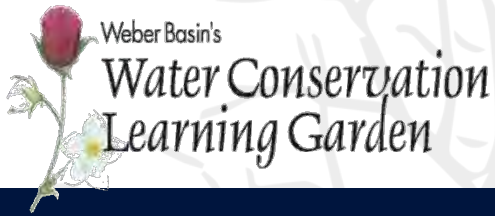


Best Pruning Practices

Fruit Trees and Grapes



WEBER
BASIN
WATER
CONSERVANCY
DISTRICT

David Rice
Conservation Programs Coordinator
Weber Basin Water Conservancy District

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.

Why Prune...?



1- Tree Health

- Remove Dead/Diseased Wood
- Improve Air Movement
- Decrease probability of disease

2- To Direct Growth

- Desired shape and form
- Renew Bloom/Vegetative Growth

3- To Create Best Environment For Fruit Production

- Light (critical for blooms/fruit)
- Harvesting
- Spurs/ fruiting wood

When to Prune...?

Dormant pruning: easy visualization, less disease risk, will stimulate growth

- Winter or early spring is the best time to prune.
- Prune during the dormant season. Any month that doesn't end in "r".
- Prune during summer to control excessive growth and water sprouts or to increase air circulation (minimal summer pruning)
- For flowering shrubs that bloom before June 1, prune after the bloom (Forsythia, lilac, mock orange, etc) All others prune when dormant.



Prune Anytime...D-D-D



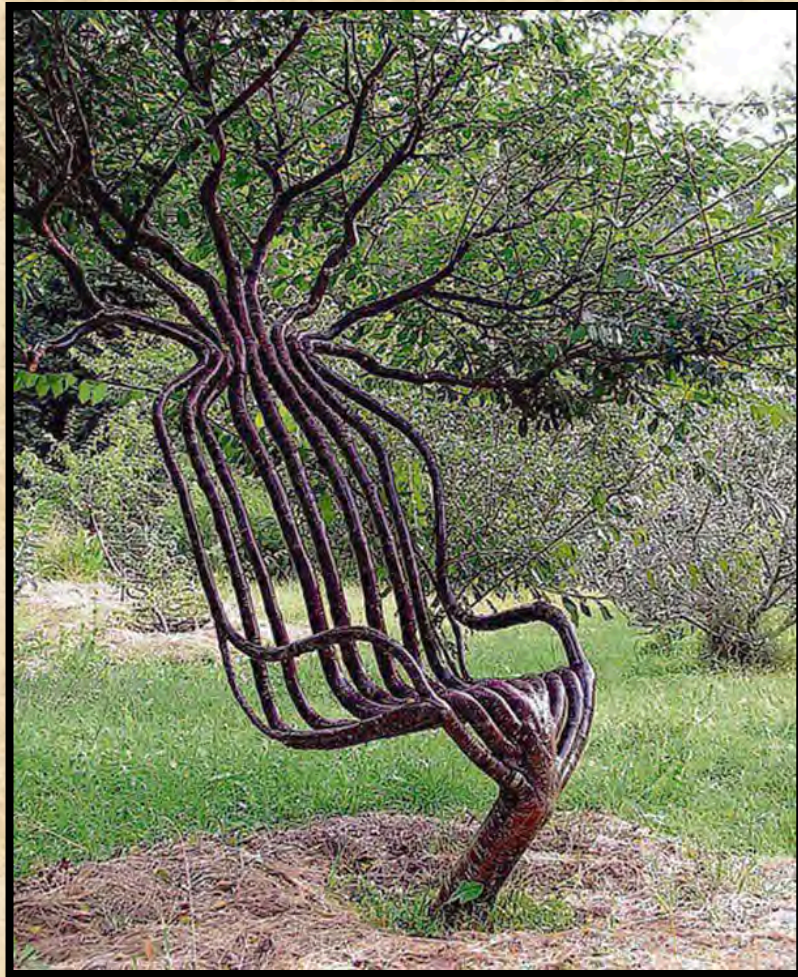
- Dead
- Diseased
- Dumb
 - hanging
 - crossing /rubbing
 - water-sprouts
 - suckers

*Summer pruning can increase disease risk

**Pruning doesn't stop growth...
it only directs it**



Directing Growth



Basic tree stuff...

Terminology

- Leader
- Scaffolds
- Water Sprouts
- Suckers
- Spurs –Where fruit is borne

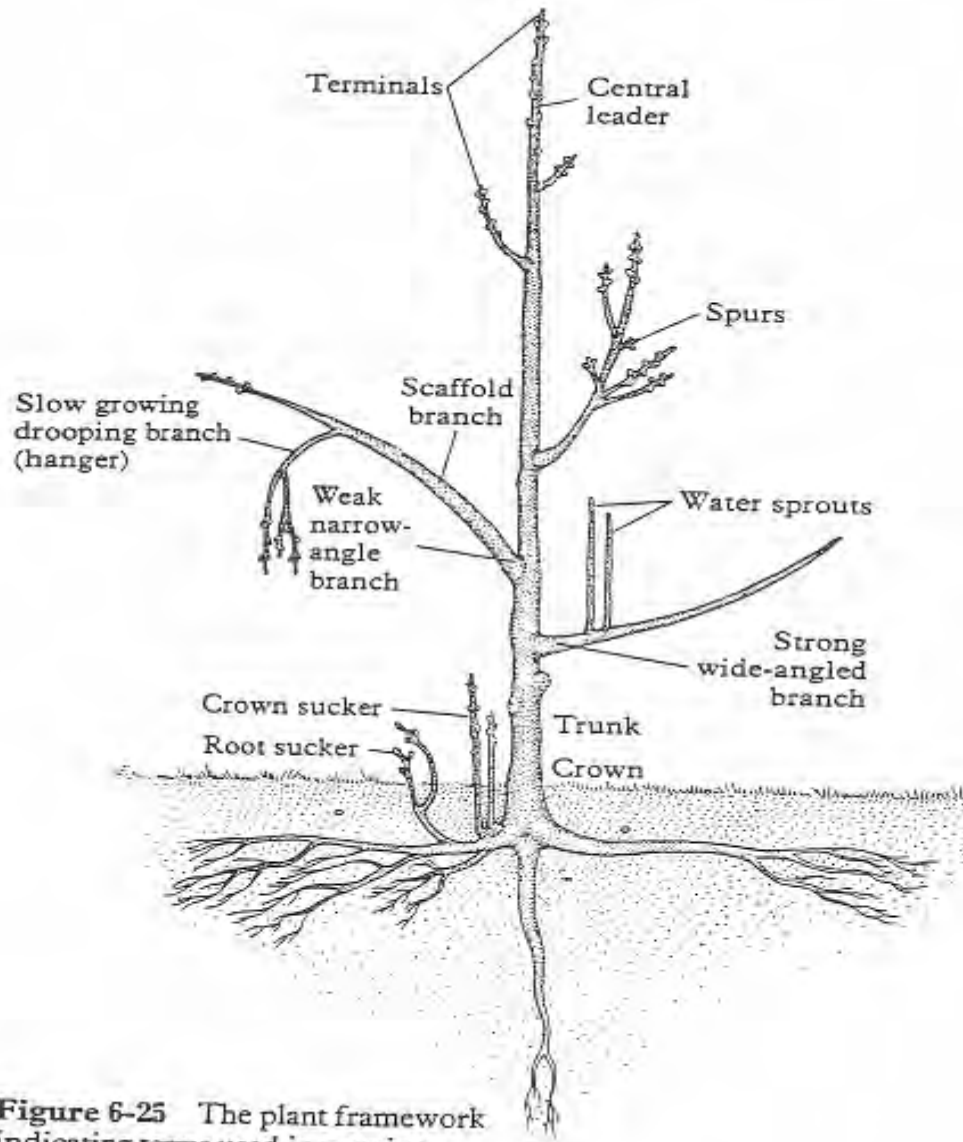


Figure 6-25 The plant framework indicating terms used in pruning.

Water Sprouts



Suckers



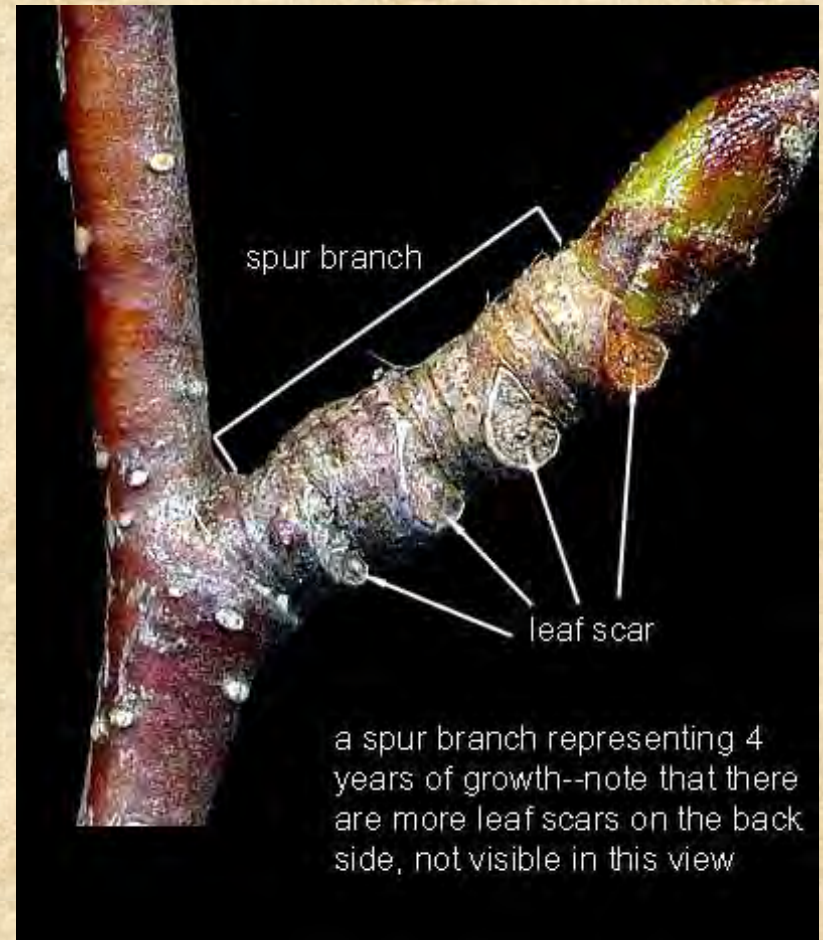
Pruning For Strength Rubbing Branches



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

Fruiting Spurs

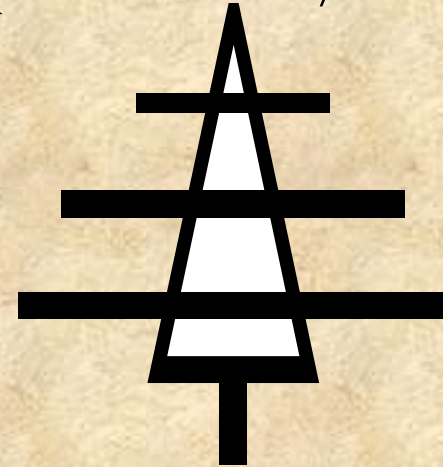
- SPURS = small thorn-like stems where fruit is borne.
- Grow very slowly
- You don't want to prune off the spurs



Apical Dominance



- The growth regulator hormone
- “Auxins” create apical dominance
 - produced by terminal bud
 - suppresses lower/lateral buds



Pruning and Training

Pruning is a Science and an Art...



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?



Pruning Tools...

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



Hand Pruners – $\frac{1}{2}$ "- $\frac{3}{4}$ " branches

- Bypass
- Anvil (not recommended)
(keep them
Clean and sharp)



Saw – 2"+ large branches



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



Loppers – $\frac{3}{4}$ " - 1 $\frac{1}{2}$ " branches



A WORD ABOUT TOOLS...

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



PRUNING TOOLS

PLANT KNOWLEDGE

- What plant is it?
- What is the plant's function?
- Where does the fruit grow?
- How does the plant grow? Bloom time?
- How big do I want the plant to get?



PRUNING TOOLS



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

PRUNING TOOLS



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

PRUNING TOOLS

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



PRUNING TOOLS

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



What to Cut...?

Dead, Diseased & Dumb

*It Depends Rule:

- type of fruit tree
- age of the tree

First 3-4 years:

training & structure

After 4-5 years:

fruit & size control







Decision making time



The one cut method!!



You have effectively eliminated all your problems and can now start over with a new tree.

Guiding Principles

Where is the Fruit Produced?

- Apples and pears
 - Two year old and older spurs
- Peach
 - One year old and older wood
- Apricot/Plum
 - One year old wood and older spurs
- Cherry
 - Two year old wood and older spurs



Apples & Pears

What about apples every-other year?

-Fruit on spurs that are
2-5 years old.

Buds Differentiate mid June

Thin the fruit!



Leaf bud

Fruit bud

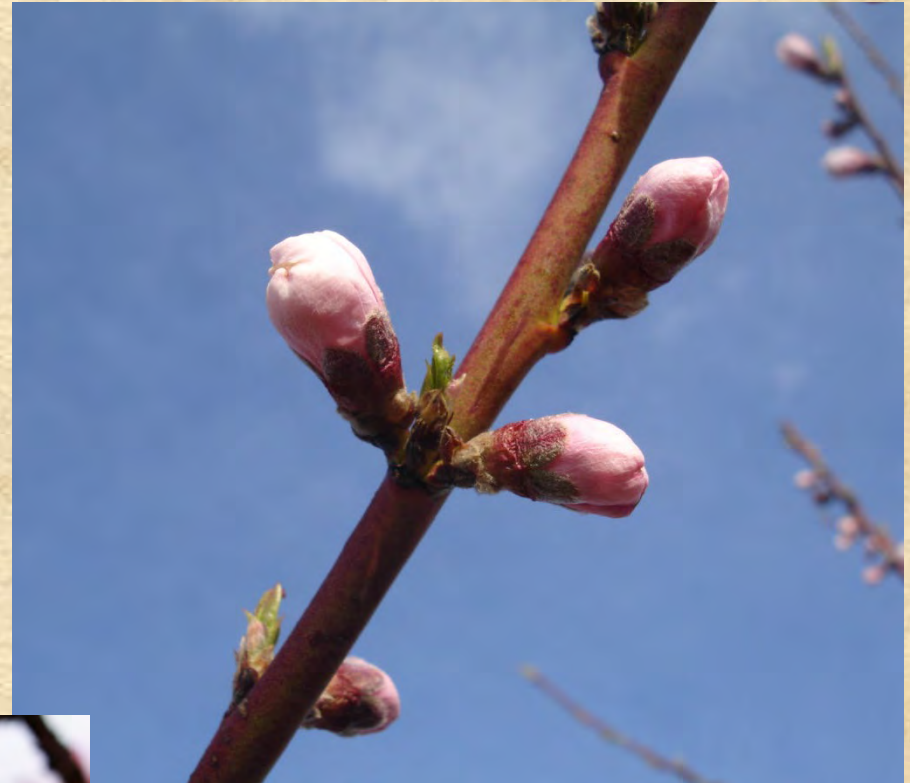


Peaches/Nectarines

Fruit on 1 year old and older wood.

3 mixed buds

Heavy annual pruning
up to 50%



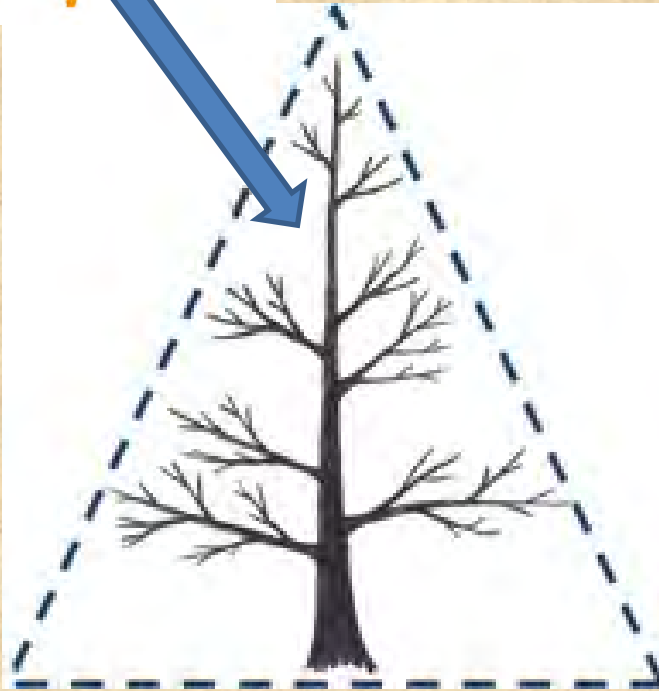
Apricots - Cherries - Plums

Produce fruit everywhere...



Guiding Principles...

Let the Light In



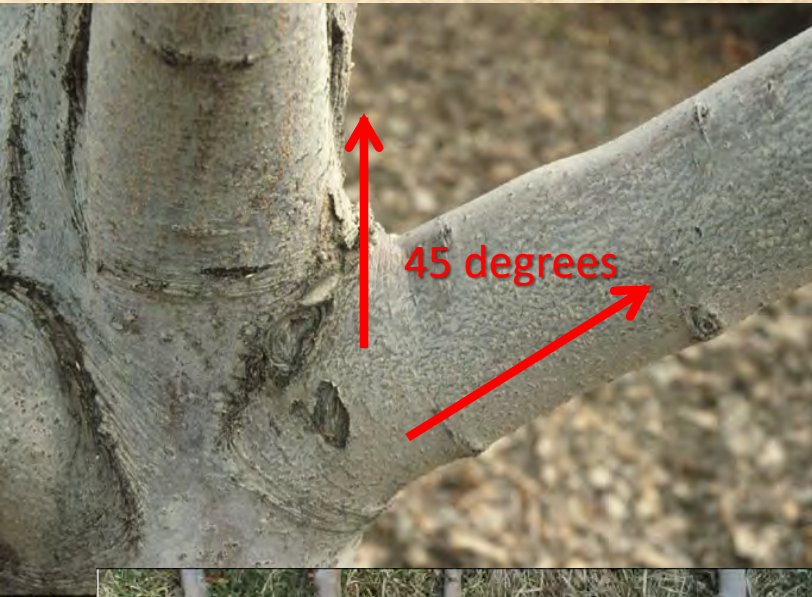
- What drives fruit production?
- How does light affect fruit?
 - Color
 - Flavor
 - Yield- 30% light needed for flower bud formation.

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

Guiding Principles...

Branch Angle

- Ideal branch angle is 30°-45°
- Wider crotch angles support heavier loads



Vertical growth is usually vegetative growth that won't produce fruit

Horizontal growth is usually fruitful growth



Spreaders, 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.



Only 2 Basic 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



PRUNING STRATEGIES

THINNING CUT

- Should be cut at the branch collar
- Cuts that are too deep will heal slowly
- Increases risk of disease

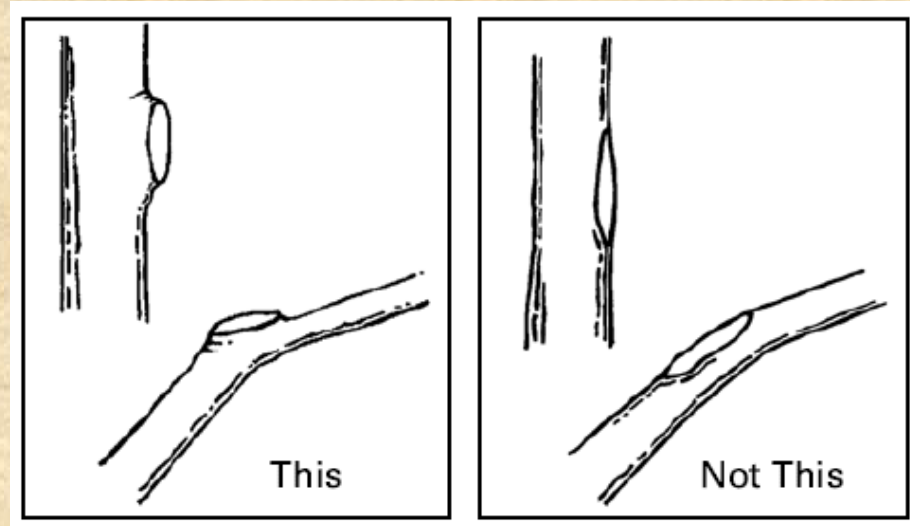
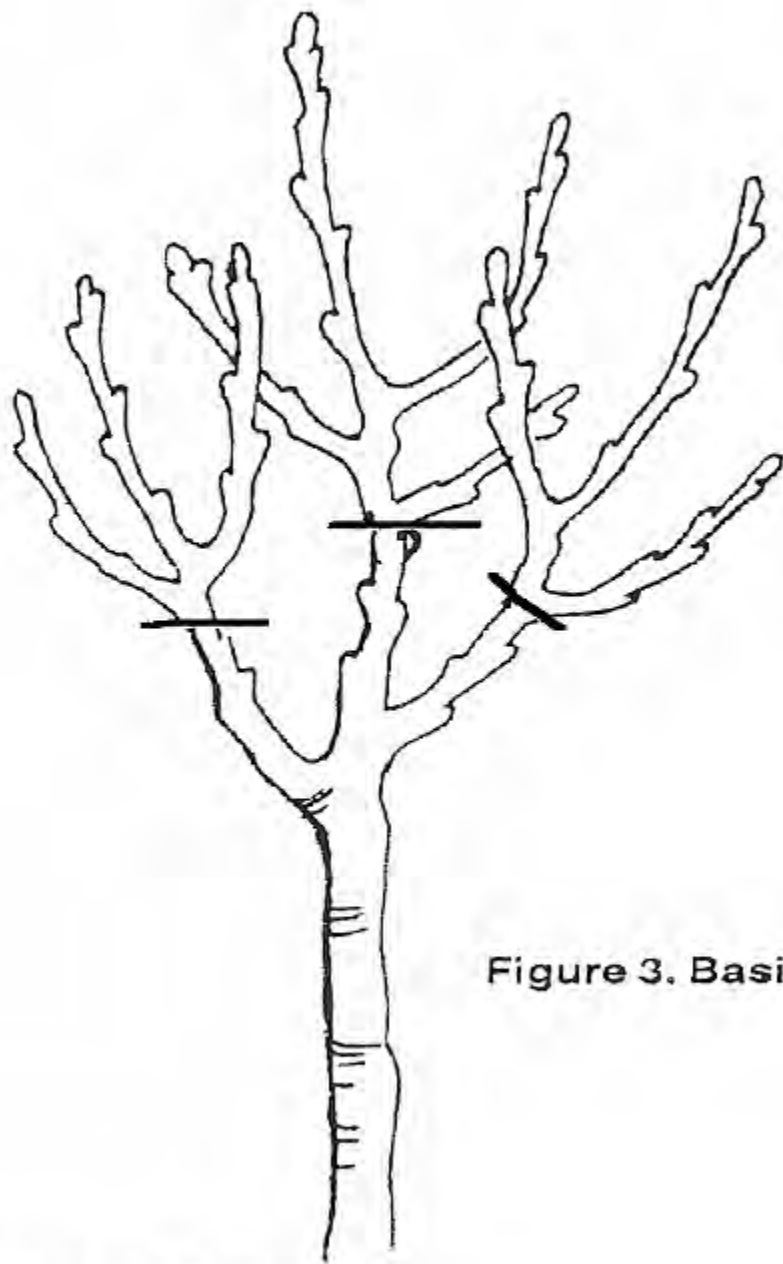
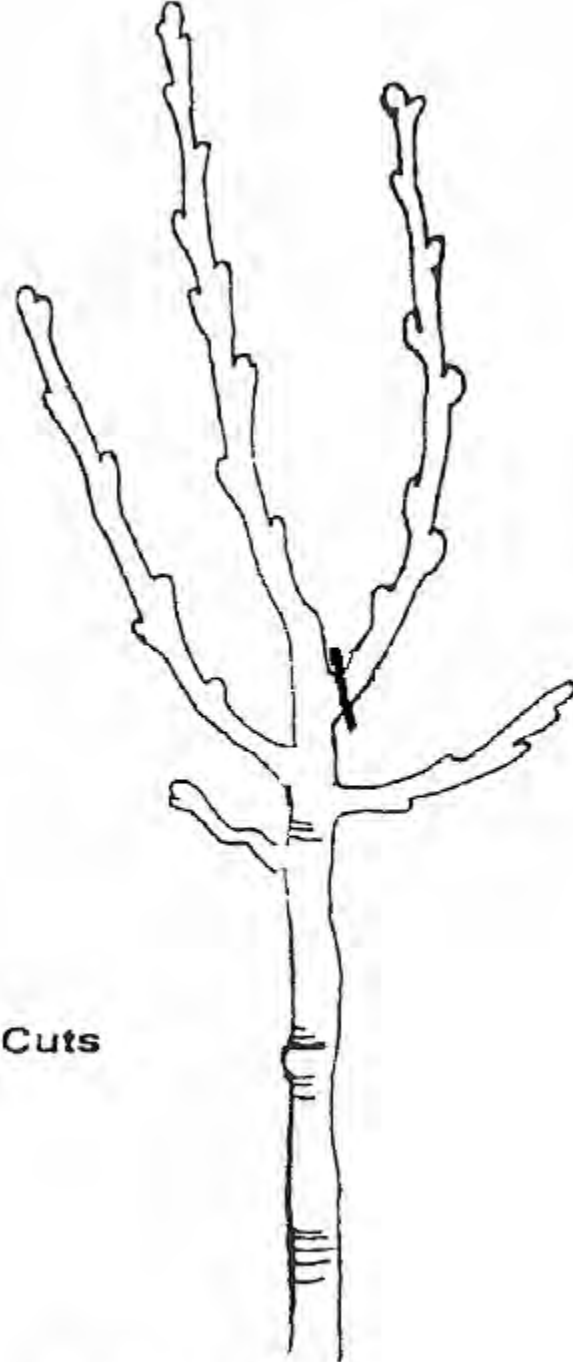


Photo source: OSU, <https://u.osu.edu/gelley.2/2018/03/02/pruning-fruit-trees/>





a. heading back



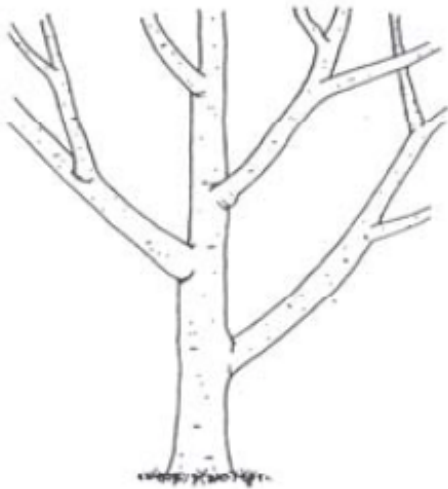
b. thinning out

Figure 3. Basic Pruning Cuts

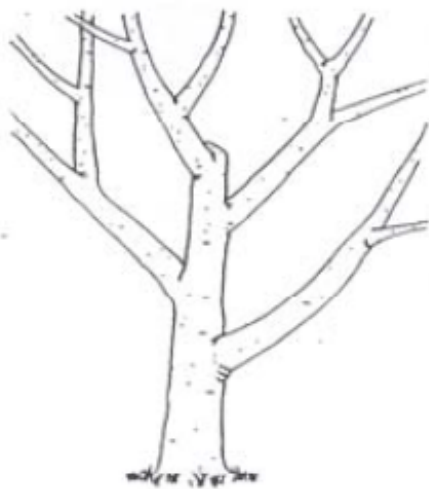
Tree Form and Shape

- 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.

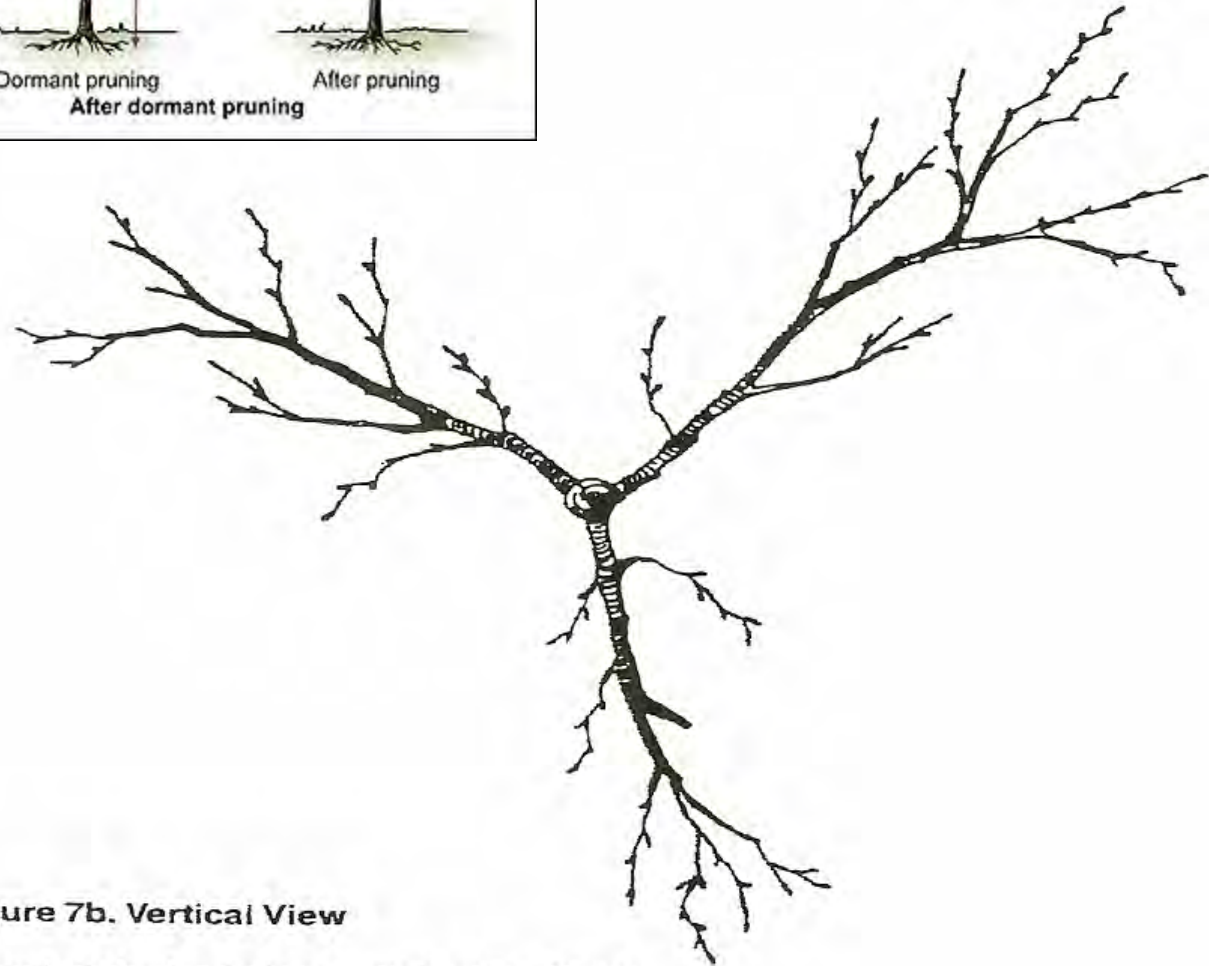
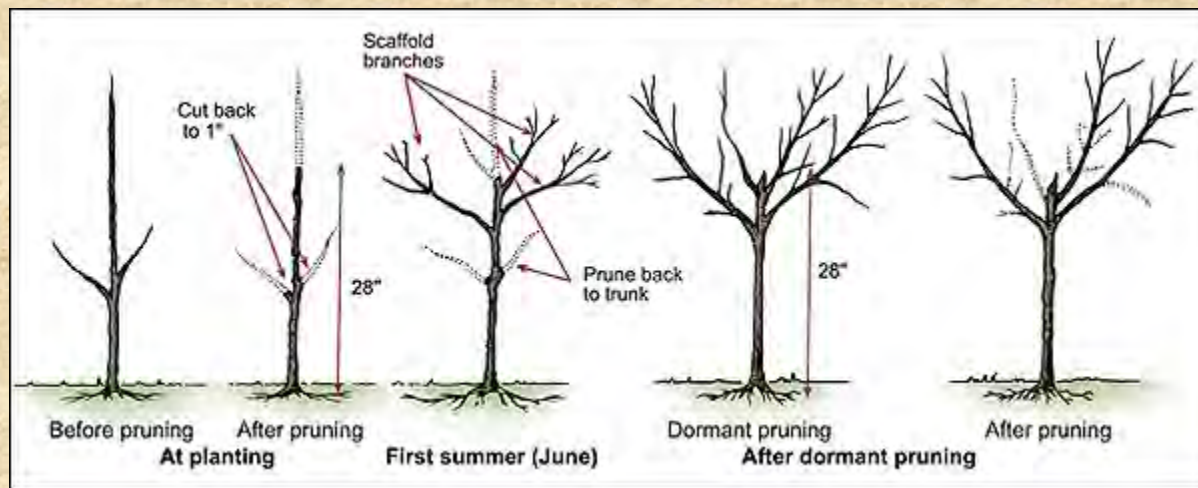


Figure 7b. Vertical View

Showing desired distribution of scaffolds

DEVELOPING AN OPEN CENTER

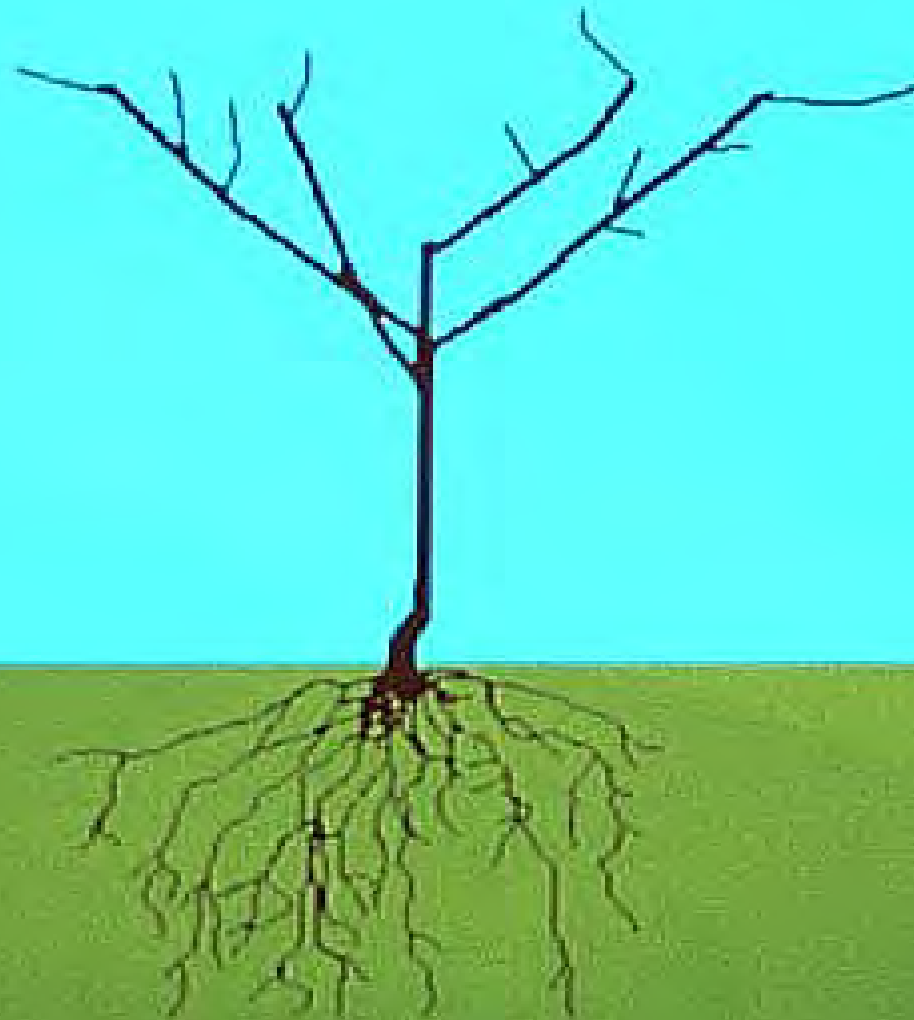
NURSERY STOCK



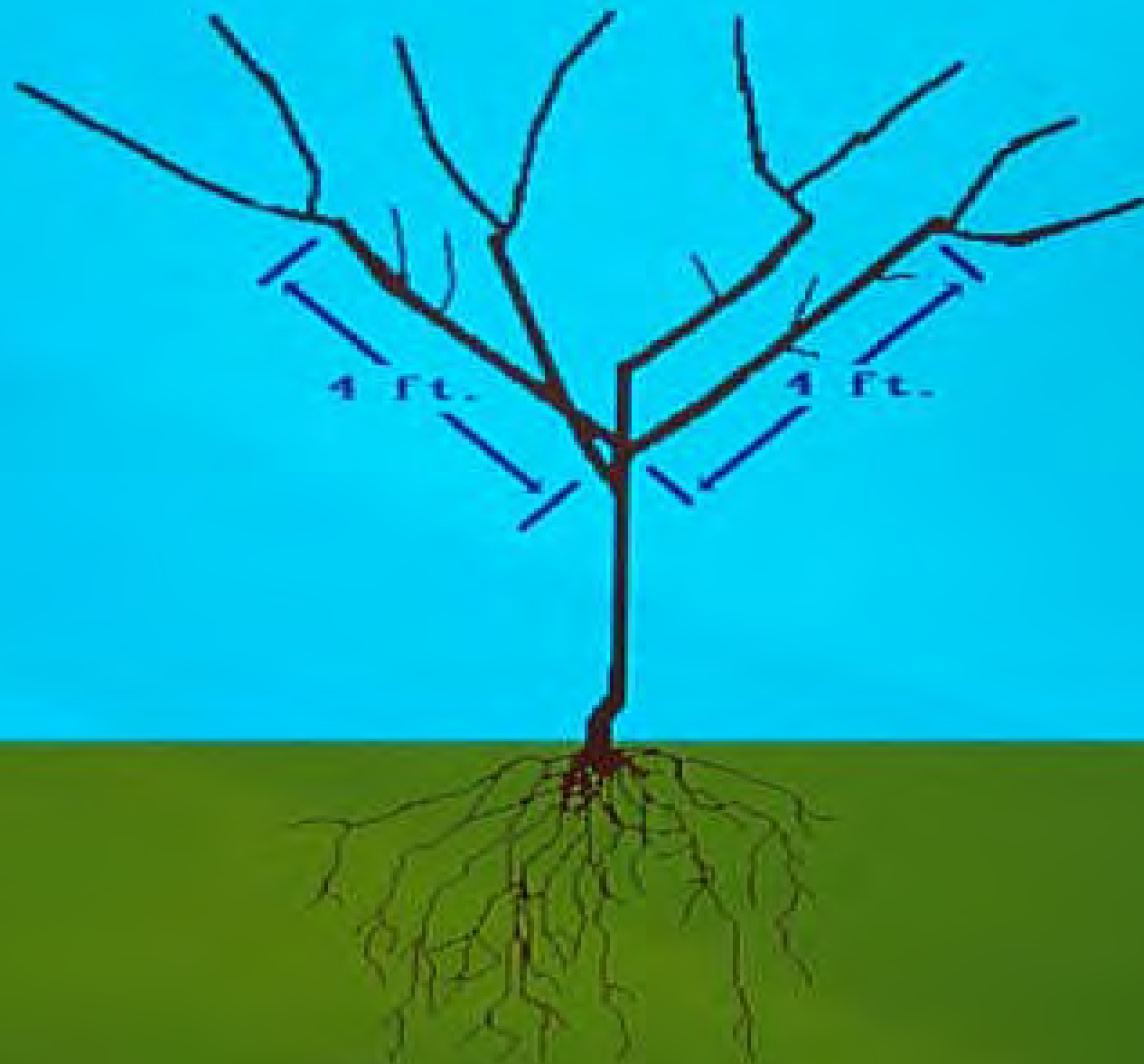
DEVELOPING AN OPEN CENTER



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



DEVELOPING A CENTRAL LEADER



PRUNING FOLLOWING
SECOND GROWING SEASON

DEVELOPING A CENTRAL LEADER

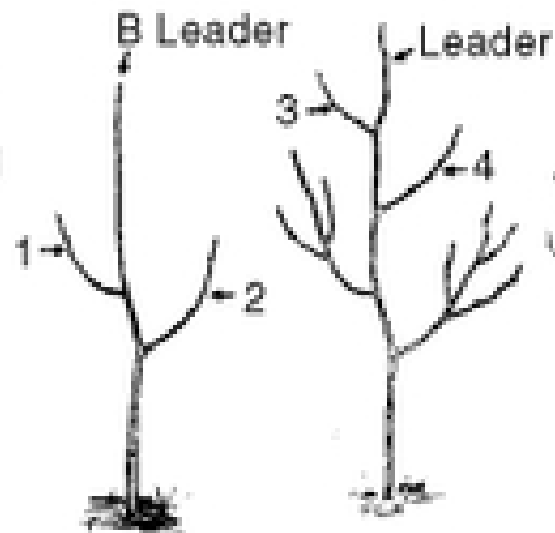
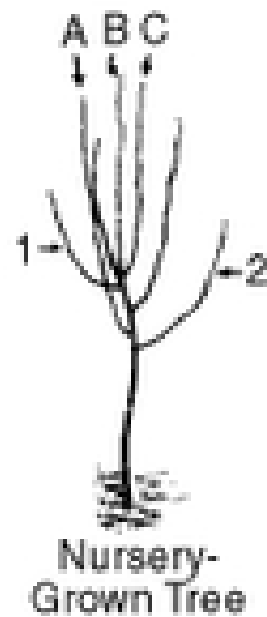


PRUNING FOLLOWING THE
FOURTH GROWING SEASON

CENTRAL LEADER TREE TRAINING SYSTEM



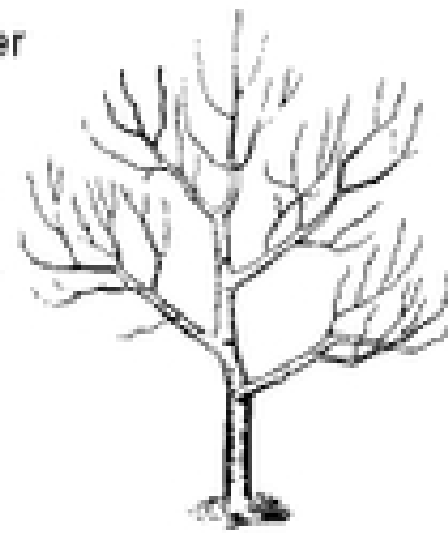
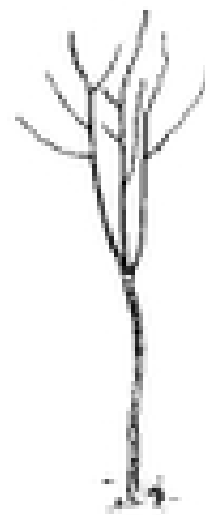
Correct Pruning



Pruned at
Planting

A B C

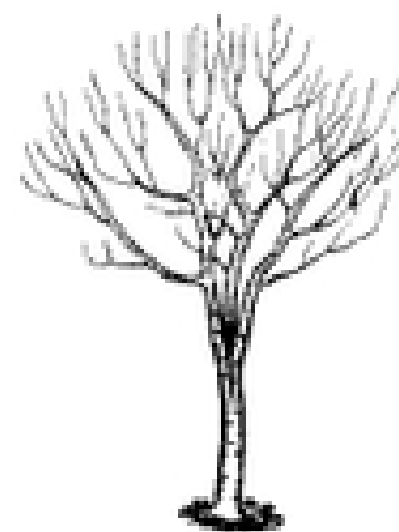
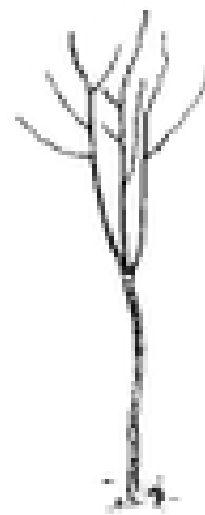
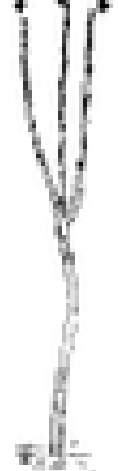
A Year Later



Six to Eight
Years Later

Incorrect Pruning

A B C



Fruit Thinning – Why?

- Produces better *quality* fruit
- Promotes annual bearing
 - Leave the “King Fruit” in apples (the largest in the middle).
- Protects tree from damage.
- Larger fruit less pests



Peaches and Nectarines fruit every 6-8 inches



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



General Rules Summary

- Never prune off more than 1/3 of the wood in a tree at one time
- One person prunes, second opinions increase divorce rates!
- It takes time to get comfortable and confident, so be patient with yourself
- Keep learning and watch how others prune and you will gain confidence



Pruning Grapes

Four-cane Kniffin System

Fruit is found on shoots growing from year old canes.

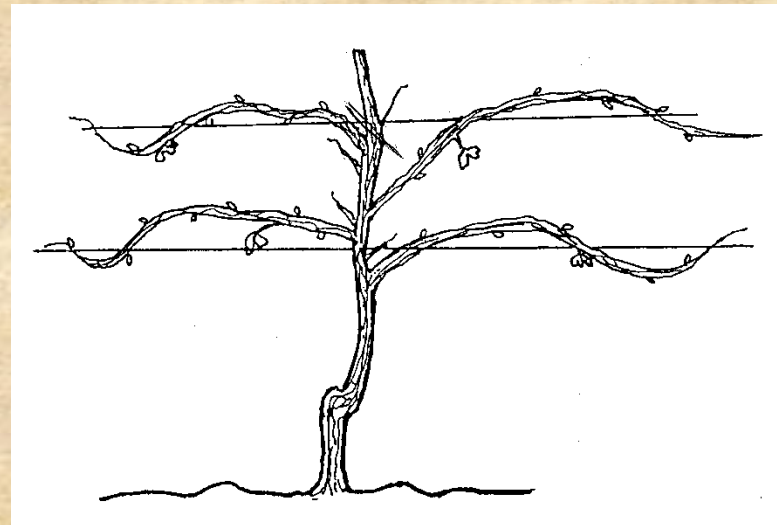
One main trunk trained to a 2 wire trellis system (24-30" apart)

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



FOUR-ARM KNIFFIN TRAINING SYSTEM

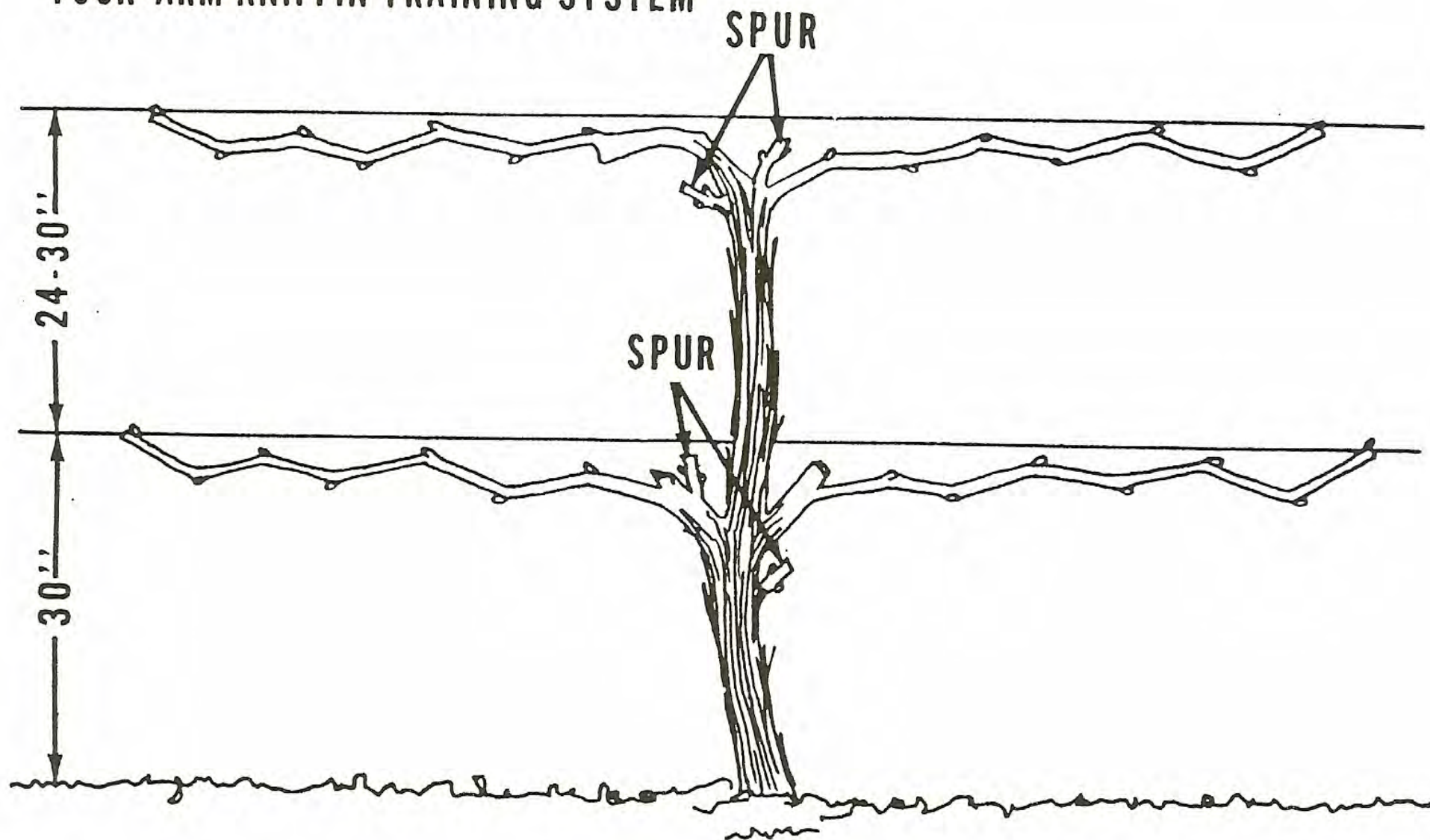
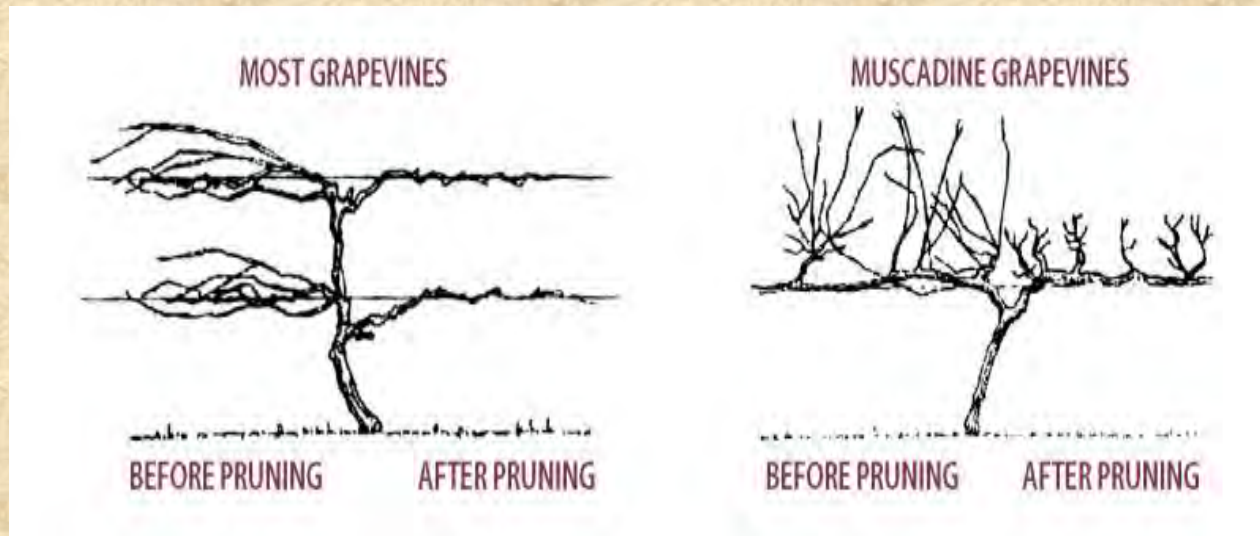


Figure 6.—The four-arm Kniffin training system is the most popular one for American bunch grapes.

Pruning Tips

- Select canes that are 1/4" in diameter
- Mark or tape the 4 “keepers” and tie them to wire first.
- Remove everything else! (90% of last year's growth comes off only leaving the renewal spurs)
- *Correct pruning = removing 80-90% of the grape plant
- Renewal spurs produce the vegetative shoots for the following year's fruiting wood



Questions?

USU resources to help you learn more

Pruning everything:

https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1724&context=extension_histall

Pruning Apples:

https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=2670&context=extension_curall

Pruning Peaches:

https://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=2845&context=extension_curall

Now go and prune your trees





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

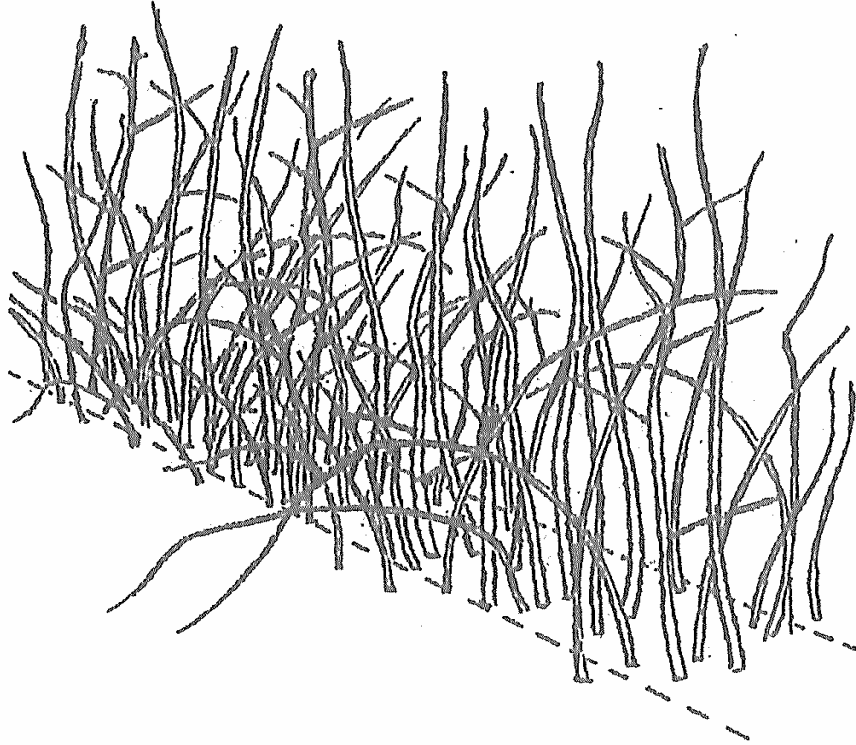
fruit on primocanes (first fall, on the tips)

fruit on floricanes (next summer, lower on cane)

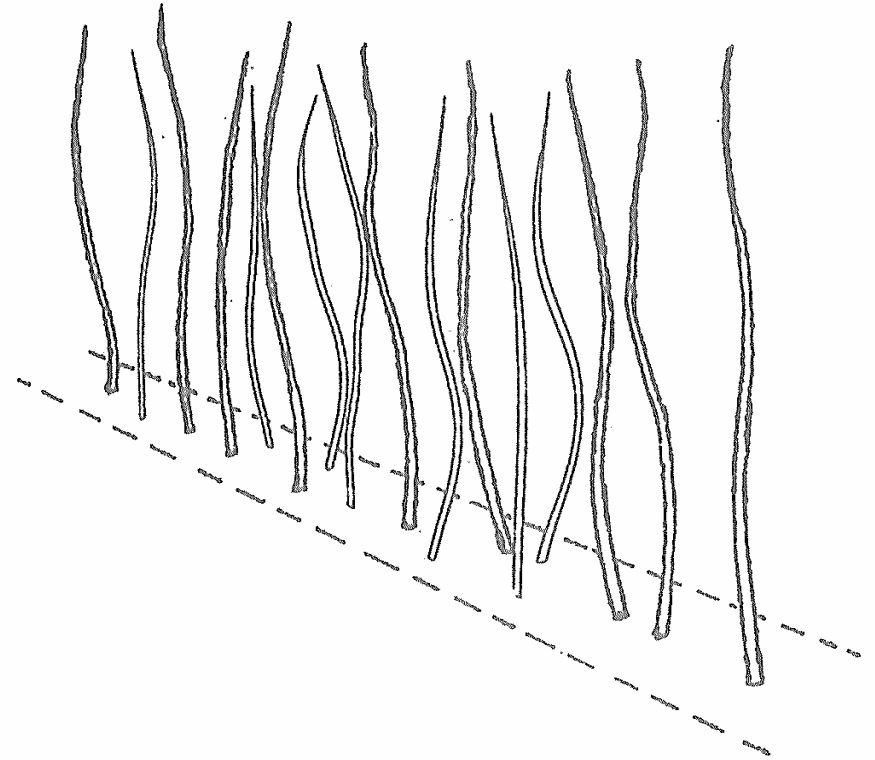
then they die



Before Pruning



After Pruning



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

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

