What we need to know

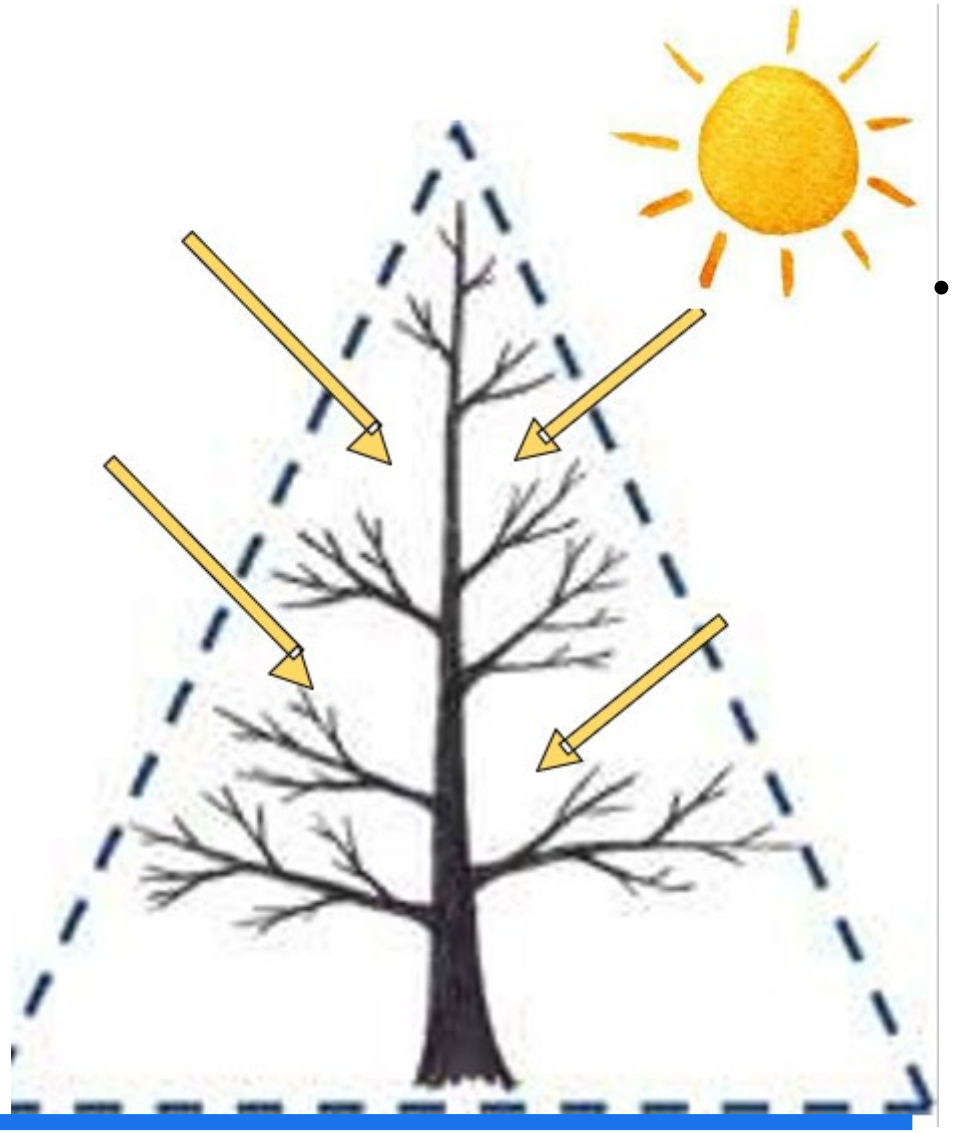
- Tools
- Branch anatomy
- Types of pruning cuts
- When to prune
- Where is the fruit produced
- Diseases of fruit trees
- Be-leaf in your cut!

Why Do We Prune?

- To produce quality ruit
  - Open-up canopy to increase fruit quality and yield by allowing more sunlight and airflow
- Control tree structure & shape
  - Tree structure to help support the weight of heavy fruit
  - Encourage new growth for continual production
  - Directional pruning (shape and function)
  - Make harvesting easier
  - Shorter size?
- To solve problem
  - Removing unwanted branches (3D’s)

When Do We Prune?

- Late winter –early spring
- Ornamentals that flower in spring (i.e. Lilac, Forsythia, Flowering Almond) should be pruned *after* they bloom
- Avoid pruning in heat of the summer
- Do not prune in fall
  - No pruning during months that end with r
- Any Time for the 3 D's
  - Dead/Damaged, Diseased, Dumb (i.e. suckers and water sprouts, or structurally insecure)



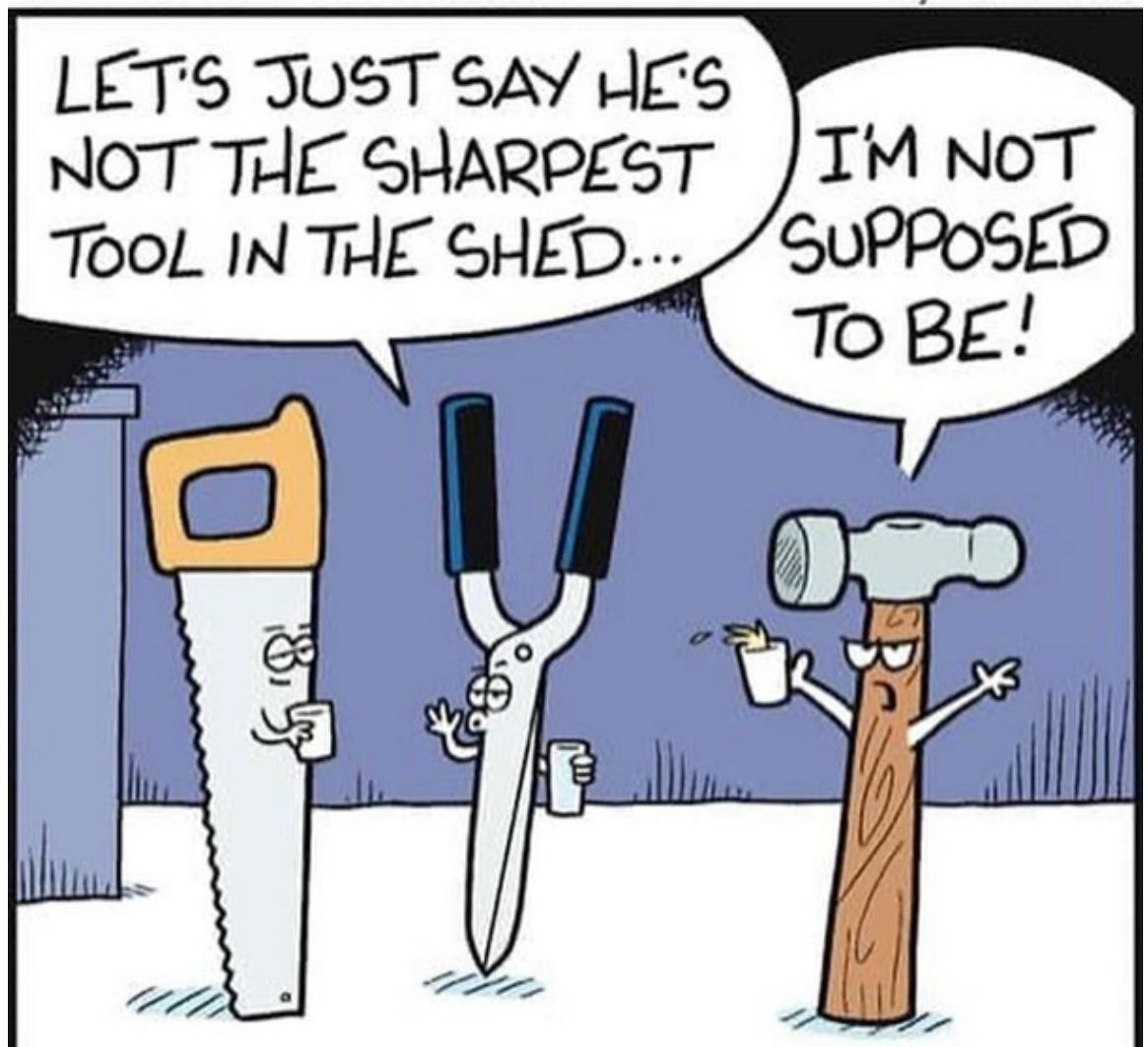
Light in the Canopy

- Shaping and thinning to allow light through the canopy
  - Sunlight affects fruit production:
    - Location of fruit production (harvesting)
    - Color, Flavor, Yield

Tools for pruning

- Hand pruners – small branches **≤ ¾”**
- Loppers – larger branches **¾” – 1 ½”**
- Hand saw – even larger branches **≥ 2”**
- Electric or chain saws – if you have waited way too long

off the mark.com by Mark Parisi



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2-6 MARK PARISI

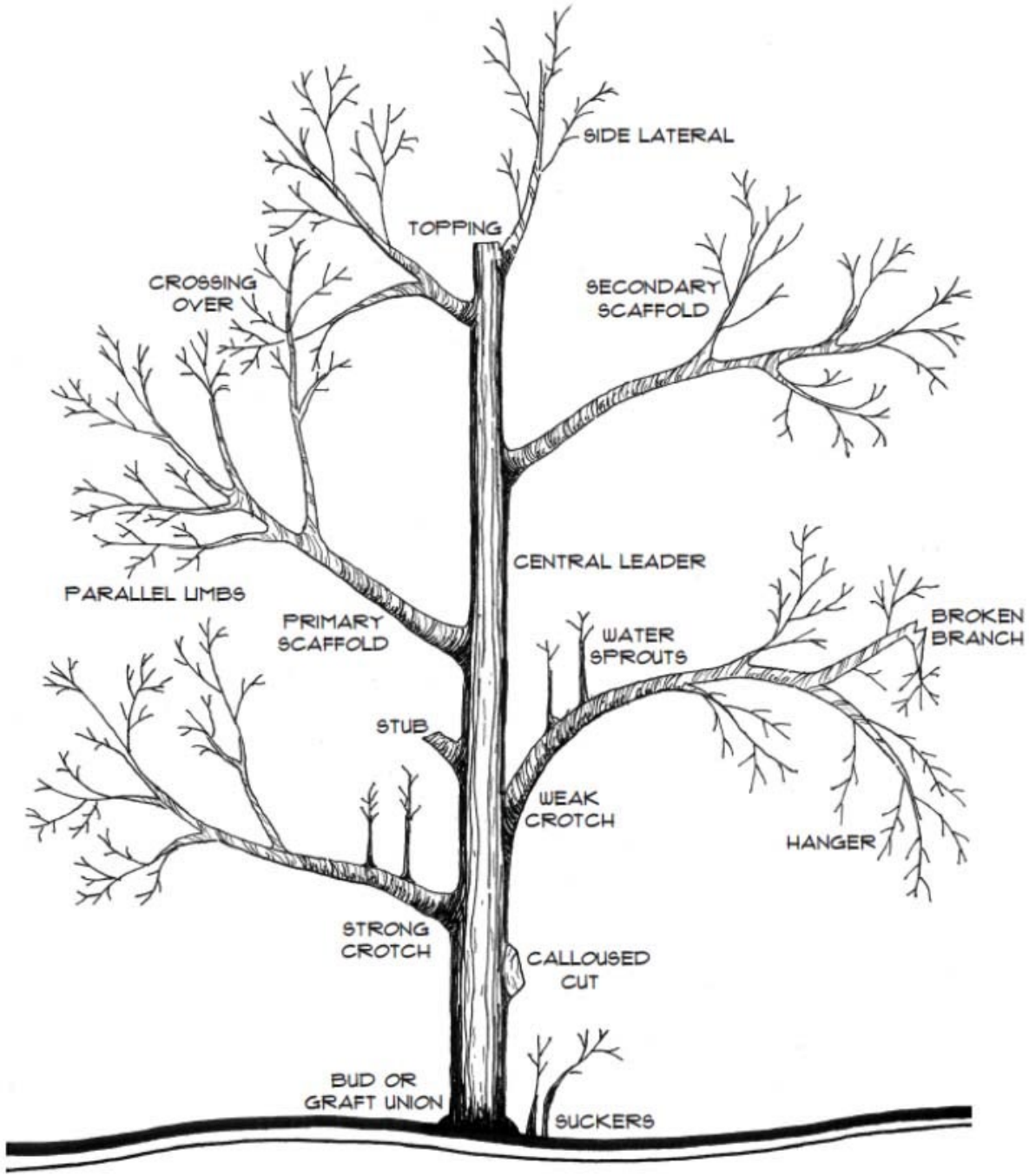
What to cut?

- It Depends Rule:
  - Type of tree
  - Age of tree
    - First 3-4 years – Training & Structure
    - After 4-5 years – Fruit and size control

3 Easy Rules

- Know where the fruit is
- Start with the simple stuff
- Let in light

Tree Terms



Tree Terms

- **Branch** – A woody limb growing from the trunk or another branch.
- **Leader (Central Leader)** – Main upright stem that forms the tree's primary structure.
- **Lateral Branch** – A side branch growing off the main trunk or leader.
- **Scaffold Branch** – A strong, well-placed main branch that forms the tree's framework.
- **Shoot** – New, soft growth from the current season.

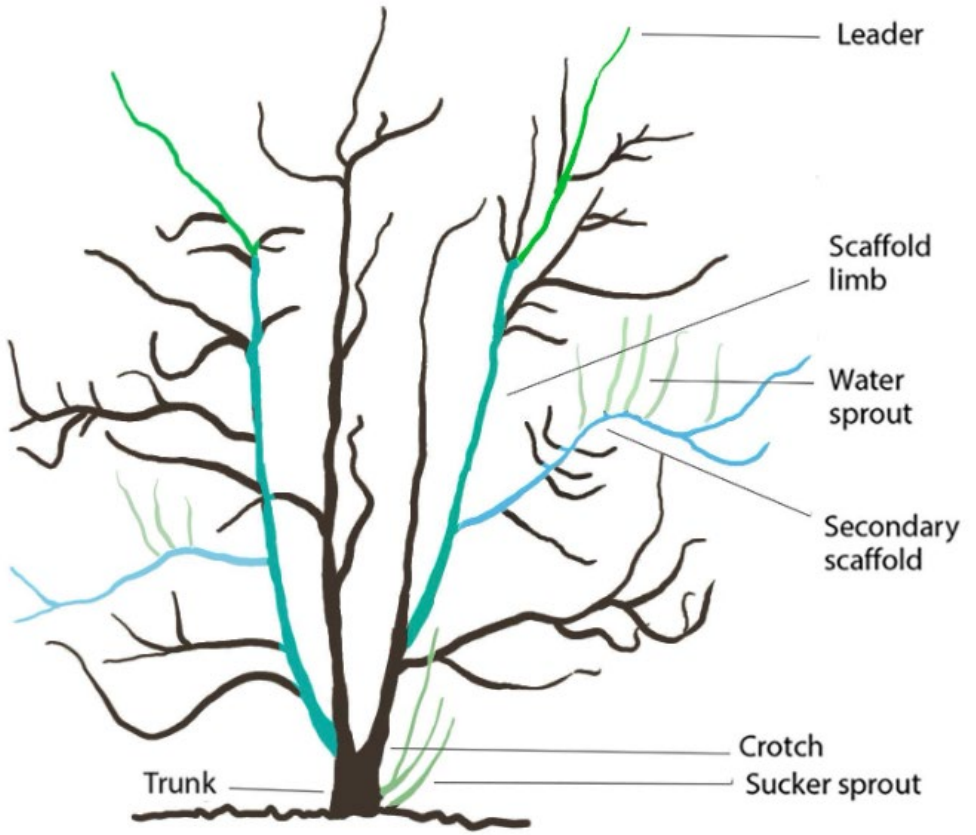
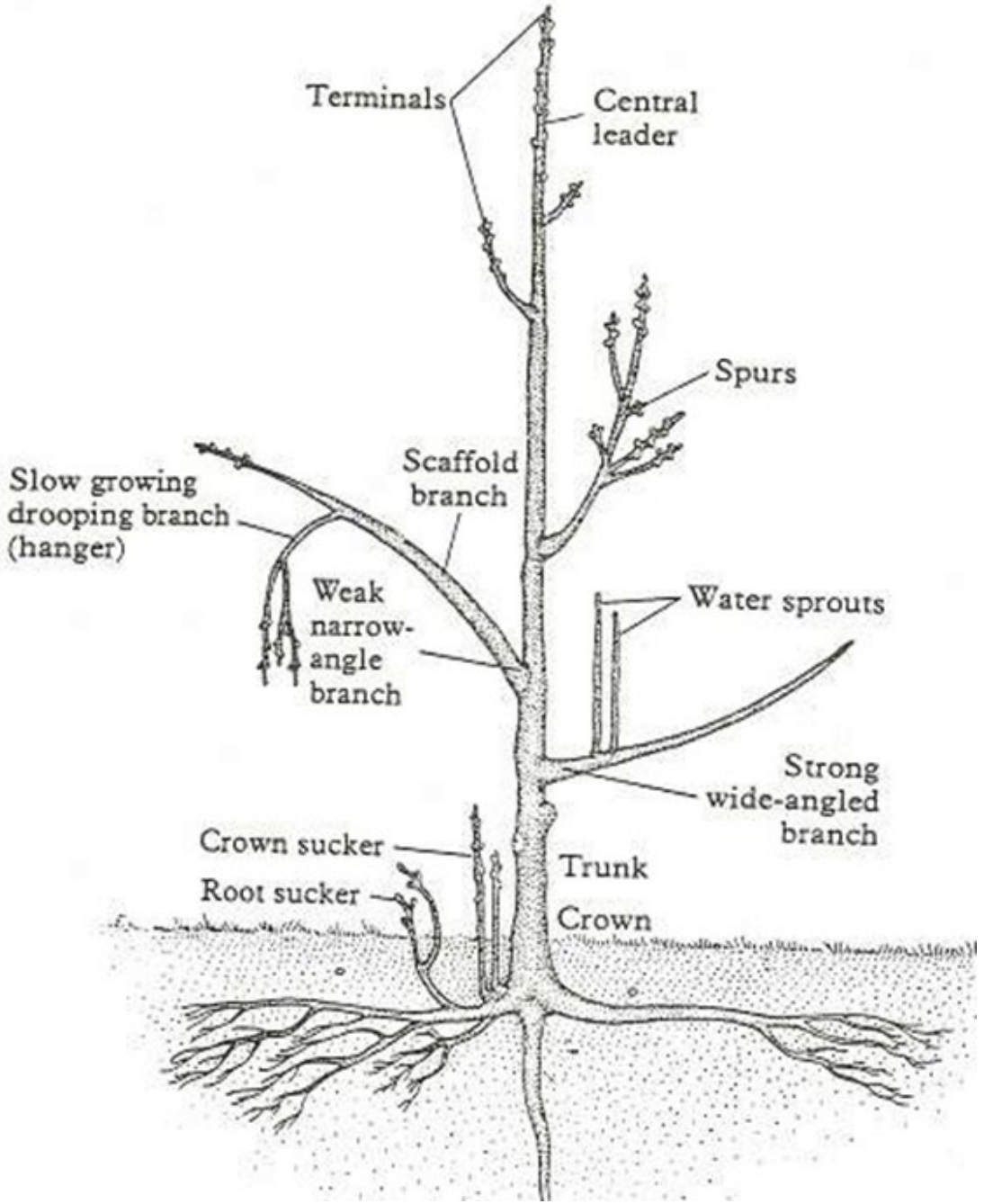


Figure 1. Common terms used in pruning and training fruit trees.
Credit: Page Biersdorff, © Oregon State University

Tree Terms

- **Sucker** – A vigorous shoot growing from the roots or base of the plant (usually unwanted).
- **Water Sprout** – Fast-growing, upright shoots from branches or the trunk (often weak).
- **Deadwood** – Branches that are dead, dry, or brittle.
- **Crossing Branch** – A branch that rubs agains another, causing damage.
- **Inward-Growing Branch** – A branch growing toward the center of the plant, reducing airflow.



Tree Terms

•**Branch Collar** – Raised tissue at the base of every branch. Contains specialized cells for healing pruning wounds.

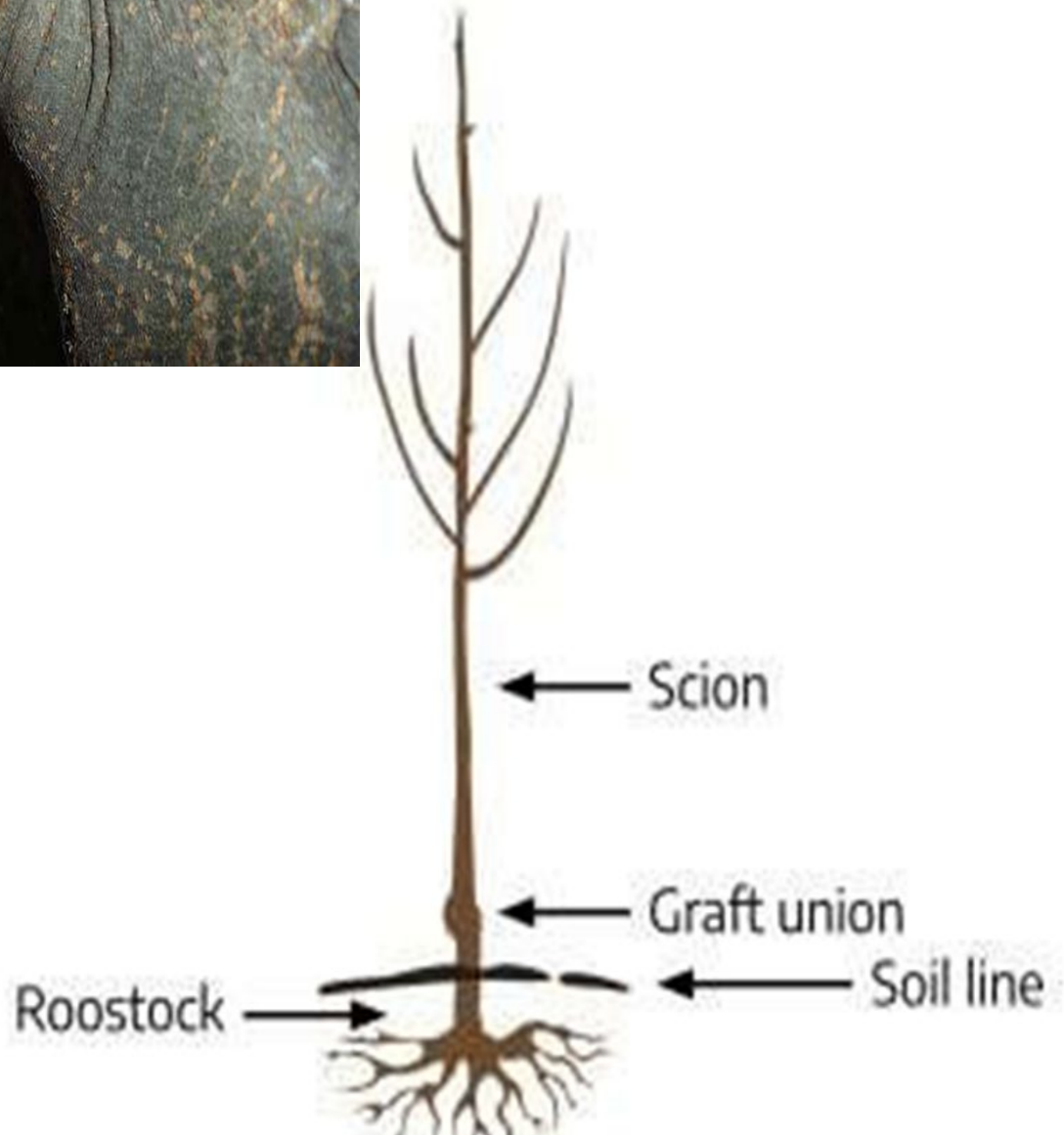
•**Branch Bark Ridge (or crotch)** – where the top of the branch meets the trunk.

•**Crotch Angle** – Angle formed between the trunk and a limb. Strong crotch angels are 45–60 degrees.

•**Crown** – Where the base of the trunk meets transitions to roots.

•**Graft Union**– Thickened area were a branch cutting (Scion wood) has been grafted to a rootstock.

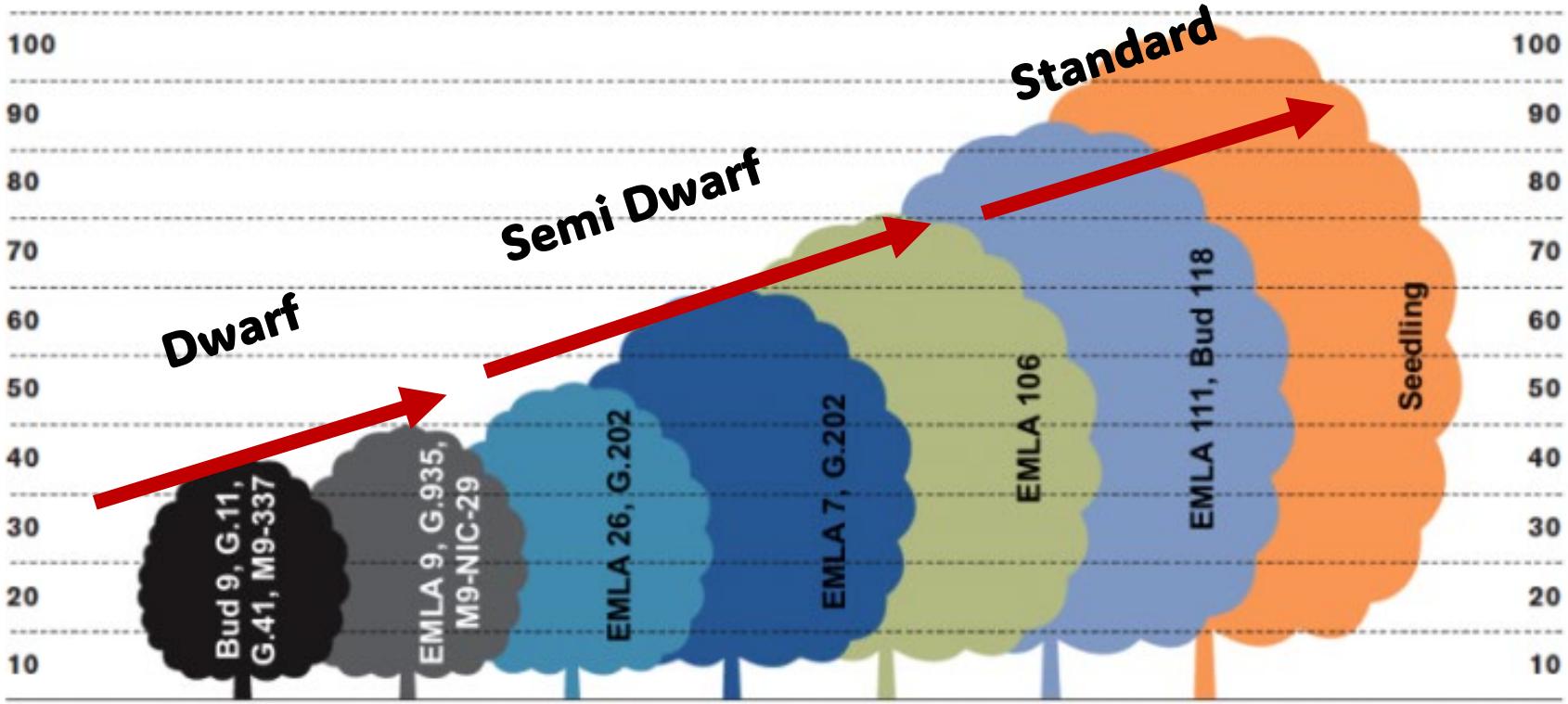
•**Root Flair** – larger, anchor roots slightly exposed above the soil.



Rootstocks for Apple

Determine

- **SIZE**
- **Disease -resistance**



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

Fruit Tree

Fruiting cultivar

gala, honeycrisp, fuji,

early elberta, Italian

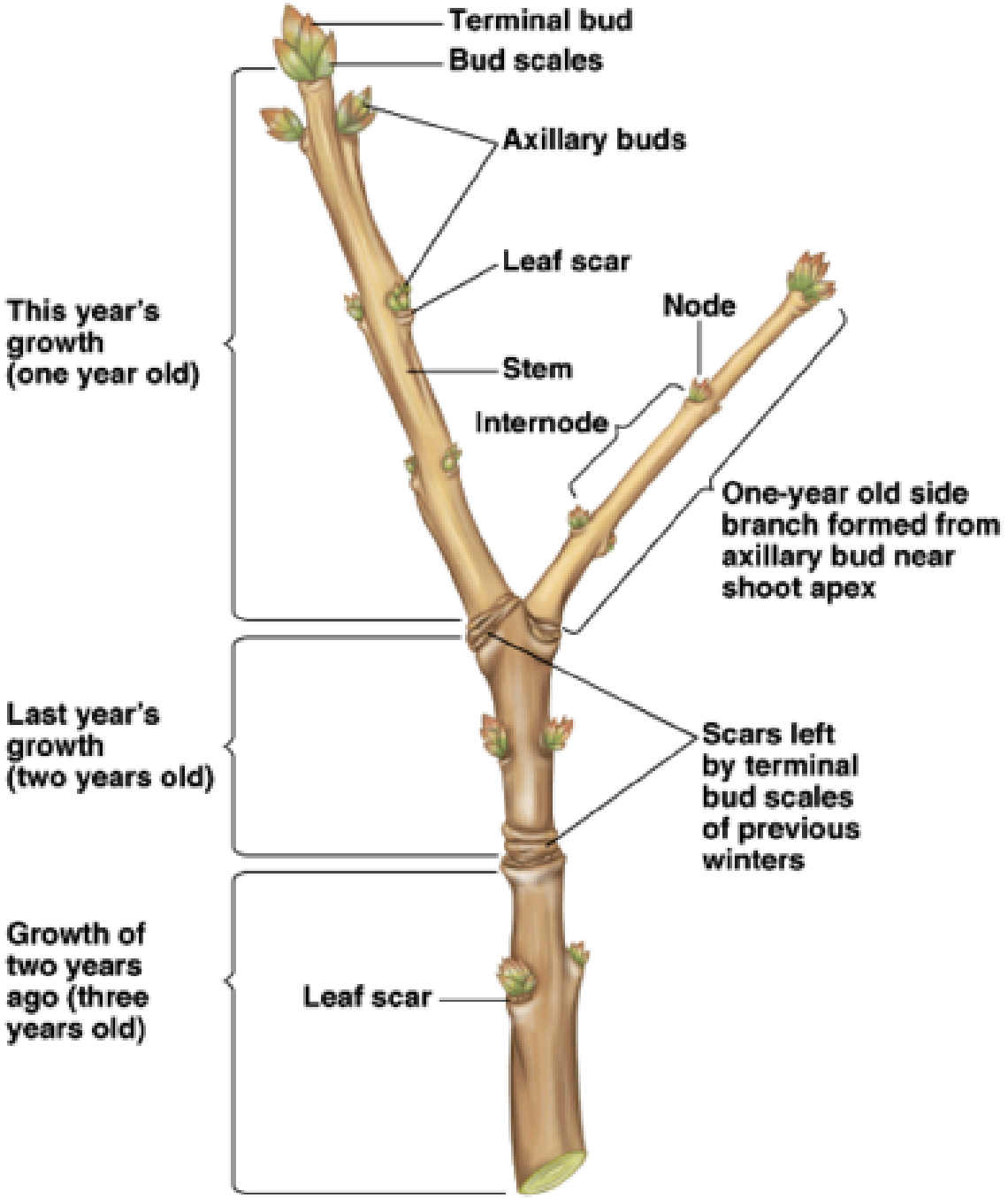
Rootstock

Size of tree

Disease resistance

Bud & Growth

- **Bud** – A small growth point that becomes a leaf, flower, or branch.
- **Terminal Bud** – The bud at the tip of a branch that controls upward growth.
- **Lateral Bud** – A bud along the side of a branch that creates side growth.
- **Node** – The point on a stem where buds, leaves, or branches form.
- **Internode** – The space between two nodes.



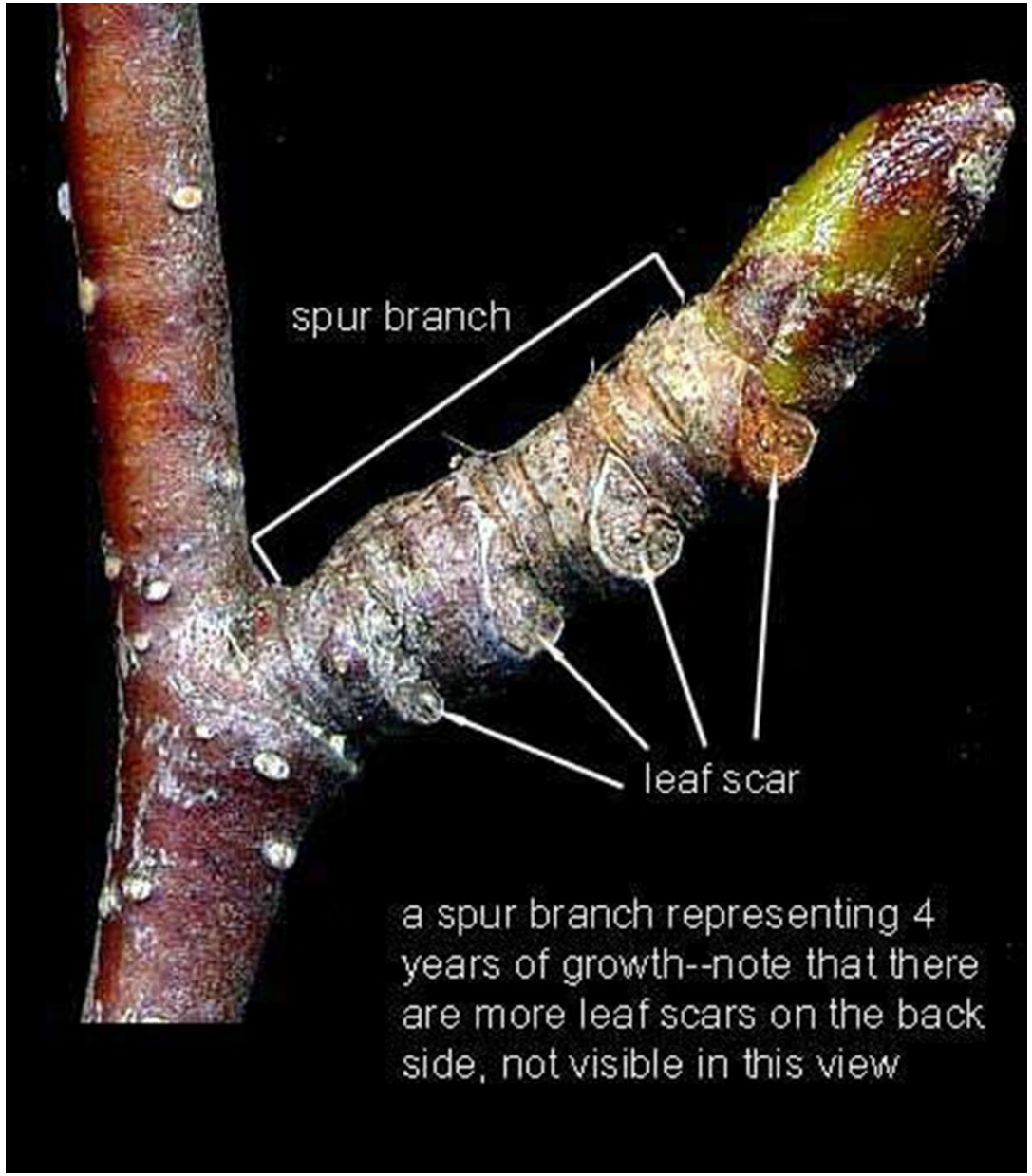
Step 1: Know Where the Fruit is

Fruit Trees have a way of telling us where they will bear fruit

Flower buds, Leaf buds, Mixed buds

Spur

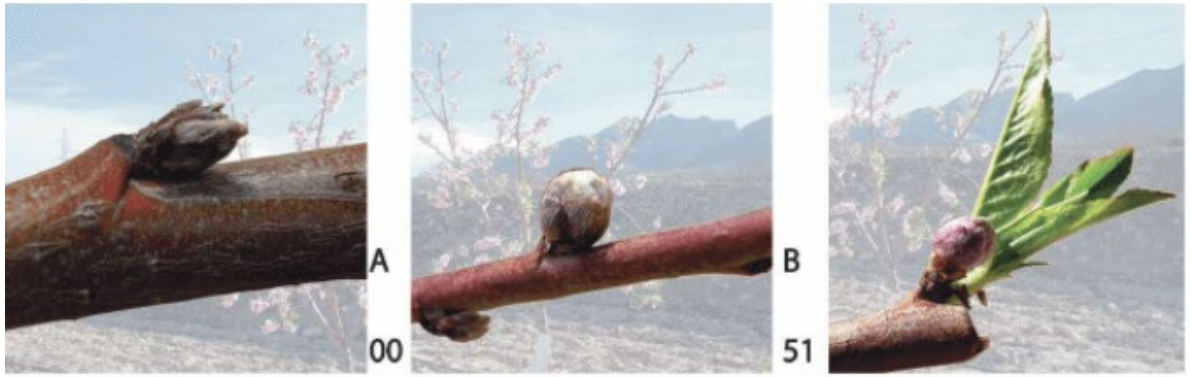
Latent Bud
(suckers)




Leaf bud
Fruit bud
UtahStateUniversity
COOPERATIVE EXTENSION

Fruit Tree Fruiting Wood Age

- Apples – 2-yr. old & older, spurs
- Apricots & Plums – 2 yr. old & older, spurs
- Peaches – 1-yr. old, 3 buds (spurs not noticeable)
- Pears – 2-yr. old & older, spurs
- Sweet & Tart cherries – 2yr. – 4 yr. old, spurs



Fuit Tree	Wood Age	% Removal (mature)	Cut type	Form
Apple	2+	up to 20%	Heading, Thinning & Renewal (as needed)	Modified Leader
Apricots	2+	up to 30%	Thinning & Heading	Open Vase
Peaches	1 (last year's growth)	up to 50%	Thinning & Heading	Open Vase
Plums	2+	up to 30%	Thinning & Heading	Open Vase
Pears	2+	up to 20%	Heading, Thinning & Renewal (as needed)	Modified Leader
Cherries	2 to 4	up to 30%	Thinning & Heading	Modified Leader

Step 2 – Make the Easy Cuts First

Dead – Diseased - Dumb

hanging branches

rubbing branches

bad angles

suckers

Types of Pruning Cuts

Heading Cuts

- Shortening a branch or Shoot
- Encourages lateral growth
- Used for hedges

Thinning Cuts

- Remove entire branch or shoot back to a lateral branch or trunk
- Directs growth

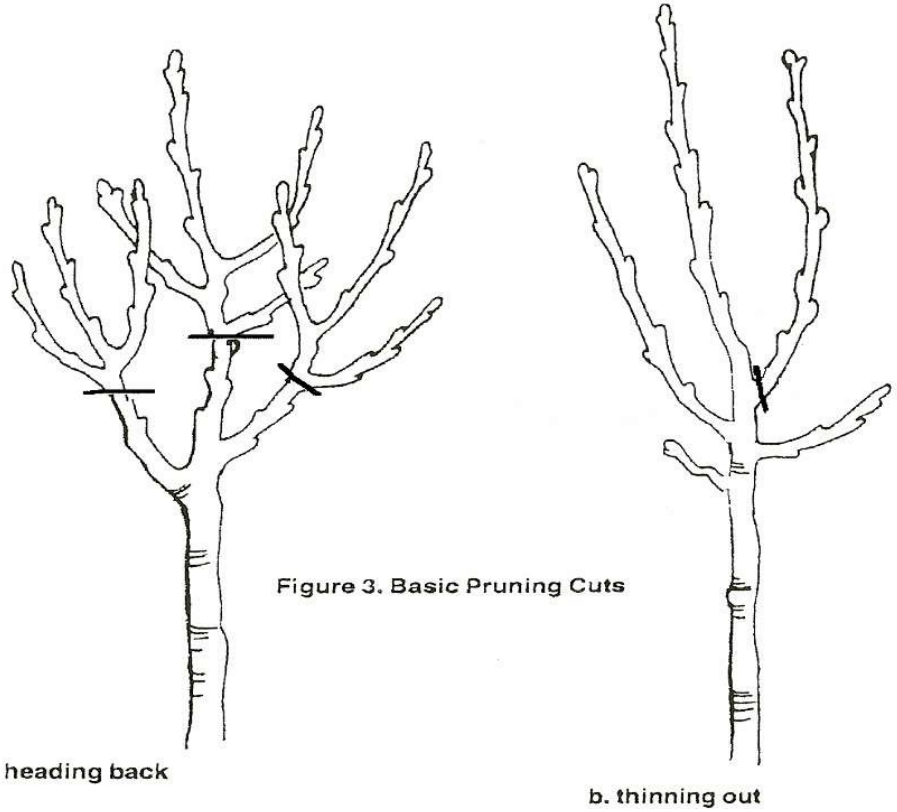


Figure 3. Basic Pruning Cuts

Heading Cut

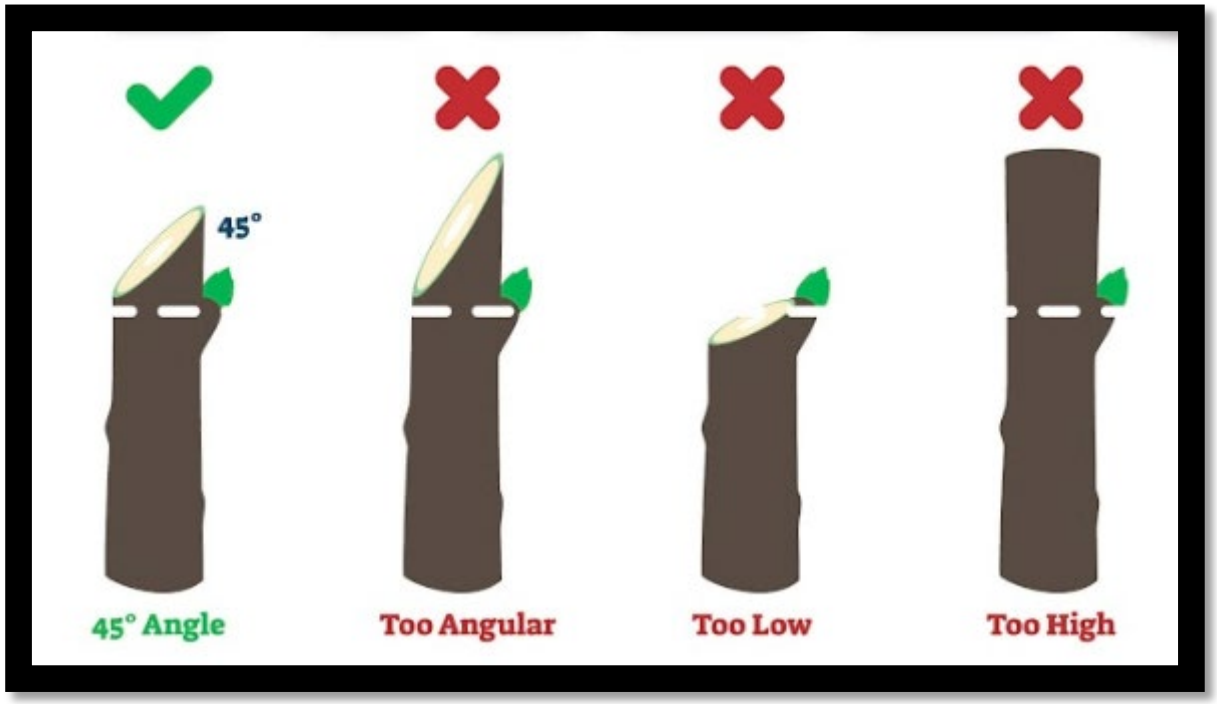
- Shorten branch
- Directing branch angle
- Encourage lateral growth

Thinning Cut

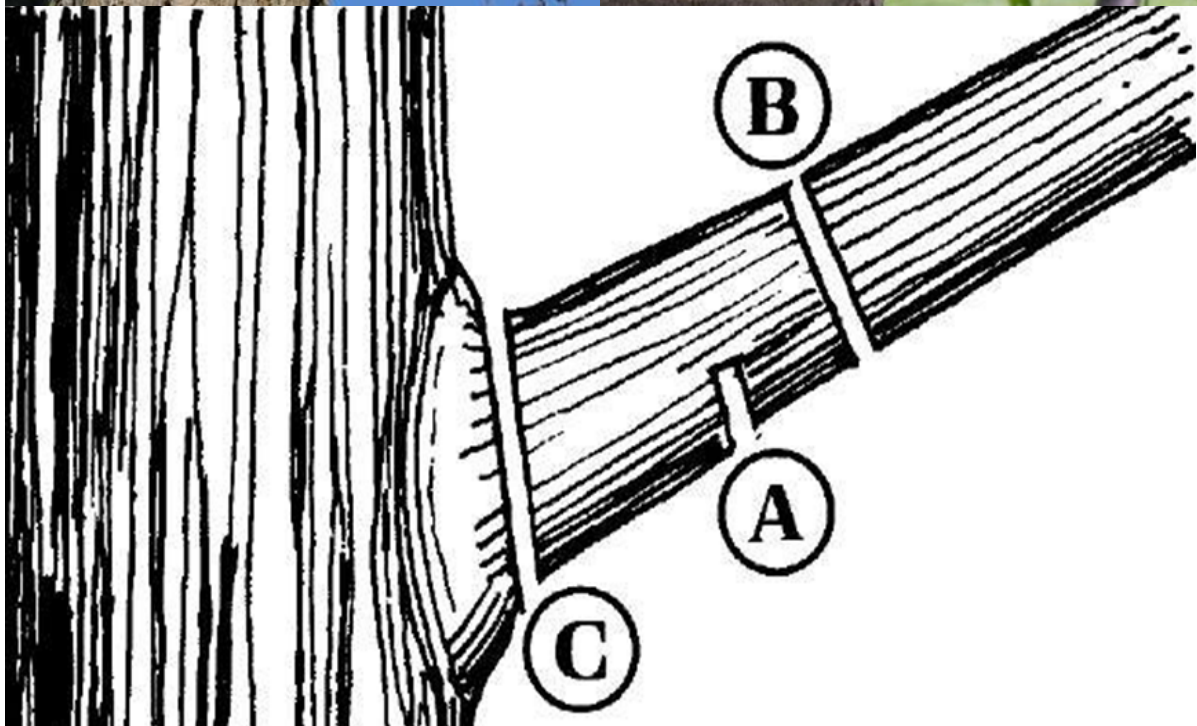
- Remove unwanted lateral branches
  - Dead, Diseased, Dumb
- Shape/Structure of tree
- Reduce branch crowding

Proper Pruning Cuts

- Cut at an angle just *above* a bud
- Avoid damaging the bud
- Do not leave a stump
  - Stumps become deadwood and can weaken the branch
- Keep cuts *clean*
  - *Make sure your pruners are clean and sharpened*
  - *Make practice cuts first*
- Sanitize pruners between cuts
  - Reduces the potential of disease spreading



Proper Pruning Cuts – Large Branches



GUIDING PRINCIPLES

BRANCH ANGLE

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

Step 3 – Letting in Light

Training Systems

Open Vase

(Peaches, Apricots, Nectarines, Japanese plums, Sour cherries)

- Select 3-4 primary scaffold branches
  - -About 18-24” from the ground
  - -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.

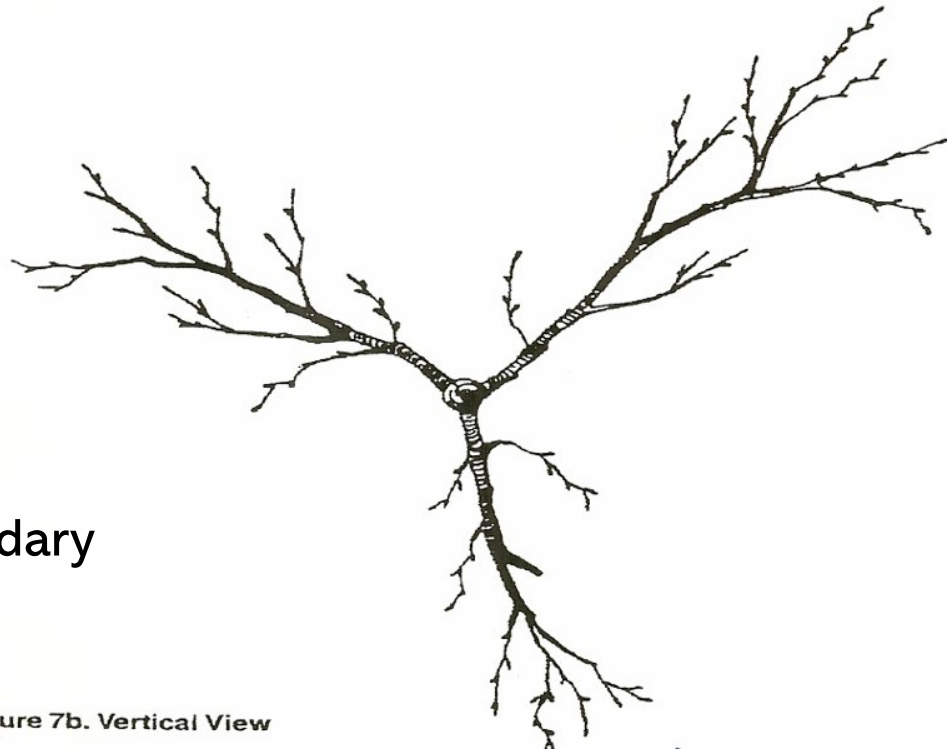
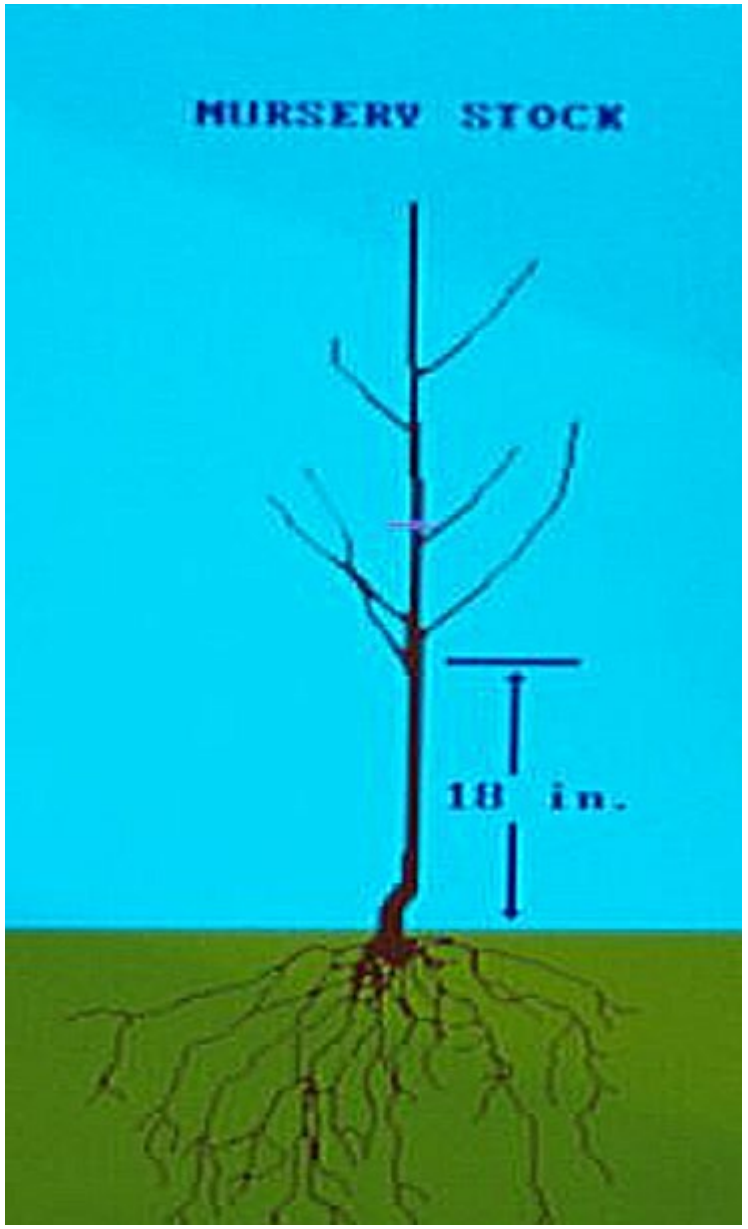


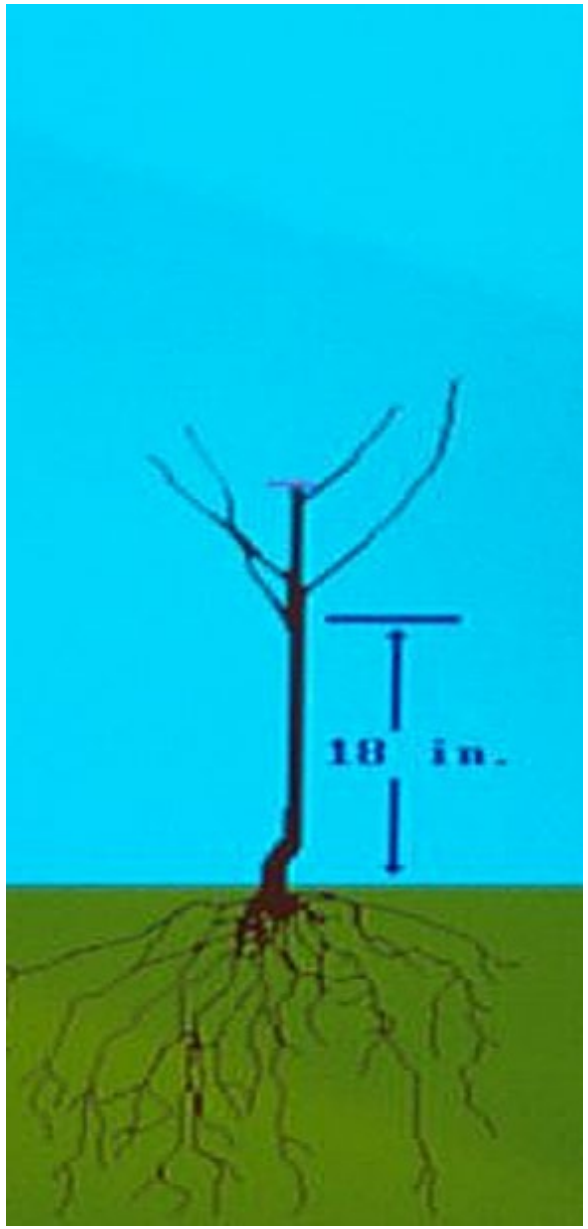
Figure 7b. Vertical View

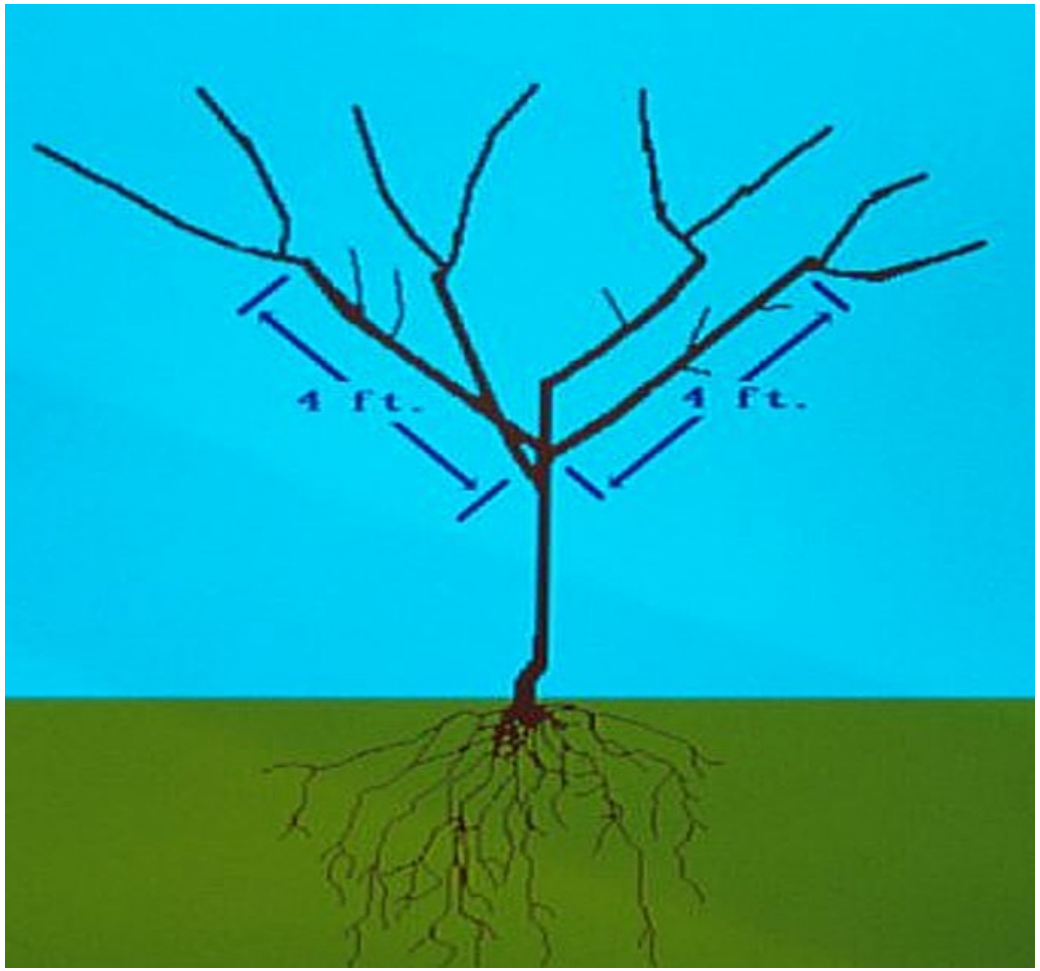
First year spring

Second year spring

Third year spring


NURSERY STOCK
18 in.


18 in.


4 ft.
4 ft.


Peach Tree – before pruning


Peach Tree – after pruning

Central Leader
(Apples, European plums, Sweet cherries, Pears)

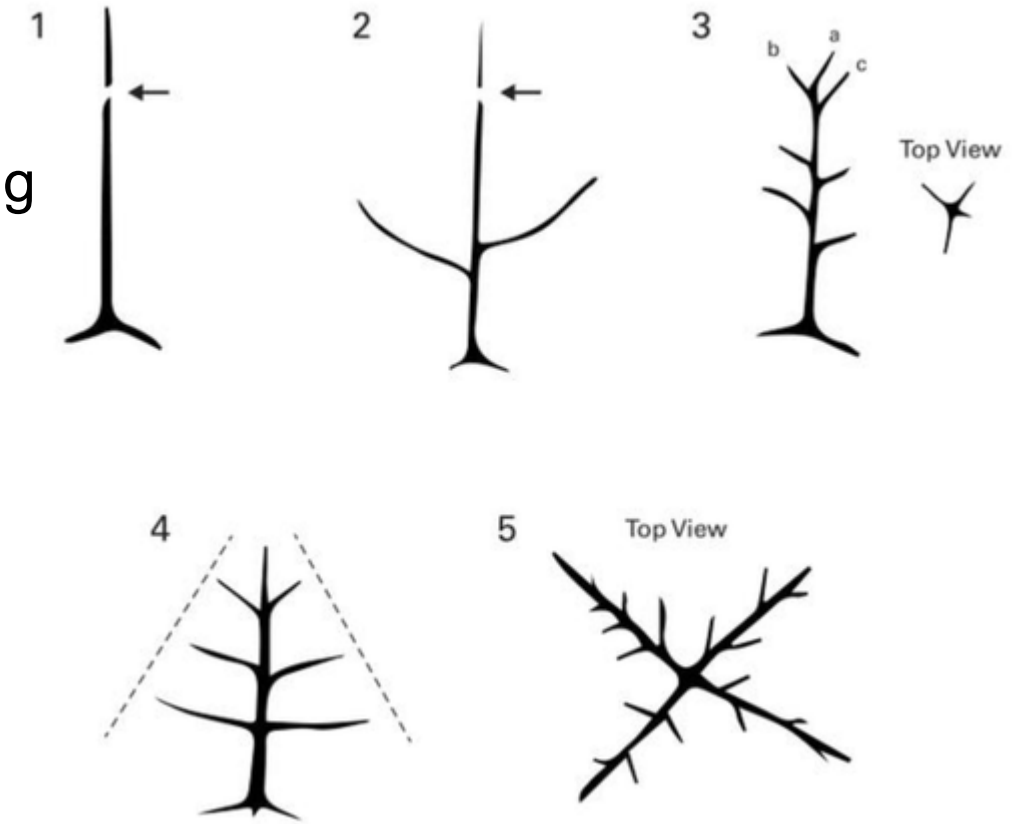
Tree Structure – Central Leader

- Christmas tree shape – wider at the base and narrow at the top
- Continuous trunk running from bottom to tip
- Whorls of branches forming tier up the trunk
- ~3’ between tiers, first tier starts 18-36” from ground
- Branches on each tier get shorter as they progress to the top

Modified Central Leader

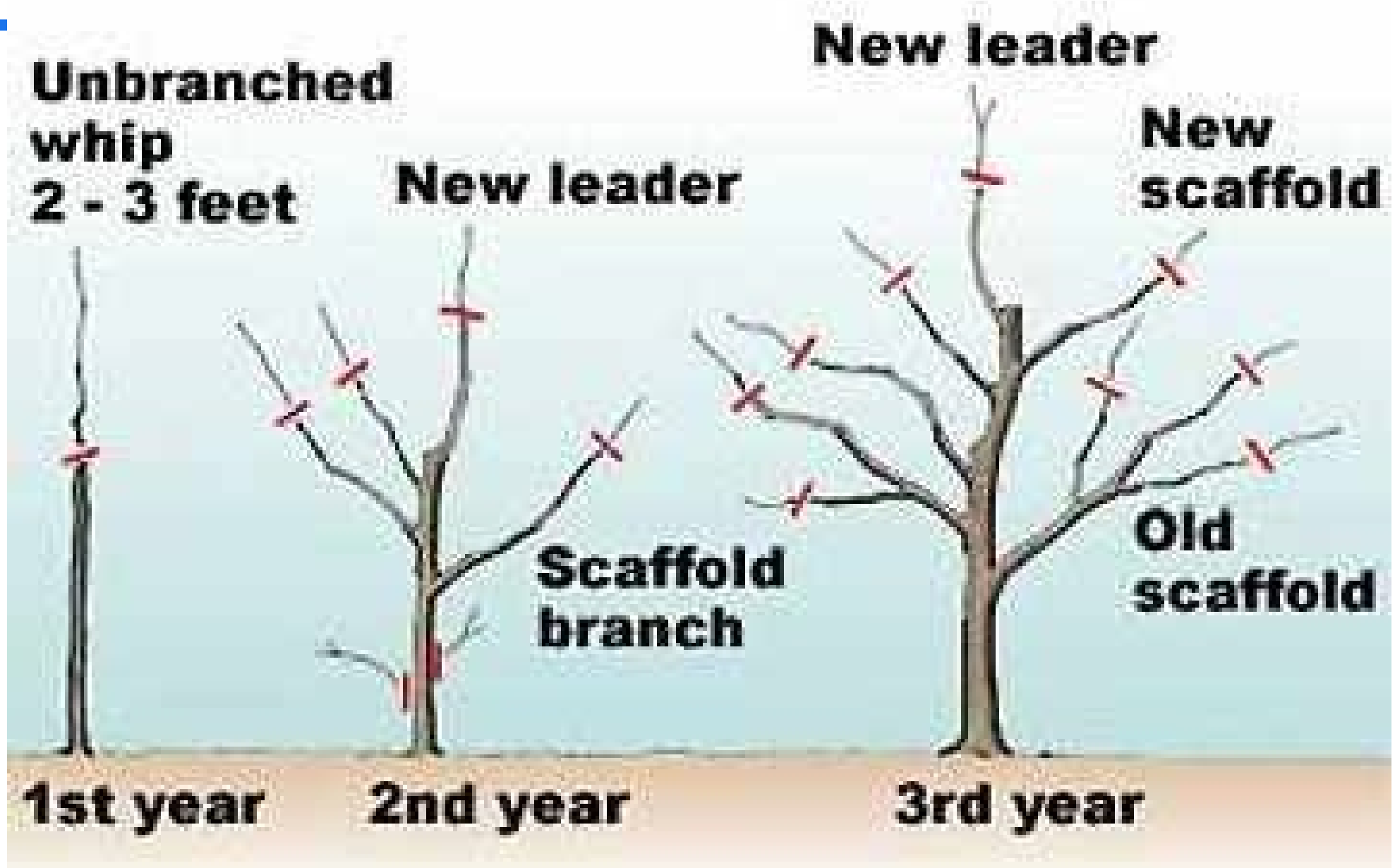
Shortened (modified) main trunk with evenly spaced scaffold branches.

- Choose scaffold branches that are naturally growing between 45- and 60-degree angles.
  - Or use limb-spreaders (young branches)
- Evenly spaced around the trunk
  - ~24” vertical spacing
- Consider height
  - Recommended branching starts at 30-36” high
  - First 3 years



Apple Tree Training: Modified Central Leader (Years 0–4+)

- **Year 0–1 (Planting Year)**
  - Head whips at **30–36 in.** to set first tier
  - Select **3–4 wide-angled scaffolds**; remove competing shoots
  - Space branches **6–10 in. vertically**
- **Year 2**
  - Maintain **one central leader** (strong, not dominant)
  - Balance scaffolds with heading cuts
  - Use **spreaders/ties** to widen angles
- **Year 3**
  - Add **second tier 18–24 in.** above first
  - Head leader so **upper tier stays shorter** (key to light & control)
- **Year 4+ (Maintenance)**
  - Lightly head upper branches each winter
  - Thin annually to open interior
  - Summer pinch fast vertical shoots


Unbranched
whip
2 - 3 feet
New leader
Scaffold
branch
New leader
New
scaffold
Old
scaffold
1st year
2nd year
3rd year

Older trees purchased from the nursery (not bare-root, “whips”) are often pre-pruned, but usually need some modifications

Getting in the Groove

- Train your tree from the start (years 1-3)
- Remove all branches growing:
  - Inward, Upward, Downward, Too narrow or too wide of an angle
- Remove all vertical branches (water sprouts and suckers – this will be ongoing)
- Remove any dead, diseased, or broken branches
- Maintaining structure and fruit production
  - Make heading cuts to shorten scaffold branches
  - Make thinning cuts to open the canopy for light penetration and airflow

Hey, it'll be OK!

- Fruit tree pruning will remove fruiting buds, especially for peaches
- But…
  - Ensures consistent annual fruit production
  - Increase fruit size, flavor, & nutrient value
  - Ensures sturdiness (heavy fruit load can break branches)

•*peach trees require annual pruning to stimulate new fruit-bearing branches the following year

Fruit Thinning

Why?

- Increases fruit size
- Better fruit color
- Provides annual harvest rather than biannual
- Eliminates risk of branch breaking/bending

Fruit Thinning

- When fruit is small – dime-size
- Leave one fruit every 6 to 8 inches
- Apples & Pears – leave king bloom
- Peaches and nectarines should also be thinned


Questions?

Thank you for attending this class!

Please take a minute to fill out this survey to help us improve our classes.

Survey

WEBER BASIN WATER
LEARNING GARDEN