Pruning of Mature Trees

Some Basic Principles

Why Prune?

The objective of pruning is to produce *strong, healthy, attractive plants*. By understanding how, when and why to prune, and by following a few simple principles, this objective can be achieved.

Pruning for *safety* involves removing branches that could fall and cause injury or property damage, trimming branches that interfere with lines of sight on streets or driveways, and removing branches that grow into utility lines.

Safety pruning can be largely avoided by carefully choosing species that will not grow beyond the space available to them, and have strength and form characteristics that are suited to the site. In addition, pruning can be used to stimulate fruit production and increase the value of timber.

GLOSSARY

Some Terms You Should Know

Branch Axil: the angle formed where a branch joins another branch or stem of a woody plant.

Branch Bark Ridge: a ridge of bark that forms in a branch crotch and partially around the stem resulting from the growth of the stem and branch tissues against one another.

Branch Collar: a "shoulder" or bulge formed at the base of a branch by the annual production of overlapping layers of branch and stem tissues.

Crown Raising: a method of pruning to provide clearance for pedestrians, vehicles, buildings, lines of sight, and vistas by removing lower branches.

Crown Reduction Pruning: a method of pruning used to reduce the height of a tree. Branches are cut back to laterals that are at least one-third the diameter of the limb being removed.

Terms Continued…

Crown Thinning: a method of pruning to increase light penetration and air movement through the crown of a tree by selective removal of branches.

Epicormic Sprout: a shoot that arises from latent or adventitious buds; also know as water sprouts that occur for on stems and branches and suckers that are produced from the base of trees. In older wood, epicormic shoots often result from severe defoliation or radical pruning.

Flush Cuts: pruning cuts that originate inside the branch bark ridge or the branch collar, causing unnecessary injury to stem tissues.

Included Bark: bark enclosed between branches with narrow angles of attachment, forming a wedge between the branches.

Pollarding: the annual removal of all of the previous year's growth, resulting in a flush of slender shoots and branches each spring.

Stub Cuts: pruning cuts made too far outside the branch bark ridge or branch collar, that leave branch tissue attached to the stem.

Tipping: a poor maintenance practice used to control the size of tree crowns; involves the cutting of branches at right angles leaving long stubs.

Terms Continued...

Topping: a poor maintenance practice often used to control the size of trees; involves the indiscriminate cutting of branches and stems at right angles leaving long stubs. Synonyms include rounding-over, heading-back, dehorning, capping and hat-racking. Topping is often improperly referred to as pollarding.

Topiary: the pruning and training of a plant into a desired geometric or animal shape.

Woundwood: lignified, differentiated tissues produced on woody plants as a response to wounding (also known as callus tissue).

C.O.D.I.T.

Pruning - Proper pruning can reduce future problems

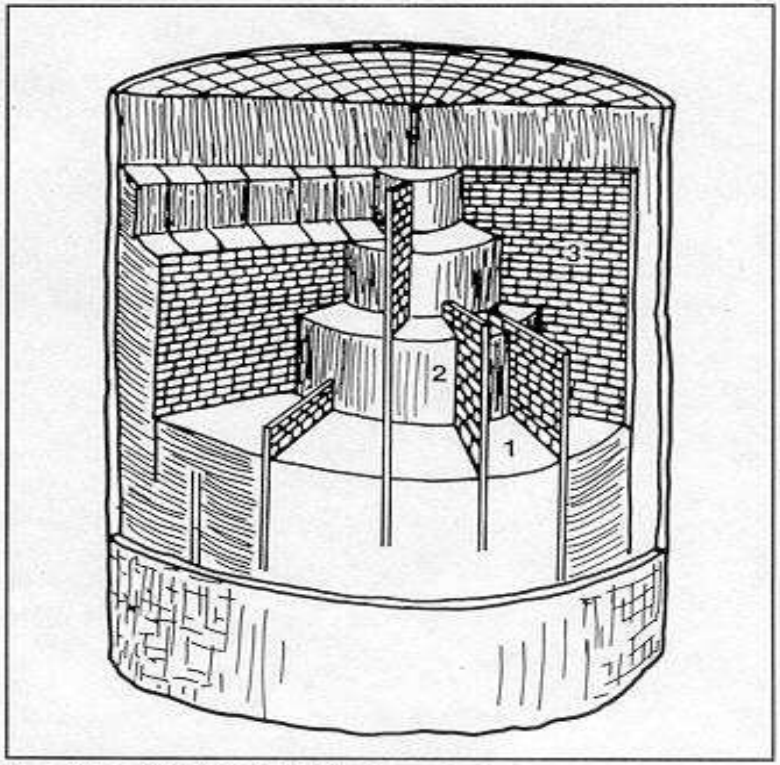


Fig. 1.16 CODIT. Wall 1 is formed when the tree responds to wounding by "plugging" the upper and lower vascular elements to limit vertical spread of decay. Wall 2 is formed by the last cells of the growth ring limiting inward spread. Wall 3 is the ray cells that compartmentalize decay by limiting lateral spread. Wall 4 (not shown), the strongest wall, is the new growth ring that forms

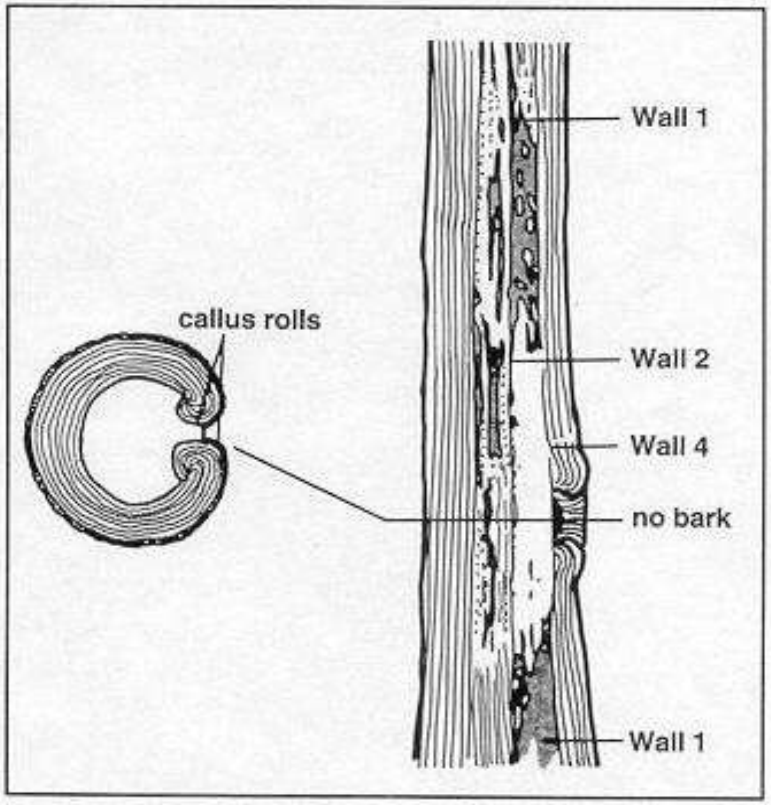


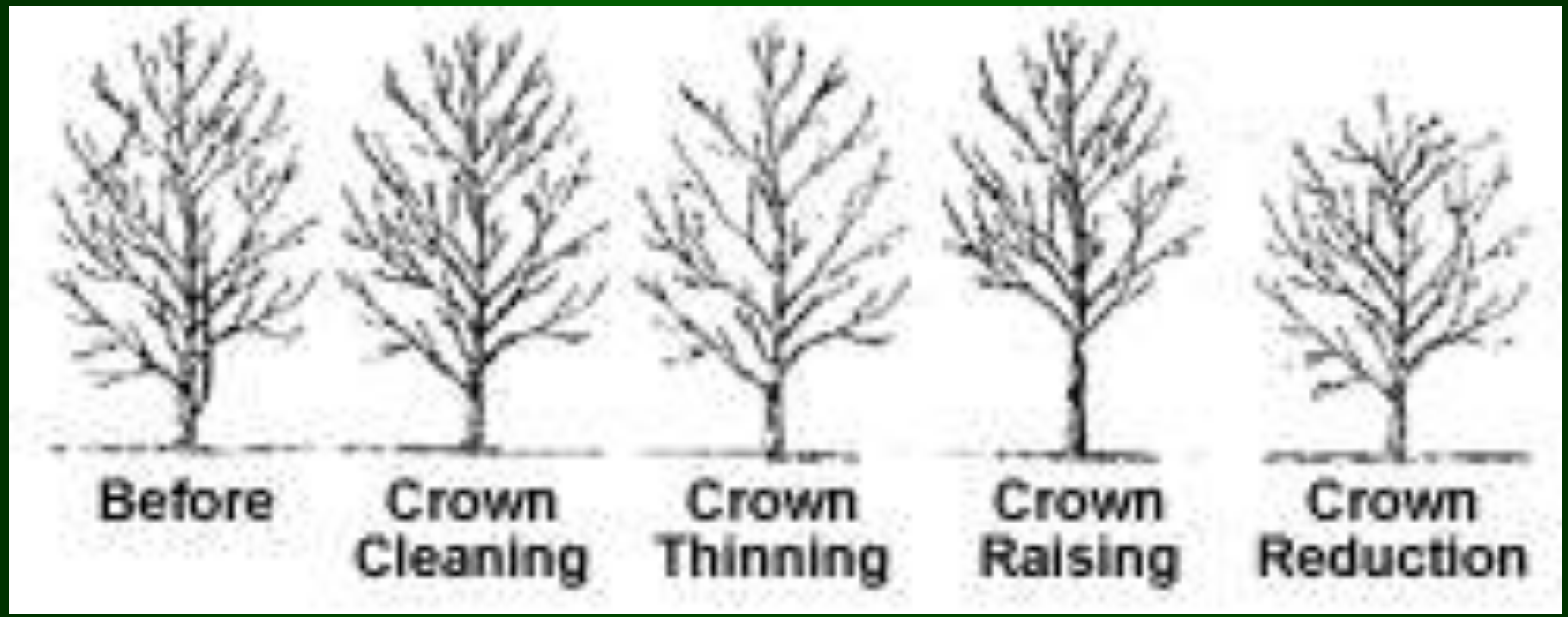
Fig. 1.17 Compartmentalization of decay. Wall 4 prevents decay from entering new wood. Wall 3, not shown, and Wall 2 have failed to prevent the decay from spreading laterally and internally.

Compartmentalization

To encourage the development of a strong, healthy tree, consider the following guidelines when pruning.

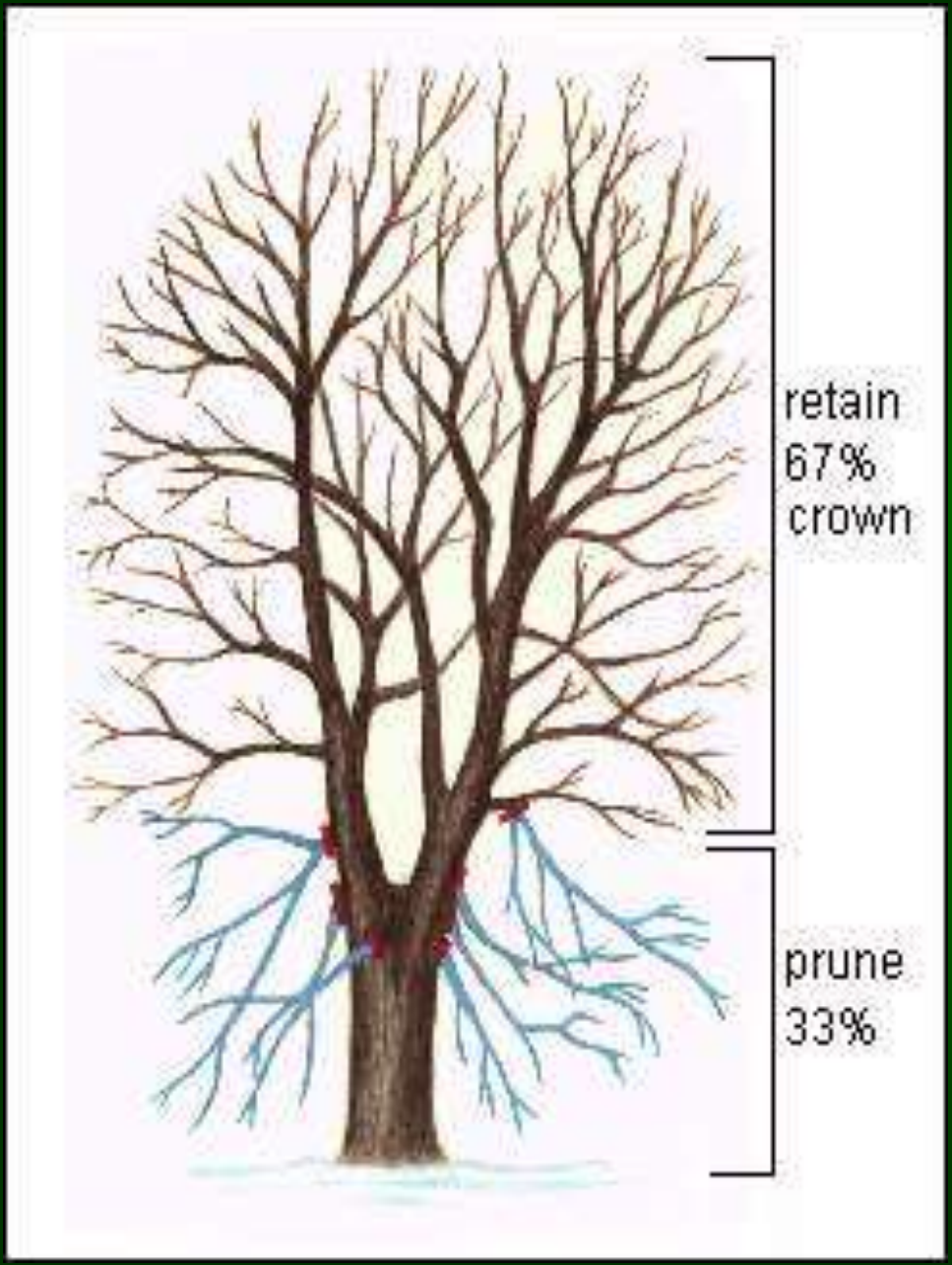
- Prune first for *safety*, next for *health*, and finally for *aesthetics.*
- *Never* prune trees that are touching or near utility lines; instead consult your local utility company.
- Avoid pruning trees when you might increase susceptibility to important pests (e.g. in areas where oak wilt exists, avoid pruning oaks in the spring and early summer; prune trees susceptible to fire blight only during the dormant season).
- Use the following decision guide for size of branches to be removed:
  - **Under 2 in diameter - *go ahead*.**
  - **Between 2 and 4 in diameter - *think twice.***
  - **Greater than 4 in diameter - *have a good reason.***

Pruning Techniques



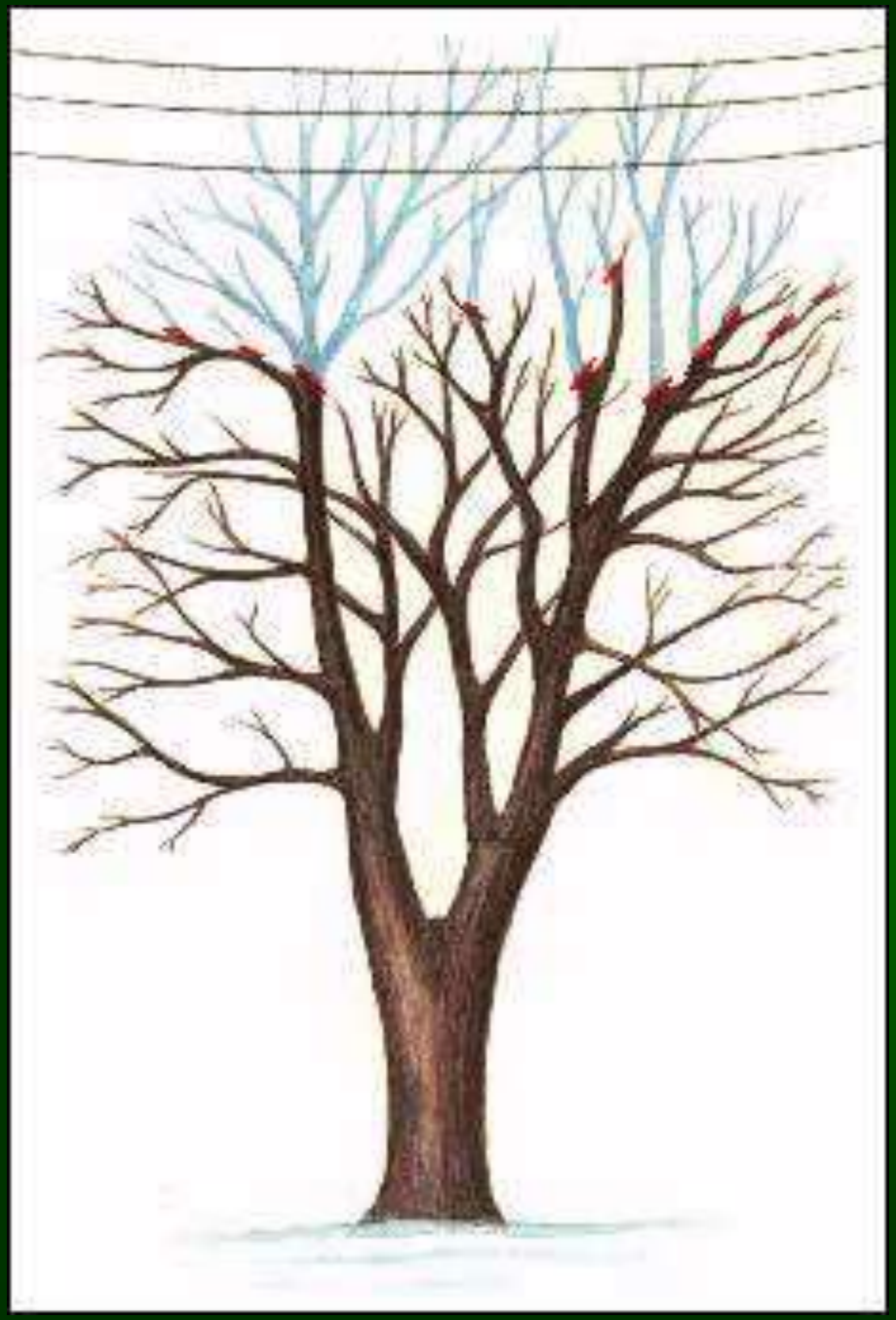
Crown Thinning

- Favor branches with strong, U-shaped angles of attachment. Remove branches with weak, V-shaped angles of attachment and/or included bark.
- Ideally, lateral branches should be evenly spaced on the main stem of young trees.
- Remove any branches that rub or cross another branch.
- Make sure that lateral branches are no more than one-half to three-quarters of the diameter of the stem to discourage the development of co-dominant stems.
- Do not remove more than one-third of the living crown of a tree at one time. If it is necessary to remove more, do it over successive years.



Crown Raising

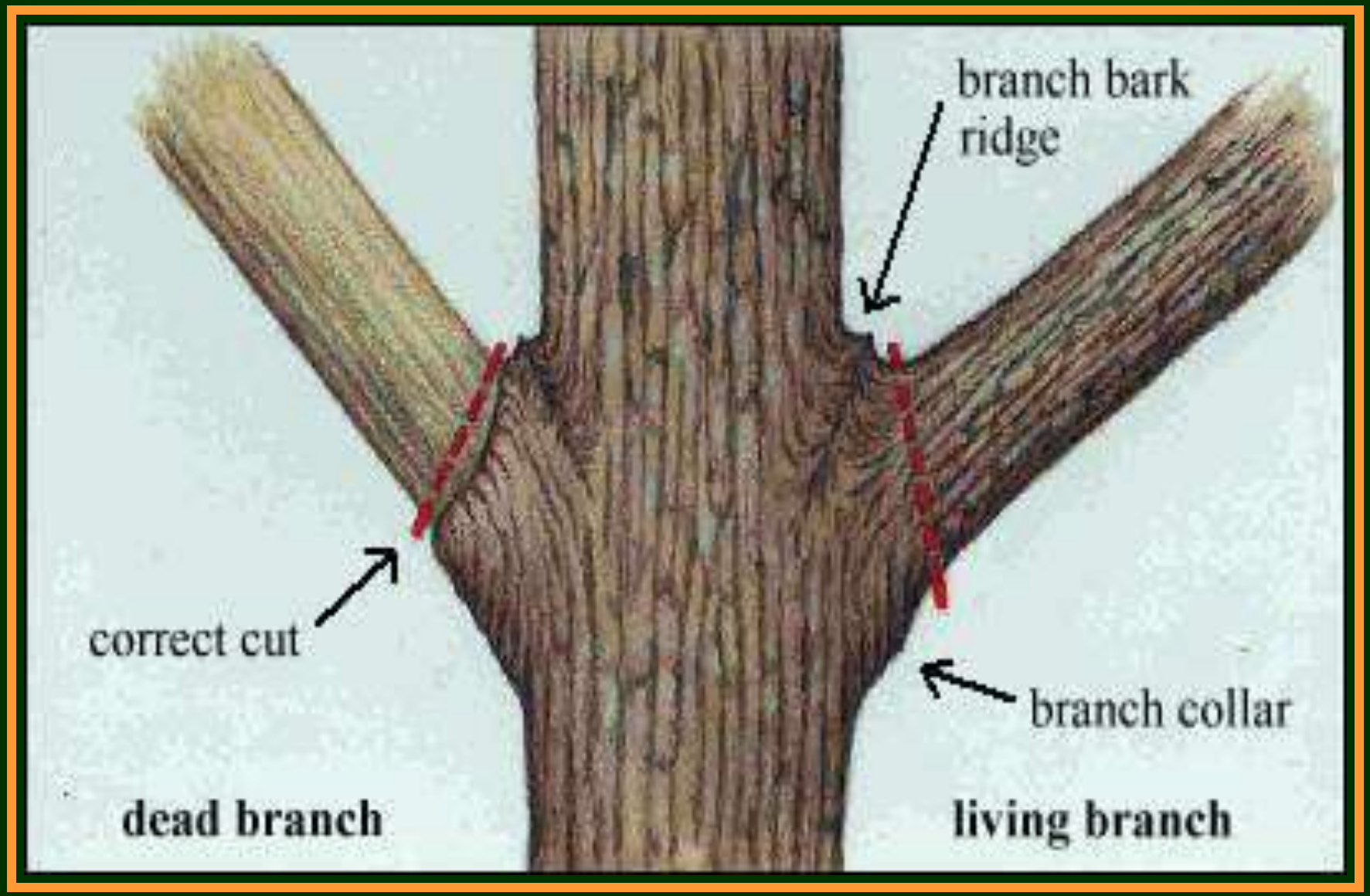
- Always maintain live branches on at least two-thirds of a tree's total height.
- Removing too many lower branches will hinder the development of a strong stem.
- Remove basal sprouts and vigorous epicormic sprouts.



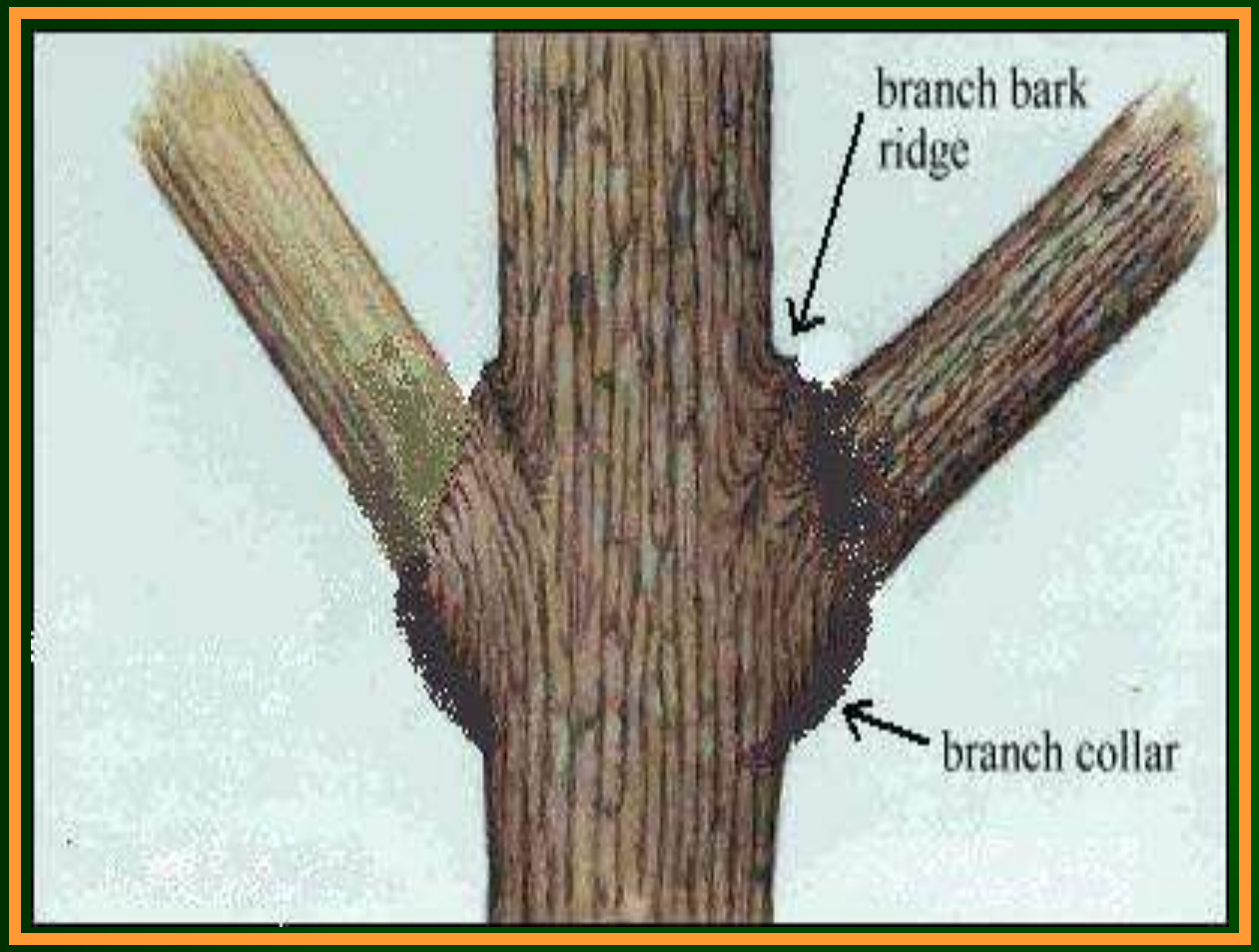
Crown Reduction

- Use crown reduction pruning only when absolutely necessary. Make the pruning cut at a lateral branch that is at least one-third the diameter of the stem to be removed.
- If it is necessary to remove more than half of the foliage from a branch, remove the entire branch.

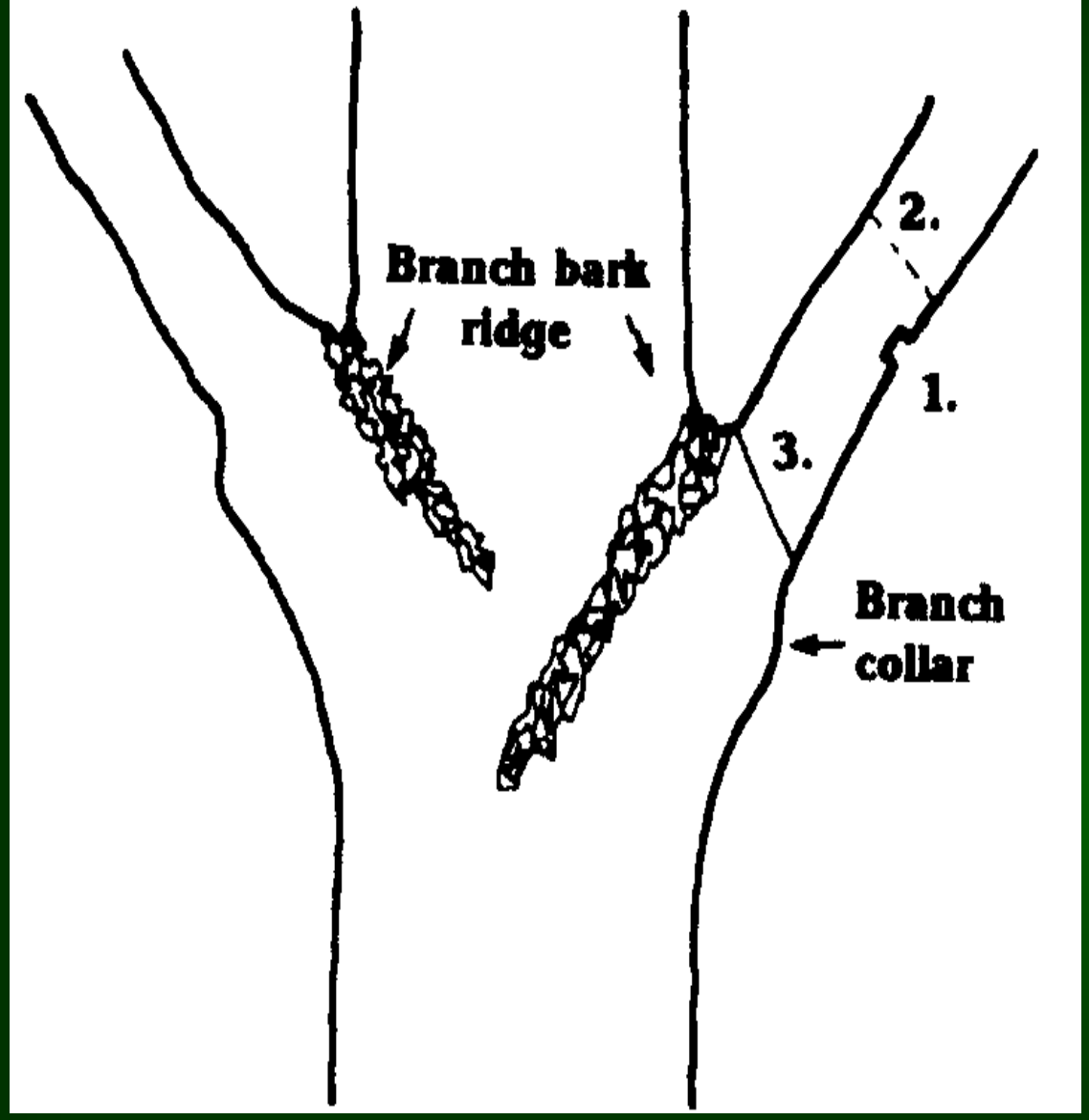
Targeting the Pruning Cut



Branch Collar

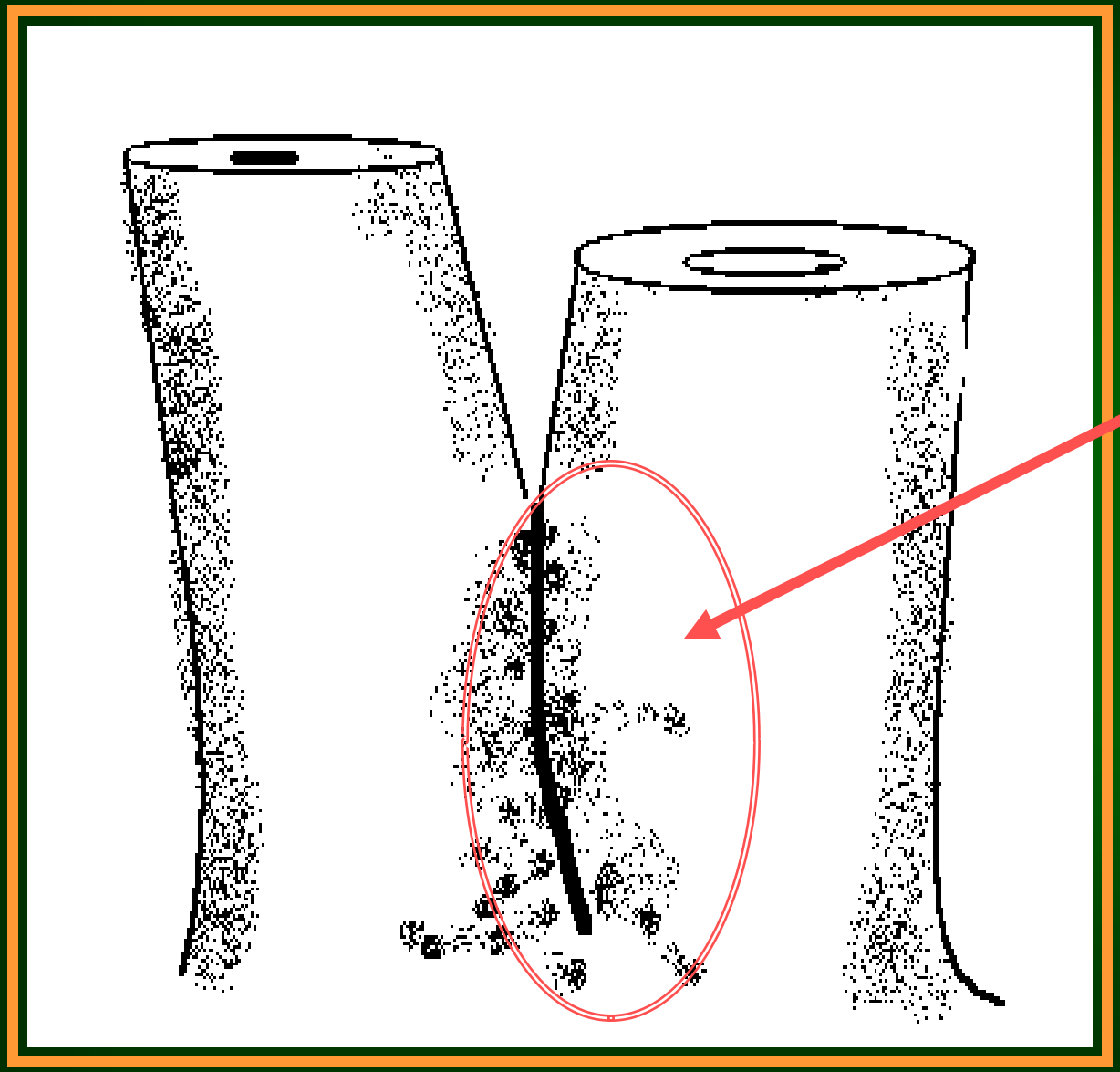


A "shoulder" or bulge formed at the base of a branch. Caused by the annual production of overlapping layers of branch and stem tissues.



Branch Bark Ridge

A ridge of bark that forms in a branch crotch and partially around the stem resulting from the growth of the stem and branch tissues against one another.

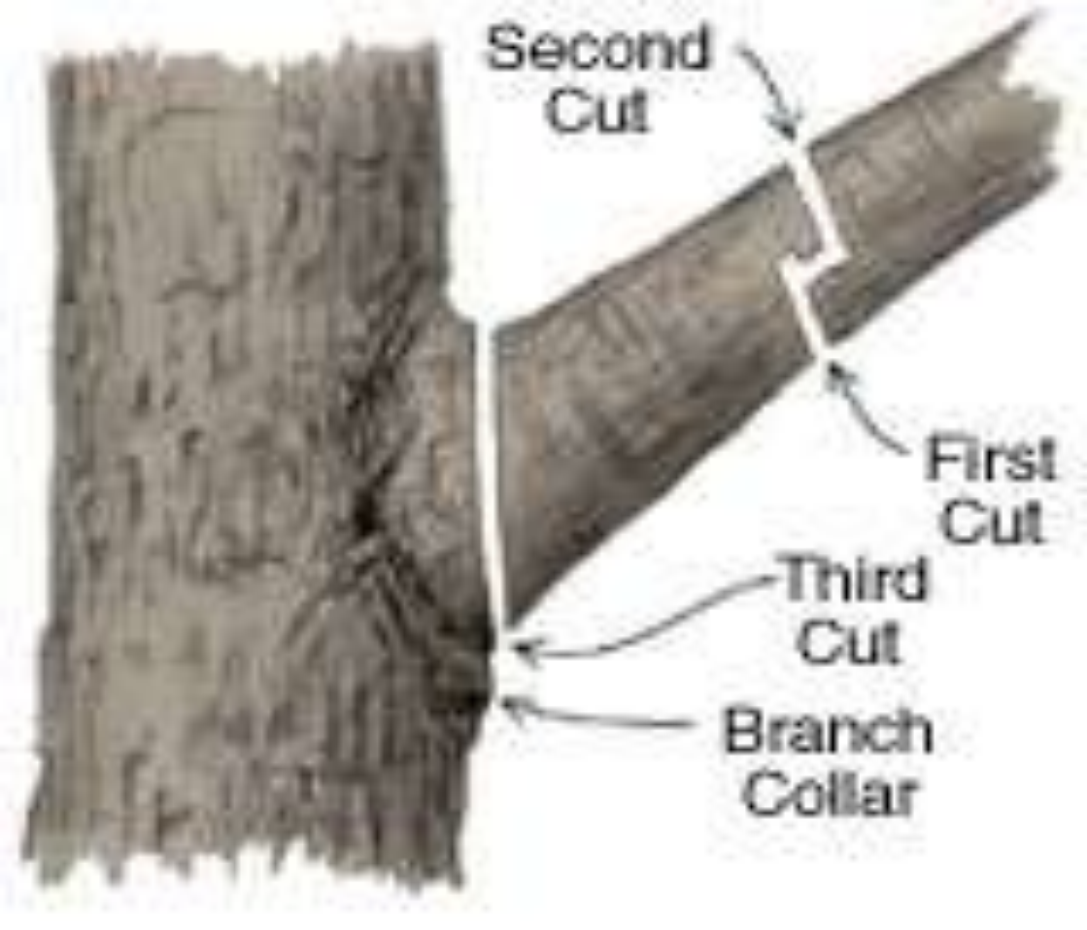


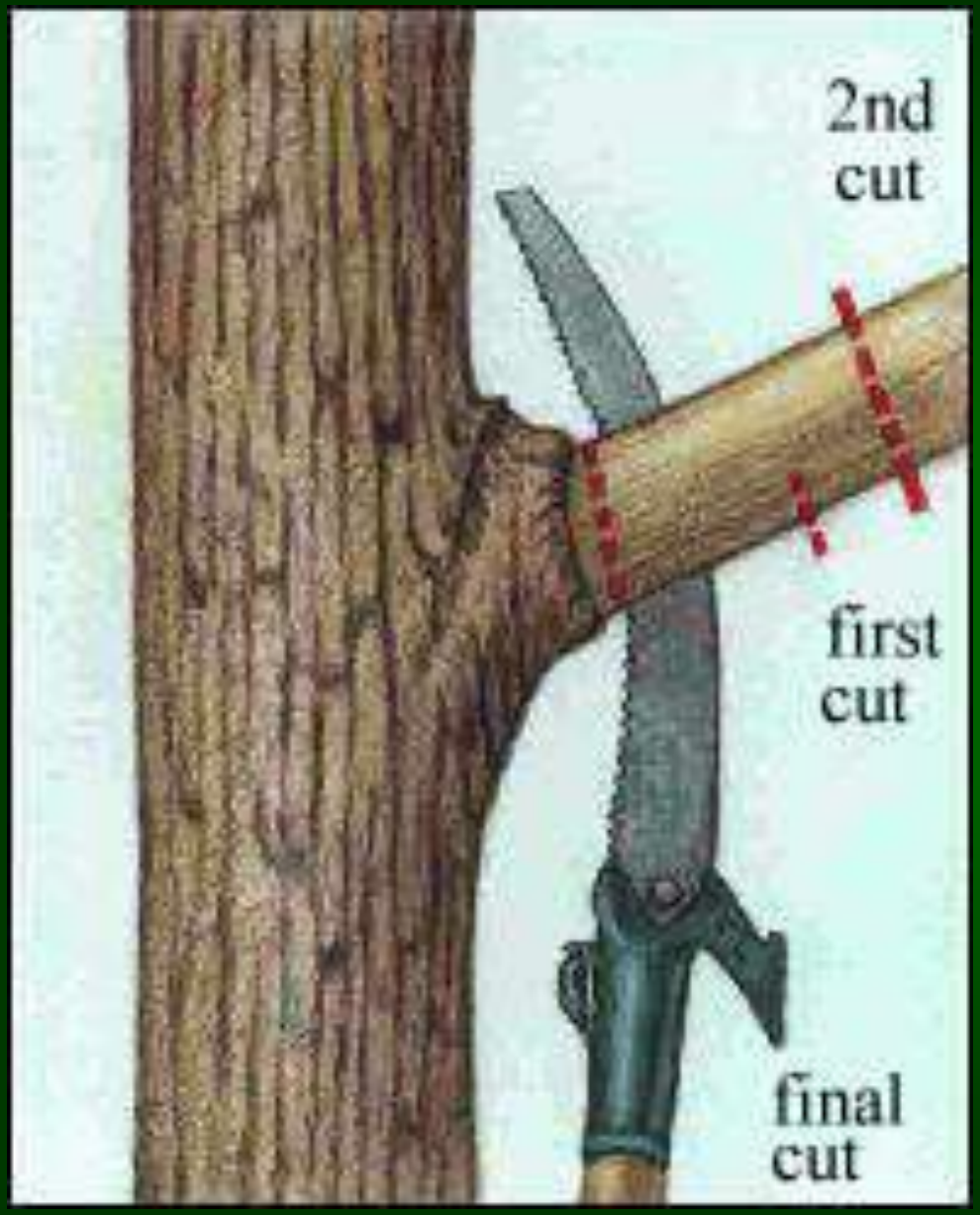
Included Bark

Bark enclosed between branches with narrow angles of attachment, forming a wedge between the branches and VERY weak unions.

Technique for a
Selective Branch Removal

(Crown Thinning / Crown Raising)



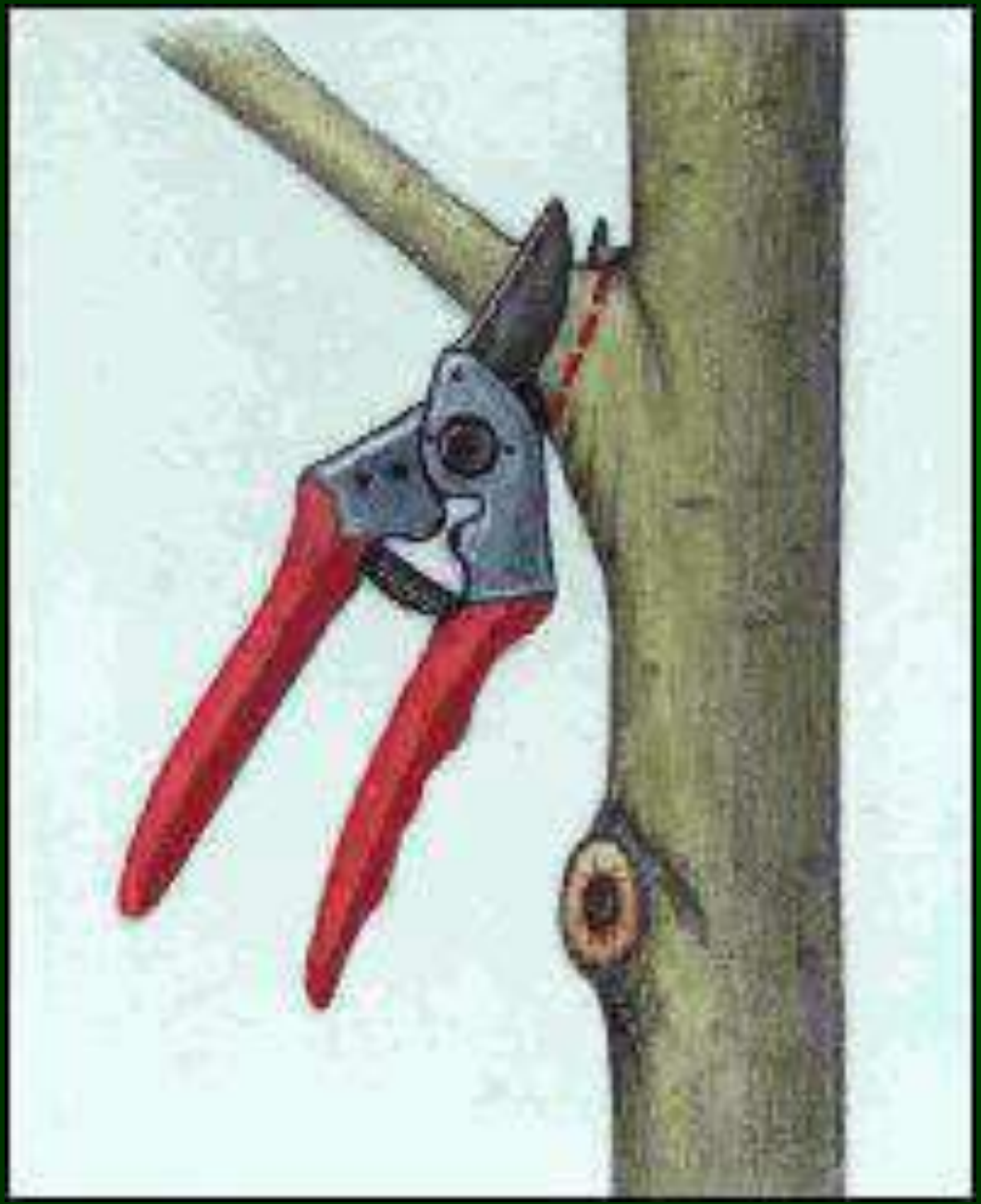


Technique for a

Large

Branch

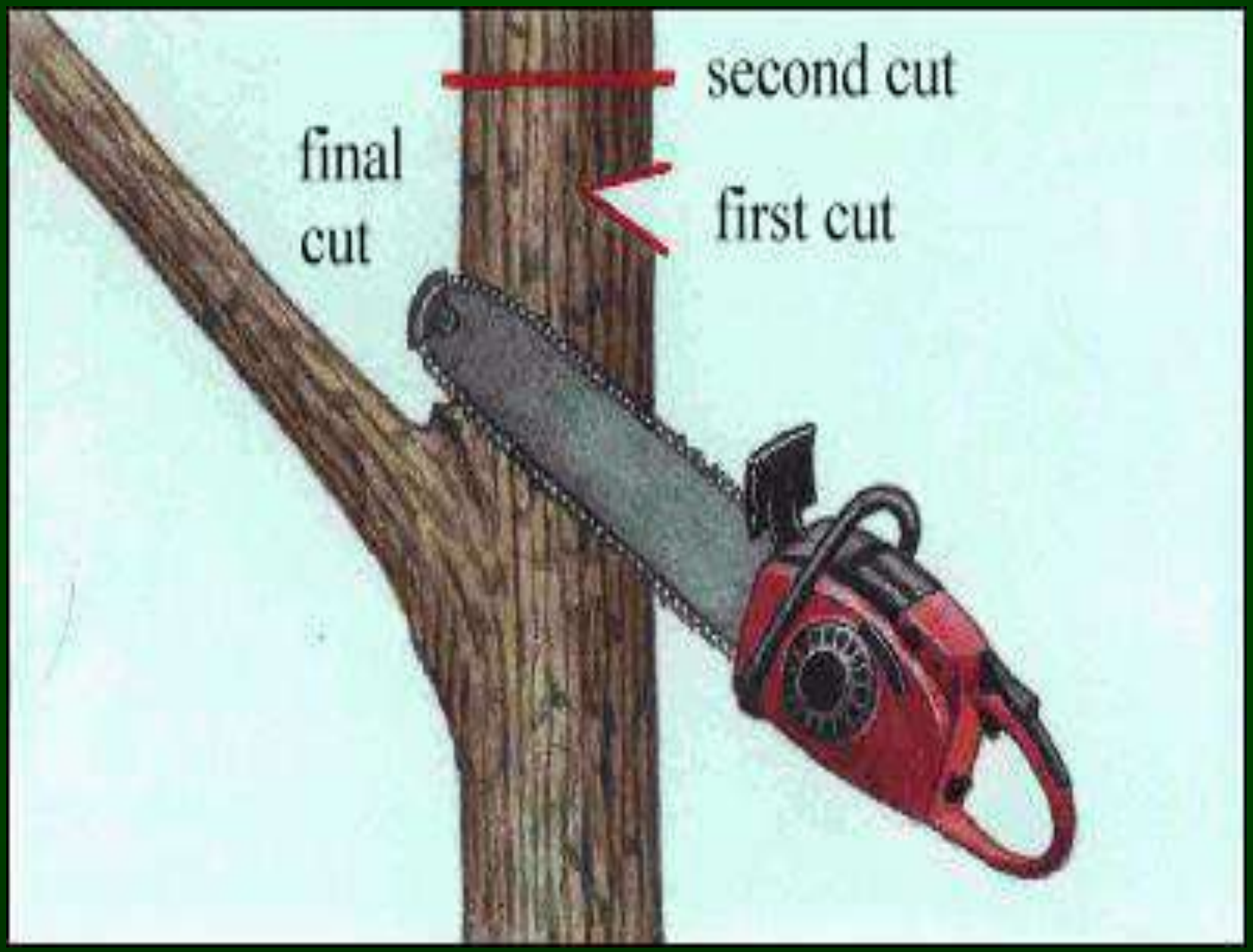
Removal



Technique for a

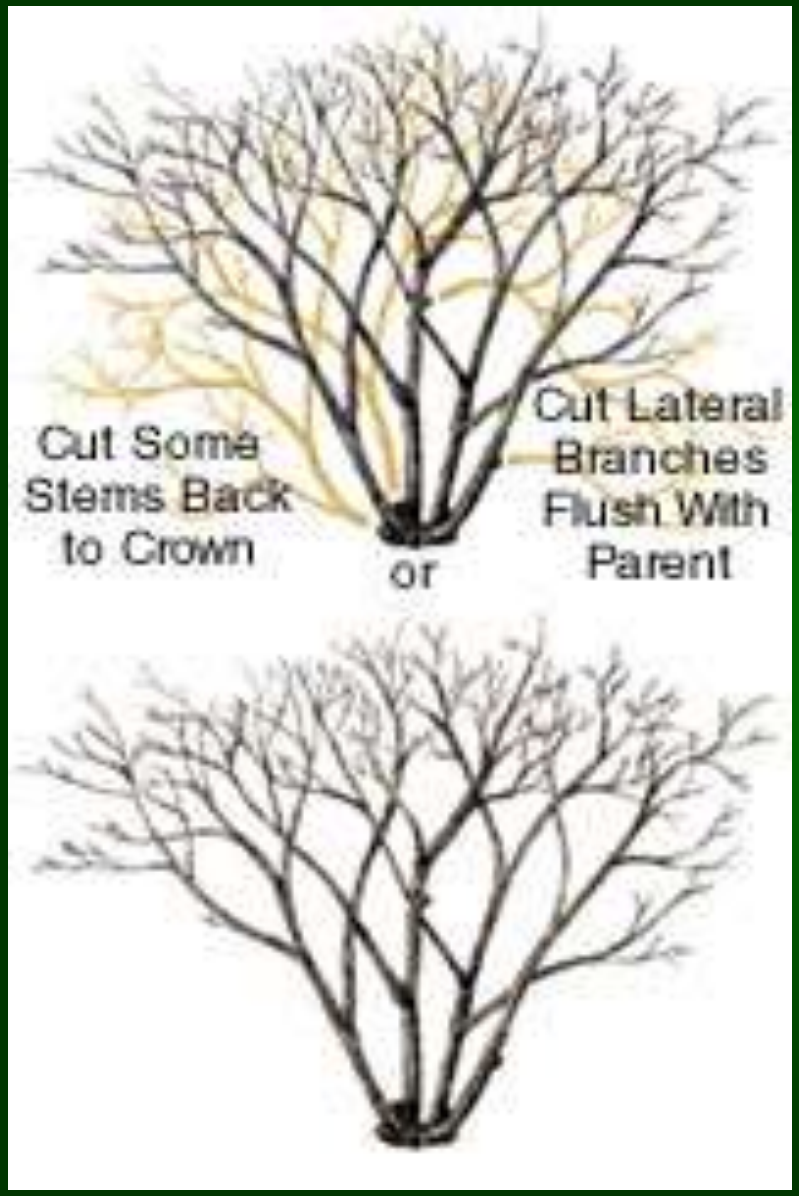
Small
Branch
Removal

Technique for a
Crown Reduction Cut



Technique for a
Dead Branch Removal

On a dead branch that has a collar of live wood, the final cut should be just beyond the outer edge of the collar.



Technique for a

Selective Branch Removal on Woody Shrubs

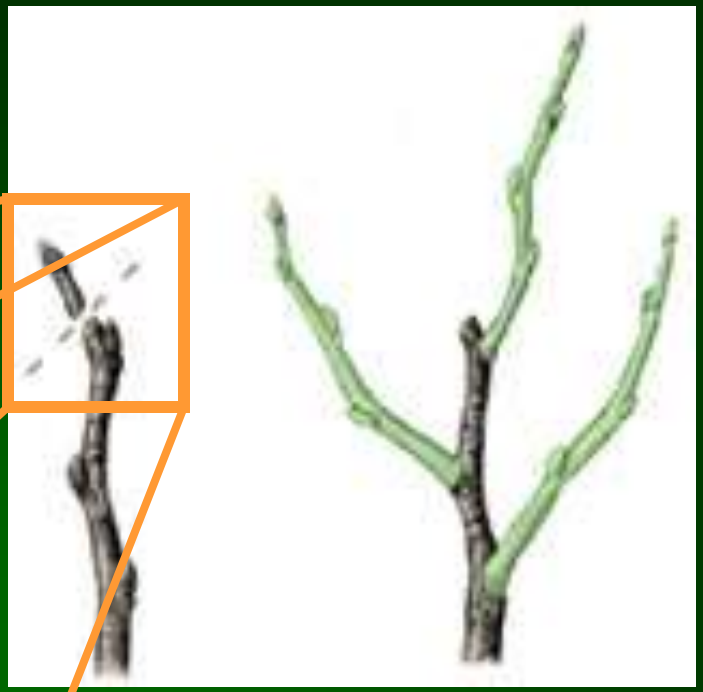
Technique for a

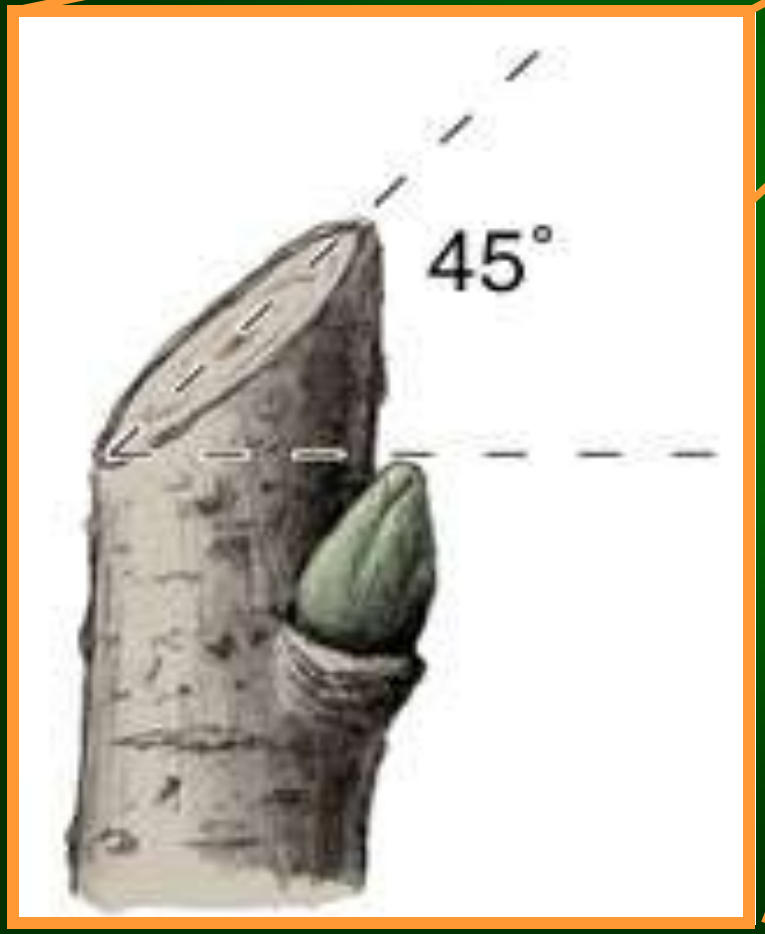
“Rejuvination”

Pruning on

Woody Shrubs

NOTE: *This is a radical measure !! Be Familiar with the Plant! Not all Respond Well.*





Technique for

"Apical (Tip)"

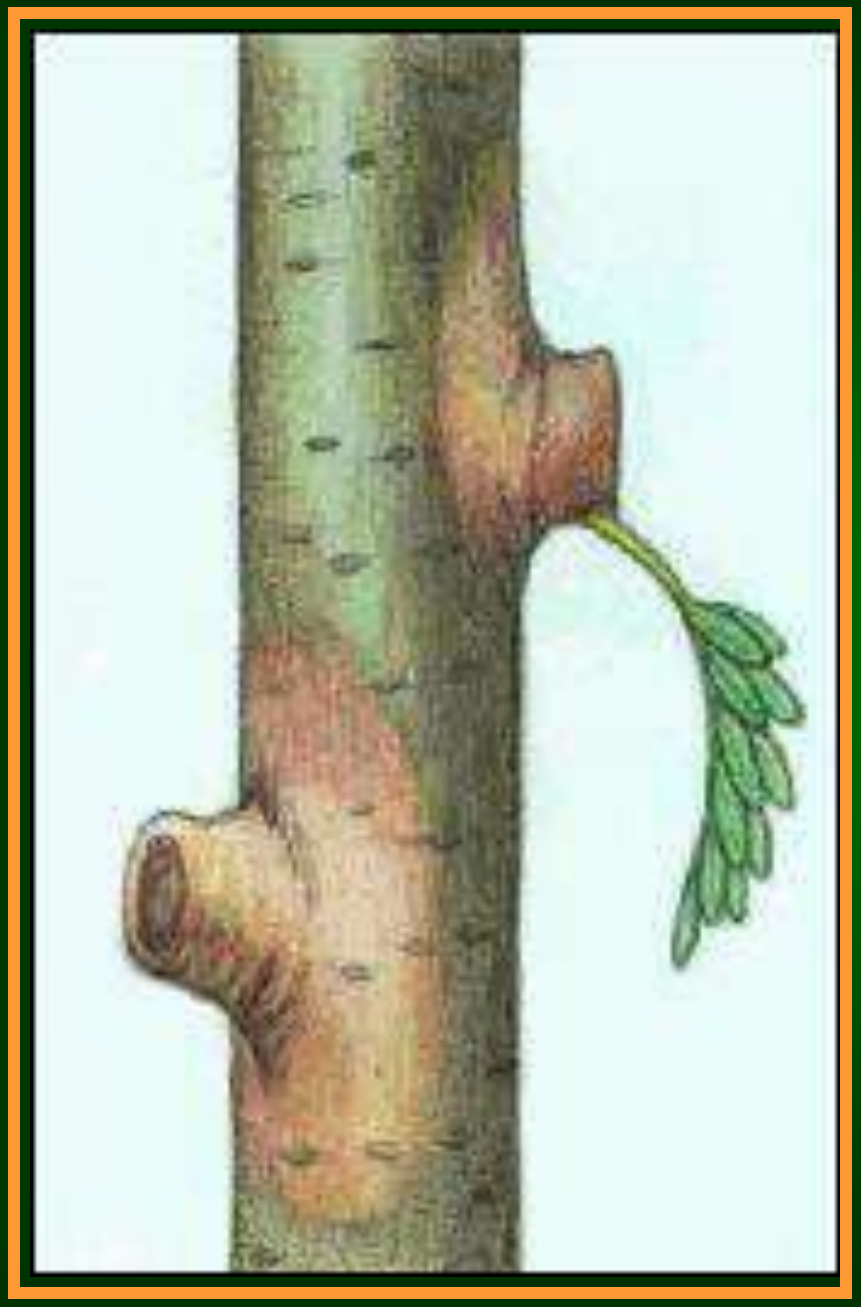
or

"Directional"

Pruning on
Woody Shrubs

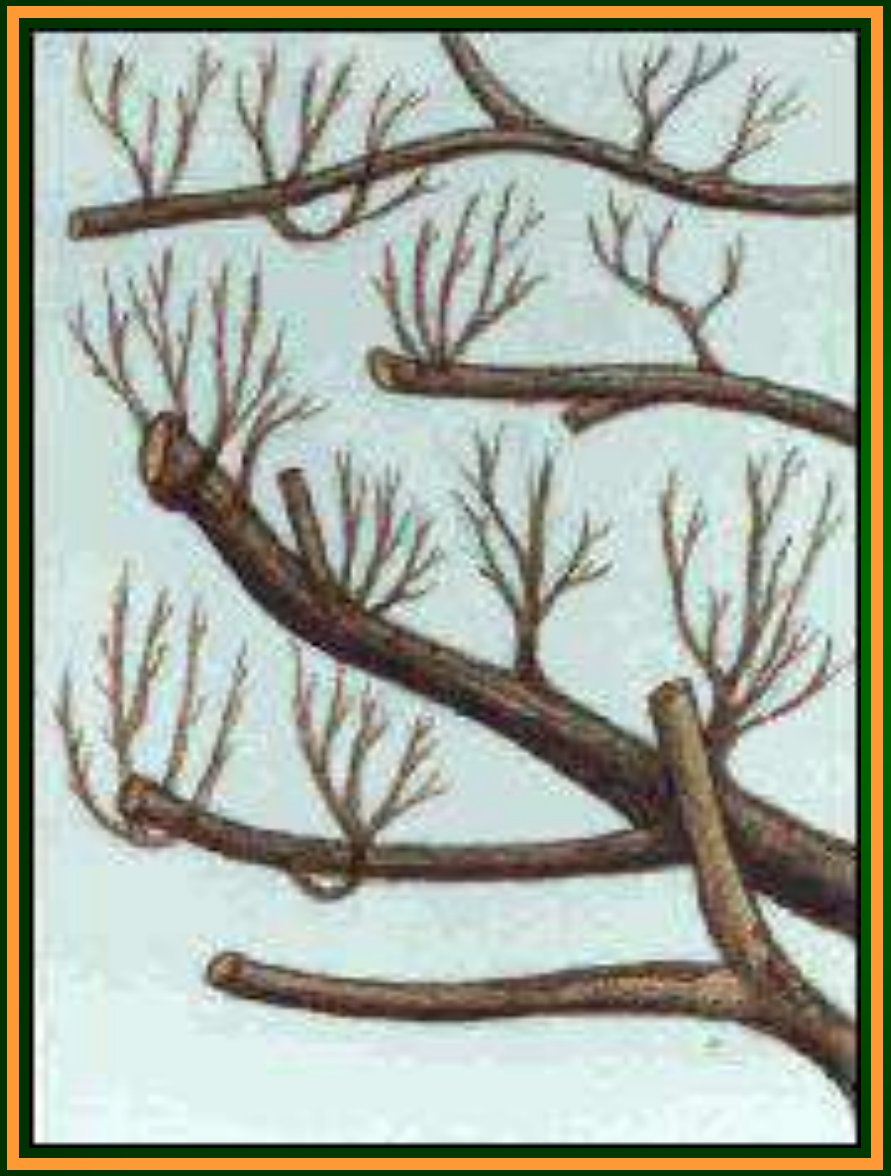
Flush Cuts

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



Stub Cuts

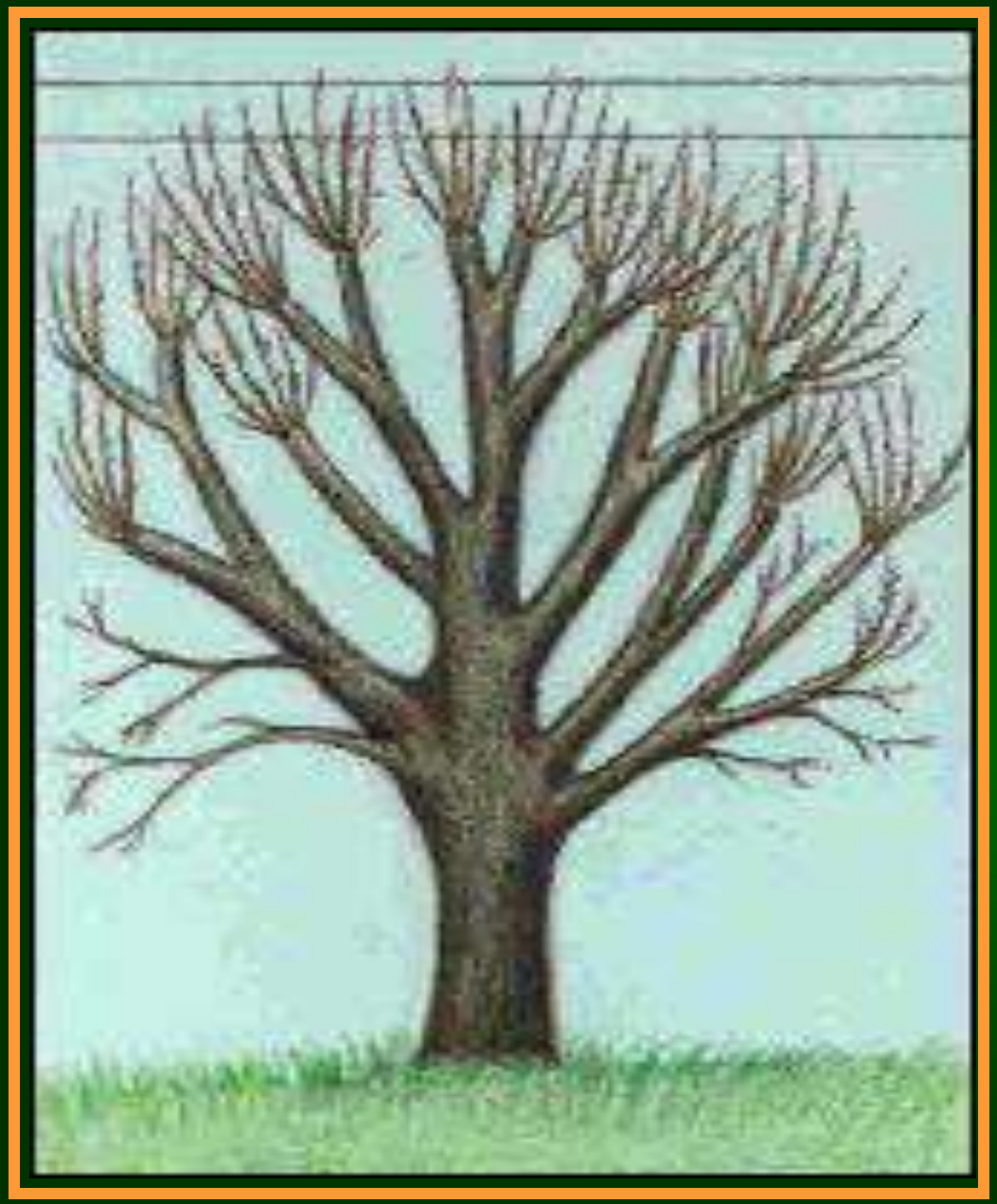
Pruning cuts made too far outside the branch bark ridge or branch collar, that leave branch tissue attached to the stem. Promotes decay.



Tipping

A poor maintenance practice used to control the size of tree crowns; involves the cutting of branches at right angles leaving long stubs.

Resulting sprouts form extremely weak branch unions and grow into hazards future hazards.



Topping

A poor maintenance practice often used to control the size of trees; involves the indiscriminate cutting of branches and stems at right angles leaving long stubs. Synonyms include rounding-over, heading-back, dehorning, capping and hat-racking. Topping is often improperly referred to as pollarding.

Lion Tailing

-Very common

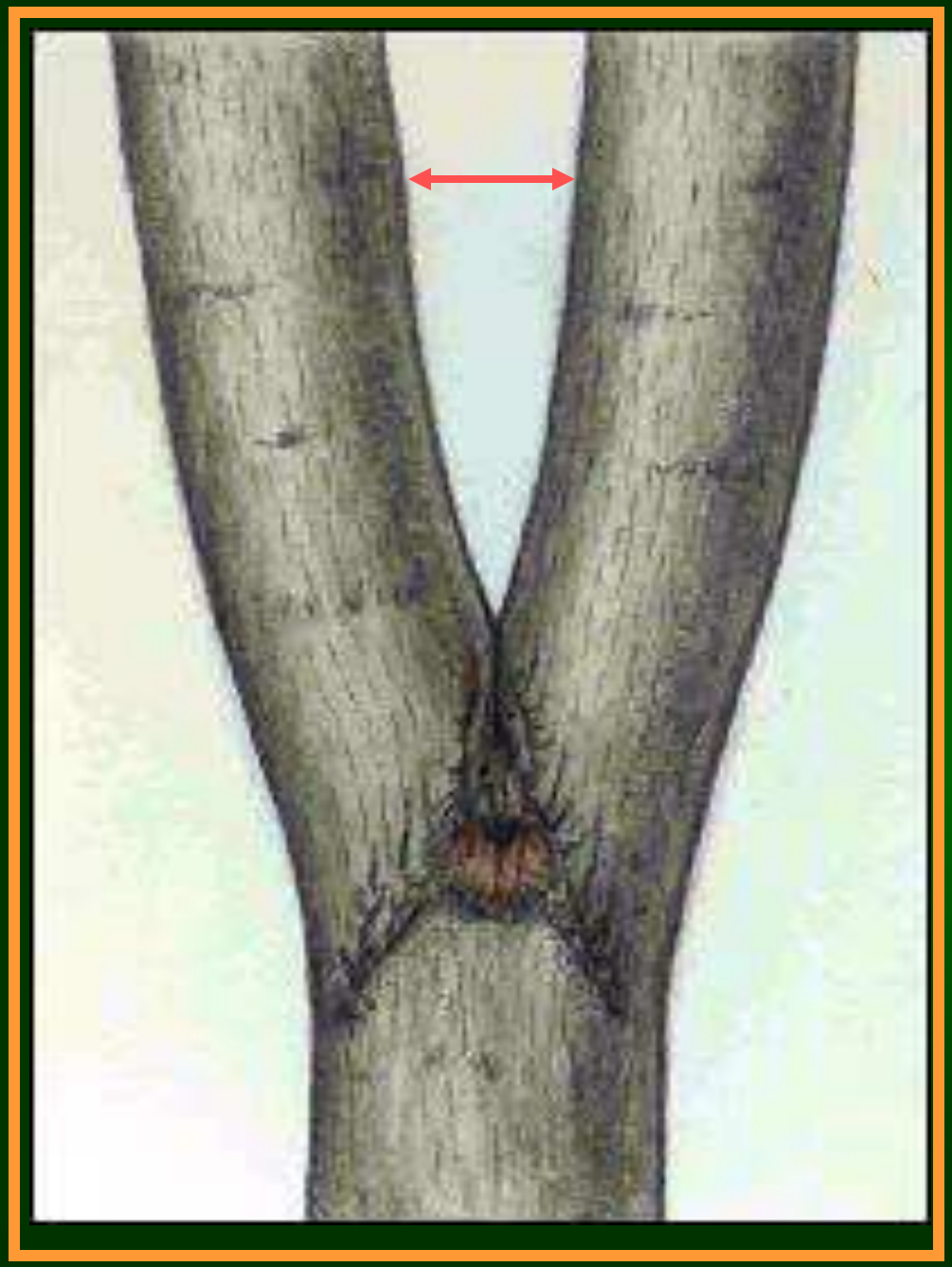
-Used to obtain park-like appearance

-Concentrates weight on tip of branch

-More prone to breaking in a storm

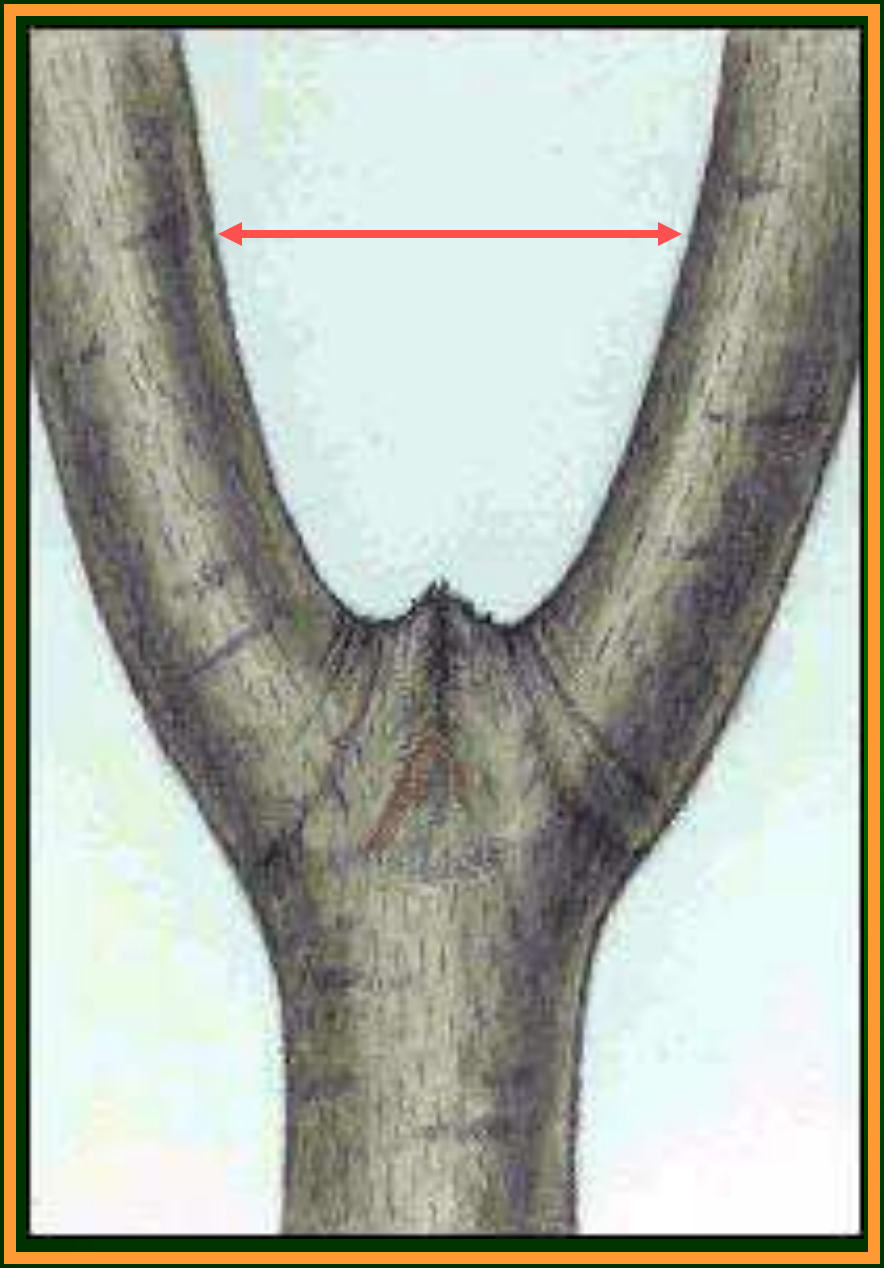
-Bad.

Beautiful Trees



Weak Branch Union

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



Strong Branch Union

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

Woundwood

Lignified, differentiated tissues produced on woody plants as a response to wounding (also known as callus tissue).


STOP

Questions ??

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