

# Enjoying the Fruits of Your Labor



# Selecting Varieties

- ▶ Selection process should start with hardiness.
  - ▶ USDA Hardiness Zone Map
    - ▶ Don't trust box stores!
  - ▶ PH requirements
    - ▶ It better be alkaline tolerant!
    - ▶ Amending soils
  - ▶ Special environmental considerations for planting site
    - ▶ Light exposure
    - ▶ North/South exposure
    - ▶ Wind protection
    - ▶ Soil quality/moisture availability
    - ▶ Etc...

# Selecting Varieties

- ▶ Disease resistance
  - ▶ Choose resistant varieties
  - ▶ Many of our disease problems in SD are fungal and treating them can be a logistical burden
  - ▶ It doesn't matter how delicious the fruit is if it will be too stressed to produce consistently
  - ▶ Time must be spent doing quality research
    - ▶ Missouri Botanical Gardens
      - ▶ [www.missouribotanicalgarden.org](http://www.missouribotanicalgarden.org)
    - ▶ Morton Arboretum
      - ▶ [www.mortonarb.org](http://www.mortonarb.org)
    - ▶ SDSU Extension
    - ▶ SD Department of Agriculture

# Selecting Varieties

- ▶ Commonly planted fruit trees for SD
  - ▶ Apple
  - ▶ Pear
  - ▶ Cherry
  - ▶ Plum
  - ▶ Peach
  - ▶ Apricot
  - ▶ Serviceberry (Primarily ornamental but does have tasty fruit)
  - ▶ Honeyberry (Fruiting shrub relatively new to the US)
- ▶ Common SD fruit tree diseases
  - ▶ Fire Blight
  - ▶ Apple Scab
  - ▶ Apple Cedar Rust
  - ▶ Black Knot

# Planting for a Lifetime

- ▶ Nursery stock options
  - ▶ Whips
  - ▶ Bare root
  - ▶ Potted/bagged
  - ▶ Balled and Burlapped

# Planting for a Lifetime

## ▶ Whips

### ▶ Pros

- ▶ Cheapest option
- ▶ Large quantities shipped to your door
- ▶ Good for starting large orchards at minimal cost
- ▶ Gives the opportunity to have total control over the pruning of trees frame work branches

### ▶ Cons

- ▶ Lengthy establishment period
- ▶ Will take several years or more before fruit will appear

# Planting for a lifetime

- ▶ Bare root
  - ▶ Pros
    - ▶ Low cost
    - ▶ Shipped to your door
    - ▶ Root pruning is very easy
    - ▶ Lightweight and easy to plant
  - ▶ Cons
    - ▶ Still a fairly lengthy establishment period
    - ▶ Each plant will need to be staked

# Planting for a lifetime

## ▶ Potted/bagged

### ▶ Pros

- ▶ Shorter establishment period
- ▶ Relatively easy to plant
- ▶ Easy to transport

### ▶ Cons

- ▶ Can become pot-bound
- ▶ May require extensive root pruning
- ▶ May require staking
- ▶ Starting to get expensive to purchase larger quantities



# Planting for a lifetime

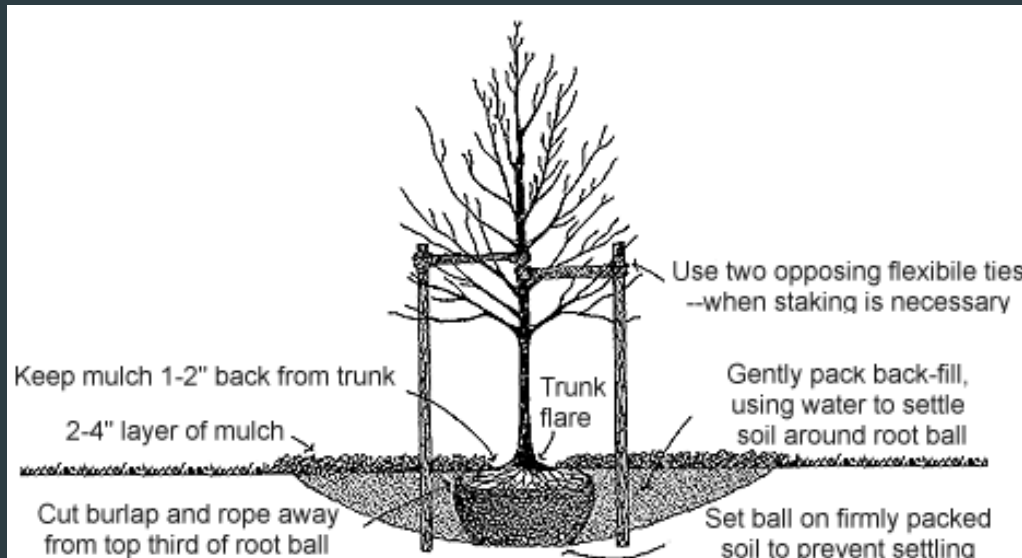
- ▶ Balled and Burlapped (B&B)
  - ▶ Pros
    - ▶ Well established tree
    - ▶ Short period from planting to fruit production
    - ▶ Little to no root pruning required
    - ▶ Likely will not need staking
  - ▶ Cons
    - ▶ Very expensive
    - ▶ Hard to transport and plant

# Planting for a Lifetime

- ▶ Planting location considerations
  - ▶ Make sure everything has enough space to grow
  - ▶ Always plan for the mature size of the trees
  - ▶ Give space to cut down on the spread of disease and insects
  - ▶ Keep in mind that some of the fruit will fall naturally and can make quite a mess!
  - ▶ Plant multiples of each variety for cross-pollination
  - ▶ Try to find varieties that have been grafted onto dwarfing rootstocks for a more compact form.

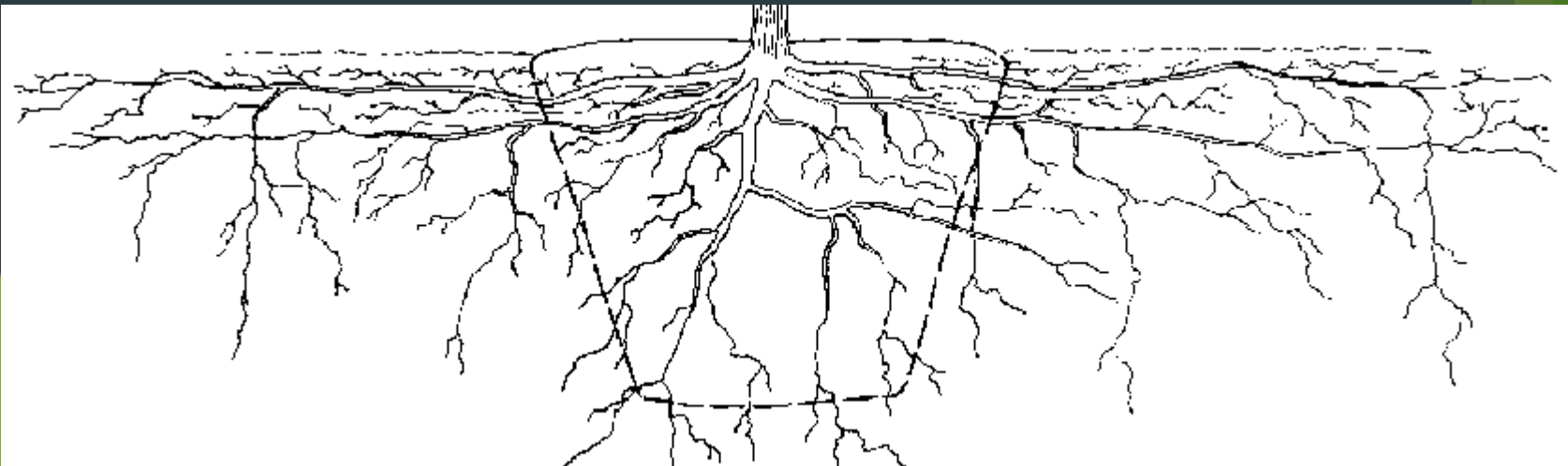
# Planting for a lifetime

- ▶ Rules for planting
  - ▶ Depth
    - ▶ Find the root flare (may require some digging)
    - ▶ Plant it even with or slightly above the existing grade
      - ▶ Its better to be to high than to low



# Planting for a lifetime

- ▶ Root pruning
  - ▶ Ensure all roots are facing outward
    - ▶ Don't be afraid to get rough with the roots
    - ▶ Its better to cause some damage to ensure proper rooting
    - ▶ Remove any girdling roots



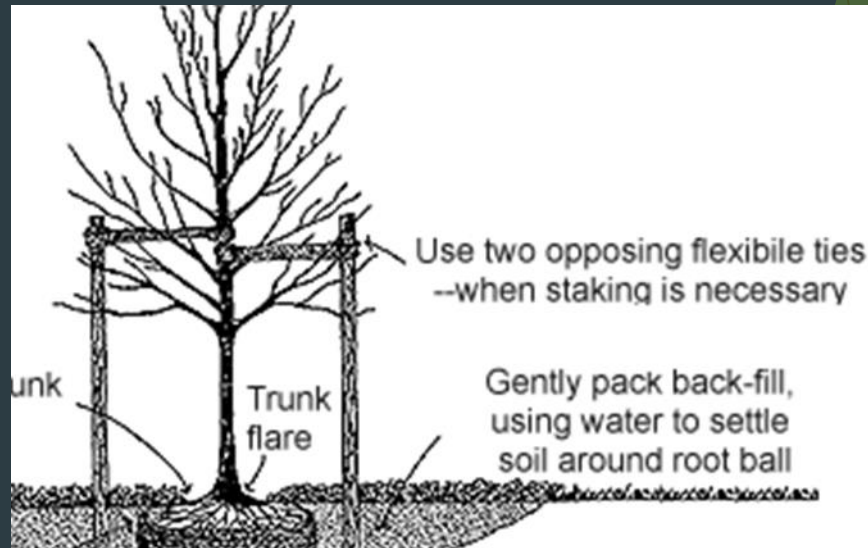
# Planting for a Lifetime

## ▶ Backfilling

- ▶ Do not use heavily amended soils when backfilling
  - ▶ This will cause the tree to become root-bound
- ▶ Avoid the temptation to give your new tree a boost
  - ▶ Fertilization in the first few years of a transplanted trees life can cause more harm than good
    - ▶ Must keep the root-to-shoot ratio balanced
  - ▶ If you must fertilize use a slow release only and use it sparingly
- ▶ Berms around the surface of the root ball will discourage roots from spreading outward.

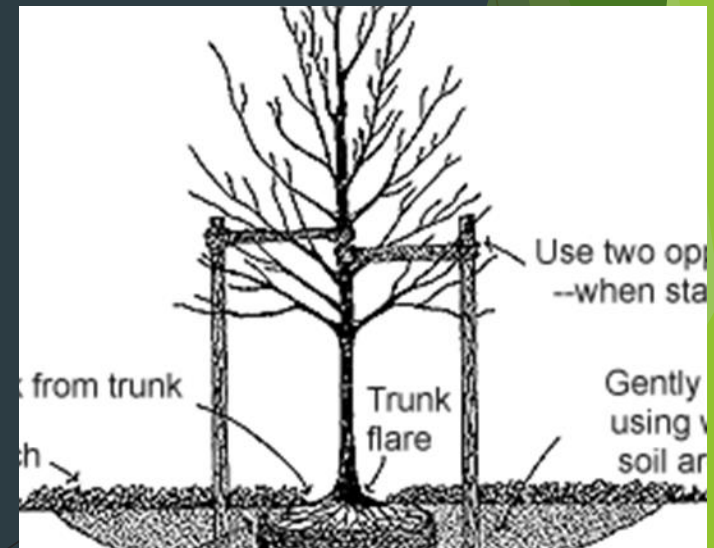
# Planting for a Lifetime

- ▶ Staking
  - ▶ Stake trees only when necessary
  - ▶ Use two opposing stakes with flexible ties
  - ▶ The tree should be allowed to move even when staked
  - ▶ Avoid staking for more than one year to encourage proper trunk development



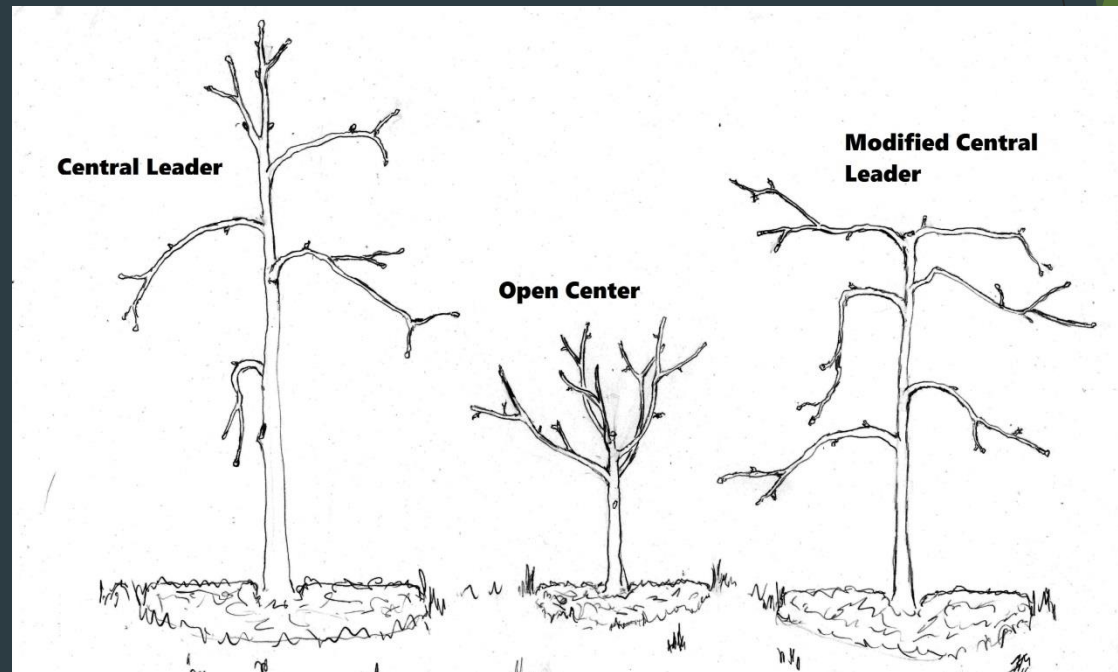
# Planting for a Lifetime

- ▶ Mulching
  - ▶ When done properly mulching is very beneficial
    - ▶ Retains moisture over the root zone
    - ▶ Increases organic material in the soil
    - ▶ Helps regulate soil temperatures
  - ▶ Avoid volcano mulching
  - ▶ Extend mulch past the drip line when possible



# Pruning for Production

- ▶ Young fruit tree pruning
  - ▶ Starts from day one
  - ▶ Ideally prune while the tree is dormant
    - ▶ Visibility is much better with the absence of foliage
    - ▶ Pruning while dormant helps to invigorate the remaining buds





# Pruning for Production

- ▶ Creating a framework for success
  - ▶ Choose a branching pattern that will work best for you
    - ▶ Central leader, open center, or modified central leader
      - ▶ Open center will be the easiest to harvest from
      - ▶ Central leader and modified central leader will work best if the tree is being planted for aesthetics as well as fruit production
  - ▶ Horizontal branches will produce more fruit than vertical or hanging branches
    - ▶ When selecting the horizontal branches to keep consider branch unions and balance
      - ▶ Avoid narrow crotches that will be susceptible to included bark.
      - ▶ Give adequate spacing between major unions on the trunk
      - ▶ Ensure that the resulting canopy will be balanced

# Pruning for production

- ▶ What cuts should I make on a young tree?
  - ▶ Dead/diseased branches
  - ▶ Remove any water sprouts/suckers that will interfere with your framework branches (most will)
  - ▶ Remove any vertical or hanging branches
  - ▶ Eliminate any rubbing branches
  - ▶ Remove codominant stems and always consider apical dominance
  - ▶ Always make proper cuts near a bud



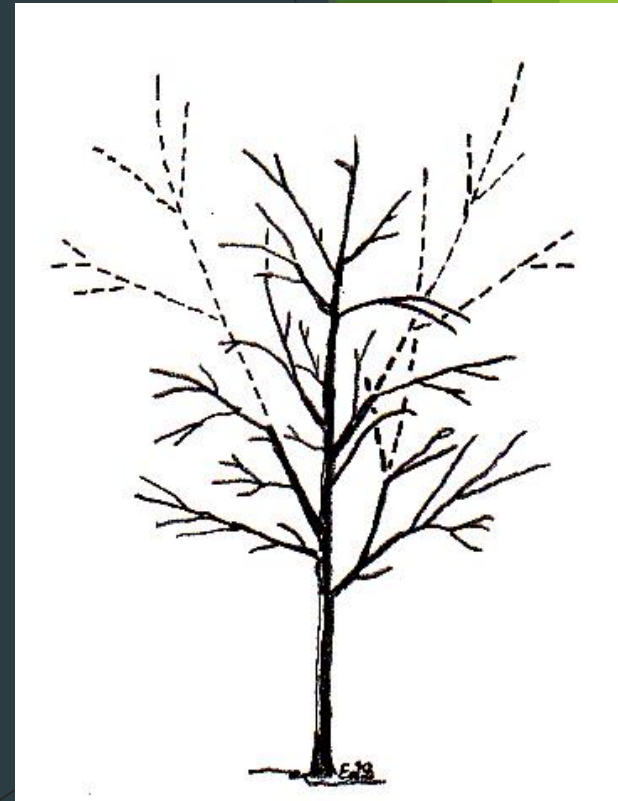
JUST RIGHT



TOO FAR



TOO CLOSE



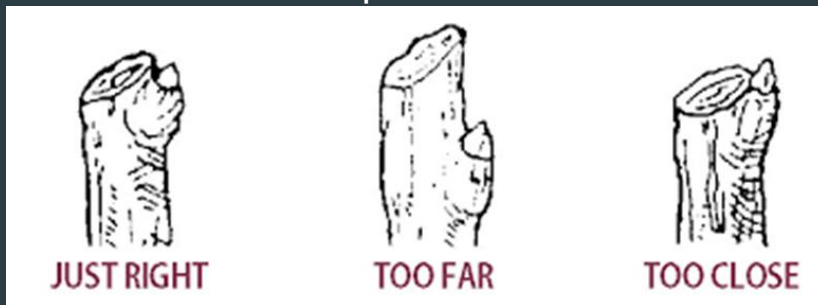
# Pruning for Production

- ▶ How do I increase production of an established tree?
  - ▶ Continue to remove vertical, hanging, dead/diseased, rubbing, and suckering growth
  - ▶ Start heading back the branches to increase production to the fruiting buds/spurs
    - ▶ Know the difference between spurs, suckers, and vegetative buds
    - ▶ Fruiting stalks look like small stout twigs with large plump buds usually on the inner 2/3rds of a branch
    - ▶ Heading back a branch outside of these spurs will stimulate production of fruit
    - ▶ Heading back can be done annually during the dormant season

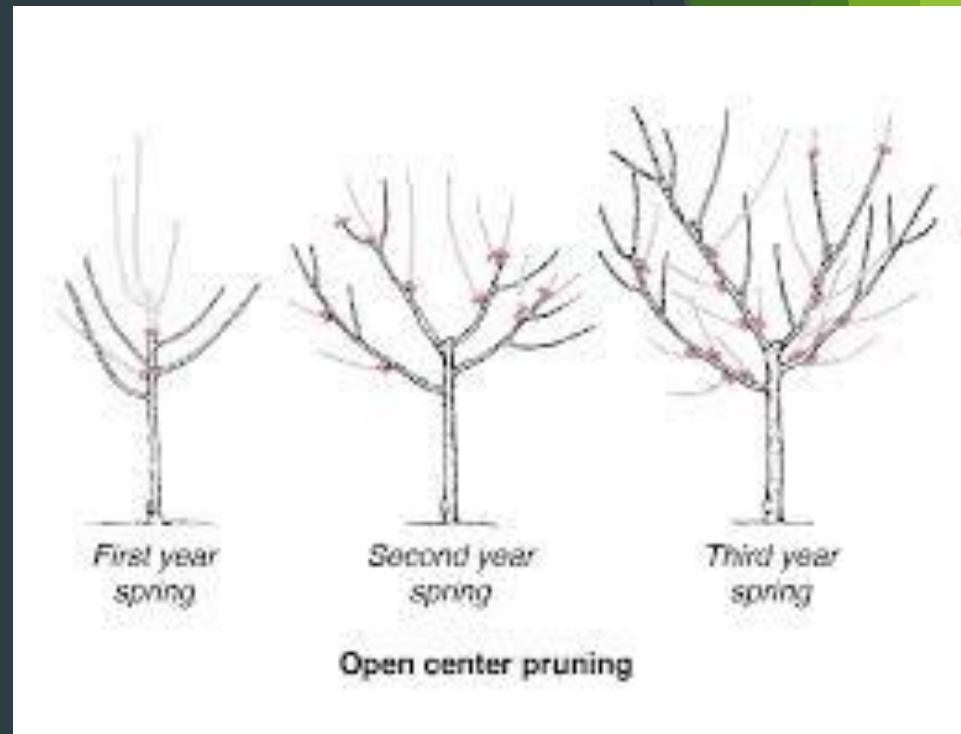
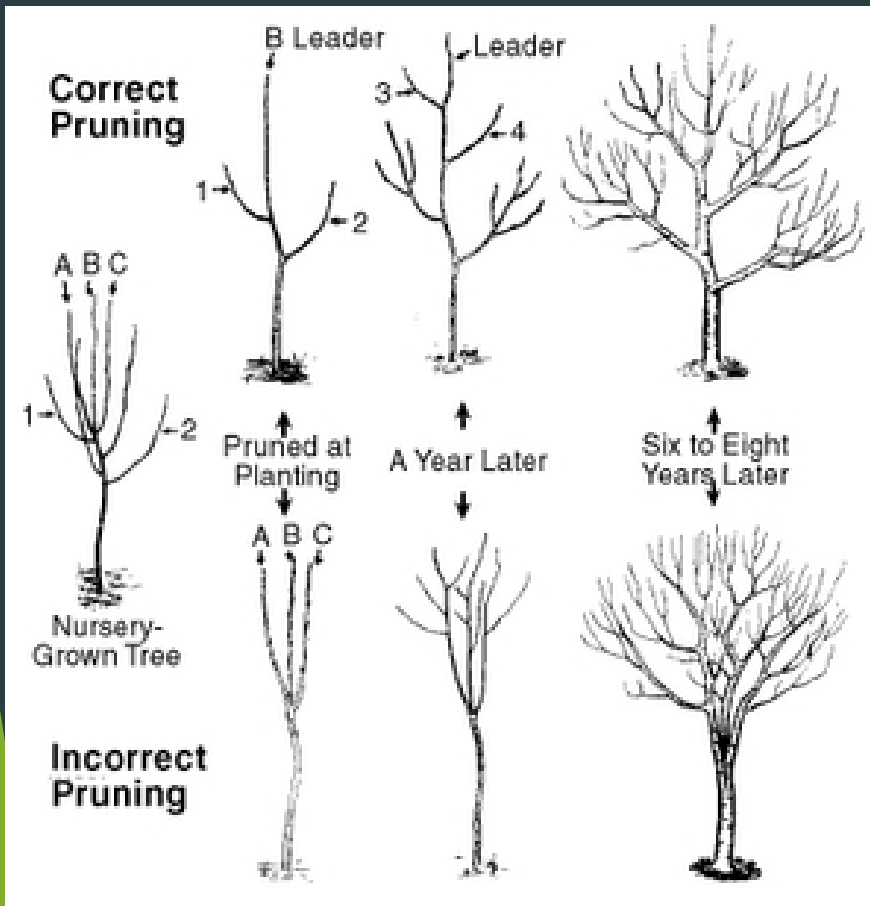


# Pruning for Production

- ▶ How do I increase production of an established tree? Continued
  - ▶ The top of the tree should be pruned more heavily to increase sunlight to the producing branches below
    - ▶ Thinning of the upper canopy should be done during dormancy, but can also be done during the summer to aid in available sunlight
  - ▶ Make note of/mark any poorly producing branches, and consider removing them the following year
  - ▶ Always remove and suckers originating at the base of the tree
    - ▶ Almost all fruit trees are grafted onto a different species root stock



# Pruning for production

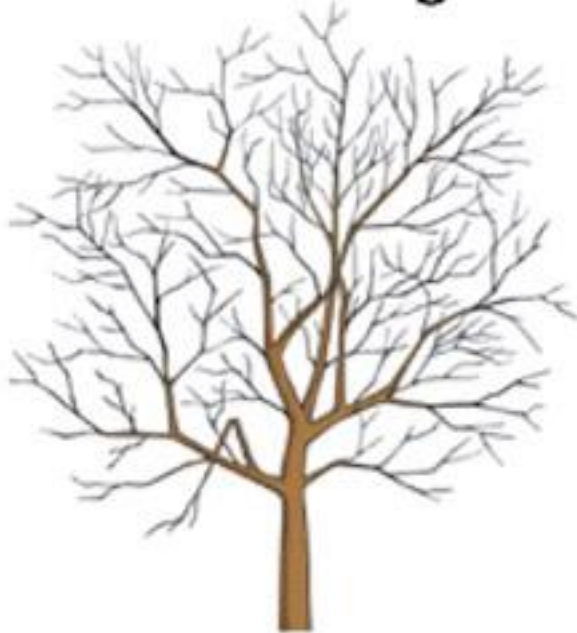


# Pruning for Production

## A Look at Pruning

GOOD

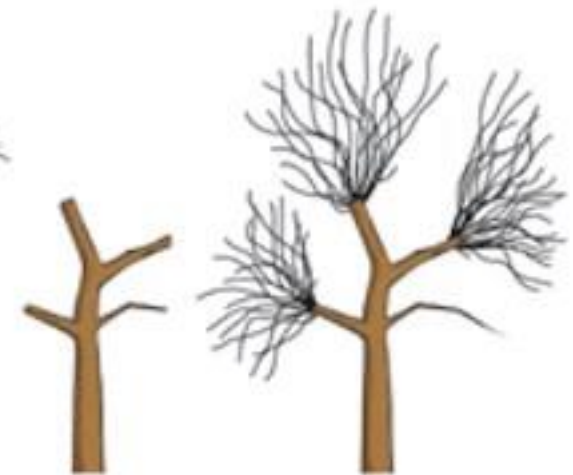
NOT GOOD



Before Pruning



Well-Pruned, Open Head



Topping produces clumps of uncontrolled growth