Mastering the Basics of Pruning

EXTENSION

Why Prune?

SHADE TREES

Health & vigor

Good branch structure

Remove hazards

Pest control

Beauty

FRUIT TREES

Increase sunlight penetration

Uniform distribution of fruiting wood

Control tree size and vigor

Produce high quality fruit of good size

Disease disease & insect problems

Make harvesting easier

When to Prune?

SHADE TREES

November thru March

Ideally, just before growth begins in spring

Fastest wound closure

No pruning – May to October for oaks

FRUIT TREES

As late in dormant season as possible - February to April

Most cold hardy are pruned first - Apple, Pear, Tart cherry, Plum

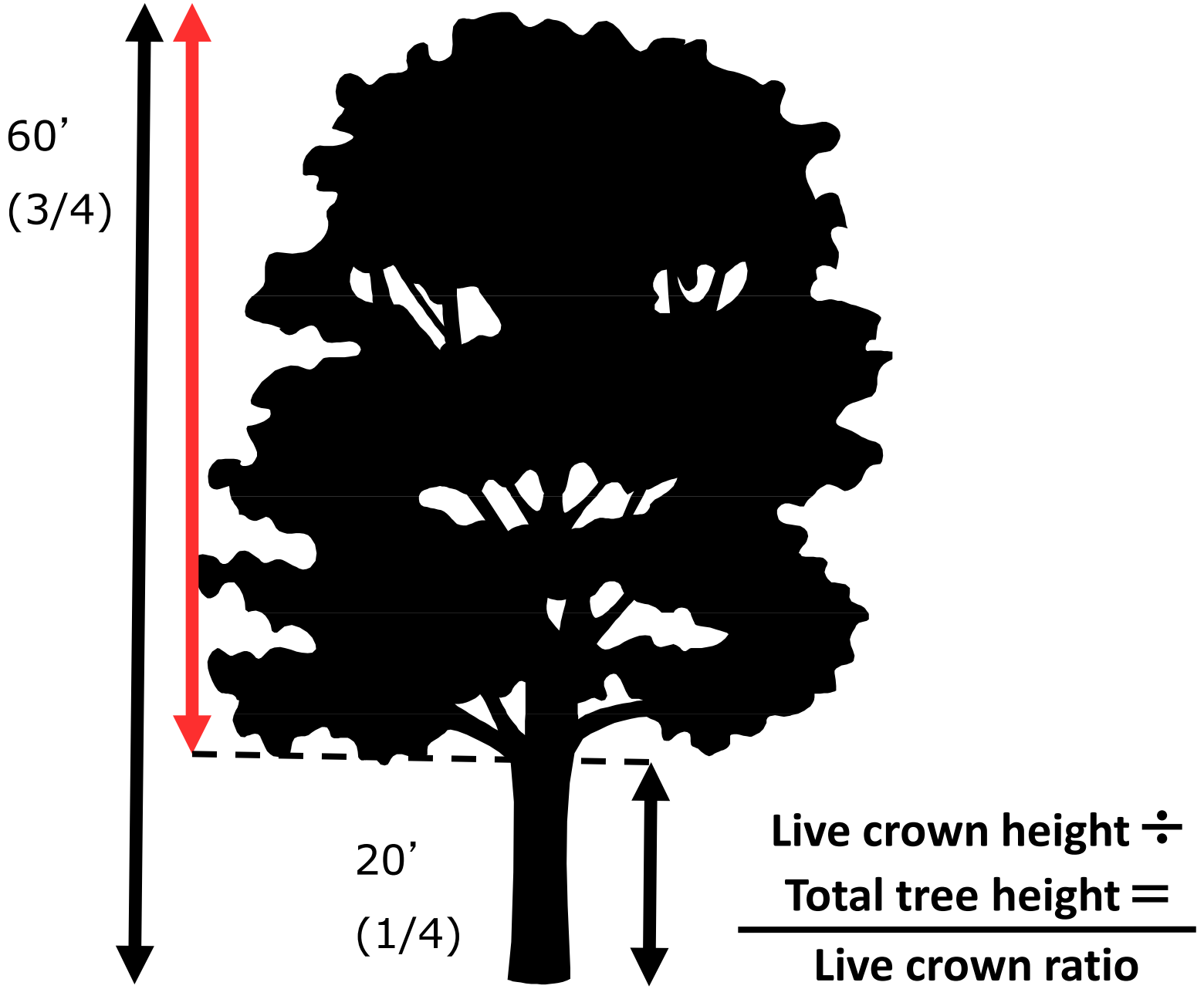
More tender are pruned last – Peach, Apricot, Sweet cherry

Beware of fireblight!

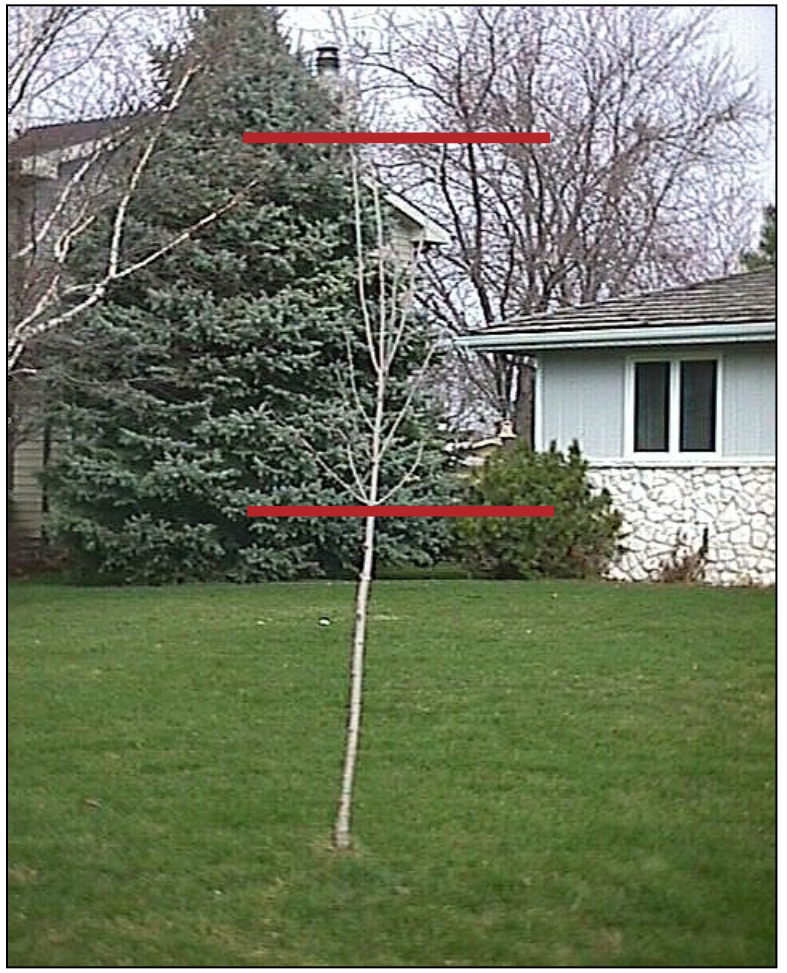
Pruning Shade Trees

Live Crown Ratio (LCR)

- Indicator of potential health and ability to effectively react to resource changes
- As LCR declines, photosynthetic area declines and a higher percentage of respiring tissue remains
- Ideally, trees should have a minimum 66% LCR, with 33% clear stem height



Poor Live Crown Ratio

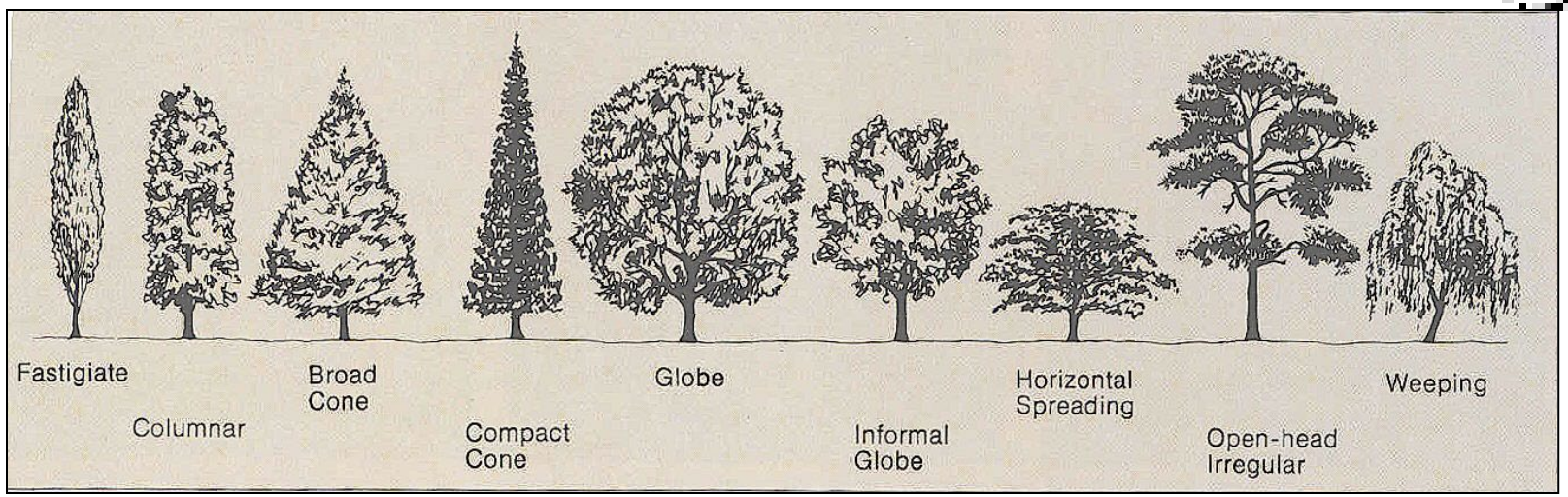


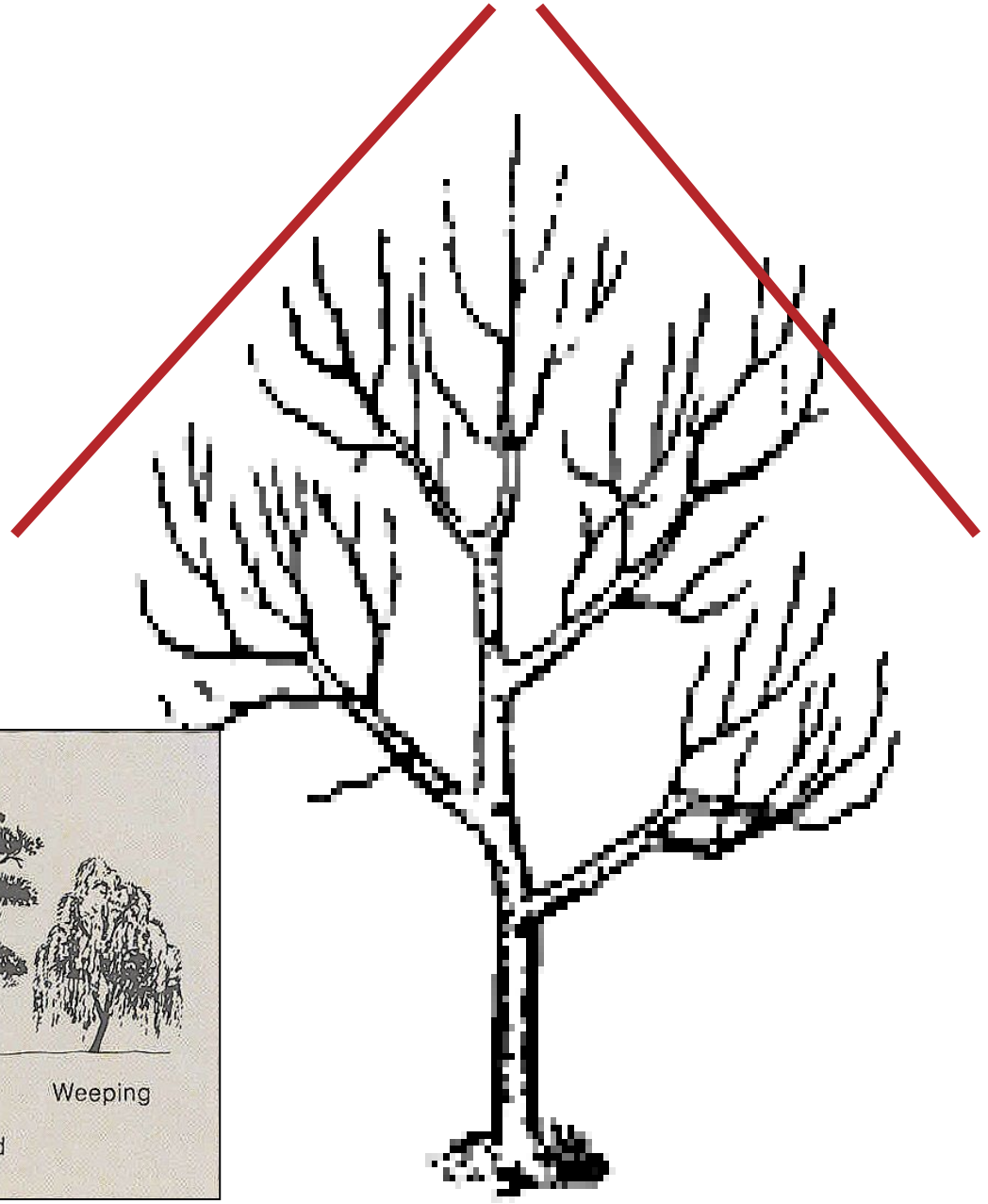
Crown Base

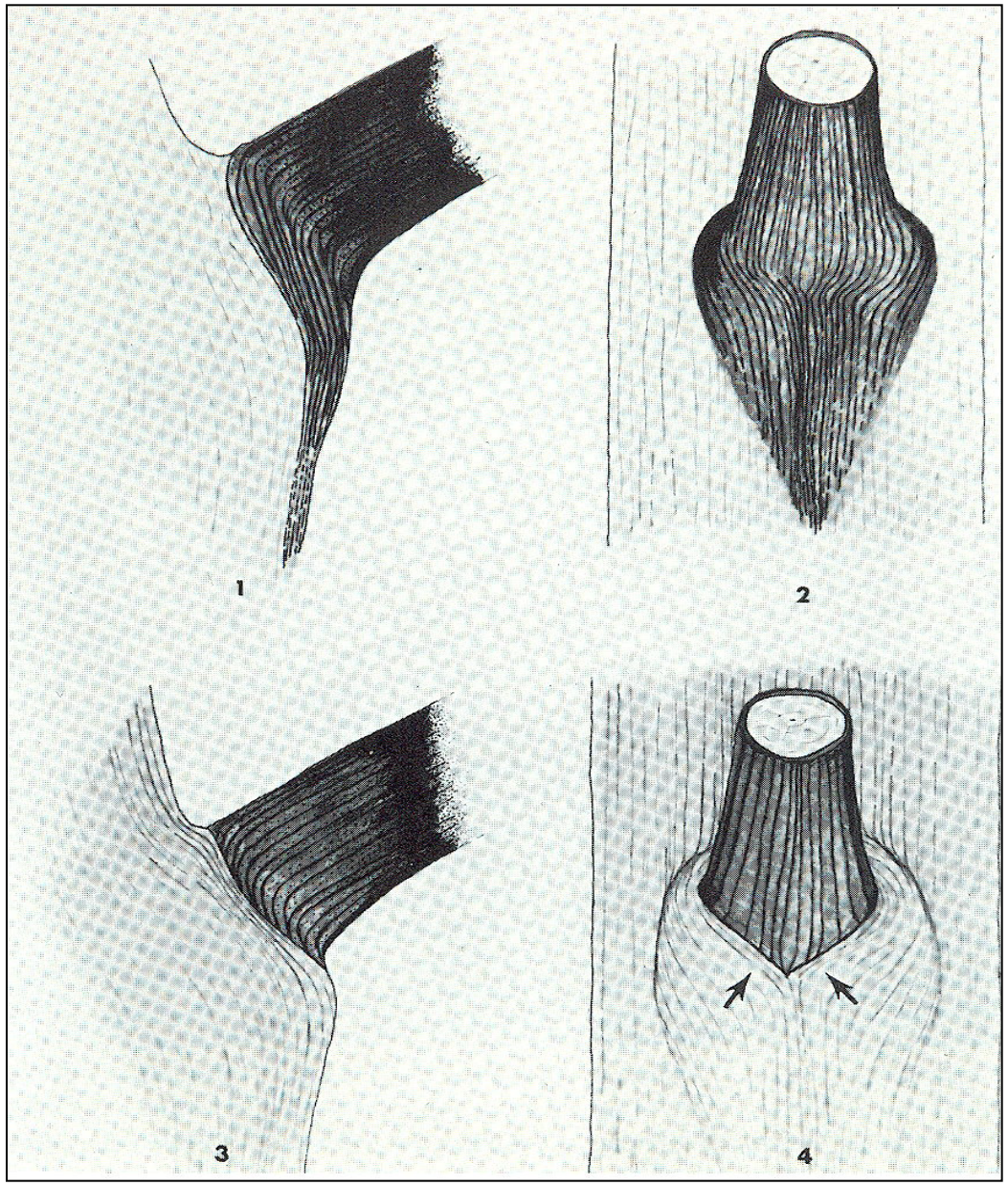
- Base branches have great value in development of stem taper and root health
- Sense bend and torque stress
- Add new tissues to resist stresses

Leader Dominance & Branch Length

- Central leader shoot – 2-3x length of any side branch
- Branch girth
- Branch angles

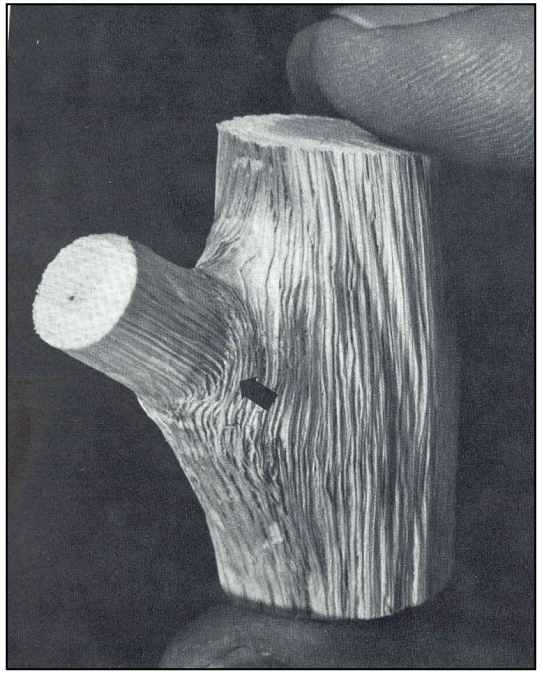






Branch & Trunk Growth

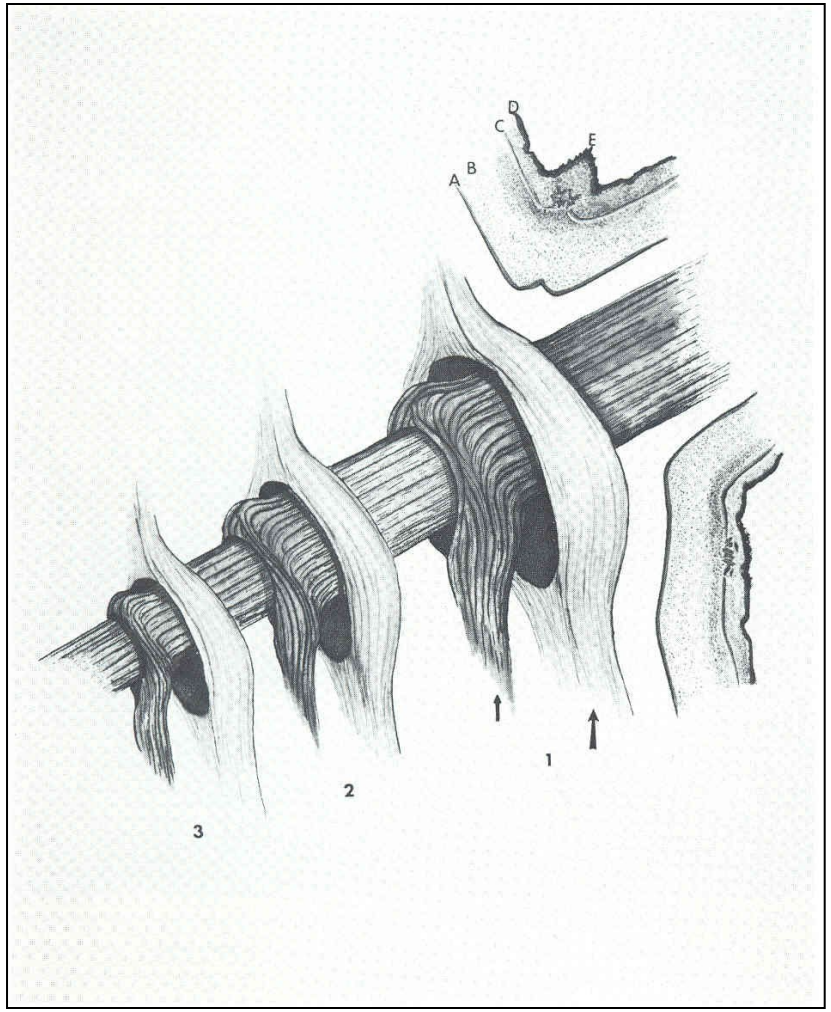
Tissues are layered and interwoven due to the timing of growth for each part of the tree during the year

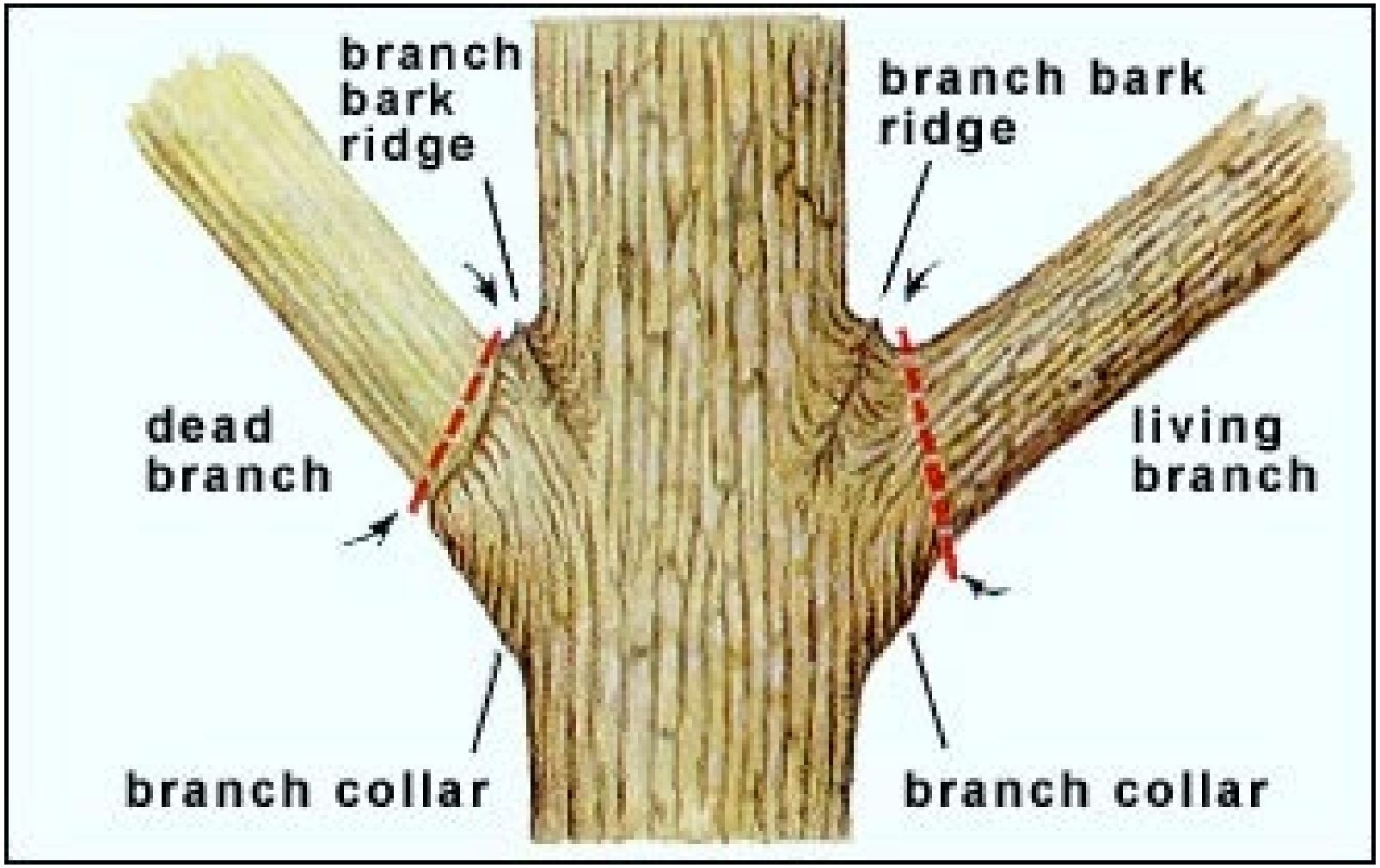


Spring, leaves newly expanded

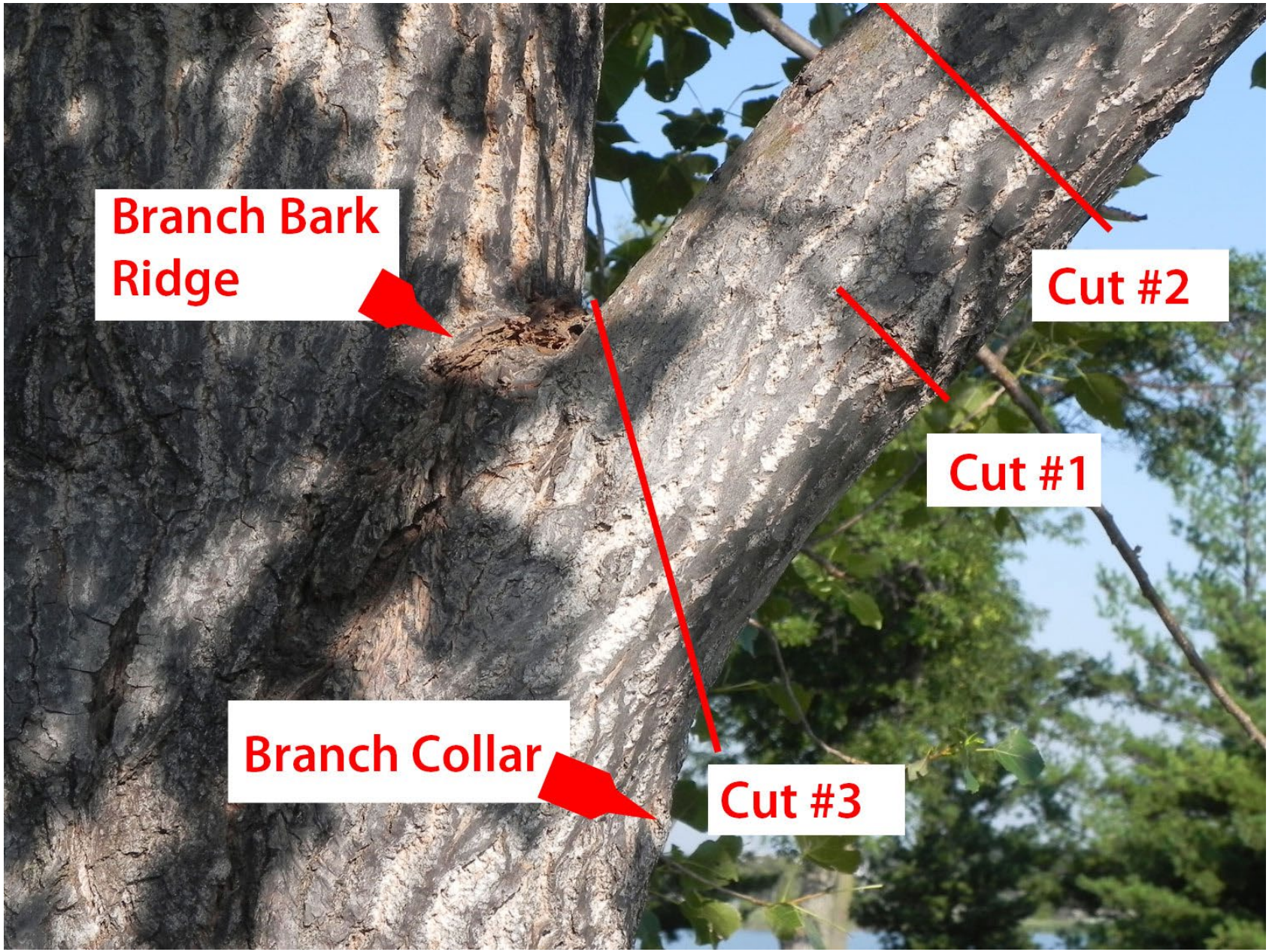
Images from Alex Shigo, 'A New Tree Biology'

Branch Bark Ridge & Collar



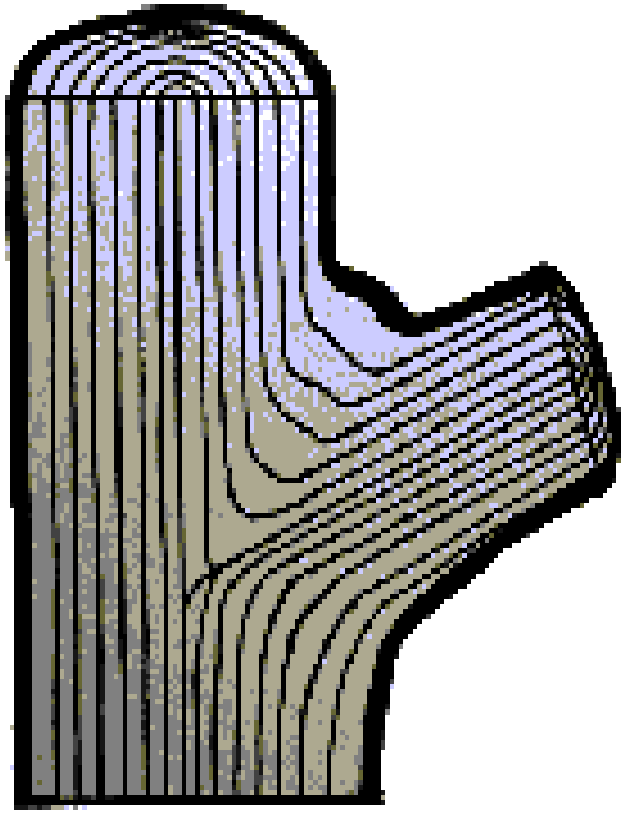


Branch Bark Ridge & Collar



Good Pruning Cut – “Healing”

Branch Angle & Encluded Bark



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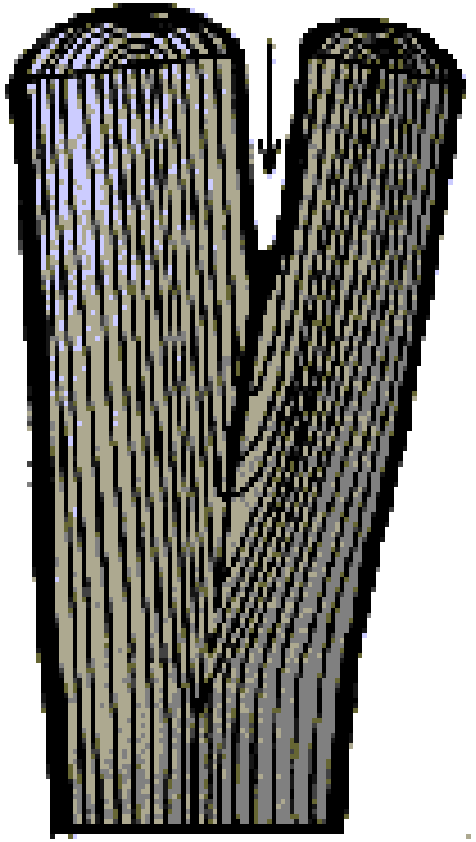

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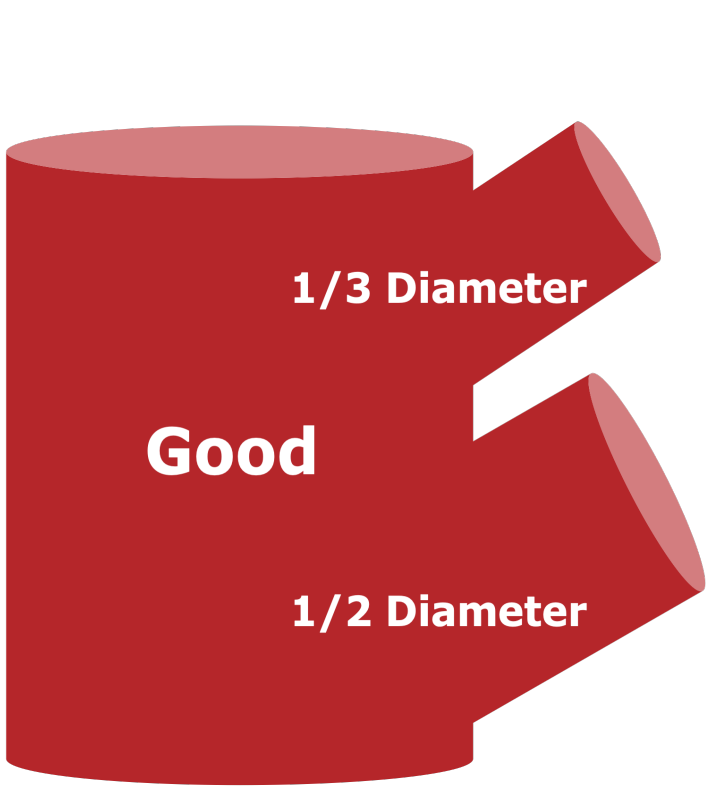
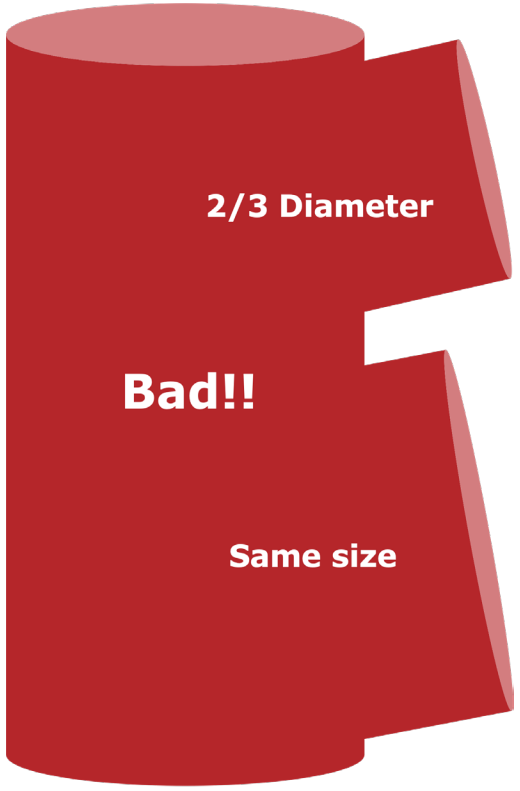
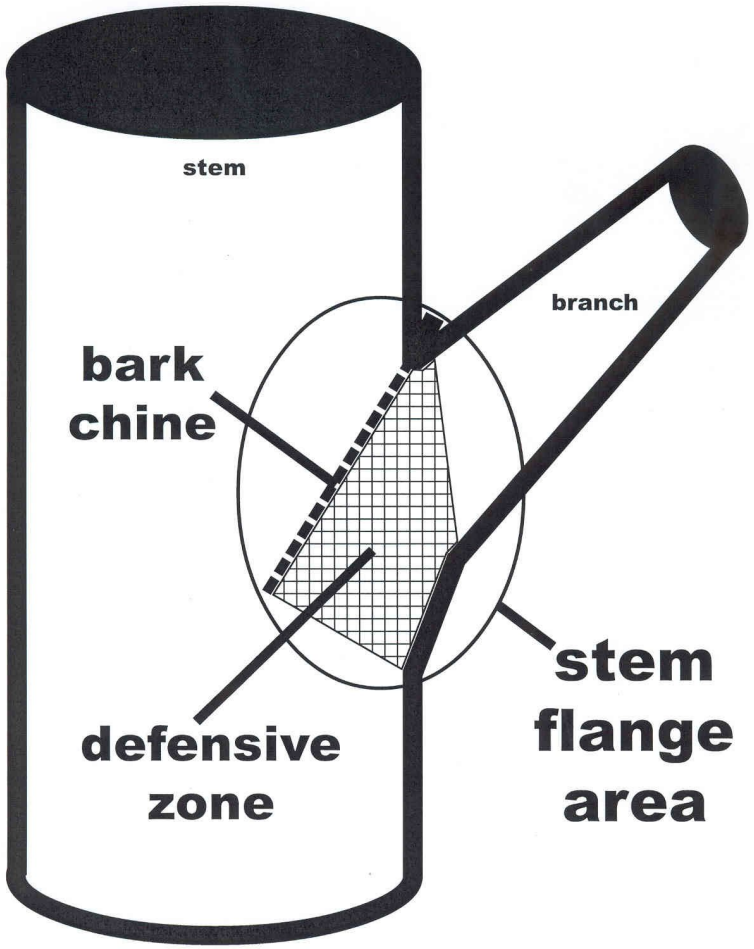
Branch Angle & Included Bark

Making Cuts – Secondary Branch Size





Preventing Wood Decay



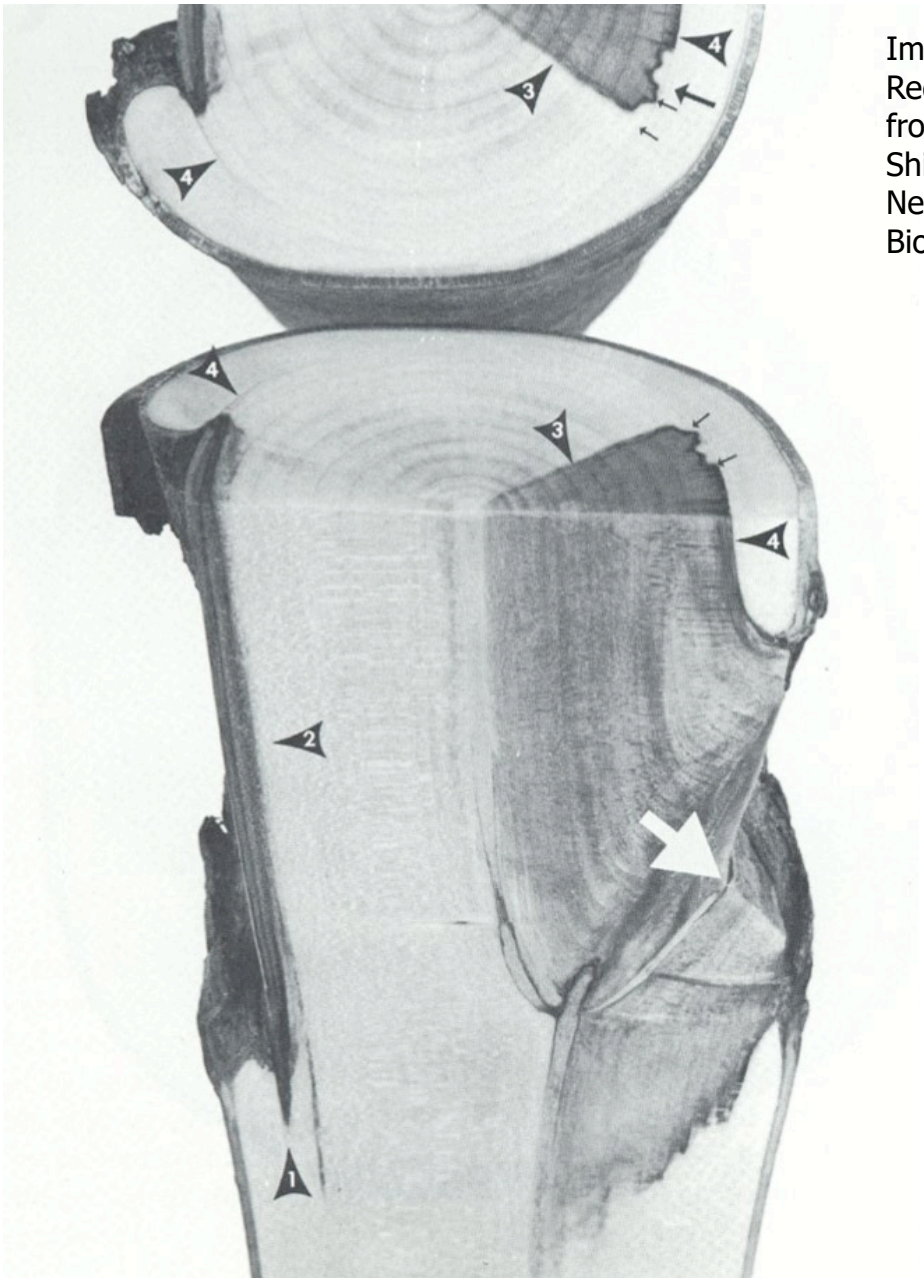
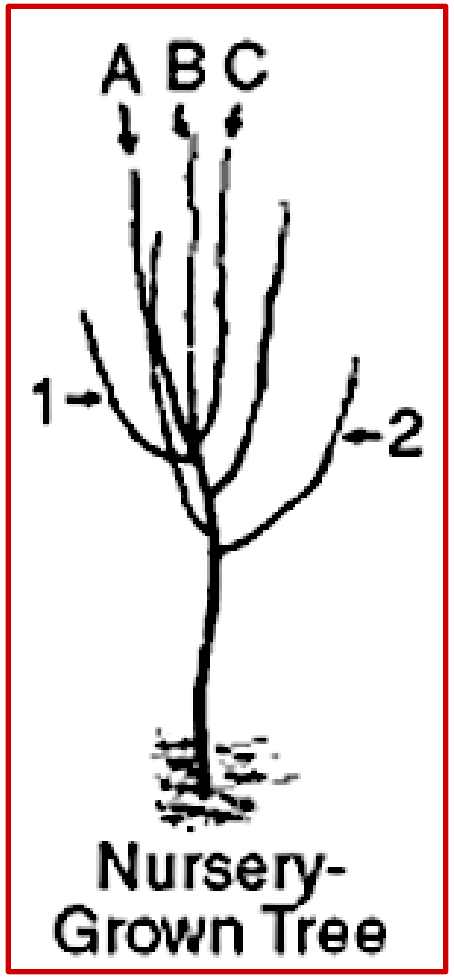
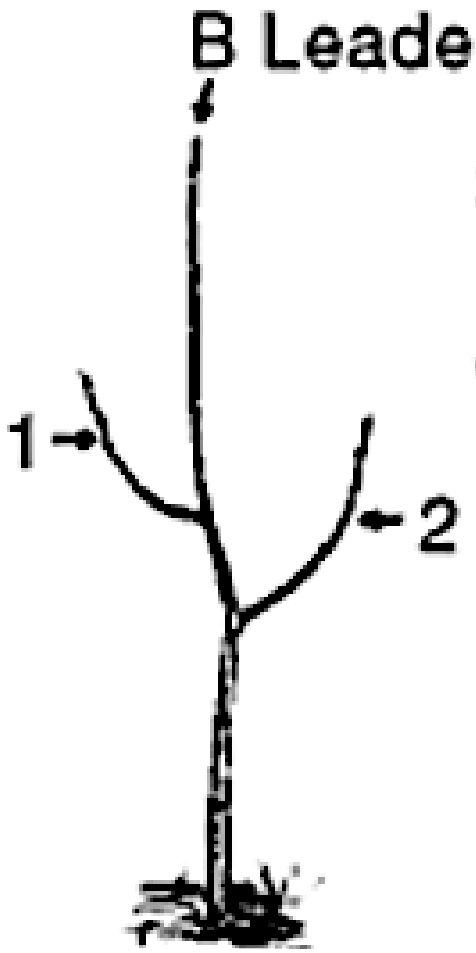
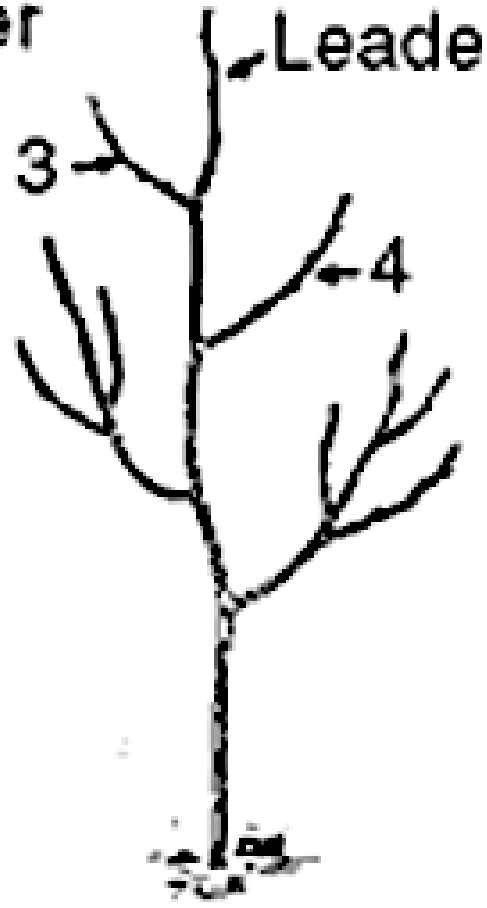


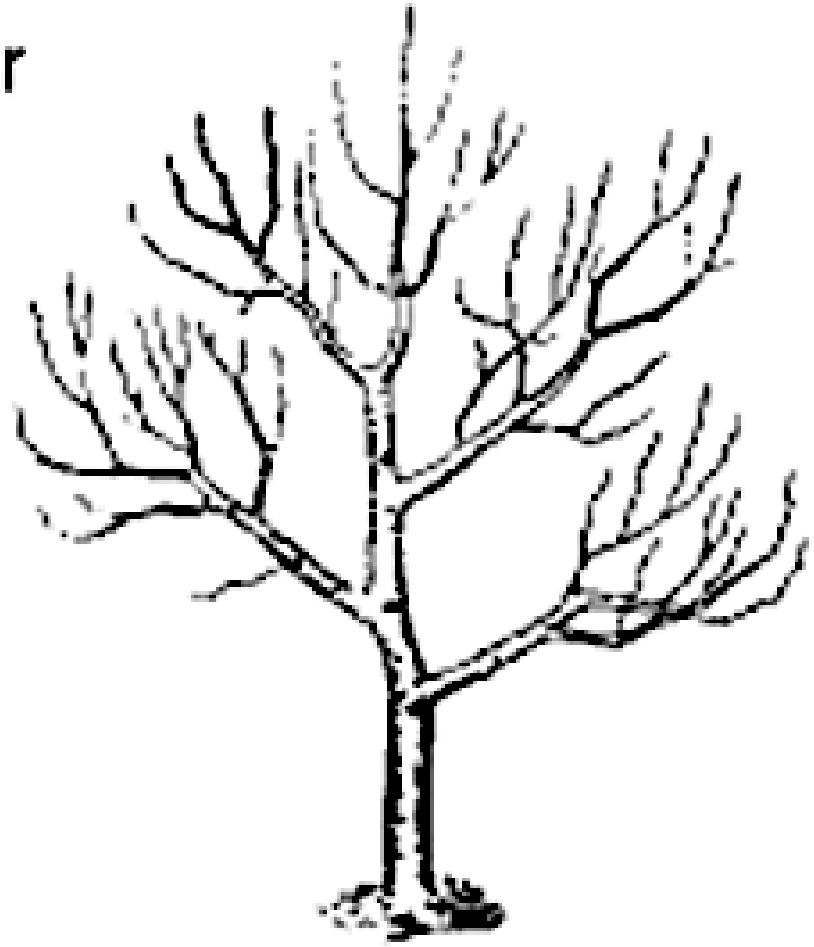
Image of Red Maple from Alex Shigo, 'A New Tree Biology'

Branch Selection: Pruning Young Trees









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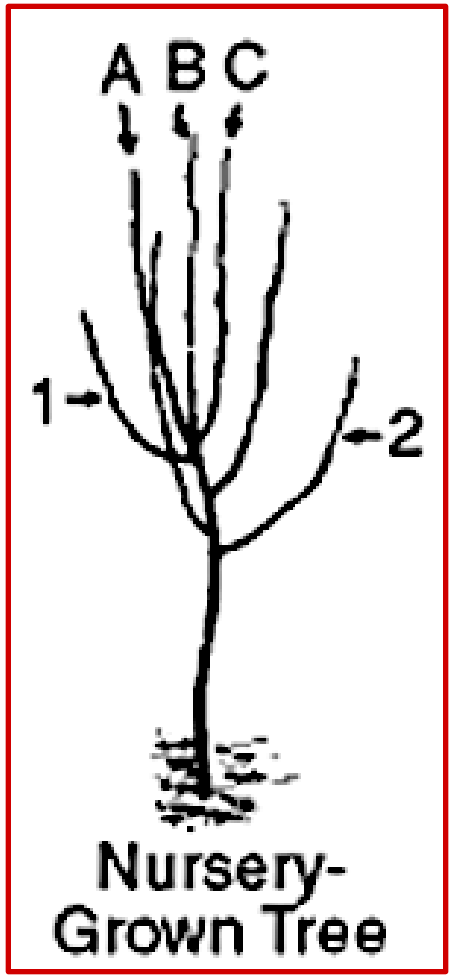
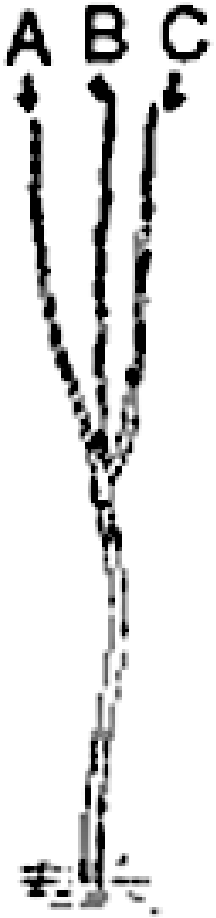
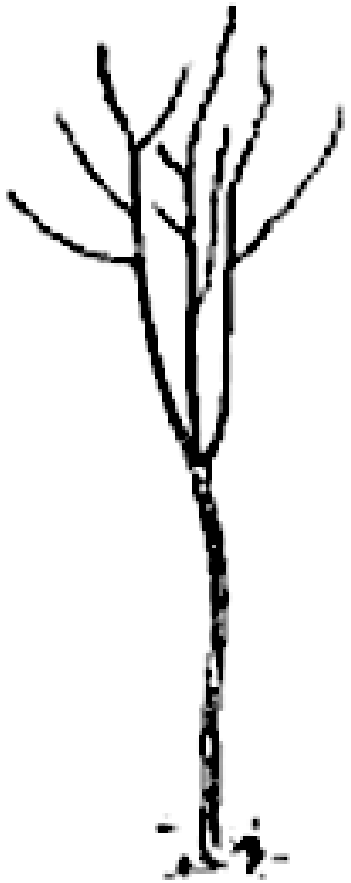
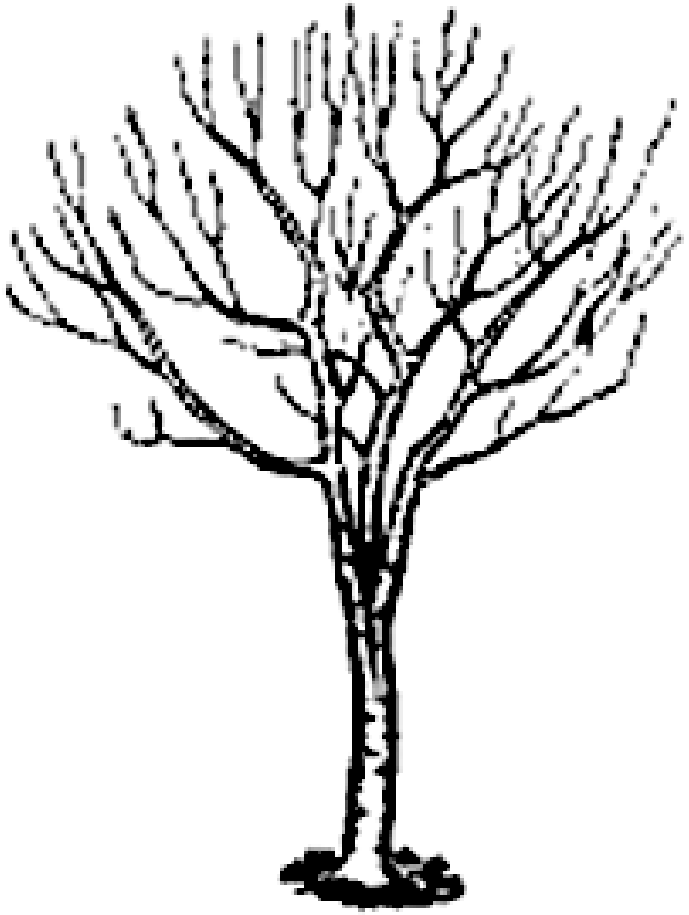








Poor Branch Angles




No Topping!

Pruning Fruit Trees

Variety Vigor Comparisons

Very Low Vigor
Red Delicious *(All varieties)*
Starkspur® Winesap

Low Vigor
Honeycrisp™
Snowsweet®
Starkspur® Arkansas Black
Starkspur® Red Rome Beauty

Moderate Vigor
Blondee™
Candycrisp®
Dandee Red®
Empire *(All varieties)*
Fireside
Golden Supreme®
GoldRush
Liberty
Macoun
McIntosh *(All varieties)*
Pristine®
Ruby Jon®
Stark® BraeStar™
Stark® Jon-A-Red® Jonathan
Stark® UltraRed™ Jonathan
Zestar!®

Moderately High Vigor
Gala *(All varieties)*
Gibson Golden
Honeygold
Idared
Jonafree
Jonagold
Myra Fuji
Red Fuji
Red Idared
Red Jonagold
Redfree
Stark® Golden Delicious
Stark® Super Red Fuji
Stark® UltraGold™

High Vigor
Cortland
Enterprise
Granny Smith
Mutsu
Stark® Supreme Staymared™
Williams' Pride

Pay attention to mature fruit tree size.

Standard Apple	• 30-40 feet • Seedling rootstock
Semi-standard	• 16 feet
Semi-dwarf	• 12 feet
Dwarf	• 8-10 feet
Ultra dwarf	• 3-6 feet

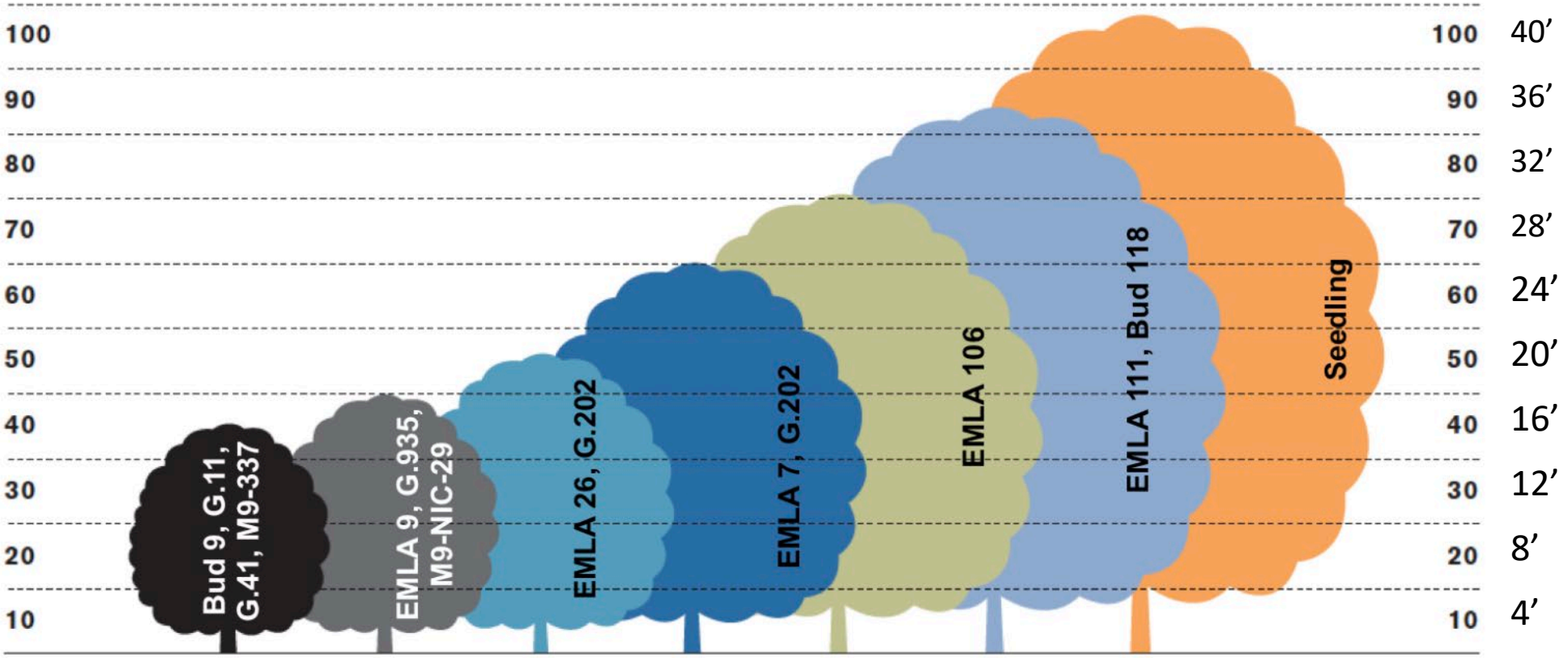
Attributes of rootstocks

- Mature tree size
- Precocious fruit bearing
- Disease resistance – fireblight, apple scab, cedar-apple rust, ect.
- Insect resistance, i.e. woolly-apple aphid
- Cold tolerance of the root system
- Vigor of the root system and the need for staking

Dwarfing Apple Rootstocks

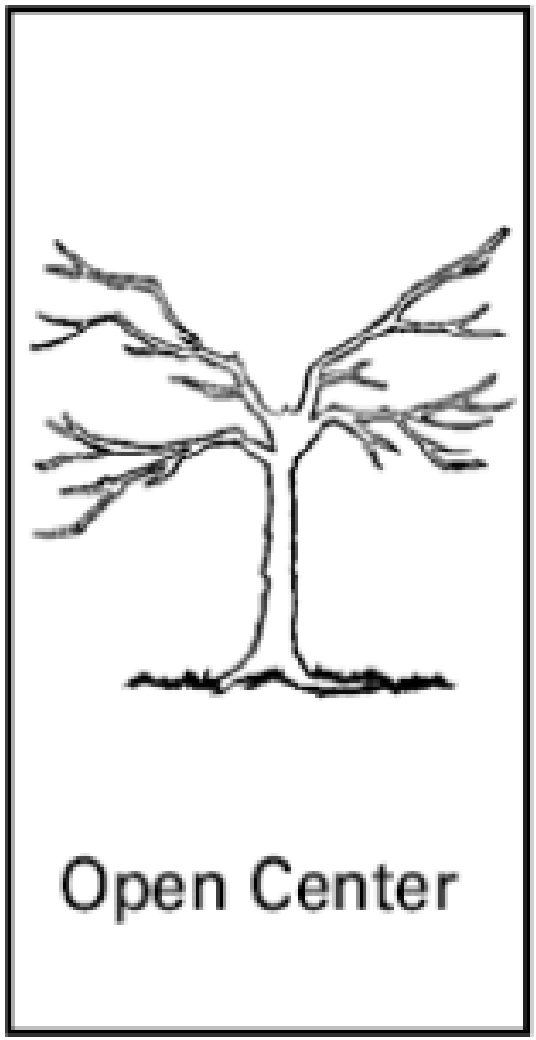
Image from Rootstocks for Apple, Washington State University.

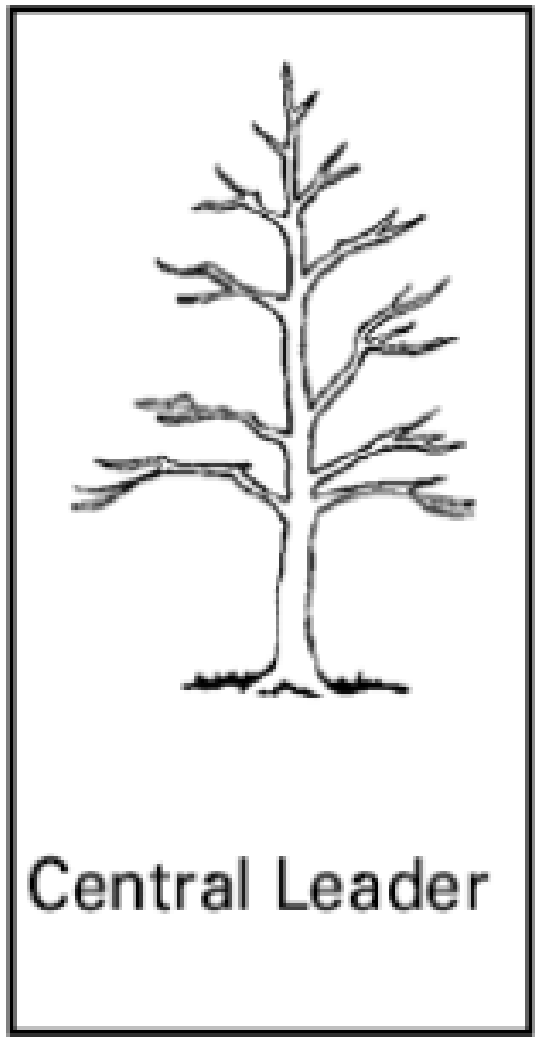
http://treefruit.wsu.edu/web-article/apple-rootstocks/

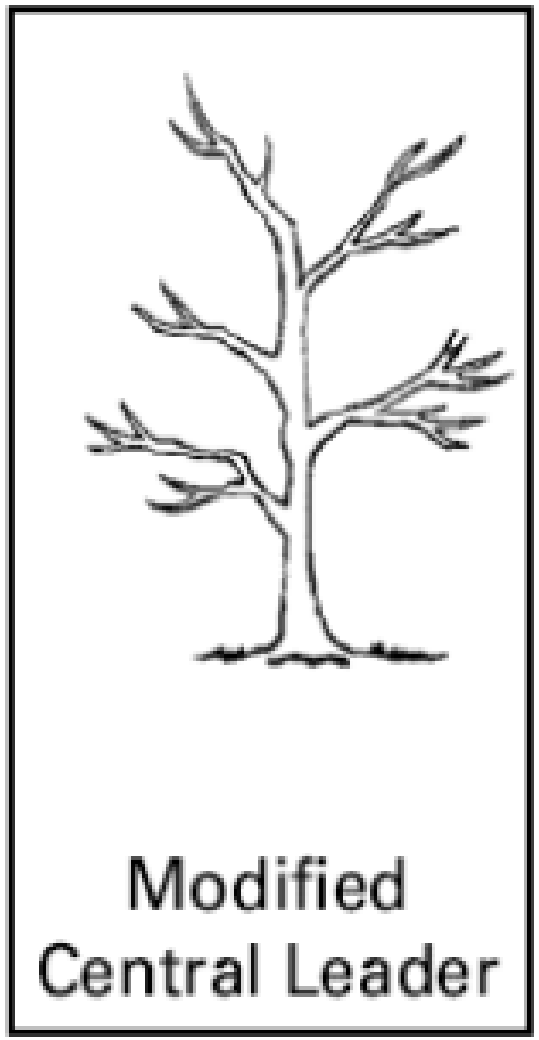


Tree size comparisons using different rootstocks based on percent size of standard apple seedling.

Fruit Tree Pruning Systems







Central leader
- Strongest structure
- Apples, pears

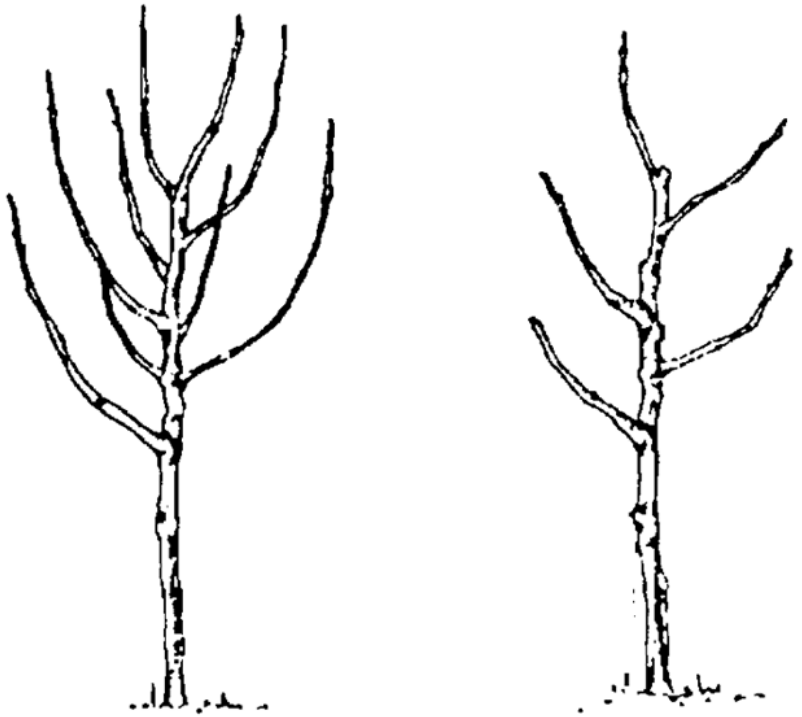
Modified central leader
- Most versatile system
- Any fruit tree species
- Useful with fireblight susceptible cultivars

Vase/open center
- Peach, apricot, plum

Images from Stark Bros, https://www.starkbros.com/growing-guide/article/successful-tree-pruning

Fruit Tree Pruning Systems

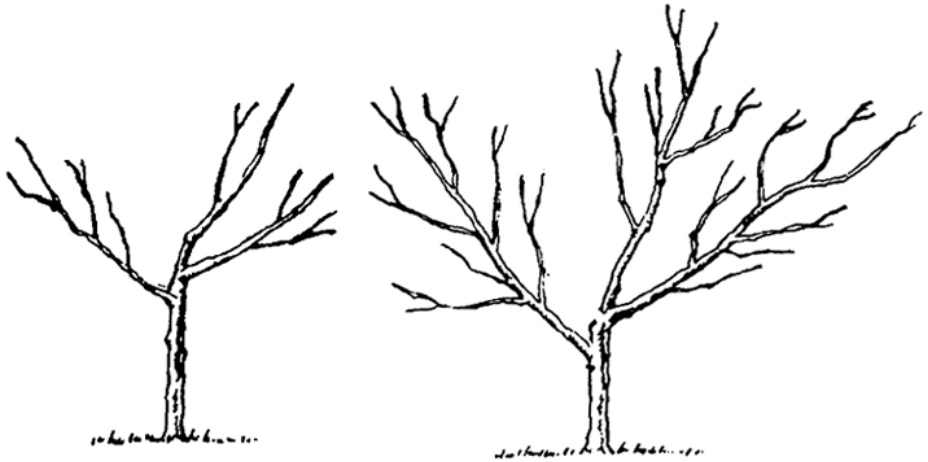
Central Leader Tree Training



Before Pruning

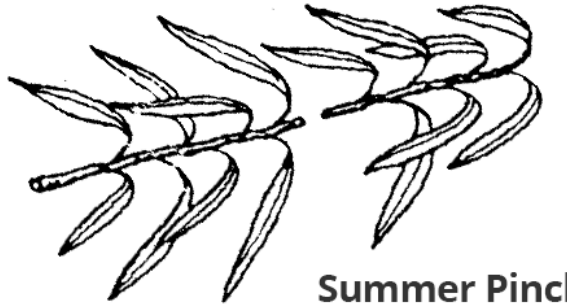
After Pruning

Vase-Shape/Open Center



2nd Season

3rd Season



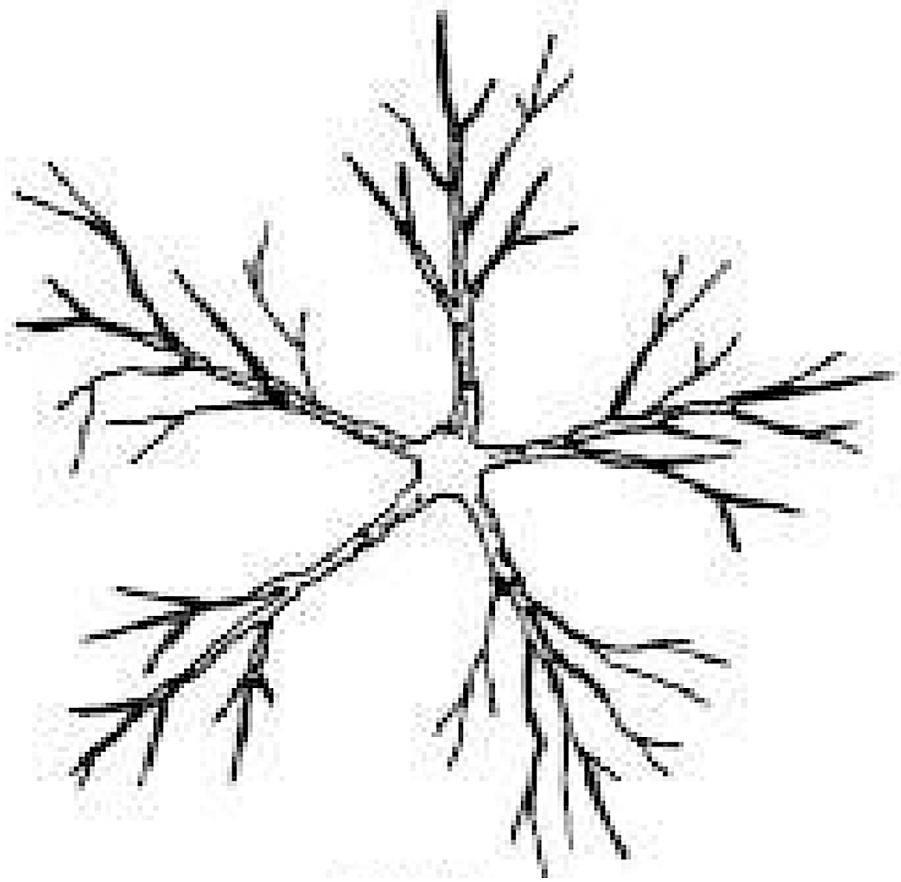
Summer Pinching

Images from Stark Bros, https://www.starkbros.com/growing-guide/article/successful-tree-pruning

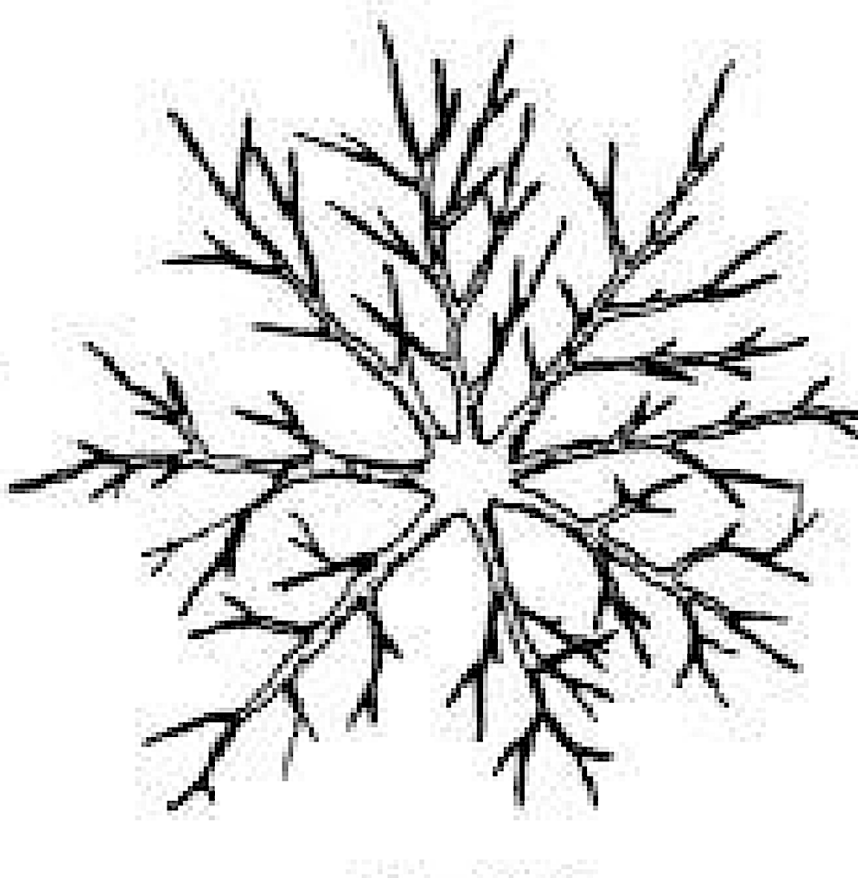
Increase Light Penetration

Branch selection

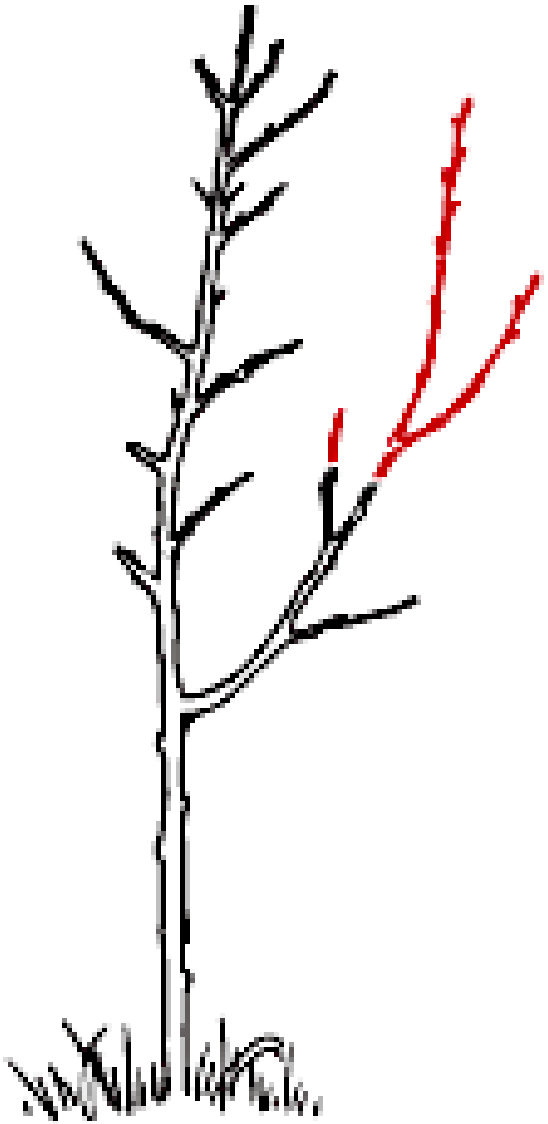
- Good angles, approx. 40-60 degrees
- Alternate up trunk
- Whorled around trunk



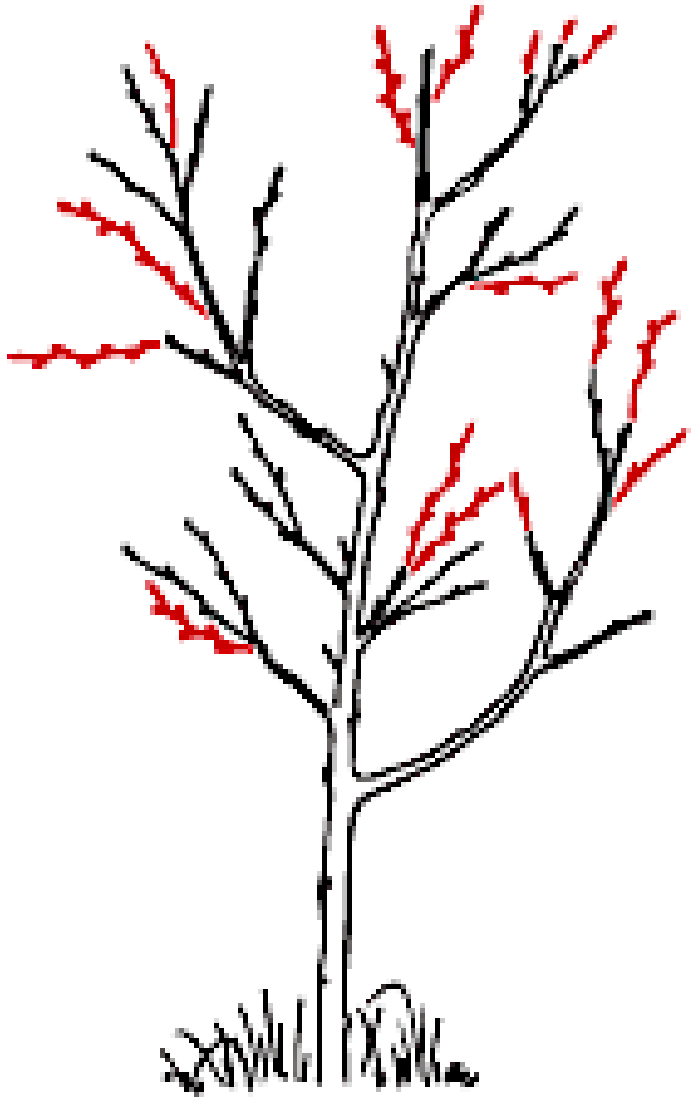
Open canopy



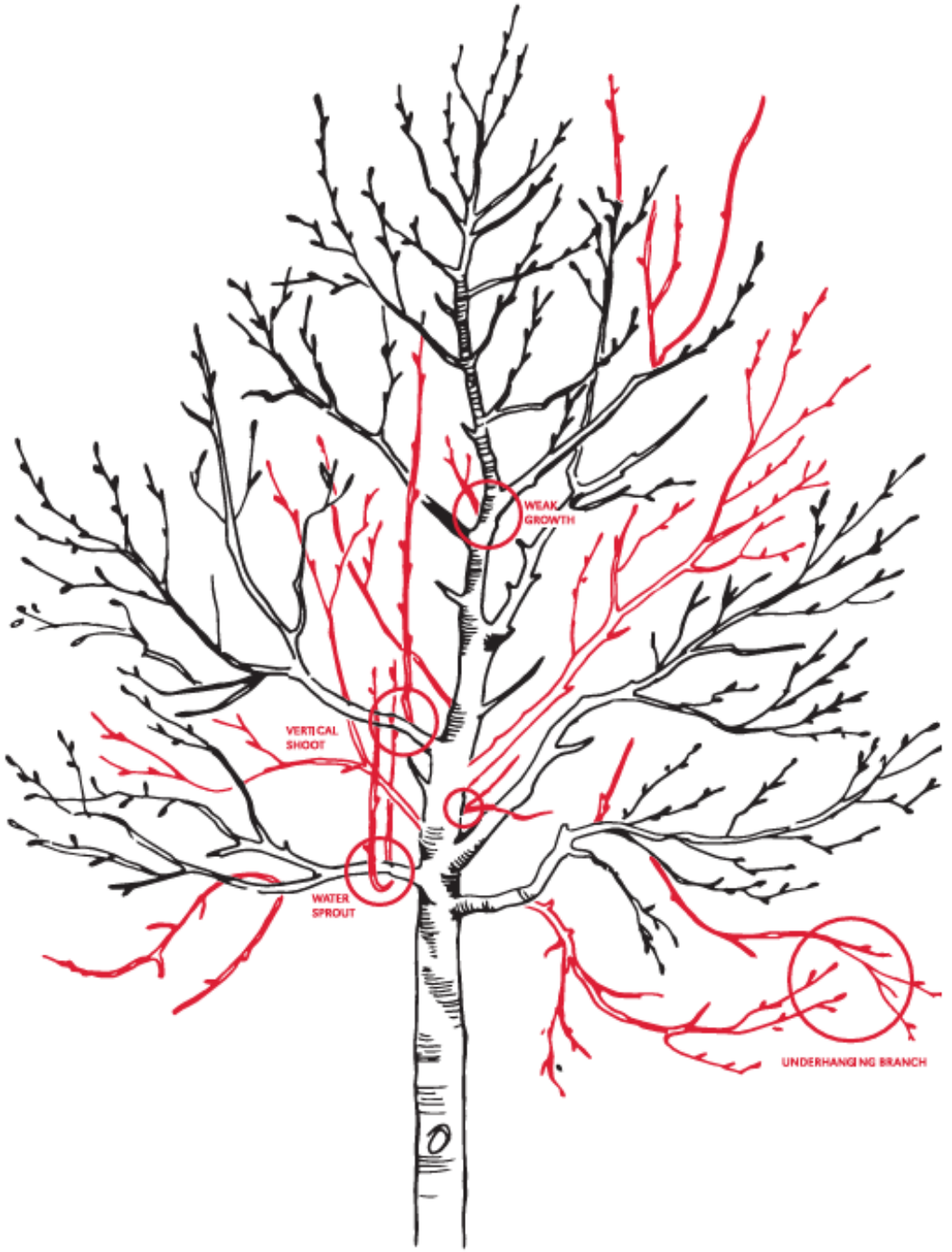
Not dense canopy

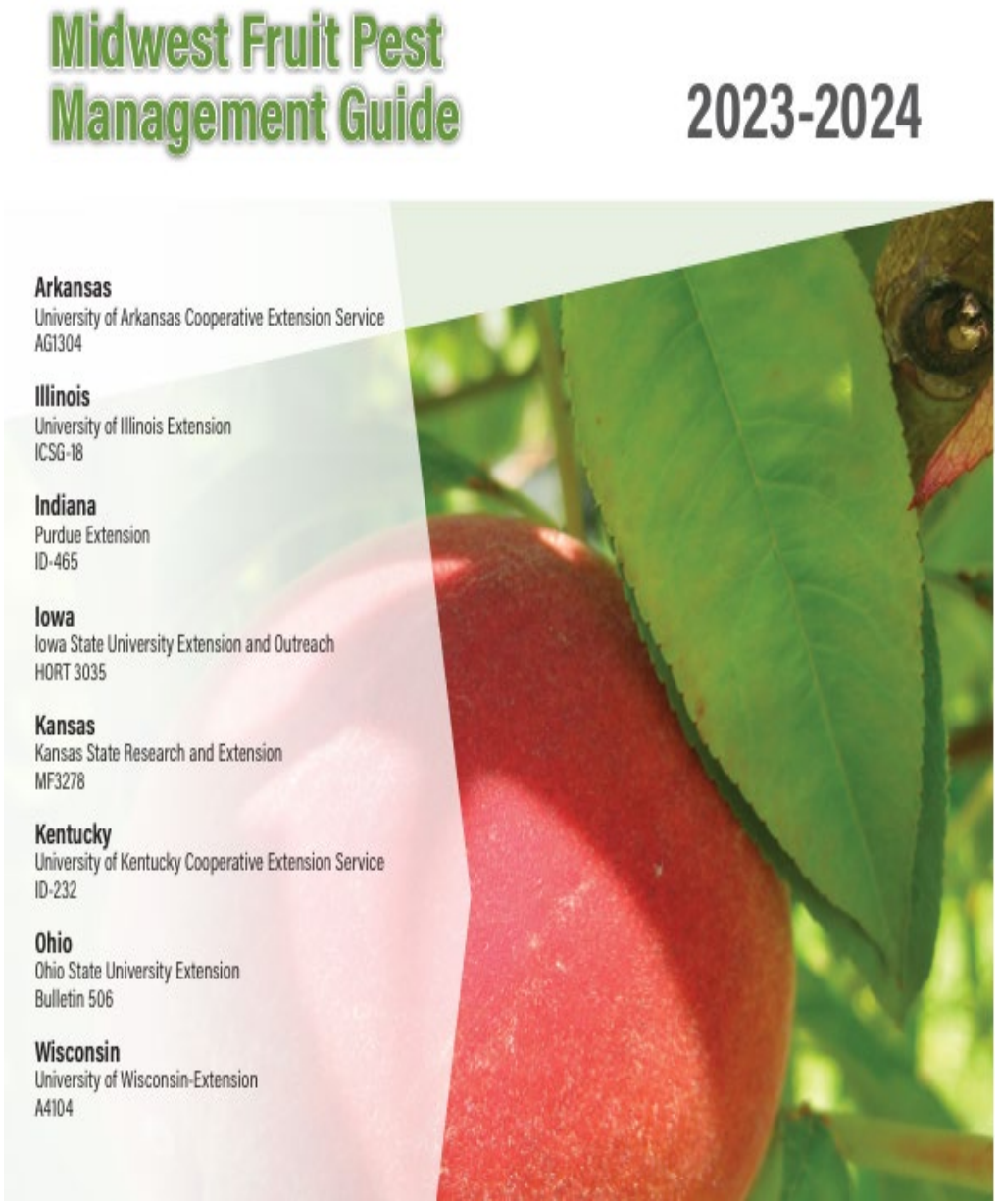


Second Year
Dormant Pruning



Third Year
Dormant Pruning





Look for disease resistance!

Midwest Fruit Pest Management Guide

- https://bit.ly/sprayguide24

Fruit Spray Schedule for the Homeowner, *University of Missouri Extension*

- https://bit.ly/Missouri-spray-schedule

Shrub Pruning

- Remove dead, damaged or weak branches
- Remove insect or disease infested branches
- Improve air flow to reduce foliar disease
- Control plant shape and size
- Control flowering, fruiting, and colored twig development in some shrubs
- Maintain natural beauty
- Formal vs. Informal?

Why Avoid Repeated Shearing?

- Requires frequent pruning to maintain a “perfect” appearance
- Creates dense layer of outer foliage
- Blocks light penetration into center of shrub
- Limits future pruning
- Can shorten the life of the shrub

Downside of Shearing

When to Prune?

DECIDUOUS

- Blooming shrubs
  - After blooming
- Non-blooming
  - During dormancy
  - Ideally late February through March

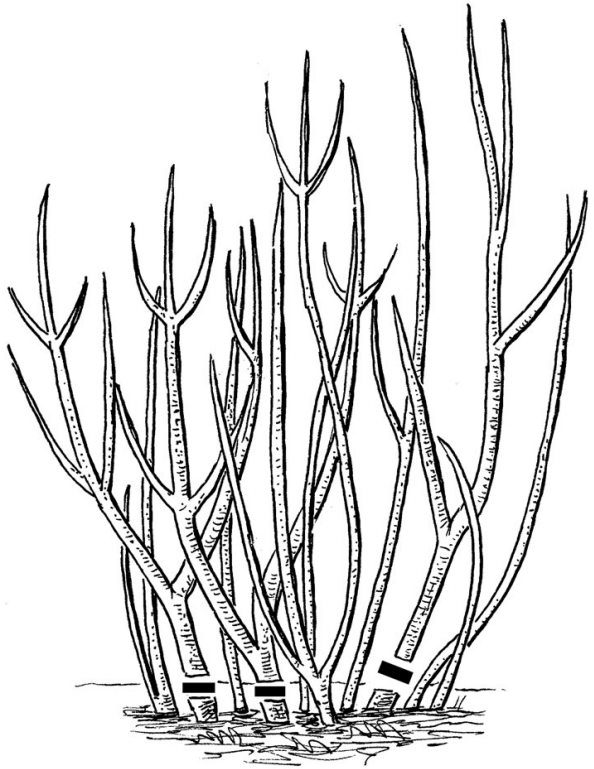
EVERGREENS

- Juniper, Arborvitae, Yew
  - Mid-April to mid-August
- Pine
  - After candles elongate, but before needles fully expand
- Broadleaf Evergreens
  - Mahonia, holly
  - Little pruning required
  - Head back after blooming

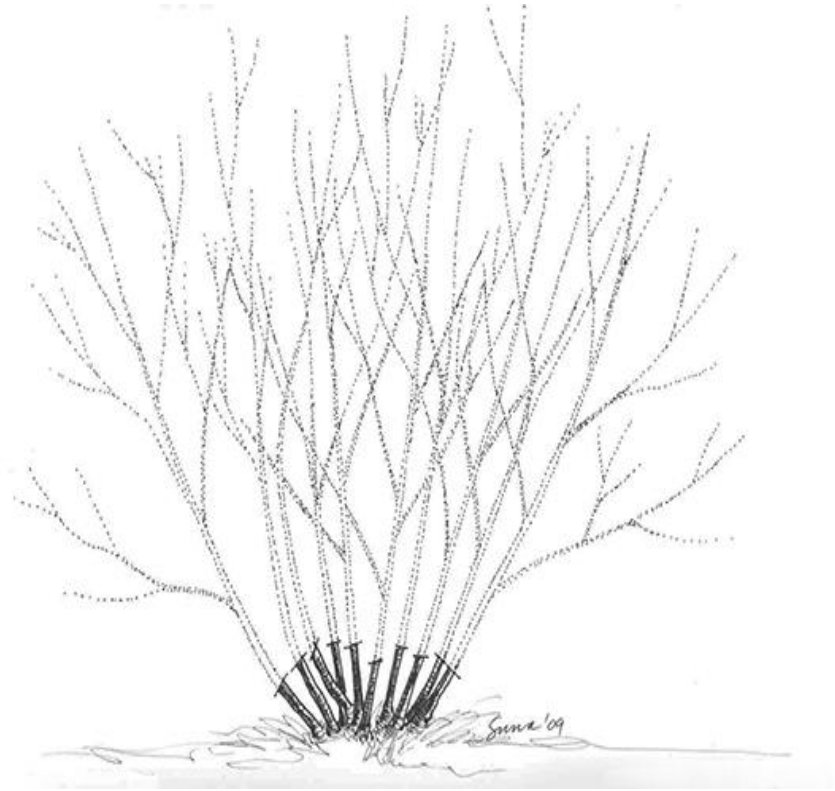
Shrub Pruning Techniques

HEADING BACK

THINNING



REJUVENATION



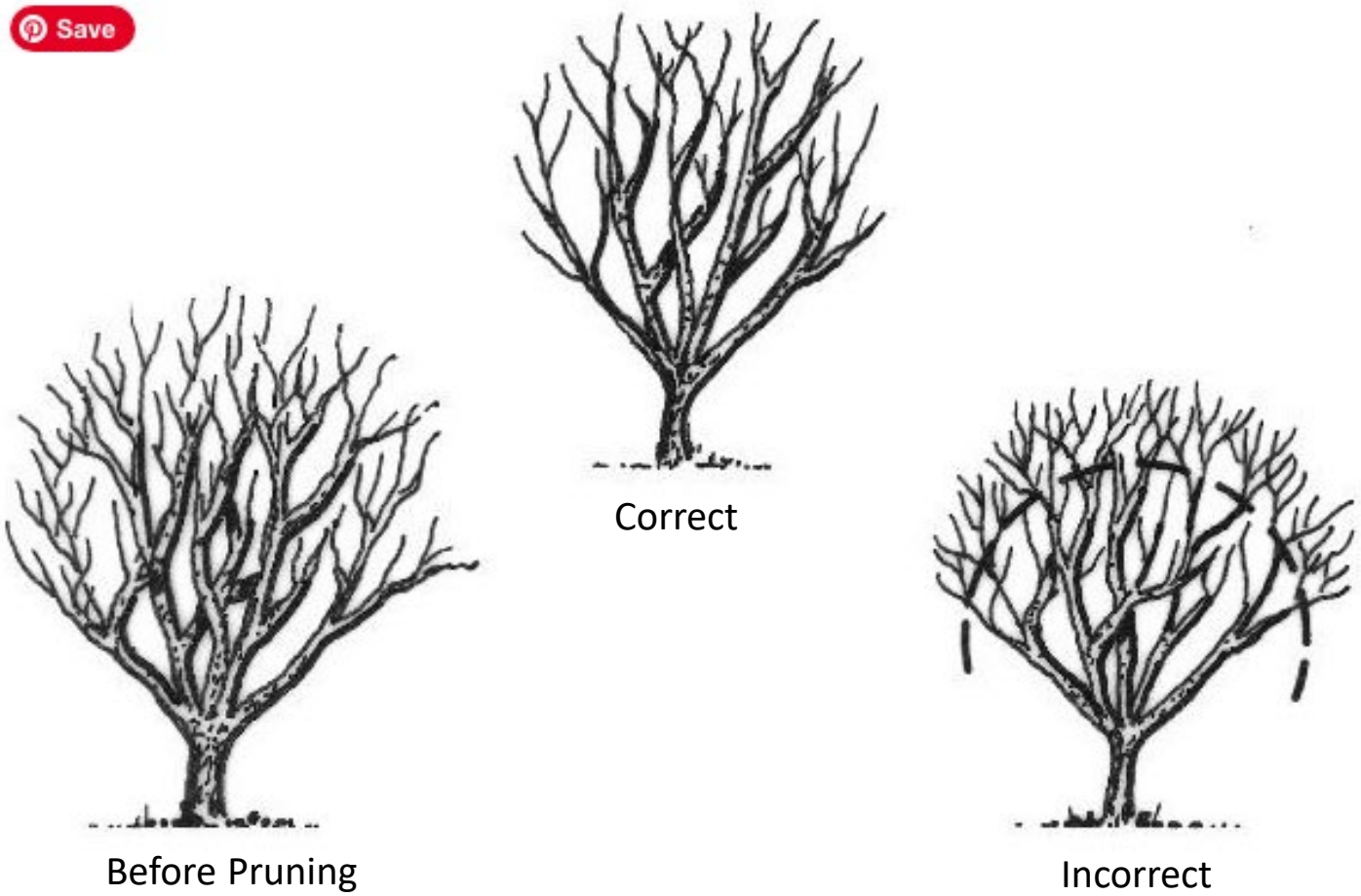
Heading Back

Selective cut back tall/long branches to redevelop a natural shape

Cut back to a branch at least 1/3 the diameter of the branch being removed

Benefits

- Reduces plant height and width
- Controls direction of plant growth
- Creates desired shape



Images from “Pruning Shrubs and Hedges in the Home Garden”, by Univ. of Maryland Extension.

Thinning

Annually remove 1/3 of oldest, woodiest stems at base of plant

Benefits

- Reduces height
- Improves health
- Improves flower quality
- Maintains young, productive growth of new stems from the crown

Rejuvenation - Benefits

- Removes old, unproductive wood
- Removes pest infested stems
- Increases fruit/flower production
- Returns plant to natural shape
- Renovate in fall or early spring

Rejuvenation - Drawbacks

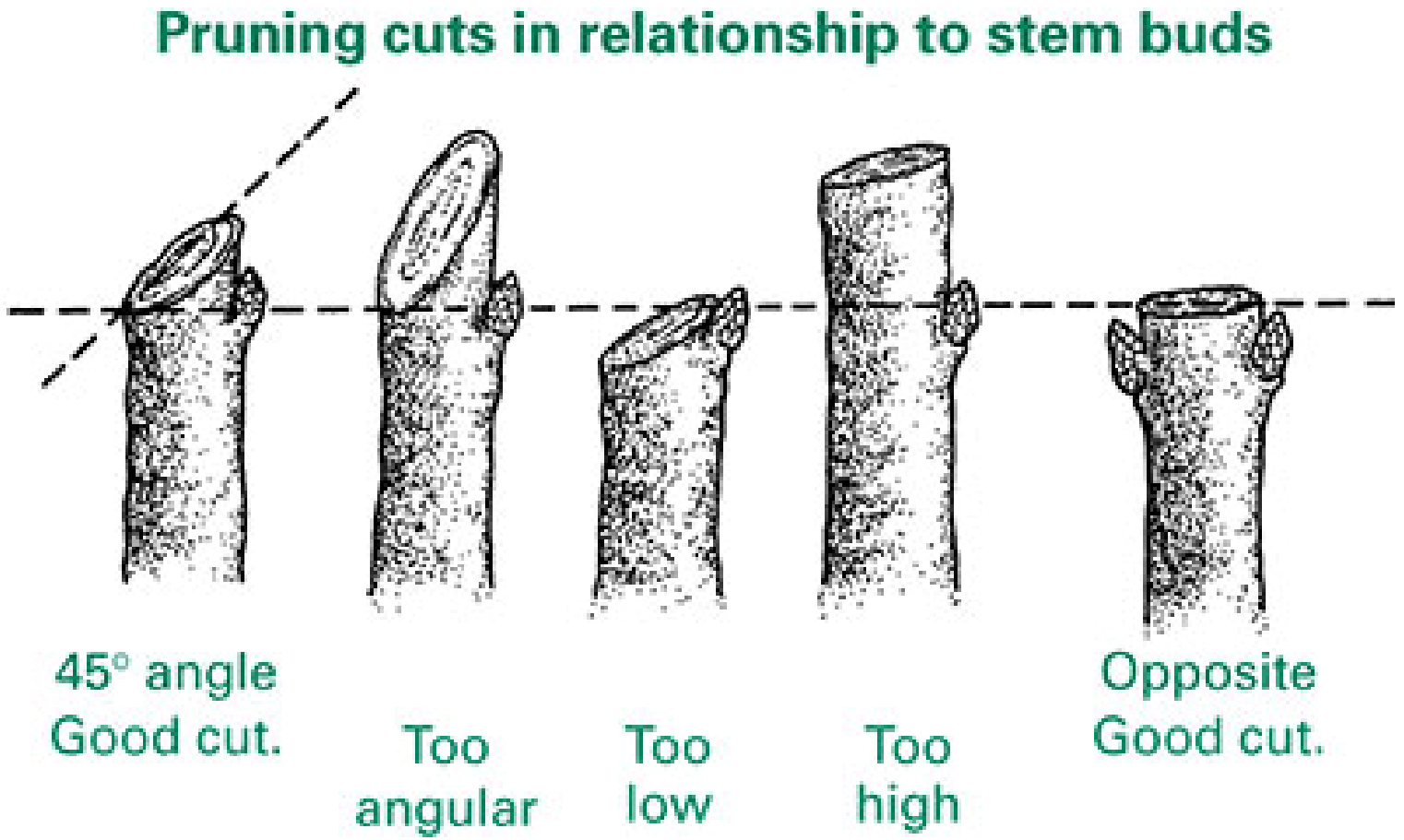
Eliminates blooming for at least one year

May leave a bare spot in the landscape for several months

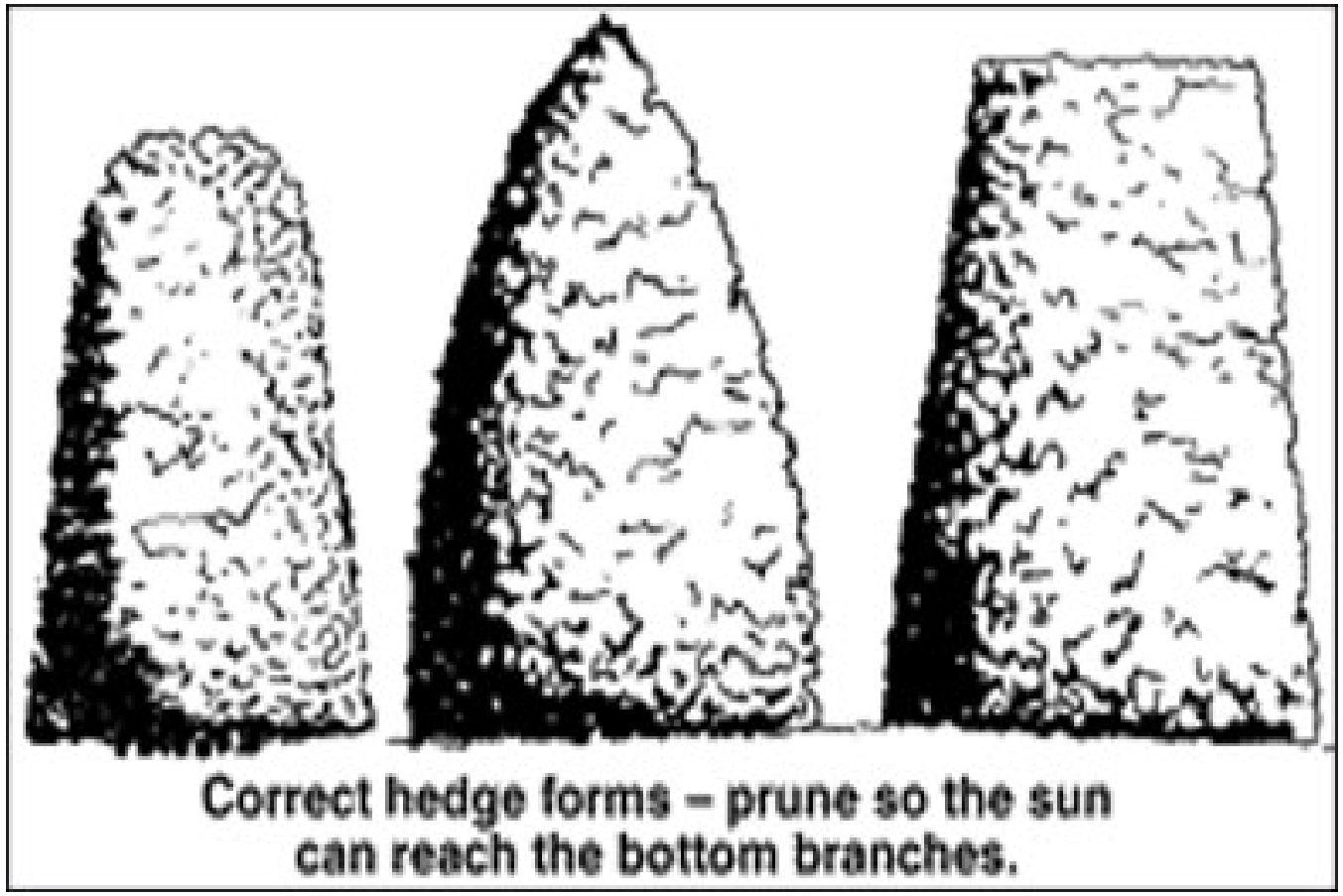
Can only be done with deciduous plants

Candidates – forsythia, honeysuckle, hydrangea, lilac, potentilla, privet, spirea

Making Cuts

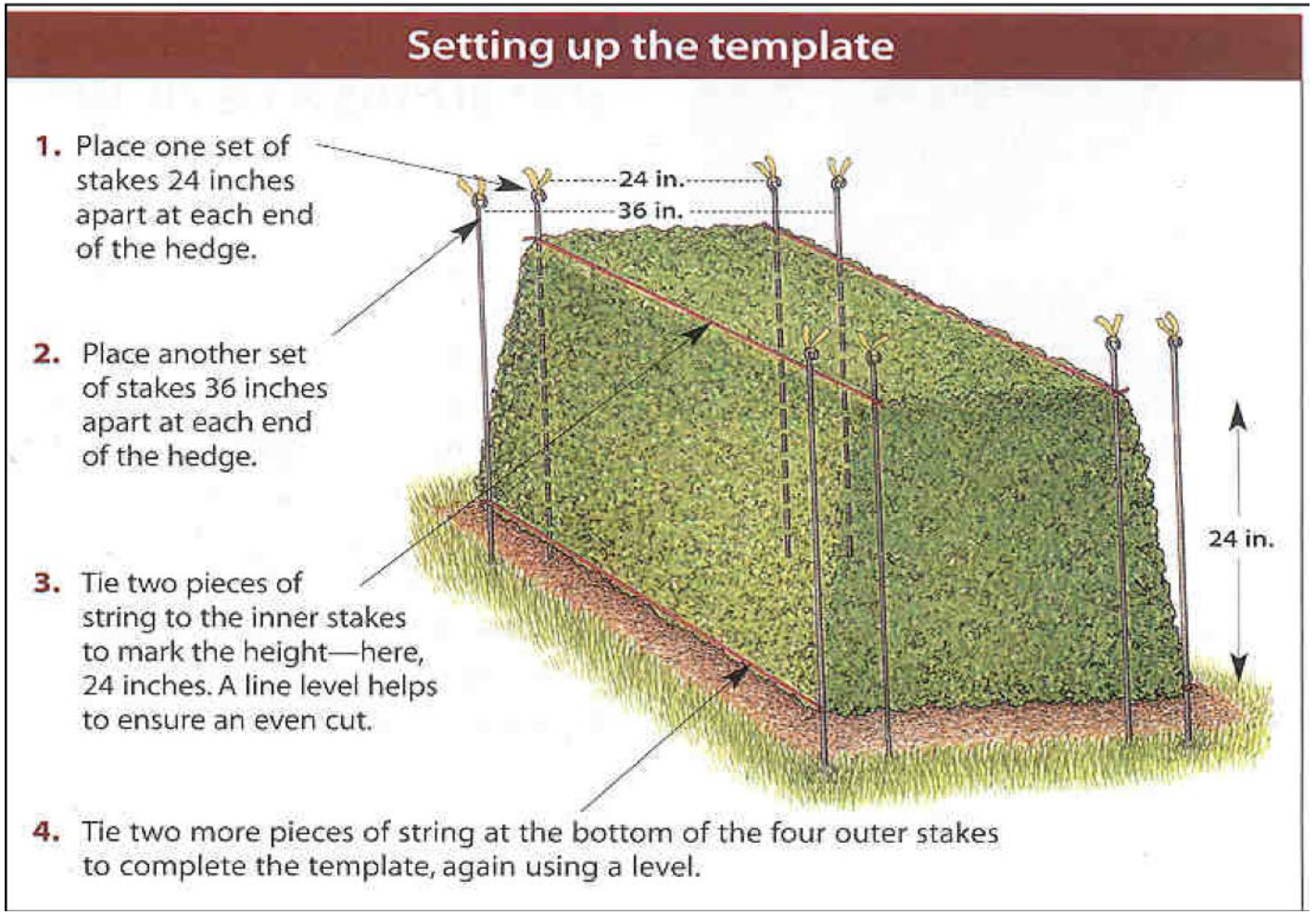

Pruning cuts in relationship to stem buds
45° angle
Good cut.
Too
angular
Too
low
Too
high
Opposite
Good cut.

Shaping Hedges



Correct hedge forms – prune so the sun can reach the bottom branches.

Shaping Hedges



So, where to start?

Sharpen your pruners!

Remove completely

- Dead or broken branches
- Branches with heavy insect infestations
- Crossing or rubbing branches
- Thick, old mature branches

Head back cuts

- Long/tall branches
- Open up center for light penetration

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Questions?

Sarah Browning

Nebraska Extension
in Lancaster County

Email:
sarah.browning@unl.edu

Phone: 402 441-7180