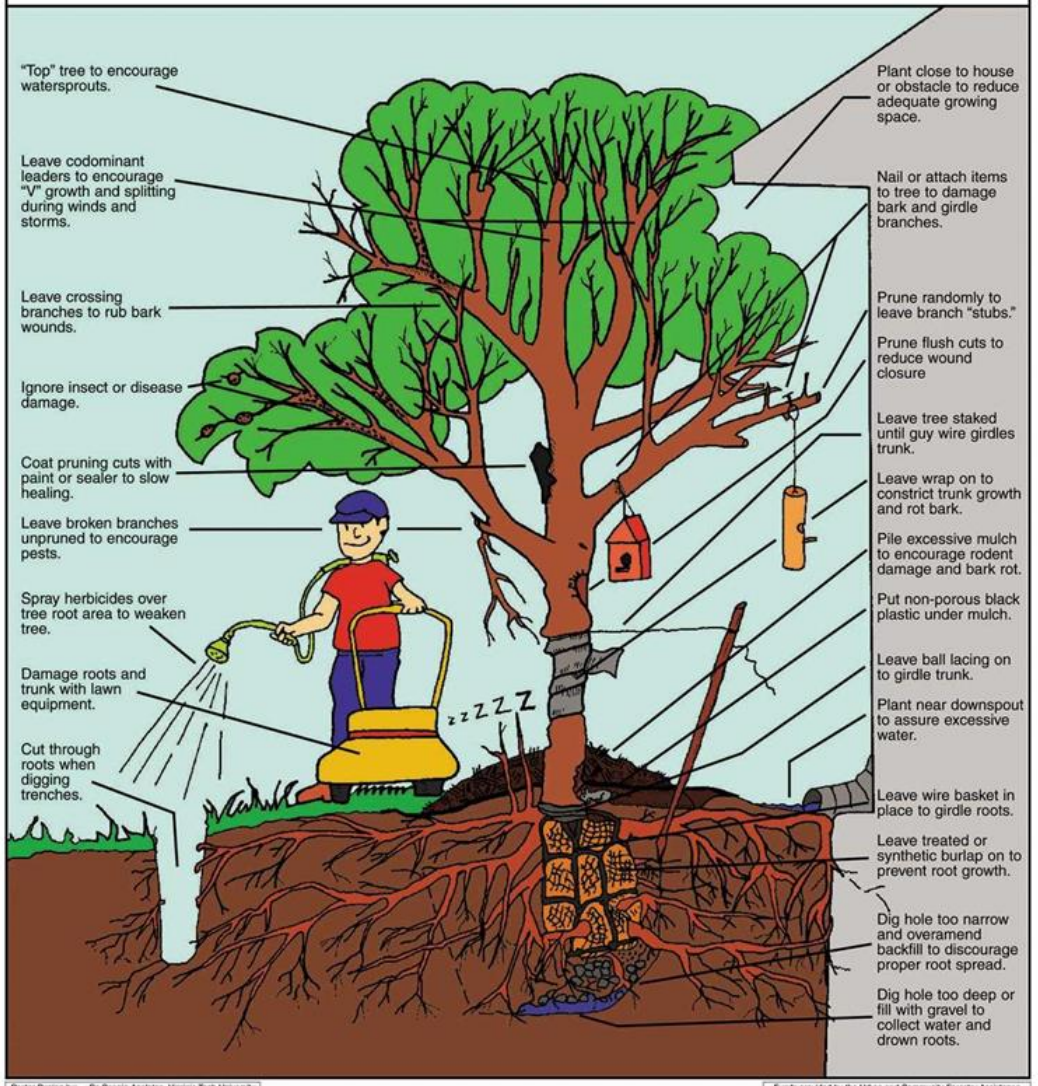
Panelists: *(comprised of urban foresters and certified arborists)*

- **John Warner**, Texas A&M Forest Service, Facilitator
- **Jordy Herrin**, Texas A&M Forest Service, Chat box monitor
- **Mark Kroeze**, Texas A&M Forest Service
- **Jack Hill**, Burditt Consultants, LLC
- **Michael Gabrielse**, Burditt Consultants, LLC

HOW TO KILL A TREE

Few residential trees die of "old age." Mechanical damage and improper tree care kill more trees than any insects or diseases. Avoid making the tree-damaging mistakes shown in the diagram below!



Poster Design by: Dr. Bonnie Appleton, Virginia Tech University
Layout: Drema Baker, Artifactory, Inc.
Illustrations: S.K. Kane

Funds provided by the Urban and Community Forestry Assistance Grants Programs of the U.S. Forest Service in cooperation with the Virginia Department of Forestry © 1996

What we will cover today in All About Trees

Tree Pruning:

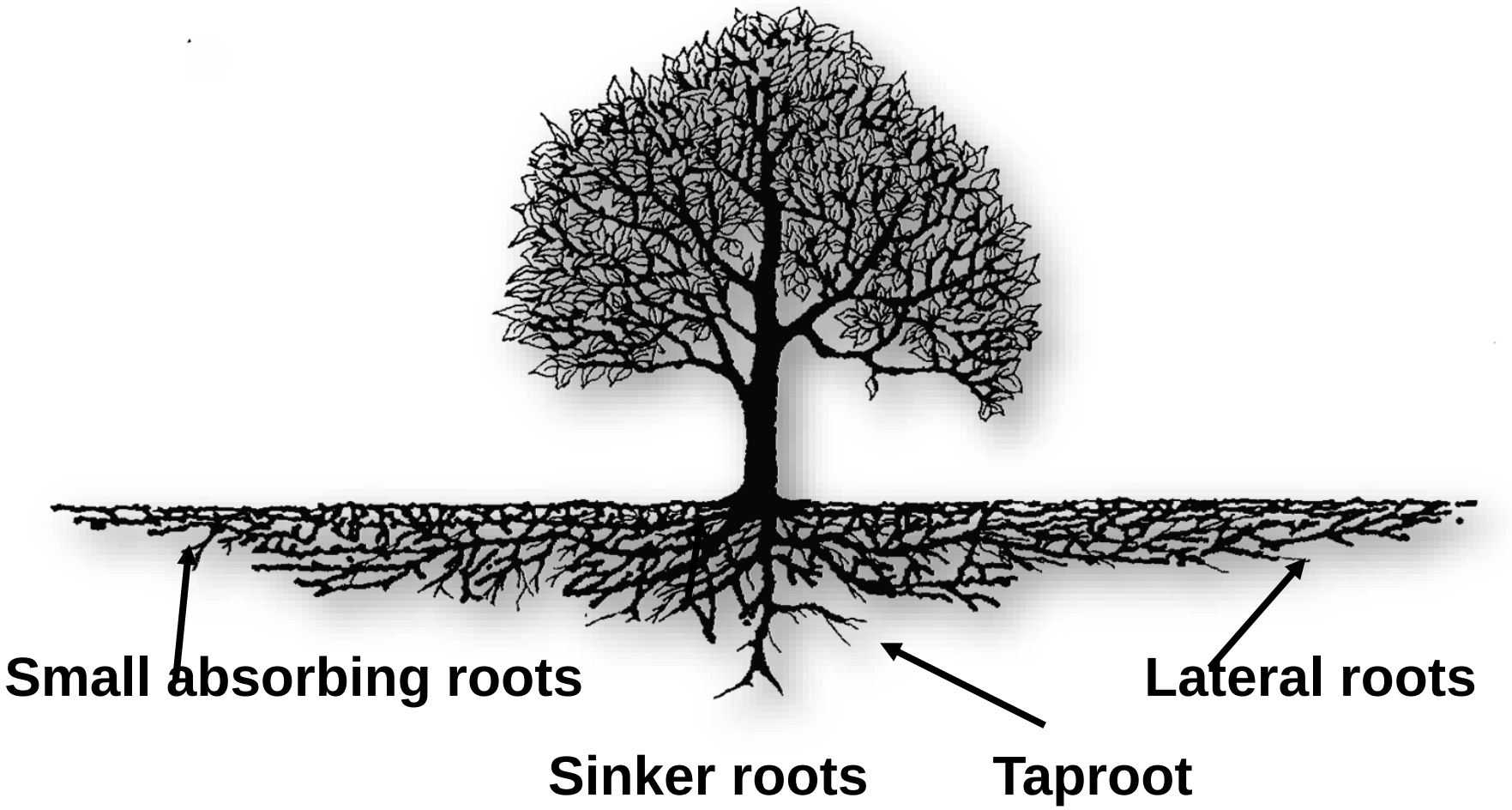
Why prune, pruning types, pruning guidelines, wound wood, codominant stems, bad pruning habits, physiological characteristics of trees

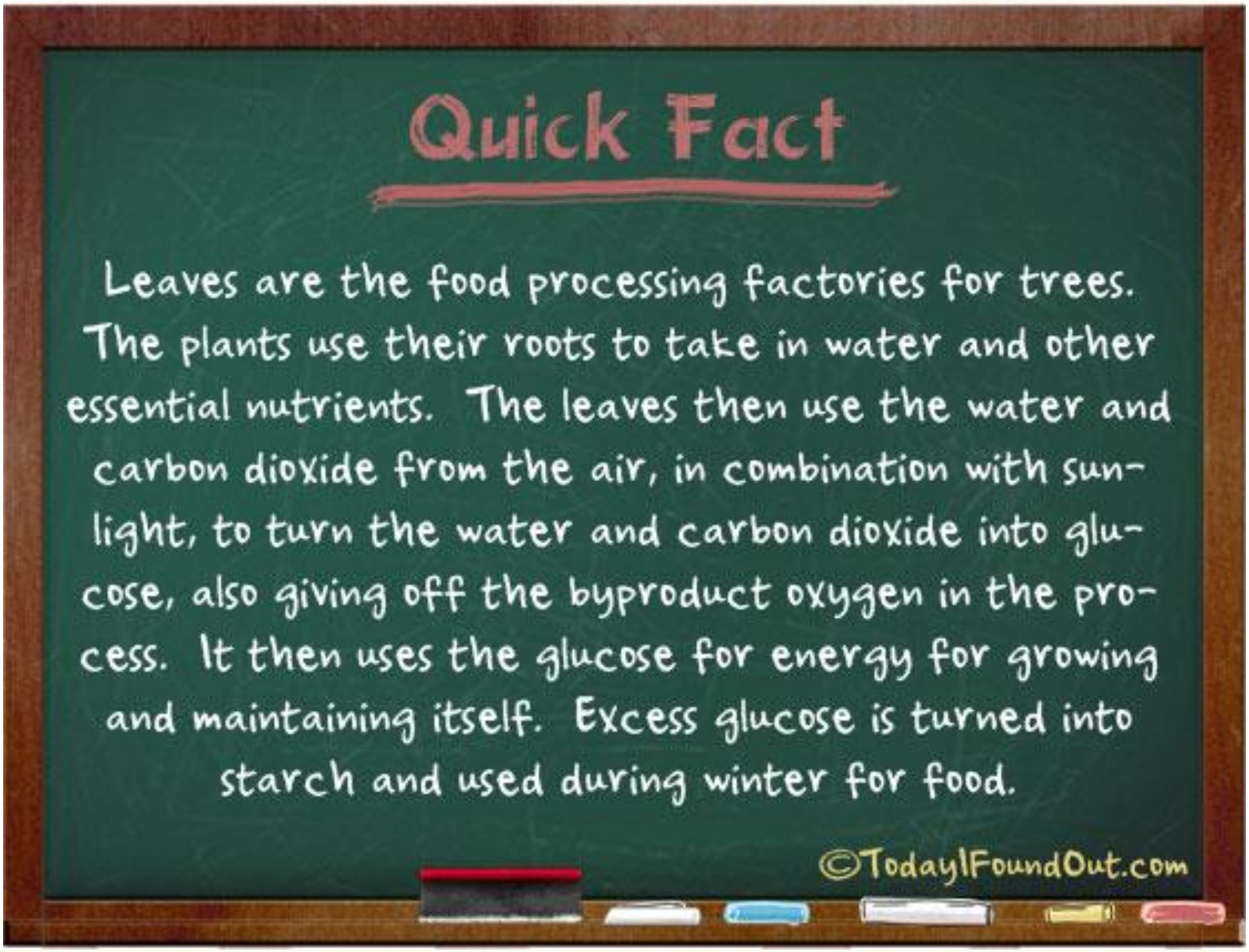
Tree Planting:

Proper planting, when to plant, planting stock

Tree Facts & Quiz

Tree Root Architecture




Quick Fact
Leaves are the food processing factories for trees. The plants use their roots to take in water and other essential nutrients. The leaves then use the water and carbon dioxide from the air, in combination with sunlight, to turn the water and carbon dioxide into glucose, also giving off the byproduct oxygen in the process. It then uses the glucose for energy for growing and maintaining itself. Excess glucose is turned into starch and used during winter for food.
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Topping a tree is considered a healthy way of pruning. True or False?

False! Topping, de-horning, hat-racking or what ever you want to call it is **NOT** recognized by any of the professional arboriculture organizations, urban forestry professionals or certified arborists as an approved method of pruning.

Pruning Trees

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Proper pruning helps keep plants' attractive and vigorous and will add years to the plant's health. Many people are apprehensive about pruning, but knowing how, when and why to prune will end these fears.

Basic Pruning Questions

May include but are not limited to:

- Three D’s – Dead, Dying or Diseased
- Improve Tree Structure & Form – Crowded
- Reducing risk – Potential hazards
- Improving aesthetics
- Satisfying a specific need

Basic Pruning Guidelines

- Prune first for *safety*, next for *health*, and finally for *aesthetics.*

- *Never* prune trees that are touching or near utility lines; instead consult your local utility company.

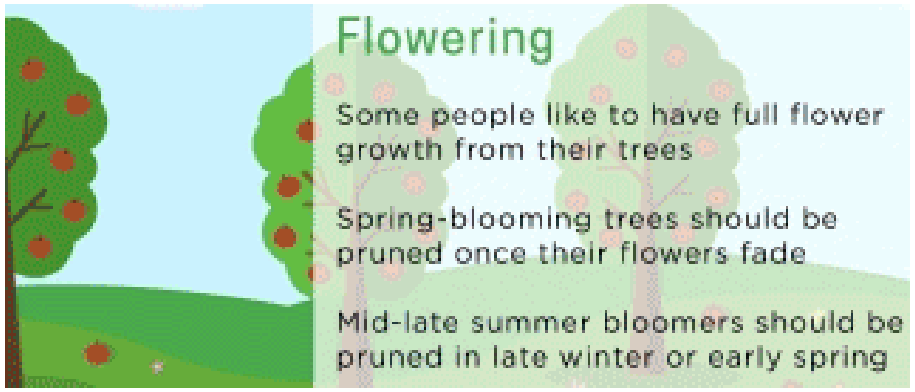
- Always have a reason for pruning

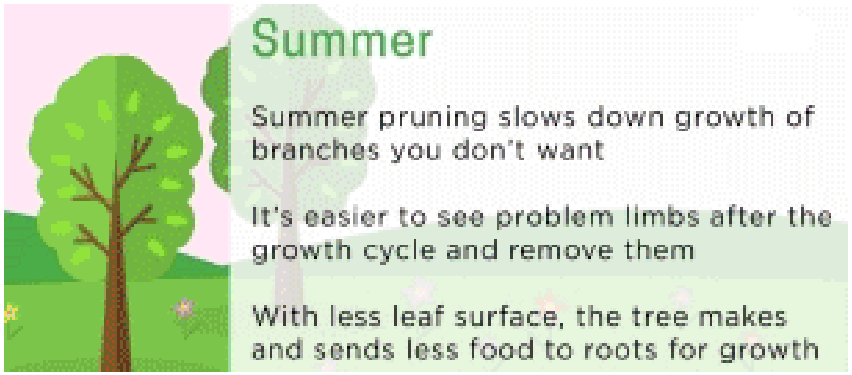
- **TREES DO NOT HEAL THEY SEAL**

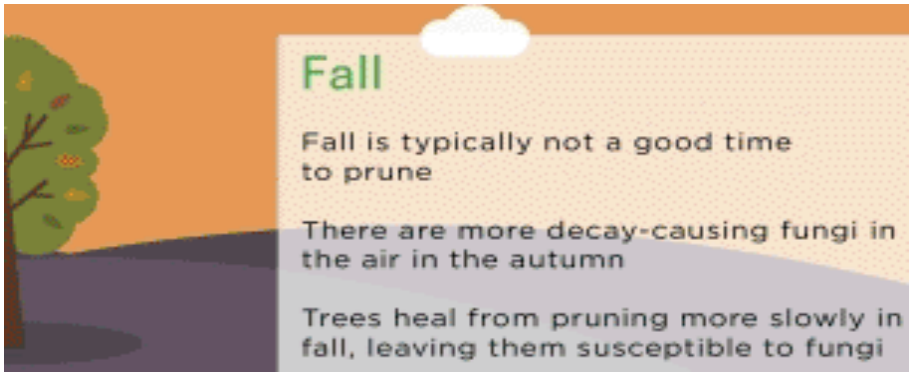
Basic Pruning Guidelines

- Remove broken or hanging limbs immediately before they fall.
- Most pruning to remove the 3-D’s can be done at any time during the year with little effect on the tree.
- Heavy pruning just after the spring growth flush should be avoided.
- The preferred pruning season is from late fall (onset of dormancy) to early spring (before bud break).

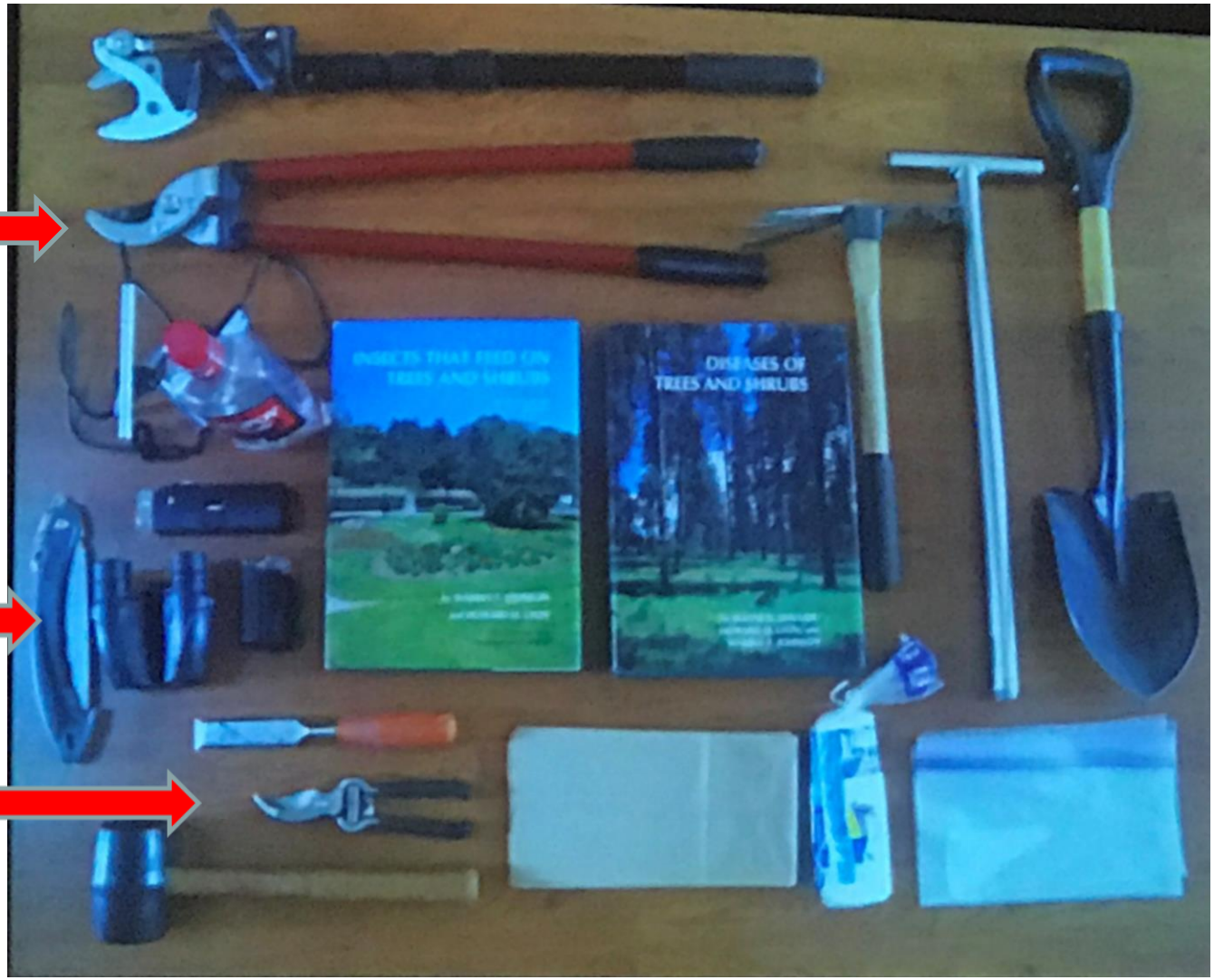
When to prune



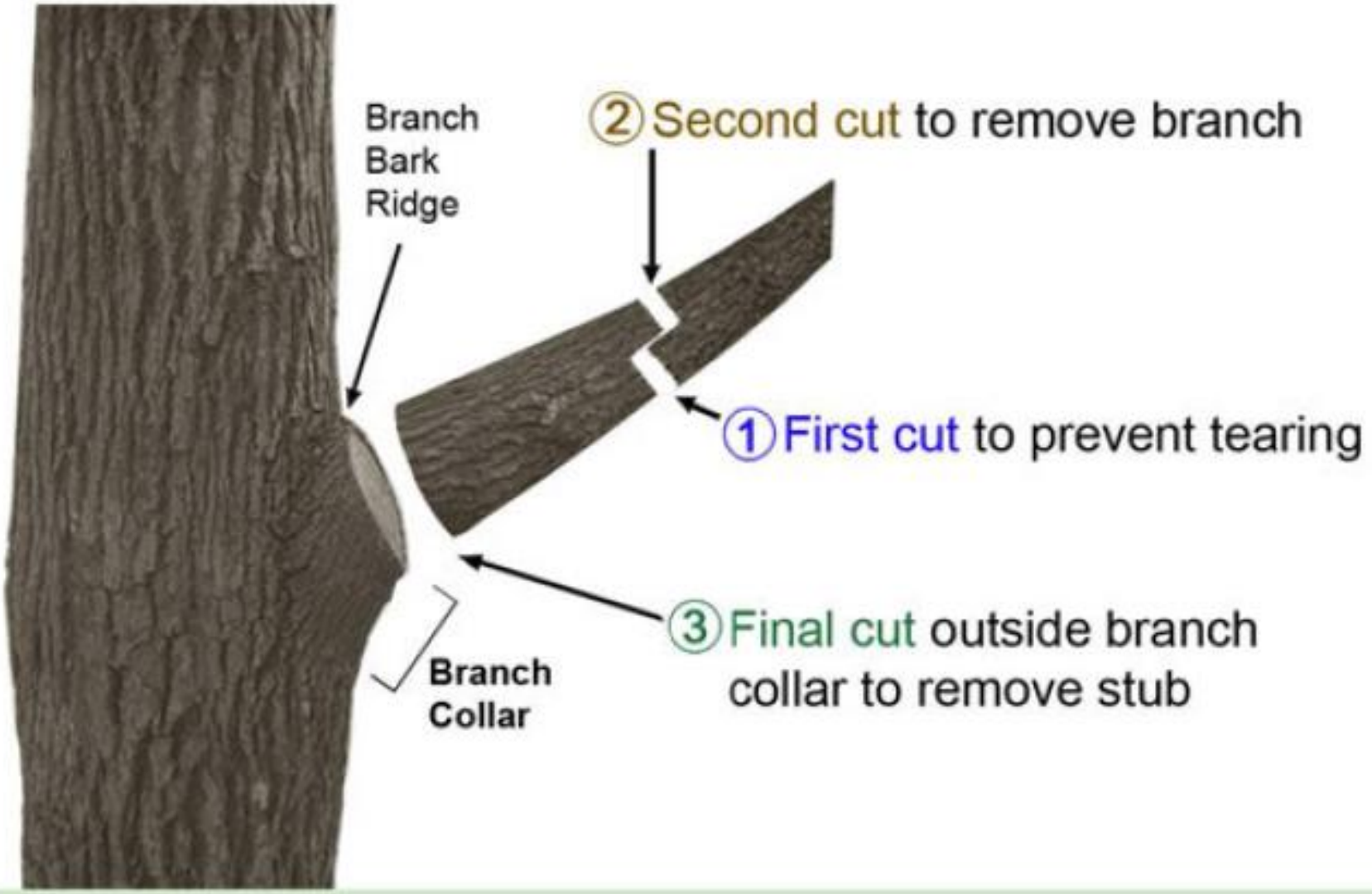




Basic Pruning Tools

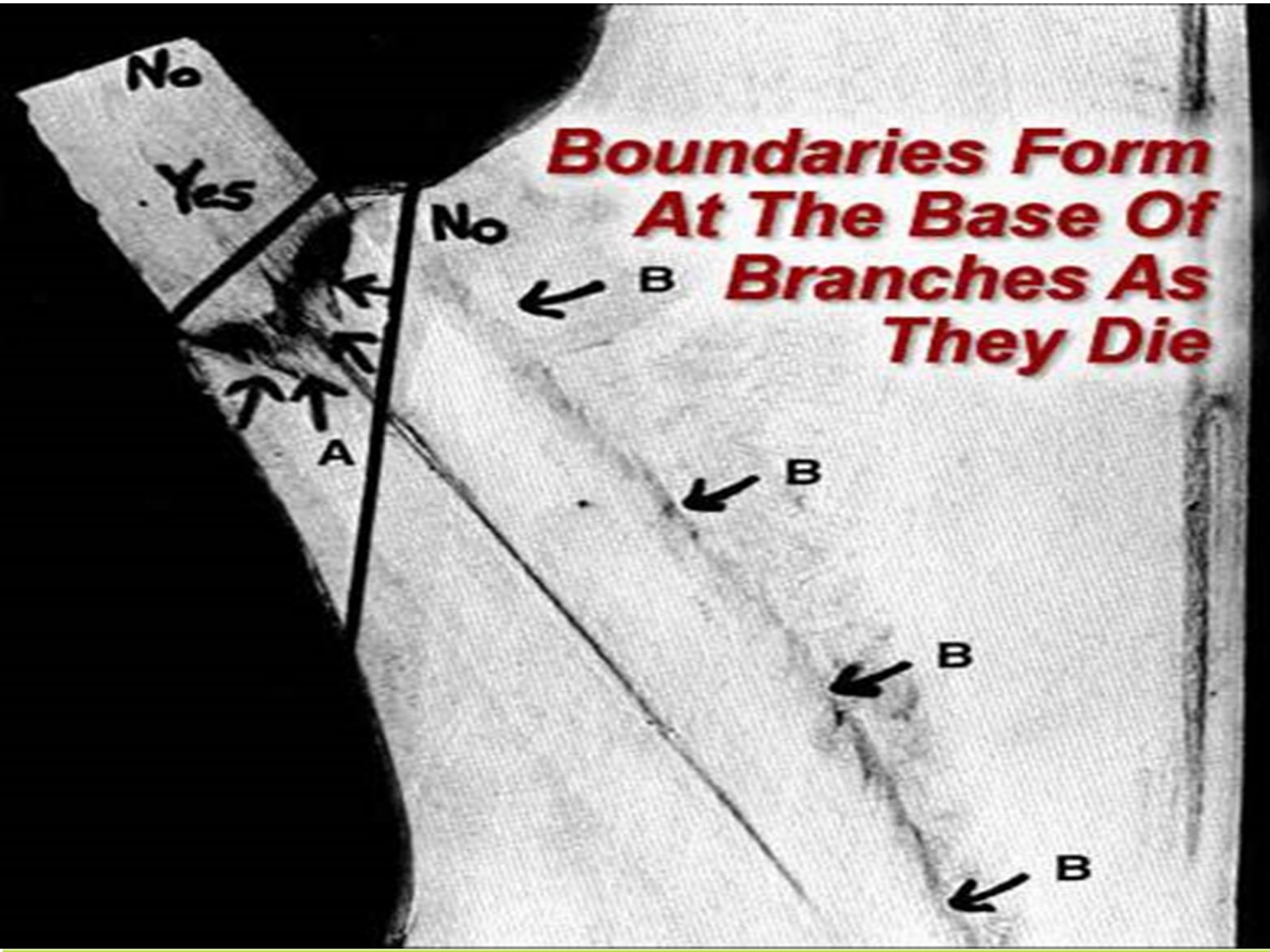


Three Cut Method

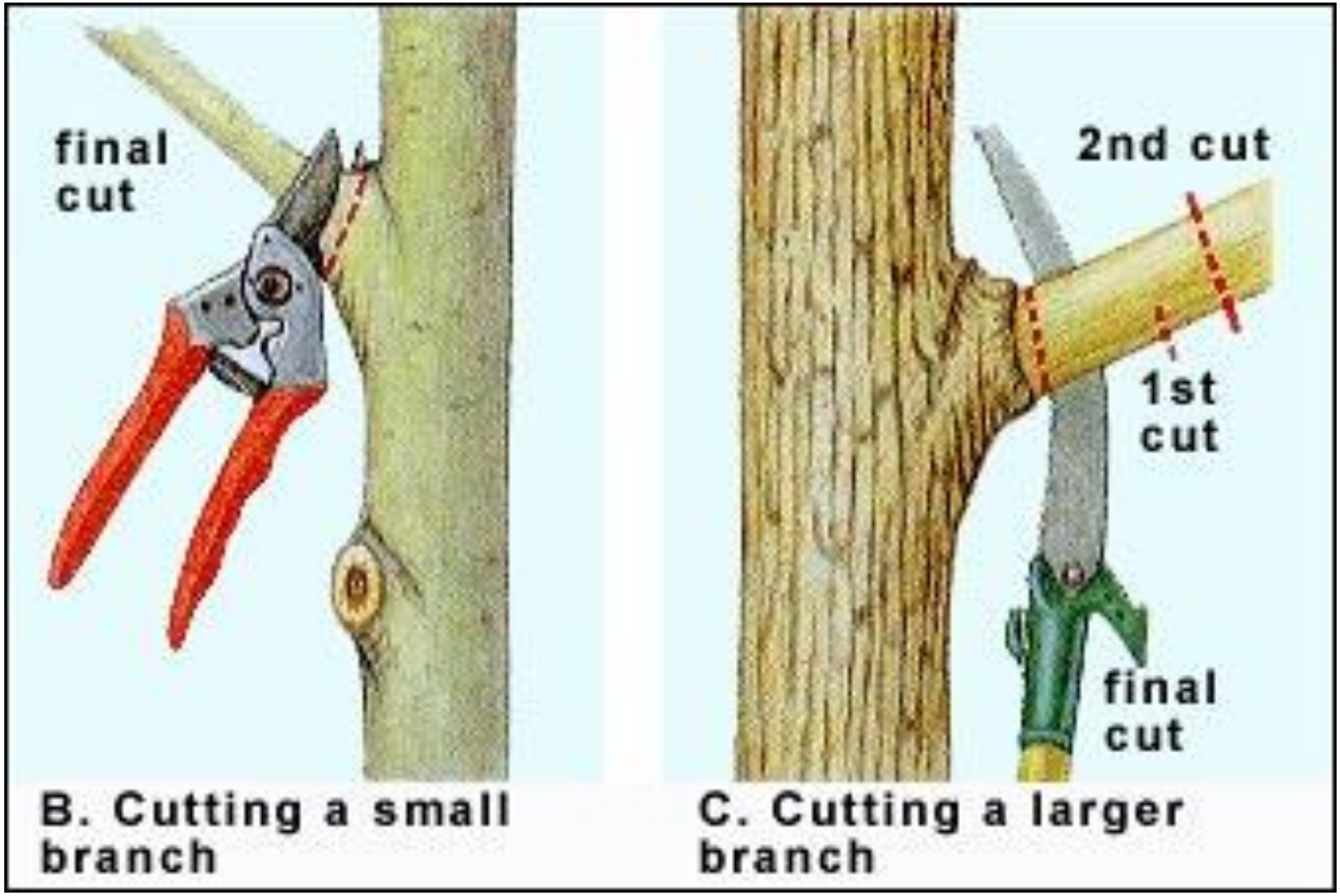


Three Cut Method

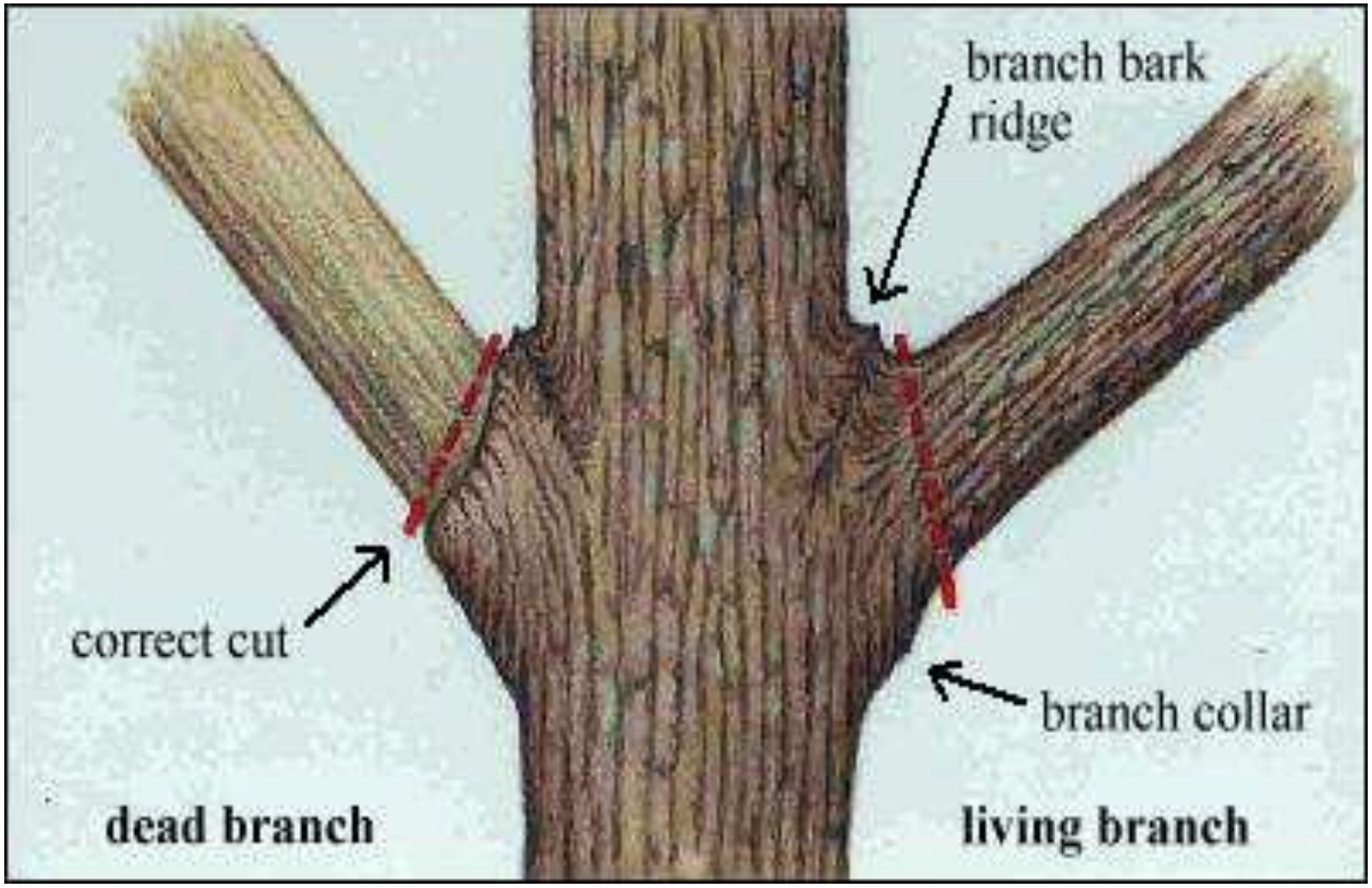
Three-Cut method for larger diameter limbs


No
Yes
No
B
B
B
B
A
Boundaries Form
At The Base Of
Branches As
They Die

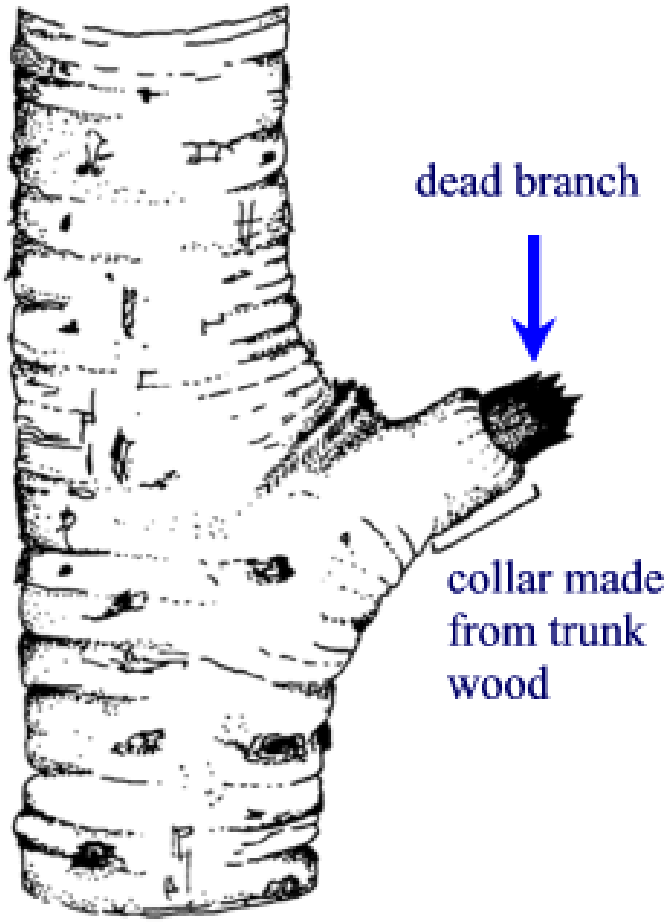
Small branches

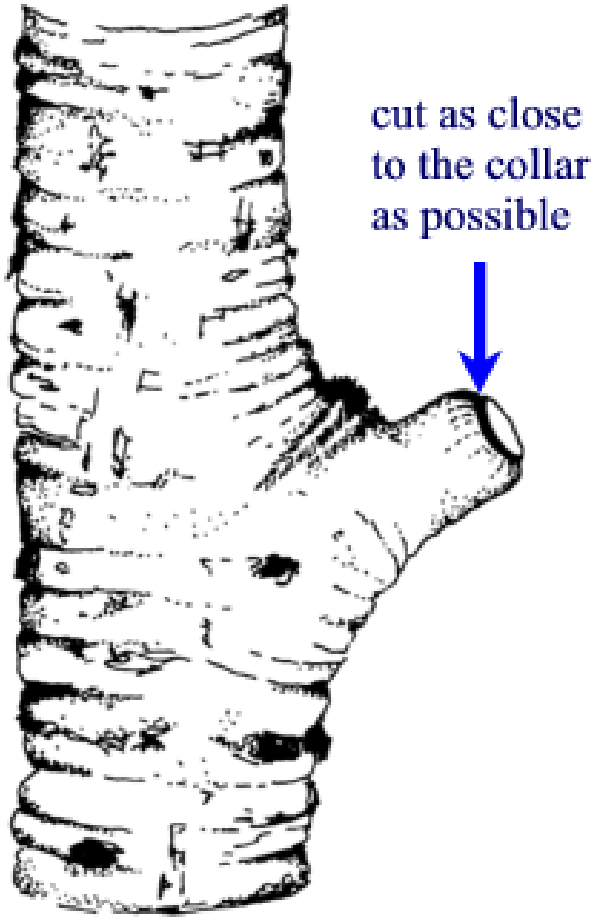


Natural Target Pruning



Technique for Dead Branch Removal

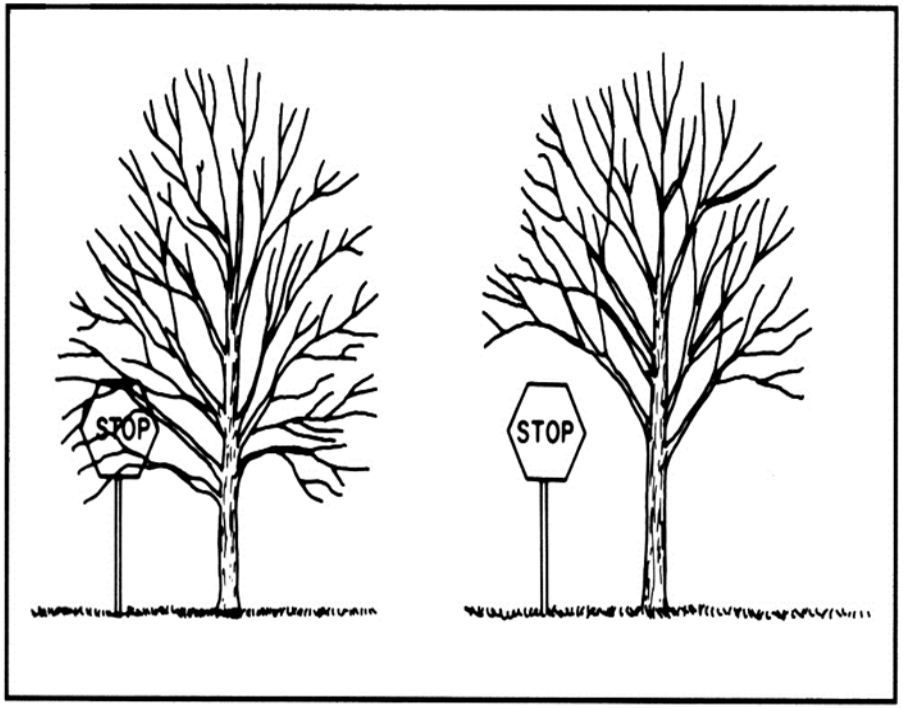


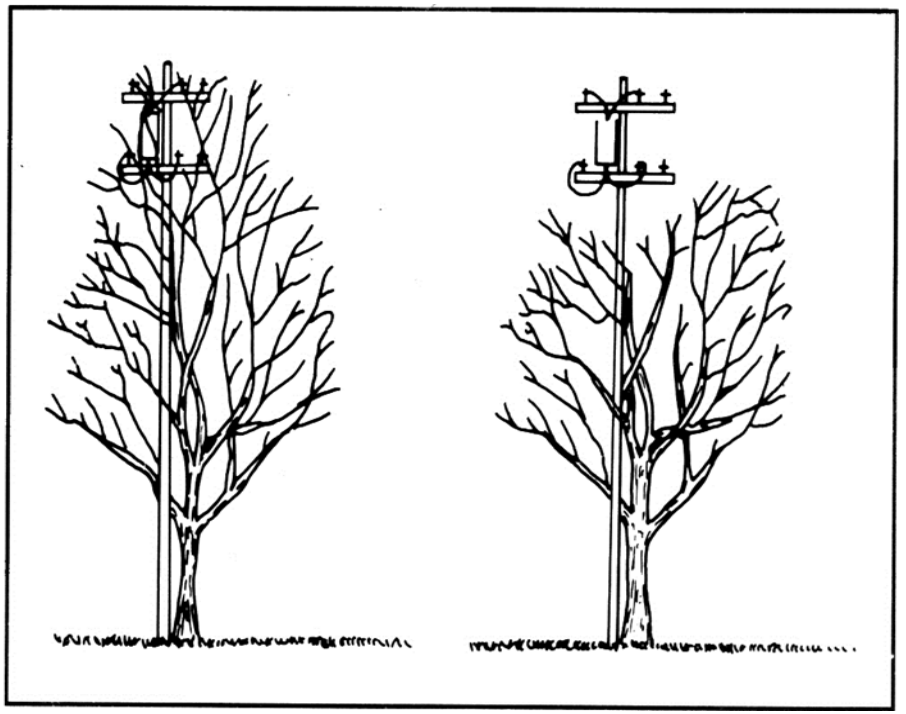


ANSI Pruning Types

American National Standard Institute

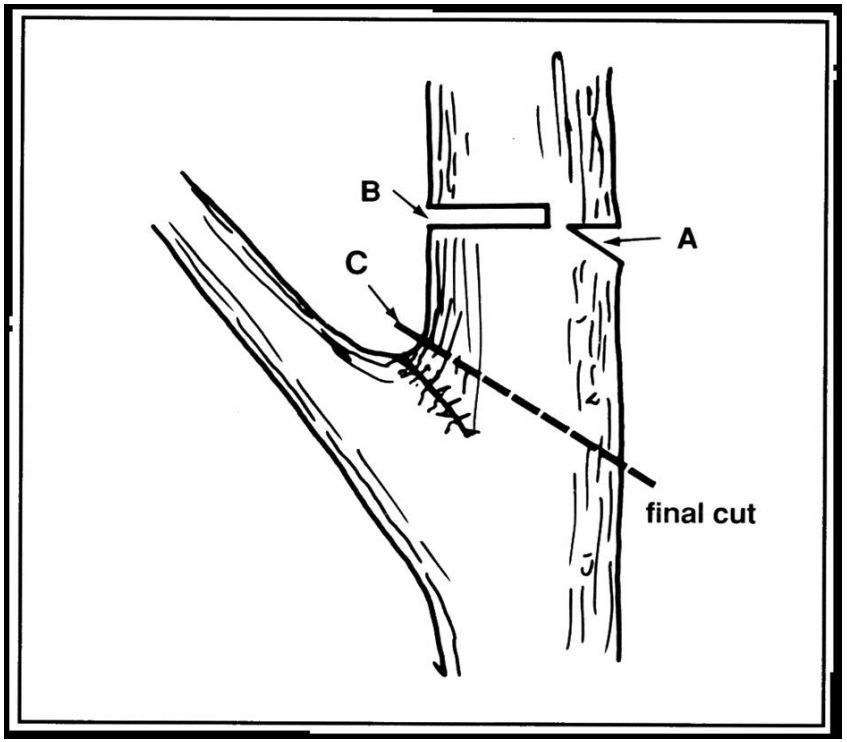
- Raising
- Reduction





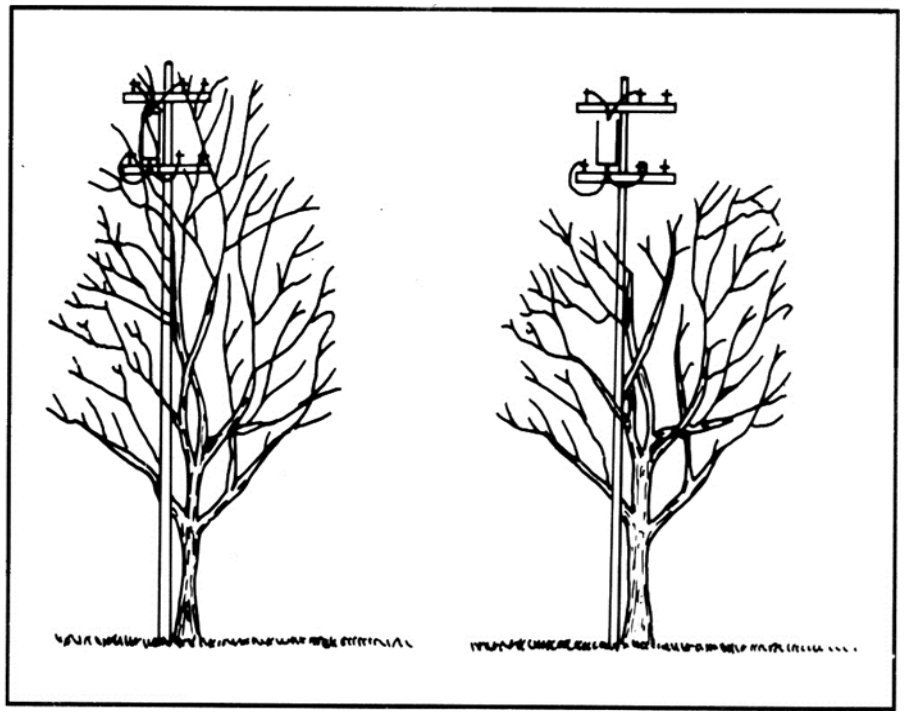
ANSI Pruning Types

American National Standard Institute



- Drop-crotching (crown reduction)

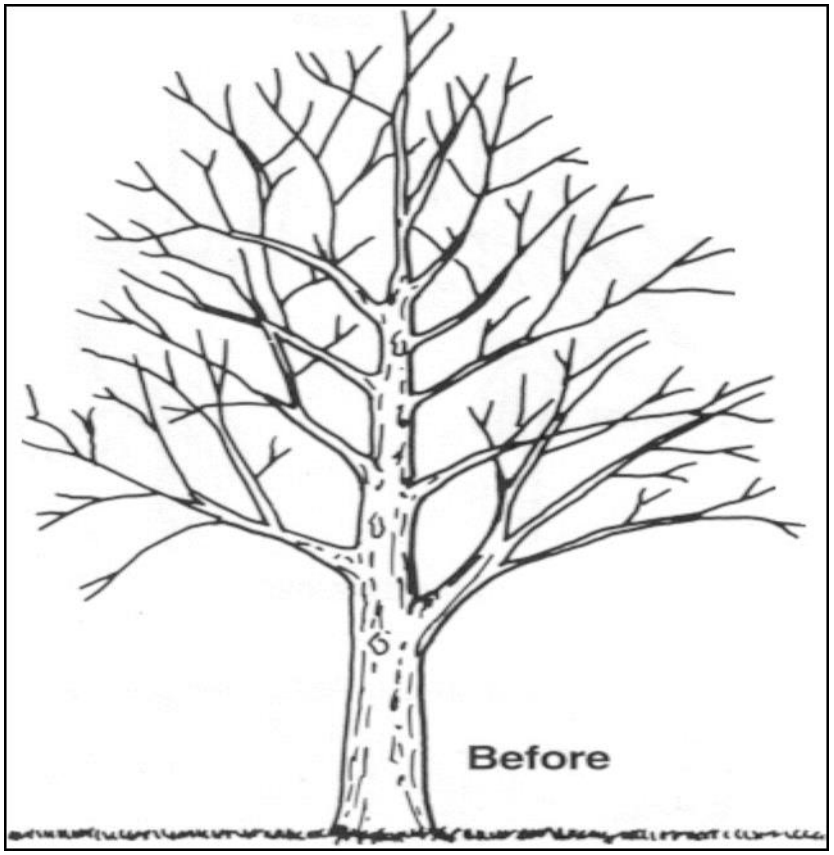
- Reduction

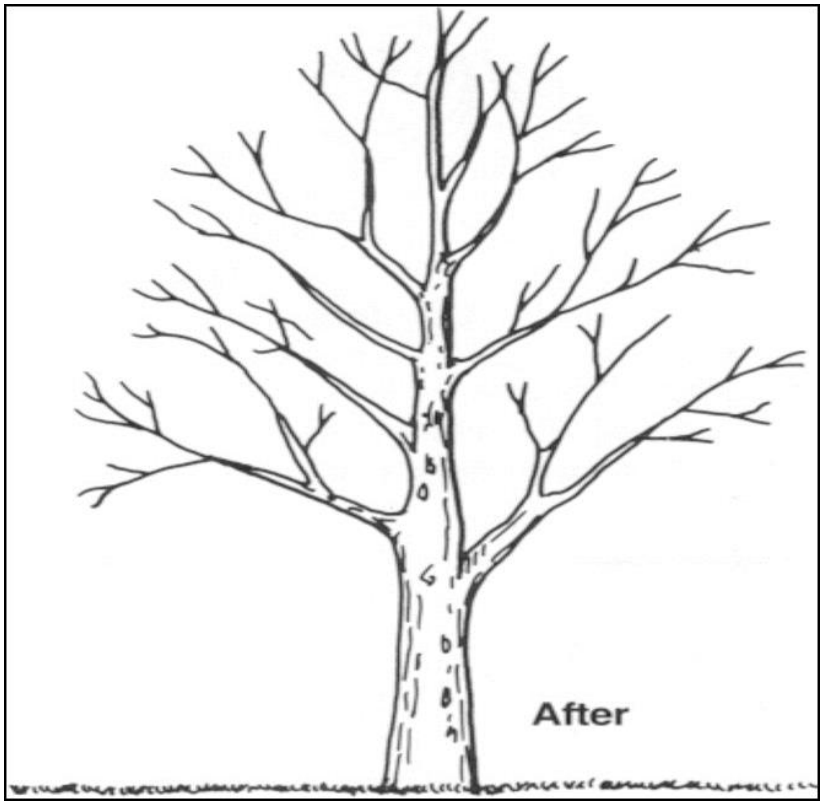


ANSI Pruning Types

American National Standard Institute

- Cleaning
- Thinning





Improper cut

- If branches are allowed to fall without support, trees can be injured as shown here
- Branch should have been undercut first to prevent this
- Use the three cut method to remove branches

Improper pruning

Improper pruning

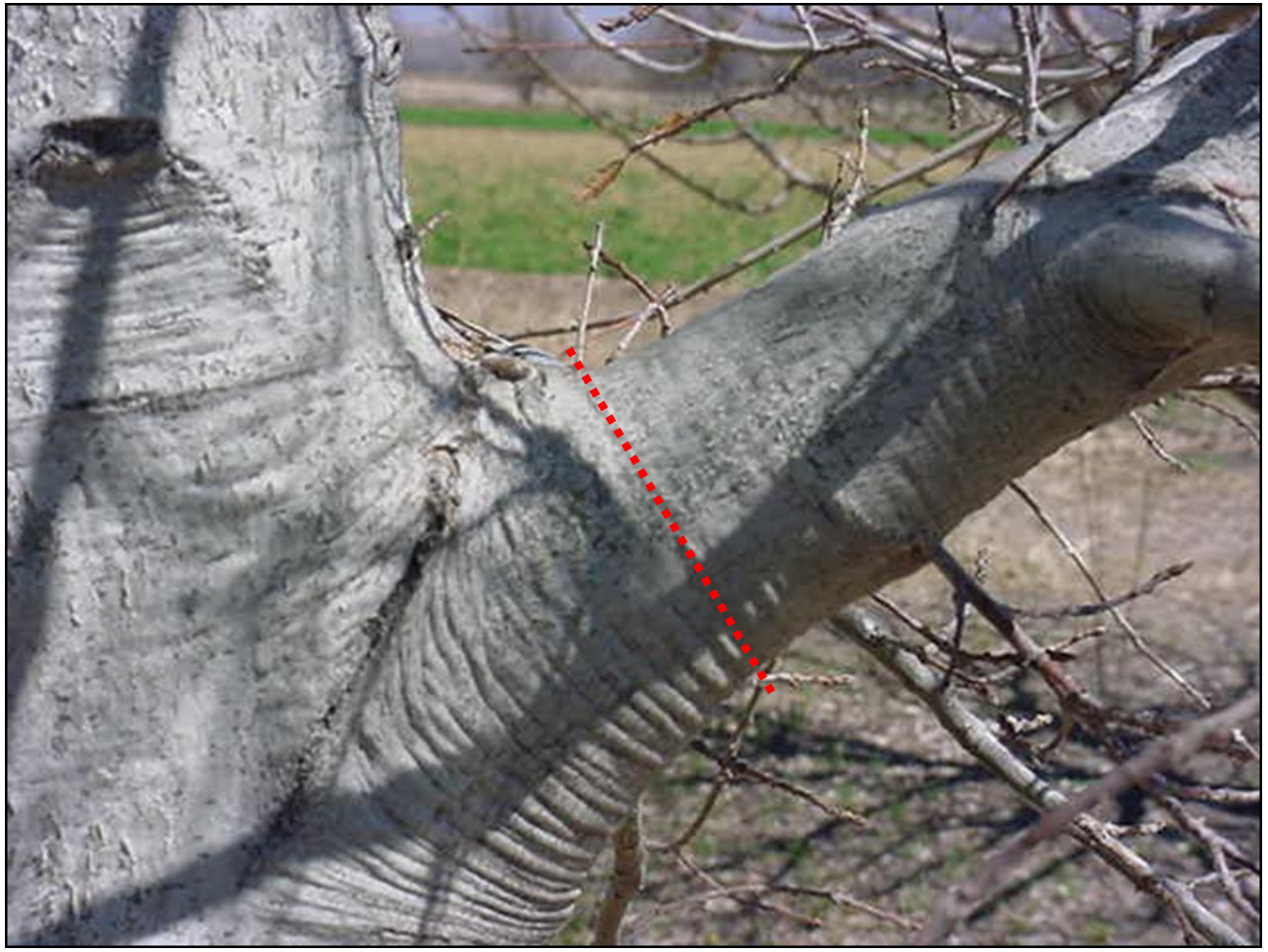
No Bark Tearing

Why Not:

- Tree bark protects the inner bark that is responsible for bringing food produced by the leaves to the rest of the tree.
- When a pruning cut is improperly made resulting in bark tearing, the branch collar is damaged and this would impair the tree's ability to close wound and will lead to decay.

Branch collar – proper cut

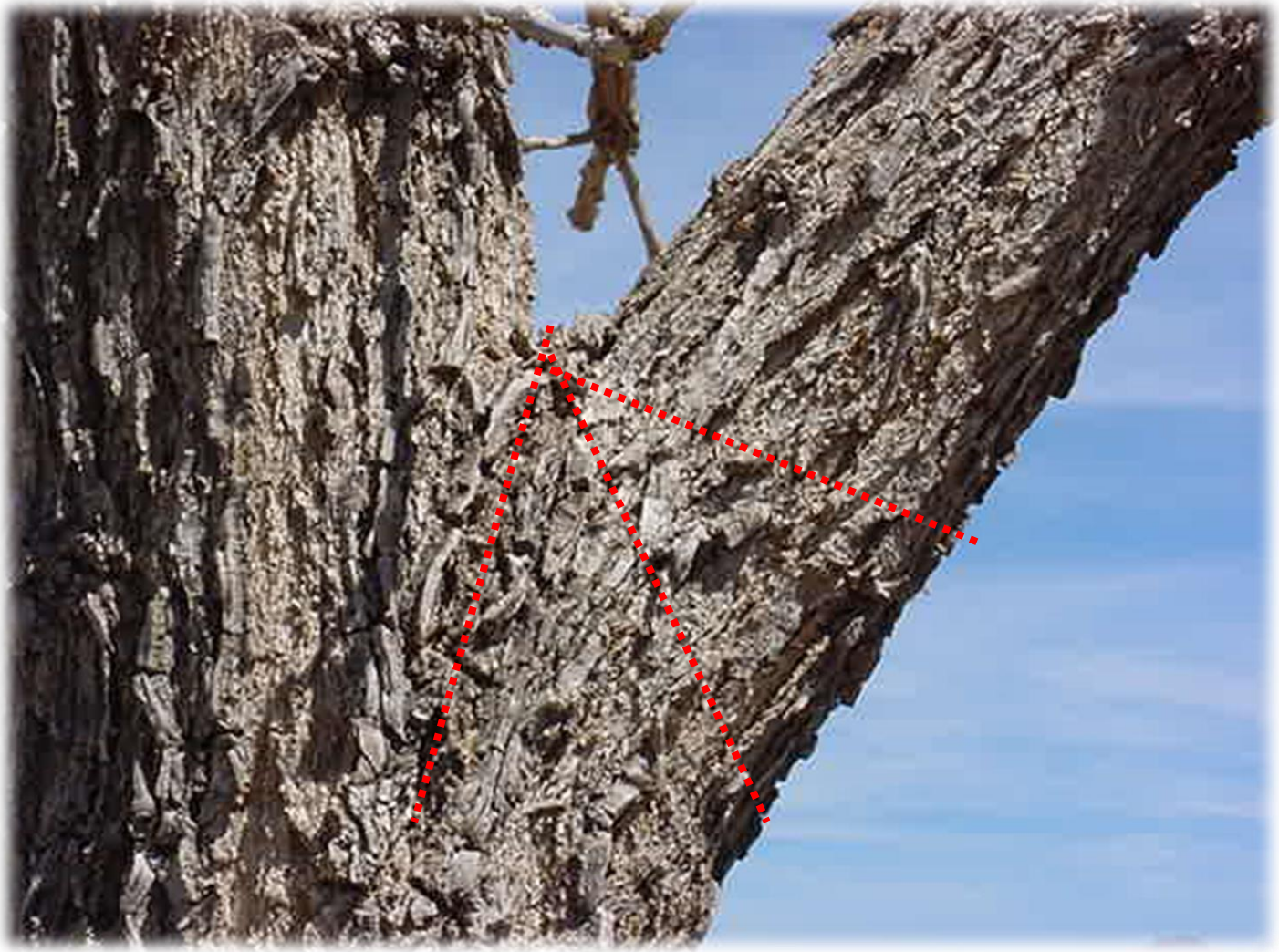
Branch collar – proper cut



Branch collar – proper cut

Proper pruning and callus tissue

Branch collar – proper cut



STOP TOPPING

Eight Good Reasons Not to Top Trees

- Starvation
- Shock
- Insects and disease
- Weak limbs
- Rapid new growth
- Tree Death
- Ugliness
- Cost

Flush Cuts

Pruning cuts that originate inside the branch bark ridge or the branch collar, causing unnecessary injury to stem tissues by promoting decay.

Pruning Paint

“Placebo” - making the user feel good
Research shows that paint or wound dressings do not stop decay nor cause the wound to close (seal) faster

Successful Pruning

Correct Tools

Correct Time

Correct Technique

Flush Cuts

Stub Cuts

Pruning cuts made too far outside the branch bark ridge or branch collar, that leave branch tissue attached to the stem. Promotes decay.

Pruning Young Trees

Avoid pruning newly planted trees for first 2-3 years

Leave temporary branches

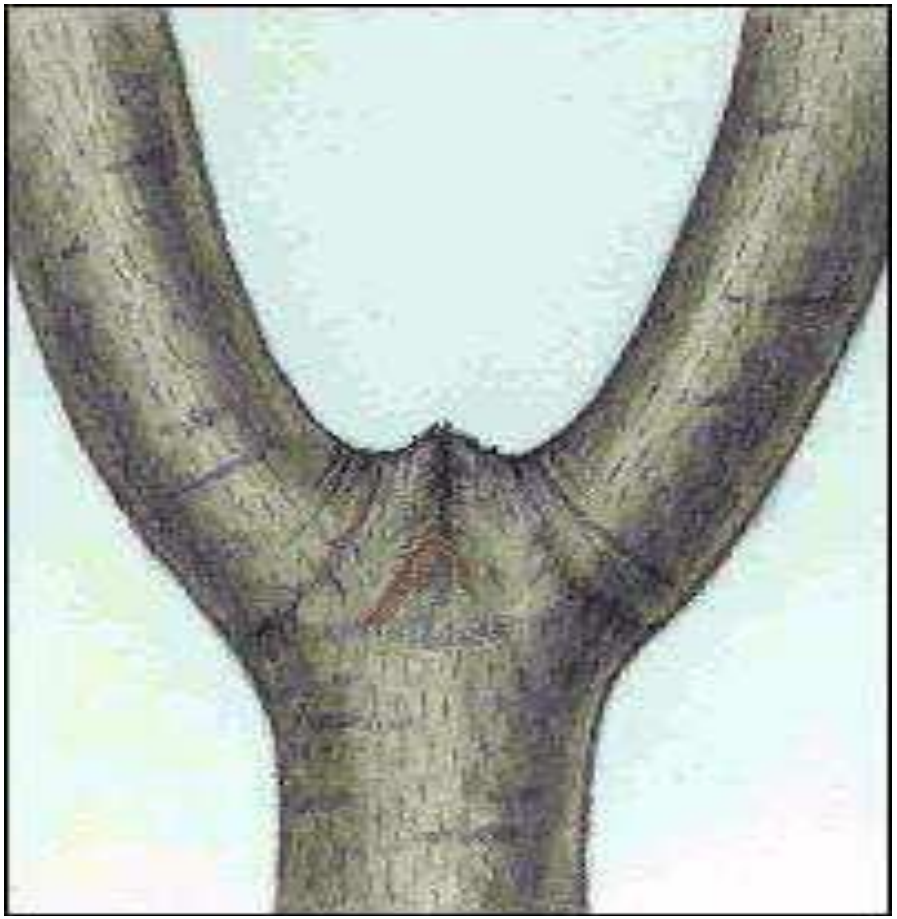
Select permanent branches

Establish good form & structure

Defects

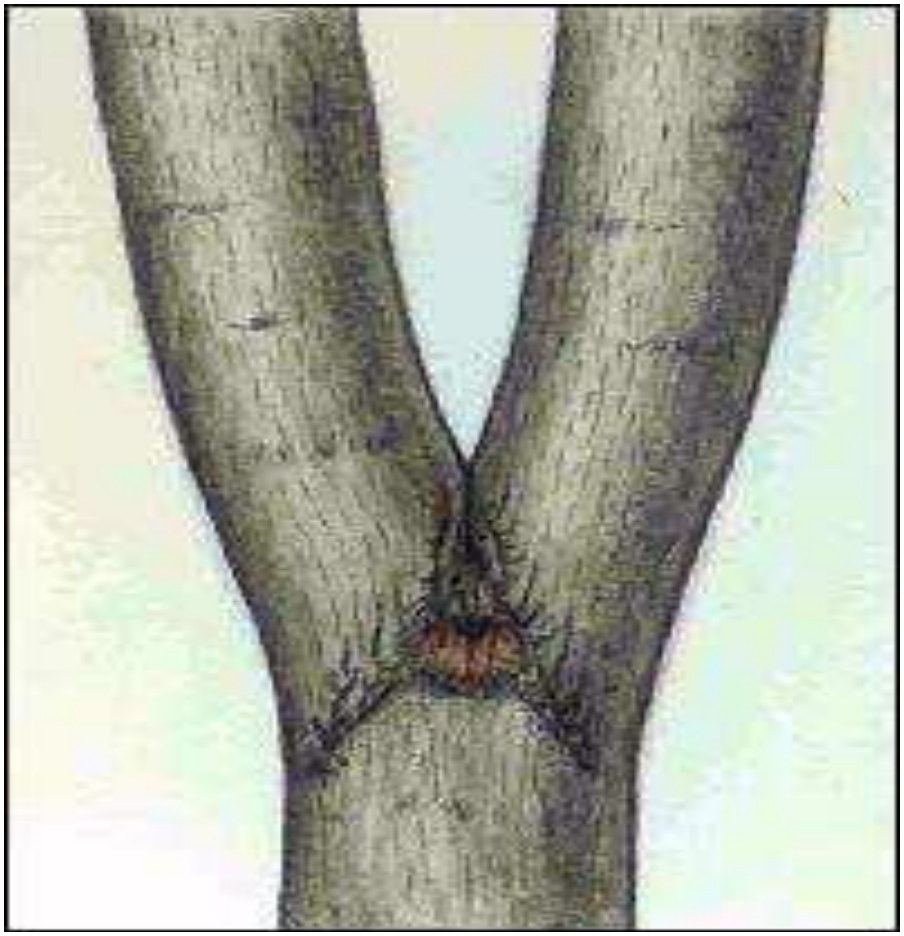
- Trees are misshapen or require major corrective pruning
- Defects may take several years to correct
- Double leader on bottom half of the tree

Strong Branch Union



Characterized by WIDER angles of attachment (Branch Axils) and a much stronger branch union.

Weak Branch Union



Characterized by very narrow angles of attachment (Branch Axils) and very weak unions.

Pruning Mature Trees

Avoid over-thinning the interior of the tree (“lion-tailing”).

Maintain proper crown ratio.

Do not remove more than 25% of live crown at one time.

Check for structural defects.

Over pruning

Key Terms

- Pruning
- 3-cut method
- Hand pruners
- Pole saw
- Bark ridge
- Branch collar
- Included bark
- Strong branch union
- Weak branch union
- Topping
- Flush cut
- Cleaning, raising, thinning, and reduction cuts

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Proper Planting

Tree Planting

Tree Planting

- Many stresses and physiological disorders can be traced to poor planting practices

- Plant the right tree in the right place

(consider the trees needs vs.the limitations of the site)

Three types of planting stock

- Bare root
- Containerized (potted)
- Balled and Burlapped (B&B)

When to plant

- If planted in the fall after leaf drop, roots may begin establishment before dormancy
- Early spring before bud-break is also a good time to plant trees
- Trees establish most quickly when soil temperatures are warm and moisture is adequate
- Maintaining enough moisture is crucial to encourage roots to grow into the surrounding soil

Three types of planting stock

- Bare root
- Containerized (potted)
- Balled and Burlapped (B&B)

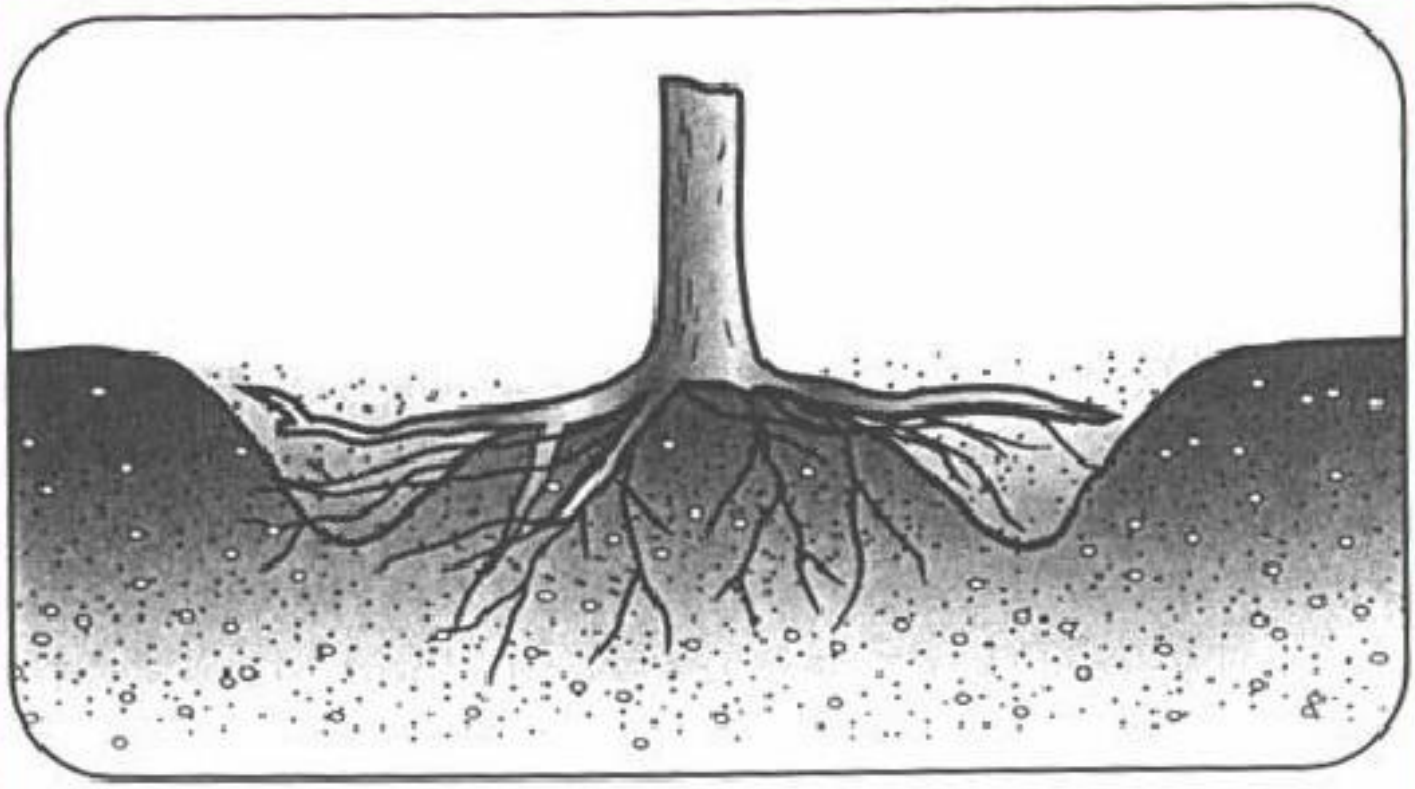


Figure 7.1 Planting bare-root trees. Spread the roots over the compacted soil mound.

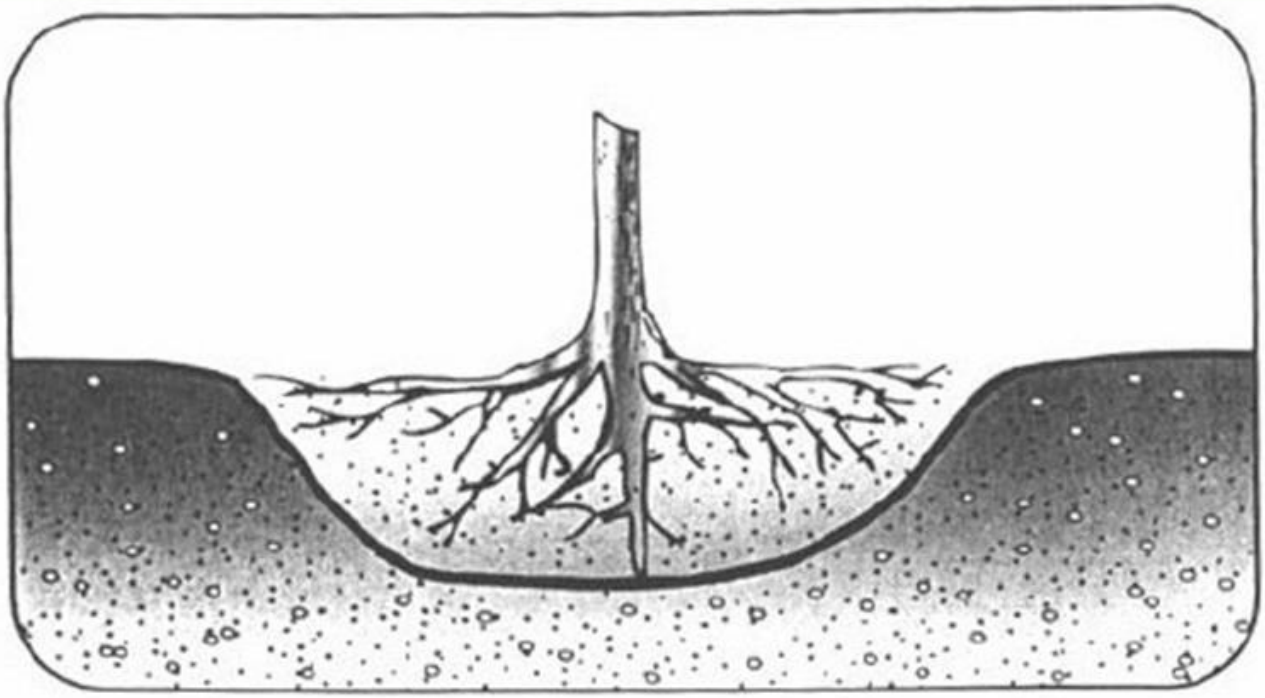


Figure 7.2 If there is a tap root present, plant the bare-root tree as shown. Staking may be required on bare-root trees.

Watch for encircling roots which could girdle the tree.

Watch for encircling roots which could girdle the tree.

B&B continued

- Burlap used to wrap the root ball supports the the root system and prevents drying by reducing roots contact with the air
- If burlap is synthetic, or treated to prevent it from decomposing, it must be removed prior to planting
- Burlap exposed to the air after planting can promote ‘wicking’ of water away from the root ball

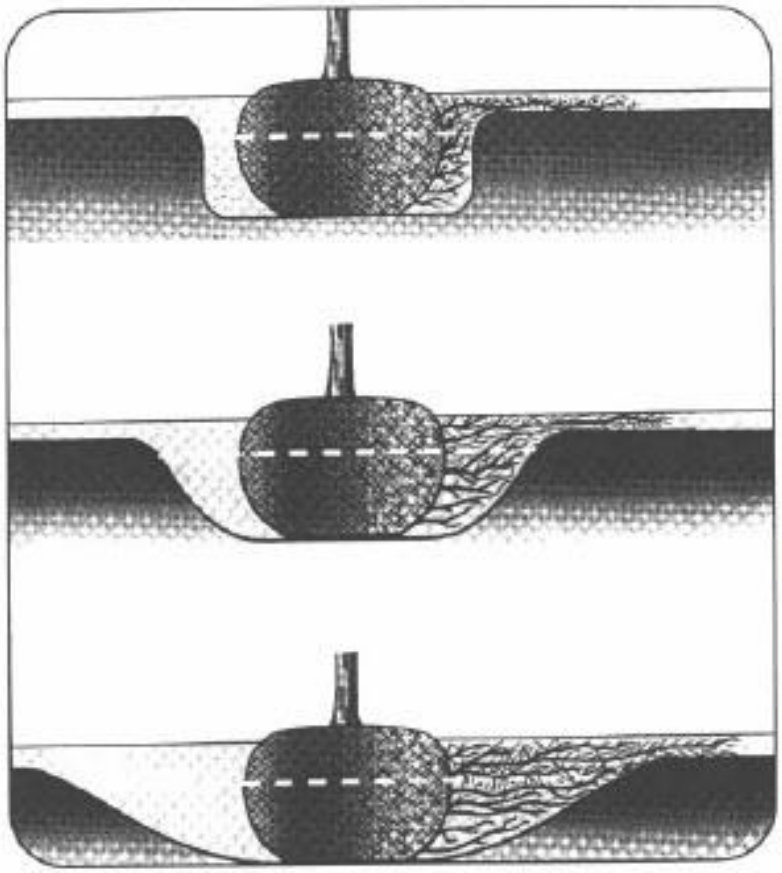
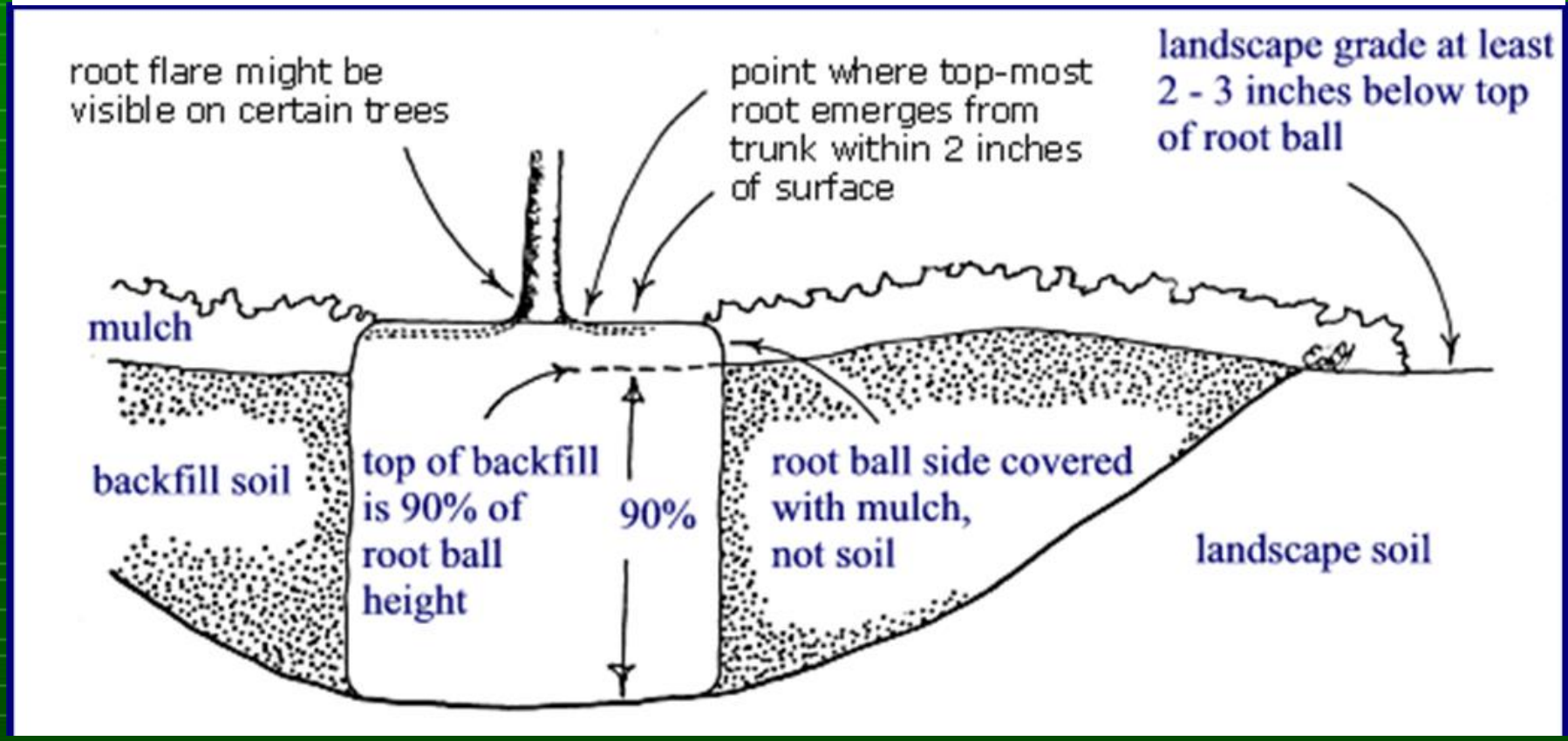


Figure 7.6 Root growth from the root ball varies with the shape of the planting hole. The broad planting pit (bottom drawing) provides for optimal new root growth.

How roots grow in the planting hole

Most root growth is shallow and horizontal

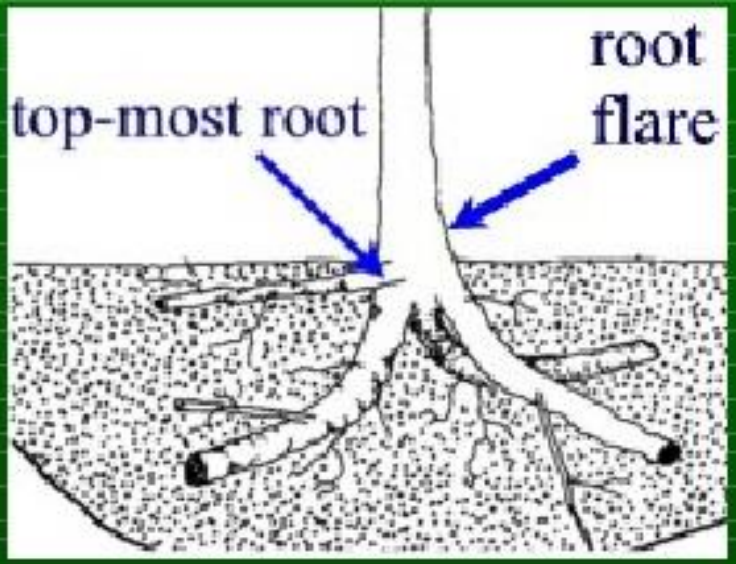
- Dig the planting hole as wide as possible
- The depth of the hole should be less than the height of the root ball



Never plant deeper then the tree is in the root ball or container. Laying a board or pole across the planting hole is a good way to check.

Root flare

- Find the proper planting depth is very important for establishment



- Saturate the hole with water
- Add more soil if needed

- Cover the planting area with 3 inches of mulch.
- Do not pile mulch against the trunk!

Too much mulch

What is wrong with this planting?

- **Remove all ties and any stakes that came with the tree!**

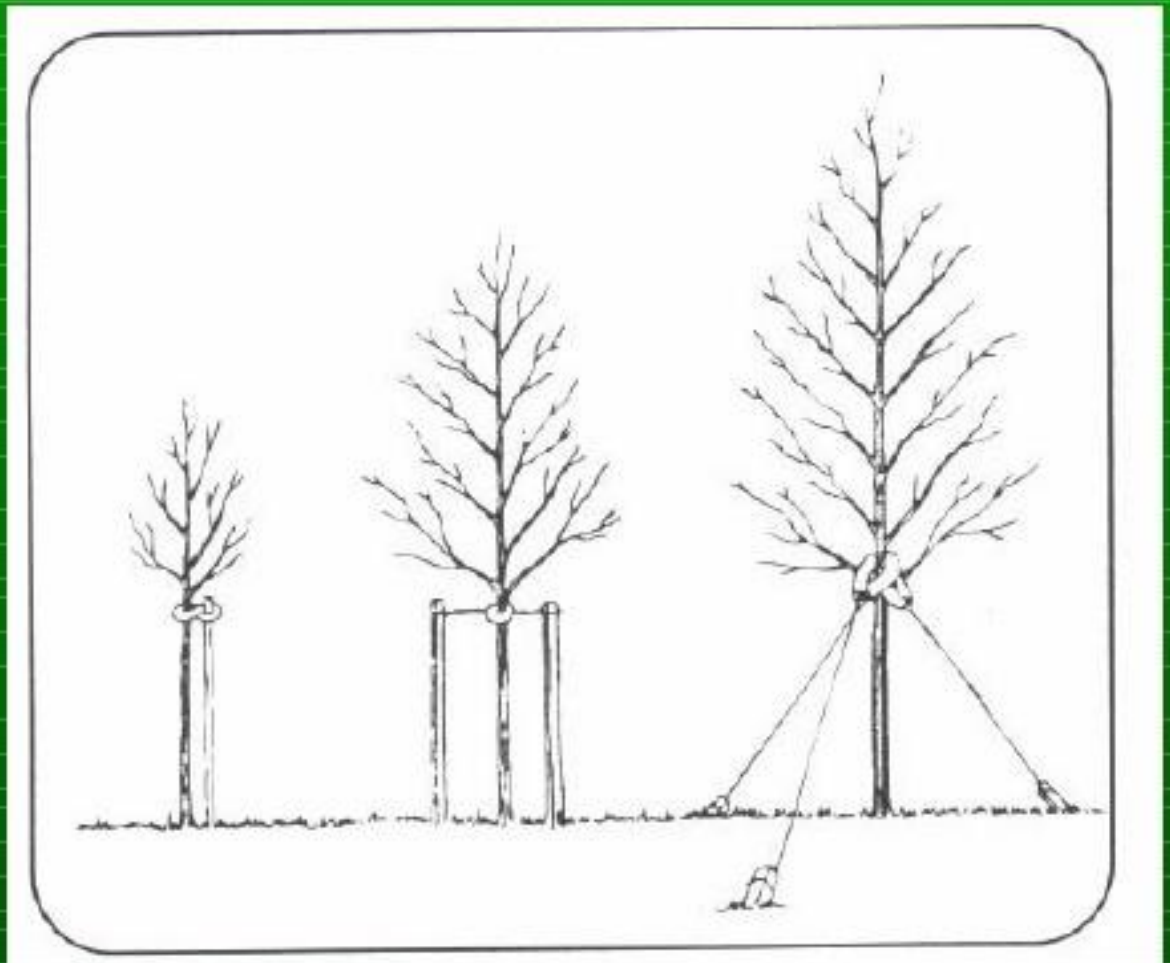


Figure 7.13 If a single stake is used, it should be placed on the upwind side of the tree. Stakes should be just high enough to keep the tree upright without the top bending above the tie point. Stakes for guy wires should be driven into the ground in the same direction as the guy wires.

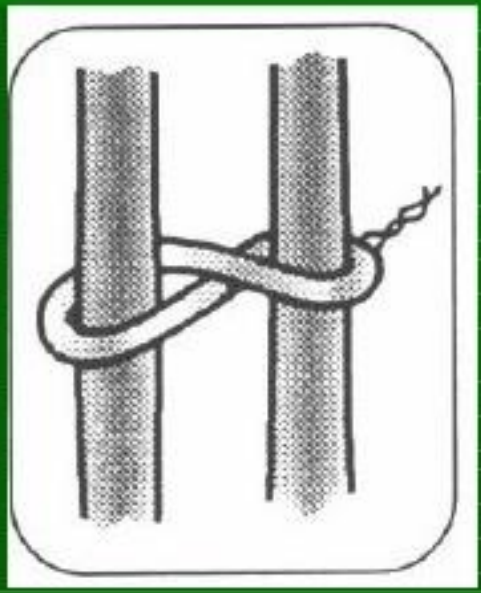


Figure 7.14 Use a broad, flexible material to attach a tree to the stakes.

Traditional staking methods

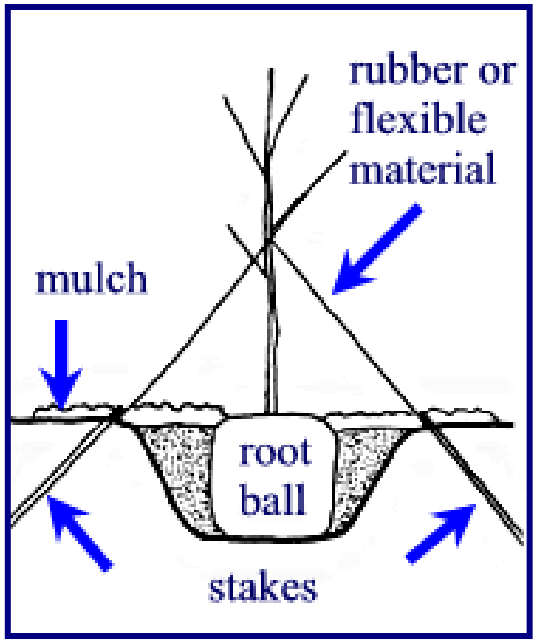


Figure 1

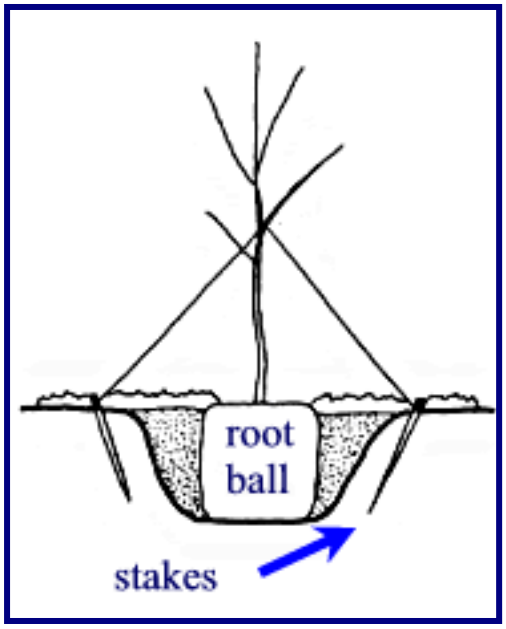


Figure 2

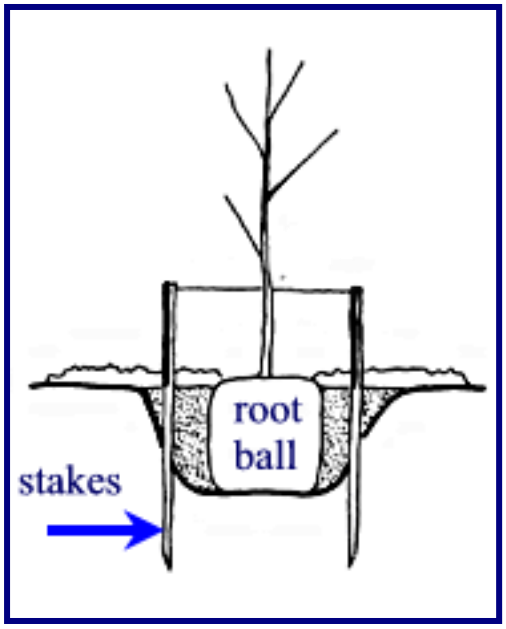


Figure 3

- All these systems require removal within one year of planting

What wrong with this planting?

Prune to finish the job

- Remove broken branches
- Perform structural pruning if needed
- Do not prune to compensate for root loss

Key Terms

- Balled and Burlapped
- Bare root
- Container grown
- Containerized
- Girdling root
- Guying
- Planting specifications
- Root ball
- Staking
- Wire basket

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