

# Unit E: Urban Forestry

## Lesson 4: Pruning Trees in Urban Settings

# Terms

- Branch ridge bark
- Callus
- Chain saw
- Collar
- Compartmentalization
- Crossing branches
- Drop crotch cuts
- Hand pruner
- Leader
- Loppers
- Pole saw/pruner
- Pruning
- Pruning saw
- Rootstock
- Heading Cuts
- Scaffold branch
- Scion
- Subordination
- Sucker
- Thinning cut
- U-shape crotch
- V-shape crotch
- Watersprout

# What are the reasons for pruning urban trees?

- *Pruning* is the term used for the selective removal or reduction of certain plant parts. Trees are pruned for a variety of reasons. Proper pruning leads to attractive, healthy trees. Some of the reasons for pruning trees include the following:

# What are the reasons for pruning urban trees?

- Promote the development of a strong framework of branches.
- Restrict the size of the plant.
- Repair damaged limbs.
- Improve flowering displays.
- Reduce the spread of pests.
- Improve fruit quality.
- Maintain desired cultivars.

# What techniques are used to prune trees safely?

- Approved techniques have been established for pruning trees safely. Make good decisions as to why and how a tree is be pruned before any cut is made. All cuts should contribute to the pruning goals that have been established. It is important to understand the parts of trees, the best times to prune, how trees heal, and how to remove large limbs.

# What techniques are used to prune trees safely?

## General rules of pruning:

- Make cuts that will cause the least amount of damage to the tree.
- Begin pruning the tree while young.
- Choose tools most suited for job, keep them sharp and utilize safe practices.

# What techniques are used to prune trees safely?

- A **leader** is a central branch that is dominant over other branches on the tree.
  - Leads growth of the tree.
  - “co-leaders” are not desirable...why?
    - Unattractive and develop weakness.
- **Scaffold branches** grow laterally from trunk.
  - The tree’s weakest point.
  - Angle of attachment to trunk influences structural soundness.

# What techniques are used to prune trees safely?

## Two Types of Scaffold Branches

1. ***U-shaped crotches***: created by branches that attach to the trunk at angles of 45 to 90 degrees. These are structurally sound.
2. ***V-shaped crotches***: created by branches that attach at sharp angles. The join is weak because the bark is crushed between branches. These trees are prone to splitting.



# What techniques are used to prune trees safely?

## All should be removed from tree:

- ***Waterspouts***: soft, green shoots that usually grow vertically from existing branches
- ***Crossing branches***: branches that grow in different directions and make contact with one another. These branches cause friction that catalyze open wounds, which bring insects and disease.
- ***Suckers***: soft, green shoots that develop at the base of tree.

# What techniques are used to prune trees safely?

- In grafting, *rootstock* (root system) has different qualities than the *scion* (top growth).
  - If suckers grow, they will interfere with the effect of the scion.
- Dead, diseased, and broken wood should be removed from the tree. This helps reduce the spread of disease and eliminates safety hazards.

# What techniques are used to prune trees safely?

## Advantages of pruning in late winter

1. Branching structure is more visible without presence of leaves
2. Limbs are much lighter without leaves
3. Tree cuts made at these times of the year give the tree an entire growing season in which to heal

# What techniques are used to prune trees safely?

- The key to a tree's survival is its ability to develop a new root system.
- A tree's 2<sup>nd</sup> pruning should occur 2-4 yrs. After planting.
- A tree should be pruned again 5-7 years after planting. This time amount removed should be minimal.

# What techniques are used to prune trees safely?

- **Subordination** involves cuts made that slow the growth of a branch, and is accomplished by removing lateral branches and/or reducing the length of the parent branch cause the branch to become subordinate or less dominant.
- Subordination is used with all tree sizes, and is often most appropriate when multiple leaders on a small tree are involved. Identify the best of the leaders, and prune the others. The pruned branches will grow more slowly than the un-cut branch selected to be the leader. The un-cut branch will emerge as the dominant leader, while the others will become major limbs of the tree.

# What techniques are used to prune trees safely?

- Three basic techniques are used to prune trees.
  - ***Drop-crotch cuts*** are used to shorten tree limbs and reduce the size of the tree.
  - ***Thinning cuts*** are cuts made to remove a branch from the parent stem or trunk.
  - ***Heading cuts*** are made between the nodes on a stem with a hand pruner or lopper. Commonly used with nursery stock.

# What techniques are used to prune trees safely?

- Procedures for removing large limbs should be followed to ensure safety. Large limbs can be very heavy. Such weight will not only injure people, but it can also damage the tree if the limb is not removed properly. Improper removal often strips bark from the tree. Removal of large limbs involves a series of cuts.

# What techniques are used to prune trees safely?

- Make an undercut about 1/3 of the way through the limb about 30 centimeters from the trunk.
- Make the second cut the upper side of the limb about 2.5 centimeters from the undercut. This cut should be made closer to the trunk than the first cut to swing the branch toward the tree before it drops or further from the trunk for the limb to drop without swinging.



# What techniques are used to prune trees safely?

- Make the final cut closer to the trunk than the previous two. The proper cut is one that is made as close to the branch collar and branch bark ridge as possible without causing damage to those tissues. After the final cut is made, the wound should be left exposed. Sealers are never needed. They promote decay by keeping conditions moist for fungal and bacterial growth.

# How do trees close their wounds?

- Trees close their wounds with chemicals in a process called **compartmentalization**.
- The **branch bark ridge** and the **collar** contain chemicals that inhibit the spread of disease.
  - *Branch bark ridge is a raised line of bark that forms on the upper side of where the branch joins the bark.*
  - *The collar is the swollen tissue surrounding the base of the branch.*

# How do trees close their wounds?

- When a tree is wounded it begins to form a *callus*, or protective growth of tissue over the wound.

# What tools are used in pruning trees?

- ***Hand pruners*** are used on small branches.
- ***Loppers*** are used for somewhat larger branches.
- ***Pruning saws*** are used to cut large branches.
- ***Pole saws/pruners*** are specialty tools that allow a person to reach high limbs from the ground.
- ***Chain saws*** are gas powered or electric and have a chain that cuts continuously.

# Tips for Safely Using a Chain Saw

- Study branches before making any cuts.
- Accelerate the saw before beginning a cut.
- Keep feet completely still while the chain is turning.
- Do not use the guide bar's upper tip for cutting.
- If pinching occurs, shut the saw off before extracting the saw blade.
- Wear proper safety gear.

# Review and Summary

- What are some reasons for pruning urban trees?
- What are the steps to pruning trees safely?
- How do trees close their wounds?
- What are some tools used in pruning trees? Why are these tools used for certain purposes?