




Don't plant trees destined to die



Urban Tree Planting and early care for high survival rate in Southeast Wyoming



Urban Trees Bring Great Benefits

- ▶ Higher property values
- ▶ Stronger Community Connections
- ▶ Better mental and physical health for residents
- ▶ Lower Crime Rates
- ▶ Decreased heating and cooling costs
- ▶ Lower levels of bullying among children
- ▶ Higher test scores for students and productivity for workers

But...Only if they live

Over 25% of newly planted trees die within the first two years of planting

- Poor Quality Nursery Stock
- Improper planting
- Lack of irrigation
- Lack of Proper Mulching
- Basal Injuries (mower and string trimmer damage)





3 Stages of insuring a long-lived tree

- Selection
 - Planting
 - Maintenance
- 



Nationwide, over half of all urban trees are planted incorrectly (even by professionals)

- ▶ Trees which don't meet ANSI nursery stock specs are planted instead of rejected
 - ▶ Tree is pot bound, with woody encircling roots
 - ▶ Trees cannot stand up on their own without support
 - ▶ Root flare is not within 1 inch of soil level in pot
- ▶ Trees are not planted according to ANSI planting specification
 - ▶ Planted with encircling roots
 - ▶ Bamboo left in to support tree
 - ▶ Tree is planted too deeply



Selection: Right Tree, Right Place

(this means more than just looking at overhead lines)

Place

Cheyenne City Limits ROW trees

- By city code
 - Must be shade trees if no overhead lines
 - Must be low-growing ornamental if overhead lines

Soil Volume

Right Tree

Quality

Species Diversity

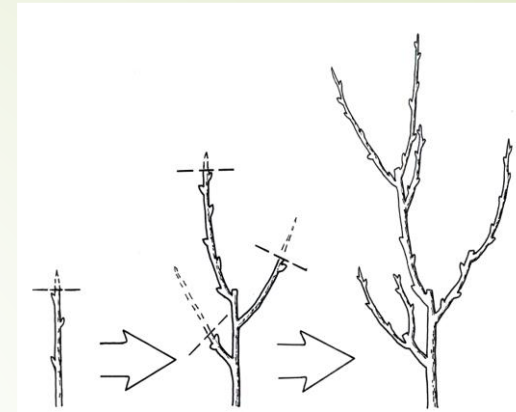
Mature size

Irrigation needs

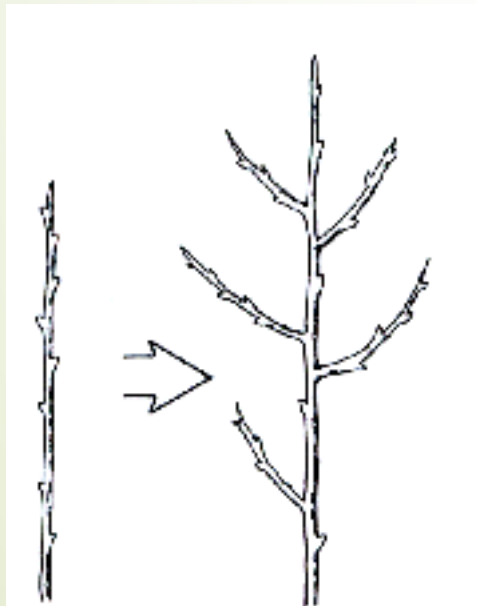
Insect & Disease susceptibility

Crown

1. **Central Leader:** Trees shall have a single, relatively straight central leader and tapered trunk, free of codominant stems and vigorous, upright branches that compete with the central leader. If the original leader has been headed, a new leader at least $\frac{1}{2}$ (one-half) the diameter of the original leader shall be present.



Heading and retaining a leader is acceptable.



Maintaining a single, central leader is preferable.



Heading without retaining a leader is unacceptable.

Main Branches

Main Branches (scaffolds): Branches should be distributed radially around and verticall yalong the trunk, forming a generally symmetrical crown typical for the species.

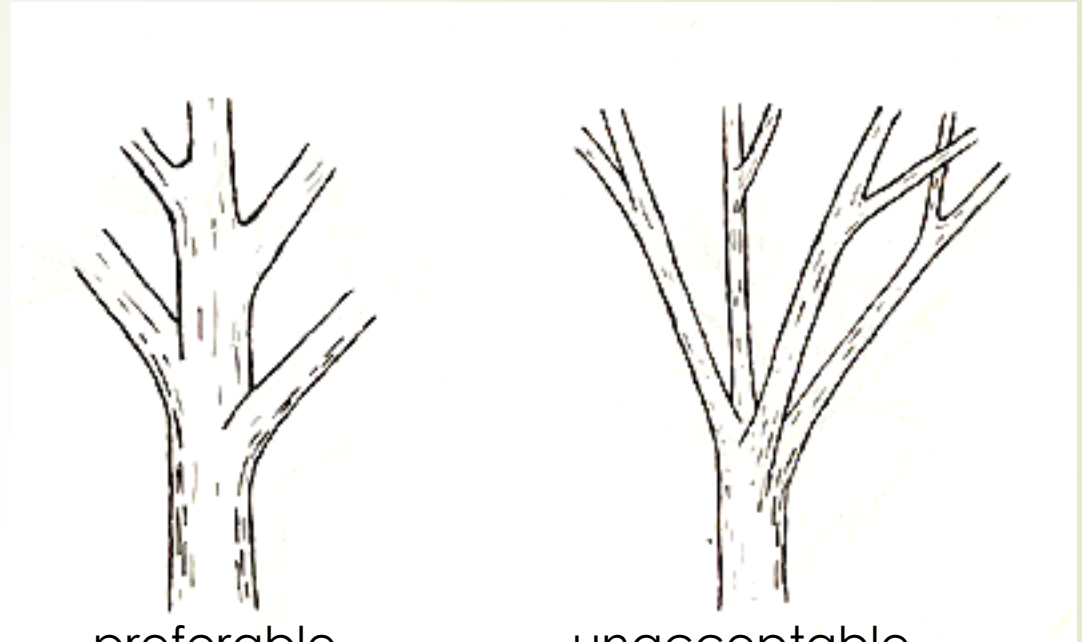
Main branches, for the most part, shall be well spaced.

Branch diameter shall be no greater than $\frac{2}{3}$ (two thirds) the diameter of the trunk,

measured 1" (one inch) above the branch.



Preferable unacceptable



preferable

unacceptable



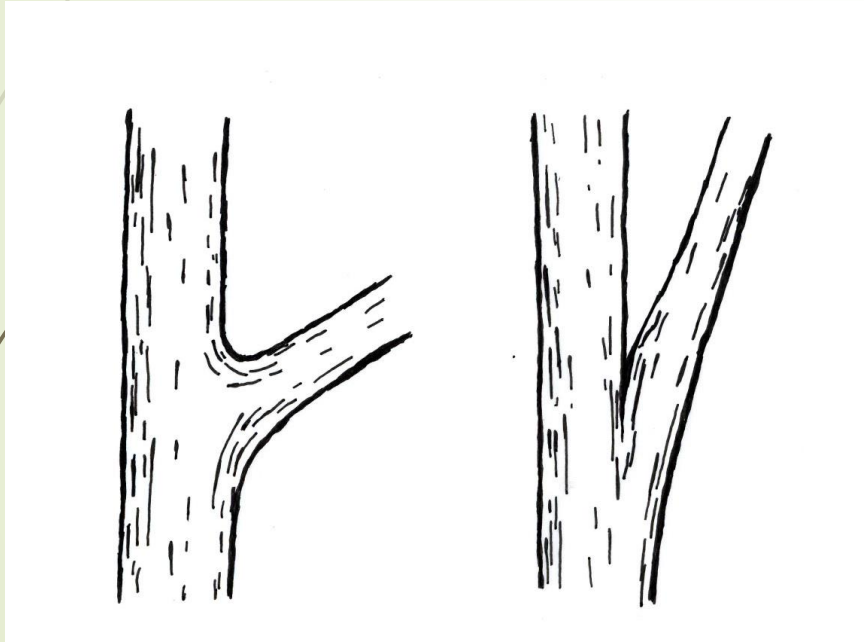
Preferable



unacceptable

Main Branches (con't)

The attachment of scaffold branches shall be free of included bark.



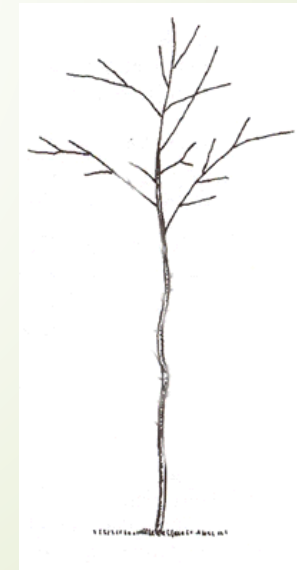
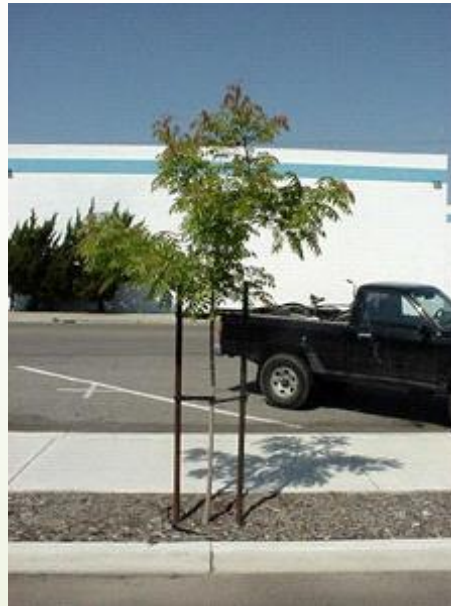
preferable

unacceptable



Temporary Branches

Temporary branches: Temporary branches should be present along the lower trunk, particularly for trees less than 1-1/2" (one and one-half inches) in trunk diameter. They should be no greater than 3/8" (three-eighths inch) in diameter. Heading of temporary branches is often necessary to limit their growth.



Trunk Diameter and Taper

Trunk diameter and taper shall be sufficient so that the tree will remain vertical without the support of a nursery stake.

Trunk diameter at 6" (*six inches*) above the soil surface shall be within the diameter range

shown for each container size below:

Container Size Trunk Diameter (*inches*)

5 (gallon) 0.5" to 0.75"

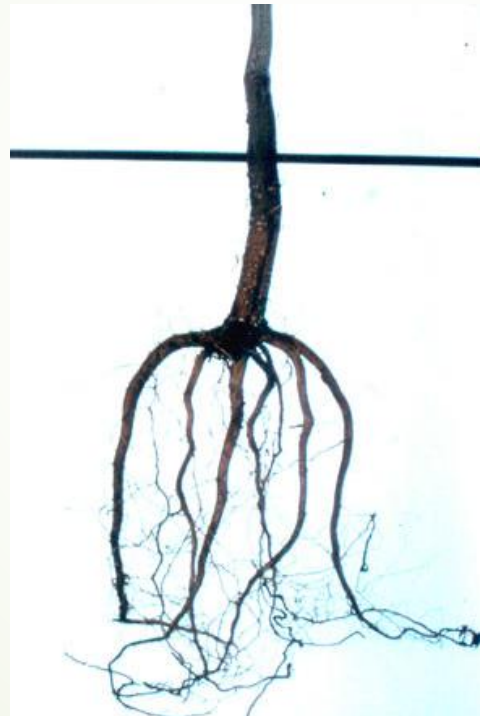
7 (gallon) 0.75" to 1.25"

#10 (gallon) 1.0" to 1.5"

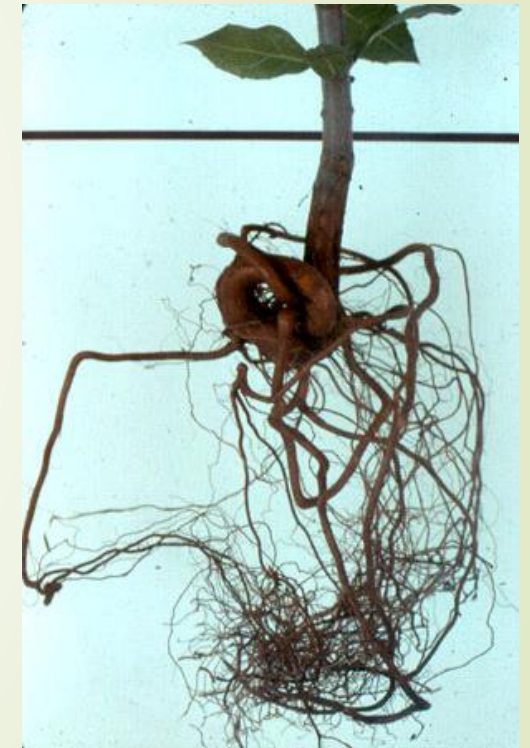


Roots

The trunk, root collar (root crown) and large roots shall be free of circling and/or kinked roots.



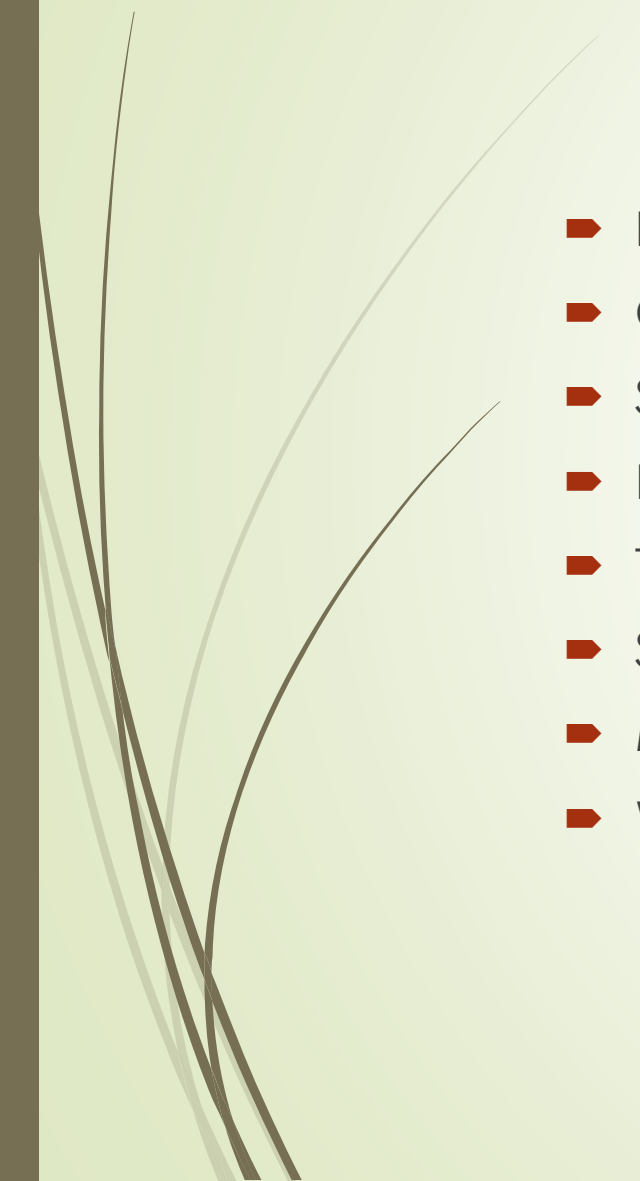
preferable



unacceptable

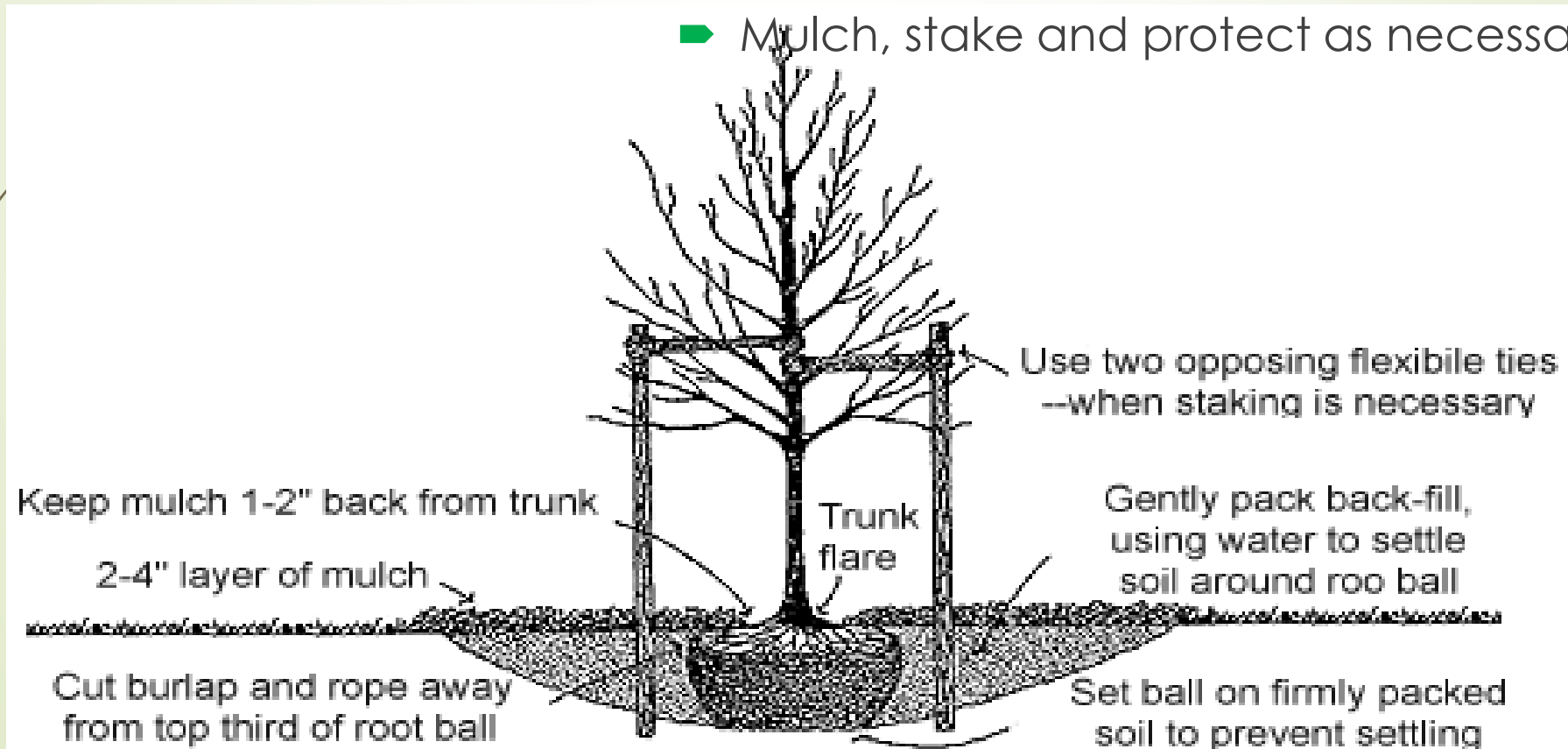


Planting for a long-lived tree

- 
- ▶ Hole Depth & width
 - ▶ Correcting encircling roots
 - ▶ Spreading roots out
 - ▶ Removing all tags, bamboo, basket
 - ▶ To amend, or not amend?
 - ▶ Staking
 - ▶ Mulching
 - ▶ Watering

Tree Planting

- Dig a wide hole
- Remove all packing material
- Find root flare/treat circling roots
- Don't amend the soil
- Water when backfilling
- Consider a basin
- Mulch, stake and protect as necessary



Before you plant

Remove all Packaging



Find Root Flare and correct Encircling roots



Planting Depth

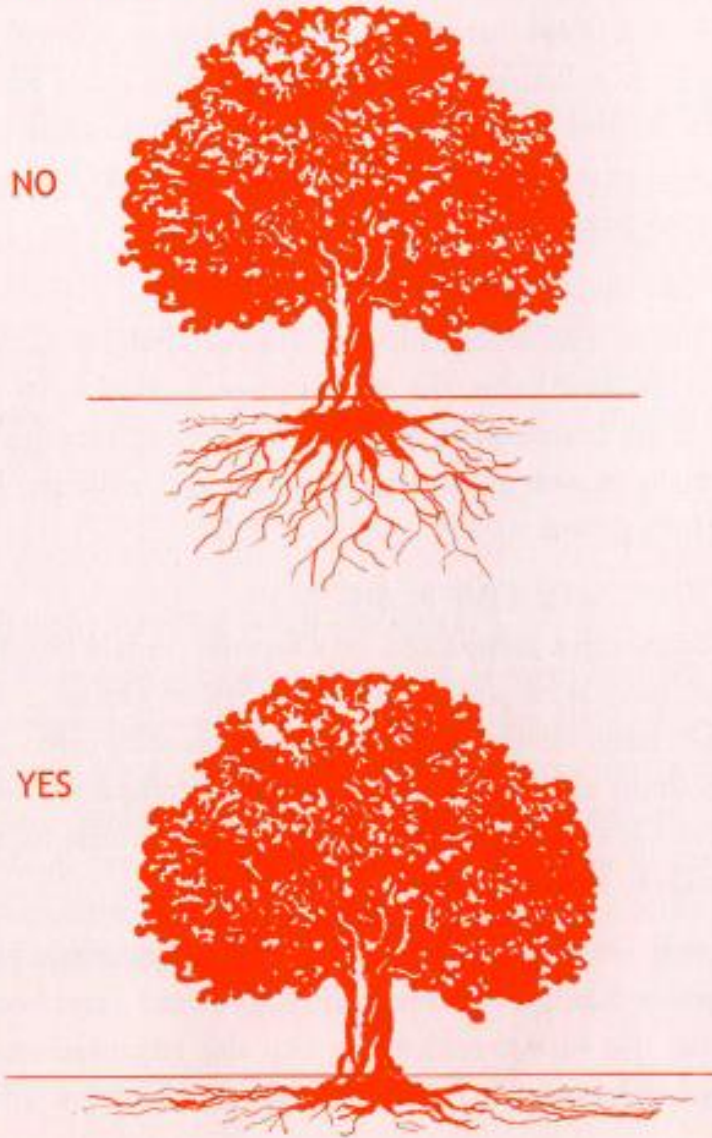
Planting trees too deeply is one of the primary causes of early mortality

1. Find the root flare first
2. Don't dig the hole until you know the depth
3. Measure!
4. If hand digging, plant the top of the root flare at ground level
5. If using an auger, very hard to dig the right depth – plant 1-3" high to account for settling
6. If too deep, pull it out and plant at the correct depth



Grass/Sod is a fierce competitor! Mulch your Tree!

HOW A TREE GROWS



- Most tree roots are in the first 12 inches of the soil profile
- Rarely are they deeper than 18 inches
- They occupy the same area as turf grass roots
- Turf grass forms a very dense layer of roots and emits allelopathic chemicals

For best tree health and vigorous growth

Eliminate sod

Add organic wood mulch to the dripline

Staking

In Cheyenne, high winds typically require staking for the first growing season.

Use 2 – 3 wood or t-post stakes

Use arbor tie or wide nylon straps

no higher than 3 feet

stabilizing root ball is the goal

allow for some sway in the tree

**Do not use wire (even through a hose)
as this often leads to early mortality**

**Remove stakes after 1-2 growing
seasons**

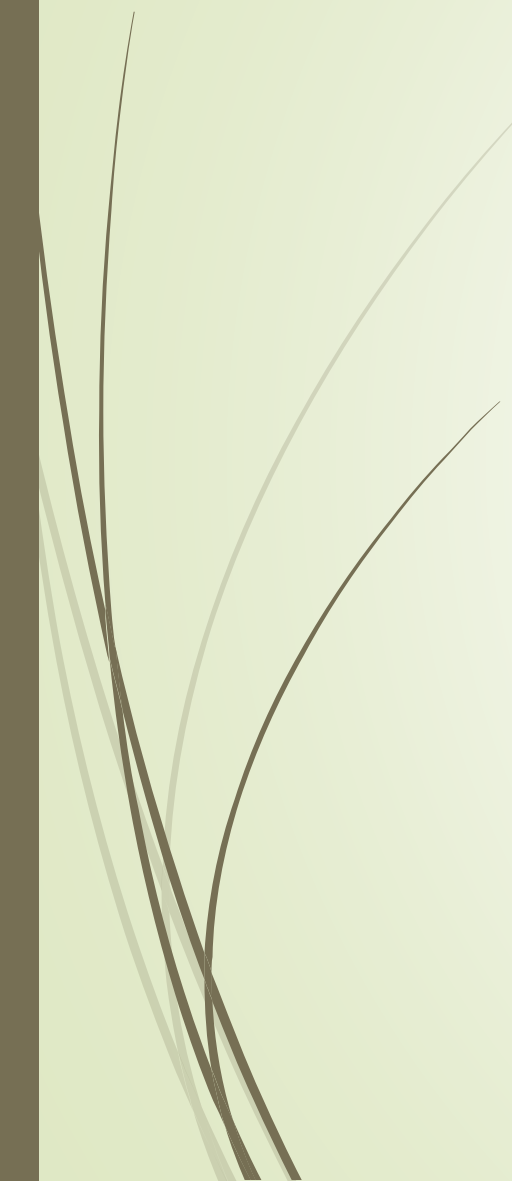


Water at planting





Maintenance (instructions to owners)

- Irrigation
 - Mulch
 - Mowing and trimming
 - Young tree care
 - Removing stakes
 - Structural pruning
- 

Irrigation

Lack of irrigation is the number one cause of tree mortality in the harsh climate of SE Wyoming

Newly planted trees cannot absorb water from the surrounding soil. **Water the rootball!**

Typical Lawn Irrigation **Does NOT** meet the needs of trees

If lawn Irrigating, change to 2 times per week, for longer duration.

10 Gallons Per diameter inch per week

Water at least 2 – 3 years

Established trees should be watered to their dripline



Mulch – Organic Wood Mulch increases health and vigor of trees

A mulch ring placed 3 to 6 feet around the tree can almost double the growth rate of the tree.

Mulch 3-4" deep

Mulch to the dripline





Structural Pruning

Creating a structurally sound tree for a long, storm resistant life

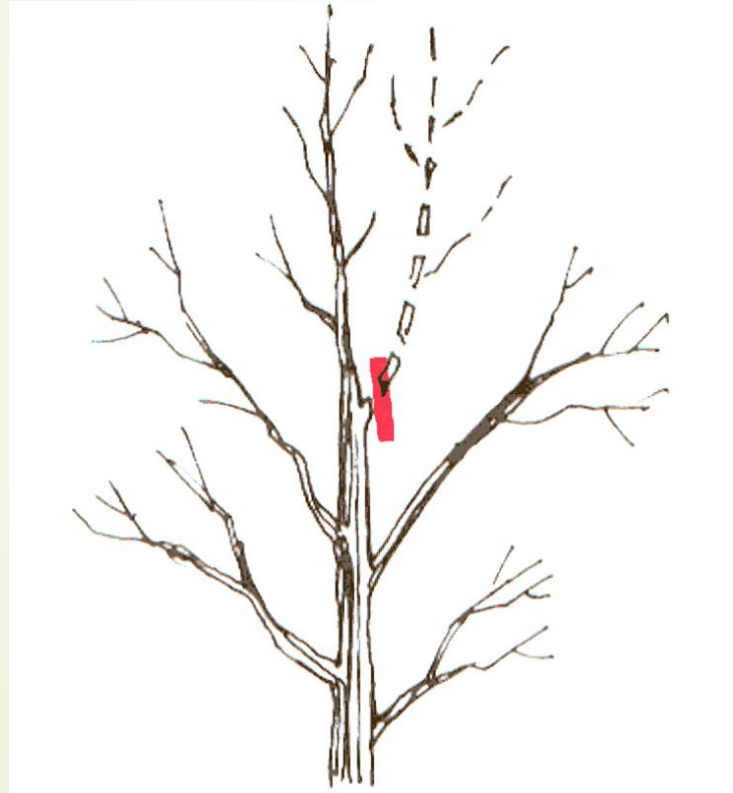
Benefits

- ✓ Pruning wounds are small, seal quickly
- ✓ Growth goes where you want it
- ✓ Develop strong structure when tree is young
- ✓ Prevent future structural problems
- ✓ Less damage from storms
- ✓ Only minor pruning will be necessary later on

Goals

- ✓ Create a Central Leader
- ✓ Determine temporary and permanent branches
- ✓ Remove temporary branches before they reach 2" dbh
- ✓ Suppress or remove branches that are larger than $\frac{1}{2}$ the trunk diameter
- ✓ Space main branches along central leader
- ✓ Reduce Vigorous upright stems back to lateral branches

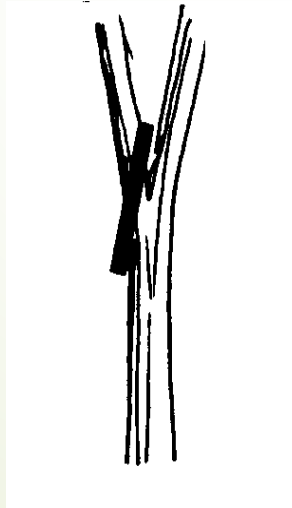
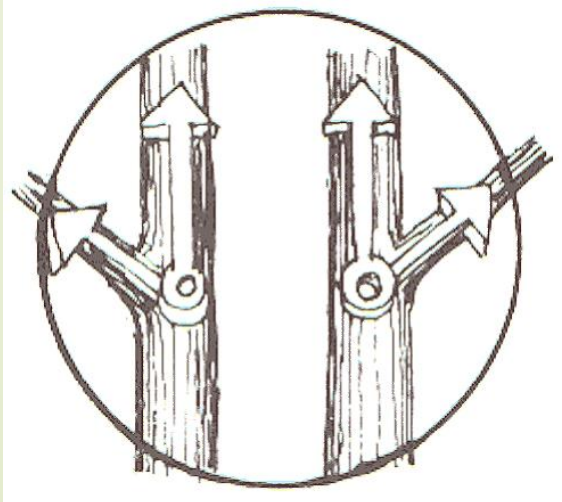
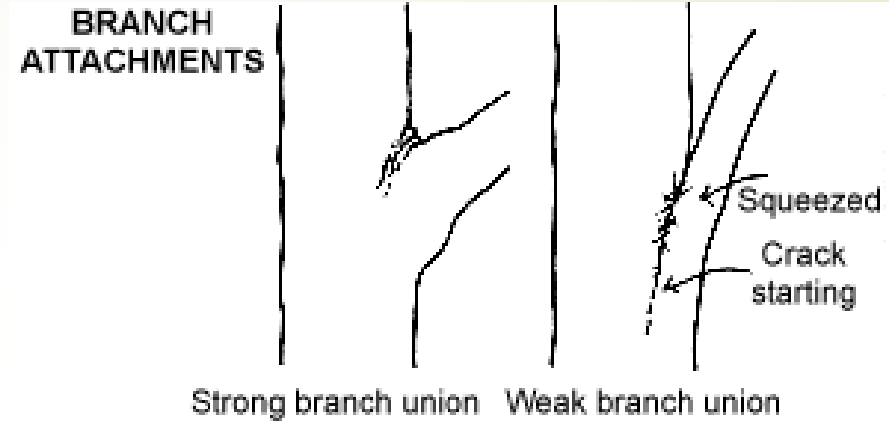
Create a Central Leader



Structural Pruning

Branch Angles

- ✓ Narrow angles are weak
- ✓ Ideal angles are at 10 or 2 o'clock



Branch Size

- ✓ Branches ideally are not larger than $\frac{1}{2}$ the diameter of stem

Let's Go Plant Trees that will last a lifetime (or three)

- ▶ Select a quality tree which can live for at least one hundred years
- ▶ Take care of the roots
- ▶ Plant at the right depth
- ▶ Water, water, water
 - ▶ (every week, but not every day!)
- ▶ Mulch
- ▶ Prune
- ▶ Enjoy!

