

PLANT A  
BETTER  
FUTURE



COLORADO



## THE RIGHT TREE

Selecting Trees for Maximum Benefit in Urban, Suburban and Rural Communities • Safety & Electric Service Reliability • Energy Conservation • Appearance & Health • Proper Tree Planting • After Planting Care • Natural Directional Pruning



## CONTENTS

INTRODUCTION .....	2
BENEFITS OF PLANTING TREES .....	3
SAFETY & ELECTRIC RELIABILITY .....	4
CALL BEFORE YOU DIG PHONE NUMBERS .....	5
ENERGY CONSERVATION.....	6
SELECTING A TREE .....	7
SOIL TEST PHONE NUMBERS.....	9
TREE SPECIES LIST .....	10
PLANTING YOUR TREE .....	14
CARING FOR YOUR TREE .....	18
PRUNING YOUR TREE.....	18
NATURAL DIRECTIONAL PRUNING .....	19





## PLANT A BETTER FUTURE MEANS CHOOSING THE RIGHT LOCATION FOR YOUR TREE

There are many potential benefits of planting trees—environmental, economic and social. However, trees that are poorly placed can create problems. Our goal is to help you understand why choosing a suitable location for your tree provides a better future for your tree and all of us.

Trees growing near high voltage power lines can cause downed lines and power outages in storms. Because tree branches can carry electricity, trees interfering with power lines may cause short circuits, activate protective equipment, and interrupt service. Trees can also provide access to high voltage power lines that can lead to severe injury and death from electrical contact. Pruning trees away

from power lines can help prevent these situations from occurring, but severely pruned trees are, at best, unsightly. At worst, they become unhealthy, trees with a high risk of failure that need to be removed.

Trees can also extend the length of an outage to underground utility lines if they interfere with access to equipment. Overgrown trees can scrape the sides of houses or cars, drop fruit and leaves into neighbors' yards, block signage, hang low over sidewalks or even cause them to heave or break.

All of these potential problems can easily be avoided by planting the right tree in the right place.



## BENEFITS OF PLANTING TREES

This guide provides information for homeowners, nurseries, garden centers, tree growers, landscape designers, builders, businesses and other landowners on the selection and placement of trees to maximize their benefits and to avoid any hazards the trees might create. When you properly select and site a tree, you will bring many benefits to your home and community.

### **Energy and Cost Savings**

Properly placed shade trees lower temperatures in communities and homes and reduce the need for air conditioning, conserving energy and dollars and reducing air pollution. Trees shade homes, streets and parking lots reducing the urban heat island effect. In winter, the correct trees can provide shelter from winds, reducing energy usage. See page 6 for more information.

### **Air and Water Quality**

Trees help improve air quality by trapping particulates and absorbing carbon dioxide. Trees play an important role in the environmental cycle by absorbing carbon dioxide and giving off oxygen. Trees store large amounts of carbon in their trunks and leaves, which reduces the environmental effects of burning fossil fuels. Their roots help hold soil in place, reducing erosion and slowing water runoff, contributing greatly to water quality.

### **Improved Wildlife Habitat**

Trees provide nesting places and safe cover for many species of birds and other animals.

### **Increased Property Values**

Trees also enhance property values. Studies have shown that mature trees raise the value of homes by 15 percent or more. They add to the beauty and comfort of a home and can screen an unattractive view or provide privacy. Businesses also benefit from trees planted on boulevards and shopping areas, attracting more customers to their stores. Alternatively, poor species selection and poorly placed trees, such as tall-growing trees planted too close to power lines, can decrease your property value, or block business signage.

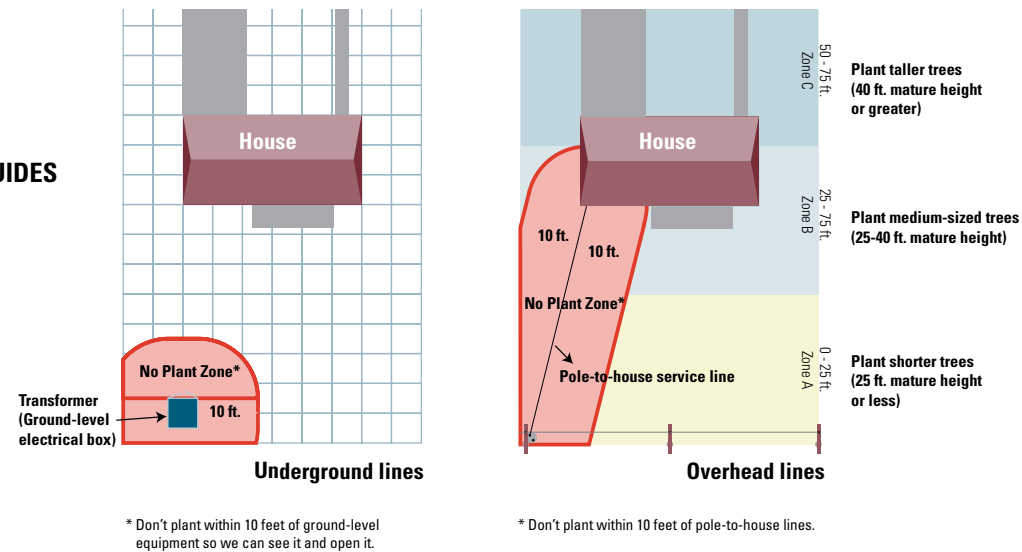
### **Healthier Communities**

Trees enhance social interaction in communities. Trees are a focal point for gatherings and help reduce the isolation of inner city neighborhoods. Tree plantings are effective ways to bring communities together, which helps them organize for other community goals as well. Thus trees become catalysts for creating healthier communities.

### **Better Species Selection**

Selecting the right tree as listed in this guide helps eliminate invasive, non-native species of trees (such as Russian Olive and Buckthorn) that are banned for planting by some state governments.

## PLANTING ZONE GUIDES



## SAFETY & ELECTRIC SERVICE RELIABILITY

Trees are a common cause of electric service interruptions nationwide. Even with regular tree maintenance, we respond to many service calls because trees have interrupted electrical service. Trees in power lines can cause serious and sometimes fatal accidents involving contact with power lines. Understanding the “zone” approach to finding a good spot for your tree can help solve many of these problems. You will find a hardiness zone guide with corresponding tree recommendations on pages 10-13.

### Overhead Lines

To help ensure electric service reliability and public safety in your neighborhood, consider the tree planting zones in the illustration above. No trees should be planted within 10 feet of the service line to your home or

business, which is the line between the pole and the house or building. Larger trees must be planted even further away from the main power lines that run along backyards, alleys or roadways. Generally the taller the tree grows, the further it should be from any power lines.

### Underground Lines

If you have underground utility lines, be careful not to locate a tree or shrub in front of any electrical equipment installed at ground level. When power outages occur, our crews need to locate and access the equipment quickly. If equipment is hidden or the doors are blocked, the length of the outage may be extended plus your plantings could be damaged.

## CALL BEFORE YOU DIG

### Transmission Lines

The larger lines that carry power from power plants to substations are called “transmission lines”. They carry higher voltage electricity than the typical distribution system found in most neighborhoods. The support structures for transmission lines are H-frame wood poles, single steel poles, or steel lattice-type towers.

Please do not plant trees under transmission lines. Not only can trees become overgrown and cause power outages, they also can block the path of construction vehicles that need access to the lines for maintenance and emergency repairs. For further information about trees and transmission lines, contact our Siting & Land Rights department.

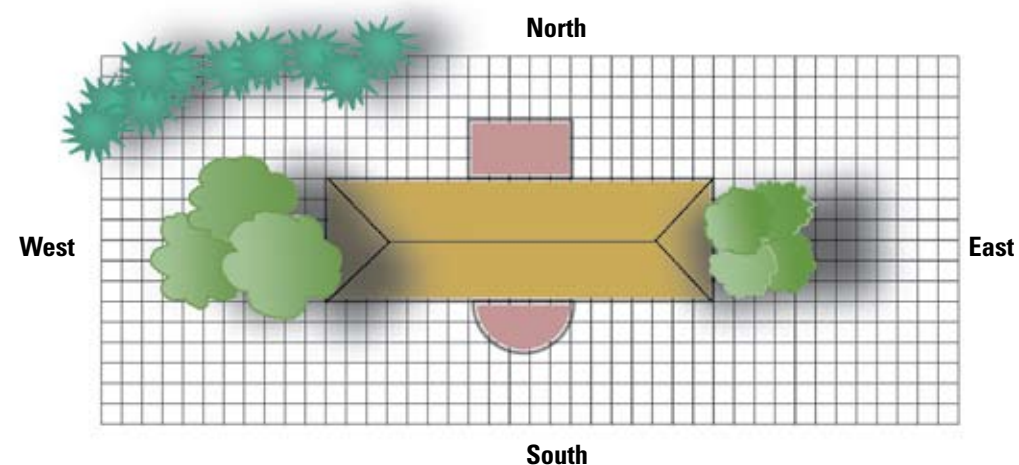
**Colorado:**  
1-800-621-9427

Underground utility lines can present serious safety risks when digging a site for tree planting. You must call for a “locate” to identify all underground electric, gas, water, sewer, cable and telephone lines to help choose a good planting site and before you do any digging. Call 811 or the one-call service center in your state to locate these lines for you within three days. Don't dig within 24 inches of these line locations.

**Colorado:** Call 811 or the Utility Notification Center of Colorado 1-800-922-1987.”







Save energy by planting trees that shade your house on the east and west sides in summer. The trees will then shed their leaves in the fall to allow heat gain from the winter sun. In cooler climates, evergreens planted on the north or northwest side can provide a winter windbreak.

## ENERGY CONSERVATION

*Properly placed trees can conserve energy and reduce your heating and cooling bills.*

### Cooling

Planting deciduous trees—trees that drop their leaves in the fall—on the west and east sides of your house will provide the greatest energy savings by blocking the morning and afternoon sun in the summer and letting the sunlight warm your home in the winter.

In addition, trees planted to shade driveways, patios, sidewalks and streets will help create a cooler environment around the home. Trees do this by shading the concrete from sun and through transpiration, a natural evaporative cooler. Reducing cooling costs also reduces the peak demand for electricity in summer months, helping to reduce the need for new power plants and keeping electricity costs down.

*In southern climates only*, where winters are fairly warm and summers are very hot, plant large- and medium-sized shade trees close to the house on the southwest side. These will add to your energy savings by reducing cooling costs even further.

### Heating

Trees planted as a windbreak on the north/northwest side of the house can reduce air infiltration and heating costs in the winter. This can be accomplished by planting a dense row of evergreen trees with a row of shrubs or smaller trees in front.

In colder climates, avoid planting trees on the south side of your house. On sunny winter days, you can open your shades on the south side to take advantage of passive solar warmth.



**Blossoms.** Many trees have colorful blossoms, including: crabapples (*Malus* spp.), callery pears, magnolias, and most of the *Prunus* spp. (plums and cherries).



**Fruit.** Many trees have fruit that attracts wildlife and adds color to your yard, including: crabapples, the yaupon (*Ilex vomitoria*), hawthorns (*Crataegus* spp.) and the Texas madrone (*Arbutus texana*).



**Fall Color.** Trees with brightly colored leaves in the fall include: amur maple (*Acer ginnala*), serviceberry (*Amelanchier* spp.), red oak and eastern redbud (*Cercis canadensis*).



**Bark.** Some trees have attractive bark that is especially noticeable in the winter, such as: three-flowered maple (*Acer triflorum*), goldenball leadtree (*Leucanena retusa*), and the western water birch (*Betula occidentalis*).



**Evergreens.** Evergreens provide year round color and shelter for the birds: All the conifers on our recommended tree species list are evergreen, as is the Texas madrone (*Arbutus texana*) and several other low-desert trees.

## SELECTING A TREE

### Appearance

When choosing a tree, you should consider its appearance and how it fits into your landscape. Trees vary widely in size and shape. Two general distinctions are those that drop their leaves or needles each year (deciduous) and those that are green all year round (evergreens or conifers). Many have showy blossoms, turn bright colors in the fall or have attractive bark.

### Size

The small sapling at the nursery that might seem to fit well under power lines can grow very rapidly—taller than you might anticipate. This guide lists only trees that may be planted under or near some distribution power lines. (See the planting zone guides on page 4). Many shrubs fit well under power lines as well. Larger trees can be planted in other places in your yard, but be sure to place them far enough from power lines, the house and other obstructions, so they don't require pruning for power line clearance as they grow and spread to their mature size.

Generally medium-sized trees that grow no taller than 40 feet should be at least 25 feet away from a power line. Tall trees that will grow to more than 40 feet should be at least 50 feet from the line. The size of the tree at maturity should also be a consideration when siting it in relation to your house. Trees planted too close to a house can damage the roof, siding or cause foundation problems.

Consider how the tree will look when mature. Will it frame the house nicely or overwhelm it? Sometimes a tree that seems too big in a front yard will make a good background for the house when placed in the back. Consult your local nursery about trees that grow well in your area and their mature size. This will help you make the right decision about what to buy and where to place your trees.



**Health**

Another consideration in tree selection is the long-term health of the tree, which can be affected by soils, climate, and susceptibility to disease and insect pests.

**Size**

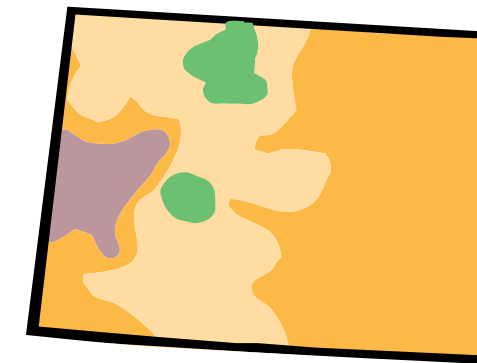
Again, mature size is an important consideration. Trees that need to be pruned severely to fit into their space are prone to disease, insect infestation and wind damage.

**Cold Hardiness Zone**

Select trees that are hardy in your area so they will withstand cold winters and the heat of summer. Trees in this guide are identified by their cold hardiness zone. Check the map on page 9 to see which trees will thrive in your area.

**Soil**

Soil conditions can affect the health of your trees. Some trees don't do well in boggy, poorly drained, clay or heavily compacted sites. Others have problems in sandy soils that don't hold moisture. The pH of the soil can affect growth in some trees. Most trees listed in this guide are widely adaptable to a variety of soil types. Check the special notes, however, to make sure the tree you choose will do well on your site. If you need help determining your soil type, consult your local agricultural extension office or a private soil testing laboratory. They can give you information for your area and even test your soil if necessary.



SOIL TEST  
PHONE  
NUMBER  
**Colorado**  
970-498-6000

**Insects and disease**

Some tree species are particularly prone to certain disease or insect infestations. Choosing other species or disease-resistant cultivars of these trees can help assure the long-term health of your trees.

**Heat and rainfall**

Be sure to check with an arborist or your nursery for trees that are well adapted to your climate.

Use these Cold Hardiness Zones to select trees that will survive winter in your region.

**Hardiness Zone Key**

Zone 3	-40	To	-30	
Zone 4	-30	To	-20	
Zone 5	-20	To	-10	
Zone 6	-10	To	0	
Zone 7	0	To	10	
Zone 8	10	To	20	
Zone 9	20	To	30	
Zone 10	30	To	40	

(temperatures are average lows in degrees F.)



**APPROPRIATE TREES**—for planting under or near distribution power lines

**DECIDUOUS TREES**

	Size	Form	Rate <sup>1</sup>	Zone	Fall Color	Flower	Light <sup>2</sup>	Culture/Comments
<i>Acacia farnesiana</i> <b>sweet acacia</b>	15-30' h 30'w	spreading	S	8-10	—	yellow	○	Thorny. Evergreen. Multi-stemmed. blooms best in spring.
<i>Acacia abeyra</i> <b>mulga</b>	14-18'h 14-18'w	upright	M	9-10	—	yellow	○	Not thorny. Evergreen. Blooms best in winter & spring. Desert adaptable.
<i>Acer circinatum</i> <b>vine maple</b>	20'h 20'w	rounded	S	5-8	orange-red	—	●	Multi-stemmed.
<i>Acer ginnala</i> <b>Amur maple</b>	15-25'h 15-25'w	rounded	M	3-8	yellow red	yellow fragrant	○	Wide range of soils and pH. Best in moist, well drained soil.
<i>Acer glabrum</i> <b>Rocky Mountain maple</b>	25'h 15'w	rounded	M	4-8	—	—	●	Multi-stemmed.
<i>Acer griseum</i> <b>paperbark maple</b>	20-30'h 20-30'w	oval to rounded	S	5-7	russet red	—	○●	Tolerant of wide range of soils and pH. Best in moist, well drained soil.
<i>Acer palmatum</i> <b>Japanese maple</b>	15-25'h 15-25'w	rounded	S	5-8	yellow red	—	●	Well drained soil.
<i>Acer tataricum</i> <b>Tatarian maple</b>	15-25'h 15-25'w	rounded to spreading	S/M	3-8	yellow reddish-brown	—	○●	Tolerant of harsh conditions, including high pH and drought. Not as hardy as ginnala.
<i>Acer triflorum</i> <b>three-flowered maple</b>	20-30'h 20-30'w	spreading	S	4-7	yellow & red	white	○●	Moist, well drained acidic soil. Lovely exfoliating golden amber bark.
<i>Acer truncatum</i> <b>Shantung maple</b>	20-30'h 20-30'w	rounded	S	4-8	yellow to red	—	○●	Drought tolerant and hardy.
<i>Aesculus pavia</i> <b>red buckeye</b>	10-20'h 10-20'w	rounded	S	4-8	—	—	○●	Well drained, acidic soil.
<i>Amelanchier spp</i> <b>serviceberry</b>	20-30'h 12-20'w	columnar to oval	M	4-8	yellow copper to red	white pink	○●	Can form thickets. White fruit. Select cultivars: 'Cumulus,' 'Majestic,' 'Autumn Brilliance,' 'Robin Hill.'
<i>Betula occidentalis</i> <b>western water birch</b>	25'h 20'w	pyramidal	M	4-7	yellow	—	○●	Bark resembles that of cherry.
<i>Caesalpinia cacalaco</i> <b>casalote</b>	10-15'h 10-15'w	spreading	F	9-10	yellow	—	○	Semi-deciduous. Thorny. Best bloom in winter. Desert adaptable.
<i>Carpinus caroliniana</i> <b>blue beech, ironwood</b>	25'h 20'w	spreading	S	4-9	yellow orange-red	—	●	Best in deep, rich, moist soil. Withstands periodic flooding.
<i>Cercidium microphyllum</i> <b>foothills palo verde</b>	12-20'h 12-25'w	spreading	M	8-10	—	yellow	○	Multi-stemmed. Thorny. Flowers best in spring.
<i>Cercidium praecox</i> <b>palo brea</b>	20-30'h 20-30'w	spreading	M	9-10	—	yellow	○	Semi-deciduous. Thorny. Multi-stemmed. Blooms best in spring. Desert adaptable.
<i>Cercis canadensis 'alba'</i> <b>whitebud</b>	20-30'h 25-35'w	rounded	M	4-9	yellow-green	white	○●	Moist, well-drained soils. May be less robust than eastern redbud.
<i>Cercis canadensis</i> <b>eastern redbud</b>	20-30'h 25-35'w	rounded	M	4-9	yellow-green	pink	○●	Wide range of pH. Does well in moist soil (not extremely wet). Legume.
<i>Cercis canadensis var. texensis</i> <b>Texas redbud</b>	20'h 20'w	rounded	M	6-8	—	pink purple	○●	Good drainage. Soil adaptable.
<i>Chilopsis linearis</i> <b>desert willow</b>	15-20'h 10-15'w	spreading	M	7-9	—	pink rose	○	Well drained, dry soil. Persistent fruit. Form is very loose and open.

<sup>1</sup>Growth Rate S=less than 12 in/yr, M=13-25 in/yr, F=more than 25 in/yr. <sup>2</sup>Light ○ Full Sun, ● Partial Shade, ● Full Shade.  
**Notes:** This list was developed with the intent of presenting a starting point for tree selection. Please work with your local forester or nursery to determine specific benefits and limitations of each species for your area. Some of the species are often found as both shrubs and in tree form, e.g. pussywillow and nannyberry. A shrub form can easily be pruned into a multi-stemmed small tree.

**APPROPRIATE TREES**—for planting under or near distribution power lines

	Size	Form	Rate <sup>1</sup>	Zone	Fall Color	Flower	Light <sup>2</sup>	Culture/Comments
<i>Cornus alternifolia</i> <b>pagoda dogwood</b>	15-25'h 20-30'w	wide spreading	M	3-7	reddish-purple	yellow white	○●	Keep root zone cool. Moist, acidic well drained soil. Best in cooler climates. Fruit enjoyed by birds.
<i>Cornus drummondii</i> <b>roughleaf dogwood</b>	20'h 20'w	open spreading	S/M	5-8	—	white	●	Can form thickets. White fruit.
<i>Cornus florida</i> <b>flowering dogwood</b>	20'h 20'w	spreading	S/M	5-9	—	white	●	Acidic, well drained soil. Birds enjoy fruit. Zone 5 requires hardy seed.
<i>Cornus kousa</i> <b>kousa dogwood</b>	20-30'h 20-30'w	vase to rounded	S	5-8	purple scarlet	creamy white	●	Acidic, well drained soil. Pink to red fruit late in summer.
<i>Cornus mas</i> <b>Cornelian-cherry</b>	20-25'h 15-20'w	oval to rounded	M	4-7	purple-red	yellow	○●	Prefers rich well drained soil. Wide range of pH. Bright red fruit.
<i>Cotinus coggygia</i> <b>common smoketree</b>	10-15'h 10-15'w	spreading rounded	M	5-8	yellow-red	—	○	Soil and pH adaptable. Prefers rich, well drained soil. Bright red fruit.
<i>Cotinus obovatus</i> <b>American smoketree</b>	25'h 25'w	rounded	M	4-8	yellow to red	pink purple	○●	Heat and drought tolerant. Soil adaptable.
<i>Crataegus spp</i> <b>hawthorn</b>	15-30'h 15-35'w	rounded to oval	S/M	4-8	Vaughn scarlet, Winter King red-gold	white red	○	Well drained soil. Tolerates urban stresses. Birds enjoy 1/2" red fruit that persists until late fall. Check cultivars for details. Select cultivars: 'Vaughn,' var. Inermis, 'Superba,' 'Ohio Pioneer,' 'Winter King.'
<i>Eucalyptus torquata</i> <b>coral gum</b>	15-25'h 15-25'w	spreading	M	9-10	—	pink	○	Evergreen. Desert adaptable.
<i>Fraxinus cuspidata</i> <b>fragrant ash</b>	20'h 15'w	upright rounded	M	7-9	—	white	○	Soil adaptable. Heat and drought tolerant. Fragrant flowers.
<i>Halesia tetraptera</i> <b>Carolina silverbell</b>	25-30'h 25-30'w	oval	M	4-8	—	white bell shaped	○●	Moist, well drained acidic soil. Does not tolerate high pH.
<i>Hamamelis virginiana</i> <b>witch hazel</b>	20-30'h 20-25'w	rounded	M	4-8	yellow	yellow	●	Moist soil. Somewhat tolerant of urban environment. Flowers in fall.
<i>Ilex decidua</i> <b>possumhaw</b>	15-30'h 15-25'w	spreading	M	5-9	yellow	white	○●	Tolerant of wide range of soils.
<i>Ilex vomitoria</i> <b>yaupon</b>	15-20'h 15-20'w	upright irregular	M/F	7-10	—	—	○●	Soil adaptable. Salt tolerant. Scarlet fruit.
<i>Koelreuteria paniculata</i> <b>Goldenrain tree</b>	25'-30'h 25-30'w	rounded	M/F	5-8	yellow amber	showy yellow	○	Soil and pH adaptable. Tolerant of drought, heat and wind.
<i>Leucaena retusa</i> <b>goldenball lead tree</b>	15-25'h 15-25'w	rounded	F	7-9	yellow red	yellow	○●	Moist, well drained soil. Gray exfoliating bark. Multi-stemmed.
<i>Lysiloma microphylla var. thornberi</i> <b>feather tree</b>	15'h 15'w	spreading	M/F	9-10	—	white	○	Evergreen. Multi-stemmed. Desert adaptable.
<i>Maackia amurensis</i> <b>Amur maackia</b>	20-30'h 20-30'w	rounded	S	6-8	—	white	○	Loose well drained soil. Tolerant of wide range of pH. Nitrogen fixing.
<i>Magnolia 'Galaxy'</i> <b>galaxy magnolia</b>	20-30'h 15'w	pyramidal	S	6-8	bronze	purple pink	○	Rich, moist, acidic soil.
<i>Magnolia x soulangiana</i> <b>saucer magnolia</b>	20-30'h 20-30'w	oval to rounded	S	5-8	—	large white purple	○	Moist, well drained soil.

<sup>1</sup>Growth Rate S=less than 12 in/yr, M=13-25 in/yr, F=more than 25 in/yr. <sup>2</sup>Light ○ Full Sun, ● Partial Shade, ● Full Shade.  
**Notes:** This list was developed with the intent of presenting a starting point for tree selection. Please work with your local forester or nursery to determine specific benefits and limitations of each species for your area. Some of the species are often found as both shrubs and in tree form, e.g. pussywillow and nannyberry. A shrub form can easily be pruned into a multi-stemmed small tree.

**APPROPRIATE TREES**—for planting under or near distribution power lines

	Size	Form	Rate <sup>1</sup>	Zone	Fall Color	Flower	Light <sup>2</sup>	Culture/Comments
<i>Magnolia stellata</i> <b>star magnolia</b>	10-20'h 10-15'w	oval	S	4-8	—	white	○	Sheltered location in north. Prefers moist, rich well drained acid soil.
<i>Magnolia x soulangiana</i> <b>saucer magnolia</b>	20-30'h 20-30'w	oval to rounded	S	5-8	—	large white purple	○	Moist, well drained soil.
<i>Malus spp</i> <b>flowering crabapple</b>	10-35'h 10-25'w	oval to rounded	varies	2-8	—	white pink red	○	Well drained acid soil. Very adaptable to soil types. Select cultivars: 'Adams,' 'Centzam,' 'Hargozam,' 'Jewelcole,' 'Mazam,' 'Prairiefire,' 'Professor Sprenger,' 'Red Barron,' 'Snowdrift,' 'Spring Snow,' 'Sutyzam' and more.
<i>Olneya tesota</i> <b>desert ironwood</b>	20-30'h 20-30'w	spreading	S	9-10	—	pink-purple	○	Evergreen. Thorny. Long-lived. Edible seeds. Desert adaptable.
<i>Pistacia texana</i> <b>Texas pistache</b>	20'h 20'w	irregular	S	8-9	—	dark red	○●	Good drainage. Heat, salt, drought tolerant; pH adaptable
<i>Pithecellobium flexicaule</i> <b>Texas ebony</b>	15-20'h 15-20'w	spreading	S	9-10	—	cream-yellow	○	Evergreen. Multi-stemmed. Very thorny. Desert adaptable.
<i>Prunus americana</i> <b>American plum</b>	15-25'h 10-20'w	rounded	F	3-8	—	white	○	Very hardy tree thrives with neglect. Can form thickets. Fruit used for jams.
<i>Prunus mandshurica</i> <b>Manchurian apricot</b>	15-25'h 15-25'w	upright rounded	M	4-8	golden orange	white to pink	○	Rich, well drained loam. Fruit producing cultivars may not be hardy in the north. Hardy cultivars include: 'Manchu,' 'Sun-gold' and 'Moongold.'
<i>Prunus cerasifera</i> <b>purple leaf plum</b>	15-20'h 15-20'w	rounded	M	4-8	—	pinkish white	○●	Moist, well drained soil. Purple fruit in summer. Reddish-purple leaves.
<i>Prunus maackii</i> <b>Amur chokecherry</b>	20-30'h 18-25'w	oval to rounded	F	3-6	—	white	○	Fertile, well drained soil. Easily develops girdling roots. Beautiful amber-colored birchlike bark.
<i>Prunus mexicana</i> <b>Mexican plum</b>	20'h 20'w	rounded	M	6-8	—	white	○●	Soil adaptable. Edible purplish-red plum. Does not form thickets.
<i>Prunus nigra</i> 'Princess Kay' <b>princess kay plum</b>	10-20'h 8-10'w	upright	M	2-5	—	double white	○	Requires well drained soil. Not drought tolerant. Yellow-red fruit. Prominent lenticels on dark bark. Susceptible to black knot.
<i>Prunus</i> 'North Star' & 'Meteor' <b>sour cherry</b>	10-15'h 10-12'w	rounded	M	4	gold yellow	white	○	Well drained soil. Red berry used for preserves and eaten by birds.
<i>Prunus virginiana</i> 'Schubert' <b>Canada red chokecherry</b>	20-30'h 15-20'w	oval	M	3-8	—	white	○	Tolerates low fertility and dry sites. Dark red-purple leaves and fruit. Susceptible to insects and black knot. Hardy and attractive.
<i>Pyrus calleryana</i> 'Autumn Blaze' <b>autumn blaze callery pear</b>	25-30'h 25-30'w	rounded	M	3-8	orange/red	white	○	Tolerant of wide range of pH. Urban and salt tolerant.
<i>Quercus gambelii</i> <b>gambel oak</b>	20'h 15'w	spreading	S	3-8	—	—	○	Low maintenance.
<i>Rhus lanceolata</i> <b>prairie flameleaf sumac</b>	25'h 25'w	irregular	M/F	6-9	reddish purple	yellow green	○	Soil adaptable. Heat and drought tolerant. Fruit red to black at maturity.

<sup>1</sup>Growth Rate S=less than 12 in/yr, M=13-25 in/yr, F=more than 25 in/yr. <sup>2</sup>Light ○ Full Sun, ● Partial Shade, ● Full Shade.

**Notes:** This list was developed with the intent of presenting a starting point for tree selection. Please work with your local forester or nursery to determine specific benefits and limitations of each species for your area. Some of the species are often found as both shrubs and in tree form, e.g. pussywillow and nannyberry. A shrub form can easily be pruned into a multi-stemmed small tree.

	Size	Form	Rate <sup>1</sup>	Zone	Fall Color	Flower	Light <sup>2</sup>	Culture/Comments
<i>Salix discolor</i> <b>pussy willow</b>	15-18'h 12-15'w	pyramidal to oval	M	4-8	—	—	○	Moist to wet soil. Multi-stemmed, fuzzy silver catkins.
<i>Salix matsudana</i> 'Tortuosa' <b>corkscrew willow</b>	20-30'h 15-25'w	rounded	F	5-8	—	—	○●	Salt tolerant. Branches spiral and twist. Young branches are yellowish.
<i>Sapindus drummondii</i> <b>western soapberry</b>	20-30'h 10-20'w	rounded	M	6-9	yellow gold	yellow white	○●	Tolerant of dry soils. Excellent urban tree.
<i>Sophora affinis</i> <b>eve's necklace</b>	25-30'h 10-20'w	rounded	M	7-9	—	rosy pink	○●	Moist soil. High heat tolerance. Black leathery pod like string of beads is poisonous.
<i>Sorbus alnifolia</i> <b>Korean mountain ash</b>	20-30'h 20-30'w	pyramidal to oval	M/F	4-5	—	white	○	Well drained soil; pH adaptable. No polluted environments. Better lawn than boulevard tree. Does not do well in southern heat.
<i>Staphylea trifolia</i> <b>American bladdernut</b>	10-15'h 10-15'w	oval to rounded	M/F	4-8	dull yellow	greenish white	●	Moist, well drained soil. Good for parks. Flowers are bell-shaped.
<i>Styrax japonicus</i> <b>Japanese snowbell</b>	20-30'h 20-30'w	broad rounded	M	5-8	—	white bells	○●	Moist, acidic well drained soil. Leaves hold late.
<i>Syringa reticulata</i> <b>Japanese tree lilac</b>	20-30'h 15-25'w	pyramidal rounded	M	3-7	—	creamy white	○●	Full sun for best flowers. Loose, well drained acidic soil. Prefers cool summers.
<i>Ugnadia speciosa</i> <b>Mexican buckeye</b>	25'h 25'w	rounded	S	7-8	yellow	pink	○●	Moist soils.
<i>Viburnum lentago</i> <b>nannyberry</b>	15-30'h 15-30'w	oval	M	3-7	purple-red	white	○●	Very adaptable to wide range of conditions.
<i>Viburnum rufidulum</i> <b>rusty blackhaw</b>	15-30'h 15-30'w	oval	M	5-9	purple red	creamy white	○	Well drained soil. High heat tolerance. Dark blue fruit.
<i>Xanthoceras sorbifolium</i> <b>yellowhorn</b>	18-24'h 10-15'w	upright	M	4-7	—	white	○	Loamy soil. Tolerates high pH.

**CONIFERS**

<i>Juniperus chinensis</i> <b>Chinese juniper</b>	12-20'h 15-25'w	pyramidal	S	4-8	—	—	○	Tolerant of wide range of soils and pH and urban environment. Attracts birds. Select cultivars: 'Iowa,' 'Mountbatten,' 'Spartan.'
<i>Juniperus osteosperma</i> <b>Utah juniper</b>	25'h 20'w	pyramidal	VS	3-8	—	—	○	Provides good screen.
<i>Pinus aristata</i> <b>bristlecone pine</b>	8-10'h 10-30'w	spreading	S	4-7	—	—	○	Tolerates dry rocky sites and range of pH. Will not tolerate smoke polluted air.
<i>Pinus cembroides</i> var. <i>remota</i> <b>remote pinon pine</b>	15-20'h 15-20'w	pyramidal	S	5-9	—	—	○	Tolerant of dry soil. Drought and heat resistant.
<i>Pinus edulis</i> <b>pinyon pine</b>	10-20'h 10-15'w	rounded to pyramidal	S	6-8	—	—	○	Tolerant of dry soil. Drought and heat resistant.
<i>Pinus mugo</i> <b>mugo pine</b>	15-20'h 25-30'w	rounded to pyramidal	S	3-7	—	—	○●	Deep moist loam. Tolerant of calcareous soils.
<i>Taxus x media</i> 'Hicksii' <b>hicks yew</b>	3-20'h 10-25'w	broad pyramidal	S	3-7	—	—	○●	Well drained, moist, neutral sandy to acidic loam.
<i>Thuja occidentalis</i> <b>arborvitae</b>	10-25'h 10-25'w	pyramidal	S/M	3-7	—	—	○	pH tolerant. Check specific cultivars for details.

<sup>1</sup>Growth Rate S=less than 12 in/yr, M=13-25 in/yr, F=more than 25 in/yr. <sup>2</sup>Light ○ Full Sun, ● Partial Shade, ● Full Shade.

**Notes:** This list was developed with the intent of presenting a starting point for tree selection. Please work with your local forester or nursery to determine specific benefits and limitations of each species for your area. Some of the species are often found as both shrubs and in tree form, e.g. pussywillow and nannyberry. A shrub form can easily be pruned into a multi-stemmed small tree.



## PROPER TREE PLANTING

Once you have selected the right trees for your site, follow these general steps to make sure it will grow well.

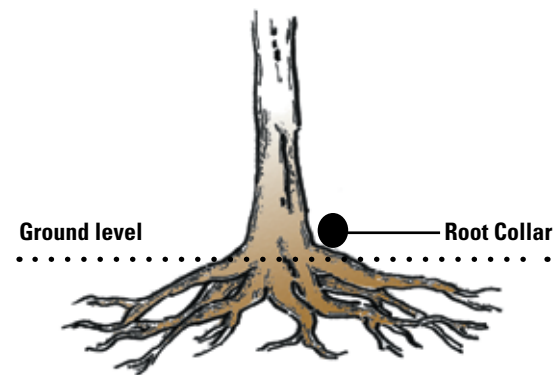
**1. Call before you dig.** Call your state's one call agency (see page 5 for phone number) to locate all underground utility lines in your yard before digging. Stay 24 inches away from markings.

**2. Decide how deep to plant the tree.** The tree's root collar (the bulge right above the root system) should be above the top of the soil once the tree has been backfilled. When a tree is containerized or balled and burlapped at the nursery, dirt is sometimes heaped above the normal grade of the tree. When the tree is planted it is important to expose the root collar by carefully removing this extra soil. Prune away any smaller roots growing from the trunk down to where the first large side roots occur (roots larger than one-inch diameter).

**3. Prepare the site.** Dig a large saucer-shaped hole two to three times wider than the root ball and no deeper than the height of the root ball or container. In the center, dig the hole deep enough to position the root ball with the root collar slightly above ground level. Don't dig the hole too deep. It is better if the root collar is one to three inches higher than ground level because of possible settling. Do not disturb the soil beneath the root ball, and do not place the root ball on top of backfilled soil.

**4. Place the tree carefully in the center of the hole** after removing it from the container. For balled and burlapped or bare-root trees, see pages 16 and 17.

**5. Back fill when the tree is positioned and straight.** Back fill the hole with the soil that was removed. As the back fill is added, lightly push the soil around the roots or water the soil to eliminate air pockets. (Do not pack the soil after you water.) Back fill to the height just below the root collar.



Root collar should be one to three inches above ground level.

**6. Mulch with woodchips** to a depth of two to three inches on top of the planting circle. Keep the mulch four inches away from the trunk to keep fungus from growing on the trunk.

Mulch can be obtained from Xcel Energy contract tree trimming crews working in your neighborhood. Keep in mind that our mulch is not landscaping quality; sticks and leaves are mixed in with the wood chips, especially during the summer months. Each load of mulch is a minimum of 12 cubic yards (about six full-size pickup loads). If you see a truck, ask the crew, and provide a location for the truckload of mulch to be delivered.

**7. Water** is very important to a newly planted tree. A slow, root-saturating one-hour trickle once a week is a good rule of thumb for a new tree. This provides the new roots with sufficient moisture without over-watering them. If it rains or is very dry, the watering schedule should be adjusted accordingly.

**8. Fertilize in the second year.** Do not fertilize a new tree during the first year after planting, as fertilizer is applied at the nursery. Your new tree can be damaged easily by too much fertilizer.





## SPECIAL PLANTING CONSIDERATIONS

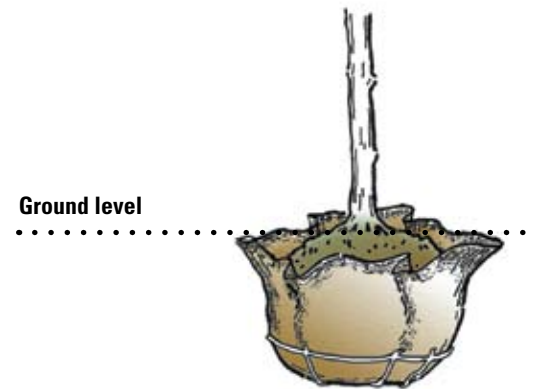
Nurseries sell trees in three forms: balled and burlapped, containerized and bare-root. There are some special planting considerations for each type.

### Balled and burlapped trees

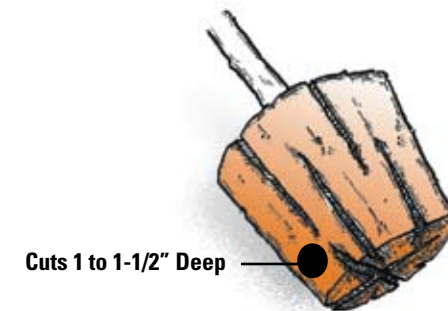
Balled and burlapped trees are generally larger trees dug from the ground at the nursery. The root ball is wrapped in burlap and encased in a wire or string basket.

- The basket and burlap should not be removed until the tree is positioned in the hole. This keeps the root ball intact and prevents the roots from drying out. Dry roots are dead roots!
- Carefully loosen the top of the burlap. Remove soil to determine where the root collar is located—right above where the large roots begin. Dig the hole so the root collar is one to three inches higher than the ground line.
- Carefully place the tree in the hole and cut away as much of the wire basket as you can without disturbing the soil ball.
- Remove all twine and rope from around the ball.
- Remove the nails holding the burlap together and gently fold the burlap back.

Cut away loose burlap without damaging root ball. Leave the remaining burlap and/or wire under the root ball. However, do not leave any burlap exposed above ground in more arid climates, as the burlap will wick moisture away from the roots as it dries.



Balled and burlapped tree in hole. Keep root collar one to three inches above ground level.



Score root bound trees using cuts one to one-and-a-half inch-deep slits. Make an X at the bottom of the root ball before planting.

### Containerized trees

Containerized trees usually come in plastic or paper pots, or wooden baskets.

- Remember, the tree may be planted too deeply in the pot. Remove soil down to the root collar where the first large side roots begin. Plant the tree so that the root collar is at or just above ground level.
- Determine if the tree roots hold the soil together in the pot or if the soil is loose.
- If the soil is packed and the roots are tightly wrapped together, the tree is “root bound”. Carefully remove the tree from the pot. You may have to lay the tree on its side and press the pot to free it from the soil ball. Before planting, make a vertical slice up each quarter of the root ball and cut an X cut across the bottom of the soil ball making cuts one to one-and-a-half inches deep. This will encourage the roots to grow out into

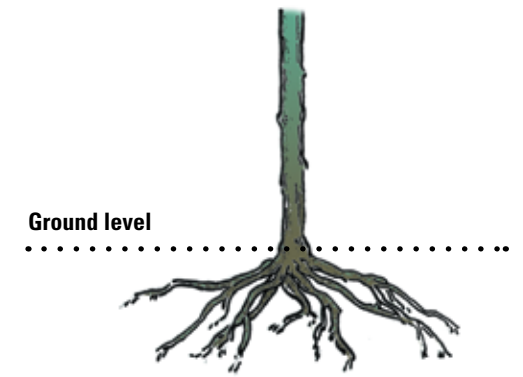
the new soil, away from the tree, rather than encircling and possible killing the tree as it matures.

- If the tree is too large or the root ball is loose, place the tree and pot in the planting hole and adjust for final position. Next, carefully cut around the base of the pot. Then make a slice up one side of the pot. Gently back fill and then remove the sides of the pot. Leave the bottom of the pot in the hole.

### Bare-root trees

A bare root tree has no soil on the roots. The roots must be carefully protected from drying out. Dry roots are dead roots!

- Bare-root trees must be kept cool and moist at all times. Small, hair-like absorbing roots can dry out quickly on a sunny or windy day. Leave these trees in their packing materials and keep them moist, or cover with moist mulch until you are ready to plant.



Bare-root tree planted with root collar at or just above ground level.

- Soak in water for six to 12 hours before planting.
- Make sure the hole you dig is wide enough to spread out the roots completely. Don't wrap the roots around in the hole.
- Since there is no root ball to hold the tree straight, you will need to support it carefully while back filling the hole. Back fill the hole half way and then water it to eliminate any air pockets under the roots before filling the hole completely. Don't pack the soil after watering.
- Be sure to plant the tree so the root collar is at or just above ground level.
- Some bare-root species may have to be “sweated” to break dormancy, or they will not grow. Sweating requires a dark, humid environment to help trees leaf out. Consult your nursery about whether your trees need this procedure.





## AFTER-PLANTING CARE



### Give your tree a drink of water once a week.

Newly planted trees need regular watering. Generally, a deep watering once a week is enough. You do not need to water if there has been sufficient rainfall. Balled & burlapped and containerized trees have all their roots confined to the root ball. Be sure to water the ball thoroughly as well as the surrounding area to encourage root movement into adjacent soil. Water the tree during dry periods for the first three years after planting, including wintertime.

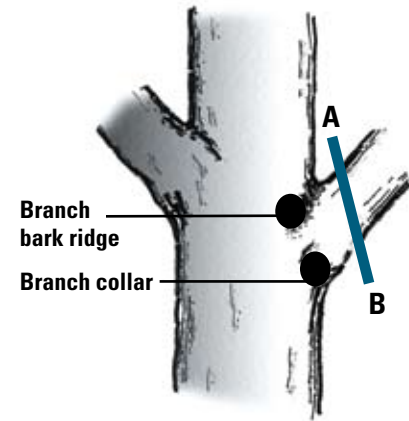
### Don't fertilize your new tree.

Newly planted trees are easily damaged by fertilizer. Do not fertilize the first year after planting. If the trees are planted into fertile soil, they may not require any fertilizer.

### Stake your tree only if it's unstable.

Most newly planted trees do not need staking. Only those that are unstable (and evergreens in high wind areas) should be staked. Secure the tree to the stakes using soft materials, like fabric or rubber, that will not damage the cambium (the layer right under the bark) of the tree. Stakes should be removed after the first year in order for the trunk to strengthen properly.

## PRUNING YOUR TREE



The right cut is from point A to point B. Avoid cutting into branch bark ridge and branch collar.

Pruning is an important maintenance practice that will improve the health, structure and aesthetics of the tree. When you plant, prune all broken, dead or rubbing branches.

For younger trees you may want to “raise the crown” by removing some of the lower branches, especially to provide room to walk or mow under the tree. Only remove a few branches each season. Don't cut the tips off the branches. Instead, make your cuts at the unions between two branches or at the trunk of the tree.

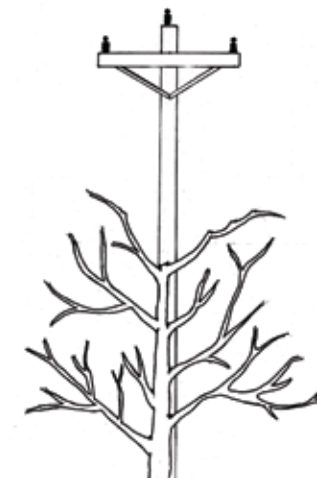
Correct pruning can help ensure the tree's defense against decay, if the proper cut is made. Take a look at the illustration to help make the proper type of cut for smaller branches.

Basic tree trimming steps:

1. Locate the branch bark ridge.
2. Locate the branch collar.
3. Locate the A & B targets.
4. If necessary, support the branch as you cut, to keep the bark from ripping.
5. Use clean, sharp pruning shears or a pruning saw to cut from A to B.

Note: It is important not to cut into the branch collar, because doing so creates a wound that can hamper the trees ability to defend against decay.

## NATURAL DIRECTIONAL PRUNING

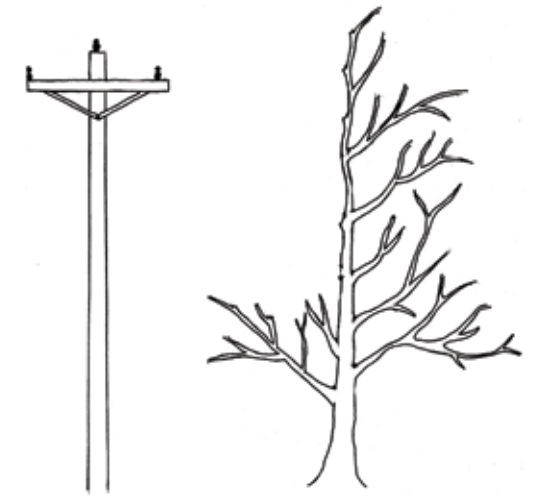


Branches are removed in the center of the tree to create a “V” shape.

### “V”-Trim pruning

When we must trim trees away from power lines, the same pruning principles are applied. The American National Standards Institute (ANSI) has approved a pruning standard for utility tree maintenance known as ANSI A-300. This method is also referred to as “natural directional pruning”. Xcel Energy attempts to maintain trees every three to five years to help prevent power outages. For many years running, Xcel Energy has been recognized by the National Arbor Day Foundation with the Tree Line USA award for its tree maintenance program.

If the tree is planted directly under power lines, its branches will be trimmed in the center of the tree, creating a “V” shape. The entire branches are removed to help the tree grow away from the lines rather than directly into them.



A side trim is necessary when half of the tree is growing into power lines.

### Side Trim pruning

A side trim is done when only a side portion of the tree is growing into the power lines. When a side trim is necessary, even pruning properly around power lines can leave trees with an unnatural appearance. In some cases, it may be better to remove the tree and start over with a more compatible tree. Of course no tree trimming or removal would be necessary if the right tree is planted in the right place initially.

### Safety Reminder

You should never attempt to trim trees around power lines yourself. Most of these lines are fully energized and extremely dangerous. You may hire a qualified professional tree trimmer to do this work in some areas. Call Xcel Energy at 1-800-895-4999 to request that your pole-to-house line (service wire/loop) be temporarily disconnected while your trees are professionally trimmed.

## ACKNOWLEDGEMENTS

*Thanks to the Tree Trust of St. Paul, Minnesota, for developing and printing the first edition of this text in 2001.*

*Thanks also to the following experts for their advice and input on recommended trees. Those marked with asterisk (\*) also reviewed the booklet printed to assure regional accuracy.*

**\*Steven J. Day**, Consulting Arborist, Day & Associates, Denver, Colorado

**George Duda**, New Mexico Urban Forester, New Mexico State Forestry Division

**\*Brian Scott**, Urban Forestry, Texas Forest Service-Amarillo

**Pete Smith**, Partnership Coordinator, Texas Forest Service-Urban Forestry Program

**\*Keith Wood**, Assistant Staff Forester, Community Forestry, Colorado State Forest Service

For additional copies of this guide, call us at **1-800-895-4999** or visit us online at **xcelenergy.com**.







Home Solutions Center  
P.O. Box 8  
Eau Claire, WI 54702-0008  
1-800-895-4999  
xcelenergy.com

© 2009 Xcel Energy Inc. 09-02-017  
Xcel Energy is a registered trademark of Xcel Energy Inc.  
Public Service Company of Colorado, an Xcel Energy Company

CAS#1295

