



Selecting and Planting Trees in Your Landscape

Tree Selection

- Matching the right tree to your site is the most important aspect of tree selection.
- A tree that is not suited to its planting site will perform poorly, require more maintenance, and ultimately die before its time.

Cultural Requirements

- How much **Light** does the site receive?
 - Full sun
 - Shade
- What type of **Soil** are you planting in?
 - Sandy
 - Loam
 - Clay

Cultural Requirements

- Is the area susceptible to **Water** problems?
 - Drought
 - Flood
- Is the tree tolerant of pests common to the area?
- Will the tree tolerate pollution, salt spray?
- Is the plant **Hardy** in your area?
 - Zone 6

Space / Site Restrictions

- How much space is available?
- Are there any utilities near?
 - Overhead wires
 - Underground pipes, wires
- Would the tree affect sidewalks?
 - Foot traffic
 - Invasive roots



Space / Site Restrictions

- Would the tree affect buildings?
 - Roots in foundations
 - Sight lines
- Consider maintenance issues
 - Messy fruits
 - Fall leaf drop

What is the desired Function of your tree?

- Shade
- Screen / Windbreak
- Ornamental / Accent
 - Flower
 - Fruit
 - Foliage
- Be sure to consider the **Mature** size of your tree

Species selection

➤ www.bgky.org



➤ Frames

➤ No Frames

➤ **Contents**

➤ CHAPTER XXVI PUBLIC TREES

➤ Local nurseries

➤ <http://www.arborday.org>

Choosing nursery stock

- Trees are generally available in three forms
 - Containerized
 - Balled and Burlapped (B & B)
 - Bare Root



What to look for in nursery stock

- Inspect Trees for Quality and Health
 - Vigorous plant
 - Good twig extension - growth
 - Good branch spacing and trunk taper
 - Evenly distributed, healthy foliage
 - Solid, moist root ball
 - Abundant roots, light in color

What to avoid in nursery stock

- Inspect for Poor quality plants
 - Missing or damaged central leader
 - Mechanical injury, damage to bark, trunk or branches
 - Desiccated, discolored or shriveled leaves
 - Girdled, circling, or kinked roots



What to avoid in nursery stock

- Soft, brown or black non-woody roots
- Presence of insects or disease
- Discolored, sunken, or swollen areas of trunk



Tree Installation: Planting Seasons, Proper Timing

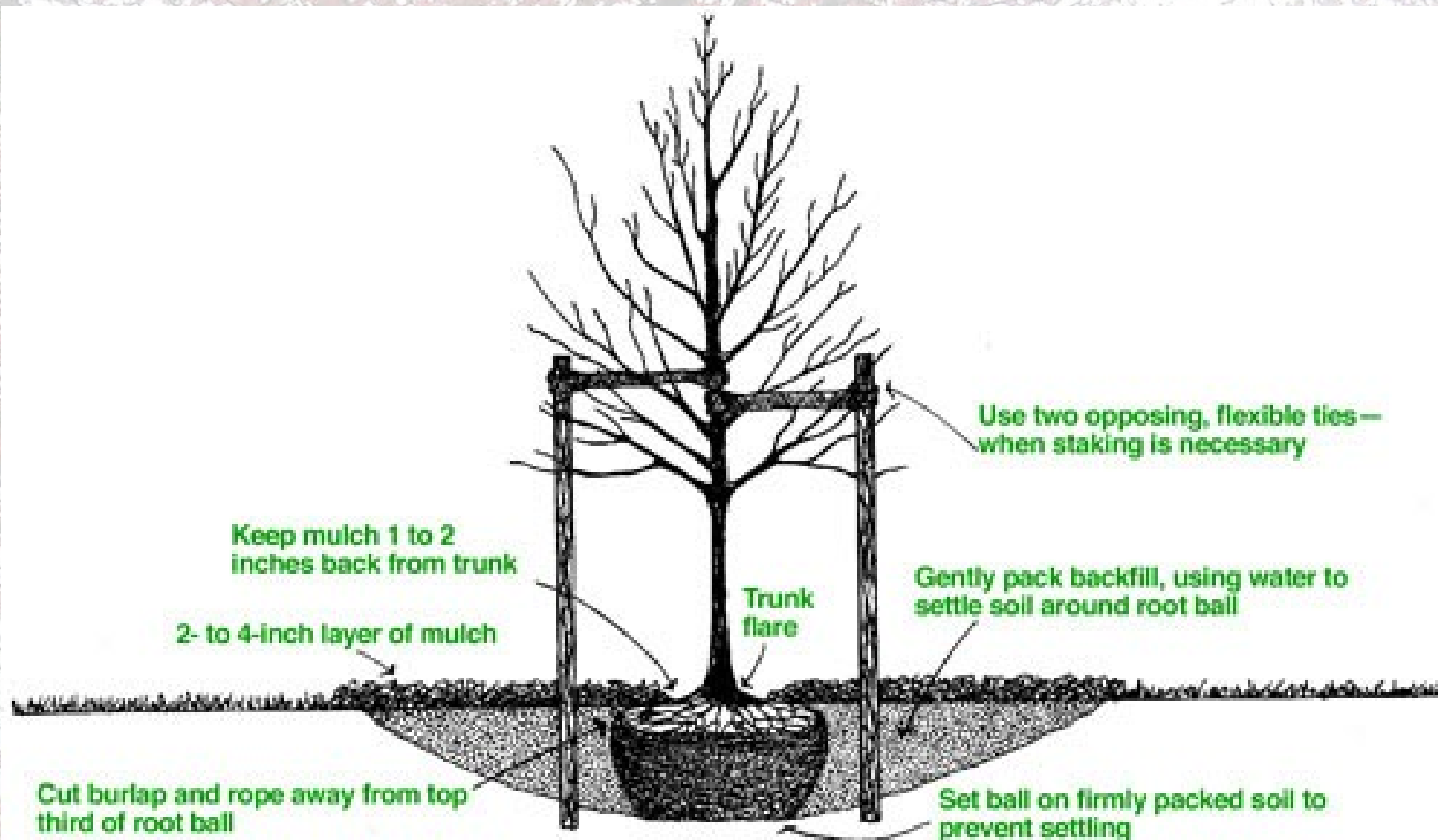
- **Bare Root: early spring as soon as soil becomes workable**
- **Container and B&B: early fall through late spring**
- **Plantings done in summer require more watering and maintenance, are more prone to failure**

Tree Installation: Pre-planting Care

- Protect Trees From
 - Mechanical injury
 - Desiccation, (drying out)
 - Overheating
- Trees should be planted soon after purchase or heeled in, in cool, sheltered location and kept moist
- Always carry trees by the root ball or container, never lift tree by the trunk, this extra movement causes the fine feeder roots to break away and die

Tree Installation: Planting Site Preparation

- Planting hole should accommodate root system comfortably
- Hole should be 2-3 times width of root ball, sloping down to width of root ball at base
- Hole should be just deep enough to allow root collar or trunk flare to be level or slightly higher than surface grade



Tree Installation: Plant Preparation

- Due to production techniques, B&B and container trees often arrive planted too deep in the ball
- It is imperative that the natural root flare be located before planting
- Top of root ball should be even or slightly higher than surrounding grade when planted

Tree Installation: Planting Site

Soil Conditions

- Heavy clay, poorly drained, and compacted soil
 - Hole should be dug wider and shallower to allow as much as 4 inches of root ball to protrude above surrounding grade.
 - Gradually slope the soil up from the grade to meet the edge of the rootball.
 - Do not dig deeper than necessary, tree needs firm support to keep from settling.
 - Soil removed from hole should be used as backfill, soil amendments have not proven beneficial.

Tree Installation: Planting Procedures

- Bare Root Trees
 - Vital that roots be kept moist
 - Normally planted only in dormant season
 - If not planted immediately, must be stored cold (32- 40 degrees F)
 - Dig planting hole no deeper than root collar (point where roots flare from trunk)
 - Dig planting hole wide enough to allow even distribution and spreading of roots

Tree Installation: Planting Procedures

- Bare Root Trees
 - Plant tree on small cone shaped mound within planting hole
 - Spread roots evenly over mound
 - Adjust trees depth to allow root collar to match surrounding grade
 - Add backfill in layers until hole is $\frac{3}{4}$ full
 - Water gently to remove air pockets, adjust tree and complete fill

Tree Installation: Planting Procedures

➤ Bare Root Trees

- Because the root system is limited, bare root trees frequently require staking.

Tree Installation: Planting Procedures

- Containerized Trees
 - Tree should be well rooted and established in the container
 - Gently remove container and inspect for circling roots
 - Make 4-5 vertical cuts along side of root mass with sharp knife to sever any circling roots
 - Gently tease roots out of root mass to prevent girdling

Tree Installation: Planting Procedures

- Containerized Trees
 - Lower tree into hole making sure top of root mass is at or slightly higher than surrounding grade, adjust tree to upright position
 - Backfill layers of soil over the roots until hole is $\frac{1}{2}$ full
 - Lightly tamp soil with hand or shovel to remove air pockets
 - Complete backfill and water thoroughly

Tree Installation: Planting Procedures

- Balled and Burlapped Trees
 - Root ball size is based on trunk caliper
 - Ball should not be excessively wet or dry
 - Ball should be held securely with twine and burlap, wire basket for larger trees
 - Trunk should be centered in root ball
 - Trunk should not move independently of root ball

Tree Installation: Appropriate B&B Root Ball Sizes

Trunk Caliper (inches)	Rootball Diameter
1/2	12
3/4	14
1	16
1 1/2	20
2	24
2 1/2	28
3	32

Tree Installation: Appropriate B&B Root Ball Size

- Ratios for appropriate root ball depth
 - Root ball with less than 20 inch diameter, depth not less than 75% of diameter
 - With diameters 20-30 inches, not less than 70% of diameter
 - With diameters 30-48 inches, not less than 60% of diameter

Tree Installation: Planting Procedures

- Balled and Burlapped Trees
 - Always handle tree by root ball
 - Remove wire basket (if present) completely if the root ball will stay together.
 - If root ball appears slightly loose, leave wire basket in place and remove at least the upper 1/3 after placing in hole
 - Remove burlap completely if synthetic or treated, it will NOT biodegrade
 - Gently lower or roll root ball into hole

Tree Installation: Planting Procedures

- Balled and Burlapped Trees
 - Adjust tree to upright position
 - Backfill layers of soil until hole is $\frac{1}{2}$ full
 - Lightly tamp soil to eliminate air pockets
 - Remove all twine from around trunk to prevent girdling
 - Remove top $\frac{1}{3}$ of wire basket if it wasn't removed earlier

Tree Installation: Planting Procedures

- Balled and Burlapped Trees
 - Cut away burlap from the top 1/3 of root ball allowing water to freely penetrate to the roots
 - Complete backfilling and water thoroughly
 - Remove all tags and labels to prevent girdling limbs

Tree Installation: Common Planting Problems

- Planting too deep – suffocates roots
- Planting too shallow – roots dry out
- Hole too narrow – root system struggles to establish
- Soft fill added to bottom of hole – plant settles too deeply
- Twine left on trunk – girdles trunk
- Wire basket left intact – girdles roots
- Container tree circling roots left intact – root system girdles

Tree Establishment: Sustaining the New Tree

- Mulching benefits
 - Conserves moisture
 - Reduces turf grass, weed competition
 - Protects from lawnmower, trimmer damage
 - Apply over root system out to drip line (branch tips)
 - Apply 3-4 inch depth, mulch should not touch trunk of tree
 - Bark chips, ground bark, pine needles, compost are best

Tree Establishment: Sustaining the New Tree

- Common Mulching Mistakes
 - Mulch too deep – water does not reach root system
 - Volcano mulching (mulch piled up against tree trunk) – traps moisture against trunk, encourages fungal activity, results in decay of wood and insect activity, encourages shallow rooting

Mulching

CORRECT



Mulch wide—not deep.

INCORRECT



Mulch Volcano— decay has started due to moisture being trapped on the trunk

Tree Establishment: Sustaining the New Tree

- Watering
 - Single most important task
 - Watering timetable depends on
 - Rainfall received
 - Moisture holding capacity of soil
 - Drainage characteristics of site
 - General rule – 1 inch every 7 to 10 days during first growing season

Tree Establishment: Sustaining the New Tree

- Watering
 - Inspect once a week to determine if watering is necessary
 - Inspect more often during hot, dry weather
 - Deep, infrequent watering is best
 - Water slowly and lightly

Tree Establishment: Sustaining the New Tree

- Common Watering Mistakes
 - Over watering – suffocates root system
 - Rapid, frequent watering – encourages shallow rooting
 - Hard, fast watering – causes soil compaction, runoff, water does not reach root system
 - Frequent trunk wetting – encourages fungal activity, decay

Tree Establishment: Sustaining the New tree

- Fertilization
 - Not recommended at time of planting
 - Research has shown it to be ineffective until tree has re-established its root system

Tree Installation: Sustaining the New Tree

- Mycorrhizae – naturally occurring in native forest soils -- beneficial fungi that help tree roots absorb water and nutrients
 - Research has shown to have limited benefits
 - May be beneficial in poor quality sub-soil where topsoil, organic layers have been removed

Tree Establishment: Sustaining the New Tree

- Pruning
- Limit at planting time to removing broken, crossing, rubbing branches, alleviating structure problem
 - Remove basal sprouts
 - Encourage a central leader
 - Leave lower branches on the tree to stimulate root and trunk diameter growth

Tree Establishment: Sustaining the New Tree

- Common Pruning Mistakes
 - Do not thin the tree to compensate for root loss
 - Do not raise lower limbs, these will help add girth to trunk and root growth
 - Pruning paints and sealers do not prevent decay or promote rapid closure, not recommended

Pruning

- Flush cutting branch back to trunk is incorrect, it wounds the trunk and causes decay. Make the cut along branch collar.

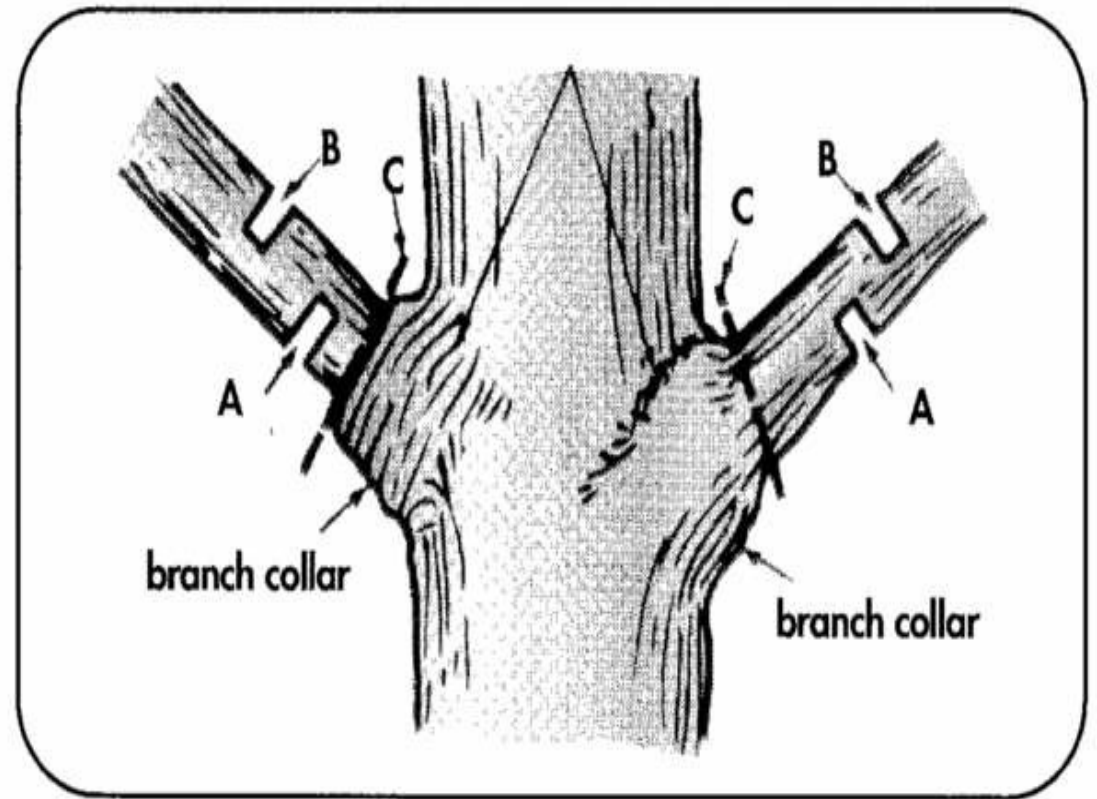


Figure 8.3 Pruning principles. The first cut (A) undercuts the limb. The second cut (B) removes the limb. The final cut (C) should be just outside the branch collar to remove the resultant stub.

Tree Establishment: Sustaining the New Tree

- Staking or guying
 - Only when necessary, bare root, small container, large tree especially conifers, exposed or windy site
 - Attached to tree low on trunk
 - Use soft flexible web belting or other soft, wide, flexible material

Tree Establishment: Sustaining the New tree

- Staking or guying
 - Used to prevent movement of root system-- movement of top of tree is desirable and will strengthen tree
 - Should be checked regularly to prevent girdling and removed after one year
 - Do not drive stake into root ball, anchor firmly outside of planting hole

Tree Establishment: Sustaining the New tree

- Common Staking Mistakes
 - Using wire or thin rope around trunk – will damage, tear bark and girdle trunk if left on too long



➤ Common Staking Mistakes

- Staking left on too long – result in weak tree unable to support itself



Tree Establishment: Sustaining the New Tree

➤ Trunk Protection

- Short tubing may be used to protect from string trimmers
- Trunk wraps are not recommended
 - Recent research shows--
 - Temperature differentials are greater at bark with wrap
 - Holds moisture on bark leading to fungal, insect activity

Tree Establishment: Just the Beginning

- All trees planted will need care and attention throughout their life span.
- Future ongoing maintenance should be a part of your tree planting plans.



Questions?