

PRUNING



Ongoing Resources

Resources/Recordings on our Website

Orchard GroupMe

Growing Summit (March 15th)

Public Workshops:

- 1. Holistic Sprays (March 3rd)**
- 2. Grapes (March 10th)**
- 3. Permaculture and Native Orchardring (March 17th)**
- 4. Small Fruits and Berries (March 24th)**

Conservation/Wild Ones Classes start mid-March!

Why Should I Prune My Tree?

Tree Health

Remove branches that are broken, diseased, damaged

Develop Strong Branches

- won't crack under heavy fruit load or during storms

Sunlight penetration/Airflow

- dries out the tree faster which prevents disease, fungus, and weak bark

Desired Structure



Keep it a manageable size for harvest and maintenance

You can also prune in specific ways to fit your yard and your aesthetic

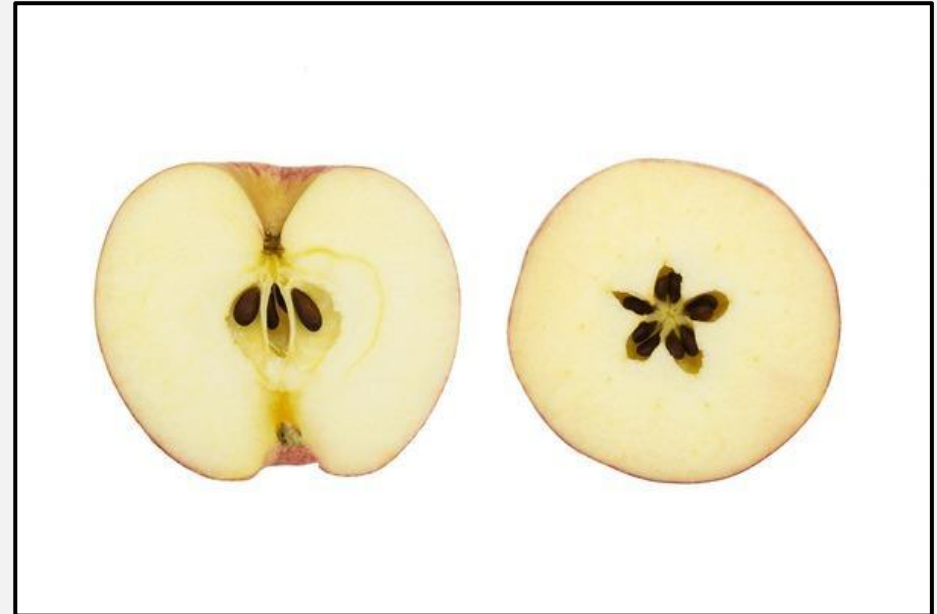
Prune for a shape that works for you:

- if you'll be moving around your tree, you don't want low branches
- if you have kids who want to harvest with you, you want to keep low branches

Improve Fruit Quality

Good pruning increases fruit set, ripening and quality

- there's more energy in the tree overall
- better sunlight penetration improves ripening
- healthier trees fend off diseases/pests that would affect fruit



Pruning Intimidation

Many people are scared to start pruning!

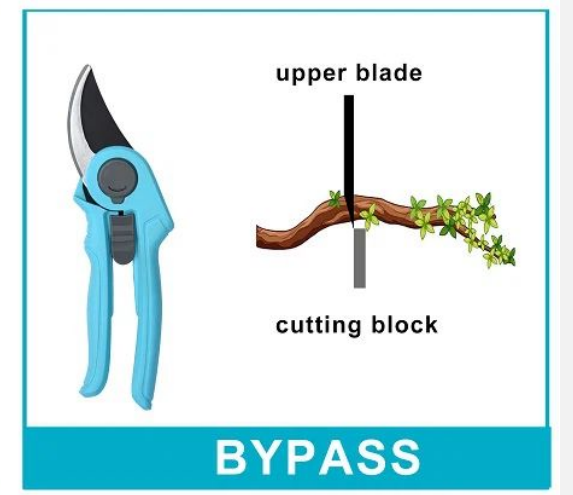
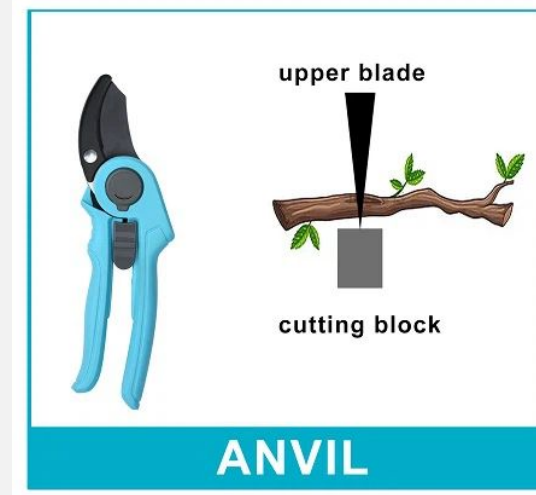
- your choices will stay with the tree for the rest of its life
- there's many things to keep in mind

But the only way to learn is by doing and it's better to prune poorly (within reason) than not at all!

What do you need to prune?

Pruners, Loppers, Handsaw

- Choose bypass over anvil!
- Anvil crushes the branch tissue.
- Match cut size to tool.
- You can get electric pruners, but it's generally not recommended.



Maintenance

- Keep sharp for clean cuts
- Oil joints for easy opening/closing
- Store inside when not using



Orchard Ladder

Has a telescoping leg that allows steadier standing on uneven ground



Sanitizer

Sanitize at least between trees while pruning (alcohol or bleach).

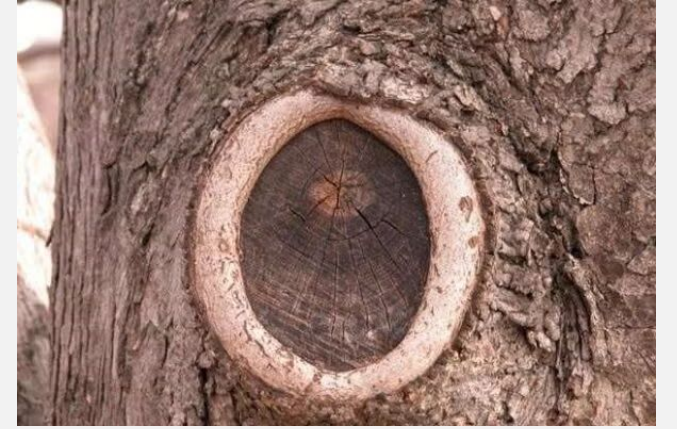
If your orchard is struggling with disease, sanitize between all cuts

Especially sanitize between cuts on a diseased tree



Pruning Cuts

Smooth Cut

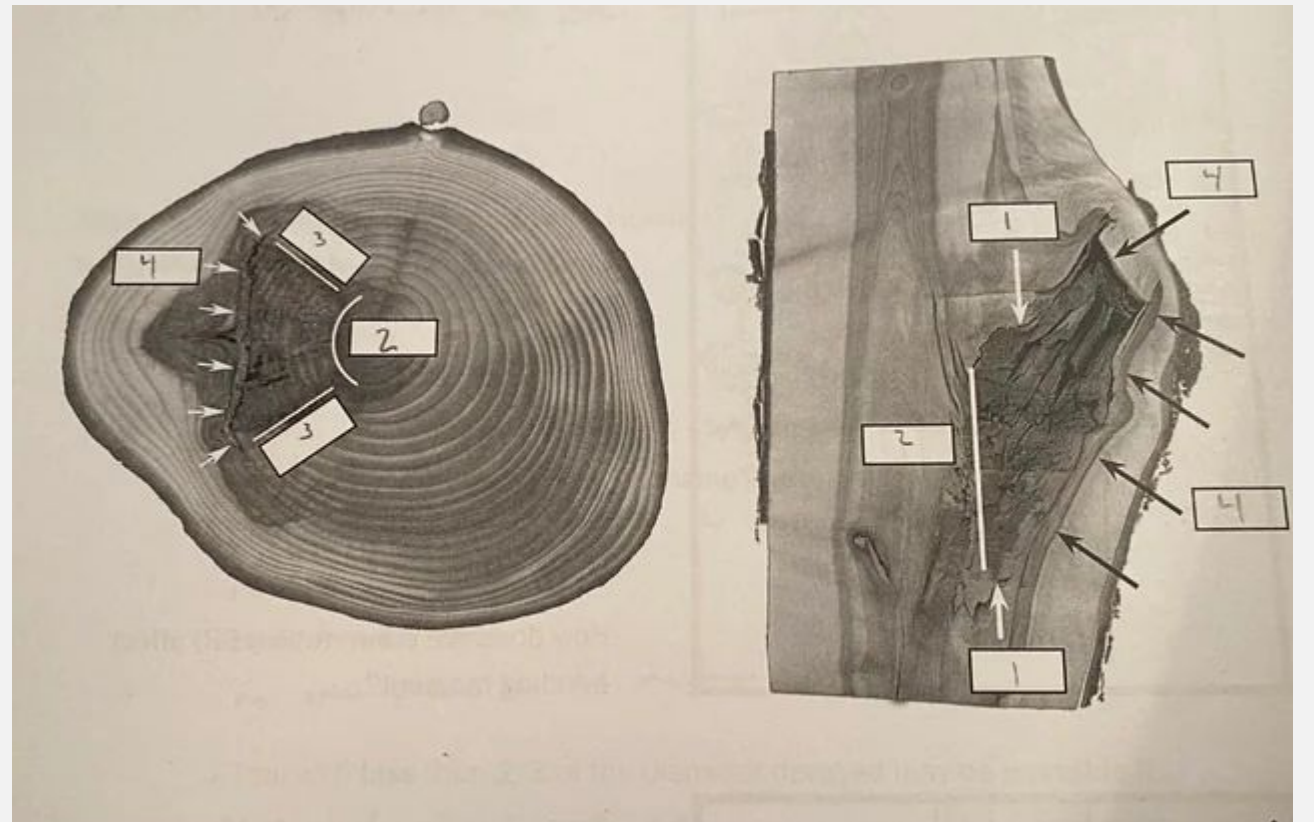


Trees don't heal, they seal

Proper pruning cuts (clean and good placement) allow the tree to seal over the wound better

Do not dress wounds, this prevents the natural healing process

CODIT = Compartmentalization of Decay in Trees



Heading versus Thinning



Heading

Cutting a branch back to an outgoing bud

Thinning

Cutting a branch back to a scaffold or the trunk



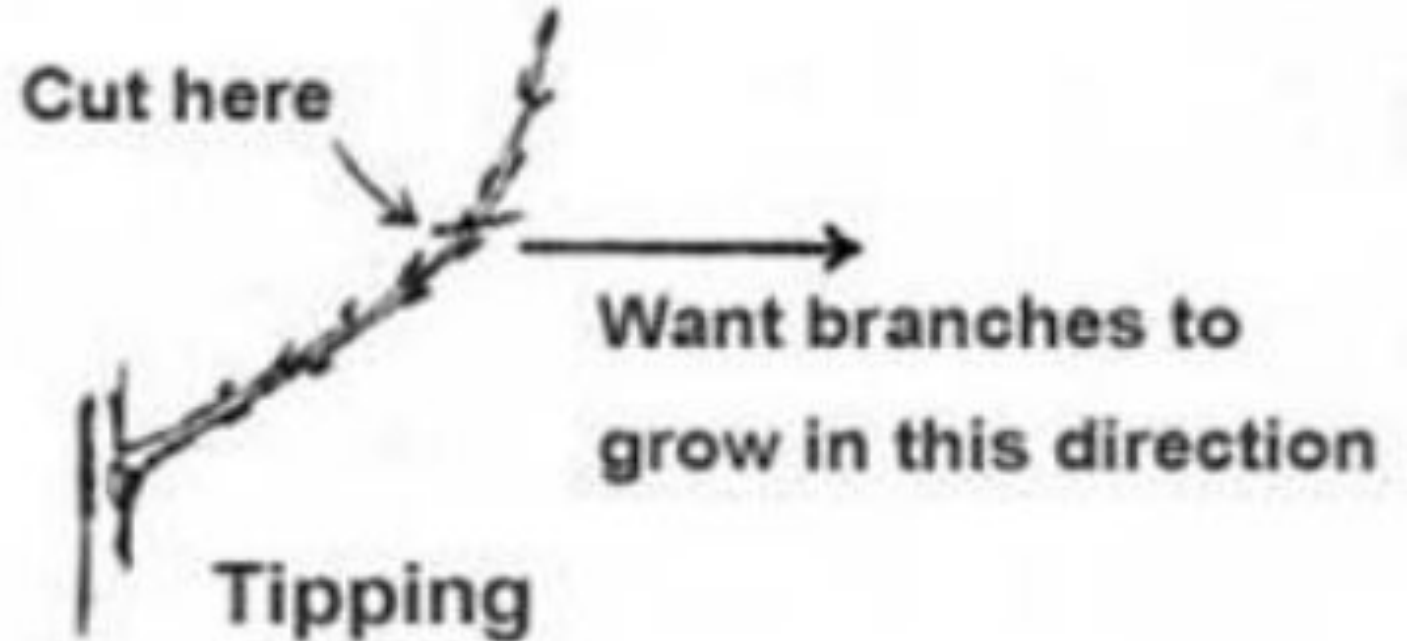
This is neither!



Always prune back to a bud

The terminal bud on a branch has the most energy to continue growing. When you cut this bud, that energy moves to the next lateral bud- this is called **apical dominance**

cutting off the terminal bud also encourages horizontal branching along the branch



Heading Cuts



Correct

Water runs off easily. Wound heals quickly



Wrong direction

Water will run onto bud causing rotting



Too close to bud

The bud may die



Too flat

Holds water which can rot bud



Too much stub

Die back occurs as wound doesn't heal easily. Infection can occur



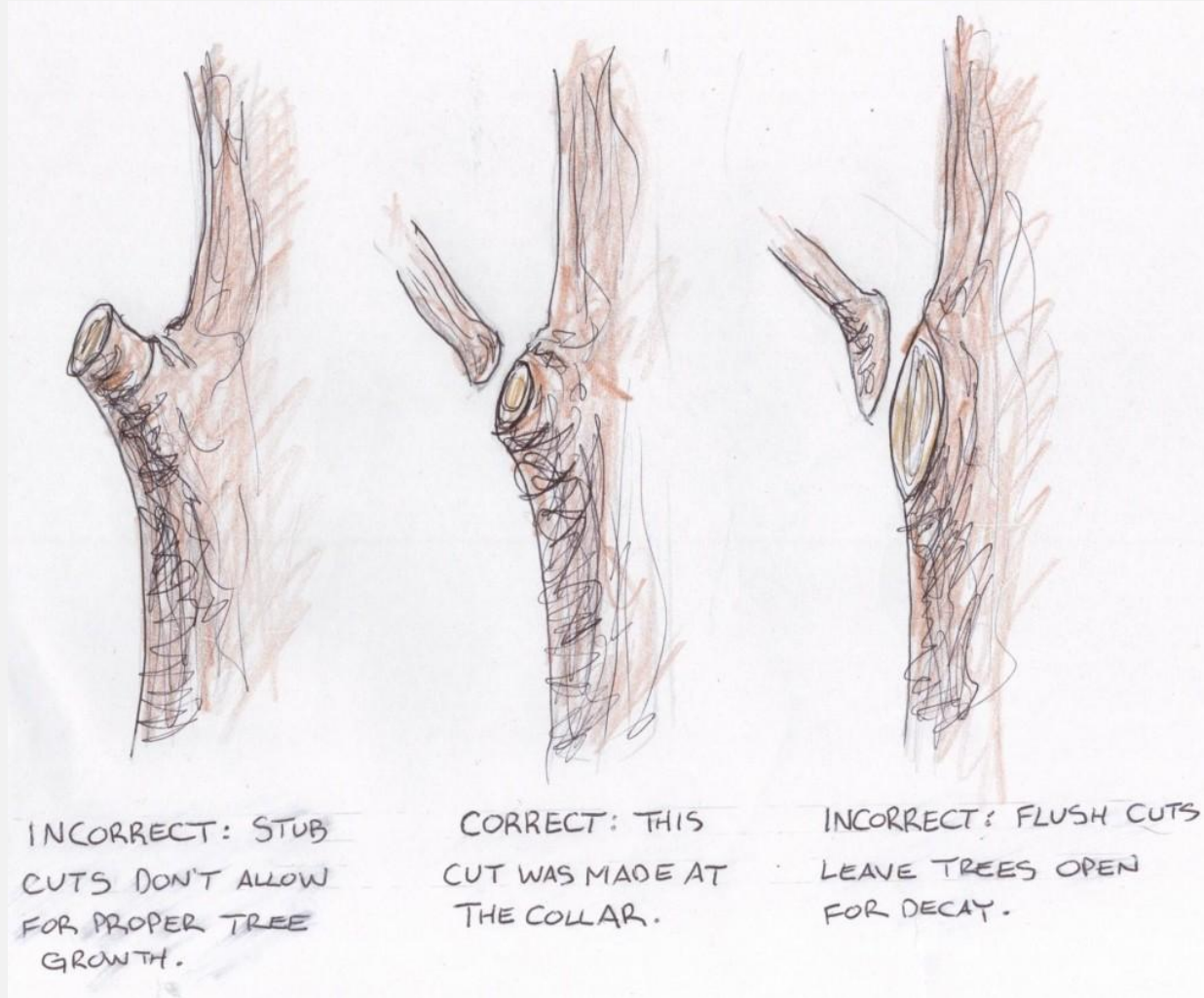
Too large a wound

Infection enters wound easily

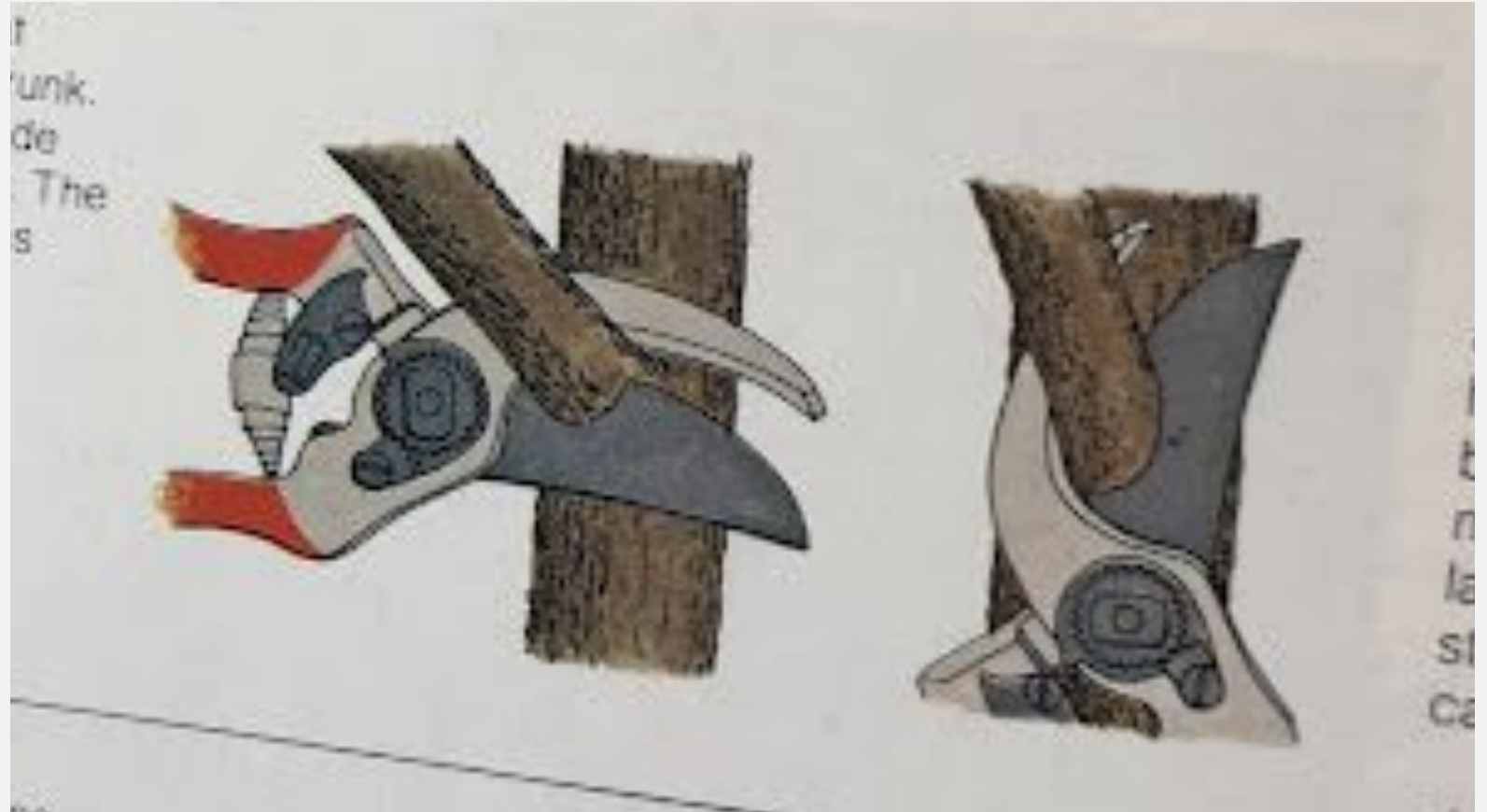
Leave branch collar, but not a nub



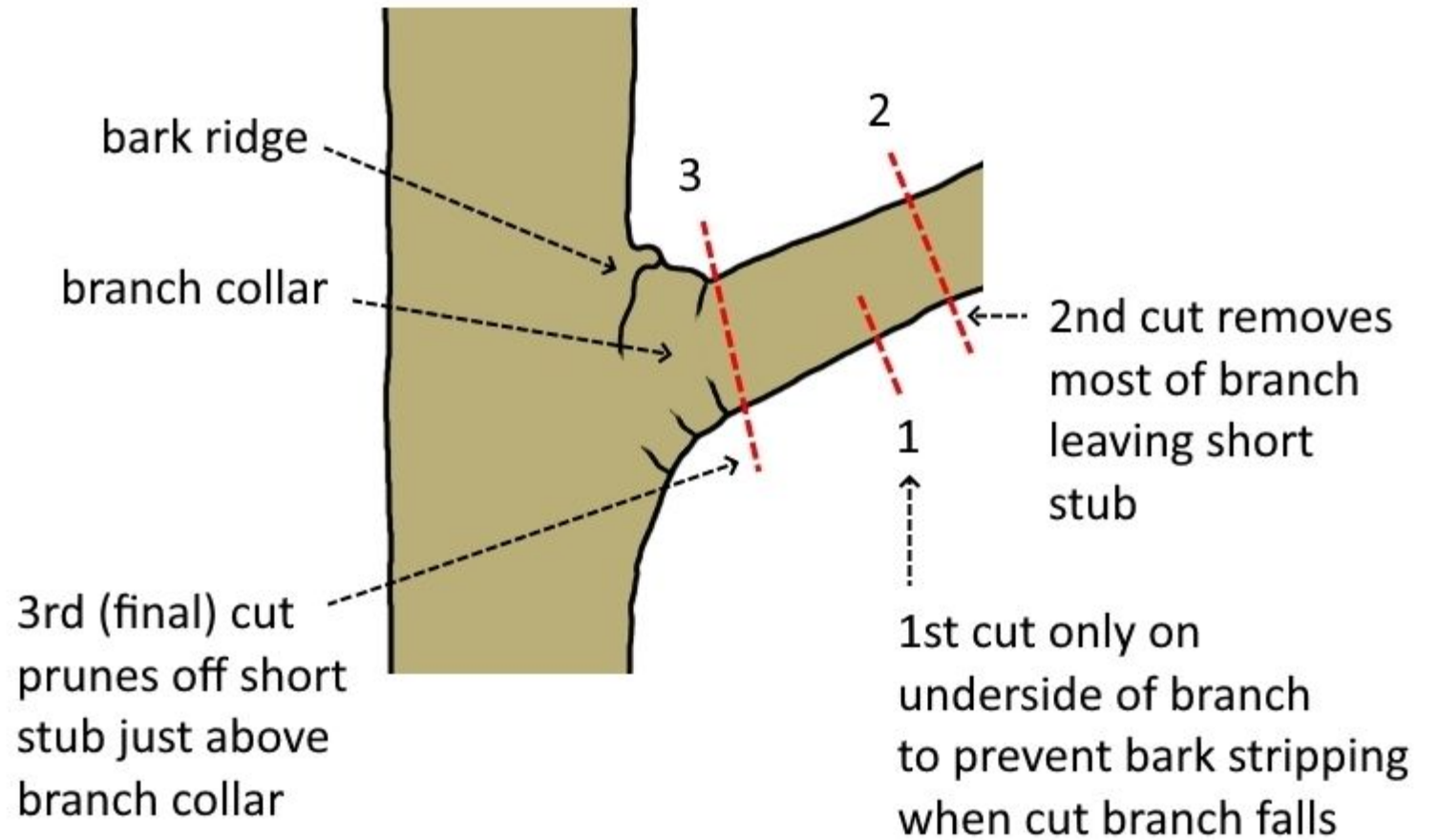
Another example of the proper cutting technique



Line blade up next
to trunk



Three-Cut Method for Pruning Branches with a Saw



For Big Cuts:

Rules of Thumb/Terms

How much to prune off?

- Apples, pears, asian pears, cherries: 10-30%
- Stone fruit (peaches, nectarines, apricots): 30-50%
- Cutting more than this percentage means the tree will have trouble healing
- If you're working on a neglected tree that needs more than 30% cut back, you can space out large cuts over multiple seasons

Vegetative vs. Fruiting Buds

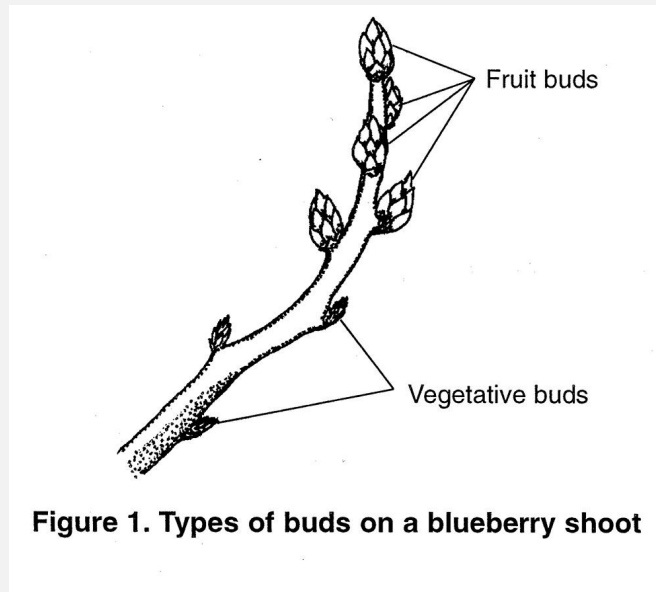


Figure 1. Types of buds on a blueberry shoot



Watersprouts



- Vegetative growth that usually develops in crotches or around heavy pruning cuts
- Usually growing straight up
- Unlike fruiting branches that will have a branch to trunk ratio of like 1:3, watersprouts will often develop a 1:1 branch to trunk ratio
- This will not bear fruit as is
- Mostly we prune these out
- if you have a blank space in a tree and you'd like branches there, you can also head back watersprouts to an outgoing bud to develop a fruiting branch

What happens if I leave watersprouts?

They will get really big (like grow 5-6 ft in a season)

- siphon off lots of energy to develop vegetation rather than fruit

They will crowd your tree, interrupting airflow, sun penetration

They are more targeted by diseases like fire blight that attack vigorous growth

They're prime food for aphids

Root suckers



Root suckers are from the rootstock, not the actual fruit tree

They'll grow up tall and take energy away from the fruiting tree, they usually are vigorous growth

Remove them when you see them!

Dead Stuff



- Prune off anything dead
 - Dead stuff will have a brown cross-section and snap easily
- Use heading cuts here to cut back to the live sections of the tree
- Use the heading cuts in a way that will encourage the tree to grow in a direction you like



Diseased/Damaged

- Any cracked branches, any branches that may be infected - remember CODIT!
- Prune it off so it won't affect the rest of the tree
- Any time you see disease in the orchard, prune it out
 - can consult last week's presentation if needed!



Rubbing Branches

If you maintain structure, you should be able to avoid rubbing branches

Pulls away bark and introduces disease into the tree

One is also likely going an unfortunate direction

Can use a thinning cut to remove the whole branch or a heading cut to redirect one of the branches



© Barbara W. Ellis

Branches Growing Down

- Will usually be shaded out by other branches and therefore won't bear fruit
- Also more likely to break in storms
- Exception: I might leave some for big trees in free pick orchards for kids to reach!



When to Prune?

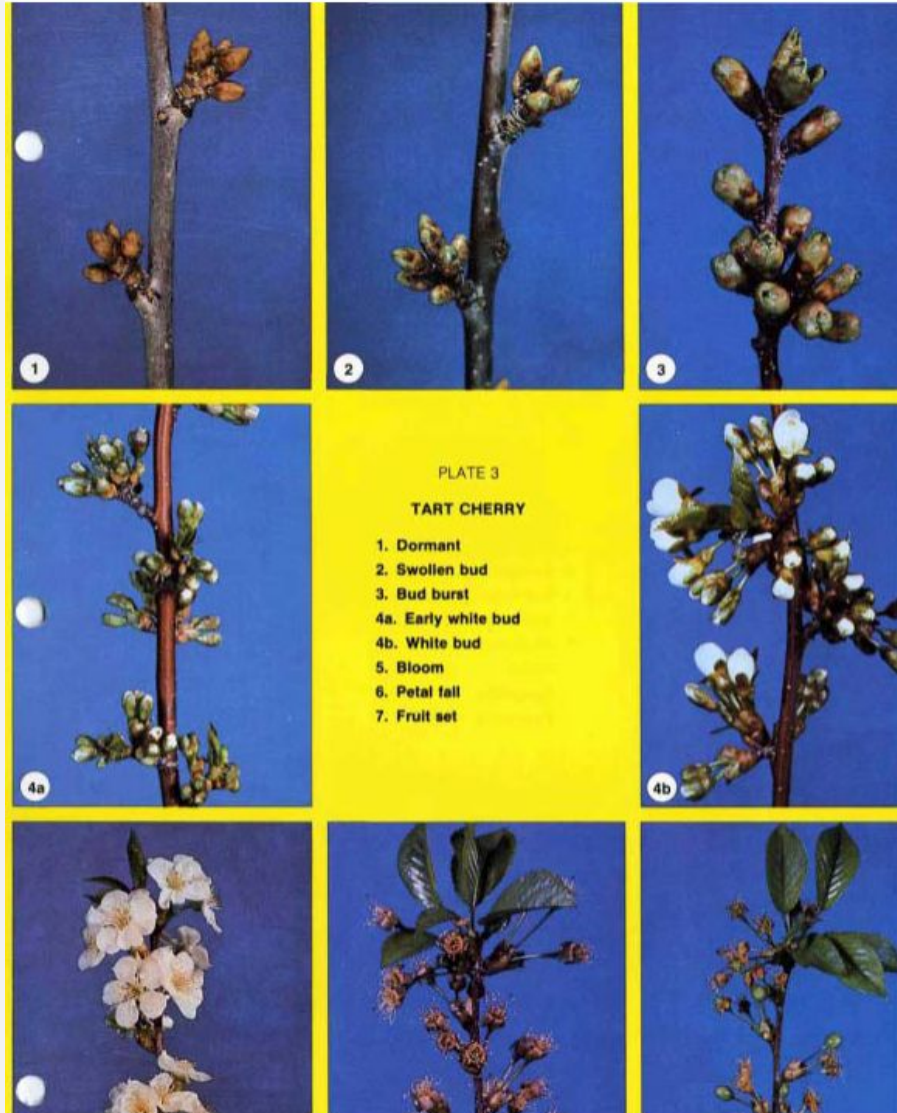
Do NOT prune in fall/early winter

Every time you prune, you create open wounds on the tree

If you prune late in the fall season, these wounds will not heal sufficiently before cold weather and be affected by the heavy freezes

This will significantly shorten the lifespan of your tree, don't do it!

Late winter/early spring



- Most of your pruning is done dormant season in late winter/early spring
- Prune after threat of hard freeze, which can damage open tree wounds that you'll cause when pruning
- Prune before the tree breaks dormancy and begins producing fruit
- Do not prune in freezing weather
- Do not prune when it's wet outside
- Why?
 - can easily see tree structure
 - no active pests/diseases to target open wounds
 - tree hasn't put energy into fruit set associated with fruiting buds
- [Dormancy in Fruit Trees \(Cornell\)](#)

Pruning Order

Start with older, more mature trees

By variety:

apples, pears

cherries

Leave peaches and other stone fruit last

Pruning always spurs growth and can encourage trees to break bud early

Summer Pruning

- During dormant season, the tree has stored nutrients to spur growth and therefore cuts encourage growth. During the summer, the tree has used up its resources in setting fruit and vegetative growth, so cuts limit growth.

Summer Pruning:

- prune anything damaged, diseased, dead
- clean up water sprouts and suckers
- prune for height
- prune more vigorous/mature growers (specifically pears)

What Do I Actually Prune?

Starting Questions

What type of tree is it, what structure are you attempting to create?

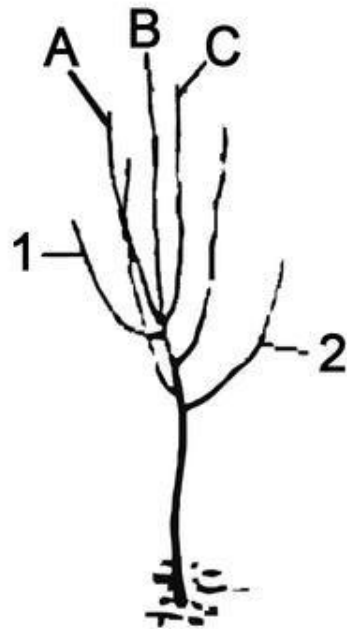
- mostly selecting for your ideal structure later on
- open center (ideally 3 scaffolds with strong angles originating closely together)
- central leader (ideally 4 scaffolds with strong angles interspersed up the tree)

Unless you're working with a mature tree, then you have to work a bit with its natural structure

Central Leader

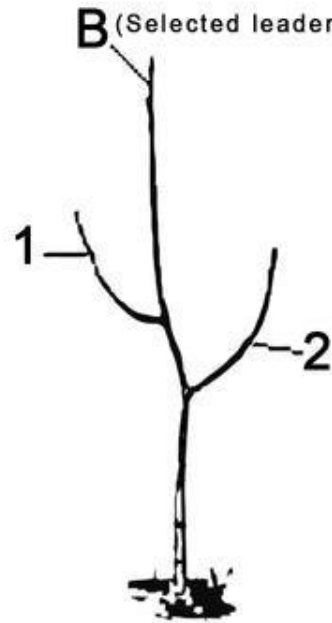
for:
apples
pears
tart cherries

Three competing leaders



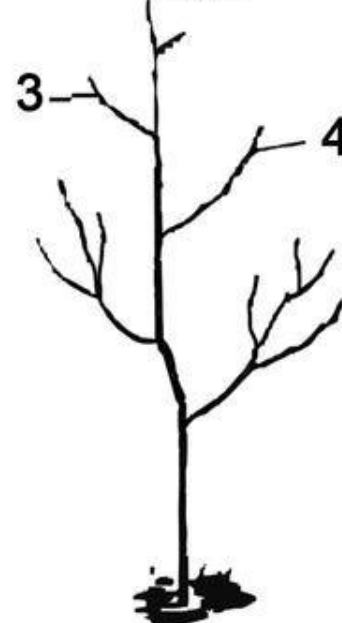
Tree received
from nursery

B (Selected leader)

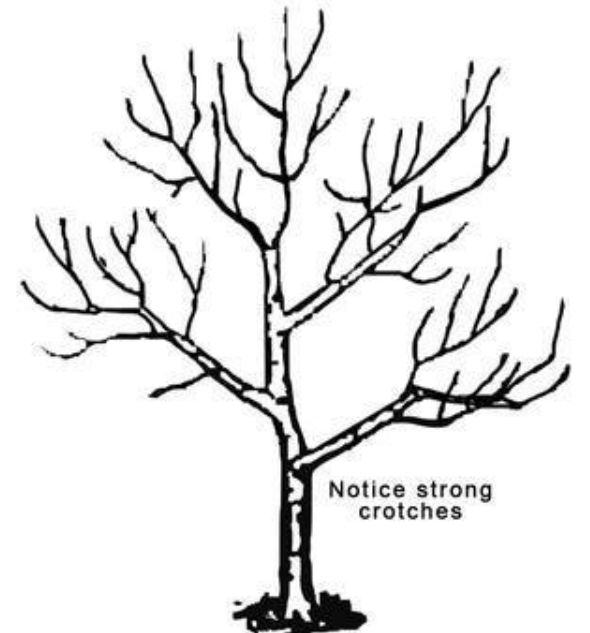


Pruned at
planting

Leader



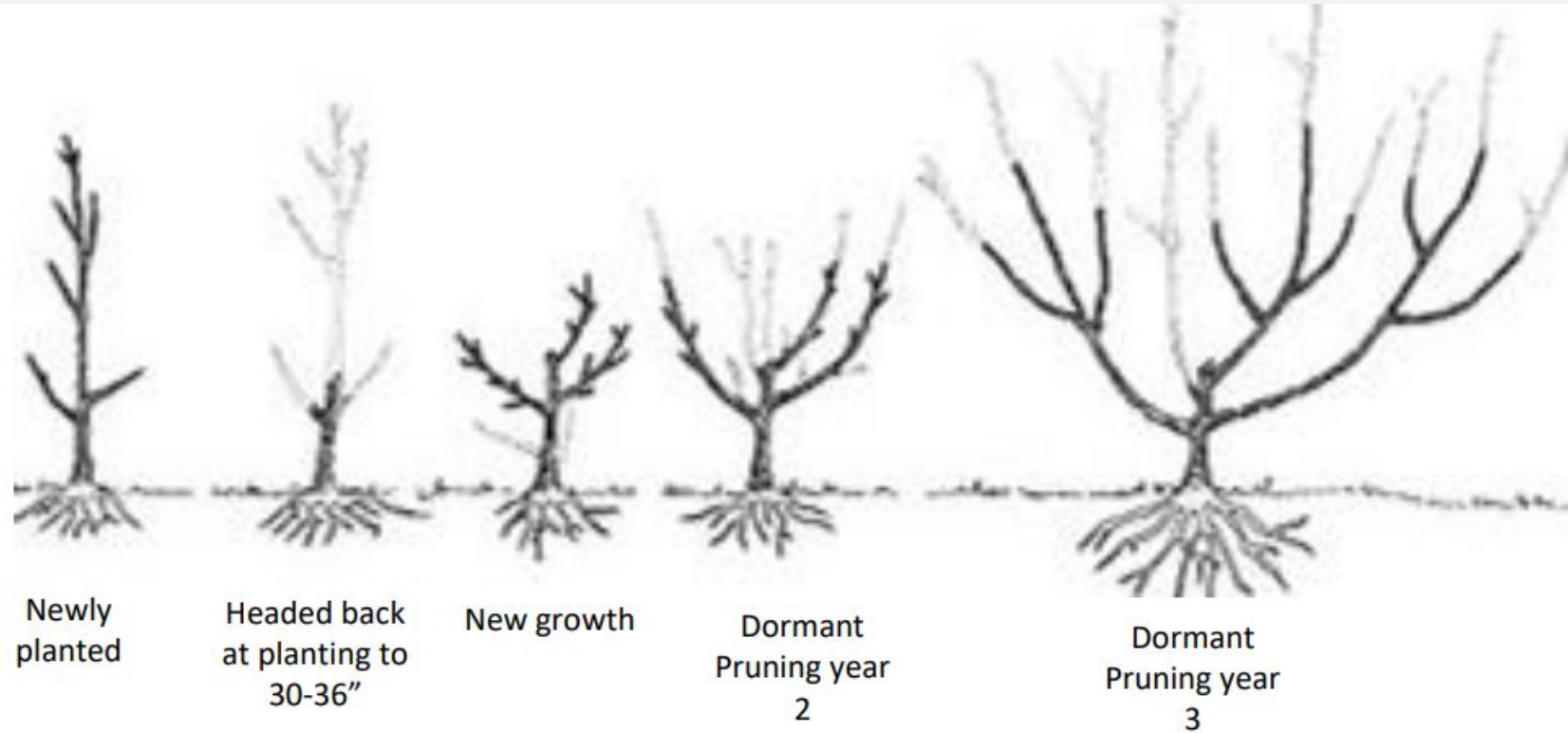
1 year later



6-8 years later

Open Center

for:
peaches
apricots
sweet cherries



Heading Back: For whips, to encourage lateral branching

Strong Angles

60-90 degree angles

good structure for the tree to bear heavy fruit and not crack later on

also usually sets up the tree for growing in a horizontal rather than vertical direction, so more of the branch is hit by the sun and ripens



Why do narrow angles crack?

Bark inclusion - leads to dead bark, rot, and eventually weak spots in the bark that will crack very easily



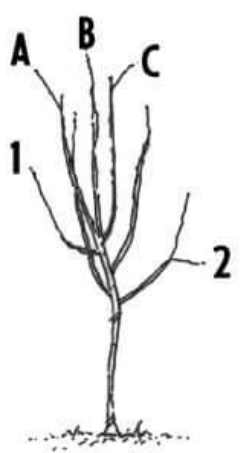
Strong



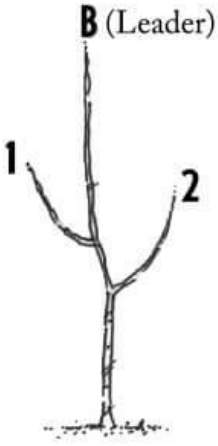
Weak

Looking
at this
in
practice

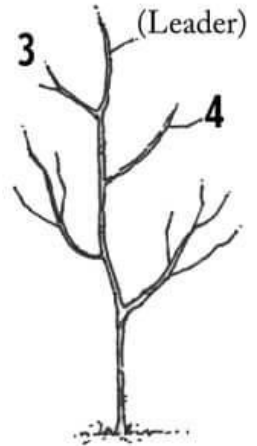
Young tree from planting



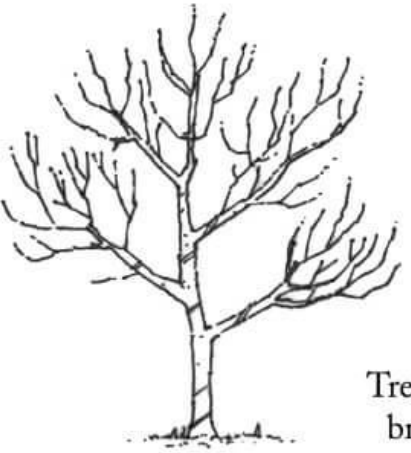
Pruned at planting



One year later

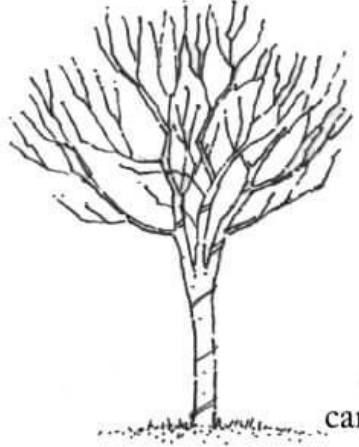
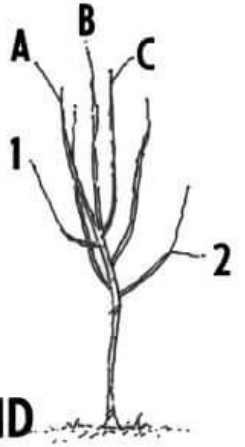


Six to eight years later



Tree has stronger
branch crotches

PREFERRED



Tree has narrow
crotch angles and
can split more easily

TRY TO AVOID

What if I let a narrow angled branch develop?

- thin the branch completely
- head it back to an outgoing bud to take the weight off so it doesn't crack as easily (if you've done lots of pruning) and remove it in a later season
- this depends on how much pruning you're doing on the tree and the size of the branch that's developed



**Undercut
to prevent
tearing**



**Top cut to
remove limb
weight**



**Plunge cut to
prune back
to trunk**

Are narrow angled branches completely useless?

No! You can use limb spreaders

- buy these or use clothespins or make your own

make sure to check on them over the season, if at any point the bark is growing up over it, you'll have to remove it

this only works when branches are flexible enough to bend/shape



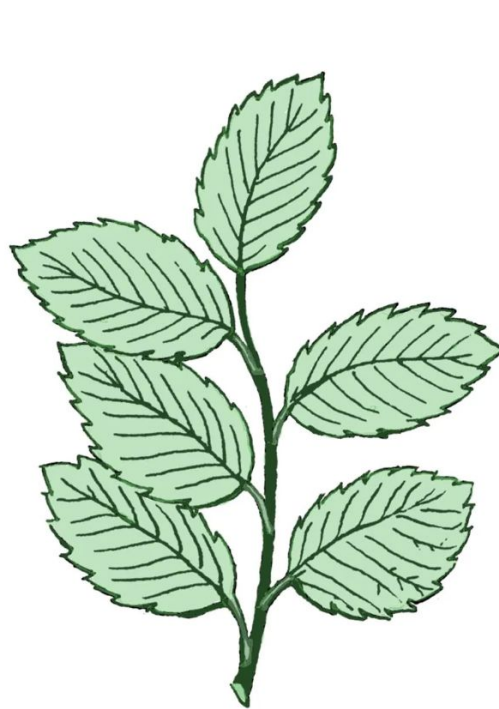
Whorls

Choose alternate arrangement when choosing scaffolds

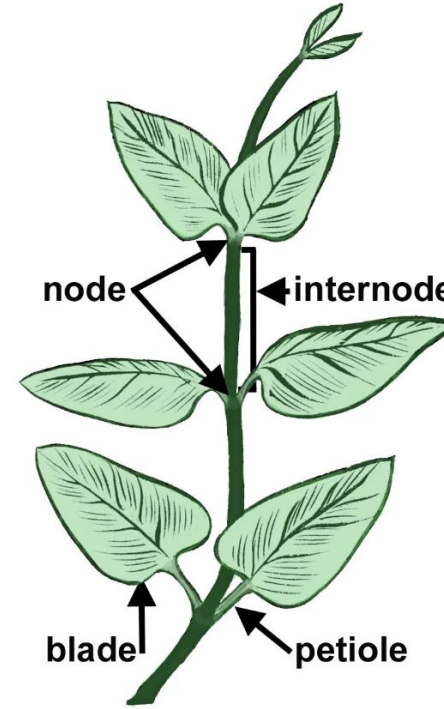
Avoid whorls (where branches originate at the same point on the trunk)

- places a lot of pressure at one point on the trunk

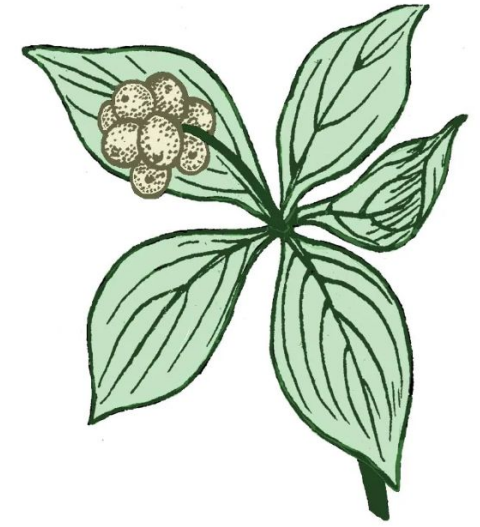
LEAF ARRANGEMENT (Phyllotaxy)



alternate



opposite



whorled

Leaves grow from nodes, the attachment points in the stem (axis).

In the alternate arrangement, one leaf grows from each node.

In the opposite arrangement, two leaves grow per node.

In the whorled arrangement, three or more leaves grow per node.

The area between the nodes is called the internode.

Pruning over the next couple years

Order of Cuts

1. Diseased - (anytime)
2. Dead
3. Damaged
4. Crossing
5. Form

Prune to Maintain your Structure

- Maintain your current scaffolds and develop new scaffolds
- Prune branches that interfere with this like branches growing straight up or towards the center
 - Branches growing straight up are most likely watersprouts, or branches that you can prune to grow out instead
 - They won't produce much fruit growing straight up
 - Branches growing towards the center will interrupt airflow and sunlight penetration

Pruning Neglected Trees

Remember, you can't prune more than 30% in a season

1. Start with diseased/damaged/dead branches
2. Take out root suckers
3. Figure out what structure you're aiming for
4. Find the limbs that can be developed into a good modified structure
5. Remove narrow angles
6. Thin/head back for height and structure

This can be a work in progress, make heading cuts and big cuts far away from each other

Any questions? Any feedback?



Feedback Form



Orchard Talk GroupMe