Maintenance Schedule

Follow this maintenance schedule for the life of your tree. Detailed instructions are on the pages indicated in parentheses.

Type of Care	Timeline			
	At planting	Years 1 to 3	Years 4 to 10	After 10 years
Water (p. 13)	5 gallons	Correct amount is *critical* from spring through autumn →	As needed from spring through autumn →	
Mulch (p. 16)	2-4 inches deep, not against trunk	Check and adjust level in spring →	→	→
Protect Trunk (p. 14)	As needed →	Check in spring and autumn →	→	N/A
Stake (p. 11)	*Only* if needed →	Check in spring and autumn. Remove after 1-2 years.	N/A	N/A
Clean Root Collar (p. 15)	N/A	Clean root collar every year →	→	→
Check for Encircling Roots (p. 9, 15)	Check before planting (p. 9)	N/A	Check every 4-5 years (p. 15) →	→
Check Health (p. 17, 35)	Select a healthy tree (p. 35)	Inspect leaves, branches, crown and trunk every year (p. 17) →	→	→
Check Safety (p. 17)	N/A	Inspect in summer, winter, and after storms (p. 17) →	→	→
Prune* (p. 7, 18-23)	Prune only critical branches or to eliminate extra leaders (p. 7)	Prune lightly in Year 2 or 3 (p. 18-23)	Every 3 years	Fruit trees every 1-3 years, deciduous shade trees every 5 years, evergreens only as needed

*For some tree types, pruning or removal during spring and summer requires special care to prevent disease transmisssion. See p. 20 for details.

N/A—not applicable

Maintenance Instructions

Watering*

An important factor in tree survival is providing the right amount of water. The first 3 years are most critical, but pay attention to watering needs throughout the tree's life.

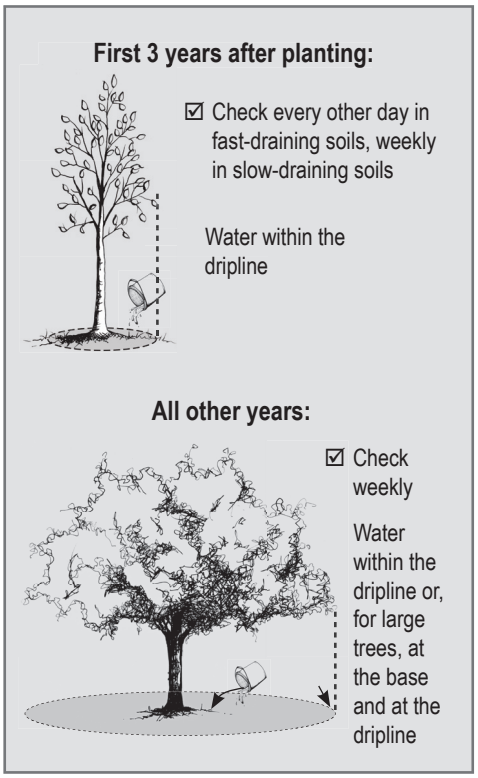
How often and how much?

Frequency depends on soil drainage. Soils that drain quickly will require more frequent watering than those that drain slowly. To determine your soil's drainage rate, see p. 34. The best way to know how often and how much to water is to check the soil moisture at 6 inches below the surface. Water when dry.

First 3 years after planting: If the soil is dry, provide about 1-1/2 gallons of water per diameter inch of the trunk.

All other years: Because soil type and weather conditions influence the demand for water, irrigation schedules and amounts vary.

Tree roots need oxygen. Soil saturated with water for more than 24 hours can prevent roots from getting oxygen. Therefore, watering too much is as dangerous as watering too little (and is harder to correct).



Where? Water the area within the *dripline*. For large trees, focus watering on the area within 6 feet of the trunk and at the dripline.

When? Start checking soil moisture and watering when necessary in early spring, and continue until the soil freezes.

*Gilman, E. 1997. Trees for urban and suburban landscapes. Albany, NY: Delmar Publishers. 662 p.

Installing a Trunk Guard

Trunk Protection

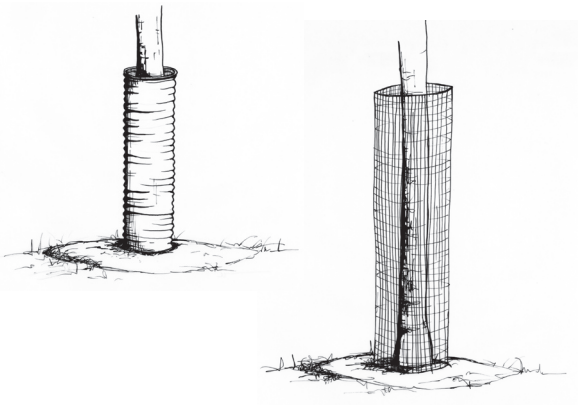
Young deciduous trees have thin bark that can easily be damaged by animals and equipment (most commonly string trimmers and lawn mowers). Mulch does a great job of keeping grass (and therefore grass-cutting equipment) away from trunks, but rodents such as rabbits and mice like to chew on young bark (usually low on the trunk). Deer also scrape tree trunks with their antlers.

To prevent long-term damage associated with trunk wounding, install plastic tubing or hardware cloth (stiff wire fencing with 1/4-1/2 inch mesh squares) around the trunk. The tube should be big enough around to allow 1-4 inches of space between it and the trunk. It should be 1-3 feet tall (extending above the anticipated snow depth) for small rodents and as tall as possible for deer.

How? Wrap the tube around the trunk, taking care not to scratch the bark. Use a few pieces of wire to keep the tube closed. Push the tube into the ground or mulch less than an inch. Attach it to one or two stakes if necessary.

When? At a minimum, the trunk should be protected during the winter months (apply early in the autumn to prevent deer scraping). Protection can be applied anytime and left on all year round, as long as it does not touch the bark.

Your tree will grow.
As the tree grows, the tube will need to be enlarged and eventually removed.



Preventing and Correcting Encircling Roots*

Problem

Roots that encircle the trunk will likely cause health or safety problems later. Make sure that soil or mulch is never piled against the root collar.

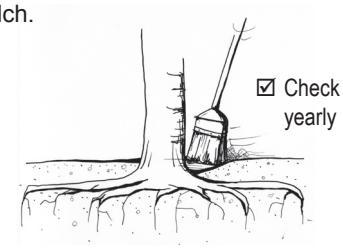
Root likely to become a problem (when trunk and root meet)

Problem root already touching the trunk

Covering the root collar with soil or mulch encourages encircling roots

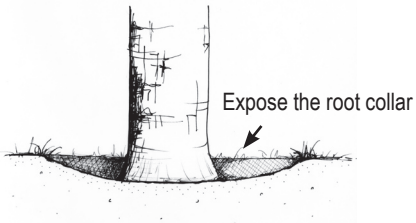
How to Prevent

Plant at correct depth (see Planting Steps 4-7, p. 8-10). Annually clean the root collar by removing soil and mulch.



How to Monitor and Correct

Every 4-5 years, check for roots that encircle the trunk. Use a hand trowel to loosen and remove the soil around the base of the tree until the first set of roots is found.



TIP: Removing soil with a wet-dry vacuum speeds the work without harming the roots.

If a tree has an encircling root, leave the top of the root exposed, and consult an arborist regarding treatment. When caught early, this can be an inexpensive and effective way to save your tree.

*Johnson, G.; Fallon, D. 2007. Stem girdling roots: the underground epidemic killing our trees. St. Paul, MN: University of Minnesota.

Mulching

Maintain a ring of mulch around the tree (the wider the better). Organic materials like wood chips and leaves are best. Wood chips will take longer to break down and, therefore, will not require replacement as often.

TIP: Newspaper kills grass.
If there is grass in the area that needs to be mulched, put a 5-page layer of newspaper over the grass, and then add mulch on top (this will help keep the grass from growing up through the mulch).

Mulch becomes soil.
There should never be more than 4 inches of mulch over the roots. Too much mulch or soil can prevent oxygen from reaching the roots.

Fertilizing

Apply nitrogen fertilizer ONLY if diagnosis by an arborist indicates that it is necessary.

Apply other fertilizers ONLY if a soil test shows that nutrients are lacking.

Do not overdose.
Fertilizer that is not absorbed by the tree has the potential to alter the soil or leach out and pollute groundwater, rivers, ponds, and lakes. Overdosing with fertilizer can harm your tree.

Applying "weed and feed" to your lawn might injure or kill your tree.
Some combination weed killers and lawn fertilizers will injure trees. Do not use anything that states it will kill broadleaved weeds (most deciduous trees are broadleaved). Preemergent herbicides are safe to use near trees.

Checking Tree Health

Tree health can be difficult to determine, but checking your tree yearly may help you notice problems as they appear.

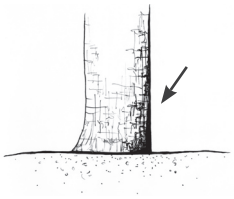
Is the current year's growth much less than past years' growth? Fast growth does not mean good health, but a dramatic reduction in growth rate may be an indication of poor health.

TIP: Look at the branch tips or tree top. Current year's branches will typically be smaller in diameter and a different color.

Also inspect the size, color, and distribution of the leaves. Look at individual leaves as well as the whole crown for differences between branches or sections of the crown.

Inspect the base of the trunk for damage (e.g., from rodents or string trimmers).

Also inspect the base of the tree to see if there is a flat side to the trunk.



If anything is found, follow the guidance in the Troubleshooting section, p. 30-31.

Checking Tree Safety

Healthy trees can fall down.
A tree may be green and lush, but that does not guarantee that it is structurally safe.

Inspect trees anytime, but especially after storms. Examine the crown, branches, trunk, and area around the roots for these common dangers:

- Broken, dead, or hanging branches
- Cracks, fungi, and cavities
- Weak trunk or branch unions
- Encircling root compressing the trunk (a flat-sided trunk at the ground level is a good indicator). See illustration above.
- Recent lean (especially if the soil or grass has lifted on one side).

Branch Unions

If anything is found, or if in doubt, contact an arborist, p. 28.

Pruning*

Pruning can be dangerous work. Follow these safety precautions to be sure you are around to enjoy your tree.

⚠ **Electricity flows through branches.**
Never prune trees or branches that are within 10 feet of utility lines; instead contact your local utility company.

⚠ **Ladders and trees do not mix.**
If pruning cannot be done with both feet on the ground, hire an arborist (p. 28).

⚠ **Chainsaws cut limbs.**
If power equipment is required, hire an arborist (p. 28).

The main reasons for pruning trees are safety, health, and esthetics. Pruning can encourage trees to develop a strong structure and reduce the likelihood of damage during severe weather.

Pruning for safety involves removing branches that could fall and cause injury or property damage, trimming branches that interfere with lines of sight on streets or driveways, and removing branches that grow into utility lines.

Pruning for health involves removing diseased or insect-infested wood, thinning the crown to increase airflow and reduce some pest problems, and removing crossing and rubbing branches.

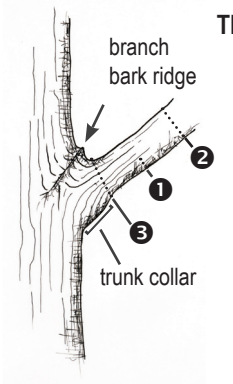
Pruning for esthetics involves enhancing the natural form and character of trees or stimulating flower production.

*Except where noted, this section has been adapted in part, from: Bedker, P.; O'Brien, J.; Mielke, M. 1995. How to prune trees. [Newtown Square], PA: USDA Forest Service Northeastern Area. 30 p.

Where to Cut

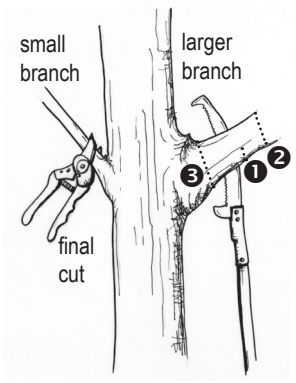
Support the branch with one hand while you make the cut to prevent the bark from ripping. If the branch is too large to support, use the three-step method (see details below).

For the final cut, look for the branch bark ridge and trunk collar. Begin the cut just outside of the branch bark ridge, and angle down away from the trunk. Stay close to the trunk collar without cutting into it (see images below).



Three-step method

1. Cut one-third of the way through the branch on the under side.
2. Go 2-4 inches beyond the undercut to remove the branch.
3. Make the final cut just outside the branch bark ridge and trunk collar.

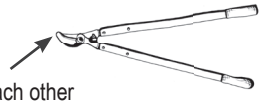


Pruning Tools

BEST

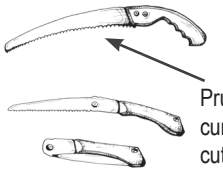
Hand pruner—bypass type

Lopper—bypass type



Bypass blades cross each other like those in a scissors.

Hand saw



Pole saw or pruner

Pruning saws usually have curved blades with teeth that cut when you pull.

OK

Bow saws can be used, but it is often difficult to fit the saw between branches to make the correct pruning cut.

How Often

Beginning 2 years after planting, prune lightly every year or every other year. After 10 years, frequency of pruning depends on the type of tree and amount of shade the canopy receives.

Do not remove more than 25 percent of the tree's live branches (and therefore leaves) at any one time.

Tree Type	First 10 years	10+ Years After Planting
Fruit trees	Once every 1-2 years	Once every 1-3 years
Deciduous shade trees	Once every 1-2 years	Once every 4-7 years*
Evergreen trees	Only as needed**	Only as needed**

* Pruning lightly and more frequently is better than pruning heavily and less often.
** Evergreen trees usually need pruning only if they are diseased or their branches need to be raised up from the ground. In either case, prune off the entire branch (p. 19).

Removal of the following can be done every year:

- Broken, dead, or rubbing branches
- Branches sprouting from the base of the trunk.

Time of Year

Winter is best time of year to prune because branches are easy to see, diseases cannot be spread, and there is minimal stress to the tree. But for most trees, pruning can be done at any time. Exceptions are trees that are prone to fire blight or oak wilt.

Trees susceptible to fire blight include mountain ash, apple, crabapple, hawthorn, pear, flowering quince, and pyracantha. Trees susceptible to oak wilt include most oaks. To minimize disease infection of these types of trees, follow the pruning guidelines on the next page.

FIRE BLIGHT

Range: All counties in the United States

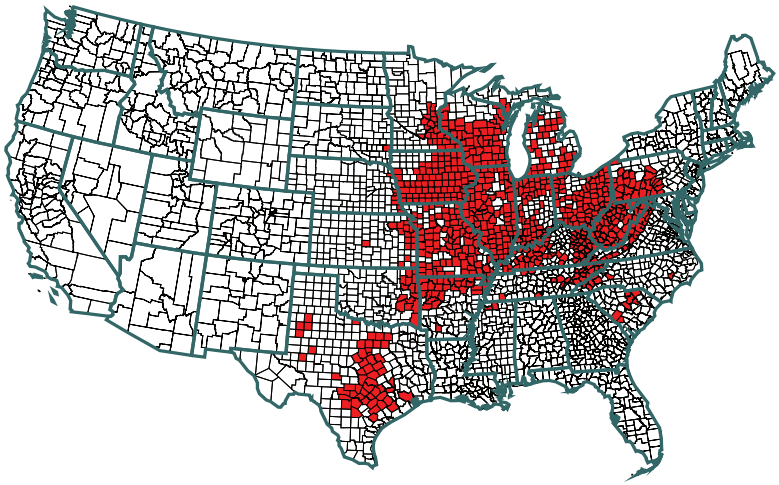
Types of trees: mountain-ash, apple, crabapple, hawthorn, pear, flowering quince, pyracantha

Pruning guidelines: Avoid pruning from the time that spring flowers emerge until leaves drop. If pruning must be done on these tree types during disease-transmission times, sanitize pruning tools before each branch is pruned. Use rubbing alcohol, or household bleach diluted 1 to 9 with water. Tools should be immersed in the solution, preferably for 1-2 minutes. Bleach is corrosive to metal, so tools should be thoroughly cleaned with soap and water after each use.

OAK WILT

Range: See map below

Types of trees: oaks



Pruning guidelines: Avoid pruning from early spring through early summer (April, May, and June in the Lakes States). Check with your plant diagnostic clinic (see page 31 for phone numbers) to get exact dates for your area. If pruning must be done on oaks during disease-transmission times, immediately apply wound paint after the cut is made.

Wound dressings are not necessary in any other case. In fact, they may be harmful.

Pruning Young Trees*

Pruning a young tree saves money. Removing small branches is fairly easy compared with waiting until limbs are large, when pruning can be costly and a bigger risk to the tree. Correctly pruning a tree when it's young will help it develop a strong, well-balanced crown. Prune to have the following:

A. Branches that are well-attached to the trunk
Branches with a branch bark ridge (bark pushed out at the point where the branch attaches to the trunk) are less likely to break off in wind or heavy ice or snow. Branches that are less than half the diameter of the trunk are also less likely to break off in storms.

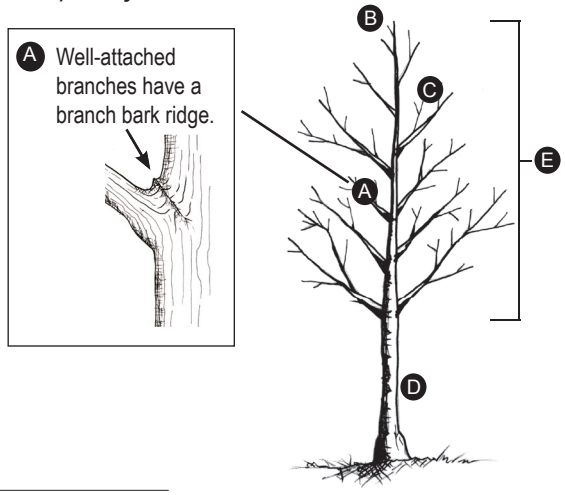
B. One central leader
Most trees will be strongest if they have one central leader (instead of multiple). Unless your tree is an arborvitae or fruit tree, choose one leader to keep, and prune off the competitors.

C. Good spacing between branches
Vertical space between branches should eventually be 12 inches for fruit or small-statured trees and 18 inches for medium- and large-stature deciduous trees. Try to space branches equally around the tree.

D. Enough clearance between the ground and first branch
As a tree grows taller, branches remain at the same height. Branches located low on the trunk may get in the way of sidewalk paths or lawn mowing as the tree gets bigger. Over time, gradually remove low branches.

E. Good crown height
The crown of a deciduous tree should be at least 60 percent of the total tree height.

Do not remove more than 25 percent of the tree's live branches (and therefore leaves) at any one time.



*Gilman, E. 2002. An illustrated guide to pruning, 2d ed. Albany, NY: Delmar Publishers. 330 p.

Topping*: (Also called stubbing, heading, tipping, hat-racking, dehorning, or roundover)

Topping is not pruning.
Topping is the indiscriminate removal of branch ends. Topping injures and ultimately results in early failure or death of a tree.

TIP: If the end of the branch must be removed, cut it back to a side branch that is at least one-third (preferably one-half) the diameter of the branch being cut.

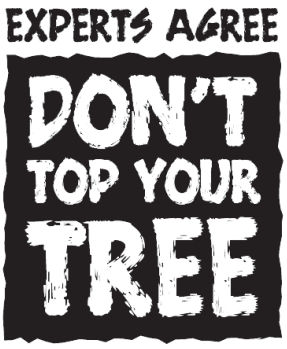
Topped tree

Myth: Topping will make the tree easier to maintain.
Truth: Topped trees can regain their original height quickly, often in 2 years. A topped tree will require more attention than a properly pruned tree because of the fast growing, loosely attached shoots that form.

Topped tree with regrowth

Myth: Topping invigorates a tree.
Truth: Topping immediately injures a tree and starts it on a downward spiral. Topping wounds expose the tree to decay and invasion from insects and disease. While a tree may survive topping, its life span will be significantly reduced.

Myth: Topped trees will add value to your property.
Truth: Topped trees lack natural beauty and may actually reduce your property values. Also, a topped tree can become hazardous and cause property damage, making it a liability.



*Adapted, with permission, from the "Experts Agree: Don't Top Your Tree" campaign which was developed by the Missouri Community Forestry Council and Forest ReLeaf of Missouri, with financial assistance currently provided by the Missouri Department of Conservation.