Chapter 8

PRUNING

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Key Terms

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ANSI A300 Pruning Standards and BMP’s
5.3.2 A pruning cut that removes a branch at its point of origin shall be made close to the trunk or parent limb, without cutting into the branch bark ridge or collar, or leaving a stub (see Figure 5.3.2).

5.8.1 Palm pruning should be performed when fronds, fruit, or loose petioles may create a dangerous condition.
Trees make their own food from the leaves and will grow branches and leaves as long as they can reach sunlight.
Trees in the forest prune themselves
Trees in open areas will form full crowns
Trees in urban areas are pruned to coexist with people and infrastructure.
Reasons for Pruning

- Dead wood
- Sprouts
- Rubbing branches
- Broken branches
- Included bark
- Dense crown
- Vistas
- Utility clearance
- Vehicle clearance
- Pedestrian clearance
- Training young trees
- Structural structure
- Fruit production
- Insect infestation
- Disease
- Other reasons
Proper pruning may be done any time of the year. Not recommended during bud swell nor during leaf abscission. Common time is in late winter or early spring when trees are dormant. Fruit trees usually after flowering.
Trees don’t heal like animals

Animals form new cells in the same place while trees form new cells in new places.
Proper pruning cuts

- Branch collar
- Branch protection zone
- Branch bark ridge
- Compartmentalization
- CODIT
- Node
- Laterals
Branch Collar
Trunk tissue and branch tissue interlock annually

Branch collar is made up of trunk tissue

Drawing by Sharon Ossenbruggen
Branch protection zone

Prune from outside branch bark ridge to outside of collar

No set angle. Varies from tree to tree
Flush cuts allow decay to enter the tree through trunk tissue.
Flush cuts can cause cambial dieback in trunk
C.O.D.I.T.
Compartmentalization Of Decay In Trees

Trees set up phenol chemical boundaries to limit spread of decay
On larger branches, remove weight before final cut.

Final cut should produce a complete “doughnut” of callus.

Reduces chance of tearing bark on remaining trunk.
Prune at a node or to a lateral branch.
Structural pruning of young trees

- Train young trees for form
- Establish a central leader
- Subordinate competing laterals
- Eliminate co-dominant stems
- Included bark
- Thin to permanent scaffold branches
Prune a little each year for form
Start with quality stock

With a tree like this, better to start over.
Work with young trees over several years

Subordinate competing side branches

Cut just above a node

Never remove more than 25% of live crown at one time
Co-dominant stems

May be able to cable and brace
Prune co-dominant stems when tree is young

Cut weaker of the two

No branch collar, decay will enter tree
Included bark

Weakly attached branches
Form permanent scaffold branches when tree is young

Prune a few each year for several years to achieve right spacing

Scaffold branches should be about 18 inches apart for large trees

Builds taper between branches
Pruning Techniques

- Crown cleaning
- Thinning
- Water sprouts
- Lion tailing
- Crown raising

- Vista pruning
- Crown reduction
- Topping
- Crown restoration
- Utility pruning
Thinning

After a thinned tree does not look pruned.
Before Thinning
During Thinning
After Thinning
Watersprouts

Basal sprouts

Adventitious sprouts
Lion-tailing

No longer building taper for strength

Heavy wind sail on ends
Crossing Branches
Competing Branches
Building Taper
Crown Raising

- Allows for pedestrians and vehicles
- Parks will raise crowns for security reasons
- Used to clear sight distance for signs and traffic
Vista Pruning
Crown Reduction

Also called drop crotch pruning

Used in directional pruning by utilities
Topping

- Stimulates adventitious sprouts
- Weak branch attachments
- Decay spreads easily to the roots
- Results in poor tree form, making it hazardous
- Premature death

And its ugly!
Crown restoration
Utility pruning

Directional pruning away from primary conductors

Most common form of shade tree pruning

Prune back to a lateral that is at least one-third the diameter of the removed branch

Must be qualified line clearance pruners
Utility pruning can be avoided by planting the right tree in the right place.

- Plant low growing varieties under and near overhead power lines.
- Only cut branches growing toward the lines.
- Use Shigo’s pocket guide.
Pruning Palms

- prune fronds, flowers, fruit and loose petioles when they pose a danger
- only prune petiole base, not the trunk tissue
- prune lower half of meristem only
- only use climbing spurs on removals and rescues

Use caution: fronds are sharp
- Frond skirts can be dangerous
Specialty Pruning

- Espalier
- Pollarding
- Topiary (Shaping)
Espalier
Pollarding

Labor intensive

Four sprouts from first heading cuts

After pruning sprouts

Developing pollard head several years later

After pruning sprouts from pollard head
Topiary (Shaping/Shearing)
• Not recommended
• Do not prevent decay
• Actually promotes decay
• Cosmetic use of dyes are okay
• Some use against Sudden Oak Death, and other diseases

Wound Dressings
Pruning Tools

- Avoid anvil-type loppers.
- Use the right tool for the size of the job.
- Treat tools if diseases are suspected.
Pruning Tools

- Use the right tool for the size of the job
- Used extensively in agriculture
- Use of chemicals; antigibberellins
- Reduces branch elongation
- Applied to soil, leaves, injected, or banded
- Used to reduce water sprouts
- Enhances photosynthesis; making for healthier trees

Plant Growth Regulators (PGRs)
AVOID PRUNING POPLARS

- Aspen, cottonwoods, hybrid poplars
- Easily infected w/ Cytospora canker
- Spores are in the air
- No cure
- Trees die within a few years

Aspen in the mountains can live for many years after infection
AVOID PRUNING SPRUCE

- Blue, Norwegian, Engelmann
- Spruce keep a live crown to the ground
- Unnatural appearance if pruned
Sample Questions

1. The swollen area at the base of a branch where it arises from the trunk is called the ______________
   branch collar
2. The presence of **included bark** in a crotch weakens branch attachment.
3. Avoid removing more than ___ percent of the canopy in a given year.
4. Three adverse effects of topping or heading back include

a. **adventitious sprout production**

b. **extensive decay of branches**

c. **premature death**
5. **Thinning** includes crown cleaning as well as selective removal of branches to increase light penetration and air movement into the crown of the tree.
Sample Test questions

1. When pruning young trees, it is important to train for a dominant leader and well-spaced scaffold branches so that
   a. future pruning can be minimized
   b. the tree will be structurally strong
   c. co-dominant branching can be avoided
   d. all of the above
2. To prune trees that flower on the previous year’s growth and to maximize flowering, you should

a. prune any time during the dormant season
b. prune shortly after flowering
c. prune in late summer after seed formation
d. prune in the fall, just after leaf drop
3. When pruning a branch from a tree, the final cut should be

a. flush with the parent stem
b. at a 45-degree angle to the parent stem
c. parallel to the branch bark ridge
d. just outside the branch collar
When it comes to pruning, as a rule, mature trees are

a. more tolerant of extremes than young trees
b. capable of tolerating heading
c. not tolerant of severe pruning
d. unlikely to produce water sprouts
5. If the height of a tree must be reduced

a. branches should be removed at their point of origin or to a lateral large enough to assume apical dominance
b. all cuts should be made at internodes to avoid cutting through buds
c. the tree should be root pruned to compensate for foliage loss
d. all of the above
Questions?
Contact the U of U Campus Tree Committee for advice