

Pruning Ornamental and Fruit Trees

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Many ornamental tree slides courtesy of
Larry Costello, former UCCE advisor



University of California
Agriculture and Natural Resources



Reasons for Training Young Landscape Trees

- Improve structural strength
- Reduce maintenance
- Increase tree longevity

These also apply to fruit trees

Reasons for Training Young Fruit Trees

- Create light penetration in lower tree
- Support crop load
- Create access for ladder work, fruit thinning, harvesting, etc.

Landscape vs. Fruit & Nut Trees Differences

Landscape Trees

- Taller trees
- Central leader training
- First branch higher
- Mostly winter pruning
- Few if any heading cuts
- Branch spreaders rarely used

Fruit & Nut Trees

- Shorter trees
- Many training methods
- First branch lower
- Winter, summer pruning
- Some heading cuts
- Branch spreaders common

Landscape vs. Fruit & Nut Trees

Similarities

- Branches carry heavy load
 - » Length vs. fruit load
- No narrow branch (crotch) angles
- Proper pruning cuts for wound closure
- May require support
 - » Cabling vs. rope or stake

Landscape Tree Training

Effects of Improper Pruning on Mature Trees

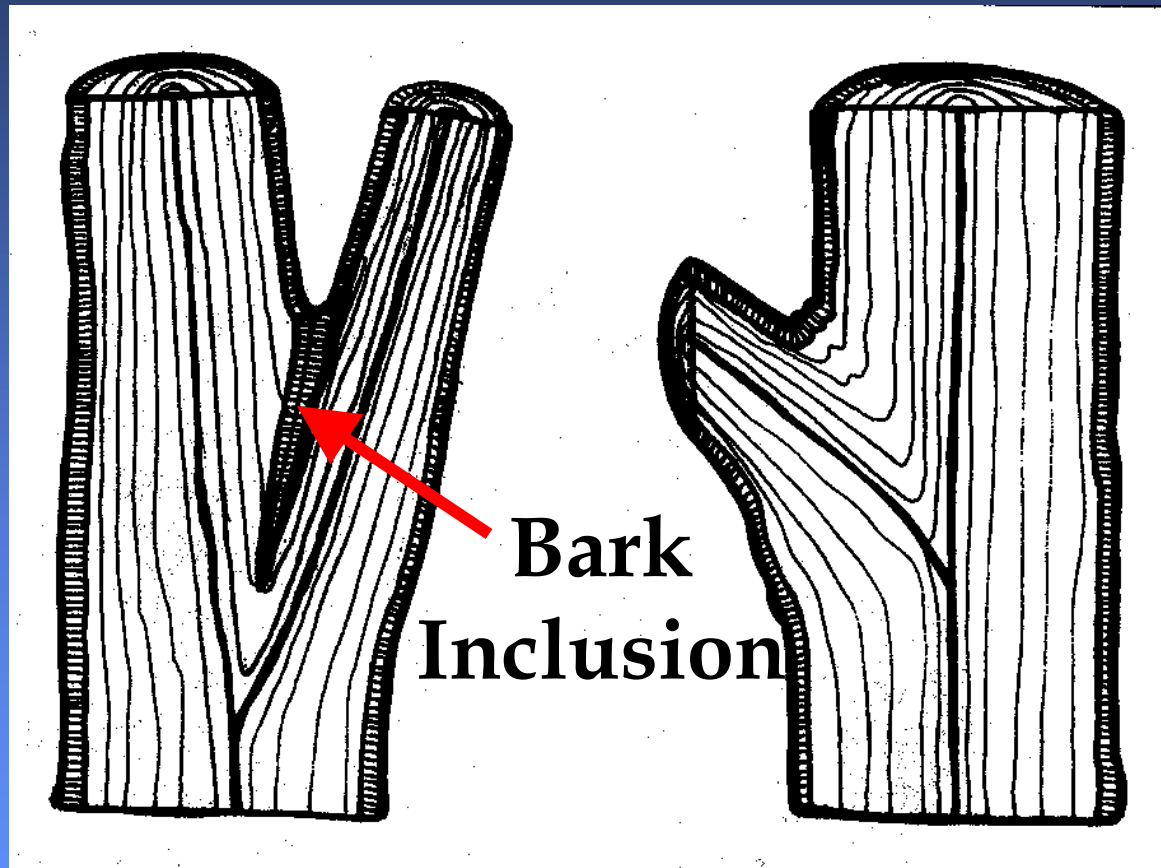
Effects of Poor Training

Scaffolds Originate from Narrow Zone



Effects of Poor Training

Narrow Branch Angle



Narrow

Wide

Effects of Poor Training

Narrow Branch Angle



Effects of Poor Training

Narrow Branch Angle







Young Tree Training

The 5 Steps

- Remove broken, dead, diseased, or damaged branches
- Select and establish a central leader

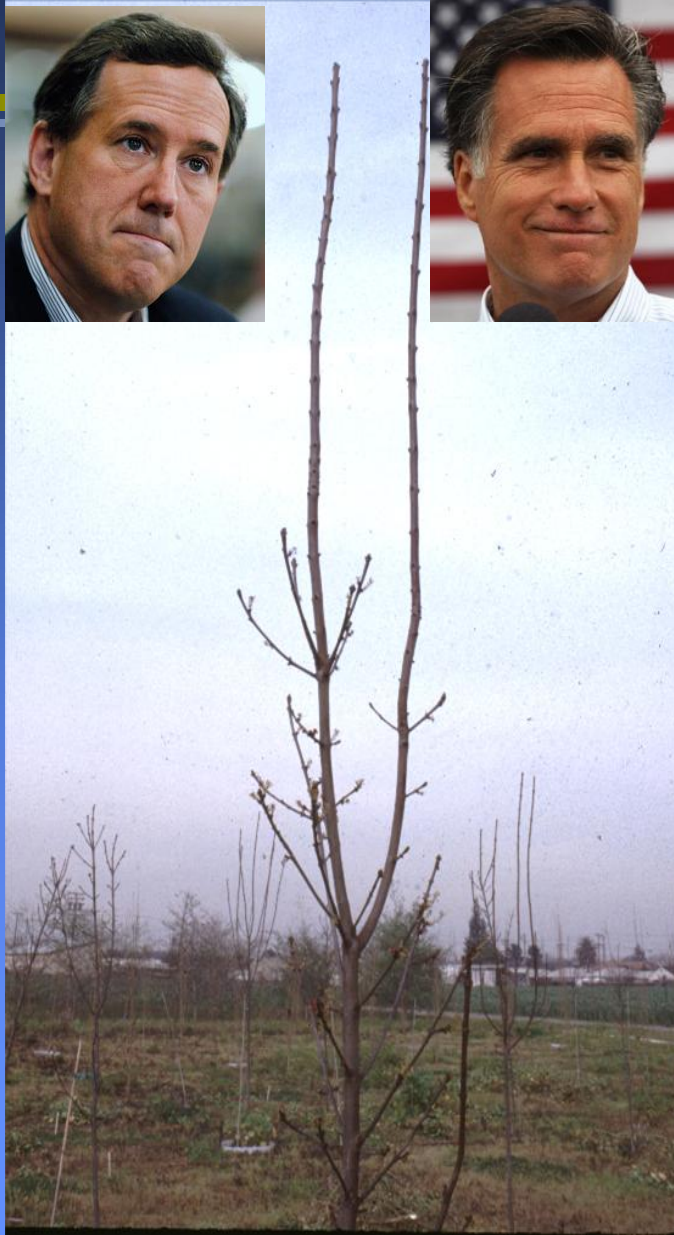


Establish a Strong Leader





Avoid Co-Dominant Leaders



Young Tree Training

The 5 Steps

- Remove broken, dead, diseased, or damaged branches
- Select and establish a central leader
- Select and establish the lowest permanent branch (LPB)





Young Tree Training

The 5 Steps

- Remove broken, dead, diseased, or damaged branches
- Select and establish a central leader
- Select and establish the lowest permanent branch (LPB)
- Select and establish scaffold branches



Young Tree Training

The 5 Steps

1. Remove broken, dead, diseased, or damaged branches
2. Select and establish a central leader
3. Select and establish the lowest permanent branch (LPB)
4. Select and establish scaffold branches
5. Select temporary branches below LPB

Basic Pruning Cuts

Heading Cut

- Removal of part of branch or shoot
- Used to promote branch development, especially on young trees
- Stimulates growth just below cuts
- Can reduce sunlight penetration



Thinning Cut

- Removal of entire branch or shoot, or back to a branch $>1/3$ the thickness of cut branch
- Used to prevent crowding and improve sunlight penetration
- Defines main branches



Large Pruning Cuts

Important Branch Growths

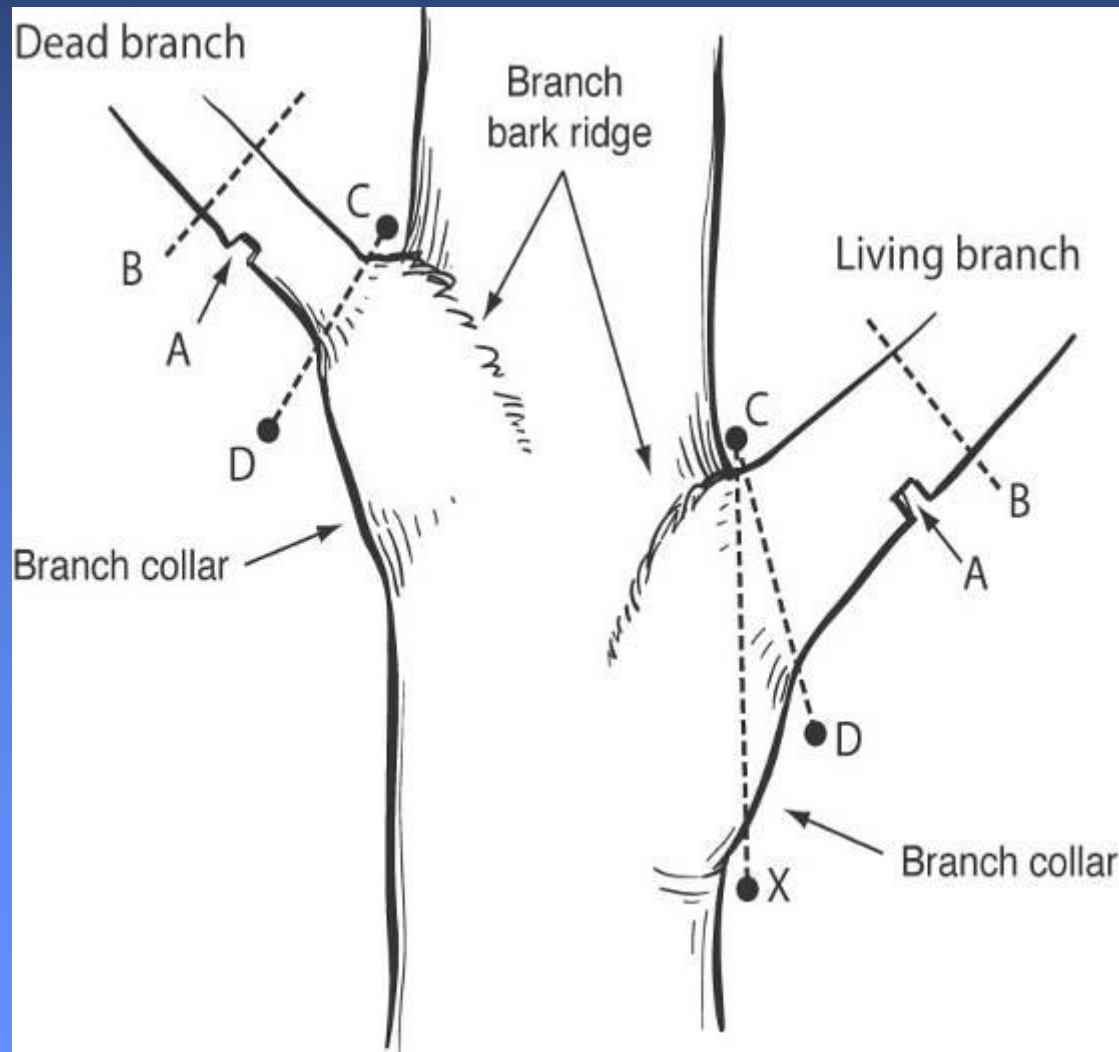


Branch bark ridge



Branch collar

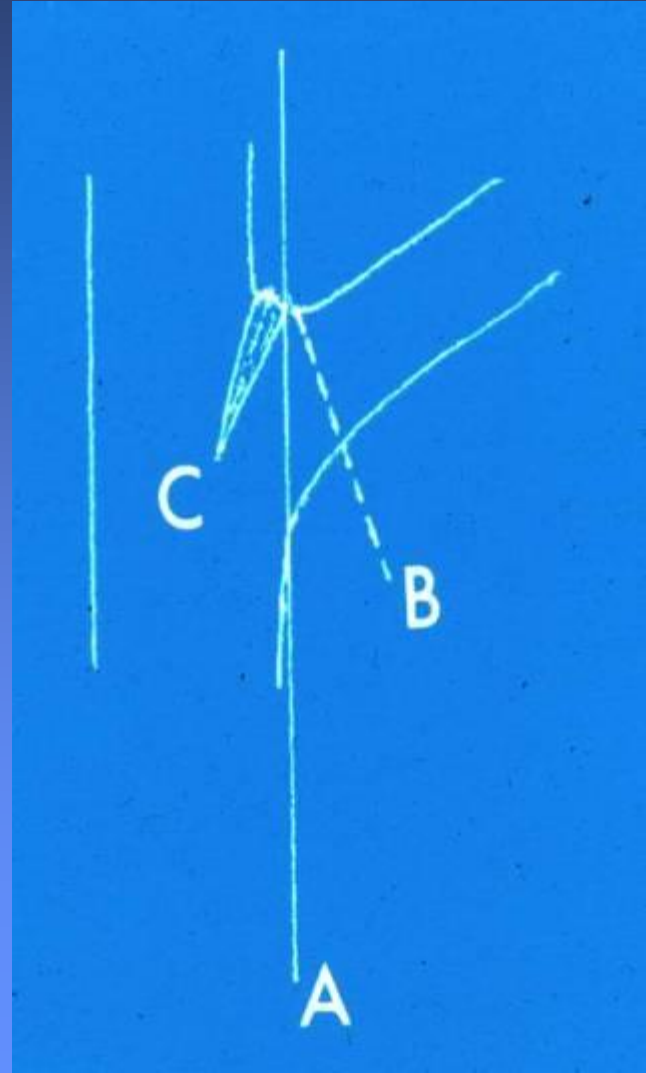
Making Large Pruning Cuts



Making a Proper Cut



Cutting Off a Branch with No Collar



Proper Cuts, Wounds Closing



Insufficient Wound Closure from Improper Cuts

**Too
Long**



**Too
Short**



**Split
Bark**



Good Wound Closure, But Cut Too Big



Effects of Topping



Branches from Outer Buds Not Well Attached



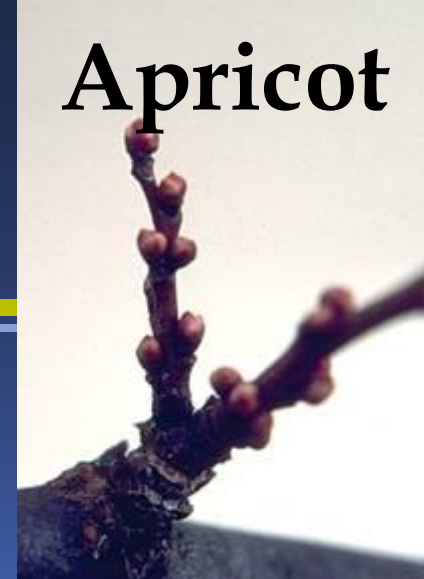
Training and Pruning Fruit Trees



Cherry

Spurs

What it's
all about



Apricot



A. pear



Eur. pear

Post-Planting Care

- Head tree at 18-36 in.
- Cut back well-placed laterals to 3-8 in., remove all others
- Paint trunk white
 - Interior latex paint & water, 50:50
 - Entire trunk & 2 in. below soil
 - Prevents sunburn & borers

Pruning a Bare-Root Tree



**Branches thinner
than 3/16**



**Branches thicker
than 3/16**

New Shoots on Branches of Newly Planted Tree



Paint Trunks White

(Hot Climates, Afternoon Sun on Trunk)



Summer Pruning

Summer Pruning of Young Trees

- Purpose: promote scaffold branches
- Head unwanted shoots to 4-6 in.
- Pinch 2 ft. long scaffold branches to promote side branching
- Reduces training time, shortens time to first fruit production

Summer Pruning for Training (Open Center)



Before



After

Summer Pruning of Mature Trees

- Purpose: To increase sunlight & productivity of lower fruiting wood
- Remove unwanted vigorous, upright shoots 1-3 times during season
- Bring down tree height
- Large branches may sunburn if pruning is excessive



Summer Pruning (Plum)

Before



After



Specific Fruit & Nut Tree Training Methods

- **Open center**
- Central leader
- Modified central leader
- Fruit bush
- Espalier

Open Center

- Most common method
- Stone fruits and almonds; can also use for apples, pears, figs, persimmons
- Select scaffolds during first 2 growing seasons, touch up in dormant season
- Keep center open during summer from the start





Open Center

Stake branches
outward if
necessary (cherry)

Radial
separation of
scaffold
branches
(apricot)



Must have Vertical Branch Separation, Wide Crotch Angles



Specific Fruit & Nut Tree Training Methods

- **Open center**

Pruning stone fruits

➤ **Peach/Nectarine**

Peach/Nectarine Fruiting Branches (Bear on long, 1-yr.-old wood)



Pruning a One-Year-Old Peach



Pruning a Two-Year-Old Peach



Pruned Three-Year-Old Peach



Pruning a Mature Peach



Tying Open Center Peach Tree



Removing Old Fruiting Wood



Cut back 2-year-old branches to healthy 1-year-old branches



Prune Apricots in August to Avoid Eutypa Dieback



Specific Fruit & Nut Tree Training Methods

- Open center
- **Central leader**
- Modified central leader
- Fruit bush
- Espalier

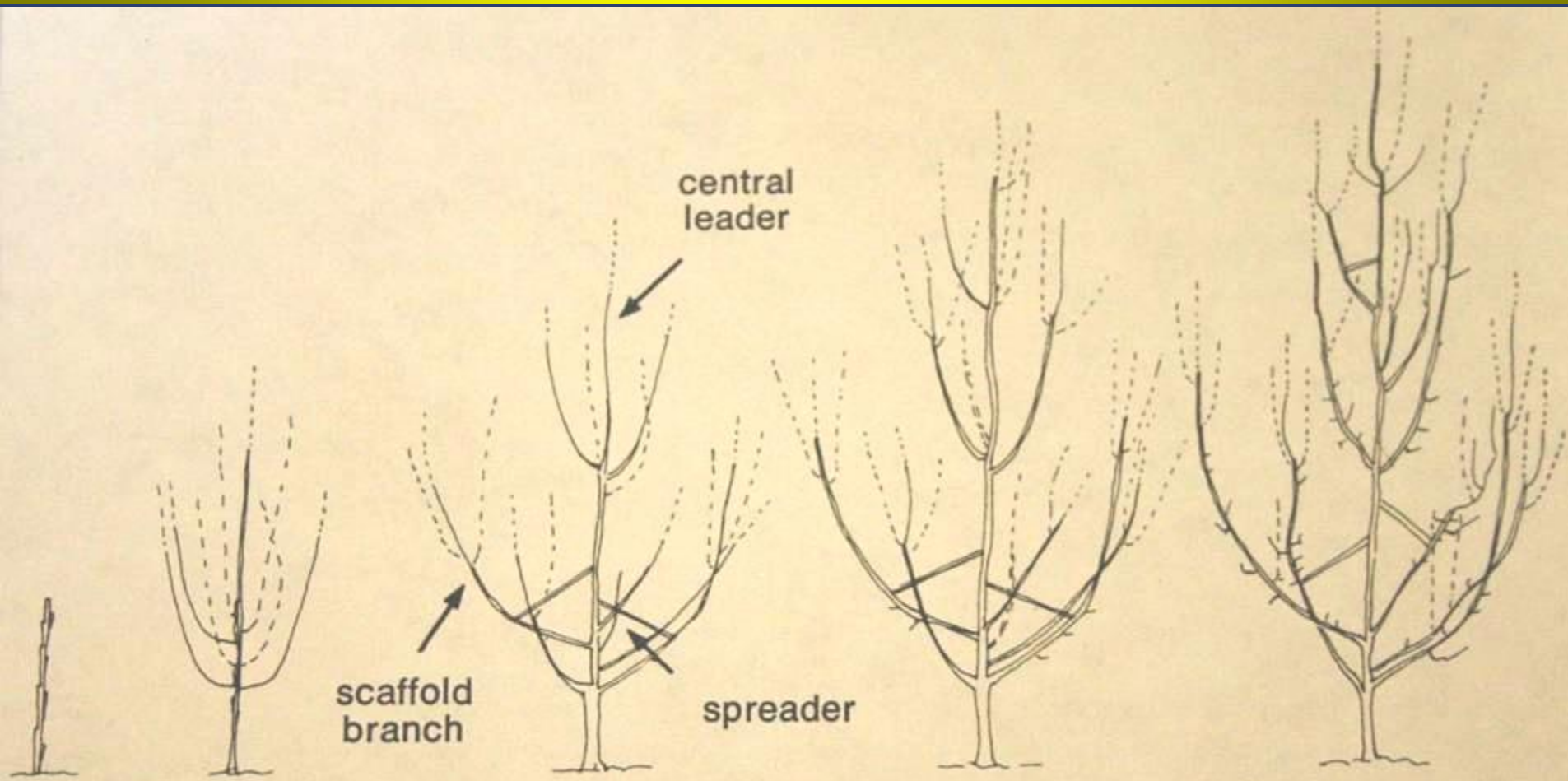
Central Leader Apple (Genetic Dwarf)



Central Leader

- Used for apples, pears, Asian pears
- Maintain leader, remove at certain height
- Tie or stake lateral branches outward
- Create 3-4 whorls of branches
- Branches offset from those below

Central Leader Training





Spread
Shoots When
Young





Ideal tree shape & branch spread from regular maintenance pruning

Robert Stebbins 1976

Specific Fruit & Nut Tree Training Methods

- Open center
- Central leader
- **Modified central leader**
- Fruit bush
- Espalier

Modified Central Leader

- Walnuts & persimmons; can also use for apples, pears, and figs
- Start tree as central leader, then cut out the leader part way up
- Shorter leader = delayed open center

Specific Fruit & Nut Tree Training Methods

- **Modified Central Leader**

Pruning different species

- Walnut

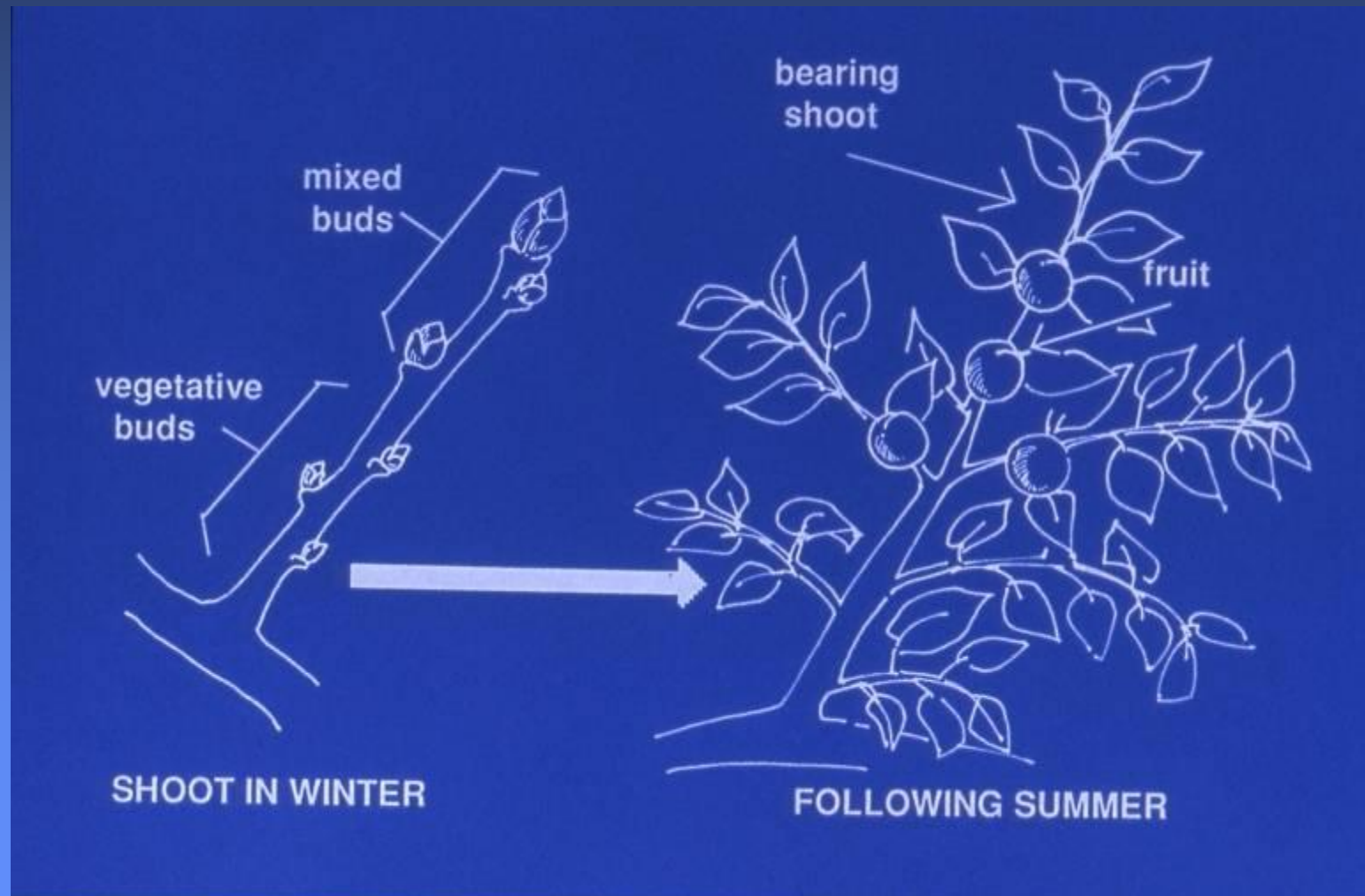
- Pecan

- **Persimmon**

Persimmon

- Bears laterally on current season's growth
- Terminal & first few lateral buds on 1-year-old branches are mixed
 - » Both male & female flowers

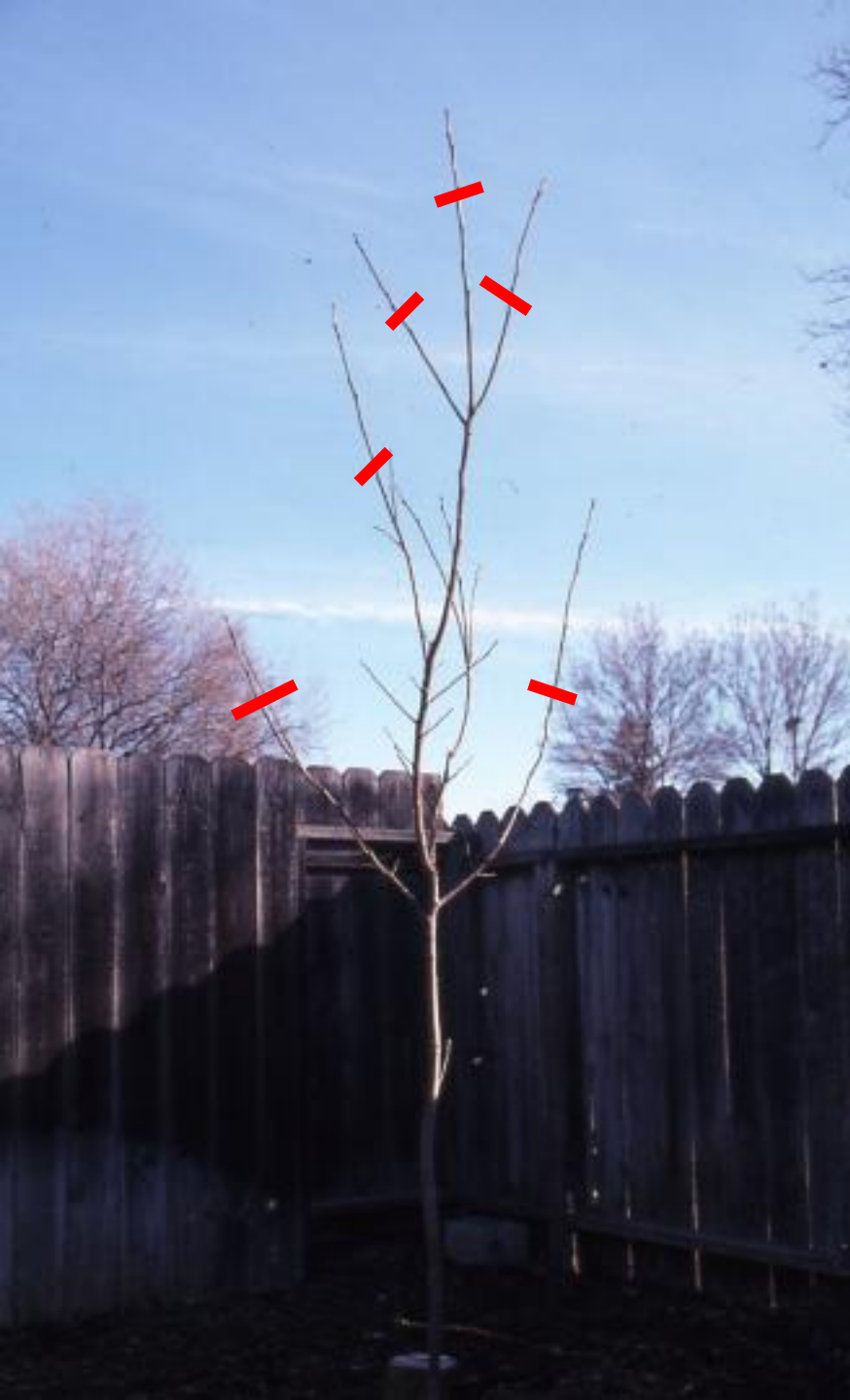
Persimmon Bearing Habit



Persimmon Fruitful Shoots at Tips of 1-Year-Old Branches

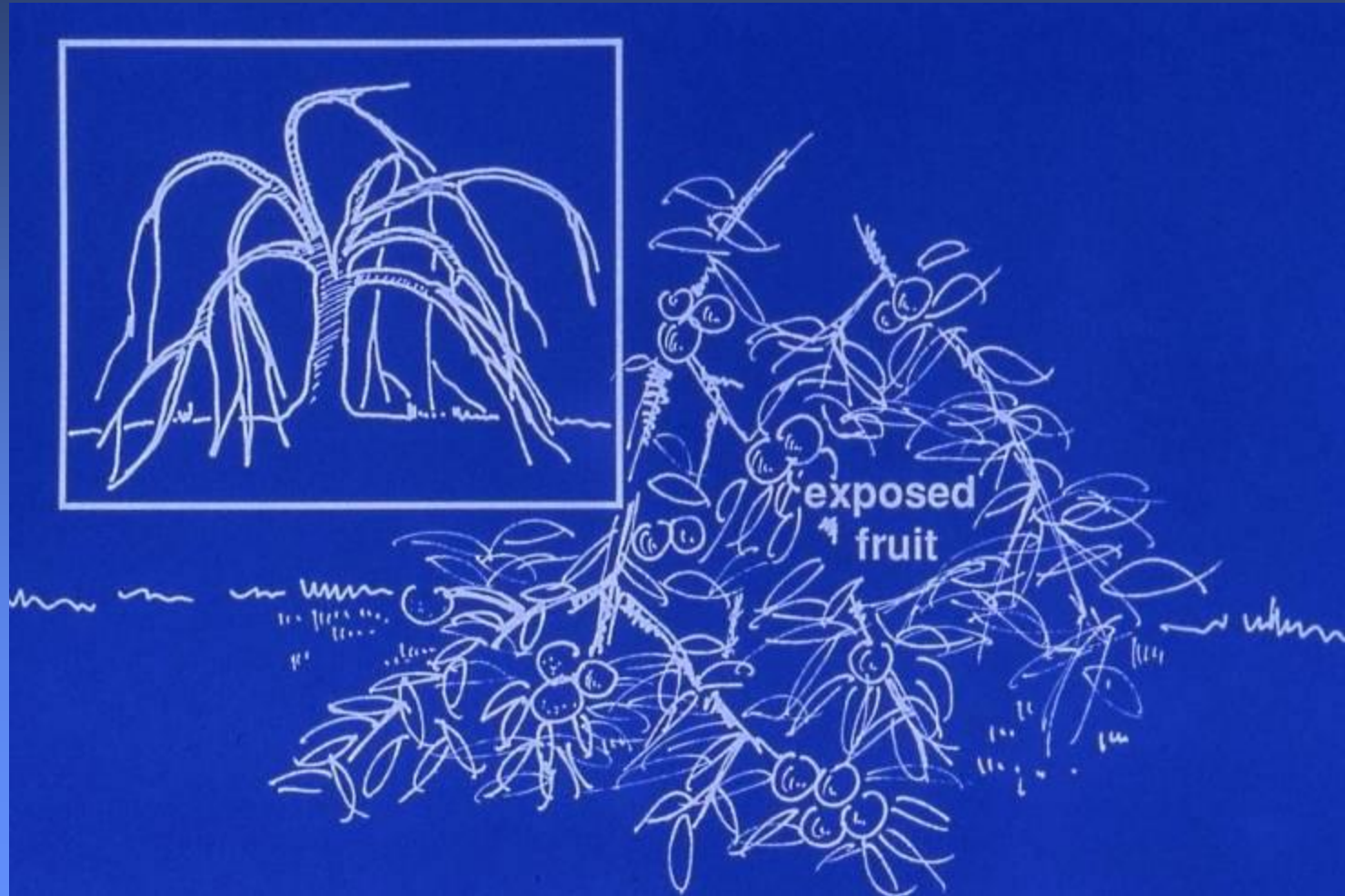


Training Young Persimmons



- Modified central leader
- 3 - 5 main scaffolds
 - » 1 foot intervals
 - » 1st & 2nd year can pinch shoots to promote branching.
 - » Head branch ends you want to keep growing into scaffolds.

Unheaded Branches on Young Trees – Lost Scaffold Branches, Sunburn



Pruning Mature Persimmons



- Dormant, annual pruning
- Primarily small cuts
- Thin out to invigorate and increase fruit size

Before



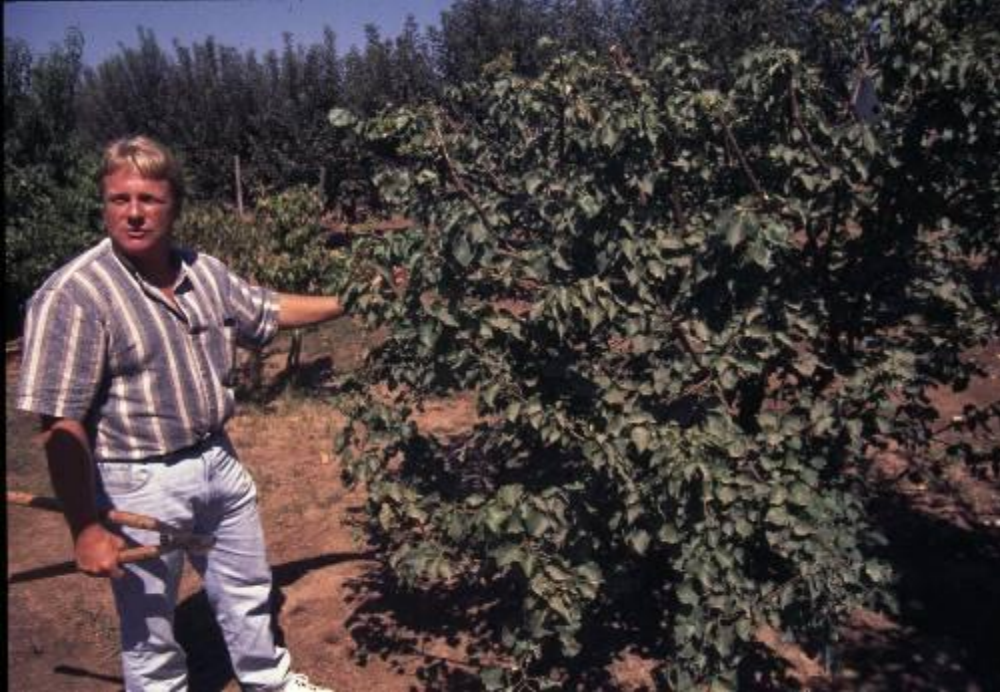
**Mature Tree –
Mod. Central Leader**

After



Specific Fruit & Nut Tree Training Methods

- Open center
- Central leader
- Modified central leader
- **Fruit bush**
- Espalier



Fruit Bushes Kept
at Desired Height

Fruit Bushes

Pruning – Years 1 & 2

- At planting, head trees to 18-24 in.
- Mid-spring – cut back new growth by half
- Mid-summer – cut subsequent growth back by half
- Thinning cuts for sunlight penetration
- May need to prune 1-2 more times

Cutting New Shoots in Half Mid-Summer



Fruit Bushes

Pruning Mature Trees

- Cut back new growth above selected tree height 2-3 times during growing season
- Thinning cuts for sunlight penetration

Mature Fruit Bush Maintaining Tree Height

Before



After





Cherry,
Pome Fruits
Ideal for Fruit
Bush



Apricots and Plum Fruit Bush

Excessive Growth



Apricots and Plum Fruit Bush

Excessive Growth

Before



After



Fruit Bushes

- Advantages
 - Tree maintenance without ladder
 - Trees for small spaces
 - Sequential ripening
- Disadvantages
 - Less fruit
 - No shade
 - Timing of pruning critical

Specific Fruit & Nut Tree Training Methods

- Open center
- Central leader
- Modified central leader
- Fruit bush
- **Espalier**

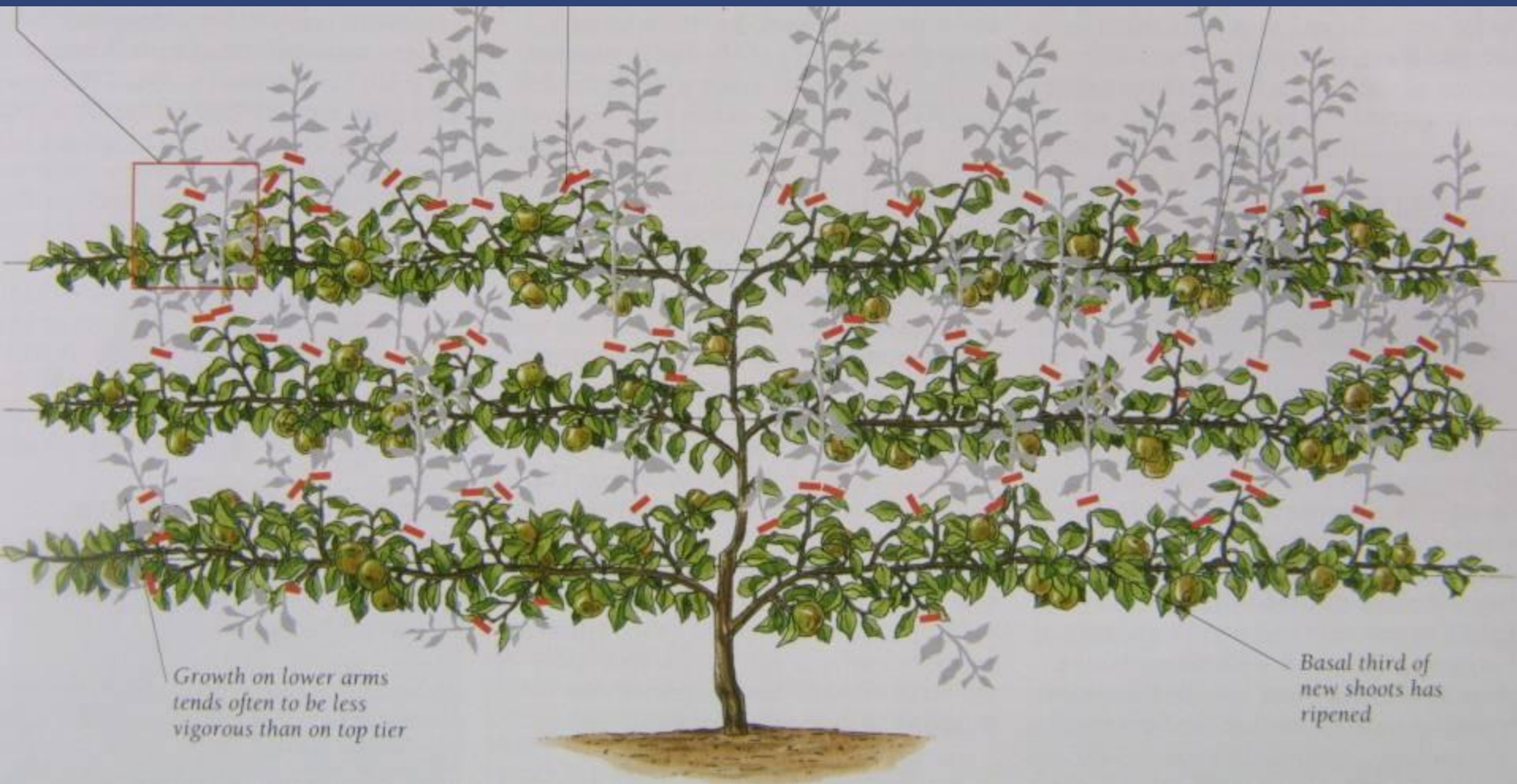
Espalier

Angle Shoots Upward Initially



Espalier Pruning

Growing Season



Dormant Pruning



Before



After

Espalier Menorah Shape



What to Do About Overgrown Trees

Methods of Reducing Height of Large Trees

1. Cut to desired height in thirds over 3 years
 - Thin upright shoots in summer to provide light for lower fruiting wood

Methods of Reducing Height of Large Trees

1. Cut to desired height in thirds over 3 years
 - Thin upright shoots in summer to provide light for lower fruiting wood
2. Bring down height in one year
 - Saw off limbs well below desired height
 - Leave one “nurse” limb to feed roots
 - Thin new shoots, train tree as desired
 - Paint exposed limbs white

Pruning Overgrown Apple – One Year



Regrowth Weeks Later



Regrowth That Summer



Severe Topping Won't Always Work



Questions?

