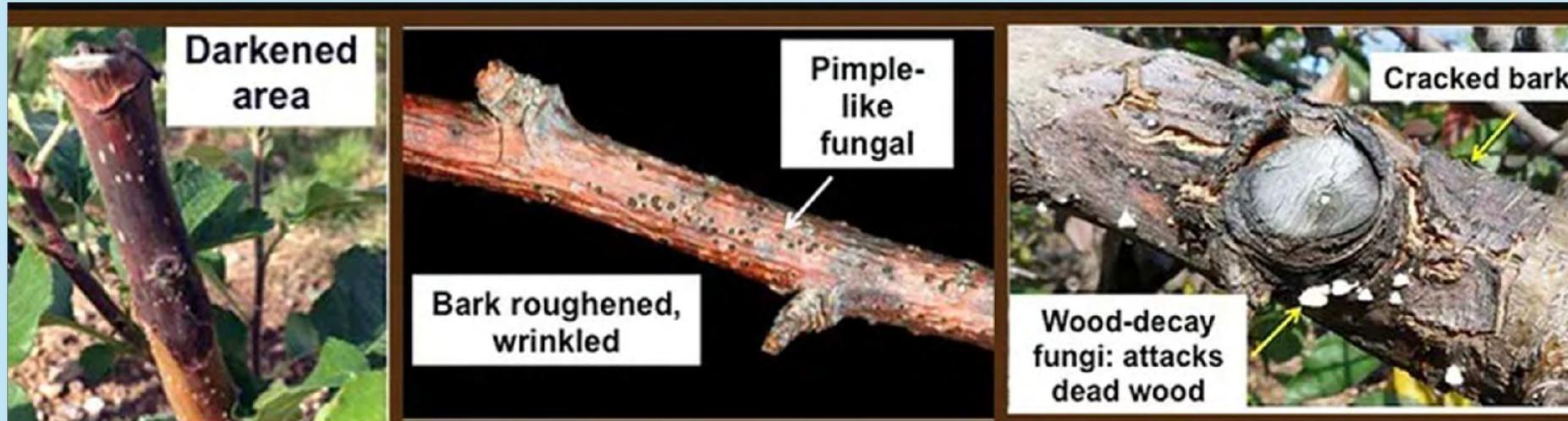


Photo by John Candelaria

What is a Canker?

“Cankers are localized dead areas of bark and underlying wood on twigs, branches, and trunks. Cankers can be caused by living things (fungi, bacteria) or nonliving things (hail, high or low temperature, injury). For a canker to occur, a wound (entry point) is needed. It is important to remove cankers because they serve as the overwintering source for fungal spores and bacteria that cause diseases during the season, as well as create a nice environment for other fungi you do not want hanging around, such as fungi causing fruit rot.”

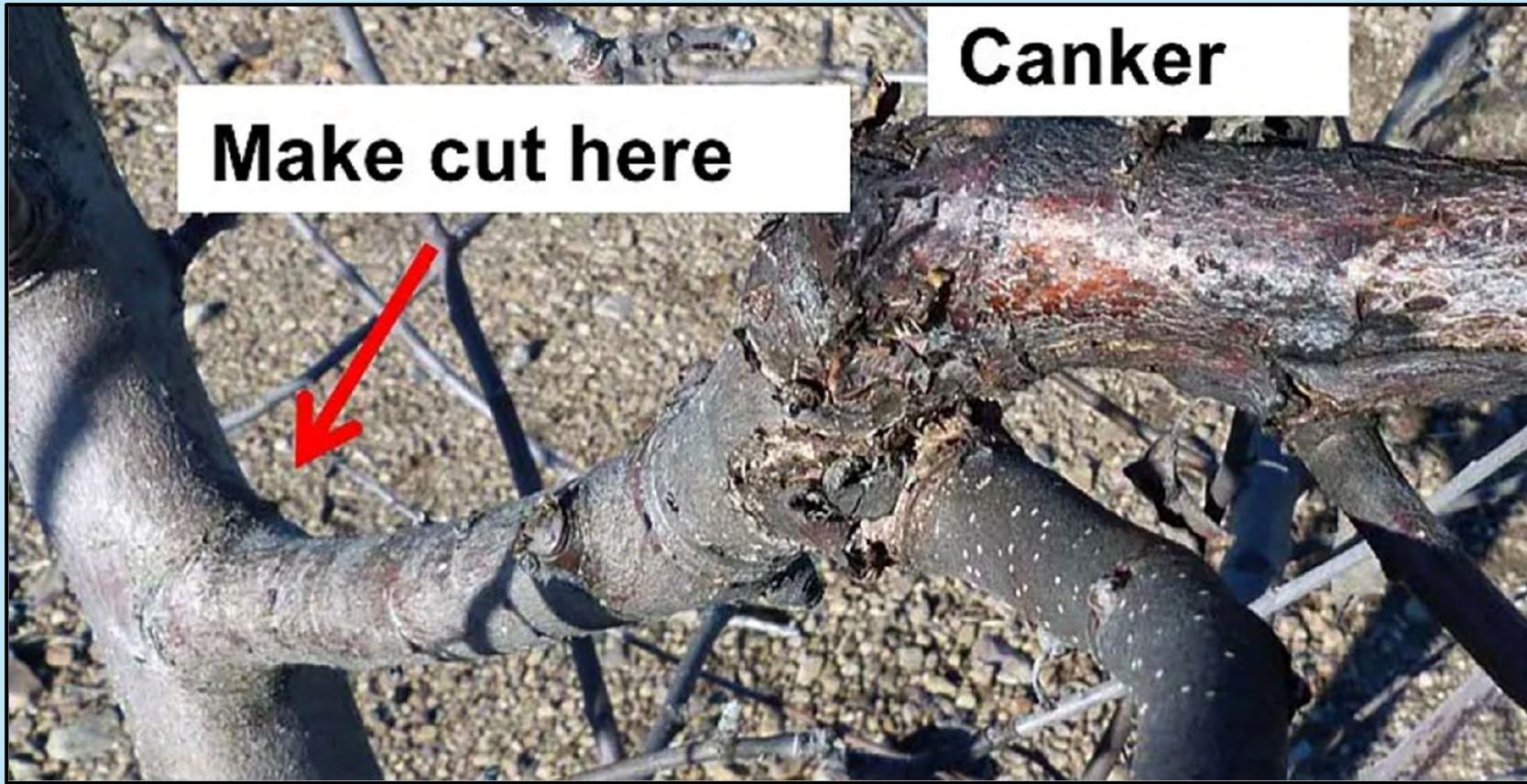
Reference: Apple and Pear Diseases – Fire Blight, Dormant Removal of Cankers, University of Pennsylvania Cooperative Extension



Photos by Kari Peter, Gary Moorman

Pruning Requirements for Canker

“When you see a canker, prune 6 - 12 inches from the canker's visible edge into 2- year-old wood or older since older wood is more resistant to the bacteria. This will be easier in larger trees and more challenging in smaller dwarf trees. Since the bacteria are dormant during the winter, disinfecting pruning tools is not necessary. If cankers are established in the trunk of the tree or infected trees are very young (newly planted - 3 years old), it is best to remove the entire tree. Regardless of cultivar or rootstock, these circumstances prove to be a losing battle. When it comes to cankered wood, it is best to burn all tissue, when possible, to ensure destroying any overwintering bacteria.”



Canker

Make cut here

What is Crown Gall

- Crown Gall is a bacterial disease caused by *Agrobacterium Tumefaciens*. It looks like a tree wart
- Crown gall affects trees by causing structural damage (pinching of xylem and phloem vessels that can restrict movement of nutrients across the plant), stem girdling or secondary infections, and it can kill young trees

Crown Gall on a Pear Tree

- Crown Gall is generally not considered lethal to a mature tree
- However, it does affect fruit production



Photo by John Candelaria

Crown Gall

- Crown Gall cut from a plum tree





Gall Pruning Requirements

- Mature trees can tolerate crown gall (crown gall does affect fruit production), therefore no pruning is recommended for mature trees
- Newly planted trees with crown gall should be removed as well as the adjacent soil as the bacteria can exist for several years in the soil

Done With Pruning to Address Common Pests and Diseases

Questions?

After Pruning Tips

- Clean and sharpen your tools
- Apply Neem oil, a natural insecticide & fungicide, to protect your trees from pests and disease
- Don't forget about managing growth on young trees during the summer
- Manage fruit load on young trees. Don't let young trees bear a heavy fruit load

Credits

·Fruit Tree Pruning – Basic Principles,” Penn State Extension

James Schupp, Ph.D. ”Fruit Tree Pruning, A Rules-Based Approach” Penn State Extension, “Peaches in the Garden,” Extension, Utah State University

“This Old House...” Heading cut illustration

Richard P. Marini, “Pruning Peach Trees,” Virginia Cooperative Extension “Pruning Different Types of Fruit Trees,” IFA

“Utah Home Orchard Pest Management Guide” Revised 2008

Jim Gormely, “Pruning Overgrown Fruit Trees,” University of California Agriculture and Natural Resources

John Candelaria, “Are You Bored” Pruning techniques and treatment for borer damaged branches in the Research Center and Demonstration

Orchard News & Notes of the UCSC Farm & Garden Issue 142, Summer 2014 Forrest Cook The How’s and Why’s of Summer Fruit Tree Pruning– by Orin Martin

University of Penn. Article Fruit Tree Pruning - Summer Pruning Cautions

News & Notes of the UCSC Farm & Garden Issue 142, Summer 2014 Forrest Cook The How’s and Why’s of Summer Fruit Tree Pruning– by Orin Martin Photos by John Candelaria

Credits continued

Flowering habits of apples and pears....

Michigan State University Extension: Smart Gardening: Pruning and Training Backyard Apple and Pear Trees Ref:

WSU Tree Fruit, Comprehensive Tree Fruit Site

Fire Blight FS 01-56 Joanne Skelly, Carson City/Storey County Extension Educator Angela O'Callaghan, Southern Area Specialist, Social Horticulture



An EEO/AA Institution: Extension is a unit of the University of Nevada, Reno's College of Agriculture, Biotechnology & Natural Resources engaged in Nevada communities, presenting research-based knowledge to address critical community needs. It is a county-state-federal partnership providing practical education to people, businesses and communities.

Questions

Regarding Fruit Tree Pruning Basics?

Credits

Penn State Extension (2022), *Fruit Tree Pruning – Basic Principles* (digital download), <https://extension.psu.edu/tree-fruit-production-guide>

Schupp, J. (2023, March 22). *Fruit Tree Pruning, A Rules-Based Approach*, Penn State Extension, <https://extension.psu.edu/fruit-tree-pruning-a-rules-based-approach>

Maughan, T, Black, B., and Simondi, A. (2016). *Peaches in the Garden*, Utah State University Extension https://digitalcommons.usu.edu/extension_curall/1637/

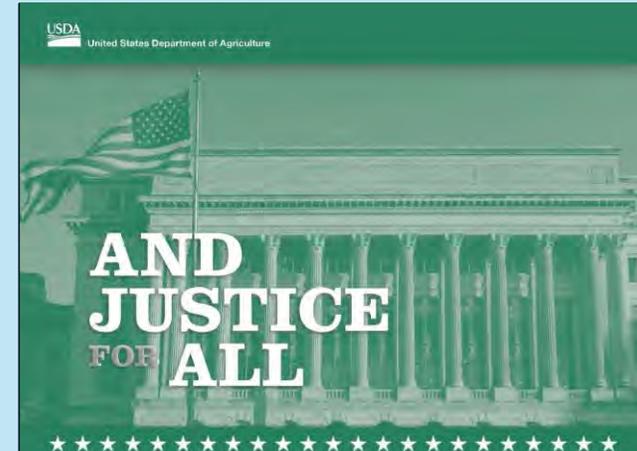
This Old House, (2016). How to: Heading Cut (2016). *Grow Little Fruit Trees for Big Rewards..* <https://thisoldhouse.com/toh.photos>

Tolbert, T., et al. (2023). Pruning Different Types of Fruit Trees. Intermountain Farmers Association (IFA).<https://grow.ifa.coop/gardening/pruning-fruit-trees>

Photos by John Candelaria

We are a recipient of federal funding

University of Nevada, Reno does not discriminate on the basis of race, color, national origin, sex, age, disability or retaliation for civil rights activities in any education program or activity that it operates. Non-discrimination on the basis of sex is mandated by Title IX of the Education Amendments of 1972 (20 U.S.C. §§ 1681 et seq.) and the corresponding implementation regulations (34 C.F.R. Part 106). The University's commitment to nondiscrimination in its education and activities extends to applicants for admission and employment.



AND JUSTICE FOR ALL

In accordance with Federal law and U.S. Department of Agriculture (USDA) civil rights regulations and policies, this institution is prohibited from discriminating on the basis of race, color, national origin, sex, age, disability, and reprisal or retaliation for prior civil rights activity. (Not all prohibited bases apply to all programs.)

Program information may be made available in languages other than English. Persons with disabilities who require alternative means of communication for program information (e.g., Braille, large print, audiotape, and American Sign Language) should contact the responsible State or local Agency that administers the program or USDA's TARGET Center at (202) 720-2600 (voice and TTY) or contact USDA through the Federal Relay Service at (800) 877-8339.

To file a program discrimination complaint, a complainant should complete a Form AD-3027, USDA Program Discrimination Complaint Form, which can be obtained online, at https://www.asc.usda.gov/site/default?file=USDA-OASCR%20P-Complaint-Form-5008-5002-506-11_28_17Tax2Mail.pdf, from any USDA office, by calling (866) 632-9992, or by writing a letter addressed to USDA. The letter must contain the complainant's name, address, telephone number, and a written description of the alleged discriminatory action in sufficient detail to inform the Assistant Secretary for Civil Rights (ASCR) about the nature and date of an alleged civil rights violation. The completed AD-3027 form or letter must be submitted to USDA by:

mail:
U.S. Department of Agriculture
Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, SW
Washington, D.C. 20250-9410; or

fax:
(833) 256-1665 or (202) 690-7442;

email:
program.intake@usda.gov
This institution is an equal opportunity provider.

Conforme a la ley federal y las políticas y regulaciones de derechos civiles del Departamento de Agricultura de los Estados Unidos (USDA), esta institución tiene prohibido discriminar por motivos de raza, color, origen nacional, sexo, edad, discapacidad, venganza o represalia por actividades realizadas en el pasado relacionadas con los derechos civiles (no todos los principios de prohibición aplican a todos los programas).

La información del programa puede estar disponible en otros idiomas además del inglés. Las personas con discapacidades que requieren medios de comunicación alternativos para obtener información sobre el programa (por ejemplo, Braille, letra agrandada, grabación de audio y lenguaje de señas americano) deben comunicarse con la agencia estatal o local responsable que administra el programa o con el TARGET Center del USDA al (202) 720-2600 (voz y TTY) o comunicarse con el USDA a través del Servicio Federal de Transmisión de Información al (800) 877-8339.

Para presentar una queja por discriminación en el programa, el reclamante debe completar un formulario AD-3027, Formulario de queja por discriminación del programa del USDA, que se puede obtener en línea, en https://www.asc.usda.gov/site/default?file=USDA-OASCR%20P-Complaint-Form-5008-5002-506-11_28_17Tax2Mail.pdf, en cualquier oficina del USDA, llamando al (866) 632-9992, o escribiendo una carta dirigida al USDA. La carta debe contener el nombre, la dirección y el número de teléfono del reclamante, y una descripción escrita de la supuesta acción discriminatoria con suficiente detalle para informar al Subsecretario de Derechos Civiles (ASCR, por sus siglas en inglés) sobre la naturaleza y la fecha de la presunta violación de los derechos civiles. La carta o el formulario AD-3027 completado debe enviarse al USDA por medio de:

correo postal:
U.S. Department of Agriculture
Office of the Assistant Secretary for Civil Rights
1400 Independence Avenue, SW
Washington, D.C. 20250-9410; o

fax:
(833) 256-1665 o (202) 690-7442;

correo electrónico:
program.intake@usda.gov
Esta institución ofrece igualdad de oportunidades.

Form 05-875-3 - Revised Order Revised September 2018

Alcuno aggiornato a l'ordine 05-875-3 (Revised) September 2018

 @UNRExtension | extension.unr.edu

An EEO/AA Institution: Extension is a unit of the University of Nevada, Reno's College of Agriculture, Biotechnology & Natural Resources engaged in Nevada communities, presenting research-based knowledge to address critical community needs. It is a county-state-federal partnership providing practical education to people, businesses and communities.

8050 Paradise Road, Suite 100
Las Vegas, NV 89123

ExtensionClarkMG@unr.edu
(702) 257-5556

  <https://www.facebook.com/UNRExtensionMasterGardeners/>

| A program of University of Nevada, Reno Extension