

New Tree Planting

Information on proper practices for planting a tree with a nine-step approach to successful planting and establishment.

Purchasing a tree is a lifelong investment. How well this investment grows depends on the type of tree selected and the planting location, the care provided during planting, and the follow-up care after planting.

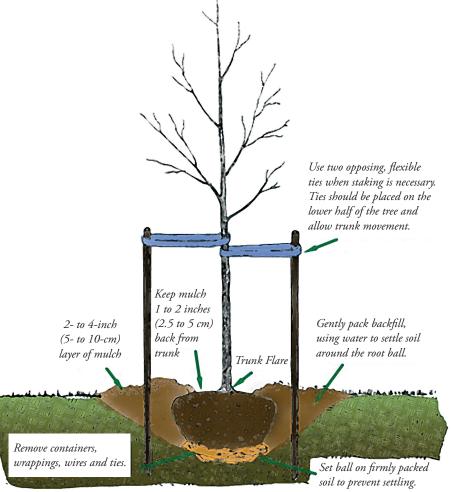
When to Plant

Ideally, trees are planted during the dormant season — in the fall after leaf drop or in early spring before budbreak. Weather conditions are cool and allow plants to establish roots in the new location before spring rains and summer heat stimulate new top growth. Healthy balled and burlapped or container trees, however, can be planted throughout the growing season if given appropriate care. In tropical and subtropical climates where trees grow year round, any time is a good time to plant a tree, provided that sufficient water is available.

Planting Stress

Balled and burlapped trees lose a significant portion of their root system when dug at the nursery. As a result, trees commonly exhibit what is known as "transplant shock." Transplant shock is a state of slowed growth and reduced vitality following transplanting. Container trees may also experience transplant shock, particularly if they have circling or kinked roots that must be cut. Proper site preparation, careful handling to prevent further root damage, and good follow-up care reduces transplant shock and promotes faster recovery.

Carefully follow the nine simple steps below to help your tree establish quickly in its new location. **Note: Before you begin planting your tree, be sure you have located all underground utilities prior to digging.**



- 1. Identify the trunk flare. The trunk flare is where the trunk expands at the base of the tree. This point should be partially visible after the tree has been planted (see diagram). Remove excess soil from the top of the root ball prior to planting if the root flare is not visible.
- **2. Dig a shallow, broad planting hole.** Holes should be 2 to 3 times wider than the root ball, but only as deep as the root ball. Digging a broad planting pit breaks up the surrounding soil and provides newly emerging tree roots room to expand.
- **3.** Remove the containers or cut away the wire basket. Inspect container tree root balls for circling roots. Straighten, cut, or remove them. Expose the trunk flare, if necessary.
- 4. Place the tree at the proper height. Take care to dig the hole to the proper depth and no more. The majority of a tree's roots develop in the top 12 inches (30 cm) of soil. If the tree is planted too deep, new roots will have difficulty developing because of a lack of oxygen. In poorly drained or heavily clayed soils, trees can be planted with the base of the trunk flare 2 to 3 inches (5 to 7.5 cm) above grade. When placing the tree in the hole, lift it by the root ball, not the trunk.

- 5. Straighten the tree in the hole. Before backfilling, have someone view the tree from several directions to confirm it is straight. Once planted, it is difficult to reposition the tree.
- **6. Fill the hole gently, but firmly.** Pack soil around the base of the root ball to stabilize it. If the root ball is wrapped, carefully cut



and remove any fabric, plastic, string, and/or wire from around the trunk and root ball to prevent girdling and to facilitate root growth (see diagram). Fill the remainder of the hole, firmly packing the soil to eliminate air pockets that may dry out roots. Further reduce air pockets by watering periodically while backfilling. Avoid fertilization at the time of planting.

7. Stake the tree, if necessary. Studies have shown that trees establish more quickly and develop stronger trunk and root systems if they are not staked at the time of planting. Staking may be required, however, when planting bare root stock or planting on windy sites. Stakes may also offer protection against lawn mower

damage and vandalism. One or two stakes used in conjunction with a wide, flexible tie material on the lower half of the tree will hold the tree upright and minimize injury to the trunk (see diagram), yet still allow movement. Remove support staking and ties after the first year of growth.

- **8. Mulch the base of the tree.** Mulch is organic matter spread around the base of a tree to hold moisture, moderate soil temperature extremes, and reduce grass and weed competition. Common mulches include leaf litter, pine straw, shredded bark, peat moss, or composted wood chips. A 2- to 4-inch (5- to 10-cm) layer is ideal. More than 4 inches (10 cm) may cause a problem with oxygen and moisture levels. Piling mulch right up against the trunk of a tree may cause decay of the living bark. A mulchfree area, 1 to 2 inches (2.5 to 5 cm) wide at the base of the tree, reduces moist bark conditions and prevents decay.
- 9. Provide follow-up care. Keep the soil moist, but not waterlogged. Water trees at least once a week, barring rain, and more frequently during hot, windy weather. When the soil is dry below the surface of the mulch, it is time to water. Continue until mid-fall, tapering off as lower temperatures require less-frequent watering.

Other follow-up care may include minor pruning of branches damaged during the planting process. Prune sparingly after planting and delay necessary corrective pruning until a full season of growth in the new location has occurred.

Completing these nine simple steps will maximize the likelihood that your new tree will grow and thrive in its new home. When questions arise regarding your tree, be sure to consult your local ISA Certified Arborist or a tree care or garden center professional for assistance.

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Avoiding Tree Damage During
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Insect and Disease Problems

Mature Tree Care
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Avoiding Tree & Utility Conflicts

Many factors should be considered prior to planting. Here are some helpful hints for tree planting around utilities.

Determining where to plant a tree is a decision that should not be taken lightly. Many factors should be considered prior to planting. When planning what type of tree to plant, remember to look up and look down to determine where the tree will be located in relation to overhead and underground utility lines.

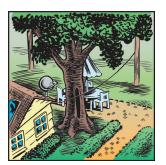


Often, we take utility services for granted, because they have become a part of our daily lives. To ensure us the benefits of reliable, uninterrupted service, distribution systems are required to bring utilities into our homes. These services arrive at our homes through overhead or underground lines.

Overhead lines carry electricity, data, and communications. Underground utility lines may also carry those mentioned, plus water, sewer, and natural gas.

The location of these lines should have a direct impact on your tree and planting site selection. The ultimate mature height and spread of a tree must fit within the available growing space beneath and alongside the lines. Just as important, the soil area must be large enough to accommodate the particular rooting habits and ultimate trunk diameter of the tree. Proper tree and site selection can provide trouble-free beauty and pleasure for years to come.

Overhead Lines



Overhead utility lines are easy to spot, yet often overlooked. Although these lines look harmless enough, they can be extremely dangerous. Planting tall-growing trees under or near these lines eventually requires your utility provider to prune them to maintain safe clearance from the wires. This pruning may result in the tree having an unnatural appearance. Periodic pruning can also lead to a shortened life span for the tree. Trees that must be pruned away from power lines are under greater stress and are more susceptible to insects and disease. Small, immature trees planted today that have the potential to grow into overhead lines can become problem trees in the future.

Tall-growing trees near overhead lines can cause service interruptions when trees contact wires. Children or adults climbing in these trees can be severely injured or even killed if they come in contact with the

wires. Proper selection and placement of trees in and around overhead utilities can eliminate potential public safety hazards, reduce expenses for utilities and their customers, and improve landscape appearance.

Underground Lines

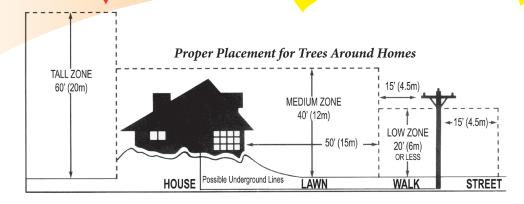
Trees consist of much more than what you see above ground. Many times, the root area below ground is larger than the branch spread. Many of the utility services provided today run below ground. Tree roots and underground lines often coexist without problems. However, trees planted near underground lines could have their roots damaged if the lines are dug up for repair.

The greatest danger to underground lines occurs during planting. Before you plant, make sure that you are aware of the location of any underground utilities. To be certain that you do not accidentally dig into any lines and risk serious injury or a costly service interruption, **call your utility company or utility locator service first.** Never assume that these utility lines are buried deeper than you plan to dig. In some cases, utility lines are very close to the surface. Locating underground utilities before digging is often required by law.

Tall Zones

Trees that grow 60 feet (20 meters) or taller can be used in the area marked "Tall Zone." Plant large trees at least 35 feet (11 meters) away from the house for proper root development and to minimize damage to the building(s). These large-growing trees can be planted on streets without overhead restrictions if planting space is sufficient. Street planting sites should be greater than 8 feet (3 meters) and allow for a large root system, trunk diameter, and trunk flare.

Large trees are also recommended for parks, meadows, or other open areas where their large size, both above and below ground, will not be restricted, cause damage, or become a liability.



The illustration indicates approximate tree placement in relation to utility lines.

Medium Zones

Medium-sized trees that grow up to 40 feet (12 meters) tall are often used to frame or soften the appearance of structures or create a parklike setting. Appropriate soil spaces are wide planting areas or medians [4 to 8 feet (1 to 3 meters) wide], large planting squares [8 feet (3 meters) square or greater], and other open areas of similar size or larger.

Low Zones

This zone extends 15 feet (4.5 meters) on either side of the wires. Trees with a mature height of less than 20 feet (6 meters) may be planted anywhere within this zone, including street tree plantings under utility lines. Such trees are also recommended where soil volumes are too limited to support tall or medium zone trees.

Some Further Suggestions

Plant evergreen trees in the path of prevailing winter winds to serve as windbreaks. Plantings should be approximately 50 feet (15 meters) or more from the house.

Plant deciduous trees (those that drop their leaves in the fall) to maximize shading in the summer. In winter, the bare canopies will allow sunlight to reach the house.

Right Tree-Right Place

Planning before planting can help ensure that the right tree is planted in the right place. Proper tree selection and placement enhance your property value and prevent costly maintenance trimming and damage to your home. For further information on planting and helpful tips on tree selection, refer to ISA's brochures on tree selection and new tree planting. If you have any more questions, please contact your local ISA Certified Arborist or tree care professional, utility company, local nursery, or county extension office.

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Proper Mulching Techniques

Mulching is one of the most beneficial practices a homeowner can use for better tree health.

Mulches are materials placed over the soil surface to maintain moisture and improve soil conditions. Mulching is one of the most beneficial acts a homeowner can do for the health of a tree. However, improper mulching materials and practices may have little, or even negative, impact on the trees in your landscape.

Benefits of Proper Mulching

- Helps reduce soil moisture loss through evaporation
- Helps control weed germination and growth
- Insulates soil, protecting roots from extreme summer and winter temperatures
- Can improve soil biology, aeration, structure (aggregation of soil particles), and drainage over time
- Can improve soil fertility as certain mulch types decompose
- Inhibits certain plant diseases
- Reduces the likelihood of tree damage from "weed whackers" or the dreaded "lawn mower blight"
- Gives planting beds a uniform, well-cared-for look

Trees growing in a natural forest environment have their roots anchored in a rich, well-aerated soil full of essential nutrients and soil microorganisms. The soil is blanketed by leaves, organic materials, and living organisms that replenish and recycle nutrients. This environment is optimal for root growth and mineral uptake. Urban landscapes and new developments, however, are typically harsher environments with poor quality soils, reduced organic matter, and large fluctuations in soil temperature and moisture. Applying a 2- to 4-inch (5- to 10-cm) layer of organic mulch can mimic a more natural environment and improve plant health.

Types of Mulch

Mulches are available in many forms. The two major types of mulch are inorganic and organic. Inorganic mulches include various types of stone, lava rock, pulverized rubber, geotextile fabrics, and other materials. Inorganic mulches do not decompose and do not need to be replenished often. On the other hand, they do not improve soil structure, add organic materials, or provide nutrients. For these reasons, most horticulturists and arborists prefer organic mulches.

Organic mulches include wood chips, pine needles, hardwood and softwood bark, cocoa hulls, leaves, compost mixes, and a variety of other products usually derived from plants. Organic mulches decompose in the landscape at different rates depending on the material, climate, and soil microorganisms present. Those that decompose faster must be replenished more often. Because the decomposition process improves soil quality and fertility, many arborists and other landscape professionals consider that characteristic a positive one, despite the added maintenance.



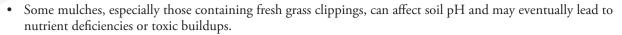
Not Too Much!

As beneficial as mulch is, too much can be harmful. The generally recommended mulching depth is 2 to 4 inches (5 to 10 cm). Unfortunately, many landscapes are falling victim to a plague of overmulching. "Mulch volcanoes" are excessive piles of mulch materials applied around the base of trees. While organic mulches must be replenished over time, buildup can occur if reapplication outpaces decomposition or if new material is added simply to refresh color. Deep mulch can be effective in suppressing weeds and reducing maintenance, but it often causes additional problems.

Problems Associated with Improper Mulching

- On wet soils, deep mulch can lead to excess moisture in the root zone, which can stress the plant and cause root rot.
- Piling mulch against the trunk or stems of plants can stress stem tissues and may lead to the development of insect and disease problems or stem girdling roots.





- Mulch piled high against the trunks of young trees may create habitats for rodents that chew the bark and can girdle the trees.
- Thick blankets of fine mulch can become matted and may reduce the penetration of water and air.
- Anaerobic "sour" mulch may give off pungent odors, and the alcohols and organic acids that build up may be toxic to young plants.

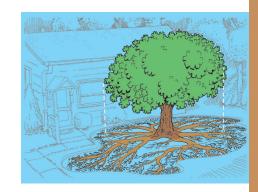


Proper Mulching

The choice of mulch and the method of application can be important to the health of landscape plants. The following are some guidelines to use when applying mulch:

- Determine whether soil drainage is adequate and if there are plants that may be affected by the choice of mulch. Most commonly available mulches work well in most landscapes. Some plants may benefit from the use of slightly acidifying mulch, such as pine bark.
- For well-drained sites, apply a 2- to 4-inch (5- to 10-cm) layer of mulch (less if poorly drained). Coarse mulches can be applied slightly deeper without harm. Place mulch out to the edge of a tree's crown or beyond. Remember, if a tree had a say in the matter, its entire root system (which usually extends well beyond the drip line) would be mulched.
- If mulch is already present, check the depth. If sufficient mulch is present, break up any matted layers and refresh the appearance with a rake. Some landscape maintenance companies spray mulch with a water-soluble, vegetable-based dye to add color to faded material.
- If mulch is piled against the stems or tree trunks, pull it back several inches/centimeters so that the base of the trunk is exposed. Composted wood chips can make good mulch, especially when they include some bark and leaves. Fresh wood chips also may be used around

established trees and shrubs. Avoid using fine, non-composted wood chips, as soil nitrogen may be taken up by the roots as the wood chips decompose.



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TREES AREGOOD.

Pruning Young Trees

Proper pruning is essential in developing a tree with a strong structure and desirable form. Trees that receive the appropriate pruning measures while they are young will require less corrective pruning as they mature.

Keep these few simple principles in mind before pruning a tree:

- Always have a purpose in mind before making a cut. Each cut has the potential to change the growth of the tree.
- Poor pruning can cause damage that lasts for the life of the tree. Learn where and how to make the cuts before picking up the pruning tools.
- Trees do not heal the way people do. When a tree is wounded, it must grow over the damage. As a result, the wound is contained within the tree forever.
- Small cuts do less damage to the tree than large cuts. Correcting issues when a tree is young will reduce the need for more drastic pruning later.

Making the Cut

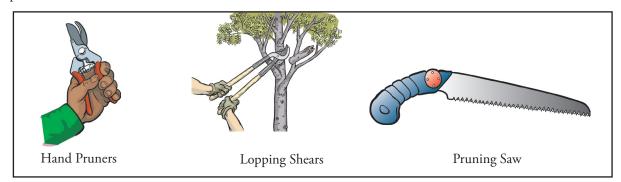
Pruning cut location is critical to a tree's growth and wound closure response. Make pruning cuts just outside the branch collar to avoid damaging the trunk and compromising wound responses. Improper pruning cuts may lead to permanent internal decay.

If a large branch must be shortened, prune it back to a secondary branch or a bud. Cuts made between buds or branches may lead to stem decay, sprout production, and misdirected growth.

Pruning Tools

Small branches can be cut easily with hand pruners. Scissor-type or bypass-blade hand pruners are preferred over the anvil type as they make cleaner, more accurate cuts. Cuts larger than one-half inch (1.27 cm) in diameter should be made with lopping shears or a pruning saw.

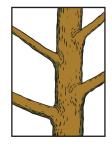
Hedge shears should be used for shaping hedges only. Do not use shears to prune a tree. Whatever tool you use, make sure it is kept clean and sharp.



Establishing a Strong Scaffold Structure

A good structure of primary branches should be established while the tree is young. These limbs, called scaffold branches, are a mature tree's framework. Properly trained young trees will develop a strong structure that requires less corrective pruning as they mature. The goal in training young trees is to establish a strong, central trunk with sturdy, well-spaced branches. This form mimics tree growth in forest settings where outward branching is limited by neighboring trees.

Some tree species develop some or all of these characteristics naturally, even when grown openly in an urban or park setting. Others may require more frequent attention.





Good Structure

Poor Structure

Trunk Development

For most young trees, maintain a single dominant leader growing upward. Do not prune back the tip of this leader or allow secondary branches to outgrow the main leader. Sometimes, a tree will develop double leaders known as codominant stems. Codominant stems can lead to structural weaknesses, so it is best to remove or shorten one of the stems while the tree is young.

A tree's secondary branches contribute to the development of a sturdy, well-tapered trunk. When numerous branches are being removed, it is preferable to retain some, at least temporarily, to promote trunk diameter growth.

Permanent Branch Selection

Most of the branches present on a young tree at planting will be pruned away at maturity to provide clearance for mowing, pedestrians, and/ or vehicle traffic.

The height of the lowest permanent branch is determined by the tree's intended function and location in the landscape. The road side of a street tree may be raised to 16 feet (5 m) to accommodate traffic. In most other situations, 8 feet (2.4 m) of clearance is sufficient. Trees used as screens or wind breaks, however, usually branch low to the ground.

Sufficient branch spacing and balance, both vertically and radially, is important. The space between permanent branches should be approximately 3 percent of the tree's eventual height (for example, 1.5 feet [0.5 m] for a tree that can grow to be 50 feet [15 m] tall).

Beyond spacing, the strength of branch structure depends on the relative size of the branches and branch angles. Branches similar in diameter to the trunk or limb from which they arise are more prone to failure than those smaller in diameter.

Narrow angles of attachment or tight crotching can enclose bark within a branch union. Such growth is called included bark, a condition that weakens the branch attachment and may lead to failure when the tree matures. Branches with weak attachments should be pruned while still small. Balance should be considered by retaining some branches in each direction radially, spreading from the center outward. Make sure one scaffold branch is not allowed to grow directly above another.

When pruning, be sure not to remove too many branches. Leaves and their supporting branches are major sites of food production and storage. Eliminating too much of the canopy can "starve" the tree, reduce growth, and increase stress. No more than 25 percent of the crown should be removed in one pruning.



Newly Planted Trees

Pruning of newly planted trees should be limited to the removal of dead or broken branches. All other pruning should be withheld until the second or third year, when a tree has recovered from the stress of transplanting.

Wound Dressings

Despite any claims otherwise, research has shown that wood dressings do not reduce decay or speed wound closure and rarely prevent insect or disease infestations. Most experts recommend that wound dressing not be used.

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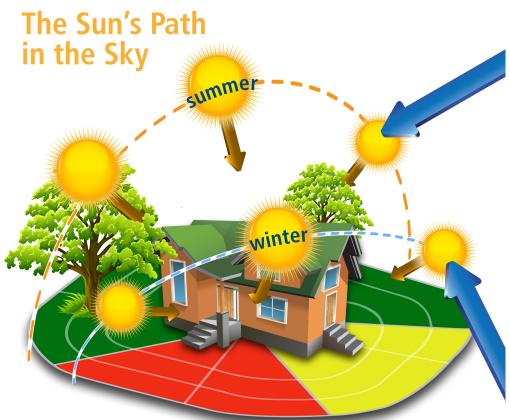
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Did you know? West is Best! Trees planted to the west of the home are best for summertime energy savings.



In the summer, the sun is higher in the sky, and the northern hemisphere tilts toward the sun. Throughout the day, the sun travels from the east in the morning to the west in the afternoon. A tree on the west side of the home helps block the hot afternoon sun.

Visit idahopower.com/shadetree for a short video on how to plant trees.

In the winter, the northern hemisphere tilts away from the sun, and the sun is lower on the horizon. The sun's path travels from the southeast in the morning to the southwest in the afternoon. Blocking the warming rays of the winter sun can increase energy needed to heat your home.

Planting tips:

- Site the tree to the west to maximize summer cooling benefits.
- Position the tree to shade windows as well as walls/roof.
- Ensure the tree does not impact the walls or roof of your home by placing half the distance from the mature canopy spread.
- Plant the tree at least 35 feet from overhead lines.





Idaho Power offers energy efficiency programs and tools that can help you save energy.

We also offer Demand Response programs that help reduce electrical demand for short periods of time during extreme conditions on high-use days.

A/C Cool Credit*

A bill credit for residential customers who allow Idaho Power to cycle their central air conditioning system on a few specific weekdays when summer energy demand is high or for other system needs.

Energy Efficient Lighting

Reduced pricing at select retailers on ENERGY STAR® certified light bulbs and fixtures.

Heating & Cooling Efficiency Program

An incentive for qualified heat pumps, whole-house fans, evaporative coolers, heat pump water heaters, air handler motors, duct sealing and smart thermostats.

Home Energy Audits

A professional in-home energy audit, recommendations for increasing energy savings and a variety of energy efficiency improvements for a discounted rate.

Kill A Watt™ Meters

Borrow an easy-to-use meter from your local library and measure how much electricity your appliances and electronics use.

Multifamily Energy Savings Program

The direct install of energy efficient improvements in pre-approved multifamily dwellings with an electric water heater. Measures installed at no cost to the tenant, property owner or manager.

Rebate Advantage

An incentive to customers who purchase a new, electrically heated, ENERGY STAR certified manufactured home

Residential New Construction

An incentive to builders for electrically heated homes using heat pump technology built to be 10–20% more efficient than code.

Shade Tree Project

Reduce summer cooling costs by participating in the Shade Tree Project that offers two free shade trees to customers in qualifying areas.

Weatherization Assistance for Qualified Customers

Whole house energy efficiency upgrades for customers earning under 200% of federal poverty level. Electric heat only.

Weatherization Solutions for Eligible Customers

Whole house energy efficiency improvements for customers earning between 175–250% of federal poverty level. Electric heat only.

Green Options

Idaho Power is committed to providing customers with choices and offers several green options. Information on these programs is available on our website. Some of the programs are free, and all are voluntary.

idahopower.com/greenchoices



Program continuation, eligibility requirements and terms and conditions apply. For current offerings, visit idahopower.com/save.

*Demand Response

