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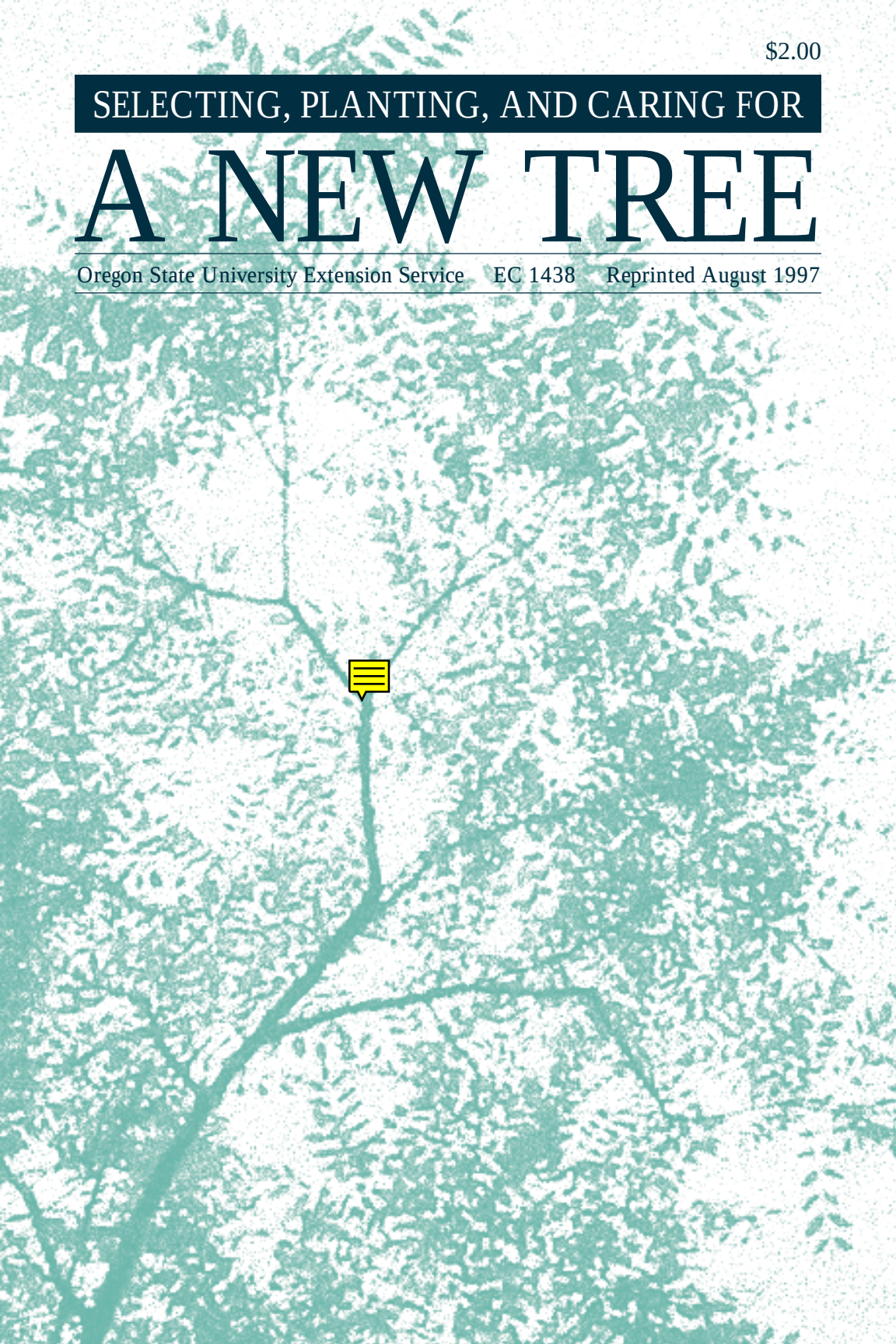
SELECTING, PLANTING, AND CARING FOR

A NEW TREE

Oregon State University Extension Service EC 1438 Reprinted August 1997



Acknowledgments

Selecting, Planting, and Caring for a New Tree is published by the Oregon State University Extension Service and the Urban and Community Forestry Assistance Program of the Oregon Department of Forestry.

The authors wish to thank the following individuals for technical review of the manuscript: Joe Carli, EF Nursery, Forest Grove; Heidi Meihoff, Louisiana-Pacific Corporation, Portland; Don Richards, Blue Heron Farms, Salem; David Wall, Pacific Power, Portland; Chal Landgren, Extension agent, Columbia County; Ray McNeilan, Extension agent emeritus, Multnomah County; and Bill Rogers, Extension agent, Lincoln County, all of the Oregon State University Extension Service.

Some of the material used in this publication was adapted from *A Tree Owner's Manual*, published by the Minnesota Department of Agriculture, and *Kansas Community Forestry Factsheets*, published by Kansas State University State and Extension Forestry.

This publication was made possible with the support of:

- Portland General Electric
- Louisiana-Pacific Corporation
- Pacific Power
- Pacific Northwest Chapter—International Society of Arboriculture
- Oregon Urban and Community Forest Council

Authors

Stephen A. Fitzgerald
Extension agent, Deschutes, Crook and Jefferson counties, Oregon State University Extension Service

Paul D. Ries
Urban and community forestry program manager, Oregon Department of Forestry

Project Editor
Evie Liss, Extension and Experiment Station Communications, Oregon State University

Text Editor
Karen Skjei, Corvallis, Oregon

Graphic Design and Illustrations
Tom Weeks, Extension and Experiment Station Communications, Oregon State University

Selecting, Planting, and Caring for a New Tree

So, you're thinking about buying a tree. Do you know which trees do best in your area? Have you thought about how to properly plant your tree to ensure it survives and grows well? Do you know how to ensure good health and longevity for the tree you plant?

This publication gives basic information on choosing your planting site, selecting the right species for the site, proper planting techniques, and first-year care. Although you may be buying a tree to add beauty to your home landscape, trees also serve other important functions in your landscape. For example, did you know:

- Proper placement of trees can reduce heating and cooling costs by as much as 10 to 20 percent?
- Landscaping your home can increase the monetary value of your property? Houses on lots with mature trees sell for 6 to 12 percent more than identical houses on lots without trees.
- Trees and shrubs conserve water, air, and soil and provide habitat for wildlife? Shade trees provide living, nesting, and gathering places for many birds and animals and offer shelter year round. Trees and other plants with abundant fruits and seeds are particularly attractive to birds.
- Large shade trees act as an outdoor "ceiling" and give a more intimate feeling to your yard and street? Trees and shrubs can block an undesirable view, enclose an area for privacy, or separate one area from another.
- Trees also cleanse the air by absorbing carbon dioxide and giving off oxygen, which all organisms—including people—need to survive?

Your local nursery or landscape professional can help you consider plant characteristics and environmental factors to design a functional, attractive landscape. Remember that your own satisfaction with the trees and design is most important. You, more than anyone else, will care for and enjoy this tree.

Site and Tree Selection

Plan Before You Plant

Consider your planting site carefully. Keep in mind that planting trees on your property affects your neighbors. And while a properly located tree can increase your property value, planting the wrong species, or even the right species in the wrong place, can lead to frustration and costly replacement. Even the best tree will not contribute to your landscape if it is planted in an unsuitable place.

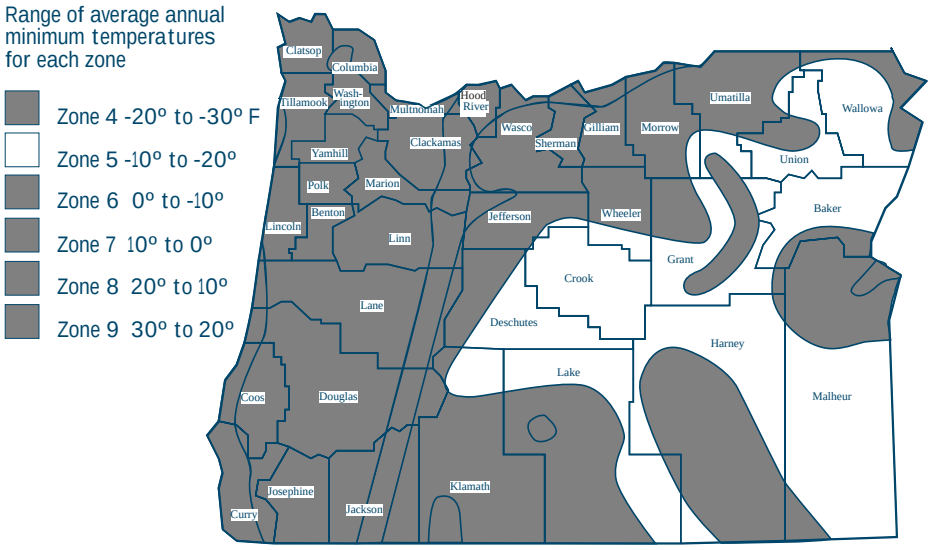
So, before you decide what to plant, decide *where* to plant. Let the planting location dictate the tree species you select, rather than the other way around. Often people decide on a certain tree species, then have difficulty finding a place for the tree. If you have your heart set on a particular species, carefully seek out a proper location for it.

Cold Hardiness Zones

Oregon is a geographically diverse state, blessed with mountains, deserts, valleys, and coastlines. Some areas of the state are dry, while others receive abundant rainfall. Where you live affects the types of trees you can plant and expect to flourish. For example, a tree that grows well in the Willamette Valley may struggle to survive in eastern Oregon.

The U.S. Department of Agriculture Hardiness Zone Map below shows the ratings assigned to various microclimates within Oregon. Hardiness zones are based on the estimated minimum temperature in a given area. Trees found in the nursery or garden center are rated to a cold hardiness zone or degrees above or below 0°F. Use this map to determine the cold hardiness zone for your area.

USDA Plant Hardiness Zone Map State of Oregon

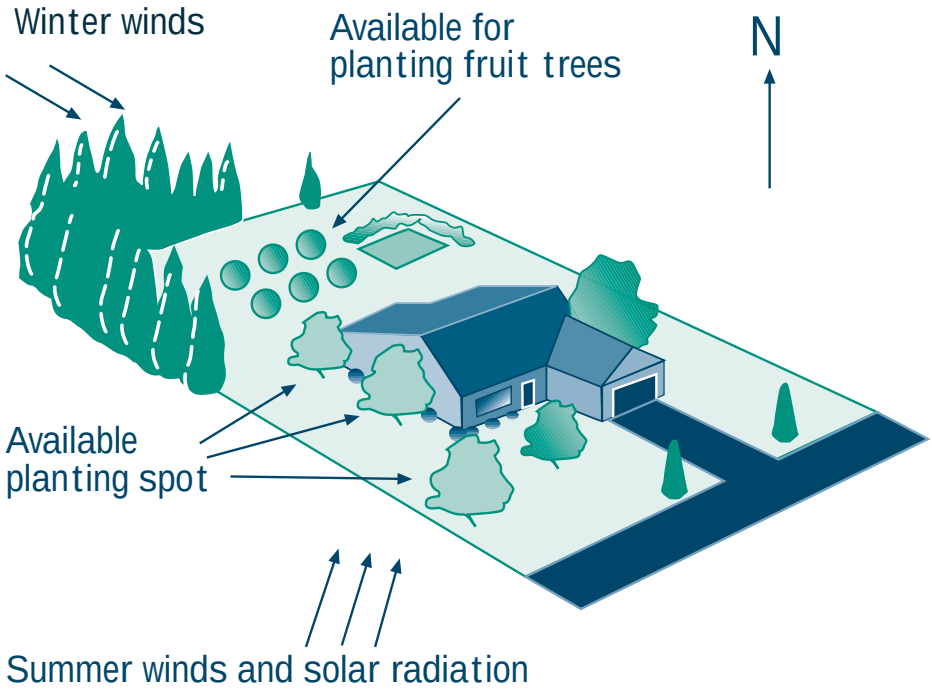


A Landscape Plan for Your Yard

Start by thinking about what you want your yard to look like in 10 or 20 years. The key to analyzing a planting site is to envision it with a full-grown tree. Although your new tree probably will be only 5 or 10 feet tall, it may grow to 50 or 100 feet. Keep this in mind when selecting a planting site.

Next, take inventory of site factors such as:

- Available growing space, prevailing wind direction, and sun exposure
- Potential site conflicts with other plants
- Type, depth, and quality of soil;
- Availability of water
- The function you want the tree to serve (beauty, shade, privacy, etc.)



Summer:
Plantings on south and west sides block summer winds and solar radiation and help keep house cool.
Winter:
Deciduous shade trees lose leaves in fall and allow solar radiation to help warm the house.

Planting Site Review

Here are points to consider about your planting site:

- **Does the site provide enough room for the tree's crown and roots to grow? Are the prevailing winds and sun exposure conducive to its growth?**

Consider other trees, buildings, or landscape features near the site. Again, keep in mind the mature height of the tree you're about to plant. What looks like enough room now may look very crowded after 10 years of growth. Tree roots need space too, and don't like to be confined by sidewalks, driveways, or house foundations. Some trees tolerate shade, others prefer full sun. Some trees have shallow root systems, so you may need to stake the tree for the first year.

- **Are there utility wires or other obstructions nearby or overhead?**

If there are overhead wires on your property, avoid planting large shade trees within 25 feet of them. Planting large trees such as Douglas-fir or maples underneath power lines could cause power outages and increased maintenance costs. Eventually these trees will require severe pruning. If you must plant directly underneath wires, select a tree that will be less than 30 feet *at maturity*.

- **What is the soil like? Sandy or clay? Poorly drained or well drained? Is there an adequate water source?**

The health and vigor of your tree will greatly depend on the quantity and quality of the soil in the planting site, so investigate the soil before you plant the tree. Soil near houses tends to be highly compacted, a less than ideal growing condition. Tree roots need loose or uncompacted soil because they must have oxygen for growth. If you have sandy or clay soil, peat or compost can increase the air space and improve drainage.

- **What function will the tree serve? Will you choose a shade tree, an ornamental tree, or a conifer? Should the tree serve as a windbreak or privacy screen?**

The purpose of the tree is an important consideration. For example, if you're looking for a privacy screen, a maple is a poor choice because it doesn't hold its leaves year round. However, a cedar is ideal for this purpose. If the tree's primary purpose is shade, an oak, maple, or ash may be at the top of your list.

Choosing the Right Species

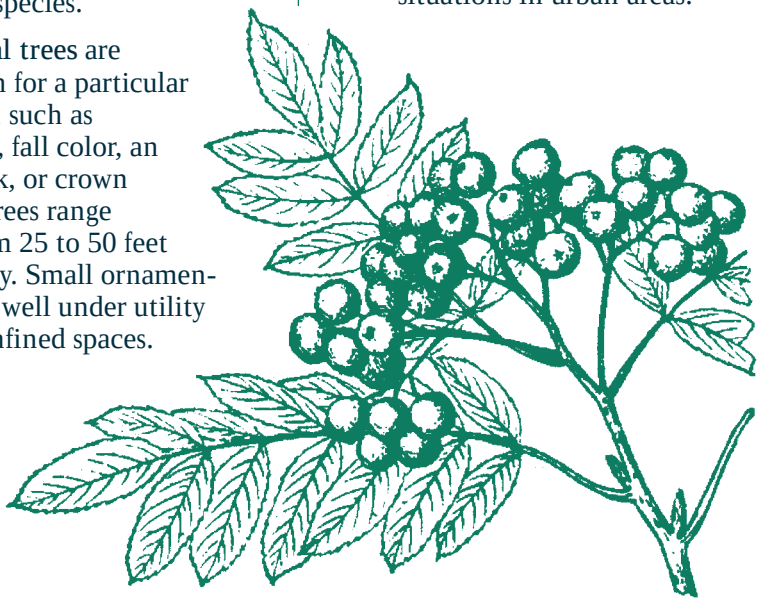
After considering what type of tree you need and evaluating your planting site, visit a nursery or garden center. Take your site plan with you. Avoid buying the cheapest tree you can find, because you may pay for it later. The cheapest tree available may be an undesirable species, have poor form, or have some other problems. The following list of tree types should help narrow your selection to the trees that best suit your reason for planting.

Shade trees are deciduous, meaning their leaves turn color and drop off in the fall. They are best planted at least 25 feet away from houses, buildings, or other obstacles. Shade trees can range from under 35 feet to 50 or even over 100 feet tall at maturity. Avoid planting shade trees under utility lines or too close to other trees unless you plant a small species.

Ornamental trees are usually chosen for a particular characteristic, such as spring flowers, fall color, an attractive bark, or crown form. These trees range anywhere from 25 to 50 feet tall at maturity. Small ornamental trees work well under utility lines or in confined spaces. These trees should have a mature height of less than 25 feet. Ornamental trees are sometimes referred to as "exotics," but this term is better suited for trees growing outside of their normal environment, such as palm trees in Oregon.

Conifer trees ("evergreens") have needles or needle-like leaves that usually stay green all year. Conifers are the best choice for windbreaks and privacy screens.

Native trees are those that grow naturally in Oregon. Douglas-fir, ponderosa pine, Oregon white oak, vine maple, big leaf maple, and numerous species of spruce, fir, cedar, and other deciduous trees are native to Oregon. Native trees fit well in the home landscape, especially along streams or open areas, but might not be suitable for all sites and situations in urban areas.

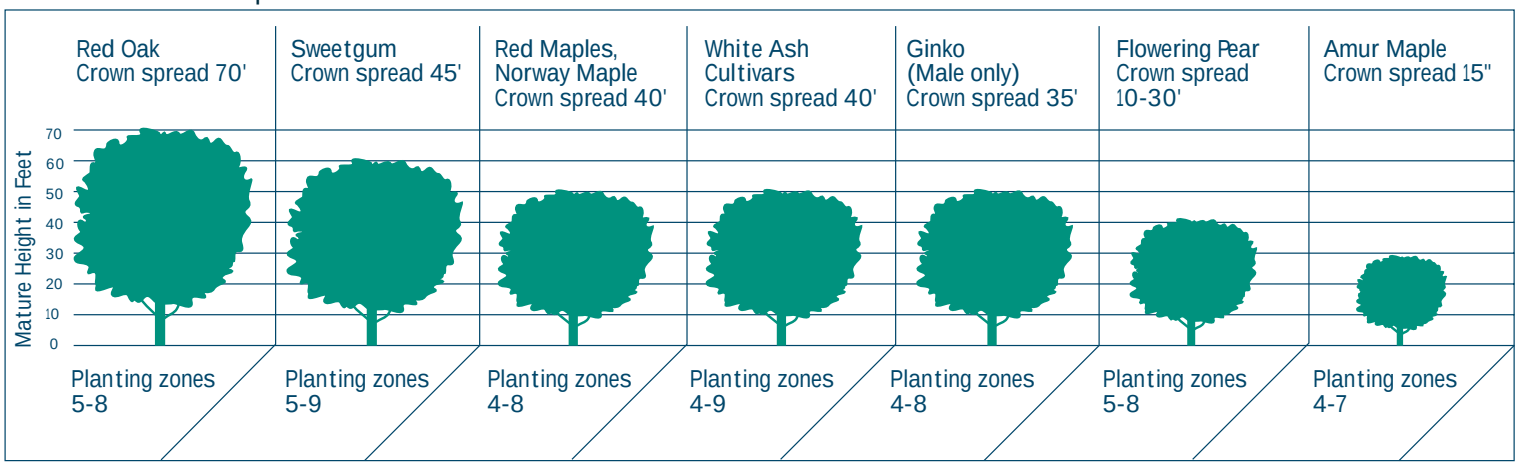


Trees to Suit Different Purposes

The lists below give you some suggestions of tree species suited for various purposes. Visit an Oregon nursery or garden center to learn about other species that will fit your garden plan. Books such as Sunset's *Trees & Shrubs* or *Western Garden Book* can provide more detailed information on a particular species. See "Recommended reading" on page 23.

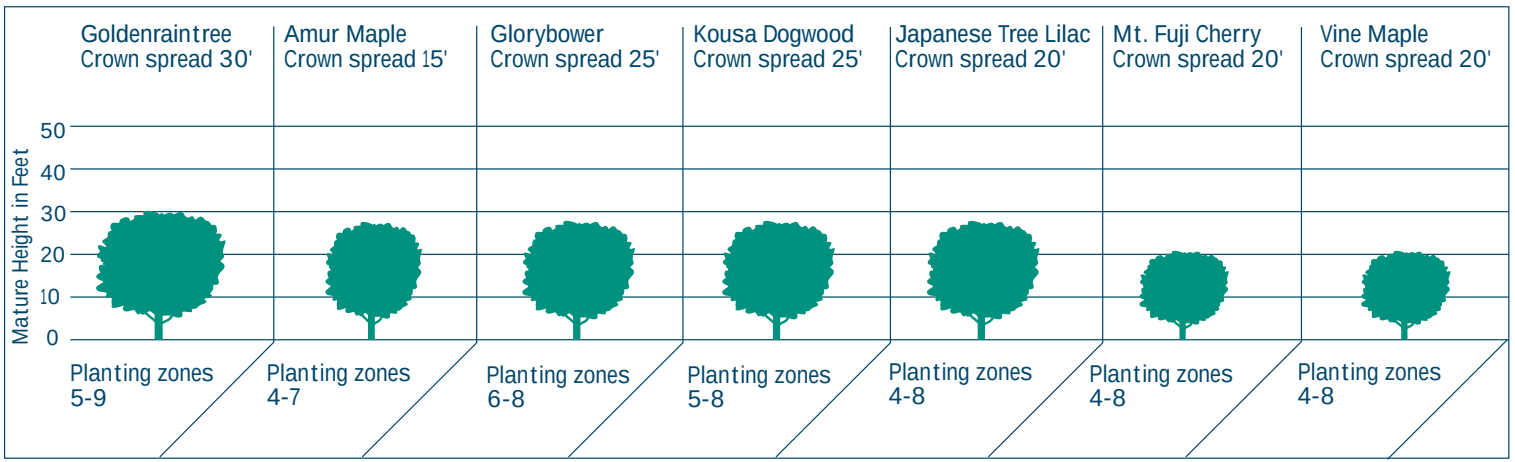
Trees for fall color

These trees have spectacular fall color.



Trees for under utility wires

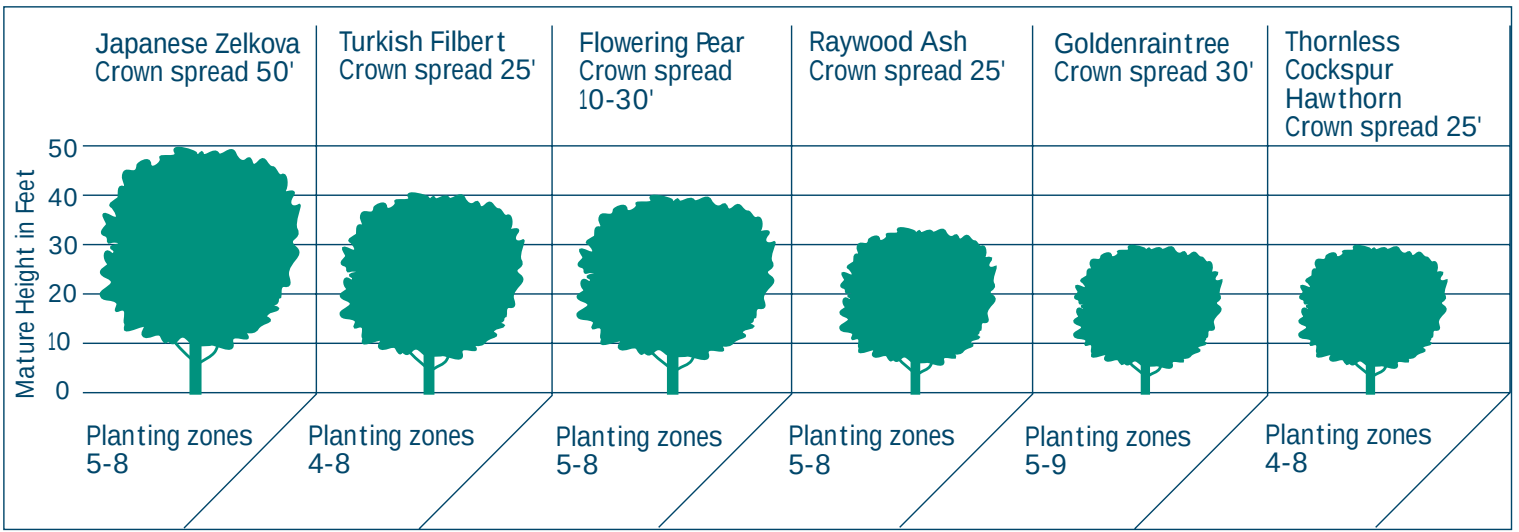
These trees are low growing species of varieties well suited for under power lines.



Trees to Suit Different Purposes

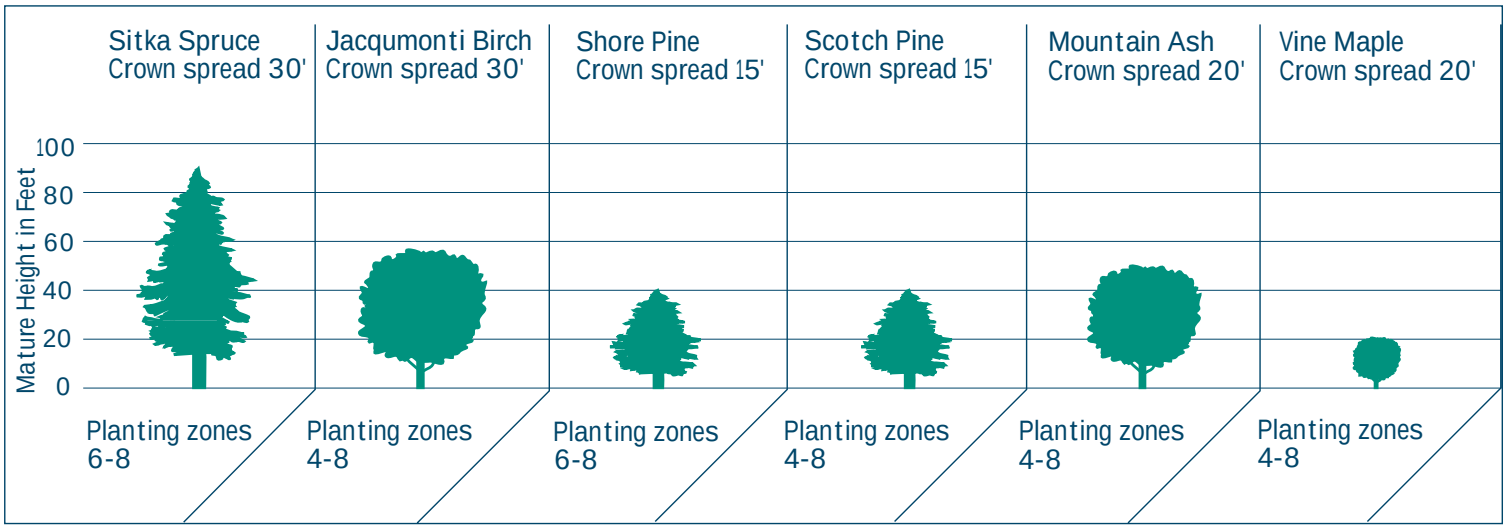
Trees for tough sites

These trees grow well in tough sites such as poor soils, urban conditions, or temperature extremes.



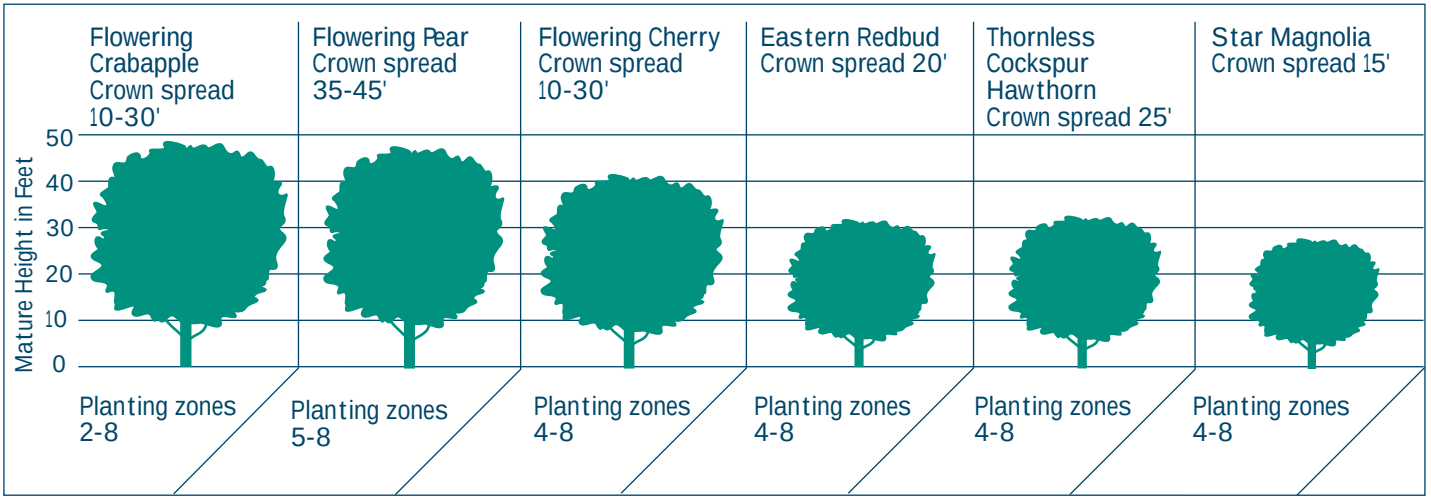
Trees for the Oregon coast

These trees are well suited to the abundant moisture and high winds of the coastal region.



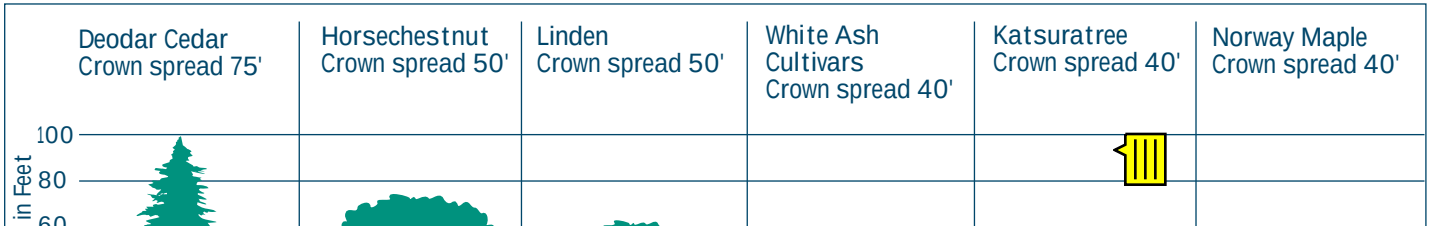
Trees for spring flowers

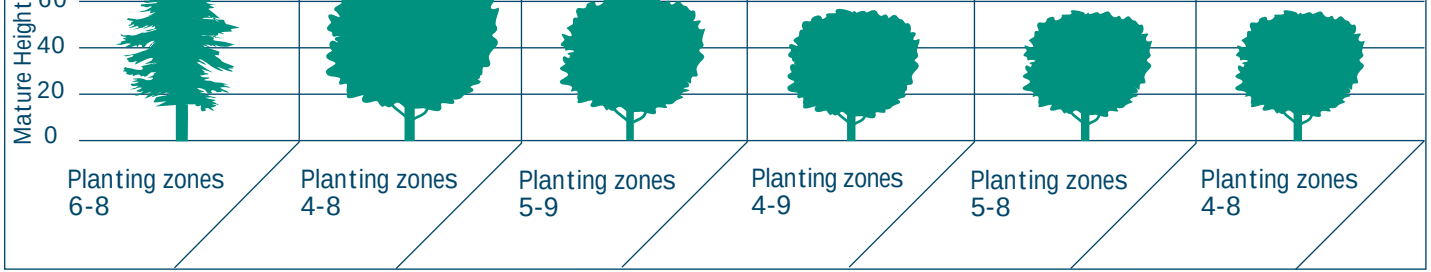
These trees put on a show of color and fragrance in the spring.



Trees for summer energy conservation

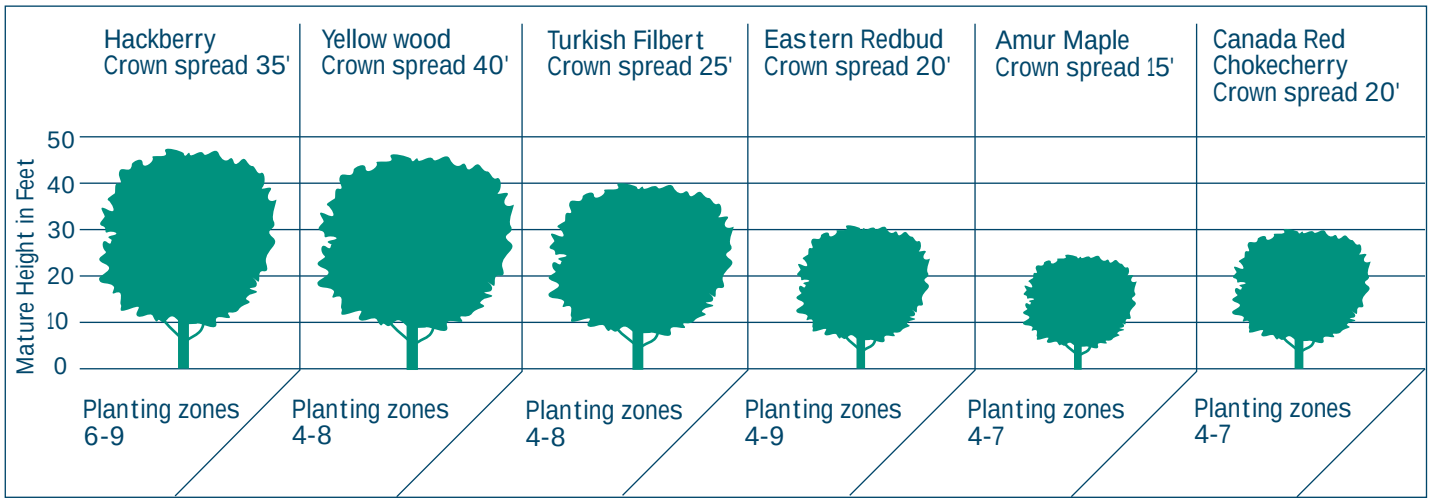
These trees can help shade your home in summer, keeping it cooler and reducing energy costs.





Trees for water conservation

These trees require little watering beyond early establishment.



PLANTING

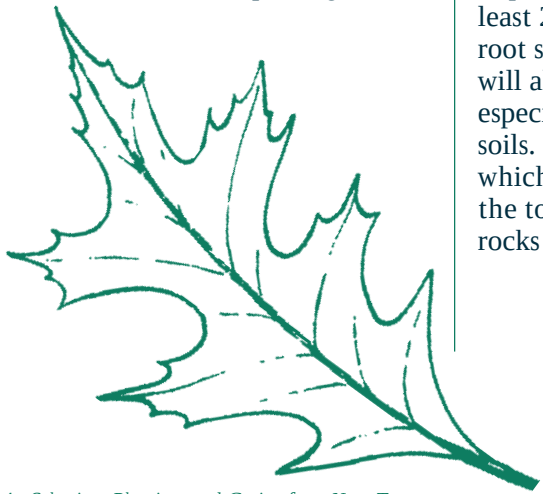
It has been said that anyone can plant a tree. While this may be true, not everyone knows how to plant a tree correctly. The next few pages provide step-by-step instructions for planting a tree.

Planting Season

Plant shade and ornamental trees during the dormant season when there are no leaves on the tree. In western Oregon, plant trees between November and April. In eastern Oregon, there are two planting seasons: early to late fall (September to November) until the ground freezes; and in spring just after the ground has thawed until late May. Avoid planting trees in hot, dry weather.

Transporting

Trees are often damaged or stressed during the trip home from the nursery. Take special care to reduce injuries by using the proper vehicle when loading and unloading your tree. Before transporting, protect the buds (or leaves) and needles from the wind by wrapping or covering them. Cushion stems and branches, particularly if they rub against the vehicle. Tie the tree securely and avoid high speed travel. Often the cost of delivery is worth the reduced damage to the tree.



Temporary Storage

Plant your tree as soon as possible. If you must store it before planting, put it on the north side of a building away from direct sunlight and heat. Keep the root ball moist to prevent the roots from drying out. Put a bare-root tree in loose soil or sawdust mulch and keep it moist. If you can't plant the tree within 1 to 3 days, make arrangements to leave it at the nursery until you have time to plant it.

Preparing the Planting Hole

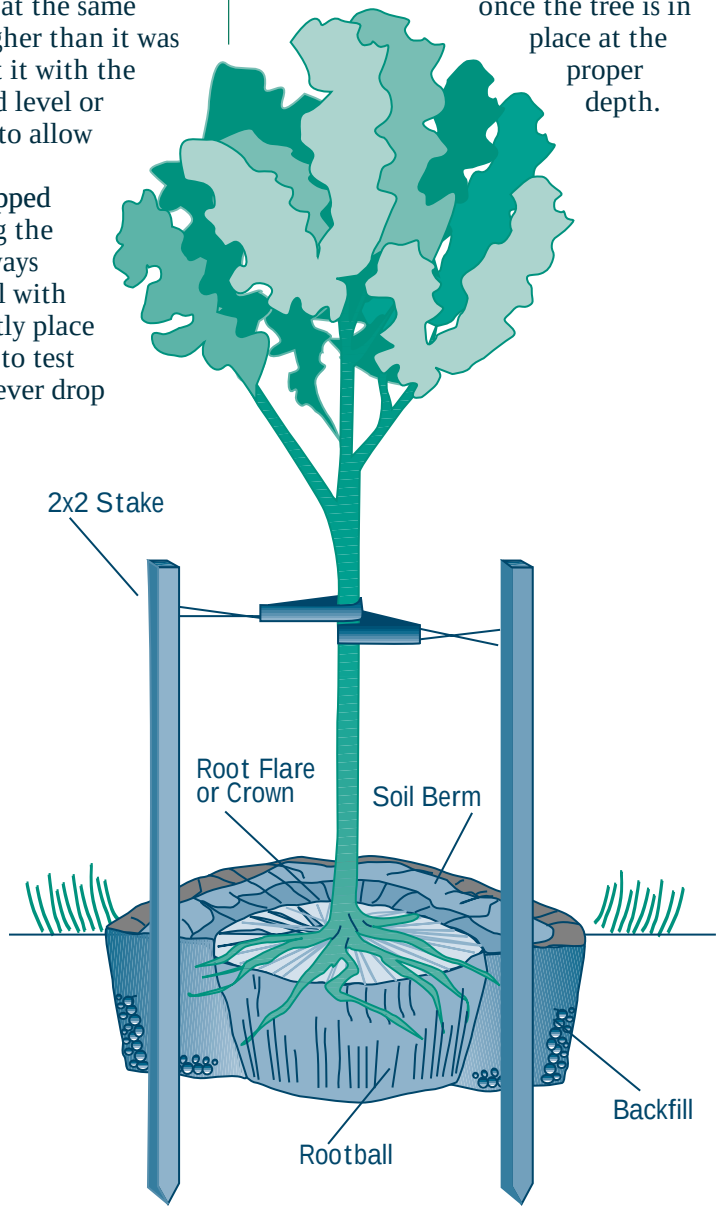
Proper planting is the most important step. Many problems with a tree can be traced back to improper planting. Dig the hole at least 2 feet wider than the size of the root system or root ball. A large hole will allow better root growth and is especially important in compacted soils. Roughen the sides of the hole, which should be the same width at the top and bottom, and remove any rocks or debris.

Planting the Tree

Planting depth is of critical importance. Trees often are planted too deep in the hole. Carefully set the tree in the hole at the same depth or slightly higher than it was at the nursery. Plant it with the root collar at ground level or slightly higher (2") to allow for settling.

Balled and burlapped trees. When placing the tree in the hole, always support the root ball with your hands and gently place the tree in the hole to test for proper depth. Never drop the tree on the ground or in the hole as this disturbs the root ball and can break the roots. The root flare and top of the soil ball indicate the original planting depth. Take care not to loosen or break the soil ball.

Cut and remove all twine around the trunk. Pull or cut the burlap away from the trunk and top of the ball as far down as possible. Sometimes the root ball is wrapped with non-degradable fabric; be sure to cut away this fabric. If the root ball also is supported by a wire basket, bend or extend portions of the wire basket down below the soil surface level. Cut the wire away once the tree is in place at the proper depth.



Container trees. Container trees often have roots growing around the inside of the container. After removing the container, gently straighten the roots to avoid girdling root problems. The root flare and top of the soil ball indicate the original planting depth and the level at which you should plant the tree.

Bare-root trees. The key to successfully planting a bare-root tree is to keep the roots moist before planting. After digging the hole, mound some soil in the center. Set the root mass on top of this mound so the roots cascade downward in each direction. Again, where the root flare meets the trunk is where you will find the appropriate planting level.

Backfilling the Hole

If you plan on staking your tree, drive two wooden or metal posts along the sides of the hole before you backfill. This prevents you from accidentally driving the stakes through the root ball and damaging the root system.

Fill the hole with soil about one-half full, lightly tamping it with your foot to remove any air pockets. Make sure the tree is standing upright and not leaning. Water slowly to saturate the soil and remove any remaining air pockets, then finish filling the hole with soil. Remove any extra soil rather than mounding it around the tree. Build a temporary berm at the drip line to hold water around the root system.

Soil Amendments

Amendments are additions to the soil that enhance its moisture-holding capacity, nutrient availability, or structure. Amendments include good loamy topsoil, peat moss, and various kinds of mulches. Most soils in Oregon—except sandy soil, soil with a high clay content, or soil that has been heavily disturbed by construction—don't require amendments.

Sandy soil, often found in eastern Oregon or along the Oregon coast, benefits from the addition of organic matter such as peat moss to the planting hole to increase the soil's moisture-holding capacity around the roots.

Additions of organic matter also help clay soil. This soil is easily compacted which obstructs the movement of water and air. Mixing in organic matter helps break up clay particles and improves water and air flow around the roots.

Construction equipment compacts soil and removes valuable topsoil.

Additions of top soil, peat moss, and other organic matter can improve a tree's growth and survivability on construction sites.

How much soil amendment should you add to the backfill? Generally a ratio of one-third amendment mixed with two-thirds of existing soil is sufficient. Use caution with composted materials, which may be very hot from biological activity or high in salts (manure is one example).

Early Fertilization

Contrary to popular belief, you don't need to fertilize trees when you plant them. However, if you want, you can use a well-balanced (for example, a 10-10-10 formulation), slow-release fertilizer in the planting hole. Slow-release fertilizers have a long-lasting effect and are less likely to burn the roots. Other fertilizers can accentuate transplant shock. Never use lawn fertilizers in a planting hole.

EARLY TREE CARE

Watering

Newly planted trees require routine and thorough watering, particularly during Oregon's dry summer months. Water the tree regularly for at least 3 years after planting. Soil and weather conditions, as well as the amount of competing grass around the tree, dictate how much water to give and how often. In general, trees need the equivalent of 1 inch of rainfall per week from June through September.

Remember that trees use water even during winter. Just before the ground freezes in late fall, give your tree a thorough watering. During mild winters, where temperatures are above normal and the ground thaws, give your tree periodic watering. This is particularly important for conifers, which retain their needles and use water readily during winter.

Before you water, examine the soil moisture 4 to 8 inches deep. If the soil feels dry or just slightly damp, it needs water. Well-drained, sandy soils will need more water more often than a loam or clay soil. The best way to water a newly planted tree is to place a garden hose at the base of the tree. Run a slow trickle of water for several hours or until the soil is thoroughly soaked. To help hold or direct the water around the root system, build a temporary soil berm or saucer. Avoid short, frequent watering, which promotes development of a shallow root system that is more vulnerable to drying out and other stresses.

In eastern Oregon, plant ornamental and shade trees in an irrigated landscape or hand-water them regularly to ensure their survival. In drier regions of eastern Oregon, trees often need water during winter to prevent desiccation.

Mulching

Using a mulch around the base of the tree is an important part of long-term tree care. A mulch keeps the soil moist, limits weed growth, and discourages injury from lawnmowers and weed-eaters.

Wood and bark chips are good mulching materials. You can use a porous landscape fabric as a weed barrier underneath the chips, but don't use plastic because it suffocates the roots. Apply a 3- to 6-inch layer of mulch and spread it to form a circle at least 3 feet away from the trunk. Keep the mulch from direct contact with the tree trunk. Some bark mulches may contain pathogens or contaminants that can harm your new tree. Maintain the mulch ring to keep grasses from competing with the tree.

Staking and Wind Protection

Generally, you don't need to stake trees. Young trees standing alone with their tops free to move will develop stronger, more resilient trunks than tightly staked trees. However, too much wind can bend young trees and disturb the root ball, damaging roots and stressing the new tree. Staking helps trees that are top-heavy and would lean without additional support. Staking also helps protect trees from vandalism and mechanical damage.

In areas of Oregon exposed to high winds, such as the coastline, trees may need additional protection. Use temporary wind barriers made of plastic or cloth, but remove them within 1 year once the tree has developed a stronger root system.

To properly stake a tree, you need two wooden or metal posts. Drive them into the sides of the excavated planting hole *before* you backfill to prevent driving them through the root ball. Secure the tree to the stakes with broad straps or hose; don't use wire because it will girdle the bark of the tree. Guying and staking the tree so it is secure from blowing over, but allow the trunk to move up to 2 inches in any direction.

If staking doesn't allow some movement of the tree's trunk, the tree will not allocate any growth (wood) to the main stem and it will be unstable when you remove the stakes and guying. Remember to remove the stake and guying materials within a year.

Fertilization

Fertilize established trees (1 year after planting) every 2 or 3 years in the fall after the leaves have dropped or in early spring before growth begins. Apply the fertilizer directly to the soil surface and water it in. If there is thick grass sod beneath the tree, use a pipe to punch holes 12 inches deep in the sod beneath the drip line of the tree and apply the fertilizer in the holes. This helps the fertilizer reach the tree's root system. Avoid using "weed and feed" fertilizers around the root zone of your tree.

Note: Don't apply nitrogen in late summer because it can stimulate new growth that may not "harden off" or go into fall dormancy properly and will be more easily damaged by early fall frosts.

Pruning

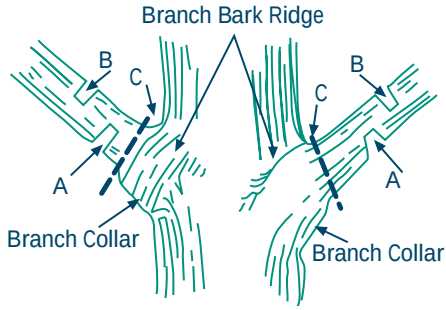
Pruning is one of the most important and least understood aspects of tree care. Pruning will affect your tree's longevity, health, and resistance to storm damage. Here are some prevalent myths and facts about tree pruning.

Myth: Prune back the crown of the tree to compensate for any roots lost during transplanting.

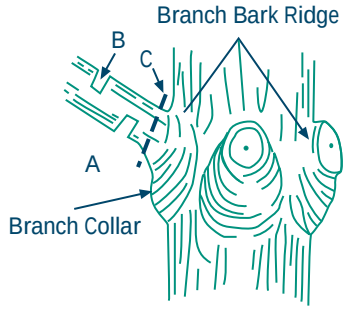
Fact: Trees should not be pruned at the time of planting except to remove broken or dead branches. The crown of a young tree should not be cut back to compensate for root loss. If a tree has a double leader, you can remove the weaker or inferior stem. However, little pruning is done the first 3 years after planting.

Myth: Paint pruning cuts to help the tree heal.

Fact: Don't use tree paint on the cut surfaces or on other wounds. Tree paint does not seal the wound properly and can trap moisture behind the paint, encouraging stem decay and attracting insects.



Hardwoods



Conifers

A= First cut
B= Second cut
C= Third cut

Myth: Tree topping is the proper way to prune a tree.

Fact: Tree topping is the removal of large branches at the top of the tree. Topping is both ugly and dangerous. Topping is the most expensive form of pruning because it creates large wounds that allow rot and fungal decay to enter the tree and damage the tree's appearance, and reduce its value and life expectancy. *Never top a tree!*

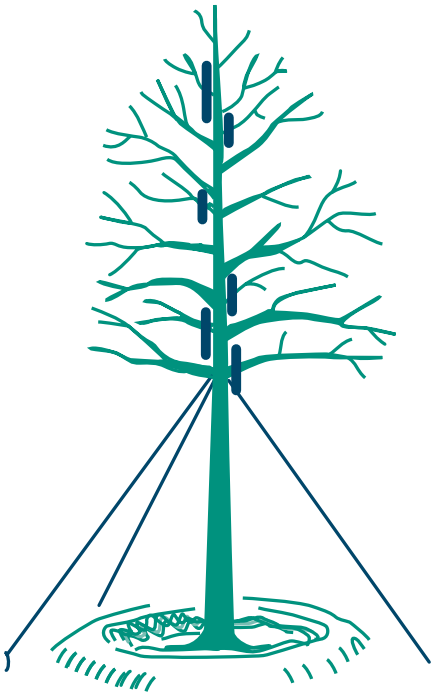
Myth: Top trees so that they don't get too big.

Fact: Topped trees are more likely to break apart in storms or cause property damage than trees that have retained their natural shape. Topping weakens the structural integrity of the tree and causes it to drop limbs.

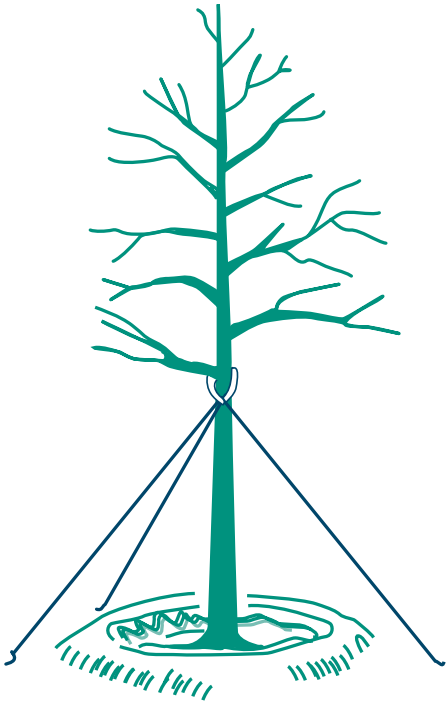
Myth: A tree will grow just fine without any pruning.

Fact: This may be true for trees in the woods, but not for trees in our neighborhoods. As your tree grows, it will need periodic pruning. Some trees benefit from pruning a little every year to keep their shape and remove fast-growing water sprouts. Other trees grow more slowly and benefit from infrequent pruning.

The best time of year to prune varies depending on whether your tree is a conifer or a deciduous tree. Prune conifers in late summer and



Before Pruning



After Pruning

fall. This reduces the amount of pitch the tree exudes and lessens the chance of attack by the Sequoia pitch moth, an insect common throughout Oregon. Female Sequoia pitch moths emerge in the spring and are attracted to fresh wounds. Delaying pruning until late summer or fall, after the moths have flown, helps prevent this problem.

Prune deciduous trees in late winter or early spring before the leaves begin to appear. This allows the new growth to begin covering the wound and lets the tree internally seal the wound during the growing season.

Periodic, selective branch pruning will keep your tree healthy and in good shape. The rule is never to remove more than one-third of the tree's crown in any given pruning. See the diagrams on page 20 for proper pruning procedures.

Wrapping

Wrapping the tree's trunk is unnecessary for most trees. If your tree comes already wrapped, remove the wrapping and inspect the trunk for signs of damage or wounds. If the tree has a wound, remove the wrapping completely and allow the wound to dry out and stay dry to prevent further decay and rot.

However, some nurseries require wrap as part of their guarantee. If so, after inspecting your tree, wrap from the ground upward, making sure that the wrappings overlap like roof shingles to repel rainwater. Water that gets beneath the wrapping increases the chance of insects and disease because it creates a moist environment underneath the wrapping. Wrapping is temporary and should eventually be removed, usually after the first year.

MONITORING YOUR TREE'S HEALTH

Periodically inspect your tree for signs of insects, disease, or other problems.

- Abnormal leaf or needle color indicates insects, disease, or lack of nutrients.
- Abnormally small leaves or leaves that have brown margins may be caused by lack of water.
- Excessive pitching or oozing of fluid could be caused by an old wound, disease, or insects.
- Branches that die suddenly indicate the presence of insects or a stem disease.
- Leaves that look like they have been eaten usually mean insects are feeding on them.

If you aren't sure what's causing the problem, take a sample of the affected area to your local nursery or tree care professional or OSU Extension Service agent to see if they can diagnose the problem and prescribe a treatment.

ADDITIONAL RESOURCES

Arborists and Other Tree Care Professionals

Here are several sources of information to keep your tree healthy and attractive.

Call a professional arborist for advice on tree care. Most arborists are listed under "Tree Service" in the telephone directory. As with purchasing any service, carefully consider all your options. Read "Selecting an arborist" below before signing a contract.

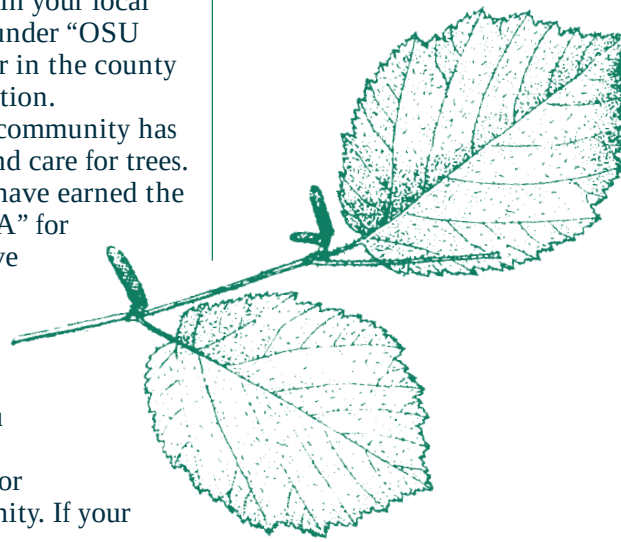
The Oregon State University Extension Service has offices in every Oregon county. Some counties have a horticulture or forestry agent. In many counties the OSU Extension Service coordinates the Master Gardener program, a training program for people interested in learning more about plants and trees. Master Gardeners are available by phone to answer your plant care questions. Look in your local telephone directory under "OSU Extension Service" or in the county and state services section.

See whether your community has a program to plant and care for trees. Many Oregon cities have earned the status "Tree City USA" for having comprehensive community forestry programs. Contact your local parks or public works agency and find out how you can get involved in planting and caring for trees in your community. If your city isn't a "Tree City USA" community, consider joining the effort.

If you have questions about planting trees around utility lines, call your local utility. They can help you with safety issues and questions about species to plant near lines.

Selecting an arborist. As your tree matures, it may need professional care. Or you may have other trees that need pruning, fertilization, or removal. When the job is too big to handle yourself, call a professional. Most, but not all, tree service companies are reputable. Here are some tips on how to hire an arborist:

- Hire someone who is bonded, licensed, and insured. Tree service companies must register with the State of Oregon, so ask for a contractor registration number.



- Ask for references and get more than one bid. Take your time and select a company you know is reputable. Ask friends and neighbors to recommend companies that have successfully cared for their trees.
- Ask for a certified arborist. Certified arborists are people with tree care experience who have passed the International Society of Arboriculture's (ISA) Certification Exam. To get a list of certified arborists in your area, call the ISA Pacific Northwest Chapter, (206) 784-1945.
- Beware of door-knockers. Most companies have business cards, uniforms, truck signs, etc. Most reputable companies advertise and don't solicit business door-to-door.
- A good arborist rarely recommends topping, and should try to talk you out of it if you request to have a tree topped. Avoid tree toppers at all costs!
- Never allow a climber to use spikes or spurs to climb your tree unless the tree is to be removed.

For More Information

National Arbor Day Foundation (NADF), 100 Arbor Avenue, Nebraska City, NE 68410. The Foundation publishes materials on tree planting and care.

American Forests, P.O. Box 2000, Washington, DC 20013. This organization publishes a free magazine, *Urban Forests*, which tells how communities can improve their quality of life through trees.

Oregon Urban and Community Forest Council, P.O. Box 13074, Salem, OR 97309. The Council promotes proper tree planting and care.

Recommended Reading

Your local library or book store has many good books on tree planting and care. A few we recommend are:

Sunset Western Garden Book, Sunset Publishing Corp., Menlo Park, CA, 1992.

Sunset Trees and Shrubs, Sunset Publishing Corp., Menlo Park, CA, 1992.

The Complete Guide to Landscape Design, Renovation, and Maintenance, by Cass Turnbull, Betterway Publications, Inc., Crozet, VA, 1991.

This publication was produced and distributed in furtherance of the Acts of Congress of May 8 and June 30, 1914. Extension work is a cooperative program of Oregon State University, the U.S. Department of Agriculture, and Oregon counties.