



Proper Fruit Tree Pruning



Thank you for attending this class!

Please take a minute to fill out this survey and sign up for our newsletter.

Survey



Newsletter



Helpful Resources

- <https://extension.usu.edu/yardandgarden/index>
- <https://extension.usu.edu/yardandgarden/monthly-tips>
- <http://growingwithstarkbros.com/>
- <https://pestadvisories.usu.edu/>
- weberbasin.gov/conservation- for more info and resources and this slide presentation.

Pruning Tools...

Hands- pinch out water sprouts as they grow- remove pests



Hand Pruners – 1/2”- 3/4” branches

-Bypass
-Anvil (not a clean cut)
(keep them clean and sharp)



Loppers – 3/4” -1 1/2 ”branches

Saw – 2”+ large branches



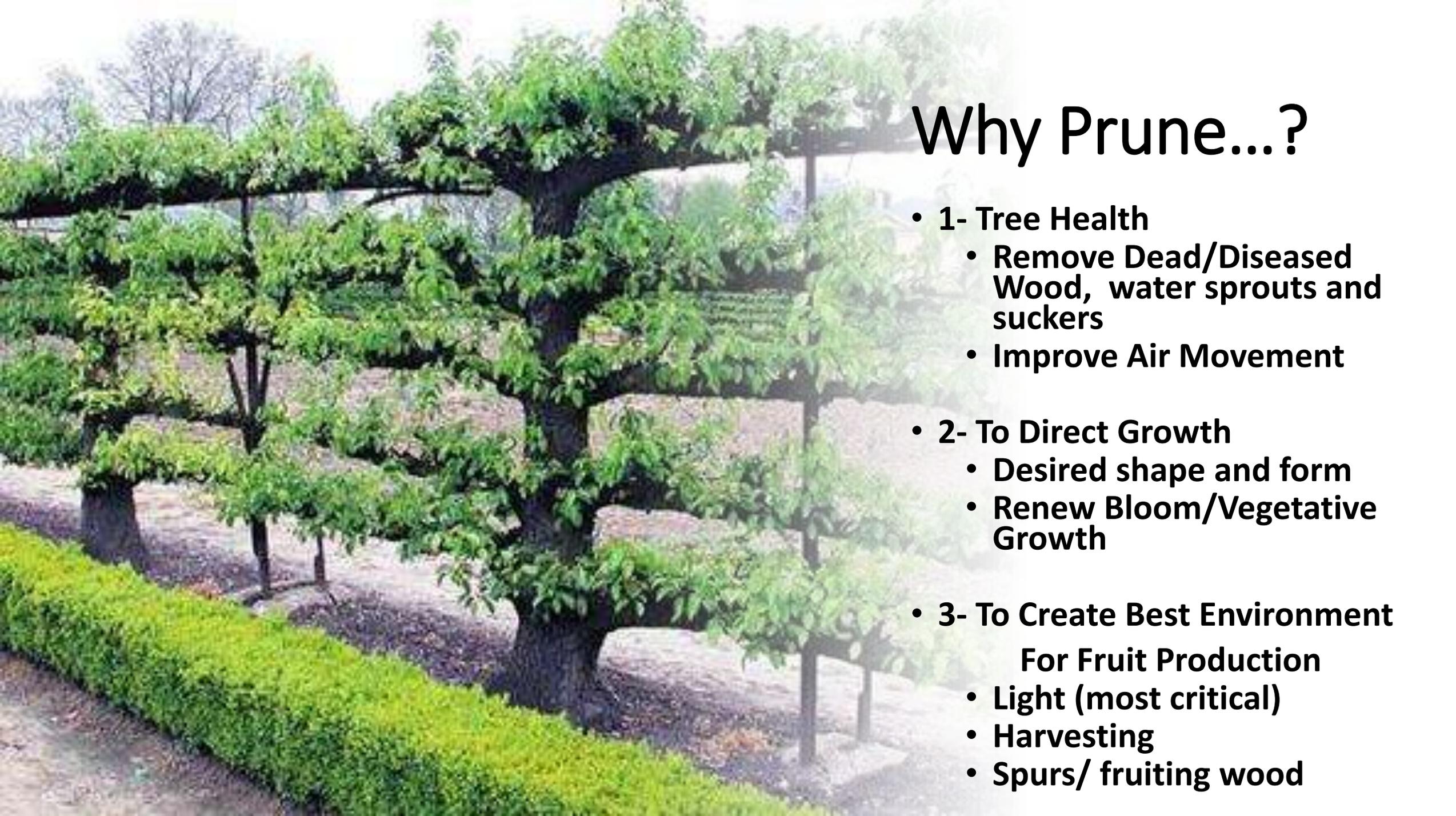
Chain Saw – If you need this you have waited way too long.



A WORD ABOUT TOOLS...

If you are
struggling,
sweating, or
swearing, you are
using the
WRONG TOOL



A photograph of a vineyard showing a row of trees that have been pruned into a specific shape. The trees are green and appear to be trained along a stone wall. The background shows more trees and a clear sky.

Why Prune...?

- **1- Tree Health**
 - **Remove Dead/Diseased Wood, water sprouts and suckers**
 - **Improve Air Movement**
- **2- To Direct Growth**
 - **Desired shape and form**
 - **Renew Bloom/Vegetative Growth**
- **3- To Create Best Environment For Fruit Production**
 - **Light (most critical)**
 - **Harvesting**
 - **Spurs/ fruiting wood**

WHEN TO PRUNE?

- DORMANT PRUNING

- Most trees and shrubs
- Easy visualization
- Less disease risk
- Dormant cuts stimulate new growth
- Major pruning during the dormant season. Any month that doesn't end in "r".

SUMMER PRUNING

- Fruit coloration
- Increase air circulation in the canopy
- Trees that are too vigorous
- This does create higher disease risk

Anytime pruning for the 3 D's

- Dead, Diseased, Dumb (crossing, wrong direction)



Prune Anytime...D-D-D



- Dead
- Diseased
- Dumb
 - Hanging
 - Broken
 - Crossing /rubbing
 - Water-sprouts
 - Suckers

*Summer pruning can increase disease risk

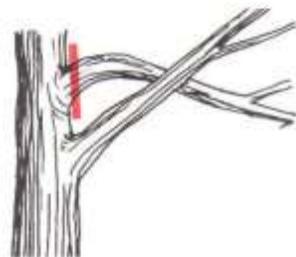
Water Sprouts



Suckers



Pruning For Strength Rubbing Branches



- Branches that rub result in wounds, decay and notches.
- Remove one of the offending branches.

Create an environment to produce fruit or bloom

- It's all about **LIGHT!**
- Cannot create bloom, fruit, or new growth without adequate light



Pruning doesn't stop growth...
it stimulates growth and directs it

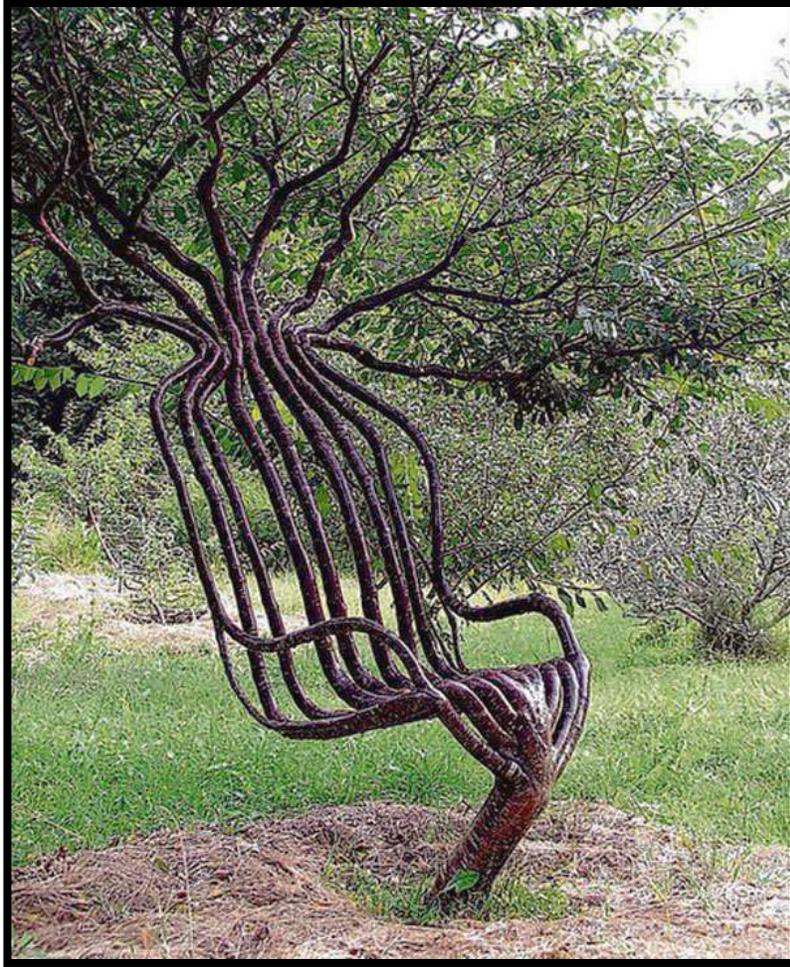


HOW DOES CUTTING STIMULATE GROWTH?



- Trees maintain a balance between above and below ground growth
- Cuts made when trees are dormant disrupt the balance
- Tree focuses energy on producing new growth to regain balance

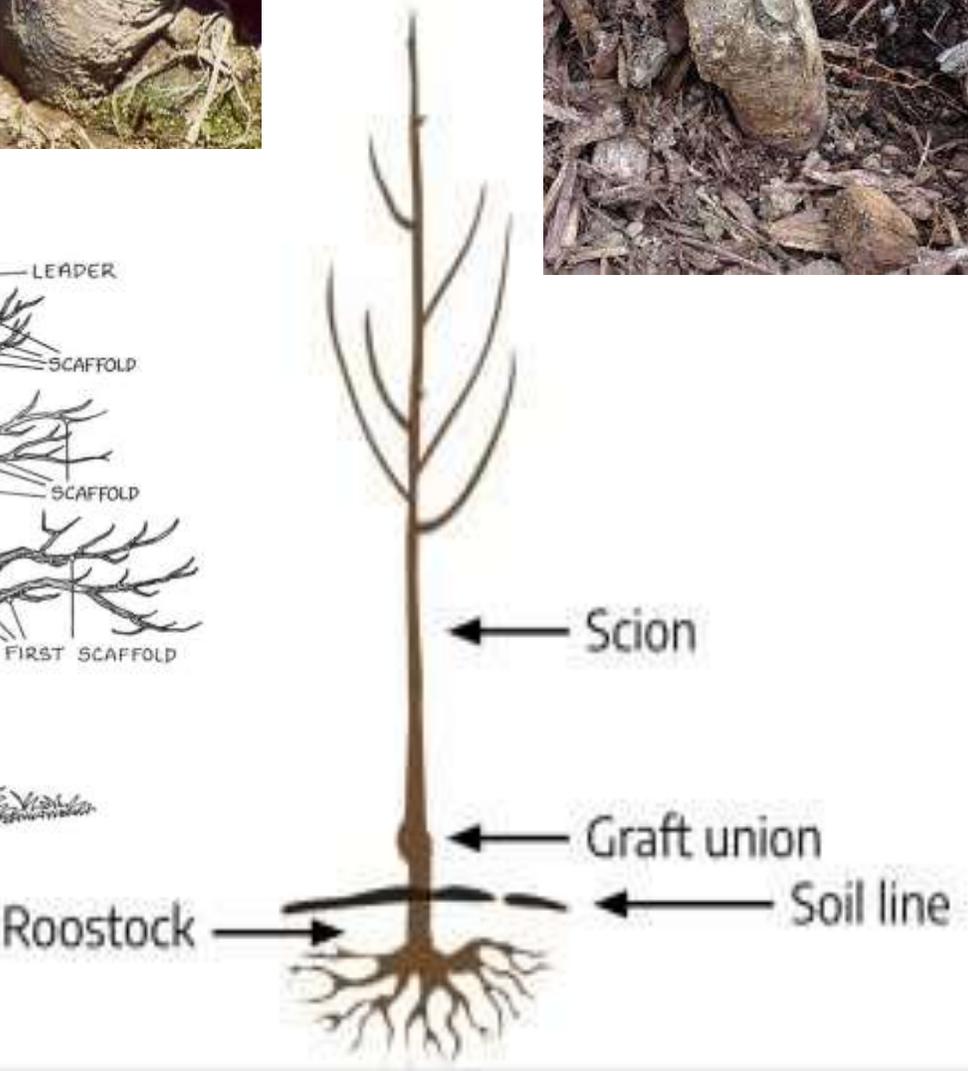
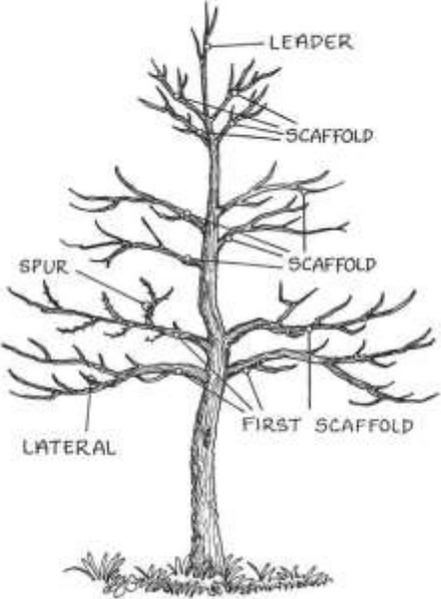
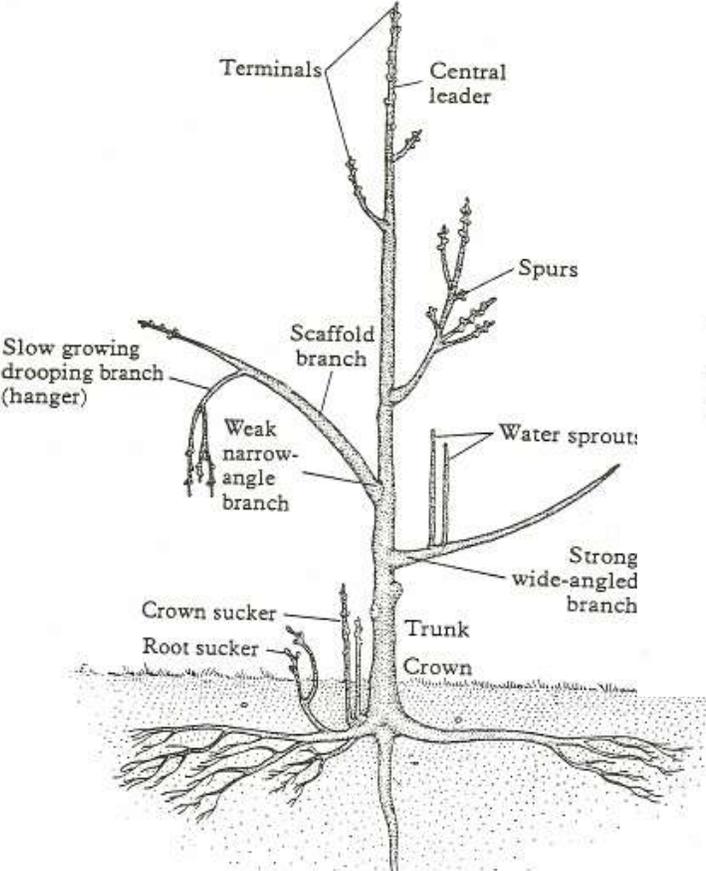
Directing Growth



- Get desired shape and form
- Renew bloom and vegetative growth

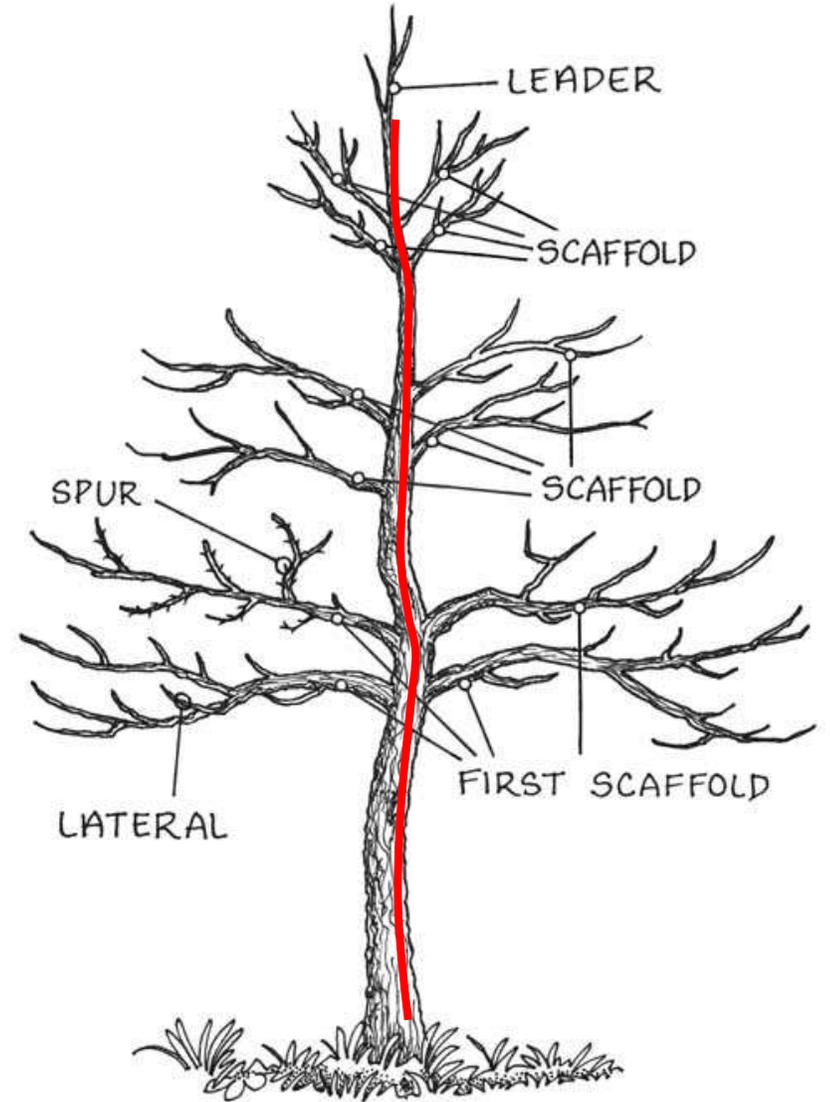
Tree Anatomy & Vocabulary

- Graft union
 - Scion
 - Rootstock
- Leader
- Suckers
- Water sprouts
- Spurs



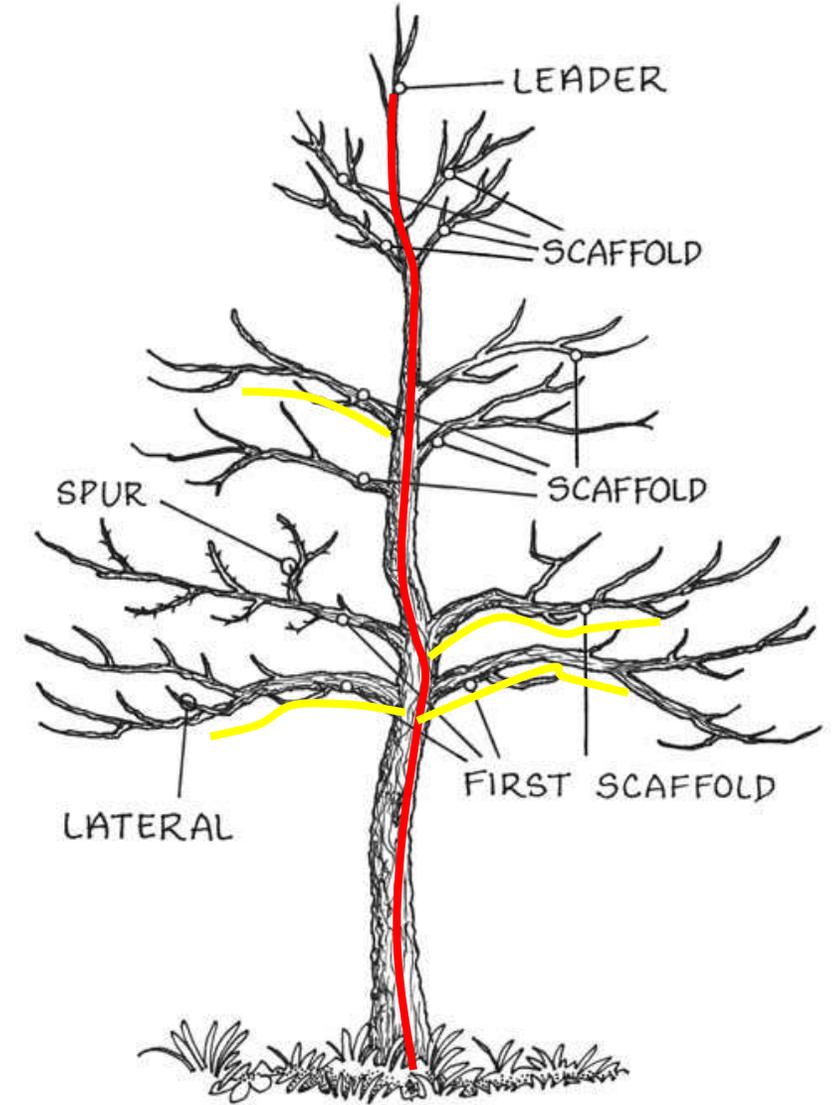
TERMINOLOGY

LEADER = main trunk(s)



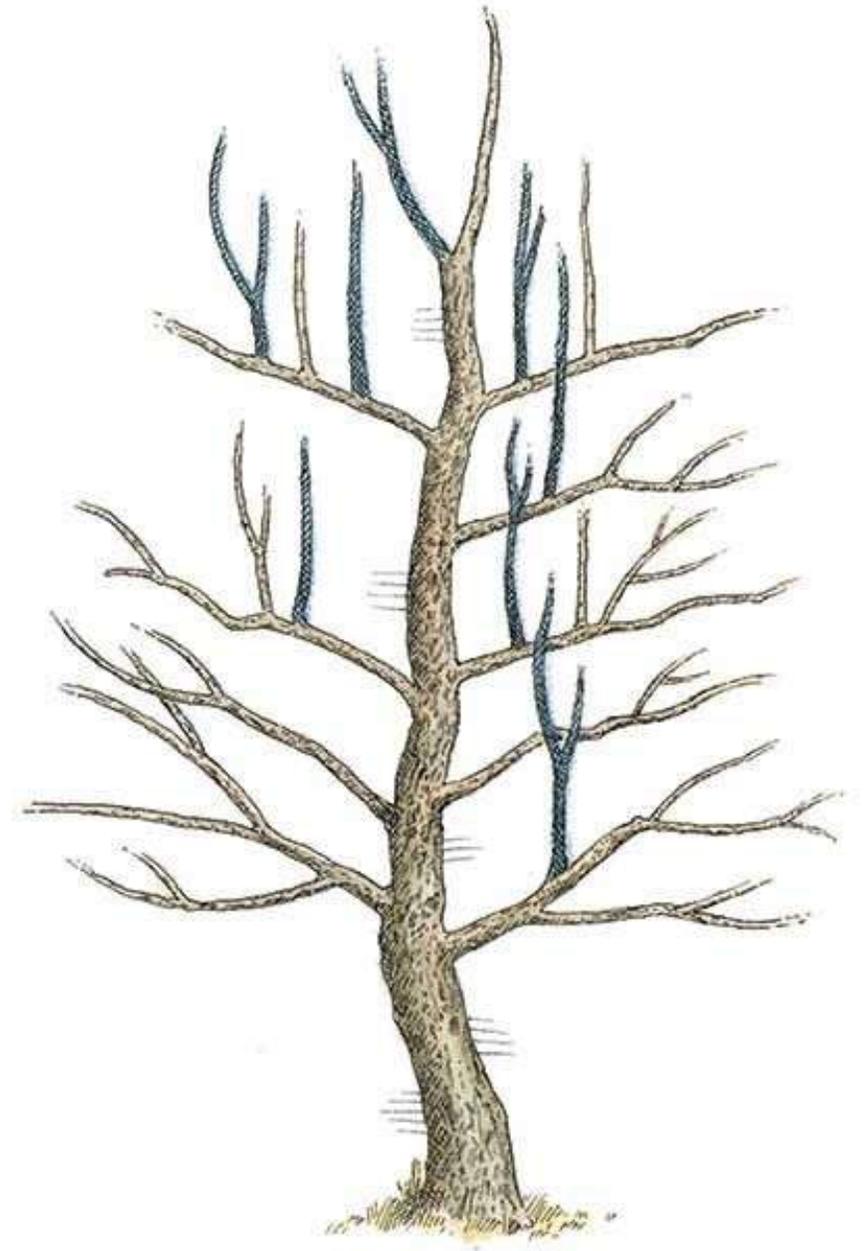
TERMINOLOGY

- SCAFFOLD = main branch(es) that originate from the leader



TERMINOLOGY

- WATER SPROUTS = vertical shoots that arise from the canopy



TERMINOLOGY

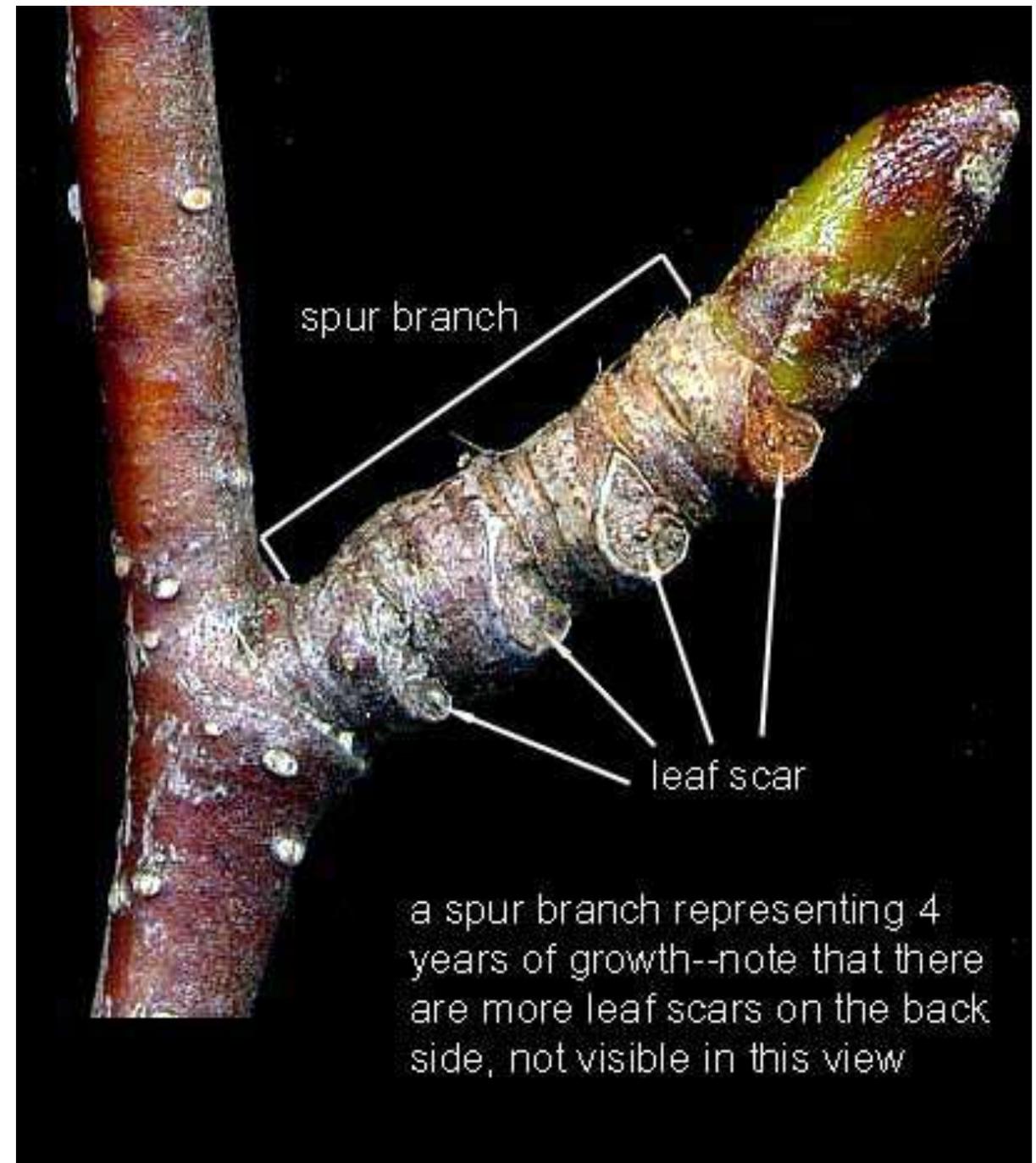
- SUCKERS = vertical shoots that arise from the roots



Photo source: Purdue University,
<https://www.purdue.edu/hla/sites/yardandgarden/so-long-suckers/>

TERMINOLOGY

SPURS = small thorn-like stems where the fruit is borne



Questions to Ask?

1. What plant is it?
2. How big to I want it to get?
3. How does it grow?
4. How does it produce fruit?
5. What is its function in my yard?





PLANT KNOWLEDGE

- What plant is it?
 - PEACH
- What is the plants function?
 - PRODUCE FRUIT
- Where does the fruit grow?
 - 1-year-old wood
- How does the plant grow? Bloom time?
 - Open vase form, blooms spring
- How big do I want the plant to get?
 - Want to be able to pick fruit, no ladder

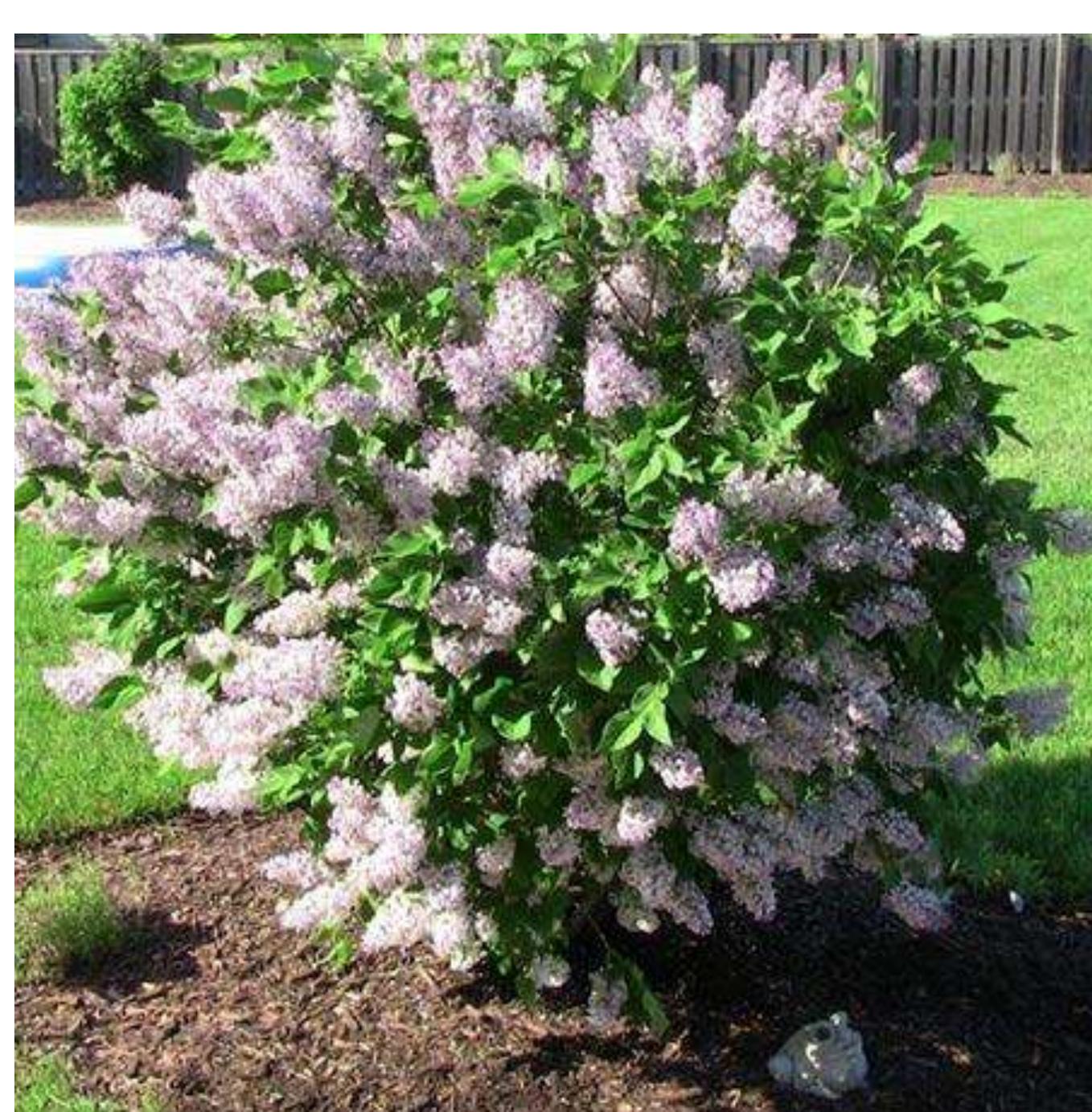
PLANT KNOWLEDGE

- What plant is it?
 - FUJI APPLE
- What is the plants function?
 - PRODUCE FRUIT
- Where does the fruit grow?
 - 2-year-old and older, spurs
- How does the plant grow? Bloom time?
 - Modified central leader, blooms spring
- How big do I want the plant to get?
 - Want to be able to pick fruit, short ladder



PLANT KNOWLEDGE

- What plant is it?
 - Lilac
- What is the plants function?
 - Flower, possibly some shade
- Where does the fruit grow?
- How does the plant grow? Bloom time?
 - Bloom time early spring, slow grower
- How big do I want the plant to get?
 - 5-6 feet tall, natural rounded form





PLANT KNOWLEDGE

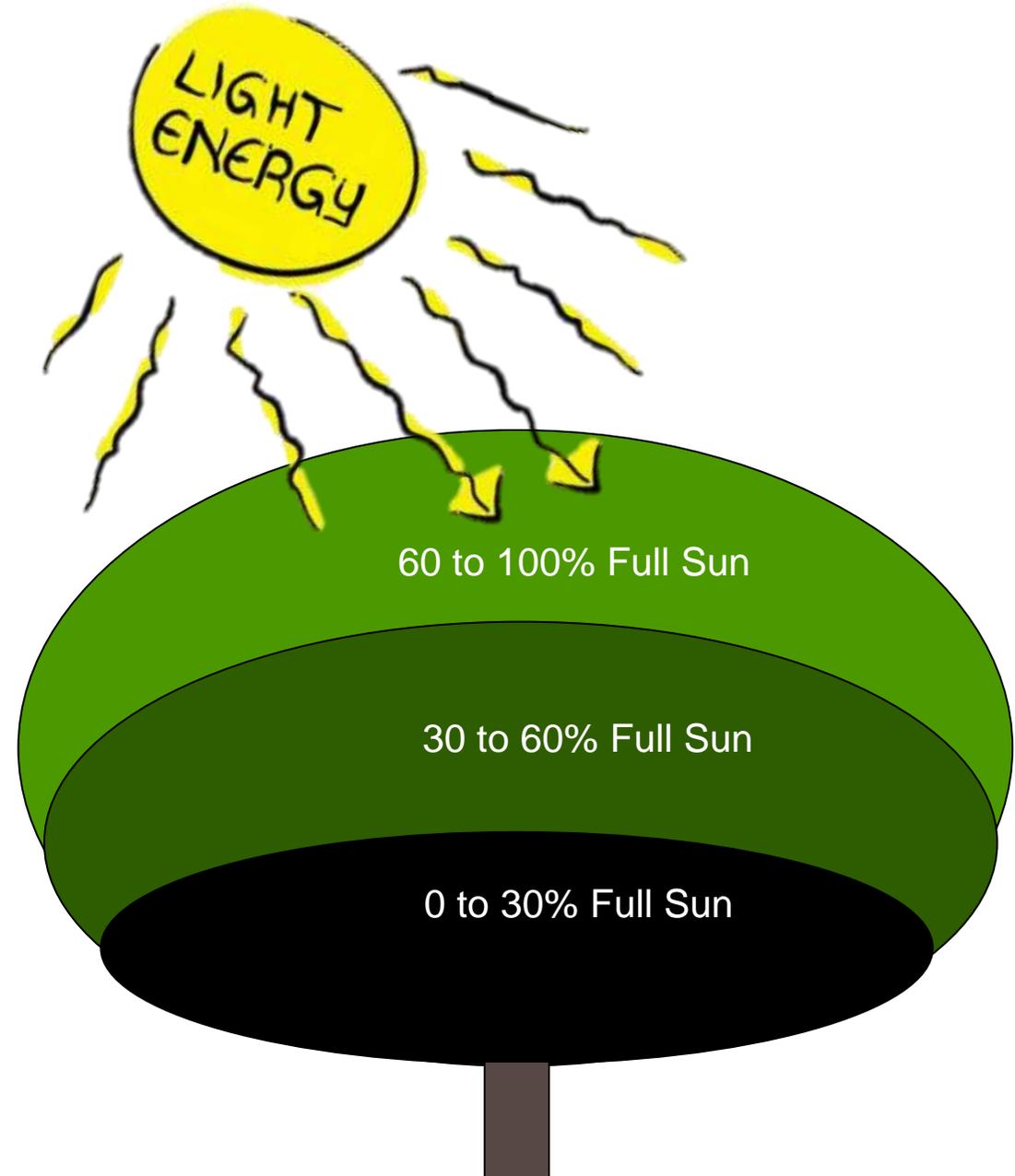
- What plant is it?
 - Norwegian Sunset Maple
- What is the plants function?
 - Shade
- Where does the fruit grow?
- How does the plant grow? Bloom time?
 - Early spring bloom, slow growth
- How big do I want the plant to get?
 - Large

GUIDING PRINCIPLES

LIGHT IN THE CANOPY

- What drives fruit production?
- How does it affect fruit?
 - Color
 - Flavor
 - Yield – 30% of full sunlight is the minimum needed for flower bud initiation

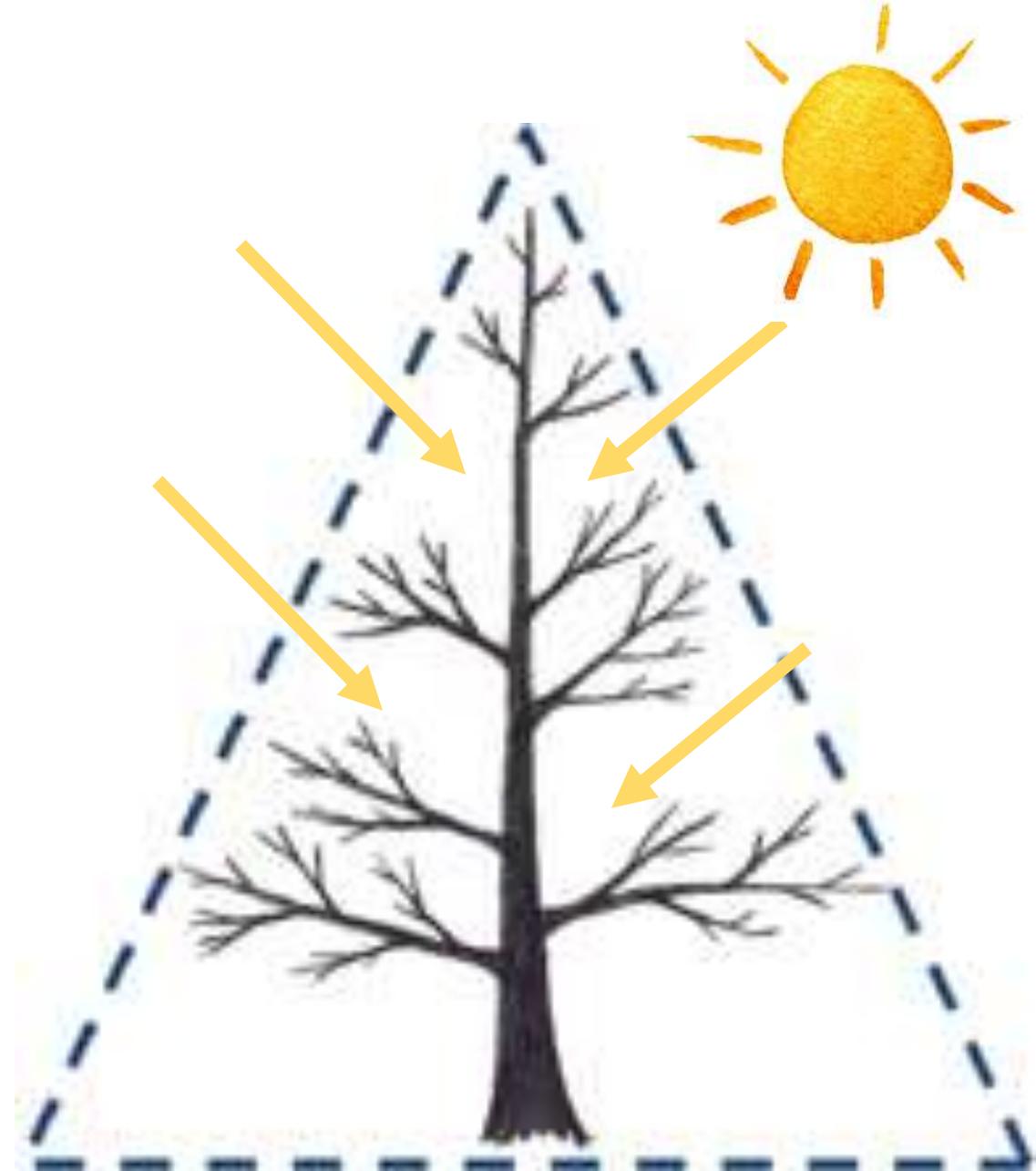
Tree shape is important to create light pathways or channels into the canopy of the tree.



GUIDING PRINCIPLES

LIGHT IN THE CANOPY

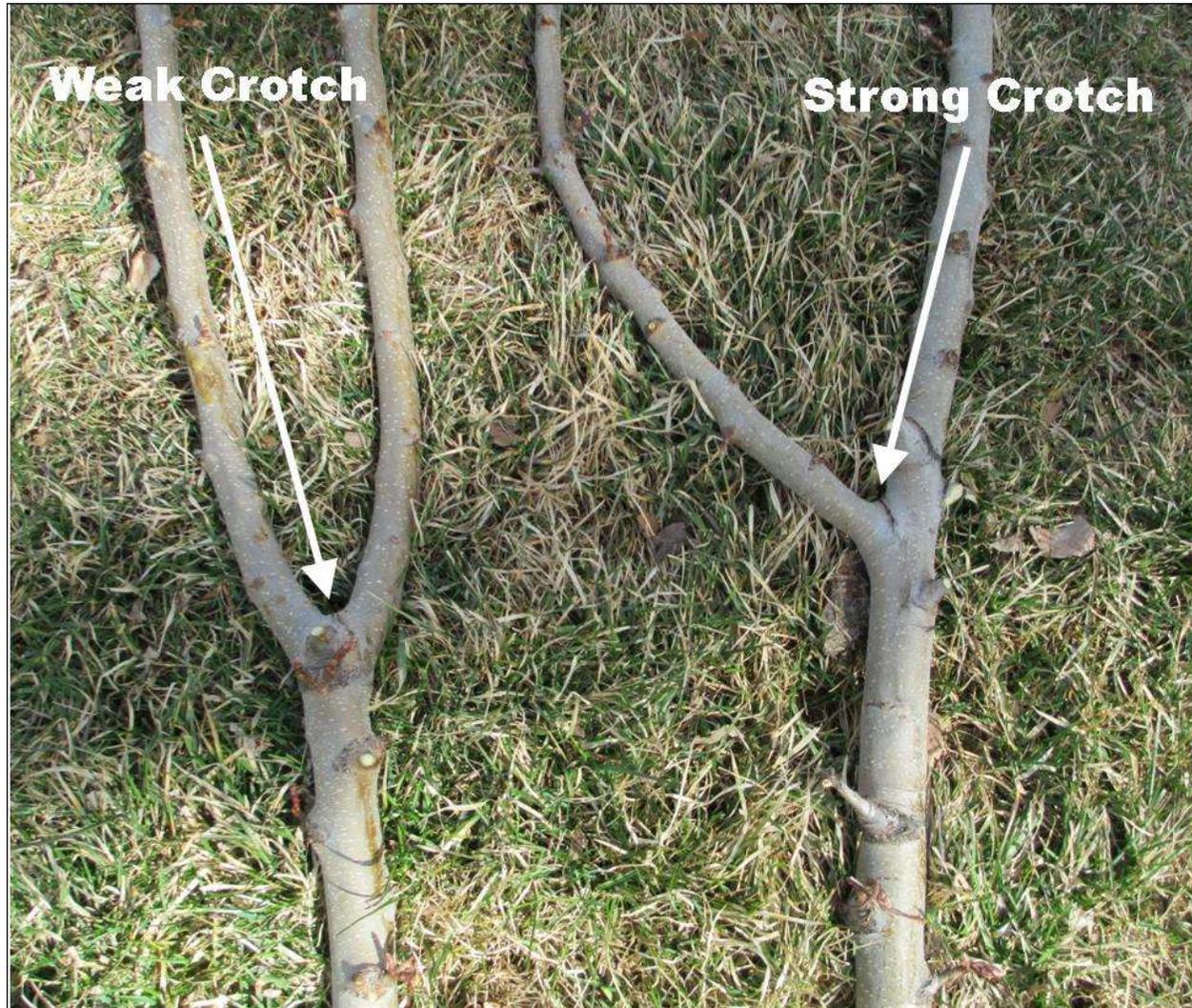
- Tree shape is important
- Want to create channels of light into the canopy



GUIDING PRINCIPLES

BRANCH ANGLE

- Horizontal vs. vertical growth
 - Vegetative?
 - Fruitful?
- Ideal branch angle
 - Between 30-45° above horizontal
- Wider branch angles support heavier loads





GETTING GOOD ANGLES

- Pruning cuts
- Spreaders
- Clothes pins
- Ties
- Trellising



Spreader, Clothes Pins and Ties

Important in young trees to spread branching new growth and get good strong scaffold branches as the tree is being shaped.

When trees are young they are easily trained to go where you want them.



Types of Pruning Cuts

Heading Cuts

- Shortening a branch or shoot
- Encourages lateral growth
- Used for hedges



Thinning Cuts

- Remove entire branch or shoot back to a lateral branch or trunk
- directs growth

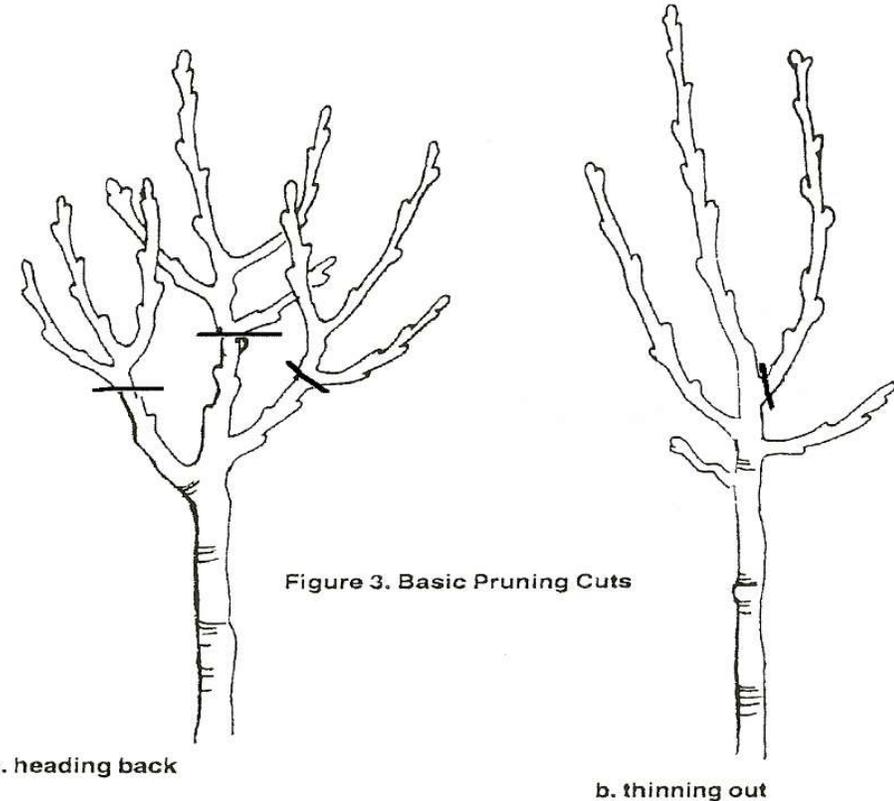


Figure 3. Basic Pruning Cuts

a. heading back

b. thinning out

Only 2 Basic Pruning Cuts

1- Heading cuts

- Done at internodes
- Forces lateral growth
- Topping (hat-racking)
- Shearing



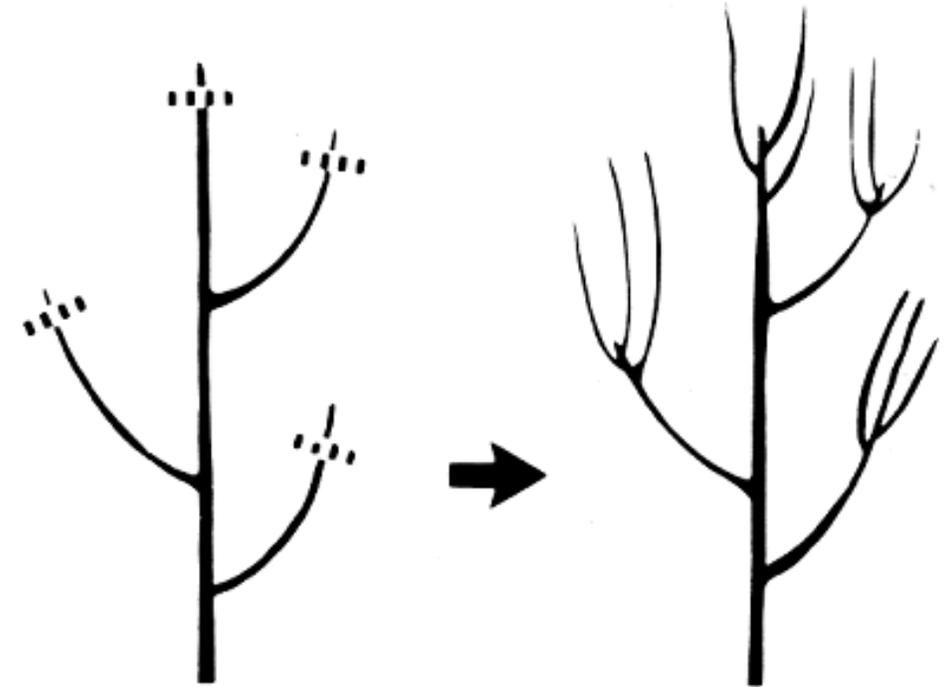
HEADING CUT

- Used to cut or HEAD the tip of a branch
 - Can be used to change direction of growth
 - Cut just above a bud facing in the direction of desired growth



HEADING CUT

- RESPONSE: fuller, bushier growth
- Used in peaches and stone fruit to shorten/strengthen crop bearing branches
- Should NOT be used in other fruit or on landscape trees very often





Pruning Cuts

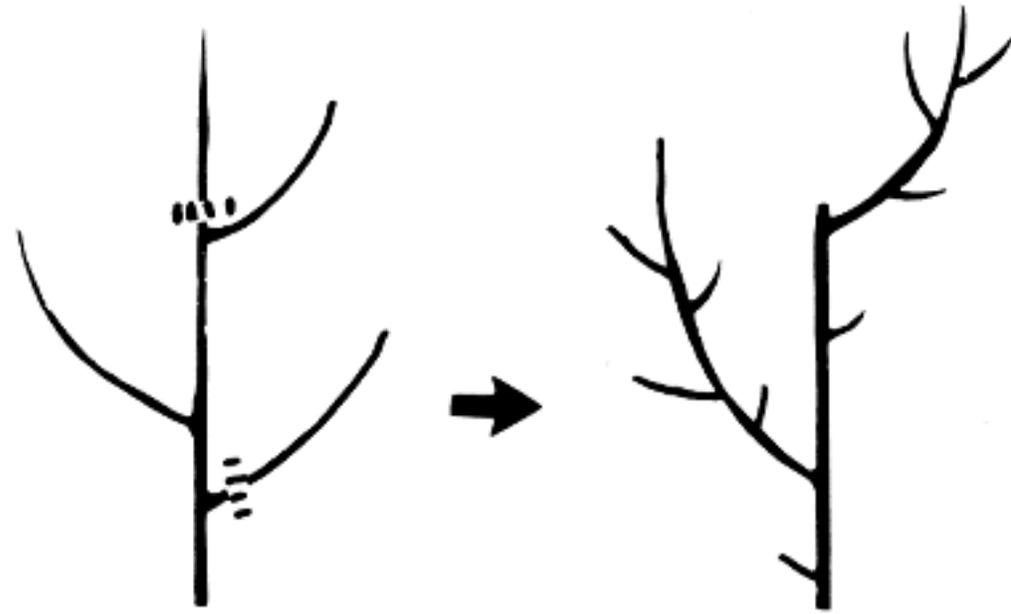
2- Thinning cuts

- At the node
- Total branch removal
 - drop crotch
 - directional pruning

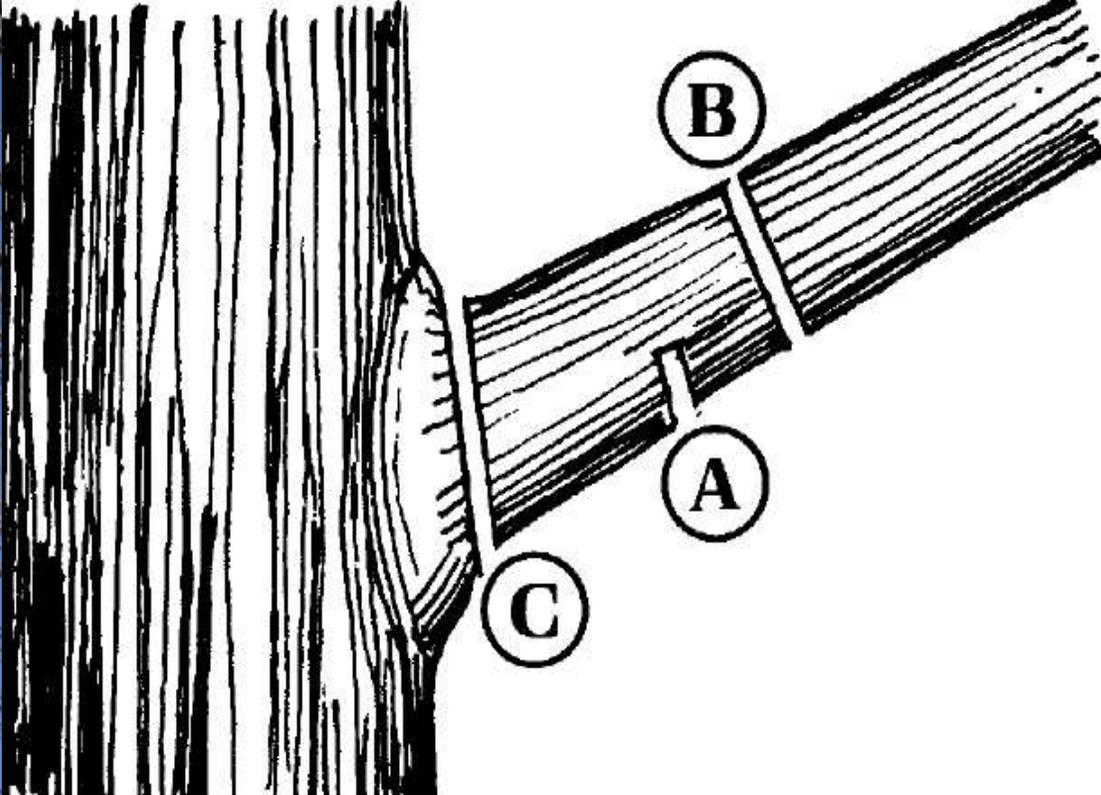


THINNING CUT

- Used to remove a stem or branch back to the point of origin
- RESPONSE: branch will not grow back
- Natural looking cut



LARGE CUTS DONE CORRECTLY



Natural Target Pruning

Branch Bark Ridge

Correct

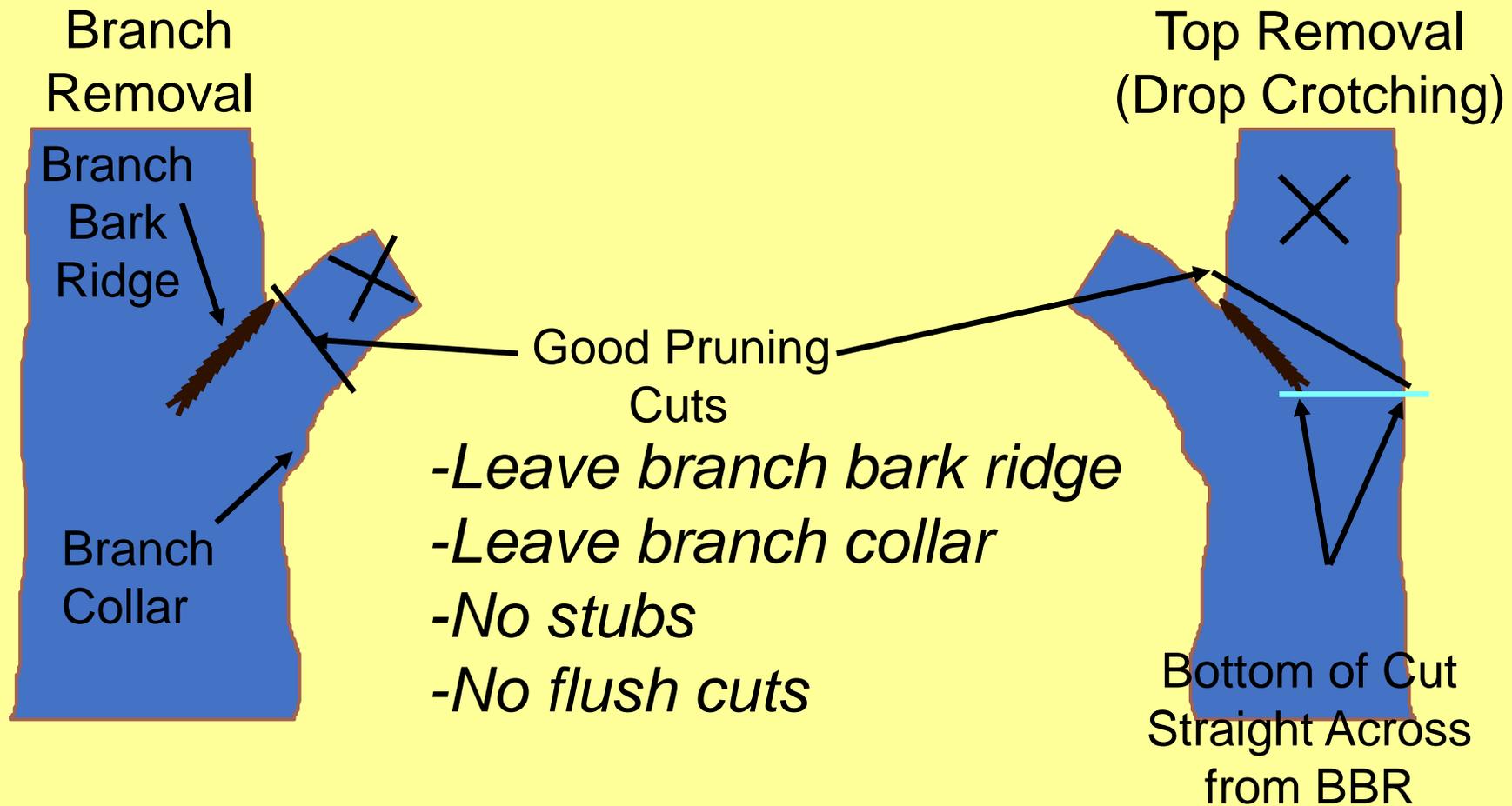


Incorrect

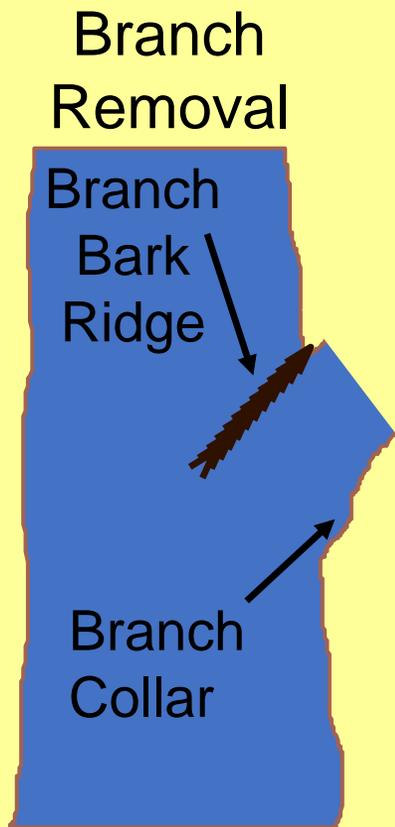


Branch Collar

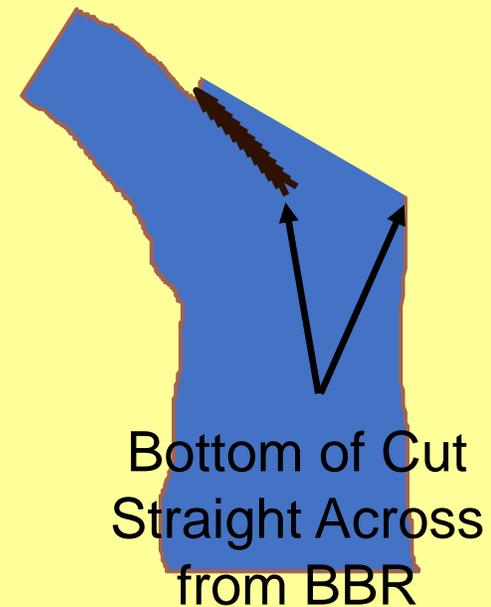
Natural Target Pruning



Natural Target Pruning



Top Removal
(Drop Crotching)









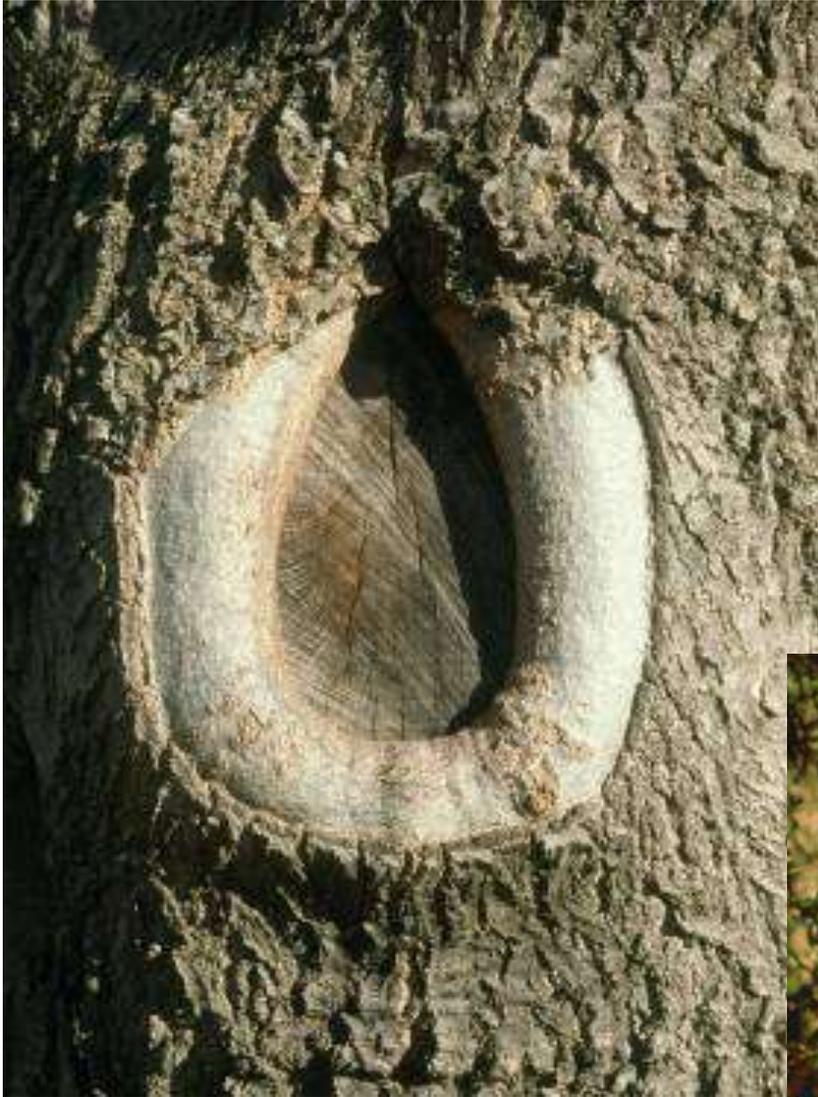




Pruning “Donuts”

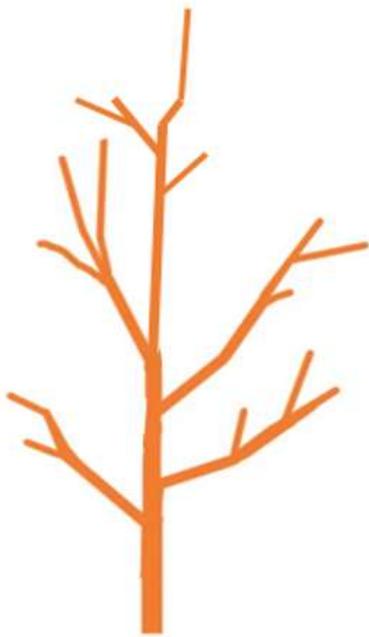


Pruning Don'ts

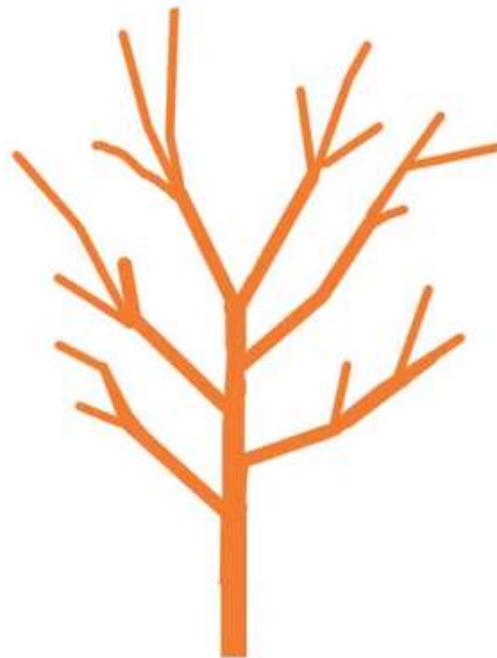


TREE SHAPE AND FORM

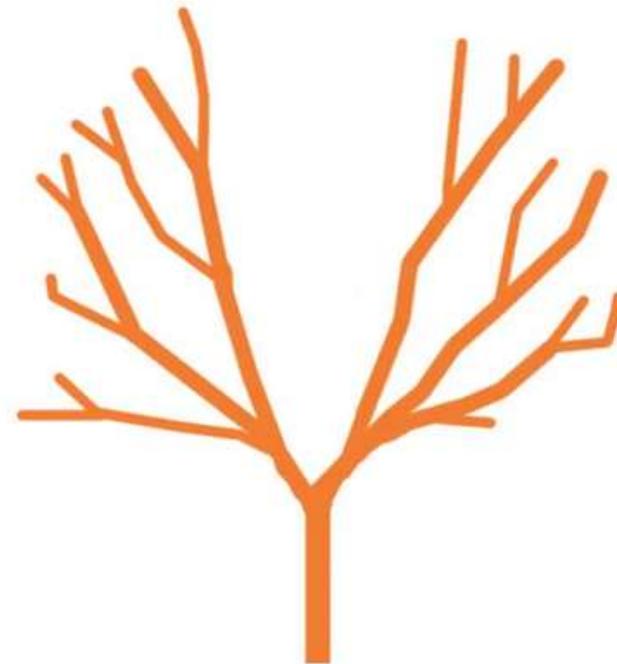
- What shape or form are you after?
- Can you make a few cuts to direct growth to support that form?



Central leader
Apples



Modified Central Leader
Apples, pears, cherries

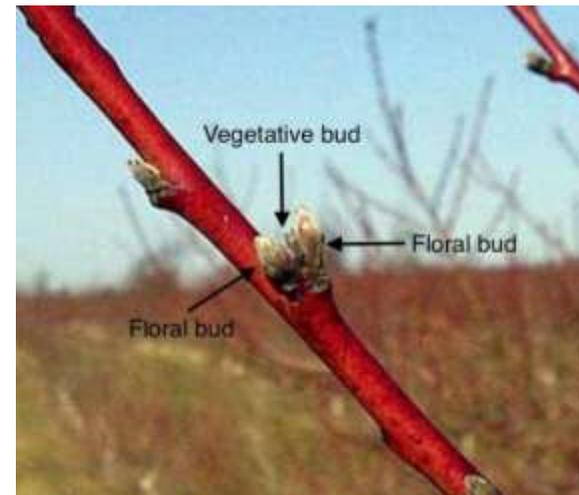


Open vase
Peaches, stone fruit

STONE FRUIT

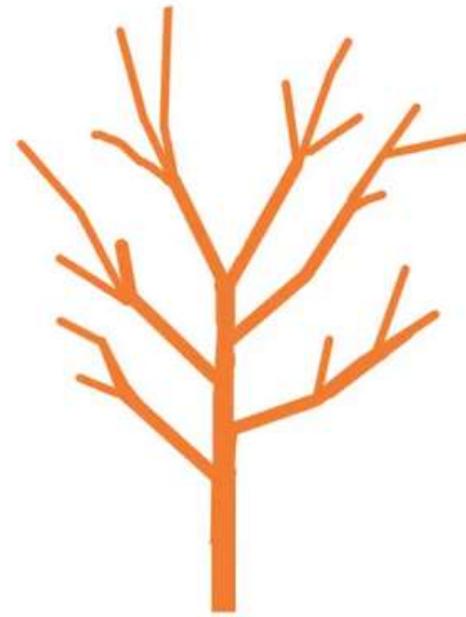
PEACHES, PLUMS, APRICOTS

- Pruned to OPEN VASE
- Peaches:
 - Fruit is formed on 1-year-old wood
 - Renewal pruning
- Apricots and Plums:
 - Fruit is formed on spurs



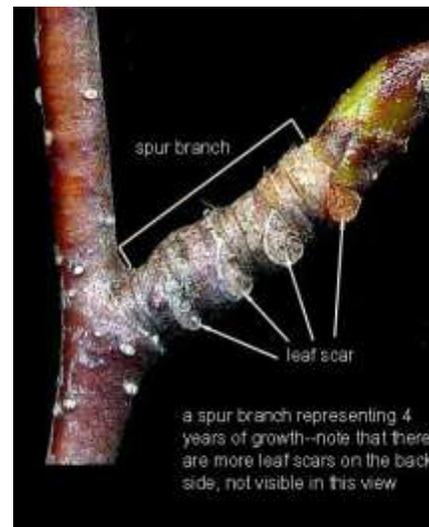
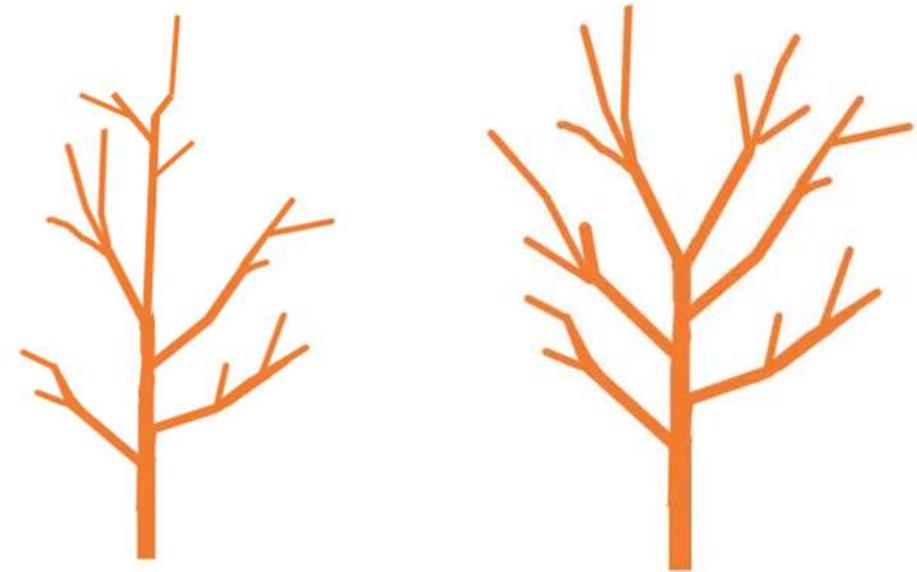
CHERRIES

- Pruned to MODIFIED CENTRAL LEADER or OPEN VASE
- Fruit is formed on spurs, 2-year-old wood
- Light is important for bud formation
- Renew old branches by making a STUB CUT, leaving 4 to 6 inches so the branch can regrow



APPLES AND PEARS

- Pruned to MODIFIED CENTRAL LEADER or CENTRAL LEADER
- Fruit is formed on spurs on 2-year-old and older wood



PRUNING TRIAGE

DUMB

- Branches that:
 - Hit you on the head
 - Make mowing difficult
 - Don't make sense, odd, out of place
 - Will cause problems
 - Rubbing and crossing branches
 - Watersprouts and suckers



Fruit Thinning – Why?

- Produces better *quality* fruit
- Promotes annual bearing
 - after “June drop” in apples
- Protects tree from damage.
- Larger fruit less pests



THINNING FRUIT

WHAT SIZE FRUIT DO YOU WANT?

- Should be done when fruit is quarter sized
- Leave largest fruits
- Peaches and nectarines:
 - Want a fruit every 6-8 inches



THINNING

WHAT SIZE FRUIT DO YOU WANT?

- Apples and pears:
 - Thin back to “king” fruit
 - Biennial bearing
 - Coddling moth
- Apricots, plums, cherries
 - Not usually thinned

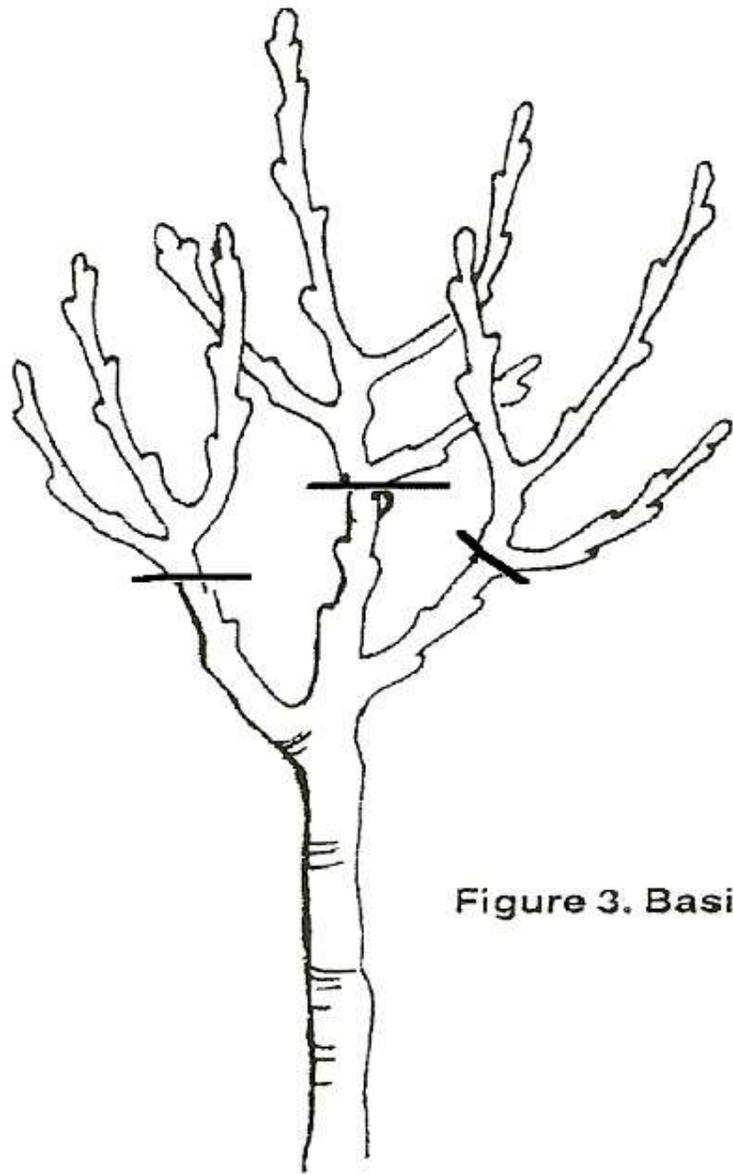


RULES OF THUMB

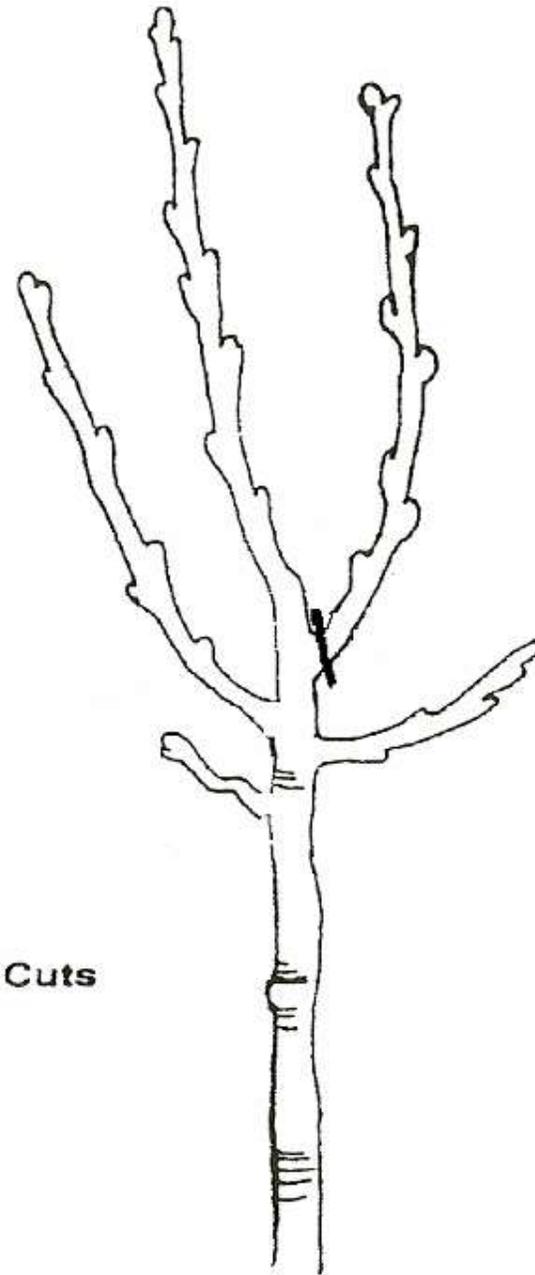
1. Never remove more than 1/3 of the wood in the tree at one time
 - Does not include dead wood
2. One person prunes – second opinions increase divorce rates
3. It takes a while to get this down – BE PATIENT WITH YOURSELVES!
4. Go to other pruning classes to remind yourself and gain knowledge







a. heading back



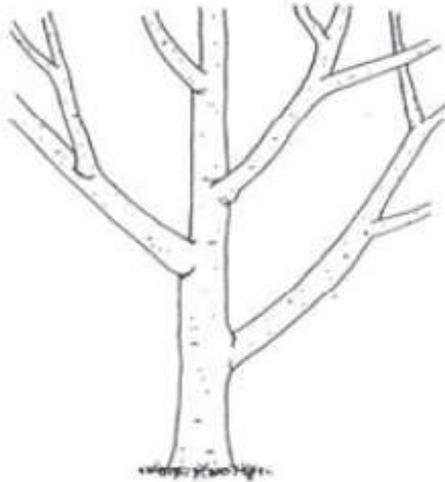
b. thinning out

Figure 3. Basic Pruning Cuts

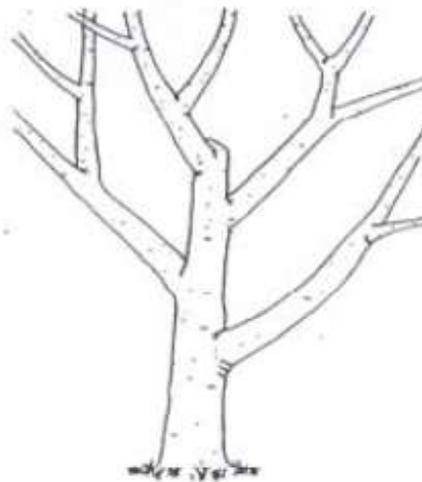
Tree Form and Shape

- Does the tree have the shape or form you want?
- Can you make a few cuts to direct growth to get that form?

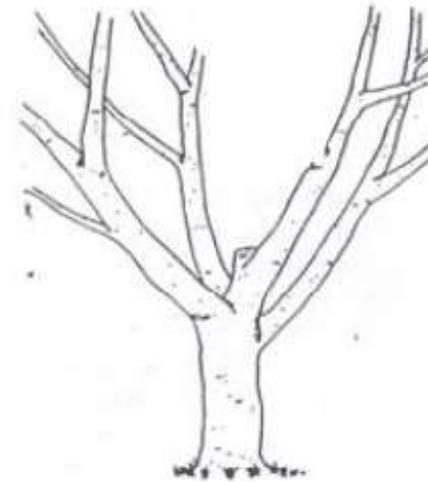
Central Leader



Modified Central Leader



Vase or Multiple Leader



Training Systems or Tree Forms

Open Vase

(Peaches, Apricots, Nectarines, Japanese plums, Sour cherries)

- Select 3-4 primary scaffold branches
 - About 18-24” from the ground or higher
 - Evenly distributed in a whorl.
 - 6 to 8” apart vertically
- Remove any growth 1 foot from the trunk
- When primary scaffold are 4 feet long, allow 2 secondary scaffolds to form.

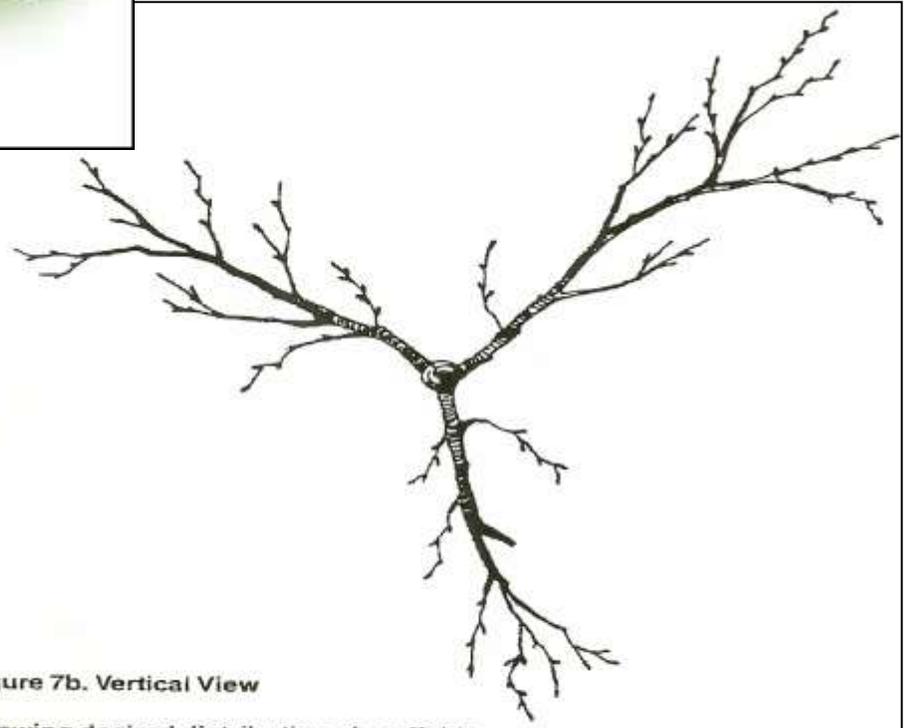
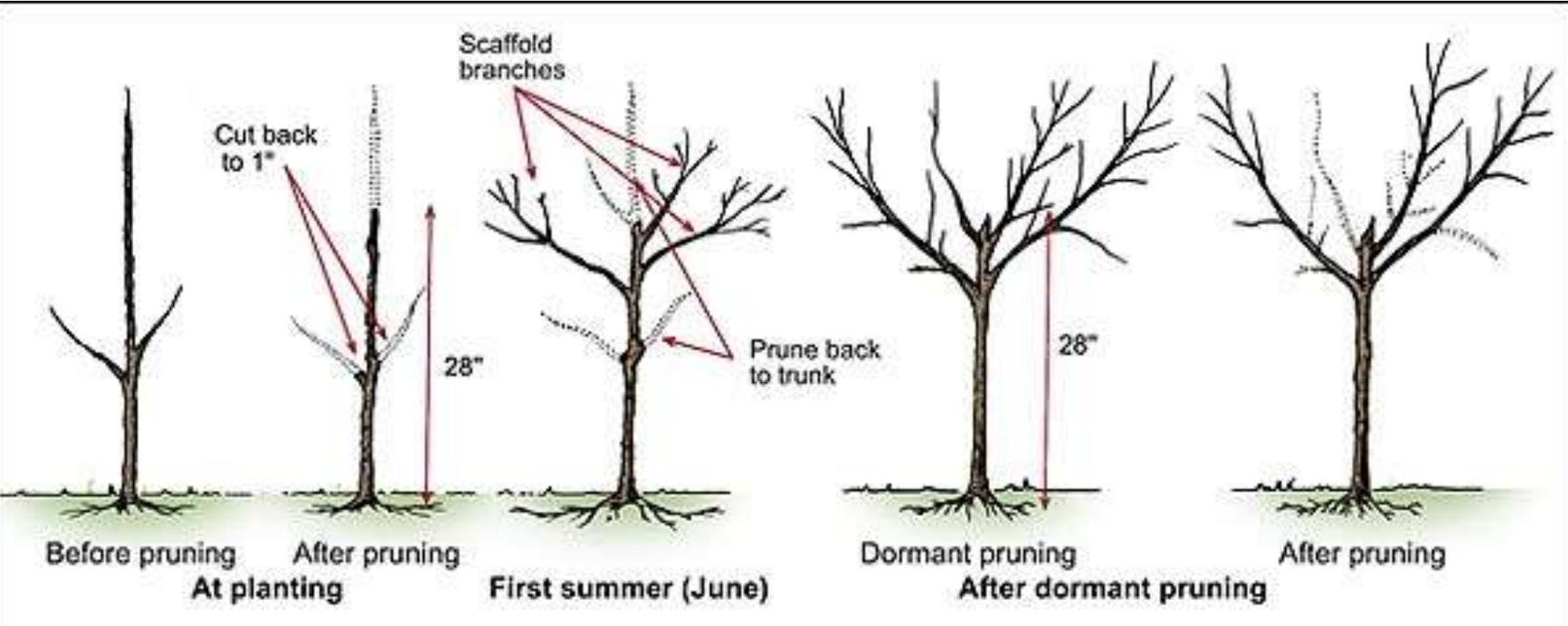


Figure 7b. Vertical View
 Showing desired distribution of scaffolds

DEVELOPING AN OPEN CENTER

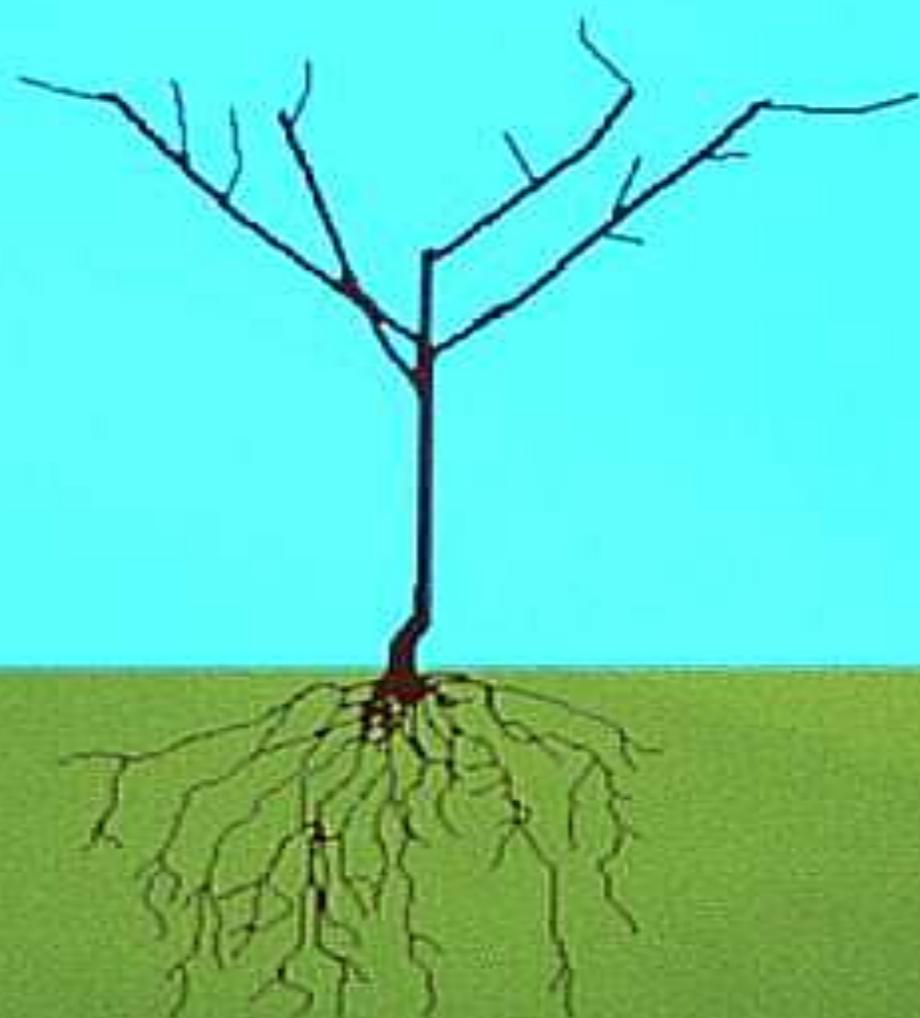
MURSERY STOCK



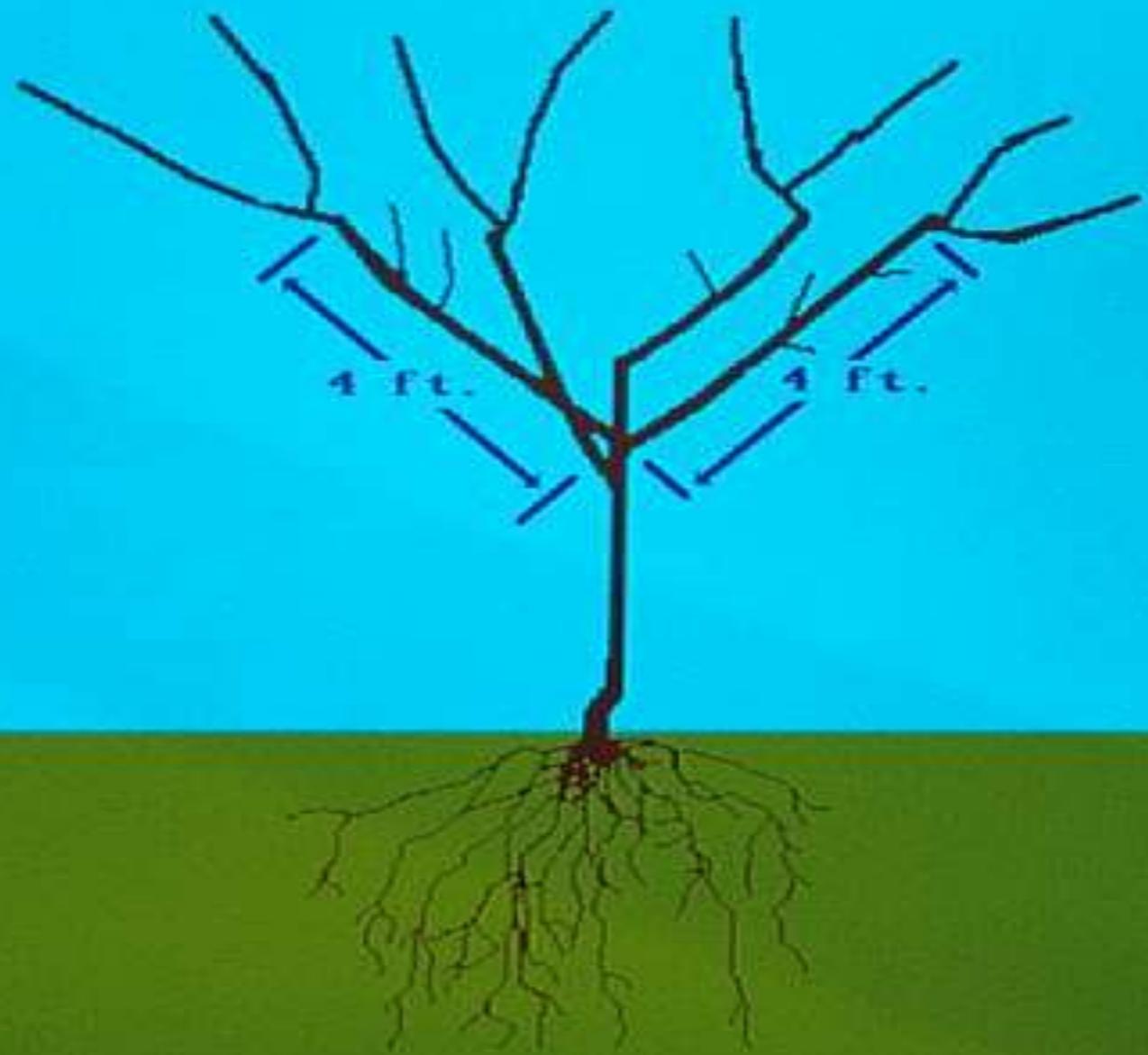
DEVELOPING AN OPEN CENTER



DEVELOPING AN OPEN CENTER



DEVELOPING AN OPEN CENTER





Peach Tree – before pruning



Peach Tree – after pruning





Central Leader

(Apples, European plums, Sweet cherries, Pears)



Central Leader

(Apples, European plums, Sweet cherries, Pears)

- Select 4-5 primary scaffold branches
 - 18-24" from the ground
 - evenly distributed
 - 6-8" apart vertically
- Head terminal above where the 2nd scaffold will be.

2-3 primary scaffolds

1st – 4-5 branches 24-36" from ground

2nd – 3-4 branches 2 feet above the 1st

3rd – 2-3 branches 2 feet above the 2nd

- More horizontal branches control vigor.

DEVELOPING A CENTRAL LEADER

PRUNING AFTER THE
FIRST WINTER



DEVELOPING A CENTRAL LEADER

PRUNING AFTER THE
FIRST WINTER



18 in.

DEVELOPING A CENTRAL LEADER



PRUNING FOLLOWING
SECOND GROWING SEASON

DEVELOPING A CENTRAL LEADER

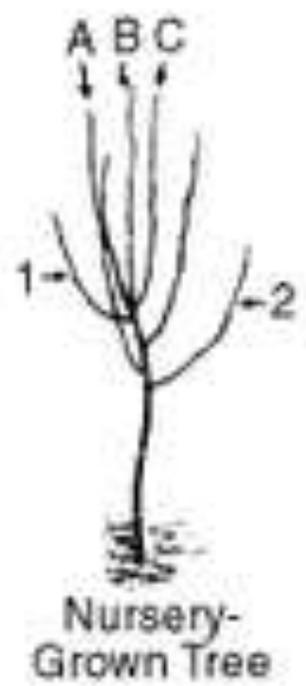
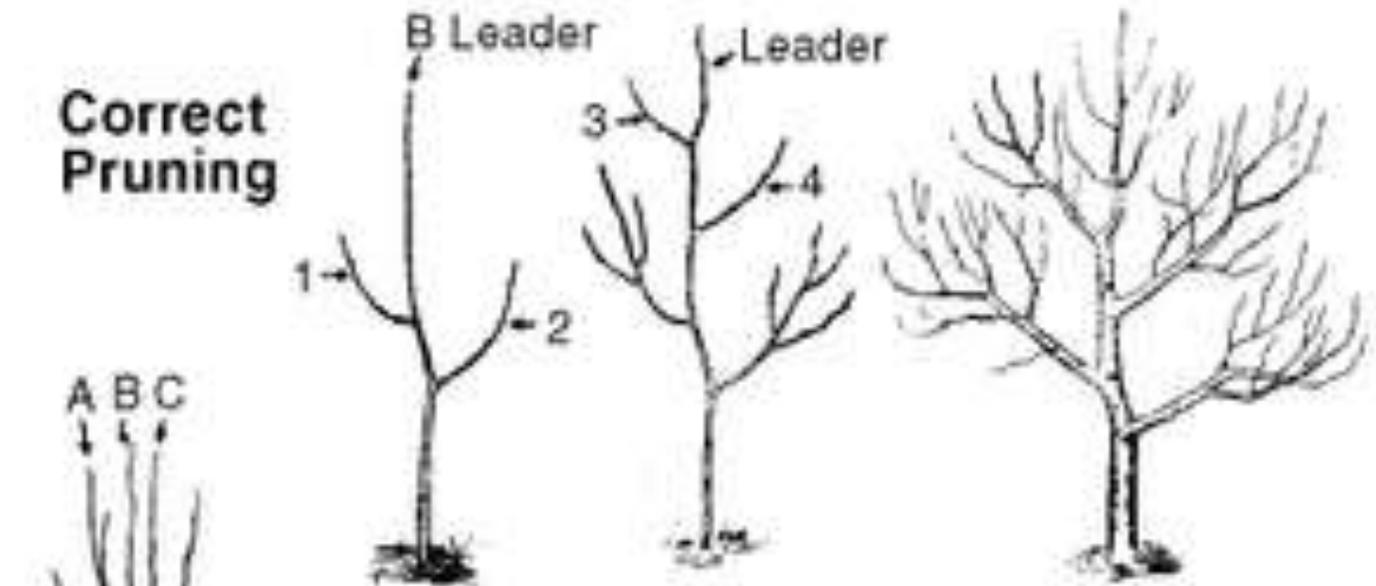


PRUNING FOLLOWING THE
FOURTH GROWING SEASON

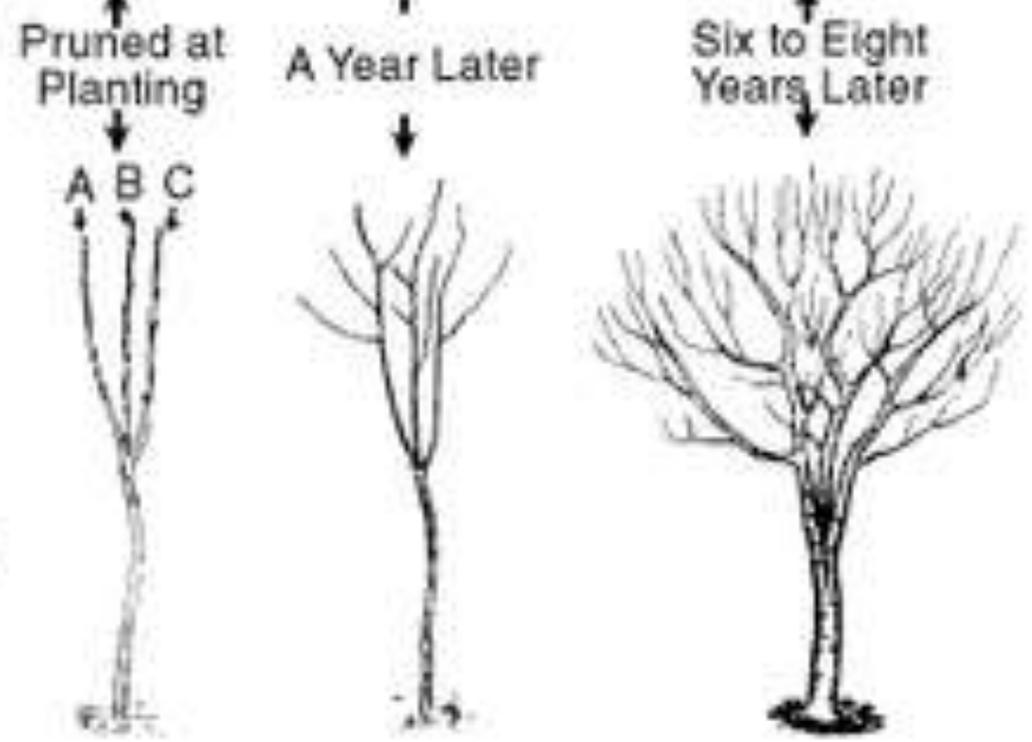
CENTRAL LEADER TREE TRAINING SYSTEM



Correct Pruning



Incorrect Pruning



Pruned at Planting

A Year Later

Six to Eight Years Later

Pruning Unruly Trees

- Decision Time...
1 cut at ground level?
- Never prune more than 1/3 of the tree at one time.
- Don't fertilize the tree during corrective pruning
- It takes time to get comfortable and confident, so be patient with yourself



Peach Tree



Before



After

Flowering Almond



Before and During



After

Questions?

Now go and prune your trees



Thank you for attending this class!

Please take a minute to fill out this survey and sign up for our newsletter.

Survey



Newsletter



Pruning Grapes

Four-cane Kniffin System

Fruit is found on shoots growing from year old canes.

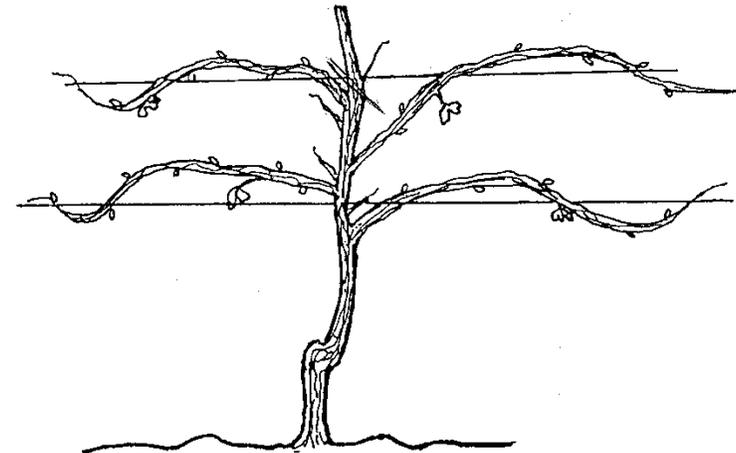
One main trunk trained to a 2 wire trellis system (24-30" apart)

4 canes (year old)

- 10-15 buds on each cane or 40-60 per plant
 - Each bud will form 2-3 grape clusters

Renewal spurs

- 4 renewal spurs with 2 buds
- Next year's fruiting wood



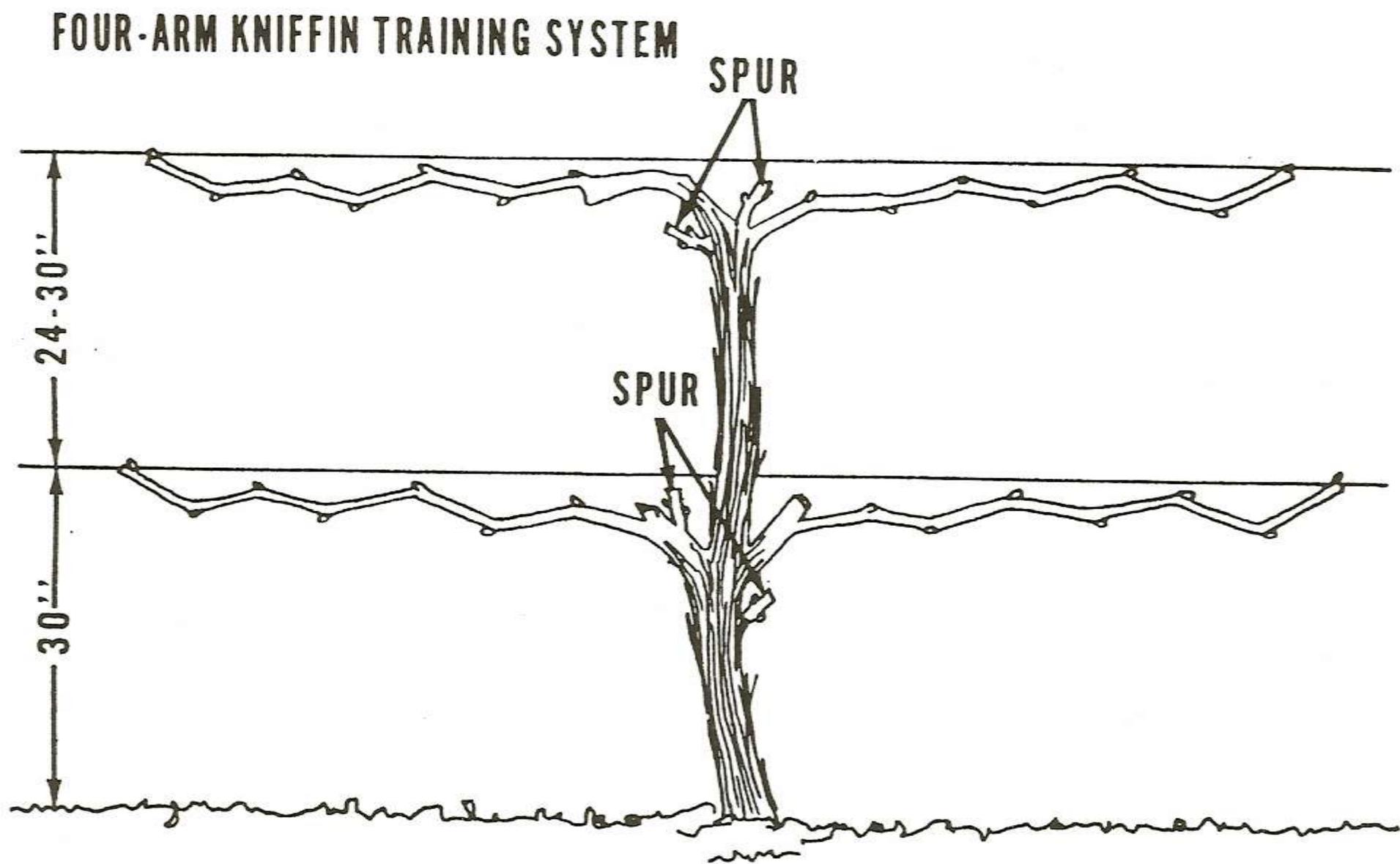
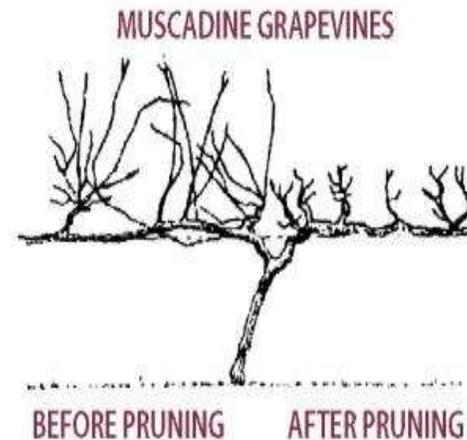
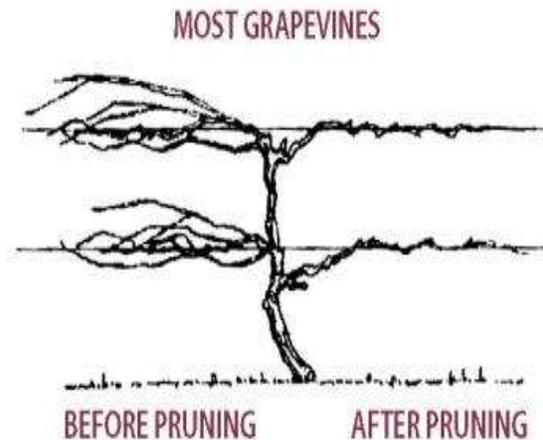


Figure 6.—The four-arm Kniffin training system is the most popular one for American bunch grapes.

Pruning Tips

- Select canes that are 1/4" in diameter
 - Avoid weak & "bull" canes
- Mark or tape the 4 "keepers" and tie them to wire first.
- Remove everything else!
 - (Except the renewal spurs)

*Correct pruning = removing 80-90% of the grape plant







Pruning Raspberries

- Perennial roots
- Biennial canes
 - 1st year canes – primocanes
 - 2nd year canes – floricanes
- Spread by suckering
- Two types of raspberries:
 - Summer-bearing
 - Fall-bearing (ever-bearing)



2 types of raspberries

Summer-bearing

day-length sensitive

set flowers in fall, produce fruit next June /July

fruit on floricanes

then they die

Fall-bearing (ever-bearing)

not day-length sensitive

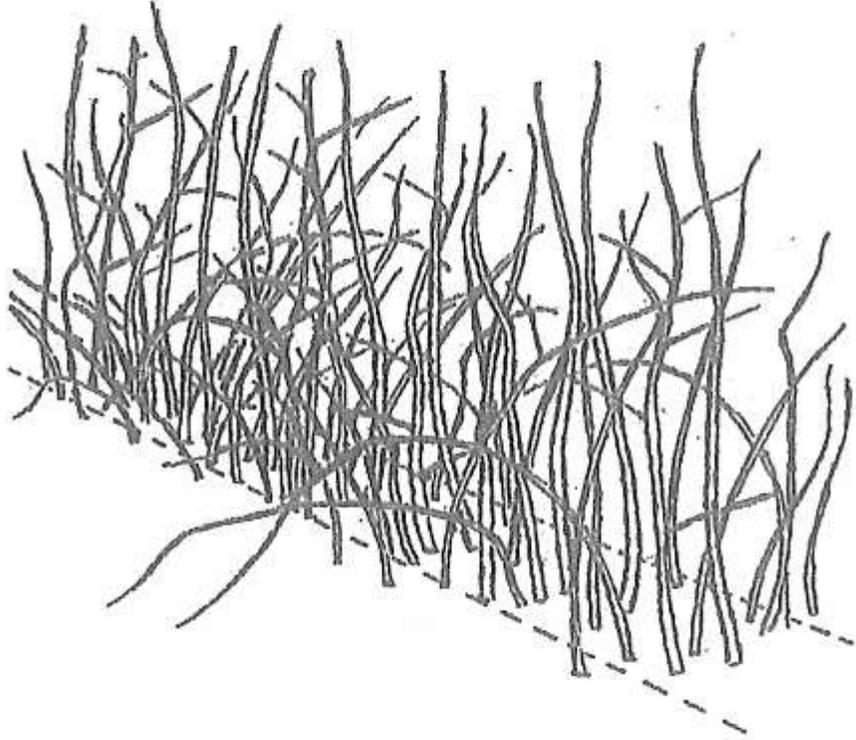
fruit on primocanes (first fall, on the tips)

fruit on floricanes (next summer, lower on cane)

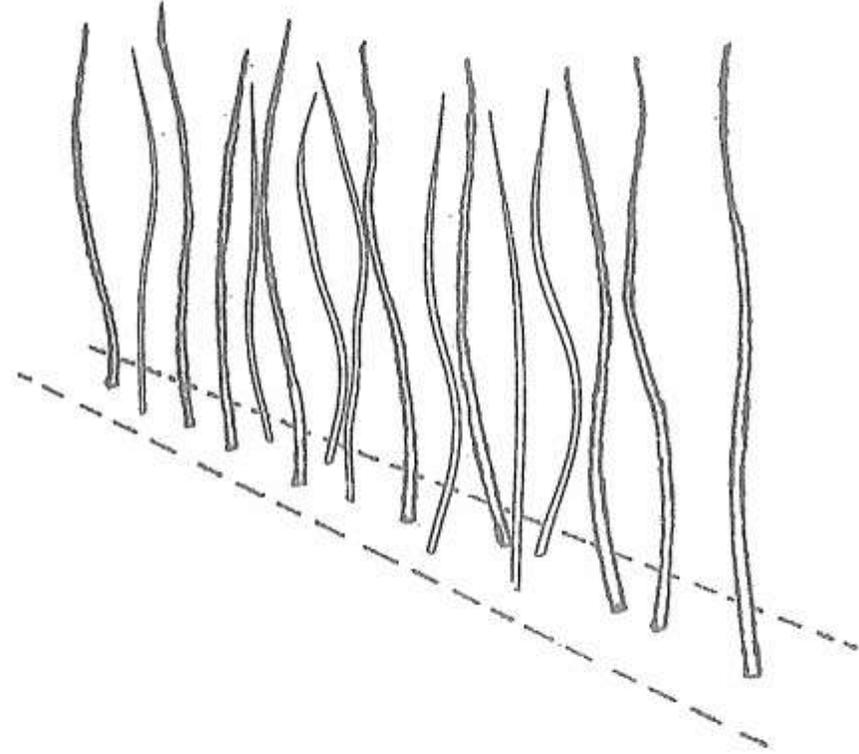
then they die



Before Pruning



After Pruning



Summer Bearing Red raspberries before and after late winter/early spring pruning.

**<http://www.inberry.com/>*



Types of Roses

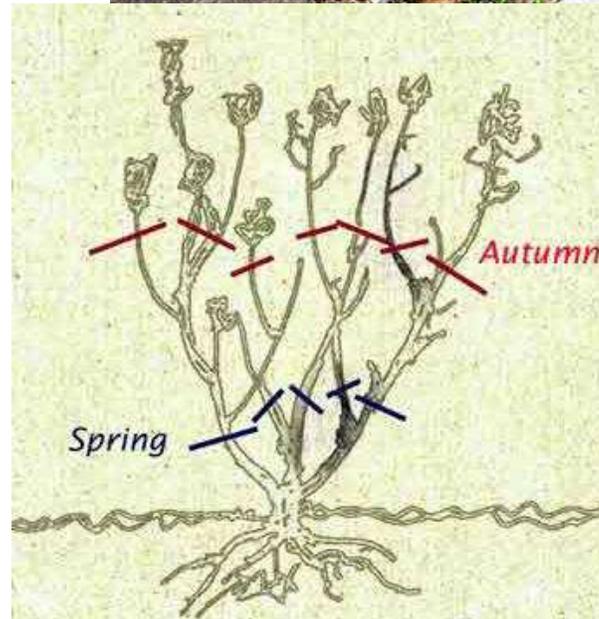
- **Hybrid Tea-** Large blooms on long stems, to create beautiful displays. Thousands of hybrid varieties, and one of the most popular classes of roses.
- **Grandiflora-** Subgroup of hybrid teas with elegant blooms that appear in clusters and a constant growth cycle like floribundas. 3-5 blooms per cluster and generally a larger and taller bush than hybrid tea. Great choice for backyard gardeners.
- **Floribuda-** A favorite for many reasons. Large clusters of flowers with continuous blooms that will last much longer than the hybrid tea or grandifloras. They are much easier to care for and provide the great color and show you want. Not as much pruning is typically needed.
- **Polyantha-** Similar to floribundas but shorter plant with smaller blooms. This group can have clusters of flowers from spring to fall with a full range of color choices. Hardy rose with good disease resistance and low maintenance. They fit in smaller spaces in your landscape.
- **Climbing-** They are not a class, but a description. There are grandiflora and floribunda climbers. Sometimes called ramblers because they are not vine like in attaching to structures. They can be trained with supports and tend to produce more flowers when grown horizontally rather than vertically.
- **Miniatures-** A form of the hybrid tea and grandiflora that are very compact (15-30 inches tall). They would be treated like hybrid tea and grandiflora only they are smaller in scale and smaller blooms.
- **Bush/Shrub-** These tend to sprawl wide and large and can get to 15 ft tall if you let them. Very hardy and produce blooms in clusters. There are many subcategories of bush roses.
- **Wild-** They lack any cross breeding history of modern roses. They typically have a single bloom with a five petal flower. They are almost always pink. A yellow wild rose is very rare, as is white or red. Usually very thorny. Not every thorny rose is a true wild rose.

New Rose Bushes



Rose Pruning Basics

- Equipment:
 - Gloves and heavy long sleeves
 - Bypass hand pruners
 - Maybe loppers for larger bushes
- Two seasons to prune:
 - Winter (dormant around March)
 - Summer
- Primary reasons to prune:
 - Stimulate new spring growth (dormant pruning)
 - To remove spent flowers (summer pruning)



Pruning Roses

- Produce blooms on current seasons growth
- Need annual pruning
- Feb.- Mar. before buds swell
- Leave 3-5 canes, 12-18" – depending on rose type
- Dead-heading – removing spent flowers, cut to the 1st 5 leaflet.

Floribundas and miniatures don't need to be pruned as heavily as Hybrid T's.



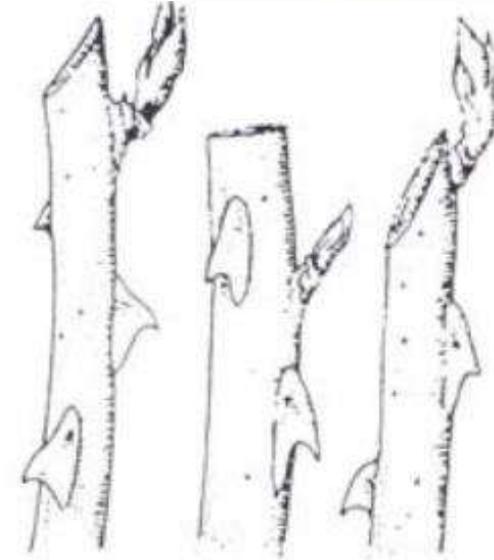
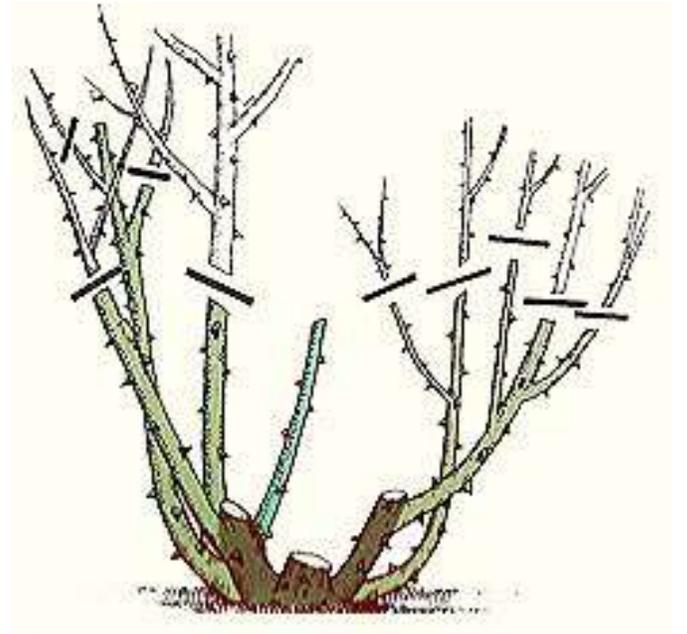
Types of cuts

Heading cuts

- Removing a portion of the cane
- Always cut above a bud eye
- Always slant the cut away from the bud
- Promotes new growth from remaining buds

Thinning cuts

- Used to remove a whole cane to the point of origin
- Used to remove diseased or unwanted canes
- No re-growth



Right Cut
45 degree

Wrong Cuts

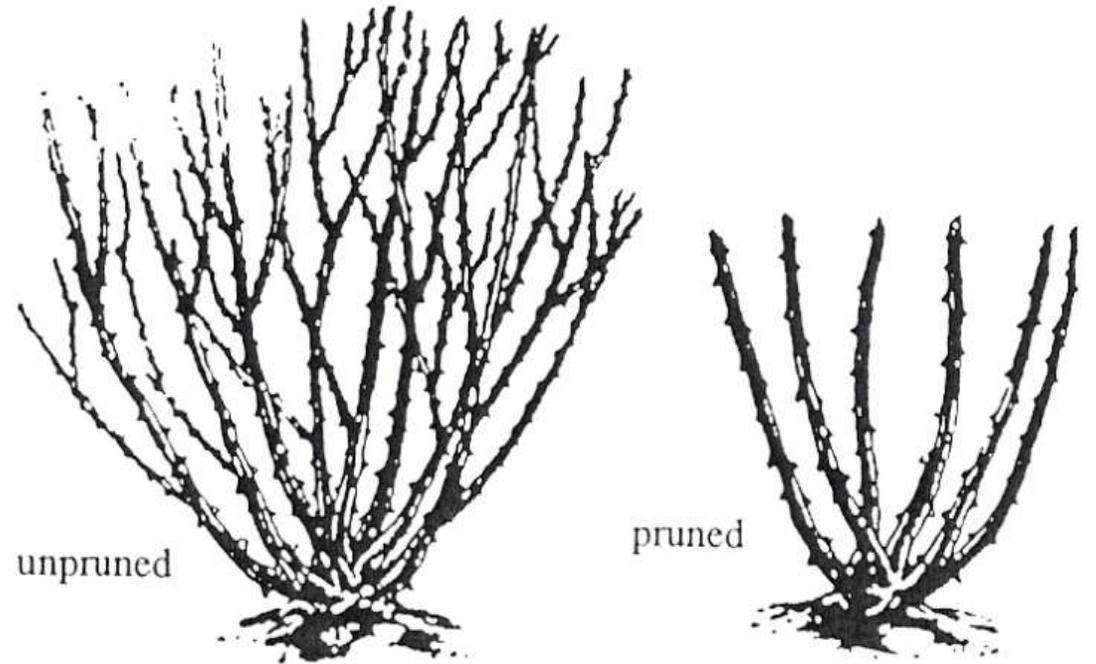
Dormant or Winter Pruning

- Prune before buds begin to swell
 - March- April (you don't want really cold periods after pruning)
- Remove:
 - Dead wood
 - Diseased or damaged wood
 - Dumb canes (crossing, rubbing)
 - Old, upright, unproductive canes



Dormant or Winter Pruning

- Remove 1/3 to 1/2 of the previous season's growth on the canes
- You will leave 5-12 canes about 18-24 inches tall
- Remove suckers below the graft union
- Try to keep the center of the plant open to promote air circulation



10 Principles of Rose Pruning

1. Prune from the ground up

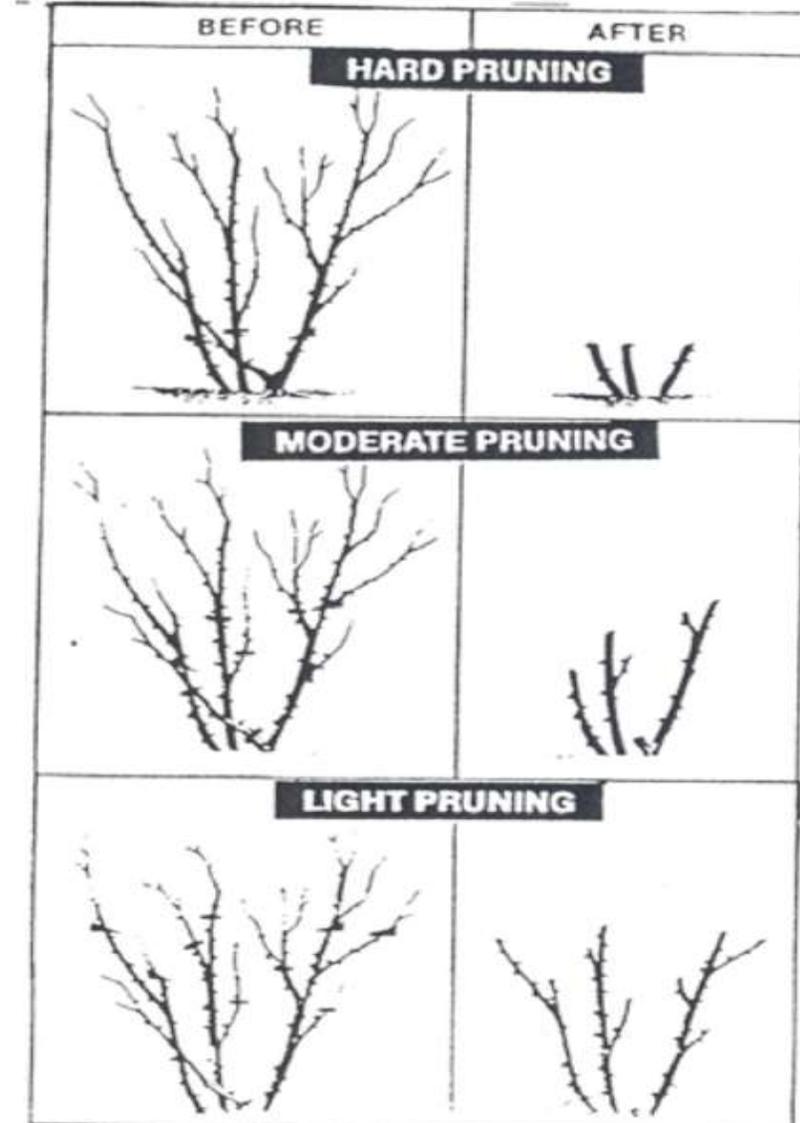
- Pruning from above wastes time
- The stuff up top is last year's history!

2. If it's too old to cut ,CUT IT!

- Newest canes are the greenest
- Remove old growth with thinning cuts as low as possible

3. If it's in the way, get rid of it!

- Think the three D's (Dead, Diseased, Dumb)



4. Height is as easy as 1-2-3

- You will remove at least a third (with the exception of climbers)

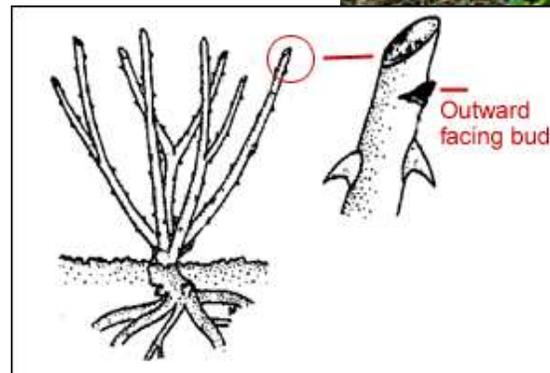
5. This bud's for you...

- Try to cut to an outward facing bud

6. When in doubt, cut it out!

- Roses are hardy and will regrow

7. Sealing isn't necessary



8. Strip those leaves!

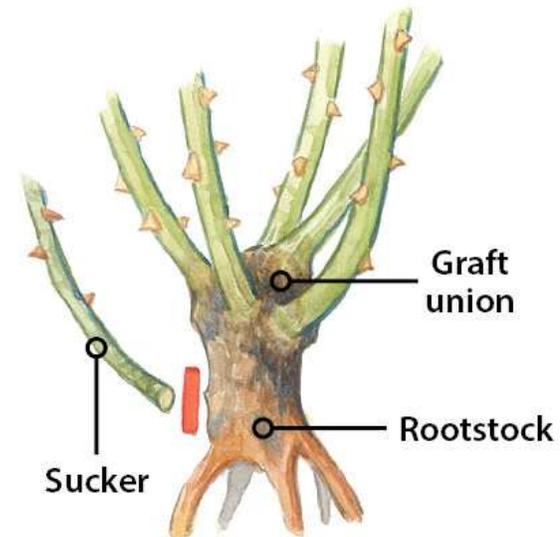
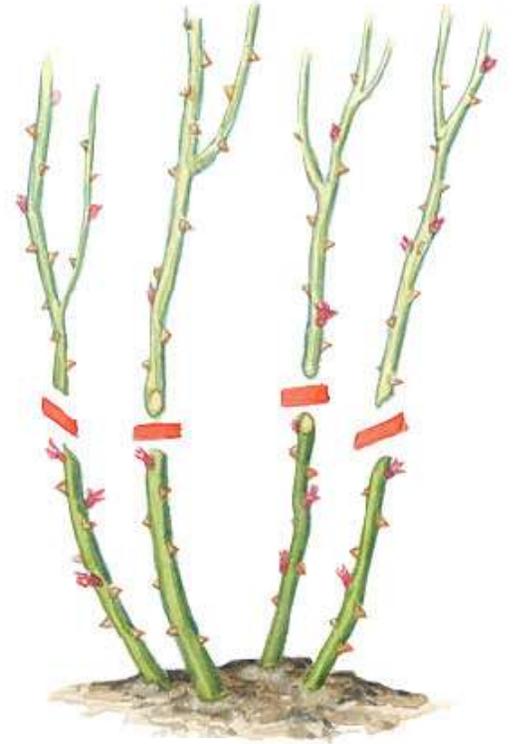
- Leftover foliage can harbor pathogens

9. Clean up

- After pruning, clean up, and toss
- Lack of sanitation can lead to pest problems

10. Don't sweat it

- You might make mistakes... it's okay!
- Roses are tough
- As long as you leave 1/2 to 2/3 of the plant, it will regrow.
- For Hybrid Teas the shorter you cut them the larger the bloom but fewer flowers.



Cultivar Specific Pruning

- Hybrid tea and grandiflora roses:
- Leave 5-8 canes, more on older, well-established plants
- Cut back to 18-24-inches high
- Cut back new canes by 1/3



Cultivar Specific Pruning

Floribunda

Floribunda

- Leave all the canes the plant has produced
- Cut back previous season's growth by 1/4
- Can be pruned to a hedge



Cultivar Specific Pruning

Climbing Roses

Climbing Roses

- Leave main canes for height
- Cut back the lateral branches to short 4 to 6-inch stubs
- Secure main canes to trellis
- If they bloom once per year, treat like other spring blooming shrubs.



Do I Need to Seal Cuts?

- No!!
- Sealing cut can promote disease
- Roses pruned in the dormant season will self-seal
- The only time sealing cuts is recommended is with boring insect problems



Summer Pruning

- Dead head flowers down to the next leaf with five leaflets
- Cut canes above a bud, slanting away from the bud
- Slant keeps water from sitting on the cane
- Never do your major pruning in the summer. This is always light pruning on the top.

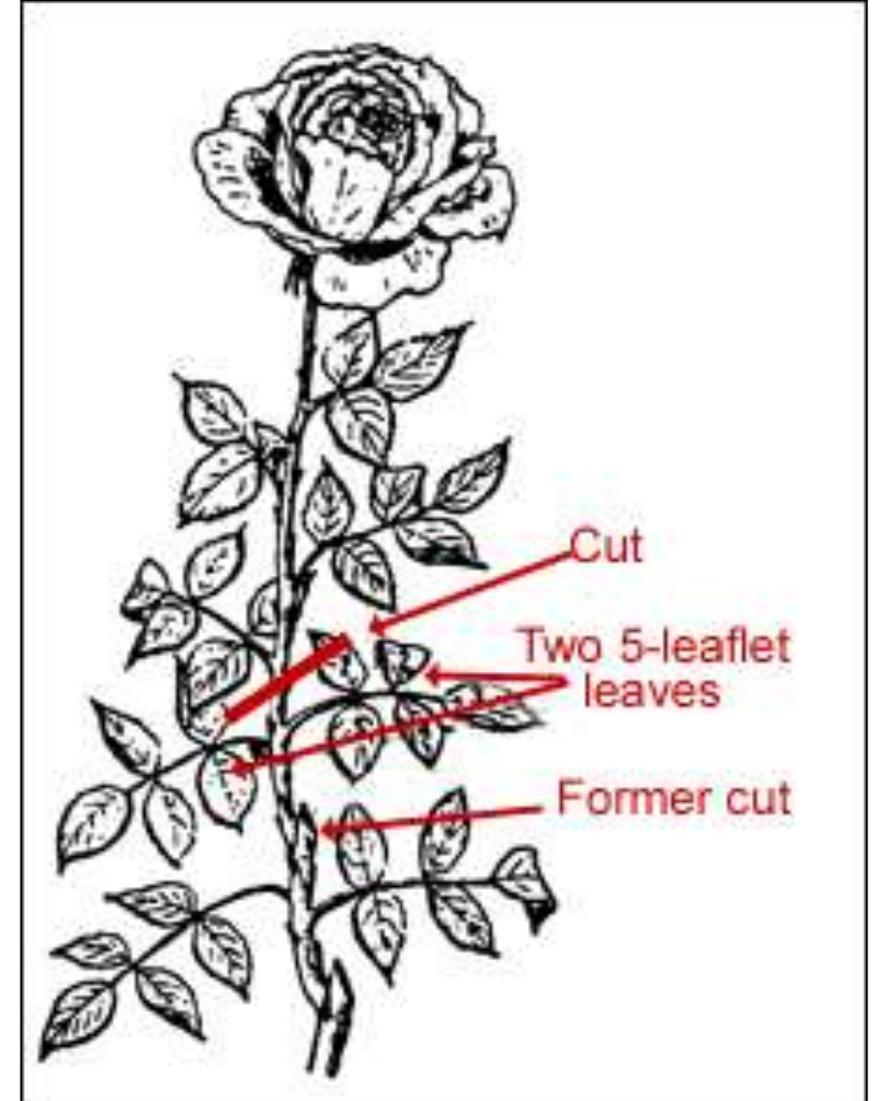


Image: University of Illinois Extension

Helpful Resources

- <https://extension.usu.edu/yardandgarden/index>
- <https://extension.usu.edu/yardandgarden/monthly-tips>
- <http://growingwithstarkbros.com/>
- <https://pestadvisories.usu.edu/>
- weberbasin.com/conservation- for more info and resources and this slide presentation.

Resources for Roses

- Jackson and Perkins

www.jacksonandperkins.com

- Weeks Roses

www.weeksroses.com

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Survey



Newsletter

