

Fruit Pruning Basics

Fruit Trees, Grapes, Berries



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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 Chance of Disease

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: 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.



How Cutting Stimulates Growth

- Trees maintain balance between above and below growth
- Cuts made when dormant disrupt this balance
- Trees focus energy on producing new growth to maintain balance



Prune Anytime...D-D-D

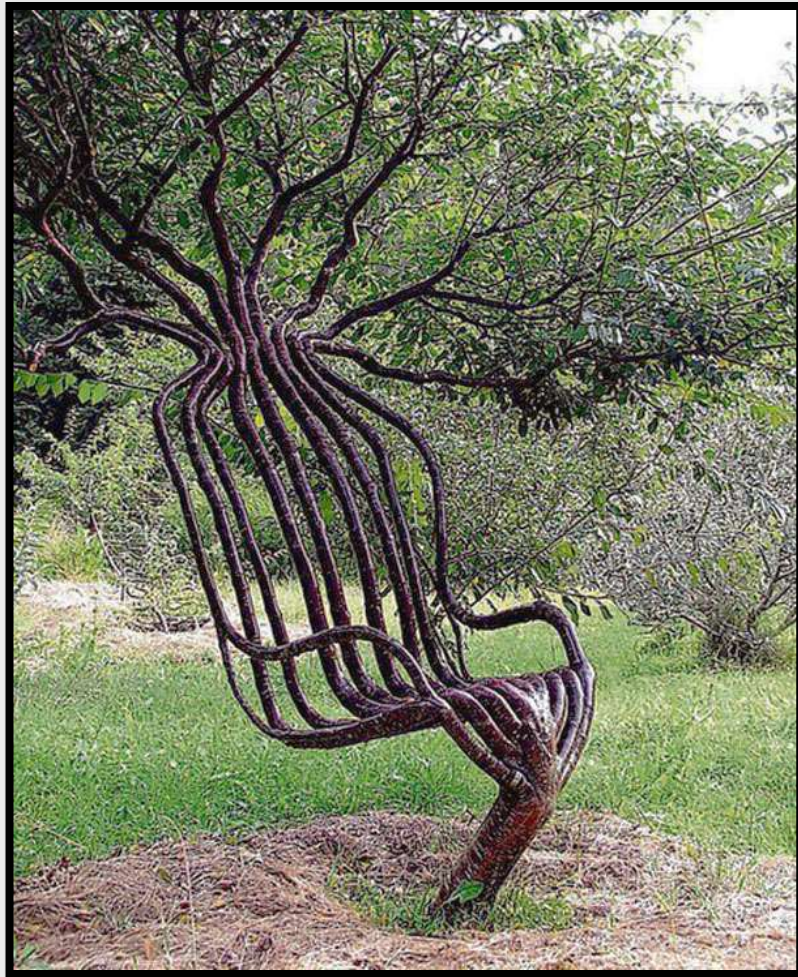


- Dead
 - Diseased
 - Dumb
 - Hanging
 - Broken
 - Crossing /rubbing
 - Water-sprouts
 - Suckers
- *Summer pruning can increase disease risk

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



Directing Growth



Basic tree stuff...

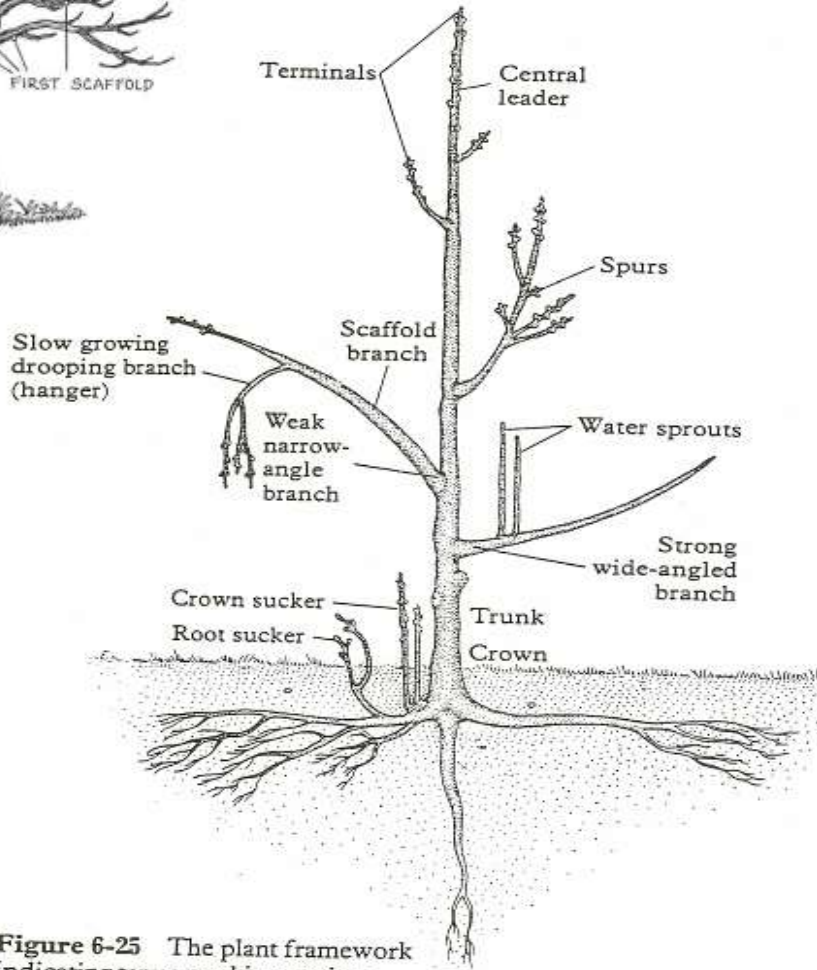
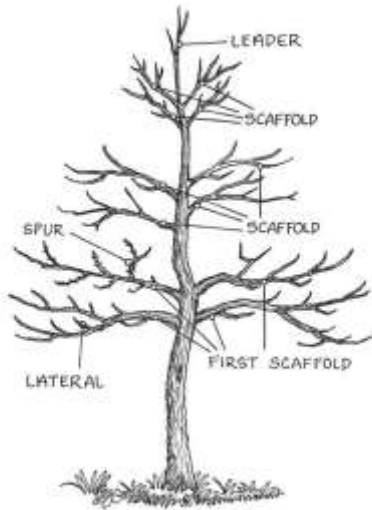


Figure 6-25 The plant framework indicating terms used in pruning.

Terminology

- Leader – Main Trunk(s)
- Scaffolds- Main branch(es) originating from the leader
- Water Sprouts – Vertical shoots in the canopy
- Suckers- Vertical shoots from the roots or crown
- Spurs –Where fruit is borne, Like a leaf bud but different look.

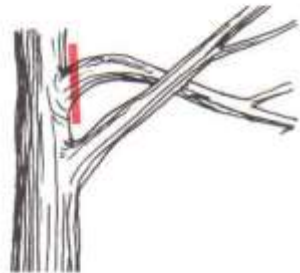
Water Sprouts



Suckers



Pruning For Strength Rubbing Branches

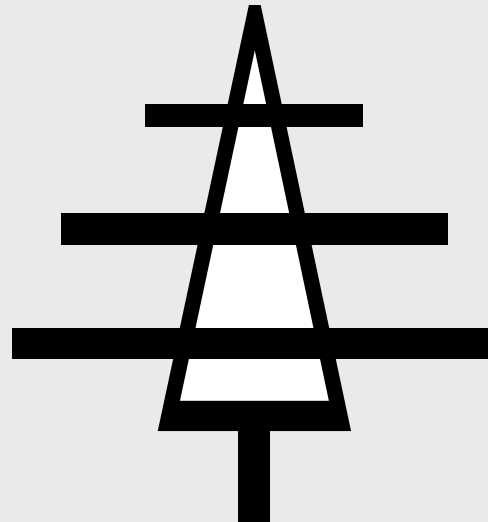


- Branches that rub result in wounds, decay and notches.
- Remove one of the offending branches.

Apical Dominance



- Auxin is the growth regulator hormone in plants
- “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 – 1/2”- 3/4” branches

- Bypass
- Anvil (Don't use)
(keep them
Clean and sharp)



Saw – 2”+ large branches



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



Loppers – 3/4” - 1 1/2 ”branches

About Tools

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





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, proper
direction of growth



Pruning Basics



PLANT KNOWLEDGE

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

Improper Pruning and Thinning



Improper Pruning



Decision making time



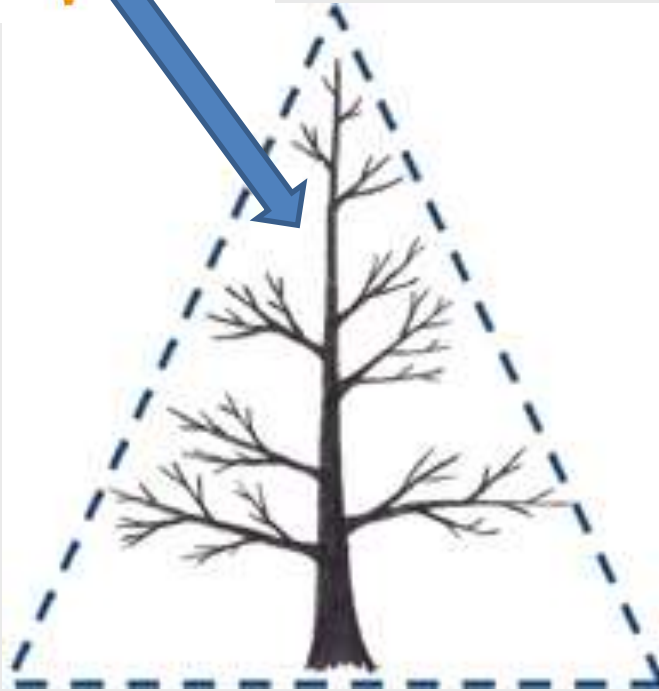
The One Cut Method!!



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

Guiding Principles...

Let the Light Into the Canopy



- 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

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



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 fruiting and ornamental trees

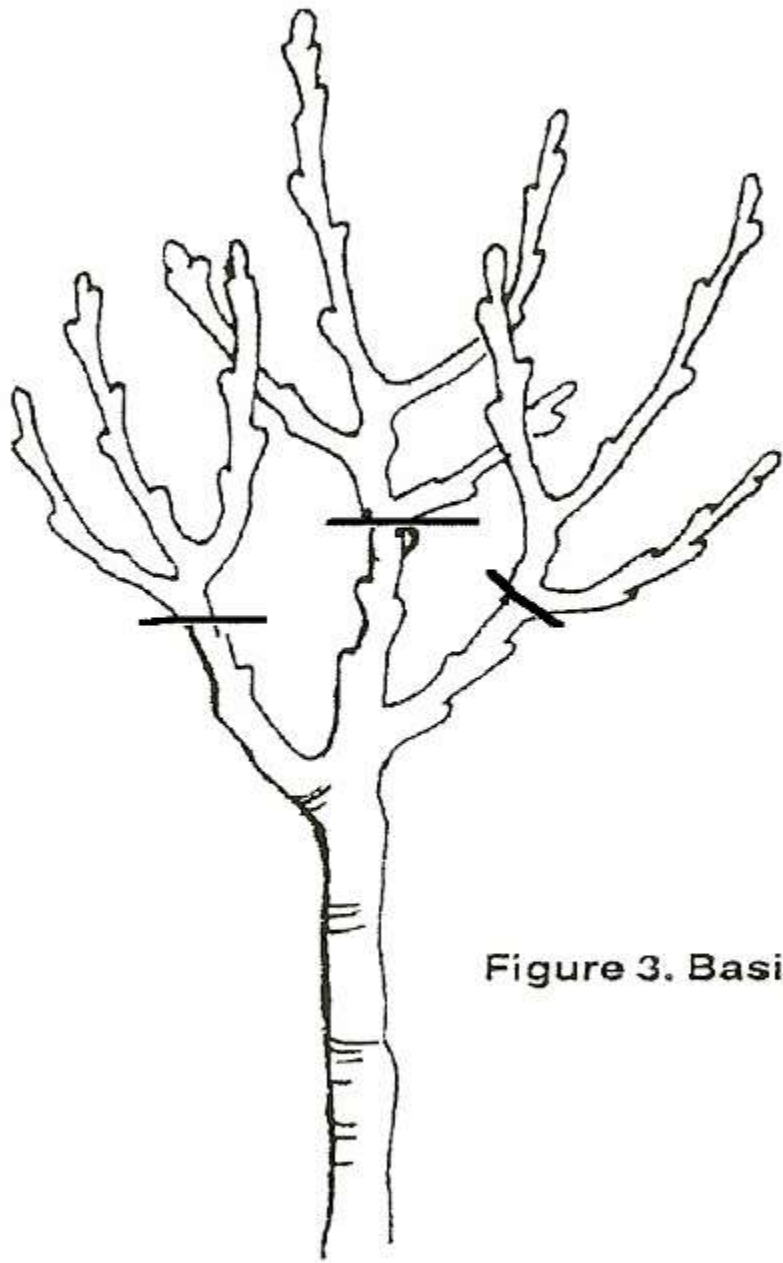
Thinning cuts

- remove entire branch or shoot back to a lateral branch or trunk
- directs growth
- More natural looking cut
- Branch will not grow back



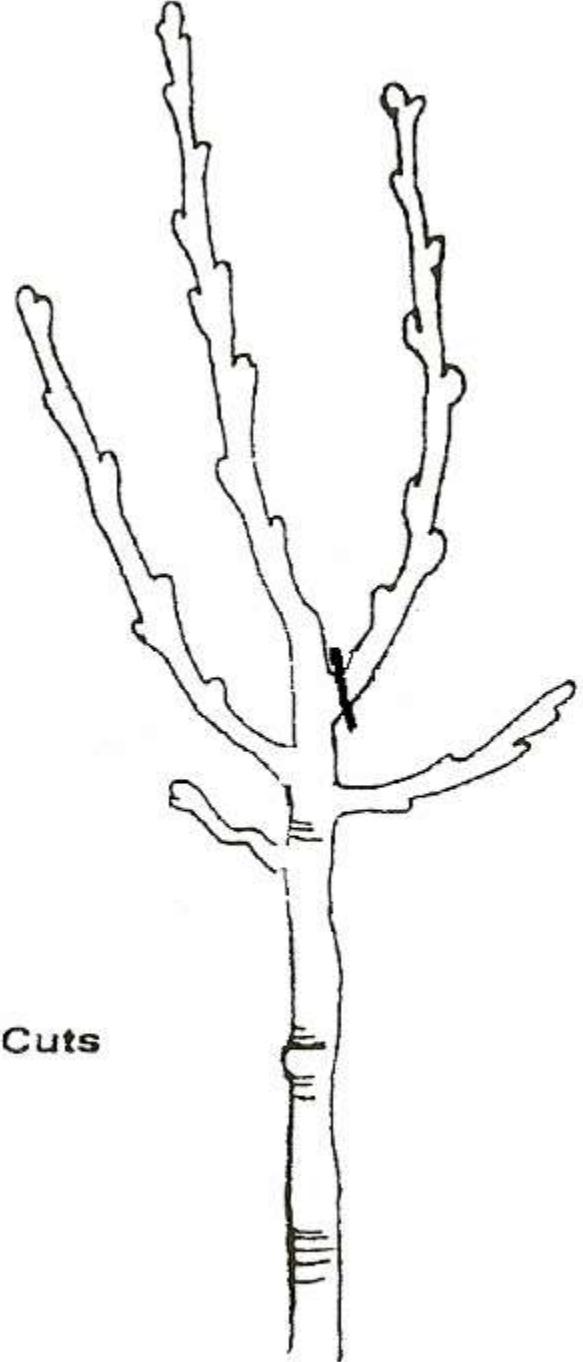






a. heading back

Figure 3. Basic Pruning Cuts



b. thinning out

Correct, Clean Cuts

THINNING CUT

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

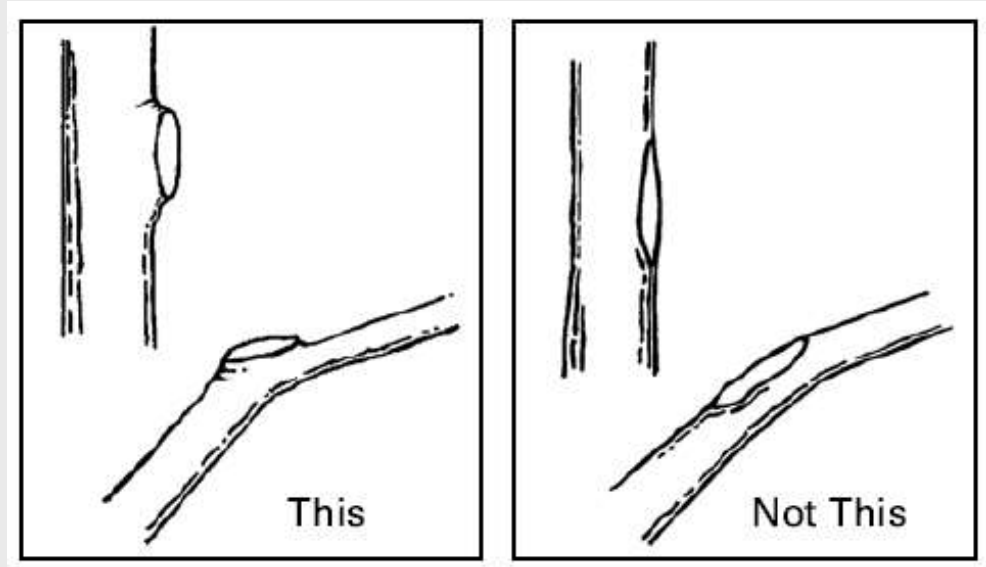
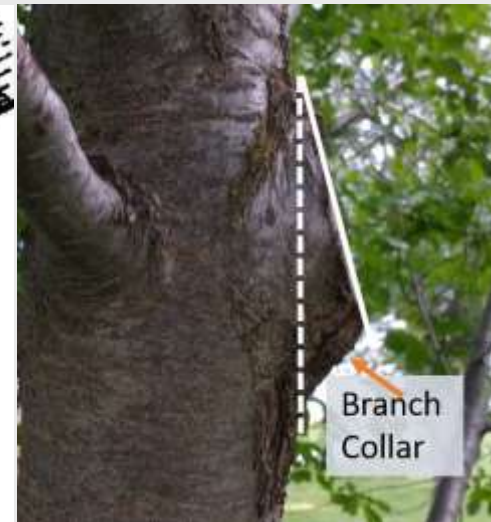
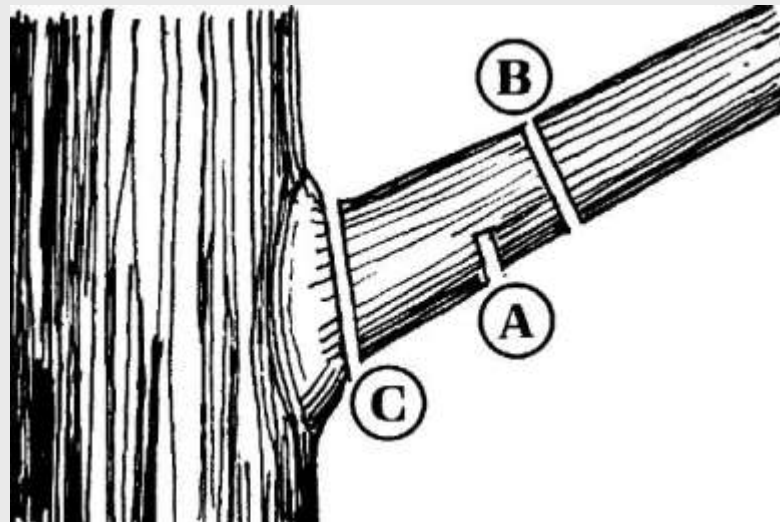


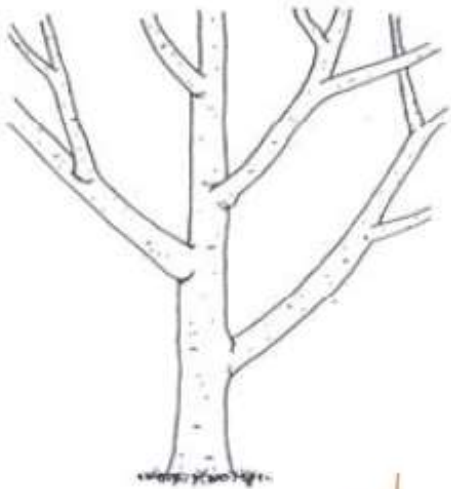
Photo source: OSU,



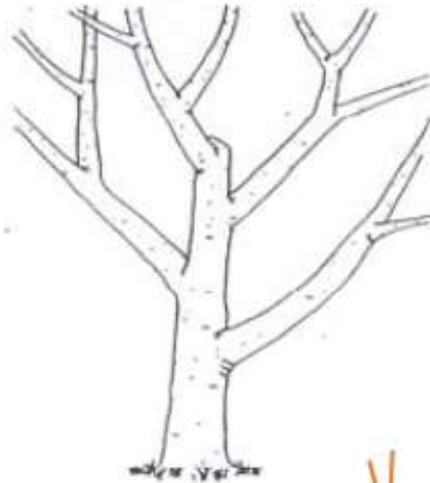
Tree Form and Shape

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

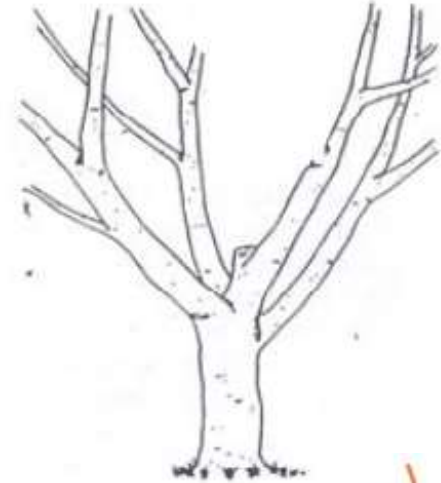
Central Leader



Modified Central Leader



Vase or Multiple Leader



Guiding Principles

Where is the Fruit Produced?

- **Apples and Pears** (Central leader or modified central leader)
 - Two-year old and older spurs
- **Peach** (Open Vase)
 - One year old wood
- **Apricot/Plum** (Open Vase)
 - One year old wood and older spurs
- **Cherry** (Modified central leader or open vase)
 - 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

Clusters of 5, so
they need to be
thinned.



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
on spurs...



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.

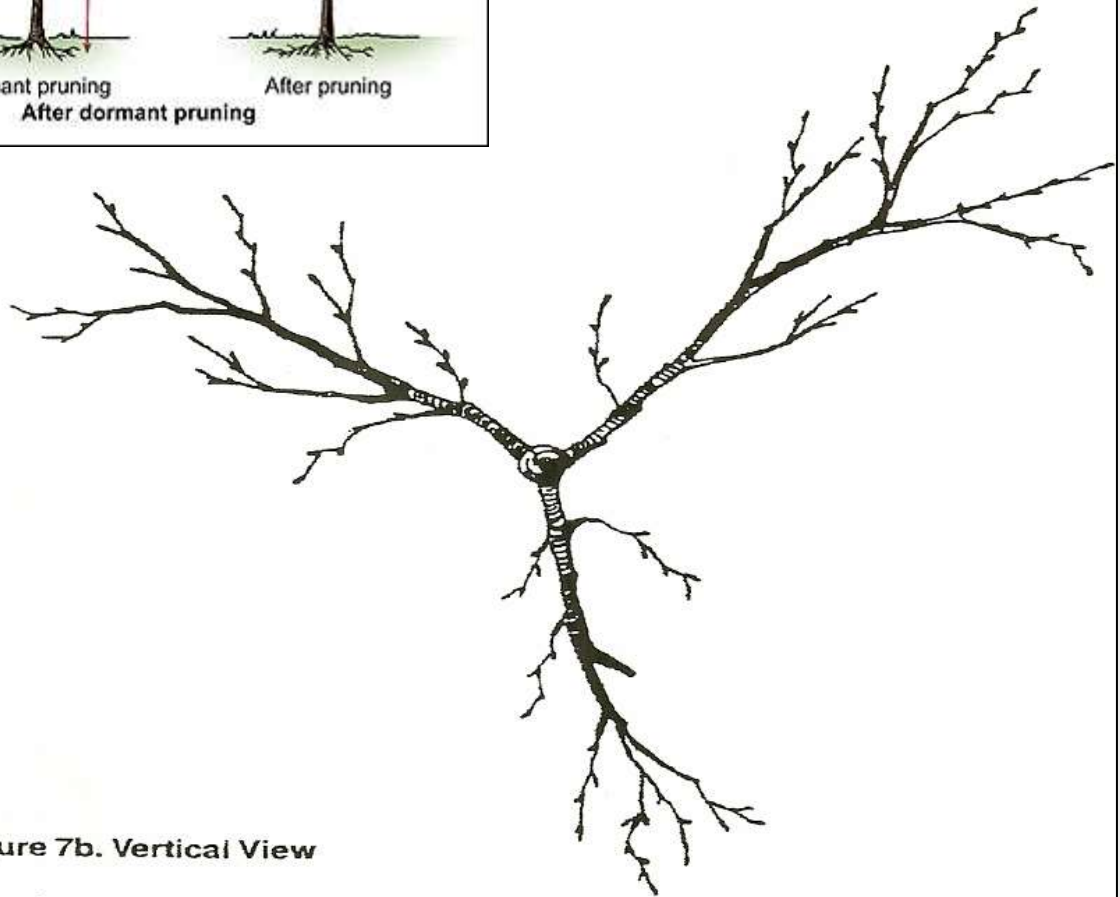
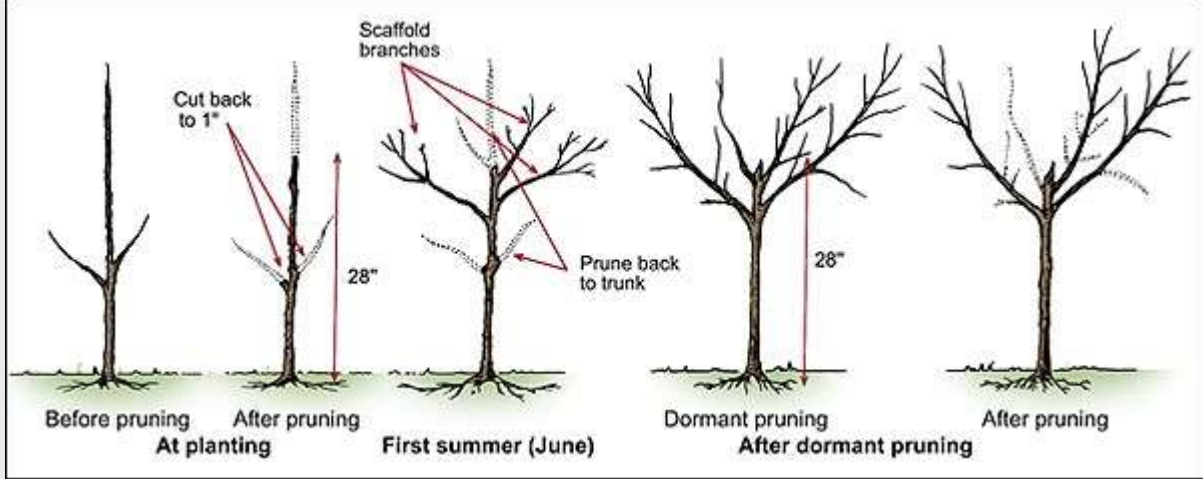


Figure 7b. Vertical View

Showing desired distribution of scaffolds

DEVELOPING AN OPEN CENTER

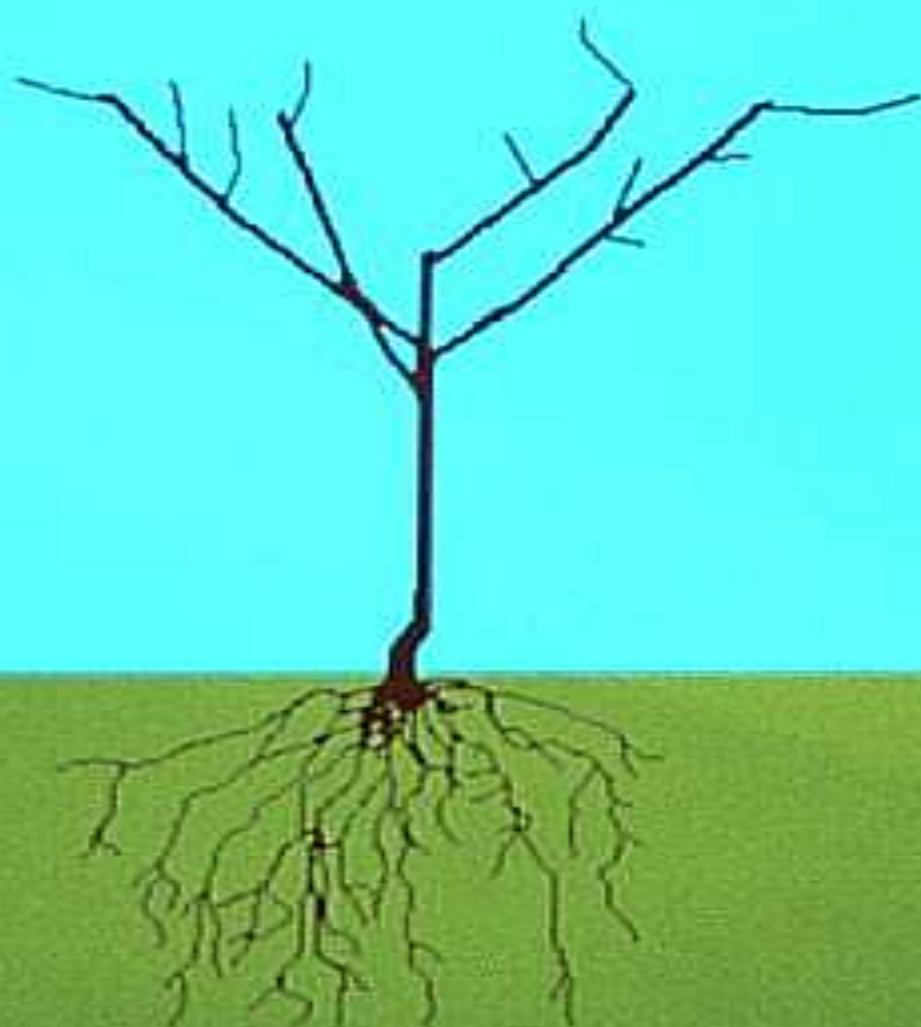
MURSERY STOCK



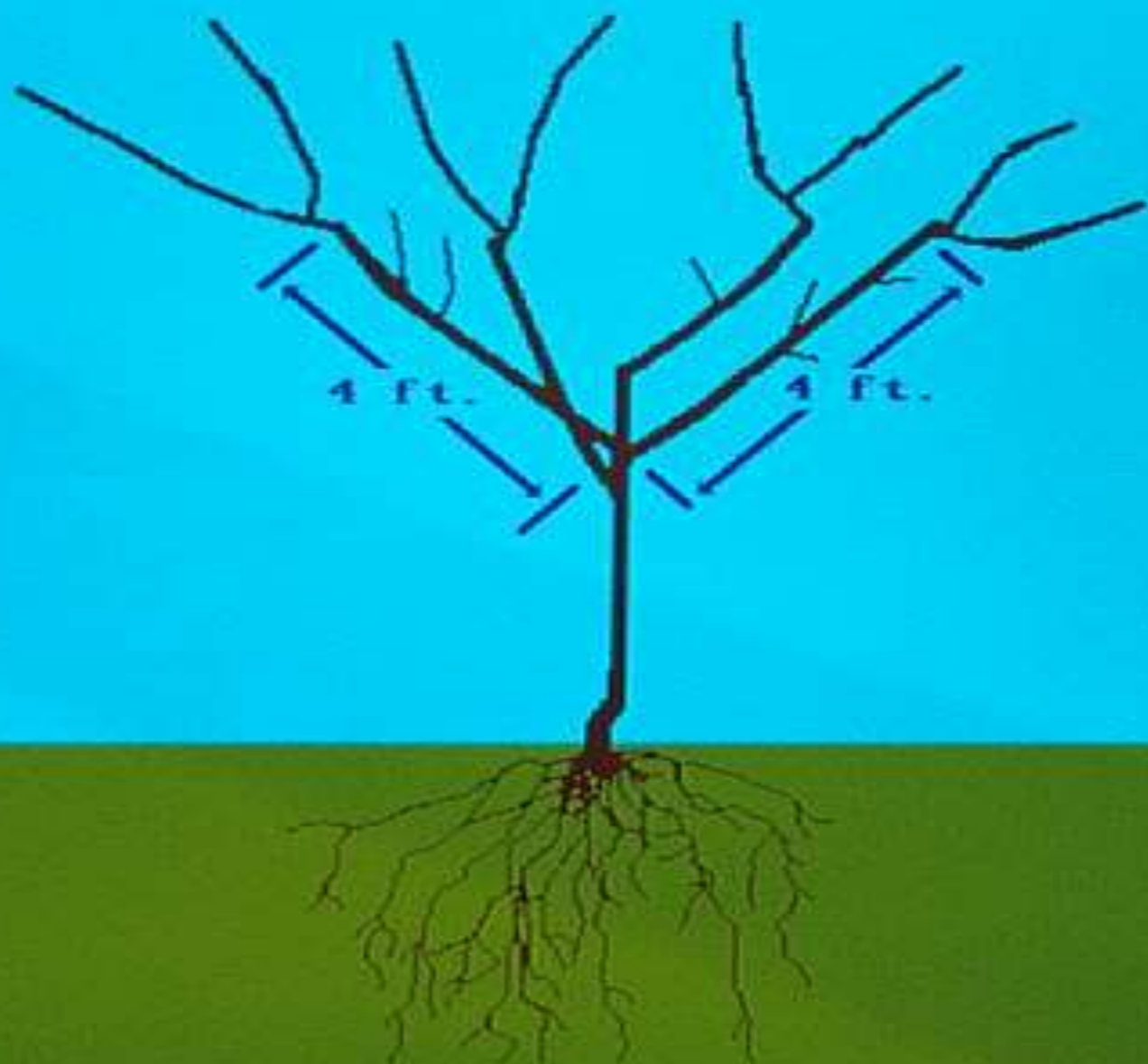
DEVELOPING AN OPEN CENTER



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



DEVELOPING A CENTRAL LEADER



PRUNING FOLLOWING
SECOND GROWING SEASON

DEVELOPING A CENTRAL LEADER

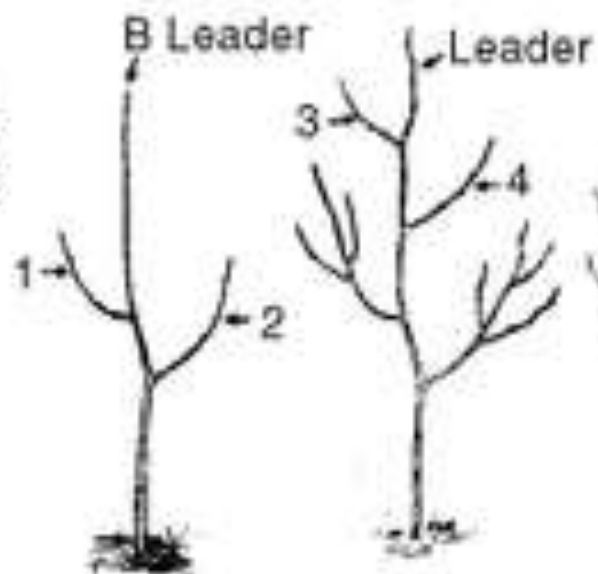
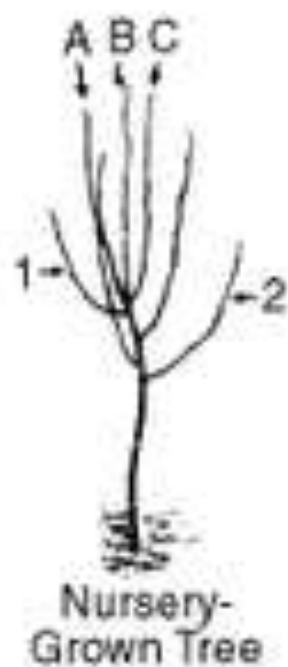


PRUNING FOLLOWING THE
FOURTH GROWING SEASON

CENTRAL LEADER TREE TRAINING SYSTEM



Correct Pruning



Pruned at Planting

A Year Later



Six to Eight Years Later



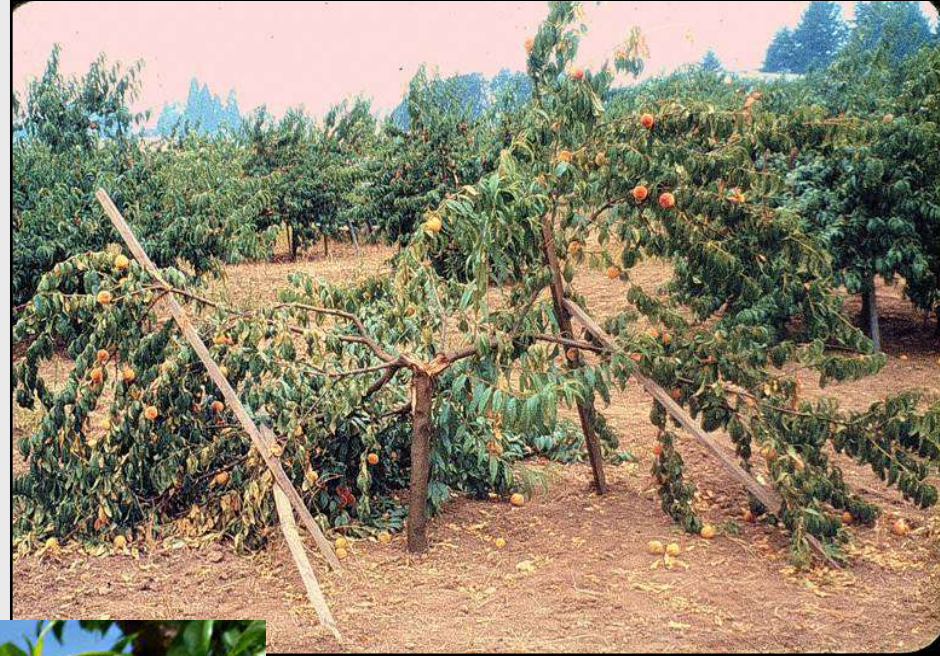
Incorrect Pruning



Fruit Thinning

What size of fruit do you want?

- Produces better quality fruit
- Should be done when fruit is quarter sized.
- Leave the largest fruits
- Protects tree from damage
- Peaches and nectarines: 1 fruit every 6-8 inches



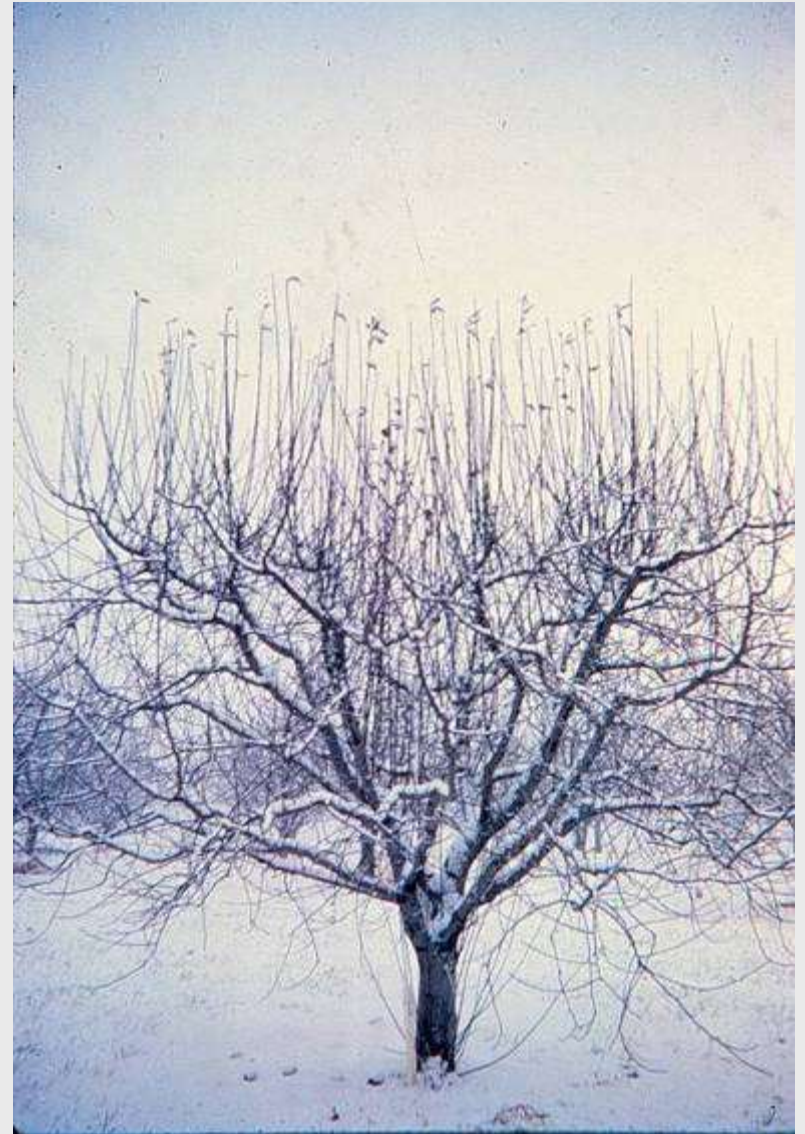
Fruit Thinning

- Apples and Pears:
 - Thin to promote annual blooming/bearing
 - Pests- Coddling moth
 - Produces better quality fruit
 - after “June drop” in apples
- Protects tree from damage.
- Apricots, plums and cherries are not usually thinned.



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 (not including dead wood)
- One person prunes, second opinions increase divorce rates!
- It takes time to get comfortable and confident, so be patient with yourself
- Keep learning and watching others do it.



Pruning Grapes

Four-cane Kniffin System

Fruit is found on shoots growing from year old canes.

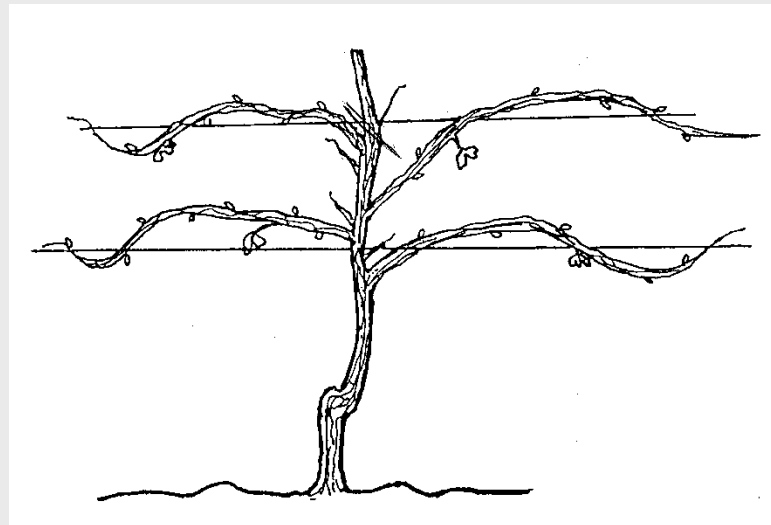
One main trunk trained to a 2 wire trellis system (24-30" apart)

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

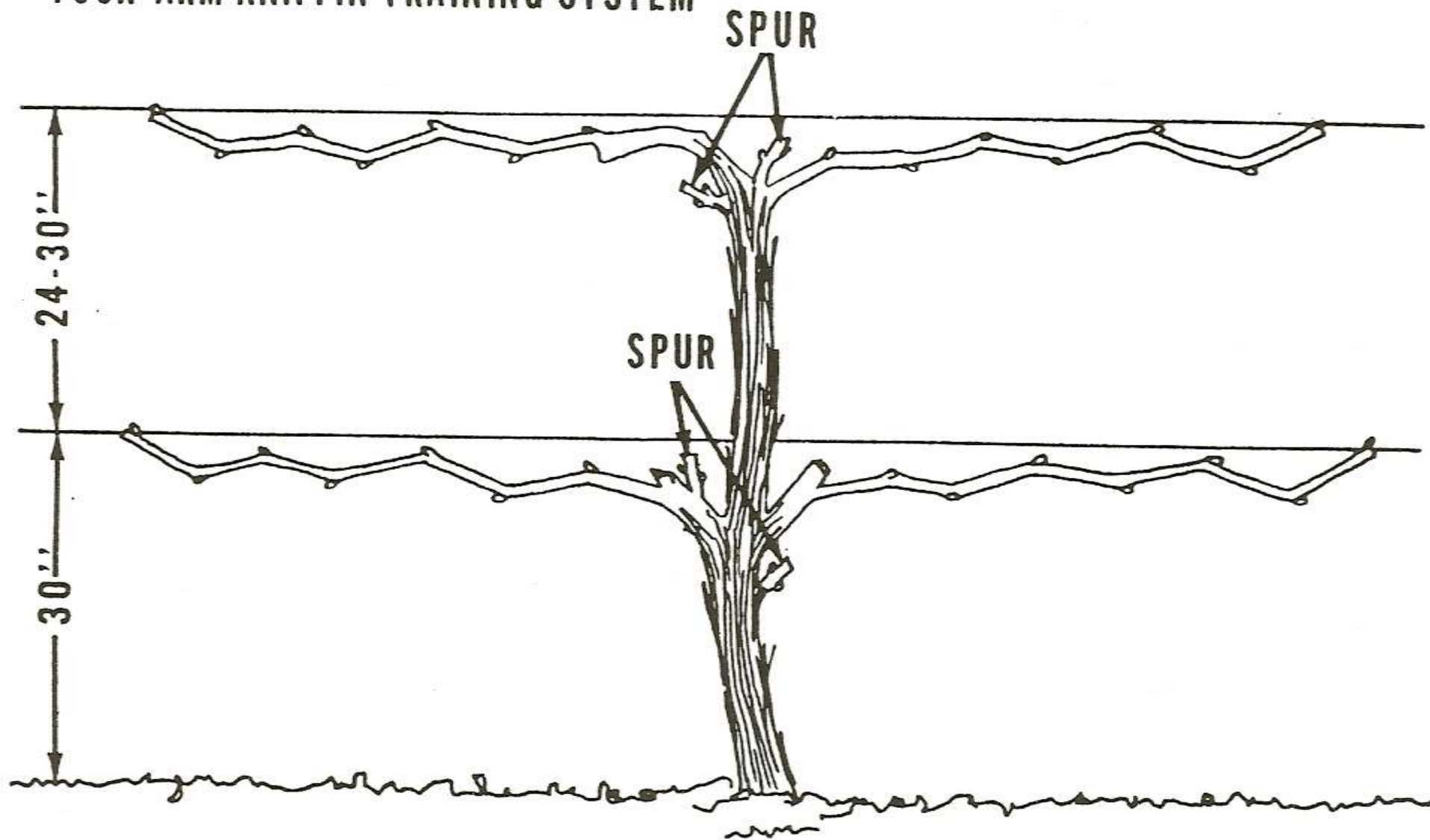
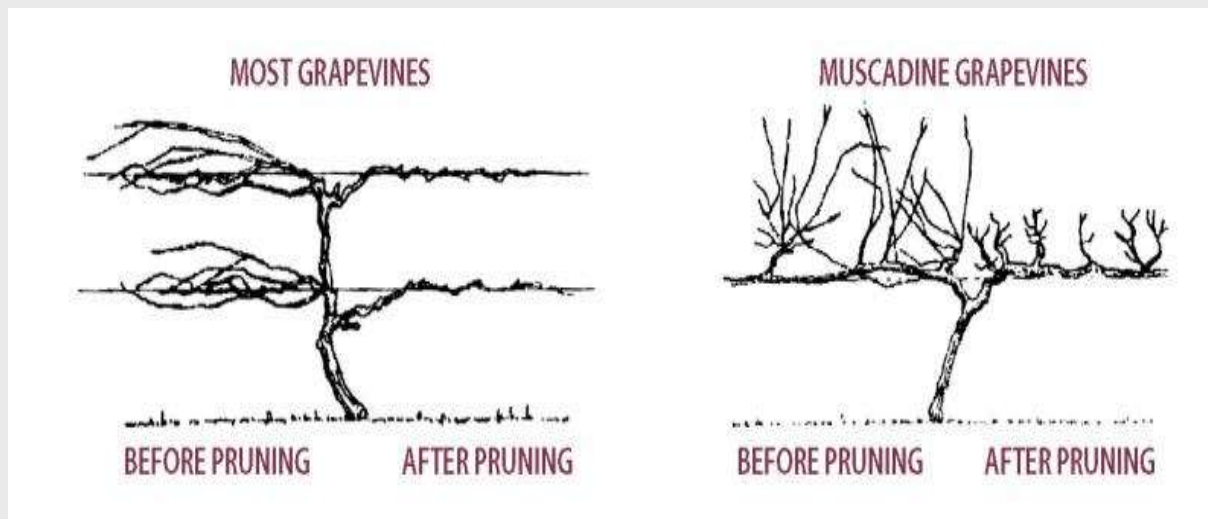
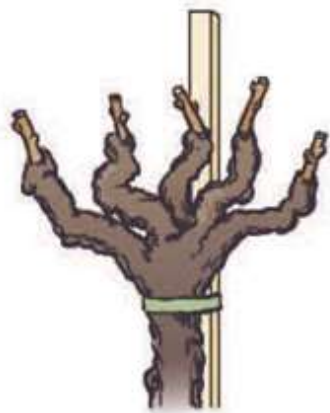


Figure 6.—The four-arm Kniffin training system is the most popular one for American bunch grapes.

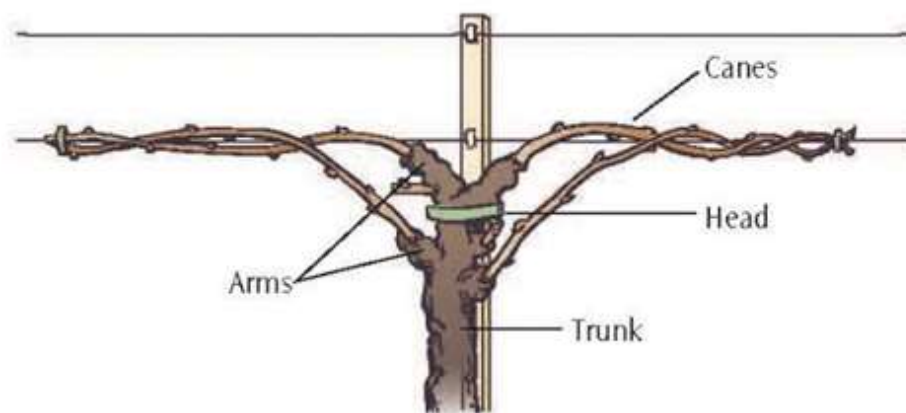
Pruning Tips

- Select canes that are 1/4" in diameter
 - Avoid weak & “bull” canes (the very vigorous 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**

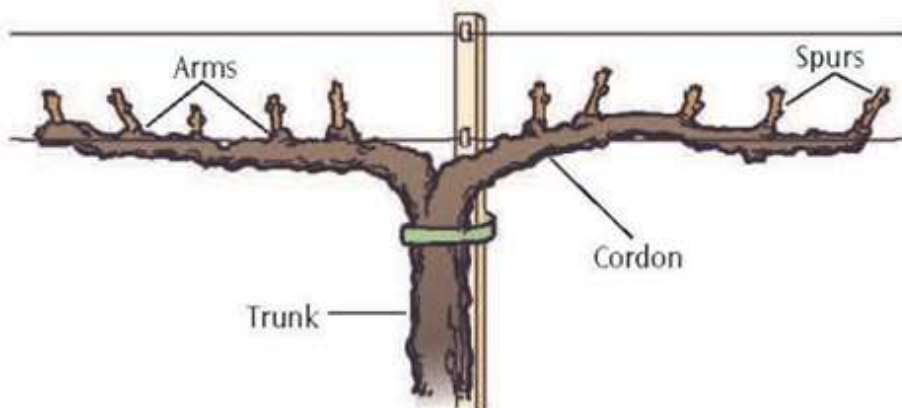




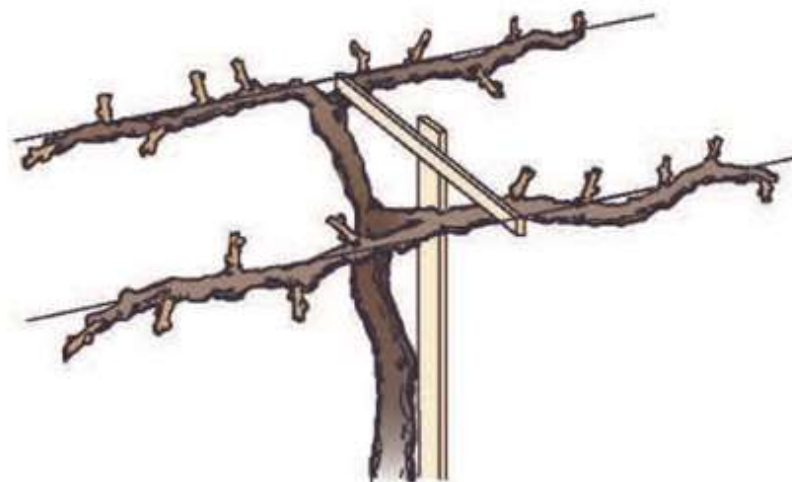
A head-trained vine with spur pruning



A head-trained vine with cane pruning

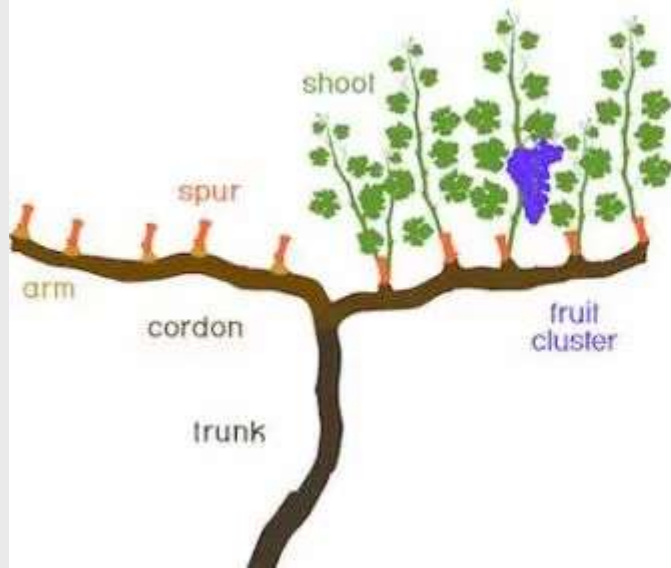


Bi-lateral cordon training with spur pruning

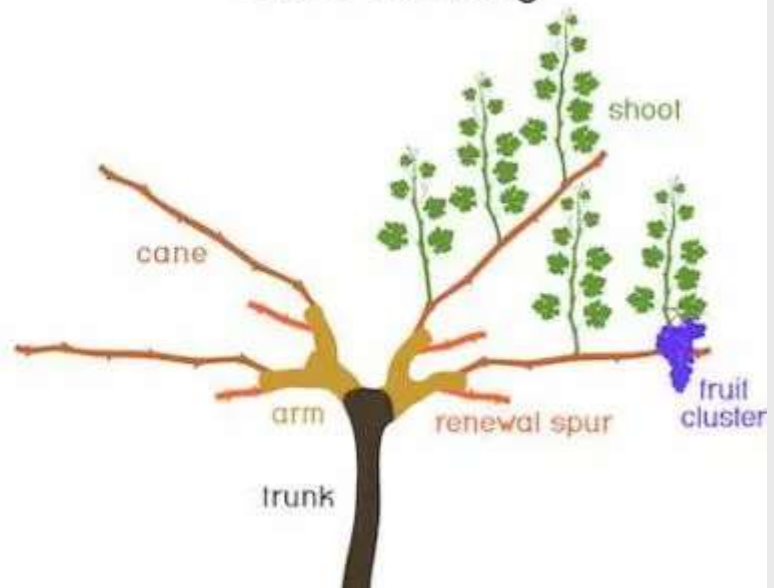


Quadra-lateral cordon training with spur pruning

spur pruning



cane pruning







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)

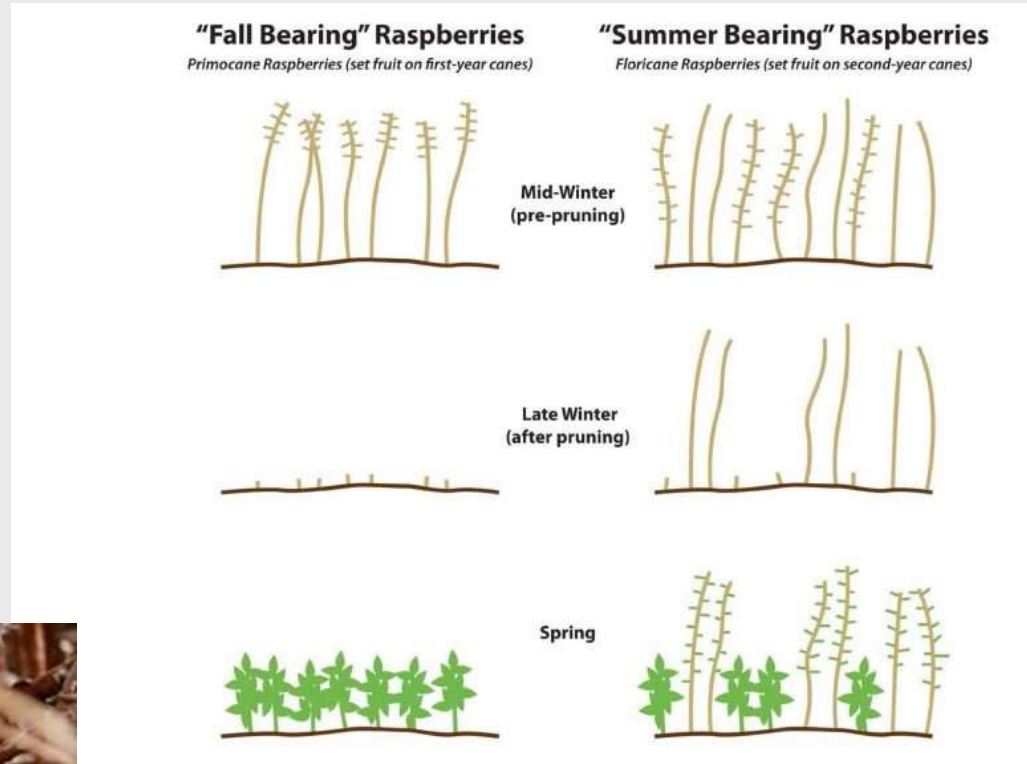
fruit on floricanes (next summer, lower on cane)

then they die

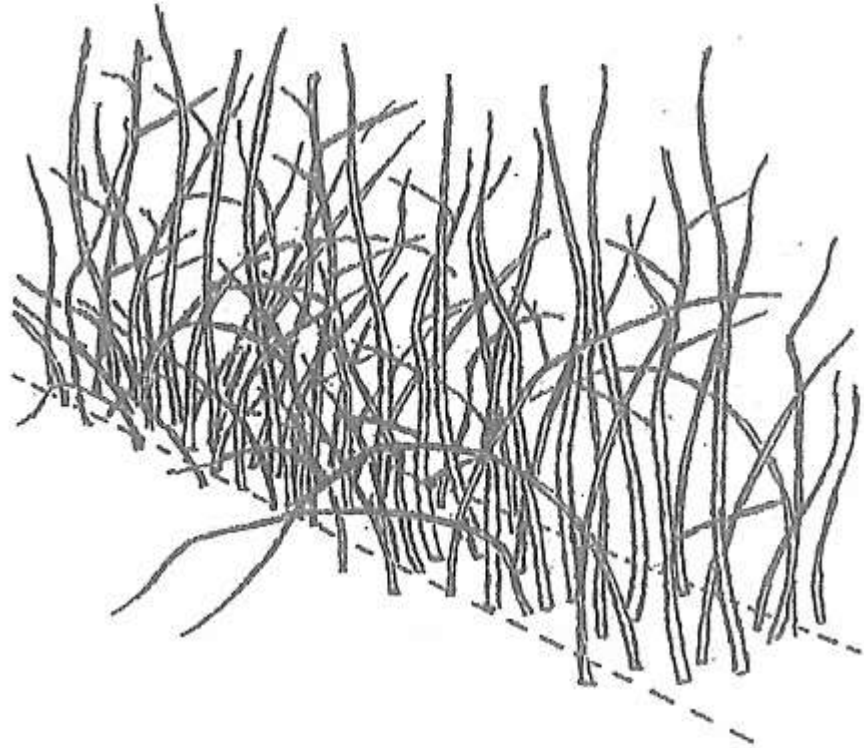
Pruning Raspberries

1. Remove last year's canes
2. Narrow the row
3. Cut out the weak canes
4. Attach canes to trellis

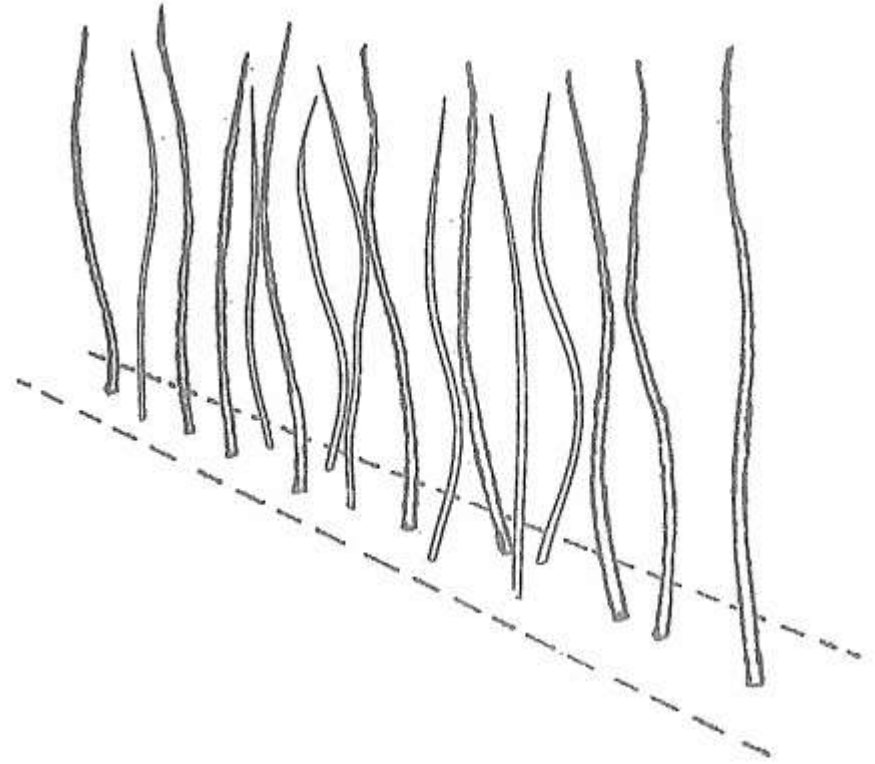
For Everbearers, some people mow them all down.



Before Pruning



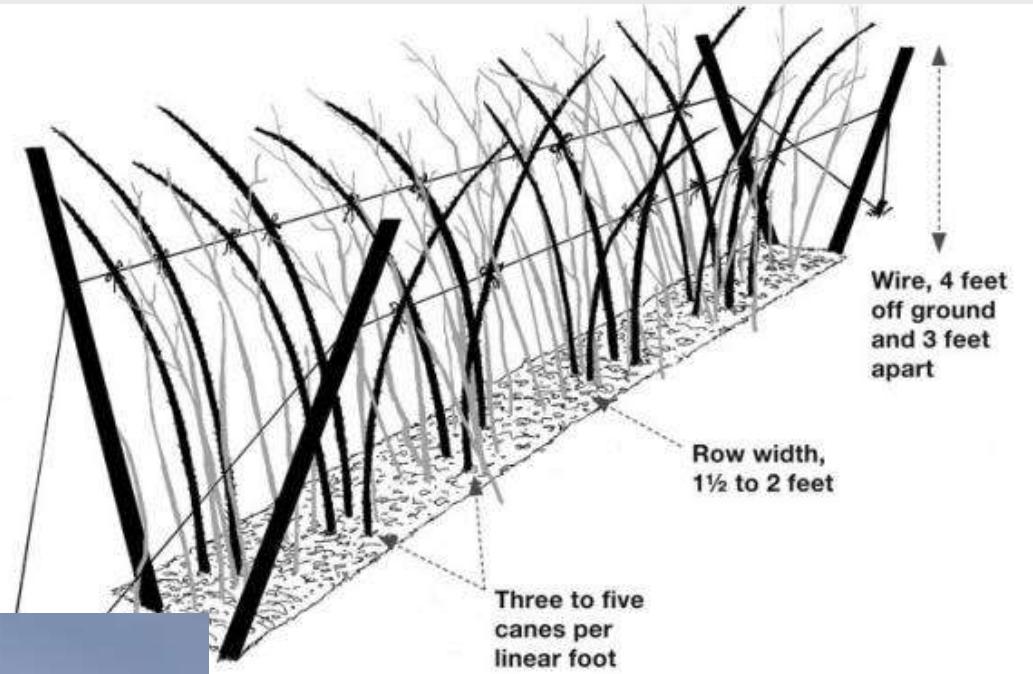
After Pruning



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

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





Pruning Blackberries

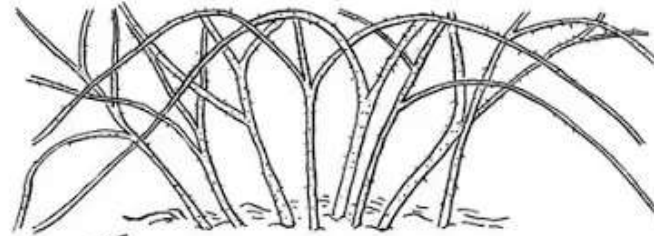
- Very aggressive biennial canes need pruning annually.
- Summer tip pruning- tip nipped off as vines reach 3 ft tall. Stimulates branching
- Major pruning is dormant pruning (early spring before budding out)
- Any cane that bore fruit last year should be removed and number of new canes should be reduced to 6 per clump.
- Shorten all canes to 18-24 inches.
- Ideal to trellis the canes (vines) and keep plants upright.

Pruning Blackberries

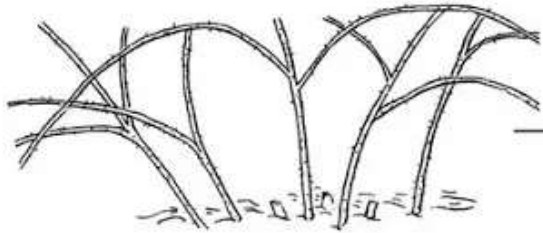
Pruning Blackberries



Pinch out growing tips during summer



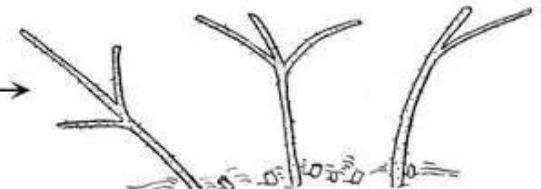
Dormant season



Remove canes that fruited last season



Thin out excess 1-year-old canes



Shorten laterals

(from *Grow Fruit Naturally* by Lee Reich, Taunton Press, 2011)

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

